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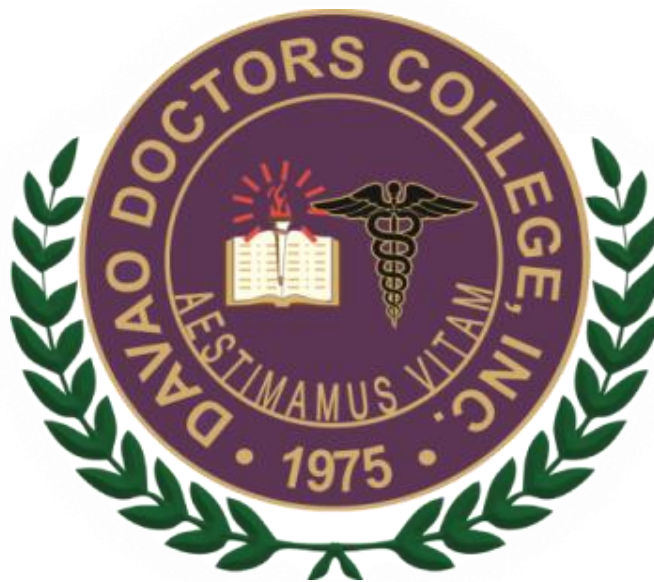
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Unfolding Crisis Management in Private Higher Education Institutions

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Abstract

The study explored the experiences of private higher education institutions (HEIs) regarding crisis management. This is anchored on the Crisis Management Theory of Mitroff. Qualitative research using a phenomenological approach was used as a research design. Fifteen (15) participants from selected private HEIs in Davao City were carefully selected for the in-depth interview (IDI). A validated interview guide was used to gather the desired data. The study's results revealed that the participants' experiences in managing crises came in four stages. The first stage was on crisis signal with the following cluster themes; human resource turnover, financial constraints, unutilized rooms, decreased enrollment rate, and program competitors. The second stage was on crisis preparation with the following cluster themes: faculty development, marketing and promotion, organizational structuring, stakeholders' consultation, curriculum development, budget realignment and augmentation, and infrastructure development. The third stage was on containment of crisis. The following were the themes: government and other institutions' subsidy programs, continued marketing and promotion, decreased subject loading, school fee increase implementation, current employees' retention, and proper budgeting and resourcefulness. The last stage was recovery from the crisis. The following were the themes: enrollment increase, income stabilization, and goals and target setting. Thus, this study recommends that the management may investigate controlling fast human resource turnover, planning successful and effective recruitment, dealing with competitors, forming curriculum developers, and building partnerships.

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Keywords: *K-to-12, Crisis management, Descriptive-Phenomenology, Davao Del Norte*

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Introduction

A crisis is a major and distinctive aspect of modern organizational life that has a significant impact on the tactics used to recognize and respond to different crisis signals (Roitman, 2014). By this, the presence of a problem in the form of a crisis is familiar to all institutions and organizations, including a higher education institution that handles numerous crisis signals appearing in the institution. The majority of private higher education schools are self-sufficient because the government only provides funding under certain conditions (Jas, 2016).

In HEIs, many crises are developing. Private higher education institutions in the

Philippines are becoming more competitive, which unintentionally threatens other established private universities. One threat faced by HEIs surfaced in 2016 according to Bersales et al. (2016): the first K–12 generation. They significantly impacted many HEIs by lengthening senior high school by two (2) years and lowering enrollment rates in the first (2) years of tertiary education.

The Philippine government, which is aware of this worldwide educational system, likewise increased the length of elementary school from ten to twelve years, creating the K to 12 Program (Pa-alisbo, 2018). The Philippines has lately implemented educational changes that transform and convert its 10-year primary education into a K–12 curriculum to meet the demands and challenges of the twenty-first century.

One threat to Filipino education as a result of the current crisis is the ongoing emergence and growth of private schools. According to the Filipino National Development Plan, there are ten times as many higher education institutions in the Philippines as in its neighbors. To increase the institution's competitive advantage and encourage stakeholders to support the HEI's vision, mission, and goals, various HEIs maintain the best practices (Plaza, 2018).

If higher education institutions establish a crisis communication plan and communicate clearly during these tumultuous times, they will be better equipped to handle disasters (Hussain, 2014). A relatively new area of study in human resource development is crisis management (HRD). Crisis management has drawn more academic interest in recent years due to the rise in the frequency of crises in higher education institutions (Wang & Hutchins, 2010). Several studies have revealed the necessity for comprehensive crisis management plans at the institutional level, despite the dangers that colleges and universities confront today due to the complexity of institutional operations, technology, and infrastructure (Mitroff, 2019).

Given the aforementioned incidents, developing a risk management strategy among HEIs is essential to handle any additional unseemly problems that may arise in the future. As a result, the study's objective was to investigate and record the experiences of HEI financial staff members and school administrators on their crises with the institution and the management crises they face. The study was carried out before the COVID-19 pandemic; as a result, the publication does not specifically mention the pandemic situation.

Methods

This study used a phenomenological study, a type of qualitative descriptive research. The design of this study helped to examine and comprehend the problems and worries with crisis management in Davao City higher education institutions. In this kind of phenomenology, the study included fifteen (15) respondents from nine (9) different HEIs in Davao City. During an in-depth interview, its contrasts and context were highlighted to fifteen informants (IDI).

The survey was conducted in Davao City's private higher education institutions. Both non-sectarian and sectarian institutions made up the schools under consideration. Institutions that practiced sectarianism could be Catholic or not. According to the CHED (2016) study, a significant amount of colleges and institutions' enrollment levels nationwide declined as a result of the K-through-12 implementation that began in 2016. Due to their reliance on student tuition payments, private HEIs were severely impacted and were at risk of losing funding.

In this study, convenience sampling was used. The positions held by the participants in each institution—finance officer, director of human resources, union officers, and institution head—were classified. Nine (9) different private HEIs in Davao City provided these participants. In-depth interviews were conducted with fifteen participants, including six participants from the finance office, four participants from the human resources office, three participants who were union executives, and two participants who were the heads of the schools. There were inclusion criteria that were based on criteria for identifying these people. The participants must be able to contribute to crisis management in their respective private HEIs and have worked for at least five years in Davao City-based HEIs.

The researcher-created interview guide that had been approved by three (3) experts was the primary tool utilized to gather data. This tool guided the researcher to study the experiences of crisis management in the private Higher Education Institutions in Davao City through an in-depth interview. The questionnaire had two main questions, each of which had five supporting questions. The final draught of the aforementioned instrument took the experts' suggestions and views into consideration.

To get permission to carry out the study, an initial letter was submitted to the president, research director, or department head of the nine (9) HEIs in Davao City. Following approval, each of the selected informants was approached and given a brief introduction to the project before being asked to complete an informed consent form. The informants were made aware that the interview would be recorded for 30 to 75 minutes, transcribed, and notes would be taken throughout. While permission to record the interview was requested, the confidentiality of responses was emphasized. The informants were given advance instructions to create a relaxed atmosphere and make them feel comfortable around the interviewer and the process before the real interview. To clarify and specify general or ambiguous aspects of their experiences, further probing and follow-up questions were posed and articulated.

After conducting the interviews, an analysis of data as suggested by Creswell and Creswell (2017) was done. The data was reduced, and was engaged in imaginative variation that uncovered the essence of the shared ideas; these were the general procedures conducted. The transcripts were carefully read and codes were attached (Creswell, 2017) to specific statements that explored the experiences of the administrators as regards crisis management. After the coding and patterns were identified, the patterns then were collated and formed into groups, sorted into categories (Creswell, 2017). Themes were created and described the categorical themes that emerged from the data (Creswell, 2017). The emergent data (Creswell, 2017) described the experiences as regards crisis management.

Results and Discussion

As regards the experiences of the participants, the core themes generated revolved around the first two stages of the theory which are crisis signals and crises preparation. There were five (5) core themes under crisis signals namely *Human Resource Turnover, Financial Constraints, Unutilized Rooms, Decreased Enrollment Rate,* and *Program Competitors.* While crisis management has seven (7) core themes; *Faculty Development, Marketing and Promotion, Organizational Structuring, Stakeholders' Consultation, Curriculum Development, Budget Realignment and Augmentation,* and *Infrastructure Development.*

As regards the ways of managing crises, core themes generated revolved under the last two stages of the theory which are crisis containment and crisis recovery. There were six (6) core themes under crisis containment; *Government and other Institution Subsidy Programs, Continued Marketing and Promotion, Decreased Subject Loading, School Fees Increase Implementation, Current Employees' Retention,* and *Proper Budgeting and Resourcefulness.* While crises recovery has three (3) core themes which are, *Enrollment Increase, Income Stabilization, Goals, and Target Setting*

Figure 1. Summary of the Results Integrating Mitroff's Crisis Management Model
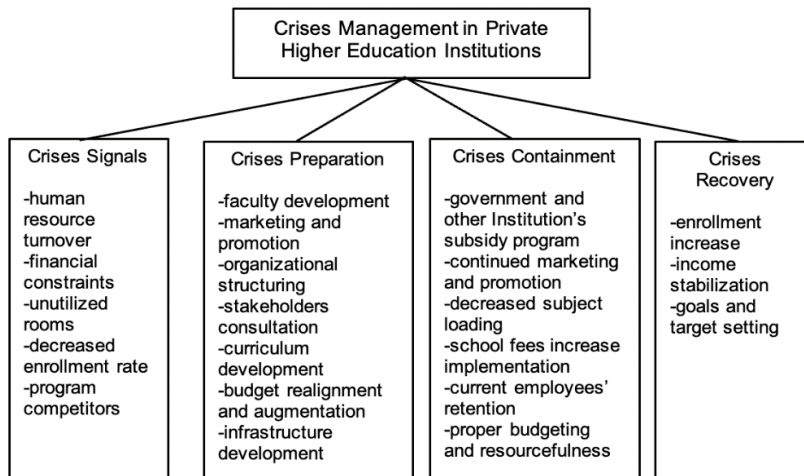
Crisis Experiences of Private Higher Education Institutions

In this study, the experiences of the private HEIs as regards crisis management revolved around crisis signals and crisis preparation. Below is the presentation of the core themes based on crisis signals and crisis preparation.

Crisis Experiences of Private Higher Education Institutions (Stage 1: Crisis Signal)
Human Resource Turnover. The administrators experience a fast turnover of personnel due to the K-12 transition. There were a lot of teachers who resigned from their work as

they could not see any plans laid out for them at the time of the K-12 transition. Due to this event, a lot of part-time teachers were absorbed. There was a fast turnover.

Financial Constraints. Due to the fast pace of educational transition, the financial aspect has been dramatically affected, forcing colleges and universities to cut their budget in non-academic areas; hence, focusing on the area of instruction and matters related to the promotion of quality instruction.

Unutilized Rooms. The transition period did not just create several crises in human resource turnover and other internal aspects, but this also gave crises for HEIs to encounter empty facilities, or nonetheless vacant rooms. The participants in the interview greatly emphasized this as they narrate their experiences.

Decreased Enrolment Rate. The implementation of K-to-12 had caused a significant decrease in college enrollees. Some participants signified the evident decrease that had also caused a rapid decline in the population of higher education students.

Program Competitors. Another crisis that has emerged among other HEIs is that during the transition period, there is an opening of the same course from other HEIs, which boosted the advantage of other institutions in terms of the effectiveness of the different subject content areas and the efficiency of handling different teaching-learning concerns and modalities.

Table 1. Crisis Experiences of Private Higher Education Institutions (Stage 1: Crisis Signal)

Participants	Responses	Core Themes
Union IDI 11	There were a lot of teachers who resigned because there were no plans laid out for them.	
Union IDI 8	A lot of part-time were not rehired.	
Union IDI 13	There were a lot of teachers who transferred to public schools for security.	Human Resource Turnover
Finance IDI 1	The school does not have enough people to sustain the service.	
Finance IDI 2	The school has difficulty financing expensive budgets for club activities.	Financial Constraints
HR IDI 12	There were already vacant rooms.	Unutilized Rooms
Finance IDI 1	There is a decrease in the student population.	Decreased enrolment rate
HR IDI 4/ Union IDI 8	There is a decrease in the enrolment rate in the college.	
School Head IDI 14	There is a significant decrease in population due to program competitors.	
School Head, IDI 14	There was a decrease in the number of nursing students due to the same offering of other institutions.	
Finance IDI 2	There is a new opening of Nursing programs in other schools as competition.	Program Competitors

Union IDI 11	There is an opening of a new school which offers similar courses.

Crisis Experiences of Private Higher Education Institutions (Stage 2: Crisis Preparation)

Faculty Development. As part of the preparation for the significant transition in the Philippine Education system, the K-to-12 transition period, most colleges and universities as shared by most of the participants set up training and development for the faculty members who would be handling Senior High School students at the expense of the school.

Marketing and Promotion. Another aspect of the financial and marketing challenge faced by the academic institutions of higher learning was the formulation and coming up of attractive and effective marketing plans and strategies during these times of significant educational revolution due to the opposing views of people in line with the additional years in Basic Education.

Organizational Restructuring. Most colleges and universities tried to initiate organizational structuring leading to the rapid and massive preparation for the K-to-12 transition period. This has something to do with the financial aspect of the institution since practically every operation and succeeding action is monetarily fueled.

Stakeholders Consultation. Before the implementation of K-to-12, thorough scrutiny was done through a series of consultations and public hearings to promote awareness about the major transition that the whole Philippine Educational System would be facing. When crisis preparation takes place, stakeholders are needed to continuously collaborate with different efforts to anticipate the different things emerging in a particular crisis.

Curriculum Development. To endure the rapid educational transition and its effect on higher education institutions, colleges, and universities are also remodeling their educational system. Furthermore, it can also help in making the academic institution competitive and appealing to students and parents.

Budget Realignment and Augmentation. Realignment of the budget is necessary where the HEIs strategized in preparing for a crisis. It is practical to realign every institution's budget allocation to maximize the financial resources to achieve sustainable income to promote continuous school operation.

Infrastructure Development. Another point where the informants have also considered preparing for the crisis, specifically the K-to-12 transition, is the facilities.

Table 2. Crisis Experiences of Private Higher Education Institutions (Stage 2: Crisis Preparation)

Participants	Responses	Core Theme
Union 7	There are preparations like training.	Faculty Development
Union 8	The school does not hesitate in faculty development.	

Union IDI 8	Faculty with not enough load will be assigned to do research or to continue to undergo training.	
Finance IDI 3	Faculty are trained and redirected.	
Finance IDI 3	The marketing of the school is vital.	Marketing and Promotion
Finance IDI 2	There is intensive marketing adopted by the institution.	
Finance IDI 2	The school utilized a new campaign and promotion program to attract students to the institution.	
HR IDI 4/ IDI 5/ IDI 6	The school has a promotion and career guidance team.	
Finance IDI 3	Student ambassadors are utilized to market the school for possible enrollees in their institution.	
Union IDI 8 School Head IDI 14	The school is very prepared for the transition. There was restructuring of some colleges to accommodate the needs of the institution.	Organizational Restructuring
Union IDI 8	The consultation with the students was done to address specific issues and concerns.	Stakeholders Consultation
Union IDI 9	Students' feedback was considered during the forum with stakeholders.	
Union IDI 10	The school is active in preparing the curriculum design.	Curriculum Development
Union IDI 11	School leaders were collaborating with the CHED in curriculum Preparation	
Finance IDI 1	The budget was from the undergraduate.	Budget Realignment and Augmentation
HR IDI 5/ School Head IDI 9	The contingency fund was redirected.	
School Head, IDI 9	The unutilized budget was realigned.	
Finance IDI 3	New rooms are built to accommodate new enrollees in the program.	Infrastructure Development

Ways of Managing Several Crisis by the Private Higher Education Institutions

The ways of managing several crises by the private higher education institution constitute the second question investigated in this study. The presentation of the core themes as regards how the participants manage the crises that emerged is based on the third and the fourth stage

of crisis management which are: crisis containment and crisis recovery.

Ways of Managing Several Crisis by the Private Higher Education Institutions (Stage 3: Crisis Containment)

Government and Other Institutions Subsidy Program. In most State Colleges and Universities, the government was expected to subsidies such academic institutions in higher learning. However, it is also evident that the government also allocated subsidies to private colleges and universities as a holistic leading body.

Continued Marketing and Promotion. Another strategy HEIs to contain the crisis is to make several efforts in continuous marketing, which also satisfies the school's needs.

Decreased Subject Loading. The rapid and massive educational transition in the Philippine Educational System caused a crisis for the school and the teaching personnel due to the decrease in teaching load. This was experienced by several participants as the K-to-12 transition became a burden to the academe and the faculty members, considering that there were no college students due to the presence of senior high School students.

School Fee Increase Implementation. Dealing with the complex and draining effect of the crisis in an abruptly changing educational system is not easy as experienced by almost all academic institutions for higher learning. One hard way to cope with this severe crisis is to apply for and implement tuition and fees increases as seconded by participants during the interview to augment the financial problem brought about by the K-to-12 transition period.

Income Generating Ventures. Throughout the containment of crisis stage, another theme that has emerged among HEIs is to create income-generating ventures that would help other institutions to boost income while the institution faces a crisis.

Current Employees Retention. Current employee retention is one of the biggest challenges in the field of Human Resource Management. To cut costs and at the same time uphold the security of tenure of previous employees, tertiary academic institutions are trying to maximize the workforce of current employees in carrying out vital educational and primary institution operations.

Proper Budgeting and Resourcefulness. Several strategies were employed by HEIs to ensure that the school can still operate despite the crisis that is also happening. Maximizing all the existing resources that the school had is one. Tight control of unnecessary expenditure and practical and reasonable cost-cutting techniques is another.

Table 3
Ways of Managing Several Crisis by the Private Higher Education Institutions (Stage 3: Crisis Containment)

Participants	Responses	Core Themes
Union IDI 8	The government subsidized the senior high school.	Government and other Institutions Subsidy Program
School Head, IDI 9	There is a scholarship with DOH.	

Finance IDI 10/IDI 15	Scholarships are available.	
Finance IDI 10/IDI 15	There is a student assistants program.	
Union IDI 8	The school continues with career guidance, marketing, and promotion.	Continued Marketing and Promotion
Union IDI 8	Subject loading for part-time teachers is minimized.	Decreased Subject Loading
Union IDI 8	The number of loads is reduced.	
Finance IDI 2 Union 11	The school applies for a tuition fee increase.	School Fee Increase Implementation
Finance IDI 3	There was an increase in tuition by 20%.	
HR IDI 6	Next year, the students need to pay even if the government subsidizes them.	
HR IDI 10	There is also an increase in our miscellaneous.	
HR IDI 4	The school applies for the tuition fee increase.	
Finance IDI 2	Vacant rooms are open for rent.	Income Generating Ventures
HR IDI 6/ Union IDI 8 Union IDI 11	There is income from rentals which constitutes additional income.	
HR IDI 5	The school strategically planned for the retention of faculty.	Current Employees Retention
HR IDI 4	Maximizing the present human resource was done by the school.	
HR IDI 4/ HR IDI 6	The school makes use of lateral transfer to retain current employees.	
Finance IDI 1, HR IDI 4	There is no hiring of new faculty.	
Finance IDI 2	The hiring process froze when the employees resigned at that time.	
School Head, IDI 9	Part-time instructors handle all Gen Ed subjects.	
Union IDI 8	The setting of the budget must be based on priorities.	Proper Budgeting and Resourcefulness
HR IDI 4	Recycling reusable material is resourceful.	
Finance IDI 7	Budgeting saved the school.	
Union IDI 8	Financial buffering is essential in maintaining sustaining revenue.	
Union IDI 8	Budget allocation is based on the number of enrolled students.	

Finance IDI 2	There is control of the budget by not spending more than what is earned.	
Finance IDI 2	Expenses are limited.	
HR IDI 4	There is proper budgeting.	
Union IDI 8	Two buildings were not used to save energy.	
Union IDI 8	The schedule is arranged to limit classroom usage.	
Union IDI 13	Offices are merged.	
HR IDI 12	Budgeting is highly centralized.	
Union IDI 13	There is no increase in salary.	

Ways of Managing Several Crisis by the Private Higher Education Institutions (Stage 4: Crisis Recovery)

Enrollment Increase. Specific data showed that some colleges and universities experienced stability in terms of students and even an increase in their population. Some degrees are in demand during these times, like medical courses.

Income Stabilization. As a form of recovery from the crisis, several HEIs were also opened to solving different problems present, precisely the financial status of the HEI. Aside from ensuring that resources allocated to different stakeholders of the institution are allocated well, stable income schemes and avoidance of bankruptcy were done by institutions in the form of making strategies.

Goals and Target Setting. Before coming up with an effective crisis management model, it is a prerequisite for every institution to set goals and targets as a guide. Goals are also visions that let the institution foresee the outcome of its plans.

Table 4. Ways of Managing Several Crisis by the Private Higher Education Institutions (Stage 4: Crisis Recovery)

Participants	Responses	Core Theme
School Heads	There are an additional number of students.	Enrollment Increase
Finance (IDI 10) HR IDI 12	The enrolment rate increased by 25%.	
Finance (IDI 2)	There were an unexpected and improving number of freshmen enrollees during the K to 12 transition period.	
Finance (IDI 2)	In the second year of K to 12, the population of seniors increases.	

Finance IDI 10/ IDI 15	There is an increasing number of students.	
Finance (IDI 2)	There is an increase in transferees.	
Union IDI 11	A lot of senior highs enrolled.	
Union IDI 11	There are many enrollees from abroad.	
Finance IDI 10/ IDI 15	The loan is fully paid from the bank	Income Stabilization
Union IDI 11	The school can build a new building from the school budget.	
School Head IDI 14	Goal setting is problem oriented.	
School Head IDI 14	Goal setting must be measurable with constant monitoring.	
School Head IDI 9	Goals keep the institution going.	Goals and Target Setting
School Head IDI 14	Being output-oriented makes the goal achievable.	
School Head IDI 14	There is an advantage when it comes to the goal setting of highly financial people.	
Union IDI 8	Being output-oriented makes the goal achievable.	
Union IDI 8	Constant improvement must be observed, especially in the enrolment rate.	

Crisis Management in Private Higher Education Institutions

The findings of the study that revealed a crisis in the transition of K to 12 support Boin and Lagadec (2000) and Mitroff (2005) citing that modern organizations face unparalleled uncertainty in a competitive and increasingly globalized world. Given the result of this study, private higher education institutions, with the hope of overcoming the crisis, have engineered responsive measures to give heed to the needs of their clients, the students. According to Hazelkorn (2014), some higher education institutions are resilient to the recent crisis, but others are not.

Crisis Experiences of Private Higher Education Institutions

(Phase 1: Crisis Signal)

The crisis experiences of the private higher education institution included human resource turnover, financial constraints, unutilized rooms, decreased enrolment rate, and program competitors have been the guiding points where the administrators saw a crisis signal. Educational management encourages HEIs to create the necessary efforts to address the challenges without compromising the needs of the learners on the pre and post-phase of their respective academic journey (Long, 2013).

Crisis Experiences of Private Higher Education Institutions
(Phase 2: Crisis Preparation)

The following are the themes of crisis preparation strategies obtained from the

interview: faculty development, marketing and promotion, organizational restructuring, stakeholders' consultation, curriculum development, budget realignment and augmentation, and infrastructure development. Based on the theory of Mitroff (1993), this stage involves the formation of crisis management teams and plans for attacking those crises that may occur. Therefore, every private institution may consider specific measures that would determine the effectiveness of planning, coordination between various agencies in uncertain situations, and arrangement of requisite training programs for future improvement

Ways of Managing Several Crises by the Private Higher Education Institutions (Stage 3: Crisis Containment)

This part contains the core themes of how higher education institutions manage several crises that have emerged. The generated themes were: government and other institutions' subsidy programs, continued marketing and promotion, decreased subject loading, school fee increase

Implications of the Study

The following are the implications as regards knowledge or theory, practice, and policy.

Implication to Knowledge or Theory. There are several theories on crisis management. Several authors utilized these theories to offer solutions to the current situation regarding educational management. This study's theory played a crucial role in management, acting as a cause and effect. The crisis experienced by private HEIs due to the K-12 transition period further proves that theoretical underpinnings regarding mitigating management crises still have a good bearing on resolving issues.

implementation, current employee retention, proper budgeting, and resourcefulness. As Mitroff (1993) indicated in his theory, this stage is where the actual management of the crisis occurs. The intent is to contain the crisis to the greatest extent possible and mitigate the event so that organizational and stakeholder damage is minimal.

Ways of Managing Several Crises by the Private Higher Education Institutions (Stage 4: Recovery from Crisis)

Three core themes were formulated on how HEIs recover from the crisis emerging, precisely the K-to-12 transition period: Enrollment Increase, Income Stabilization, and Goals and Target Setting. As indicated in the theory of Mitroff (1993), attempts are made to resume activities as close to normal as feasible in this stage. The recovery would often proceed in stages as well. This mechanism helps the organization design, learn from, react to, sense, and anticipate the organizational procedures in handling a major crisis.

Implication to Practice. As educational management systems are considered part of the country's economy, every private HEIs may enable various initiatives to handle crises in their institution. Private HEIs can be better prepared to handle crises if they have a crisis communication plan and communicate effectively during these uncertain periods. With the increasing number of crisis events in higher education institutions in recent years, crisis management has increasingly attracted research attention.

Implication to Policy. Considering various experiences of private HEIs, crisis management opened policy opportunities for an international higher education market and research opportunities. Although public universities are present as regional anchor

institutions, they still need to adhere to an international footprint in teaching and research. Therefore, several HEIs in this situation may emphasize skills rather than academic restraint that helps the students acquire the necessary test-taking skills and basic knowledge that helps the students to boost their knowledge.

Recommendations

Through systematic scrutiny and careful consideration of the results and findings of this research, the following implications are made available:

Controlling fast Human Resource Turnover. It is recommended that the management in times of crisis may devise concrete plans to avoid teachers resigning and transferring to public schools.

Planning successful and effective recruitment. It is then recommended that the institution may come up with a team who would coordinate with the guidance office career team to form a bigger and stronger recruitment team good enough to brainstorm ideas for successful and effective recruitment.

Dealing with program competitors. It is recommended that the management may strengthen the scholarship office in coming up with possibilities for grants to those who would wish to enroll in their institution.

Forming curriculum developers. It is recommended that the management may look into the possibility of forming a group of people whose job is to constantly update and align to standards the curriculum through industry forums.

Building partnerships. It is recommended that the management may strengthen linkages to show genuine interest to help and contribute to partner colleges, universities, agencies, and research and development bodies to reciprocate such an aura of generosity and compassion.

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Combined Psychometric Paradigm and Simplified Conjoint Expected Risk (CER) Model: A Multidimensional Hybrid Approach for Risk Perception of Ionizing Radiation

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Abstract

The primary purpose of the study was to test what model best fits the public's risk perception of ionizing radiation using the dimensions of the Simplified Conjoint Expected Risk Model and Psychometric Paradigm. The research design was quantitatively utilizing a non-experimental, correlational, survey research design. A stratified random sampling technique was employed with an 80% response rate. The hypothesized model was tested using structural equation modeling. The overall mean of the indicators yielded a mean score of 3.8 which suggested that respondents believed in several statements about their perceptions of ionizing radiation. Hypothesized Model 2 proved to be the best-fitting model of the public's risk perception of ionizing radiation with the probability of harm, expected harm, and probability of benefit as its endogenous variables. Particularly, the second model possessed the best model fitness that represents the public's risk perception of ionizing radiation, with the goodness of fit statistical data falling within the acceptable range of different indices. Moreover, the second hypothesized model showed that the probability of harm, expected harm, and probability of benefit have a linear causal relationship with the indicators as well as dread and unknown risk having a linear causal relationship with risk perception. This finding would imply that a person who has increased perception in terms of perceived risk indicators would most likely have a higher subjective judgment about the characteristics and severity of the risk.

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Keywords: *Risk Perception, Radiologic Technology, Structural Equation Modeling, Southern Mindanao*

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Introduction

Approximately 3.3 billion out of 5 billion imaging procedures worldwide use ionizing radiation (Best, et al., 2018). Computed Tomography scans constitute 15% of radiological examinations in all medical procedures, 75% of medically administered radiation doses, and 40% of the total radiation dose (Soye & Peterson, 2018). With the increasing application of ionizing radiation to medical procedures, the public's risk perception of ionizing radiation became a primary concern. Some patients perceived the risk of radiation as so high that they would refuse pertinent diagnostic imaging tests if they are informed of the associated risks (Ricketts et al., 2013; Freudenberg & Beyer, 2019).

Several models were employed to understand the dynamics of risk perception: these are the Conjoint Expected Risk (CER), Simplified CER Model, and Psychometric Model. Yates and Stone (2012) recognized the original Conjoint Expected Risk (CER) Model as one of the most viable models to express single-dimensional risk appraisal; nevertheless, it is challenging to adapt to domains such as health and technological issues. As a result, they

created the Simplified CER Model, which is a simplified version of the CER Model.

The Simplified CER model is a linear combination of the chance of harm, benefit, expected benefit, expected harm, and status quo, with a limited source of model-variable information's robustness. The Simplified CER model was utilized by Kosai and Yamasue (2018), who discovered that linear modeling can lead to outliers, multi-collinearity, and noise. It was recommended that a more robust modeling technique should be used that can model risk perception to give a better fit.

On the other hand, the Psychometric Model was used to understand the public's risks and benefits, and perceptions (Perko, 2014; Hooi et al., 2018; Wolff et al., 2019), however, research within this paradigm has found that the perceptions of the risks of hazards have little to do with possible outcomes and their probabilities. One constraint of the Psychometric Model is that it needs the probability and expected harm and benefits to give a superior fit since this measurement is exceptionally associated with risk ratings (Wolff et al., 2019). Sjoberg et al. (2012) explained that only about 20% of the variance of perceived risk is unlikely acceptable. Sjoberg et al. contradicted

Psychometric Paradigm's claim in risk perception wherein he indicated that dread is a likely outcome of perceived risk, and not a reason for it, thus, it ought not to be utilized as an explanatory variable. Kato et al. (2019) recommended the addition of probability of outcomes and benefits to dread and unknown risk to get a significant result in risk perceptions.

This research attempts to develop a model for assessing the complex opinions that the public has about the risk of ionizing radiation by addressing the research gap in the current theories of risk perception. This is done by adding the factors 'dread' and 'unknown risk' from the Psychometric Model to the factors in the probability of harm and benefit, expected harm and benefit, and status quo with the use of a more robust modeling technique. Each theory is good in itself, meaning, these are acceptable models of risk perception but with respective limitations. This research aims to address each limitation. The study used Structural Equation Modelling (SEM) to identify the best model fit for the public's risk perception of ionizing radiation.

Risk and Risk Perception

Risk is widely seen as a psychological assessment of outcome likelihood and severity, as defined by the National Safety Council (2003) as "a measure of probability and severity of undesirable impacts" (Slovic, 2016). It is noteworthy that while deciding on risk, people largely overlook probability and rely instead on the severity of the event. Furthermore, advantages are frequently associated with danger. When someone deliberately takes a risk, he accepts responsibility for the outcomes, whether positive or negative.

Risk implies various things to various individuals. Experts judge hazards based on specialized evaluations of yearly fatalities. Laypeople can evaluate yearly facilities if they are asked to (and produce gauges, much the same as the specialized assessments). Nonetheless, their decisions of risk are delicate to different factors too (e.g., disastrous potential, a danger to people in the future) and, accordingly, are not firmly identified with their own (or expert's) evaluations of yearly fatalities.

Risk Perception of Ionizing Radiation

Nuclear energy development has been a concern that has isolated public perceptions (Ho, 2016). These risk perceptions incorporate the likely event of atomic mishaps, well-being, and ecological risks, negative financial effects, radiation spillage, and inappropriate atomic waste administration (Keller et al., 2011; Parkhill et al., 2010). The person's view of risk is affected by a variety of variables, for example, the data an individual has been presented with, the data an individual chooses to accept, and the value they encountered (Eijkelhof, n.d.). As cited by Latré et al., (2017), public opinion is influenced by focusing on events. After the Fukushima disaster, the public's support for nuclear power diminished not only in Japan (Poortinga et al, 2013) but also in other countries like Switzerland (Siegrist & Visschers, 2013)

Models in Risk Perception

Mosteller and Nogee (1951), Edwards (1953-1954), Davidson et al. (1957), and Coombs and Pruitt (1960) were the first to employ the aphoristic details of the utility hypothesis in risk perception. The study of probability risk evaluation and the dynamic cycle is still ongoing. To choose the weaknesses in the world, heuristics, and mental techniques were developed. One of the common challenges for risk assessments is identifying potential adverse occurrences and poor outcomes (Slovic, 2016). Even if these rules are valid in some cases, they might lead to obsessive tendencies that have serious consequences for risk assessments.

A few models have been utilized in the evaluation of risk perception, but this study focuses only on these models of risk perception:
(1) Psychometric Paradigm by Paul Slovic, and the
(2) Simplified Conjoint Expected Risk Model by Holtgrave and Weber.

and Belgium (Perko, 2014). The vast majority, including numerous researchers, are under the feeling that the survivors confronted incapacitating health impacts and extremely high paces of malignancy and that their children had high rates of hereditary diseases (Jordan, 2016).

A few investigations showed that the public perception received most of the data from the internet wherein sources are not validated (Murakami & Oe, 2019) which increases the problem of gaining acceptance and support for technologies employing ionizing radiation from society. As a result, people were influenced by such uncertain data and often had no choice but to decide their plans according to what they read online.

Psychometric Paradigm

The psychometric Paradigm is one of the models of risk perception. Scientists utilizing the psychometric paradigm have commonly asked individuals to judge the current and desired riskiness (or safety) of diverse sets of risky activities, substances, and innovations, and to describe their desires for risk reduction and guidelines for these risks.

Risk assessment is an objective way of calculating risk that considers two primary factors: the severity of the negative consequences and the probability of a hazardous event occurring. Physical scaling techniques and multivariate analysis have recently been used to provide quantitative depictions of hazard viewpoints and recognitions due to significant concerns (Slovic, et al., 2012).

To determine underlying psychological dimensions, the psychometric assessment approach employs multidimensional scaling, grouping, and factor analysis. The psychometric

paradigm tries to construct a psychological taxonomy of risk that can be used to understand people's perceptions of risk and predict their

Simplified Conjoint Expected Risk (CER) Model

In 1996 Palmer's Simplified Conjoint Expected Risk (SCER) model proposes that the risk indicators of action are a linear function of five dimensions: the probability of harm, probability of benefit, probability of status quo, and expected harm and benefit. This model by Holtgrave and Weber sets that risk is an added, linear combination of the probability of harm, benefit, status quo, expected harm, and benefit. The simplified CER is for exercises requiring subjective information which gives the overall method to model risk perception in a wide variety of domains. Its advantage compared to Psychometric Paradigm is that regression results showed the CER model to be a better indicator of perceived risks than its counterpart (Weber, 2011).

The Simplified CER is a modified version of the Conjoint Expected Risk (CER) model by Luce and Weber. The simplified CER model hypothesized that risk is a supplement, a linear combination of the probability of harm [Pr(harm)], probability of benefit [Pr(benefit)],

reactions, as well as ways for evaluating public opinion about risk and informing policy decisions.

probability of status quo [Pr(status quo)], expected harm [E(harm)], and expected benefit [E(benefit)] of activity, and can be expressed as the expressed riskiness, R, of activity X:

$$R(X) = A_0 \, Pr(\text{status quo}) + A_1 \, Pr(\text{benefit}) + A\_Pr(\text{harm}) + B_+ E(\text{benefit}) + B\_E(\text{harm}).$$

Bypassing Exploratory Factor Analysis (EFA)

The absence of EFA is one of the study's shortcomings. Adopted scales with appropriate empirical and theoretical rationale can be translated directly to CFA without first doing EFA, according to the experts indicated in Hurley's (1997) study. They also stressed that CFA is superior in terms of (1) ensuring that the researcher considers relationships between data and theory rather than simply collecting data and 'grinding it' through exploratory procedures, (2) the use of modification indices to help misspecified CFA become a good representation of a data set, and (3) technically if a few parameters are changed based on the data themselves, the CFA becomes an EFA.

Methods

This study employed a non-experimental, correlational, survey research design. The target population for this study consisted of people in Davao City. According to the Raosoft formula, the sample size in this study requires 385 respondents. Although Wolf et al. (2015), suggested that Structural Equation Modeling (SEM) recommended a minimum of 100 to 200 sample sizes. SEM is a large sample method. If the sample size is not large, some statistical estimates in SEM, such as standard errors, may not be precise, and the likelihood of technical issues in the analysis is high (Kline, 2011).

A structured questionnaire was designed to gather the data that was utilized to estimate and assess the proposed model in this study. As indicated in Chapter 1, this study aimed to

explore the best model fit for the risk perception of ionizing radiation by adapting the dimensions of risk indicators of the Simplified Conjoint Expected Risk Model by Holtgrave and Weber and the risk perception by Psychometric Paradigm by Paul Slovic. The questionnaire was divided into seven sections. The first and second section is about the expected harm and expected benefit. This section measures the negative and positive perceptions of ionizing radiation. The third and fourth section is about the probability of harm and the probability of benefit. This measures the perceived probability of negative and positive perceptions of ionizing radiation. The fifth section is about the probability of the status quo. This measures the probability of breaking even as a result of engaging in an activity. The sixth section is about dread. This

measures the perception of a lack of control and catastrophic potential. The section is about unknown risks. This measures the extent to which the hazard is judged to be unobservable, unknown, or delayed harmful impacts.

A pilot study was performed before the data gathering. Pilot studies are small-scale, preliminary studies that aim to investigate if the study is feasible or not. There were 25 respondents in the pilot study. Furthermore, the reliability and validity tests were performed. Reliability relates to the level of whether the same results can be obtained when using the instruments to measure a repeated thing. Cronbach's alpha was used to examine the reliability of the internal consistency of the constructs. A cut-off point of 0.60 in the alpha's value indicates an acceptable degree of reliability of the constructs. Based on the preliminary data, it yielded a value of 0.847 which means Good or more than acceptable. This study employed a content validity test. Content validity test was done by experts in the field wherein experts judge the questions on how well they covered the material. A sample of the instrument (questionnaire) was submitted to the researcher's adviser and the adviser subjected the questionnaire for content validity to the expert panel of judges.

The hypothesized model was tested using structural equation modeling. SEM has been widely adopted in social research using quantitative study since it permits modification and assessment of the theoretical models (Xie, 2011). Using Confirmatory Factor Analysis (CFA) in SPSS AMOS a measurement model was constructed. This is the first step in using SEM in hypothesis testing.

CFA was used in this study to test whether measures of a construct are consistent with the latent variables. One of the objectives of CFA is to test whether the data fit the hypothesized model. CFA indices determine how well the prior model fits or reproduces the data. This includes but is not limited to the Chi-squared test, RMSEA, GFI, AGFI, RMR, and SRMR. The measurement model was used to prepare a structural model. The model was tested for goodness-of-fit to ensure it is well specified to estimate the relationships hypothesized using Structural Equation Model (SEM).

Structural Equation Modeling (SEM) is an extension of factor analysis and is a methodology designed primarily to test substantive theory from empirical data and can be used to test the theory. It is a system of linear equations among several unobserved variables and observed variables. SEM is the combination of CFA, path analysis, partial least squares, latent growth modeling, and regression.

Results and Discussion

Table 1 Risk Perception Indices (Risk Assessment) Derived from the Public's Perception of Ionizing Radiation

Indicators	Total Mean	Verbal Description	Interpretation
Probability of Harm	4.0	Agree	
Expected Ham	3.7	Agree	
Probability of Benefit	3.7	Agree	
Expected Benefit	3.6	Agree	
Status Quo	3.7	Agree	
Dread	3.8	Agree	Respondents believe in several statements about their perceptions of ionizing radiation
Unknown Risk	3.9	Agree	

Total Mean	3.8	Agree

Table 1, shows that the top three indicators that contributed to the public's perception of ionizing radiation are the probability of harm (m=4.0), unknown risk (m=3.9), and dread (m=3.8). It only shows that in general, people are still hesitant or afraid of ionizing radiation amidst risk communication (Renner et al. 2015), and health and safety protocols (Younger et al., 2018) that are being monitored by the government agencies involved in radiation protection.

A few investigations showed that the public perception received most of the data from the internet wherein sources are not validated (Murakami & Oe, 2019) which increases the problem of gaining acceptance and support for technologies employing ionizing radiation from society. As a result, people were influenced by such uncertain data and often had no choice but to decide their plans according to what they read online.

Moreover, a study in Nigeria reported a higher percentage of patients (86.7%) who did not know about the dangers of X-rays associated with imaging (Busey et al., 2013). Few patients were aware that Magnetic Resonance Imaging does not emit ionizing radiation (Steele, et al., 2016; Repplinger, 2016) as well unlike ultrasound machines (Zhou, et al., 2010; Lumbreras, 2017). The overall knowledge of clients about medical radiation imaging is inadequate (Asefa, Getner, Tewelde, 2016; Naqvi, 2019).

Not only laypersons and patients have limited knowledge about ionizing radiation. Many providers have little understanding of the negative implications of ionizing radiation on health (Lam et al. 2015; Shyu & Sodickson, 2015). Medical doctors and residents had misconceptions about the use of ionizing radiation in various radiologic examinations (Ricketts, et al., 2013) and underestimated radiation dose quantities (Narayan, et al., 2016). They assumed that CT and Barium procedures are associated with the least ionizing radiation. In light of the absence of information on ionizing radiation, doctors and medical attendants didn't adhere to the correct guidelines for radiation safety (Rassin et al., 2012). Health providers' knowledge of radiation dose and the risk was low at baseline but essentially increased after a brief educational presentation (Hobbs et al., 2017).

Even though radiology residents scored higher, knowledge of radiation exposure and safety for patients and healthcare professionals is limited among residents regardless of medical specialty (Sadigh et al., 2014). Koontz and Gunderman (2012) developed a new instructional module that can significantly improve medical students' comprehension of radiobiology and radiation safety.

Test of Hypothesized Model 1
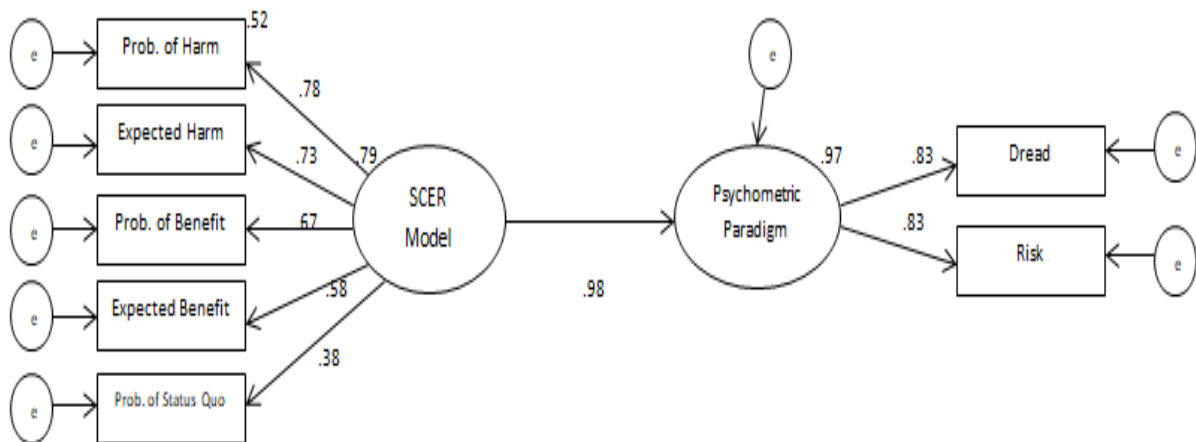
Figure 1. Hypothesized Model 1

Figure 1 presents the first hypothetical model in this study, reflecting a direct relationship between the exogenous on endogenous variables. Based on the results, a total of 98% of the variance of factors in the Simplified CER Model predict the factors in Psychometric Paradigm. This further suggests that 2% can be attributed to causes other than these factors. Because the total percentage is very high, this means that the Simplified CER Model is a significant predictor of the Psychometric Paradigm.

In terms of the factors in the Simplified CER Model, a total of 79% of the variance of the risk indicators is explained by the combined probability of harm, expected harm, probability of benefit, expected benefit, and status quo. This

further suggests that 21% can be attributed to causes other than these factors. The model further depicts that the probability of harm (β=78) has a significant direct contribution to the Simplified CER Model. These findings suggest that in this model, for the amount increase in the probability of harm, the risk indicators experience also significantly rises by .78.

On the other hand, a total of 97% of the variance of the risk perception is explained by the combined dread and unknown risk wherein 3% can be attributed to causes other than these factors. The model further shows that both dread and unknown risk have the same significant contribution to risk perception.

Table 2 presents the results of the goodness of fit measures for Hypothesized Model 1. The results revealed that the model fit

values were not within the range of the indices criteria. This implies that the model does not fit the data.

Table 2. The Goodness of Fit Measure of Causal Model 1

INDEX	CRITERION	MODEL FIT VALUE
CMIN/DF	$<.3$	8.044
P-value	$>.05$	.000
NFI	$>.95$	.894
TLI	$>.95$	.847
CFI	$>.95$	.905
GFI	$>.95$	.904

INDEX	CRITERION	MODEL FIT VALUE
RMSEA	<.08	.152
P-CLOSE	>.05	.000

Table 2 presents the results of the goodness of fit measure for Hypothesized Model 1. The results revealed that the model fit indices were not within the range of the indices criteria as shown on the next page.

Hypothesized Model 2
Model Re-specification (removal of eb and sq with factor loading less than .60)
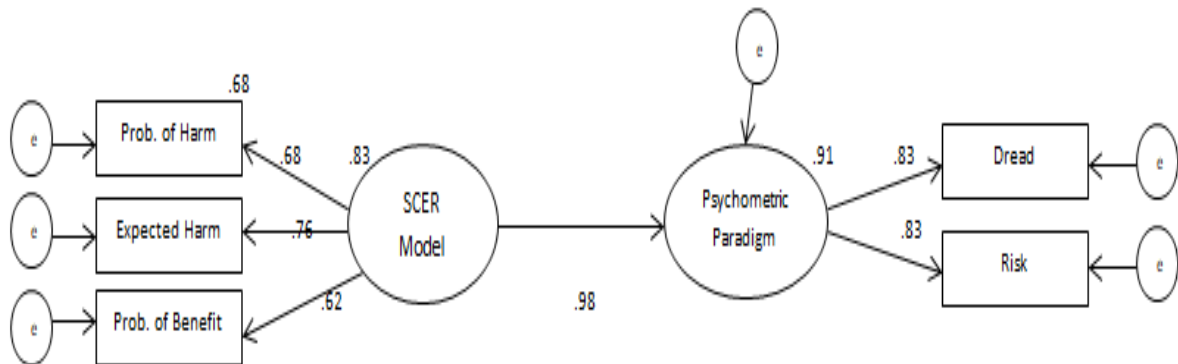
Figure 2. Hypothesized Model 2

Figure 2 presents the results of the second hypothesized model in this study. Based on the results, a total of 98% of the variance of factors in the Simplified CER Model predict the factors in Psychometric Paradigm. This further suggests that 2% can be attributed to causes other than these factors. Because the total percentage is very high, this means that the Simplified CER Model is a significant predictor of the Psychometric Paradigm.

In terms of the factors in the Simplified CER Model, a total of 83% of the variance of risk indicators can be explained by the combined influence of the probability of harm, expected harm, and probability of benefit. This further suggests that 17% can be attributed to causes other than these factors. The model further depicts that the probability of harm (β=.83) has a significant direct contribution to the risk indicators.

Moreover, a total of 91% of the variance of risk perception can be explained by the combined influence of dreams and unknown risks. This further suggests that 9% can be attributed to causes other than these factors. The model further depicts that both dread and unknown risk have the same significant contribution to risk perception.

Removal of Factors: Expected Benefit and Status Quo

Expected benefits and status quo were removed from the model because of low factor loadings. Moreover, they were removed because they don't provide the best fit for the model.

Table 3. The Goodness of Fit of the Re-specified Model

INDEX	CRITERION	MODEL FIT VALUE
CMIN/DF	<.3	2.203
P-value	> .05	.066

INDEX	CRITERION	MODEL FIT VALUE
NFI	> .95	.988
TLI	> .95	.984
CFI	> .95	.993
GFI	> .95	.988
RMSEA	<.08	.063
P-CLOSE	>.05	.289

Table 3 was calculated as being highly acceptable. This indicates a very good fit of the model to the data. This result is also supported by the RMSEA index of 0.063, with a corresponding PCLOSE value of .289. Likewise, the other indices such as BFI, TLI, CFI, and GFI were found to consistently indicate a good fit model as their values are all within their respective criteria.

Best Fit Model of the Public's Risk Perception of Ionizing Radiation

This study estimated the causal relationships of Simplified CER Model factors: the probability of harm, expected harm, probability of benefit, expected benefit, status quo; and Psychometric Paradigm factors- dread, and unknown risk. Out of the two hypothesized models that were presented, the Hypothesized Model 2 proved to be the best fitting model of the public's risk perception of ionizing radiation with a probability of harm, expected harm, and probability of benefit as its exogenous variables.

This finding would imply that a person who has increased perception in terms of perceived risk indicators in the form of probability of harm, expected benefit, probability of benefits, dread, and unknown risk would most likely have a higher subjective judgment about the characteristics and severity of the risk.

Several systematic, replicable, and potentially important results have emerged from studies of risk perception. Based on the study on perceptions of the general public risk perception of ionizing radiation, there are difficulties in understanding its risk and benefits, misleading personal experiences, inadequate media coverage, and judgments of the fact to be held

Particularly, the second model possessed the best model fitness that represents the public's risk perception of ionizing radiation, with the goodness of fit statistical data falling within the acceptable range of different indices.

Moreover, the second hypothesized model showed that the Simplified CER Model is a significant predictor of the Psychometric Paradigm. In addition, the probability of harm, expected harm, and probability of benefit have a linear causal relationship with the Simplified CER Model as well as dread and unknown risk have a linear causal relationship with Psychometric Paradigm.

with unwarranted confidence. The individual's perception of risk is influenced by a variety of factors such as the information a person has been exposed to, the information a person chooses to believe, and the value they experienced.

According to research, in the presence of facts, arguments concerning risk are unlikely to be resolved. Strong initial opinions are difficult to change because they influence how later When fresh evidence supports one's prior assumptions, it appears trustworthy and informative; contrary evidence is frequently dismissed as untrustworthy, incorrect, or unrepresentative. When people lack strong past opinions, they are vulnerable to public formation. Presenting the same risk information

in different ways causes their thoughts and actions to be tossed around like a ship in a storm.

There's an enormous gap between that belief and what has been found by researchers (Jordan, 2016). In the study of Freudenberg and Beyer (2019), they discovered that patients and specialists evaluate and perceive ionizing radiation differently in both general and medical settings. Laypersons perceived nuclear energy as a potentially high risk compared to X-rays. Meanwhile, experts categorize both nuclear energy and x-rays as acceptable and assert that both bear moderate risk. A study in Nigeria reported a higher percentage of patients (86.7%) who did not know about the dangers of X-rays associated with imaging (Busey et al., 2013).

Conclusion and Recommendations

Understanding public perception is critical to developing policies for nuclear energy. Based on the result of the study, respondents are still fearful of radiation; the probability of harm has the highest mean while the expected benefit has the lowest mean. Respondents believe that radiation can cause harm to the general public amidst its potential to kill cancer cells, and awareness that if radiation is handled with caution, ionizing radiation is safe for humans. Based on the results, the model suggests that the Simplified SCER Model significantly predicts the Psychometric Paradigm. The model further depicts that the probability of harm has a significant direct contribution to the Simplified SCER Model. The model further depicts that both dread and unknown risk have the same significant contribution to Psychometric Paradigm.

Overall, this research reveals two pathways for explaining disparities in public perception of ionizing radiation, with implications for risk communication. First, while the dimension of an activity can be evaluated in the same way, the importance attributed to it can vary. Second, many types of dimensions of an activity can be examined, but

Not only laypersons and patients have limited knowledge about ionizing radiation. Medical doctors and residents had misconceptions about the use of ionizing radiation in various radiologic examinations (Ricketts et al., 2013). They presumed that CT and Barium examinations are associated with the least ionizing radiation.

Several studies indicated that the public's perception received most of the information from the Internet wherein sources are not validated (Murakami & Oe, 2019) exacerbates the problem of gaining societal acceptance and support for technologies employing ionizing radiation. As a result, people were swayed by such uncertain information and often had no choice but to decide their plans according to what they read online.

their value can vary. In any scenario, risk messaging could be improved by defining the worldviews of a specific audience and addressing and weighting the relevant risk factors accordingly. There are a couple of drawbacks to this research. The sample sizes in this study were minimal to catch those with strong worldviews.

Furthermore, the worldview scales failed to differentiate across individuals to the amount that the theory anticipated. Thus, a small number of individuals included in the sample appeared to hold more than one worldview rather strongly. Although the majority of subjects held one view and the results were, for the most part, consistent with predictions of risk perceptions of ionizing radiation, they should be replicated in a larger sample. Aside from the indicators mentioned in the study, it is recommended that future researchers should study the factors which contributed to risk perception such as cognitive (gravity of events), affective (emotions, feelings, and moods), contextual (framing of risk information), and individual factors (personality traits, previous experience, age, and sex). Moreover, the demographic profile should be included in the study to determine which group/category needs education and awareness in terms of the risk of ionizing radiation.

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Transactional Distance Factors, Technology Readiness and Student Engagement in E-Learning Environment in Region XI: An Explanatory Sequential Design

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Abstract

This study aimed to determine the influence of transactional distance factors and technology readiness on the engagement of higher education students in Region XI through the pragmatic philosophical worldview. Specifically, the explanatory sequential design mixed-methods approach of purposively chosen higher education institutions in Region XI students served as respondents for the quantitative and qualitative phases. Statistical tools like mean, standard deviation, and regression analysis were used to analyze the quantitative data, while thematic analysis was applied in the qualitative phase. Findings revealed that the students' status of transactional distance factors was high, which means that transactional distance factors were often manifested in higher education institutions. Meanwhile, it was found that transactional distance factors and technology readiness influenced the engagement of higher education students in an e-learning environment. In the qualitative phase, heightened data security was the theme that emerged when the researcher asked the participants about their anxiety regarding the possible misuse of their uploaded information through the internet and the power of technology to limit personal interaction. Also, the theme that emerged when the participants were asked to explain the low level of psychological motivation for engagement was the unfavorable learning situation. When the participants were asked their views on why transactional distance was a significant predictor of student engagement, the theme, of overcoming online learning barriers was created. Lastly, the theme, of unfamiliarity with technology was generated when the participants were asked about their views as to why technological readiness is a significant predictor of student engagement.

Keywords: *Education, Transactional Distance Factors, Explanatory-Sequential, Philippines*

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Introduction

The COVID-19 pandemic has fueled an abrupt growth in the use of e-learning environments in education. Due to this, education leaders face the daunting task of keeping up with the transformational opportunities brought about by utilizing electronic technologies in the teaching-learning process (McLeod et al., 2011). Despite its increased accessibility, the retention rate of students in e-learning is still a cause of concern (Fonolahi et al., 2014; Stack, 2015). Due to the lack of communication between students and teachers, the participation of students in e-learning is inadequate, and their persistence and efficiency are also poor (Hu & Li, 2017).

In addition, feelings of isolation (Paulus & Scherff, 2008), frustrations with technology (Hara & Kling, 2003), and time constraints due to other responsibilities have all been identified as factors influencing students' decisions to

withdraw from e-learning courses.

In Ireland, enrolment in online higher education courses is growing, however, students are more prone to attrition, having lower completion rates compared to traditional face-to-face classes (Woodley & Simpson, 2014). This may be due to time management and life load, unrealistic expectations, a feeling of alienation, and a perception that they are less valued by the institutional culture (Mallman & Lee, 2016; Nichols, 2011; O'Shea et al., 2015).

Further, in the Philippines, the Commission on Higher Education supported Open Learning and Distance Education (OLDE) following the "Higher Education Act of 1994" (Solomon & Endozo, 2019). This can be promising but issues arise regarding the readiness of universities and colleges towards embracing this change. The adoption of technology in the country seems at the level of its infancy; therefore, shifting to e-learning education platforms could be seen as its early stages (Doculan, 2016).

The purpose of this mixed-methods explanatory sequential study was to address the predictive influence of transactional distance factors and technology readiness on the engagement of the HEI students in the Davao Region under the e-learning environment, by obtaining quantitative results from a survey of 401 students and then follow up with 17 selected individuals to explore the quantitative results in more depth. In the first phase, quantitative research questions addressed the relationship between transactional distance factors and technology readiness in the engagement of HEI students in the Davao Region. In the second phase, qualitative interviews were used to probe the significant statistical findings from the quantitative phase by exploring the lived experiences of the HEI students in the e-learning environment.

Transactional Distance Factors

This theory posits that distance is conceived to be of a psychological rather than a geographical nature. The perceived distance is determined by the level of interaction between learners, teachers, and their surroundings (Mbwesa, 2014). Also, Giossos et. al., (2009) further refined this notion that the particularities of space and time between teacher and learner which characterize distance learning, create particular behavioral models for the teacher and the learner, psychological and communication distance between them, and insufficient understanding of each other.

Technology Readiness

This index aims to better understand people's propensity to embrace and use technologies. This has four dimensions namely: innovativeness, optimism, insecurity, and discomfort—that collectively explain technology usage. Optimism is a general belief that technology and innovation have positive benefits while Innovativeness is an inherent tendency to want to experiment with, learn about and talk about technology. On the other hand, Discomfort is a perceived lack of control over technology while insecurity is a belief that technology can result in adverse impacts on the user and society.

Student Engagement in E-Learning

This variable is important to prevent online learner isolation and dropout. It may be a key factor in retaining online learners and increasing graduation rates (Banna et al., 2015). In recent years there has been a growing consensus that student engagement is most clearly thought of as a complex construct comprising multiple domains behavioral engagement, emotional engagement, and cognitive engagement (Fredricks, 2004). But in the context of this study, six factors of engagement will be used for online learning; these are Psychological motivation, peer collaboration, cognitive problem-solving, interaction with the instructor, community support, and learning management.

First, the psychological motivation factor represents the students' thoughts or feelings, such as interest, expectations, and motivation that are related to e-learning. Second, the peer collaboration factor refers to activities in which students discuss knowledge and collaboratively solve problems. Collaborative learning is a process of building and understanding knowledge with peers, and it is recognized as an important part of student engagement. Third, cognitive problem-solving represents the process of acquiring, understanding, and utilizing knowledge. These are important factors because they affect learning achievement. Items in this factor, such as approaching, structuring, analyzing, and applying knowledge, are consistent with cognitive process-related activities in three types of e-learning activities.

Fourth, interactions with instructors show behavioral engagement in which the student communicates with the instructor of an online course. In the e-learning environment, the level of engagement is higher when the students sense a teaching presence that they feel in the actual learning field with the professor. Teaching presence is facilitated when the students communicate with instructors regularly. Fifth, the community support factor is related to the psychological state of the students, such as the bonds or the sense of community that is formed among students that are enrolled in the same online courses. An emotional sense of belonging can be a major factor in the prevention of dropouts and help students to engage in classes. One reason for the high dropout rate is related to the lack of bonds or a sense of community among learners in online courses. If students lack a feeling of connection or belonging with their fellow students, then they tend to easily skip classes or leave them early, which may eventually lead them to drop out.

Finally, learning management emphasizes behavioral engagement in which students manage their learning during active learning participation in e-learning courses. This factor is related to active and self-directed learning activities for students in an independent learning environment. Engagement in the e-learning environment can appear as behavior characteristics, such as eliminating distractions in the environment during the online class, managing learning using the online system, and managing the learning schedule by taking a lecture plan when taking the online class.

Methods

In this study, the mixed methods explanatory sequential design was used. It mainly focused on the use of qualitative data in exploring the quantitative findings. In the quantitative strand, the following statistical tools were used: mean, standard deviation, and multiple regression analysis. Whereas in the qualitative phase, the notes were obtained from the online FGD and IDI and were analyzed using thematic analysis which was used to determine the emerging codes and themes. This sequential approach starts with the quantitative phase and is then followed by the qualitative phase (personal experience) (Creswell, 2013).

The explanatory sequential design involves two phases: first, an initial quantitative instrument phase; followed by the second phase, the qualitative data collection, in which the qualitative phase builds directly on the results from the quantitative phase. In the quantitative phase, the study participants were the 401 students enrolled in the selected higher educational institutions (HEIs) in Davao Region. In the selection of participants, the study employed purposive quota sampling. The researcher used standardized questionnaires such as Zhang (2003)'s Revised Scale of Transactional Distance, which is a condensed version with only 12 elements (as opposed to the original that measures the transactional distance between student and teacher, student and student, and student and content, also, Parasuraman and Colby created the Technology Readiness Index (TRI) in 2015. The TRI model assesses a person's attitudes toward technology. Song and Hong's Student Engagement in the e-learning Environment (2019) is a student engagement instrument representing the e-learning environment's characteristics. The questionnaire consisted of four parts. The first part was about the demographic profile of the students of private higher education institutions in Region XI. The respondents were asked to answer the second, third, and fourth parts of the questionnaire based on their level of judgment, which determined their transactional distance, technology readiness, and engagement with the e-learning environment. While in the qualitative strand, eight participants were invited for the in-depth interview (IDI) for the subsequent phase, and seven participants for the focus group discussion (FGD). According to Creswell (2017), a homogenous group may vary in size from three to four individuals to 10 to 15. These groups came from the participant's participants in IDI and FGD. The IDI and FGD had the following requirements. Each participant had to be formally enrolled in a higher educational institution and have completed at least one semester of e-learning instruction.

The scales that were used for the Transactional Distance were as follows.

Range of Means	Descriptive Equivalent	Interpretation
4.20-5.00	Very High	Transactional Distance is always evident.
3.40-4.19	High	Transactional Distance is oftentimes evident
2.60-3.40	Moderate	Transactional Distance is sometimes evident
1.80-2.59	Low	Transactional Distance is seldom evident
1.00-1.79	Very Low	Transactional Distance is never evident

Meanwhile, the scale used for Technology Readiness was as follows:

Range of Means	Descriptive Equivalent	Interpretation
4.20-5.00	Very High	Technology Readiness is always evident.
3.40-4.19	High	Technology Readiness is oftentimes evident
2.60-3.40	Moderate	Technology Readiness is sometimes evident
1.80-2.59	Low	Technology Readiness is seldom evident
1.00-1.79	Very Low	Technology Readiness is never evident

Lastly, the scale used for Student Engagement in E-learning was as follows:

Range of Means	Descriptive Equivalent	Interpretation
4.20-5.00	Very High	Engagement is always evident.
3.40-4.90	High	Engagement is oftentimes evident
2.60-3.40	Moderate	Engagement is sometimes evident
1.80-2.59	Low	Engagement is seldom evident
1.00-1.79	Very Low	Engagement is never evident

The researcher conducted an in-depth interview (IDI) and focus group discussion (FGD) with the students of higher education institutions. The researcher prepared guide questions based on the results of the quantitative strand. The guide questions were validated. It contained open-ended questions regarding students' lived experiences with transactional distance, technology readiness, and engagement in an e-learning environment. The final revisions of the questionnaires and interview guide were made, incorporating the comments, corrections, and suggestions given by the experts.

The researcher has observed the protocols and procedures in the gathering of the quantitative and qualitative data. To facilitate gathering the needed quantitative data, the researcher asked for approval from the Graduate School Dean to conduct this study. Also, the researcher has gained a certificate of compliance from the Research Ethics Committee before gathering the data using the validated questionnaires. Moreover, in this study, quantitative data were collected using the adapted questionnaires to measure variables, namely, transactional distance factors, technology readiness, and engagement of students in e-learning. To this effect, the researcher requested an endorsement letter from the Dean of the Graduate School. Likewise, permission to conduct the study was also asked from the School Heads of the selected institutions in the Davao Region. Also, in the quantitative data collection, the participants were asked to answer the three parts of the online survey instrument on the specified day and time, enough to accomplish them without undue stress and anxiety. Hence, during the conduct of the study, the researcher makes sure that there was minimal interruption to the participants' daily routine. Further, the researcher provided a soft copy of the specific guidelines on how the respondents will accomplish the questionnaires. Correspondingly, instructions for answering the tool were given, and the purpose of the study was also made clear; likewise, the confidentiality of the responses was assured. Privacy of one's name was safeguarded by allowing pseudonyms, withdrawing of involvement anytime were discussed, and possible contact persons to answer queries were identified. Similarly, questionnaires with substantial data were retrieved online using google forms and kept confidential by the

researcher. After the data was retrieved, encoding

of the data with the proper label was carried out.

For the qualitative data collection, due to health protocol reasons, the researcher employed a focus group discussion (FGD) via online video conference. Also, an online individual in-depth interview (IDI) was conducted. The interview guide was crafted according to the highest and lowest scores gained from the survey results in the quantitative phase. On the online FGD and individual IDI conduct, the researcher used the validated interview protocol and gave follow-up questions to ensure saturation of answers. Moreover, a soft copy of the consent forms was sent to the respondents online, to be filled up and signed by the respondents, and to be returned to the researcher online.

In addition, the researcher thoroughly

discussed the ethical considerations with the participants. Also, the participant's perspective on the phenomenon of interest was unfolded according to how they viewed it and not as the researcher viewed it. The interview involved a personal interaction where cooperation is essential (Creswell, 2007). During the online FGD and IDI, the participants were informed that the Google meeting was recorded for documentation purposes. The recorded audio was transcribed and analyzed with the participants' approval and unanimous permission to be kept secured and confidential. After this, the participants were able to receive copies of the transcription to verify the accuracy and correctness of interpretations.

Results and Discussion

Table 1 The Status of Transactional Distance Factors

Category	Category Mean	Descriptive Equivalent
Structure	4.02	High
Dialogue	3.59	High
Learner Autonomy	3.68	High
Overall Mean	3.77	High

Table 1 shows the status of transactional distance factors by their indicators: structure, dialogue, and learner autonomy. Transactional Distance The table reveals that the overall mean Transactional Distance is 3.77, described as high. The indicator structure has a category mean of 4.02, described as high. The mean rating ranges from 3.97 to 4.08. In particular, the Item *stated as emphasizing making judgments about the value of information, arguments, or methods such as examining how others gathered and incorporated data and assessing the soundness of their conclusions* has a mean of 3.97, described as high. Meanwhile, Item stated as *emphasizing applying theories and concepts to practical problems or in new situations* has a mean rating of 4.08, still described as high. The category mean of the indicator Dialogue is 3.59, which is described as high. Furthermore, all the items have

a mean rating that ranges from 3.31 to 3.95. In particular, Item stated *feeling valued by the class members* has a mean rating of 3.31, described as moderate. Whereas Item stated *as my classmates respecting me* has a mean rating of 3.95 described as high. The third indicator, Learner Autonomy has a category mean of 3.68, described as high. Furthermore, all the items have a mean rating that ranges from 3.60-3.78. In particular, Item stated as *receiving prompt feedback from the instructor on my academic performance* has a mean rating of 3.60, described as high. Whereas the Item stated *the instructor being helpful to me* has a mean rating of 3.78, still described as high. Overall, the transactional distance factors of the HEI students in the Davao region being frequently evident implies that on many occasions, the HEI students often feel isolated and disconnected both from their teacher and

classmates due to the lack of face-to-face interaction in an e-learning environment. It also means that the study materials given are overwhelming and that building an online community that supports learning is not always observed. The high value of this variable is consistent with Moore's (1997) theory of transactional distance, which states that the separation of learners and teachers has a significant impact on both teaching and learning. With separation, there is a psychological and communicative gap that must be bridged, which could lead to misunderstanding between the instructor's and the learner's inputs.

Table 2 The Status of Technology Readiness

Category	Category Mean	Descriptive Equivalent
Optimism	3.76	High
Innovativeness	3.39	Moderate
Comfort	3.49	Moderate
Security	2.79	Moderate
Overall Mean	3.36	Moderate

Table 2 reveals the status of technology readiness of HEI students in an E-learning Environment in the Davao Region. This variable has four indicators namely: optimism, innovativeness, comfort, and security.

Further, the table shows that the overall mean of technology readiness is 3.36, described as moderate. This indicates that there is sometimes a manifestation of their tendency to use technologically enhanced learning. This result supports Horton's (2006) findings that the rise of various computer technologies allows for the use of multimedia content and multimedia, communication in education and provides access to learning content from anywhere and at any time. The first indicator Optimism has a category mean of 3.76, described as high. The mean rating ranges from 3.53-3.94. Specifically, the Item stated *Technology making me more efficient and productive in my school work has a mean rating of 3. 53*, described as high. On the other hand, Item stated as Technology *giving me the freedom to learn when I please has a mean rating of 3.94, described as high as well.* The indicator Innovativeness has a category mean of 3.39, described as moderate. Delving into the different items, it can be gleaned from the table that the mean rating ranges from 2.63-3.81. If specific items are scrutinized, the Item stated as *I am the first in my circle of friends in acquiring new Technology* when it appears to have a mean rating of 2.63, described as moderate. On the other hand, Item stated as other people seeking a piece of advice concerning *new technologies has a mean rating of 3.81, described as high.* Comfort, the third indicator category mean of this indicator is 3.49, described as moderate. Additionally, the mean rating of specific items ranges from 2.89-4.06. In particular, the Item stated as Technology is not failing at the worst possible time has a mean rating of 2.89, described as moderate, whereas the Item stated as h*aving caution in replacing important tasks usually done by people with Technology because new Technology can break down or get disconnected* has a mean rating of 4.06, described as high. Lastly, the Security indicator has a total mean of 2.79, described as moderate. Examining further, it can be seen from the table that the mean rating of all the items ranges from 2.46-3.25. If specific items are scrutinized, 64 the Item, *not being worried that information I make available over the Internet may be misused by other*s has a mean rating of 2.46 described as low. While the Item that stated *considering it safe to do learning online* has a mean rating of 3.25, described as moderate.

Furthermore, the findings of this study back up the (Prensky, 2001) assertion that the majority of college and university students are digital natives who know how to use technology effectively. However, the utilization of technology in learning and its predictors of

learning effectiveness remain unclear (Hao, 2016).

Table 3 The Status of Student Engagement in E-Learning

Category	Category Mean	Descriptive Equivalent
Psychological Motivation	2.83	Moderate
Peer Collaboration	3.47	High
Cognitive Problem Solving	3.41	High
Interaction with Instructors	3.24	Moderate
Community Support	3.15	Moderate
Learning Management	3.36	Moderate
Overall Mean	3.24	Moderate

Table 3 reveals the status of engagement of higher education students in an e-learning environment in Region XI. This variable consists of six indicators: psychological motivation, peer collaboration, cognitive problem-solving, interaction with the instructor, community support, and learning management. The first indicator, Psychological Motivation shows that the psychological motivation of students has a category mean of 2.83, described as moderate. The table further reveals that all the items have a mean rating that ranges from 2.58 – 3.13. The Item stated as *being motivated to study when I take an online class has a mean rating* of 2.58, described as low. Meanwhile, the Item stated as *being satisfied with the online course I am taking* has a mean rating of 3.13 described as moderate. Meanwhile, Peer Collaboration reveals that this indicator has a category mean of 3. 47, described as high. Moreover, all the items of this indicator show a mean rating that ranges from 2.96 to 3.94. Further, the Item stated as *studying the lesson contents with other students* has a mean rating of 2.96, described as moderate. On the other hand, the item stated as *asking other students for help when I can't understand a concept taught in my online class* has a mean rating of 3. 94 described as high. The third variable, Cognitive problem solving has a category mean of 3.41, described as high. Moreover, all the items of this dimension show a mean rating that ranges from 3.28 to 3.49. Also, the item that *stated analyzing thoughts deeply, experiences, and theories about the knowledge I have learned in my online classes* has a mean rating of 3.28, described as moderate.

On the other hand, the Item that started

applying the knowledge I have learned in online courses to real problems or new situations has a mean rating of 3.49, described as high. Interaction with Instructors, the fourth indicator, has a category mean of 3.24, described as moderate. Additionally, the mean rating of specific items ranges from 3.05 to 3.43. Further, the item that stated *asking the instructor about the contents of the lesson* has a mean rating of 3.05, described as moderate. In contrast, the item that stated *Communicating with the instructor privately for extra help* has a mean rating of 3.43, described as high. The indicator Community Support has a category mean of 3.15, described as moderate. The mean rating ranges from 3.09-3.24. Specifically, the item that was stated as feeling a sense of belonging to the online class community has a mean rating of 3.09, described as moderate. On the other hand, the Item that stated as *frequently interacting with other students in my online classes* has a mean rating of 3.24, described as moderate as well. Lastly, Learning Management has a category mean of 3.36 described as moderate. The table further reveals that all the items have a mean rating ranging from 3.28 to 3.46. More so, the item that stated *studying related learning contents by myself after the online lesson* has a mean rating of 3.28, described as moderate. Meanwhile, the item that stated *managing my learning using the online system* has a mean rating of 3.46, described as high.

The table further reveals that the overall mean rating of students' engagement in an e-learning environment is 3.24, described as moderate. The student engagement in higher education

institutions in an e-learning environment being moderate means that their motivation to participate in e-learning, study with their classmates, and solve difficult problems together are sometimes observed.

Table 4 Significance of the Influence of Transactional Distance Factors and Technology Readiness on Student Engagement

	Standardized Coefficients Beta	T	p-value	Interpretation
Transactional Distance Factors	.280	7.240	.000	Significant
Technology Readiness	.546	14.120	.000	Significant

R =.707; R Square = .500 F = 199.740; p value = .000

Table 4 shows the result of regression analysis to determine the influence of transactional distance factors and technology readiness on the engagement of the HEI students in an e-learning environment in the Davao Region. The standardized beta coefficients and t-statistics results of the independent variables, namely: transactional distance factors and technology readiness, are presented. It can be gleaned that the influence of transactional distance factors in the prediction of students' engagement in an e-learning environment is significant (B=.280, p< .05). Thus, for every unit increase in the value of transactional distance factors, there is a corresponding increase in the engagement by .280. This implies that transactional distance factors positively contribute to the engagement of students in an e-learning environment. On the other hand, the standardized beta coefficient of technology readiness is .546, while t-statistics is t = 14.120, p = .000. This indicates that technology readiness is a statistically significant predictor of student engagement. Furthermore, for every unit increase in the scores of technology readiness, there is a corresponding increase of .546 units of the engagement of higher education students in an e-learning environment in Region XI. The f-ratio in Table 4 indicates whether the overall regression model (the combined effect of transactional distance factors and technology readiness as predictors of student engagement) is a good fit for the data in this study. The results reveal that transactional distance factors and technology readiness statistically significantly influence students' engagement in an e-learning environment, as shown in F = 199.740, p < .000. Therefore, the regression model is a good fit for the data.

Table 5 Standpoints of the Participants Regarding the Salient Findings from the Quantitative Data

Salient Findings	Reasons	Themes	Nature of Integration
Participants' anxiety regarding the possible misuse of their uploaded information through the internet and the power of technology to limit personal interaction	- Worrying that some people might use information maliciously over the Internet -Fearing that hackers can access information even if there is a password - Make sure that personal information is not on their social media accounts -Assuring that applications used in the online classes are legitimate and trusted -Often changing the passwords for extra security -Make sure to give the information only to people who can be trusted -Being responsible, careful, and mindful as a user	Heightened Data Security	Connecting-validating

	-Clarifying the sources posted online		
	-Assuring that the information submitted is fully encrypted and can only be accessed by the teachers		
Participants' low level of psychological motivation for student engagement	- Exerting effort to be engaged despite the situation right now	Unconduciveness of Learning Situation	Connecting-clarifying
	- Struggling with the online class		
	-Forcing themselves to study to comply with class requirements to assure passing grades		
	-Having no choice but to comply		
	-Fear of losing their scholarship and wanting to be a good role model to their siblings		
	-Experiencing that online classes are exhausting		
	-Being easily distracted		
	-Believing that having online classes at home is encouraging laziness		
	-Fear of being left out and a failure		

	students take a longer time to be responded to by their instructors; does not facilitate easy comprehension -Since students cannot interact with their classmates, they tend to be anxious if they are doing their tasks right		
Participants' views as to why technological readiness is a significant predictor of student Engagement	-Interaction depends on the students' facility with gadgets' functions and internet connectivity -The students feel that they need to be extra careful when doing tasks online -They struggle in using certain apps and websites that are related to their classes -They tend to be dependent on search engines when looking for answers or clarifying a topic that they do not readily understand during the discussion	Unfamiliarity with Technology	Connecting-validating

Table 5 reveals issues extracted from the quantitative findings rated as high and underscored by the researcher as deemed worthy of further explanation. By implementing the IDI and FGD, the researcher elicited the reasons for the prevailing issues. Corresponding themes are formulated to cluster the testimonies, and finally, the nature of data integration is posted to provide how well the connection between these two sets of data--- the quantitative and the qualitative, are connected. Shown in Table 5 are the qualitative data, further explaining the results gleaned from the quantitative data.

The results revealed the following issues from the quantitative data that need clarification. Based on the results from the quantitative strand, variables such as the transactional distance factors, technology readiness, and engagement in an e-learning environment have some items that were rated high, moderate, and moderate respectively. These were highlighted in the qualitative strand of this study for further explanation.

Heightened Data Security

This theme is revealed finding when the participants were asked by the researcher about their anxiety regarding the possible misuse of their uploaded information through the Internet and the power of technology to limit personal interaction. This theme implies that students in higher education institutions always feel anxious about attending online classes. Meanwhile, a connecting-validating type of data integration was established because the participants were able to give certain reasons that depict outright confirmations of the quantitative data findings through the shared testimonies. This conforms to the study of Alwi and Fan (2010), stating that as an Internet-based learning method, e-learning depends on the Internet for its execution. On the other hand, the Internet is home to a slew of criminal activity and security dangers. As a result, the e-learning environment is invariably vulnerable to security threats, risks, and attacks. Unfortunately, many educational institutions are rushing to implement online learning management systems without rigorous planning or a complete grasp of online learning security (Alwi & Fan, 2010).

Unfavorable Learning Situation

When the researcher questioned the participants to explain why there was such a low degree of psychological motivation for participation, this theme arose. This implies that the students feel bored and alienated in the e-learning setting. Regarding the nature of data integration, connecting-clarifying was established from the reasons provided by the participants, which strengthened the quantitative findings. This theme is supported by the Theory of Self-Motivation, by Ryan and Deci, (2000). It is built on the fundamental premise of learner autonomy. It explains that in connection to their environment, all persons have a basic urge to be self-determining or autonomous and feel competent and linked to others. More independent types of motivation will be promoted if the external conditions favor an individual's autonomy.

Overcoming Online Learning Barriers

This theme was obtained when the participants were asked about their views on why transactional distance is a significant predictor of student engagement. This means that aside from technology, and distractions, other barriers exist in the development of e-learning. Divided attention disrupts learning, and there are typical distractions when learning occurs remotely from home. This non-classroom environment, where students are indoors with family, flatmates, pets, and constant access to cellphones and social media, is not ideal for learning. This implies that divided attention disrupts learning, and there are typical distractions when learning occurs remotely from home. This non-classroom environment, where students are indoors with family, flatmates, pets, and constant access to cellphones and social media, is not ideal for learning. Blasiman et al. (2018) examined six types of distractions while students watched a 5-min online lecture, from playing video games to texting, and found significant impairment of encoding information and, in turn, performance. This further means connecting with the people within the e-learning environment is still important for HEI students. Connecting-Clarifying was found to exist between the two sets of research findings This further means connecting with the people within the e-learning environment is still important for HEI students. Connecting-Clarifying was found to exist between the two sets of research findings.

Unfamiliarity with Technology

This essential theme explained why technological readiness is a significant predictor of student engagement. This means that despite the accessibility and ease that technology can bring them, they are still unsure of it. Further, as to the nature of data integration, Connecting-Validating was found to exist between the findings of both the quantitative and qualitative data. This supports Lynch's (2017) assertion that one of the most significant challenges students face without internet access at home is their inability to finish homework and quizzes. The Internet has only intensified this concern. Up to 70% of teachers

provide homework that necessitates internet access. Approximately 65 percent of students use the Internet to perform homework, which includes conducting research, submitting assignments, emailing teachers, and working with classmates online. In practice, this can mean certain students are left behind— namely, those without reliable internet access.

Conclusion and Recommendations

Based on the result, the status of transactional distance factors is high. This implies that transactional distance factors were frequently evident among the HEI students in Davao Region. Further, this means that there is a potential gap of miscommunication between students and teachers and students and students. In addition, the status of the technology readiness of the HEI students in the Davao Region is moderate. This implies that the HEI students sometimes demonstrated their propensity to use new technology for their learning. This means that the students are neither willing for technology to be part of their studies. Also, the result of the study revealed that the status of student engagement in e-learning of the HEI students was moderate. This means that there was some evidence of engagement among HEI students in the Davao region. Meanwhile, the result showed that transactional distance factors and technology readiness significantly influence the engagement of HEI students in an e-learning environment. This implies that transactional distance factors and technology readiness predict engagement. Further, this means that in every unit increase in transactional distance factors and technology readiness, there is also a corresponding increase in engagement.

Four themes emerged to characterize the quantitative study result: heightened data security, unfavorable learning situation, overcoming online barriers, and unfamiliarity with technology. And as to data integration, there was two data integration type that exists. On the other hand, connecting- reinforcing was found to exist which means that the qualitative data confirms the results gathered from the quantitative strand. On the other hand, connecting-explaining was also found to exist between the findings, which means that the qualitative data illustrates the results from the quantitative strand.

Since the status of transactional distance is high, education leaders may consider re-assessing the teachers' capacity in creating a course structure and curriculum that aligns with the needs, expectations, and goals of online learners. The use of scaffolding to help students learn new abilities, both technical and academic, is crucial. Students must understand that they are not alone in their e-learning endeavors. Teachers may be trained to maintain a presence in academic forums, whether synchronous or asynchronous, and how to promote dialogues by offering comments, questions, and feedback to direct the online talks.

On the status of the technology readiness of the HEI students, school leaders may provide for creating a conducive environment for teaching and learning practices in e-learning. This can be done by conducting a needs assessment, collecting feedback from stakeholders, and providing a budget for digital learning. School leaders may consider what professional development and training are needed to expand the technology skills of teachers and administrators Also; school leaders may provide consistent support and professional development that is personalized and give rewards to teachers to engage meaningfully.

Meanwhile, the status engagement of the HEI students is also moderate. School administrators may create a plan within an online program for students from enrollment through to completion and create a student orientation module that contains tips and best practices for student success. Also, School leaders may revise policies where necessary to better support online students in their programs. Furthermore, higher educational institutions may acquire a learning

management system, in which Learners may be able to navigate easily and unguided through a

course.

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Mediating Effect of Academic Self-Efficacy On The Relationship Between Student Engagement And Academic Performance Through The Blended Learning Method

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Abstract

The study aimed to determine the mediating effect of academic self-efficacy on the relationship between student engagement and academic performance through the use of a blended learning method. The study employed 184 sample respondents who are second-year college students taking Contemporary World subjects. Results revealed that the student engagement of the respondents in the blended learning modality is frequently observed in terms of online experience, and always observed in terms of flexibility in learning. The students in Contemporary World have high levels of confidence and complexity of learning materials with an online learning platform during the blended learning modality, with a satisfactory level of academic performance. Furthermore, there is no significant relationship between online experience and confidence in learning materials. Overall, academic self-efficacy does not significantly mediate between student engagement and academic performance.

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Introduction

Boelens et al. (2017) implied that designing a blended learning environment has been challenging in higher education because there are several points to consider. They mentioned that the students and teachers find it challenging to foster flexibility. They also stated that stimulating engagement and improving academic self-efficacy both on the virtual and face-to-face platforms is challenging. Medina (2018) also mentioned that there have been several challenges in the delivery of instruction and pedagogy, especially with the use of the blended learning modality; hence, affecting the way students engage with other students and other pieces of information. Then researchers made use of a framework to make sure that the blended learning modality will be able to help

cater to the needs of the students. On the other hand, the blended learning modality has also found several issues with self-regulation and the use of technology for studying (Rasheed et al., 2020), which played a huge obstacle for students, teachers, and educational institutions to cope with the several changes that are present in the 21st century.

Globally, because of the pandemic that is happening, blended learning does not become successful in terms of engagement and academic self-efficacy when peer instruction and flipped learning are not considered (Nerantzi, 2020). Blended learning will not just help the students learn immediately once the instruction is disseminated after a live interaction, but also help

the students prepare before the live instruction, which is done synchronously or asynchronously.

The Philippines has immediately changed from traditional to blended learning because of the current pandemic situation; hence, it created a huge challenge for the teachers and students in terms of boosting the self-efficacy and engagement brought by the constraints that are present (Jhoana et al., 2021). Amidst the COVID-19 pandemic, Yapo et al. (2021) asserted that there were several efforts done by the Philippine government to ensure educational continuity. Consequently, blended learning modality has been used to ensure the transition from traditional face-to-face learning; hence, this has witnessed that it shows a significant relationship between the use of blended learning and the improvement of academic self-efficacy. Making responsive efforts to strengthen the engagement and efficacy of the students has been challenging, given that the mental stress is exhausting among students in higher educational institutions.

With these situations, seeing the relationship between student engagement and academic self-efficacy of students while seeing its current situation is a need. Through blended learning method, which was a commendable teaching strategy in the 21st century, has given students accountability to handle tasks. In addition, this has also fostered student

Related Literature

Since blended learning has engaged students, blended learning modality has expanded several borders in school; hence, not just enjoying learning within the four walls of the classroom, but also outside of the four walls enabled students to enjoy learning regardless of the place and pace (Capone et al., 2017). Blended learning has also increased the academic self-efficacy of the students which enriches the student experience (Warren et al., 2020).

Allowing individual mastery and a stress-free environment in the blended learning

engagement and academic self-efficacy is a great start to enhance resiliency in the education sector brought about by the current health situation (Panergayo & Mansujeto, 2021).

The researchers chose this study because the blended learning modality is still a new method done by teachers and students; thus, making this study to determine if the blended learning modality has improved the academic self-efficacy and engagement of the students in the higher education department.

This study is geared toward the relationship between student engagement and the student's academic self-efficacy using a blended learning approach. To the administrators, this will provide teachers and instructors with the opportunity to further address the needs of their students by using the blended learning approach to improve student engagement and academic self-efficacy of students.

The results of this study will also be an avenue for teachers in improving student engagement and academic self-efficacy of students despite the pandemic. The students can get ways of improving their engagement and academic self-efficacy. Lastly, future researchers will help them use intervention studies to enhance the engagement and academic self-efficacy of students.

environment done in different virtual platforms allow this function, this has also been found that improves academic self-efficacy. Subsequently, Namyssova et al. (2019) asserted that there have been issues in deploying blended learning that emphasized the academic self-efficacy and engagement of the students, including the use of technological tools while incorporating conventional teaching strategies applied to students.

For the past two decades, blended learning has been widely used by schools because of its effectiveness in terms of accommodating a huge number of diverse students in higher

education (Serrano et al., 2019). The blended learning modality has been found to foster student engagement because of its unified

Student Engagement

Student engagement has been defined as the ability of students to interact with different pieces of knowledge in the cognitive, behavioral, and affective dimensions (Schmidt et al., 2018).

As student engagement nowadays is highly associated with e-learning systems, this had been regarded that the interaction of the students in the cognitive, behavioral, and affective dimensions, has greatly impacted the students in terms of their academic performance which is evident in grades and their respective performances inside and outside the classroom (Hussain et al., 2018).

For academic achievement, the necessary factors that should be considered are self-efficacy, emotional engagement, and behavioral engagement. Technicalities show that self-efficacy has a closer relationship with academic achievement. Consequently, because of the current pandemic situation, the mental and emotional space of the learners inhabited the learners' space; thus, affecting the way they learn. As early adults and adolescents in educational institutions, valuing the well-being of students is a must for them to stay mentally grounded (Olivier et.al, 2019).

Blended learning has a challenge in retaining teacher authenticity because of the complexities brought by technology and face-to-face instruction that affected student engagement. Second, there was a challenge in creating a self-paced learning environment posed by the consequence of building a blended learning environment affecting student engagement. Third, there is a challenge in building students' authentic mastery which roots in how students engage with learning tools and pieces of information. Lastly, the problems posed by internet connectivity and the complexity of the resources used in the

combination of online and face-to-face instruction. (Heilporn et al., 2021).

Philippines reduce the way students attain different learning outcomes and engagement itself (Cheng, 2020). Namyssova et.al. (2019) emphasized that personal challenges are present in their respective houses, which inhibited the way students interact with others and materials in the online and hybrid learning environment. As these challenges arise, the researchers sought to discover if blended learning has made a significant improvement between student engagement and academic self-efficacy.

Affective Engagement

The psychological needs of the students affect the way students learn in different contexts. Emotions have a mediating effect on the motivation of students that enables further engagement of the student in different learning situations. Autonomy satisfaction, which needs affective engagement, becomes an impactful factor in empowering students to effectively learn in different situations (Zhen et.al, 2017).

Behavioral Engagement

In the study of Samavi et.al. (2017), it was highlighted that behavioral engagement and academic achievement or self-efficacy have a significant and positive relationship. This means that when teachers empower proper management of the students' behavior every time they act on something in the virtual or actual classroom, it produces a strong impact on the way students attain academic self-efficacy. Intrinsic motivation prevails in this case.

Academic Self-Efficacy

As academic self-efficacy acts as the mediating variable, this variable refers to the ability of the students to perform a specific task (Yokoyama, 2019). As Grøtan, Sund, and Bjerkeset (2019) emphasized, academic self-efficacy has been commended by researchers to

highlight this variable as it improves the academic performance of the students and the way they interact with different pieces of knowledge; hence, is considered a need when examining the root causes of why students encounter problems in the classroom.

Toquero (2020) asserted that there is a need to enhance the mental space of the students to improve student engagement and efficacy of students in learning tasks. Brought by the pandemic, Panergayo and Mansujeto (2021) attested that blending learning modalities improves the self-efficacy and engagement of the students; however, if the services are improved in terms of internet connection and accordance with the socio-economic status of the students, the aim of blended learning to improve the engagement and efficacy of the students will be achieved. The challenge of the teachers in blended learning has been alarming, especially since it impacts the learning of students.

In the study of Jhoana et.al. (2021) who does the phenomenological study of the lived experiences of students in blended learning, the challenges experienced such as seeking more social support and empowering the academic self-efficacy of students is a call to action among teachers.

Vicarious Experiences

Should students want to attain academic achievement, there is a need to empower vicarious experience. In this way, the value of empathy is developed in different situations. In the study of Beri & Stanikzai (2018), vicarious experiences as a form of academic self-efficacy should be applied to different aspects of blended learning. In this way, students get to understand different facets of what people are undergoing in different contexts; thus, enhancing the way students interact with different pieces of knowledge in different dimensions of learning.

Emotional and Psychological States

Boredom, the attitude of withdrawal, and lack of interest hinder the way students engage with different facets of learning. For well-functioning of motivation and wellness of the way students learn, teachers must focus on how learners feel every time they encounter different pieces of information. Without emphasizing the emotional and psychological states of students, they won't be able to engage in learning in different dimensions (Curran & Standage, 2017).

Methods

Following Moreno-Guerrero et al.'s (2021) descriptive-correlational design, the researchers determined the levels of student engagement and academic self-efficacy. The researchers made use of the descriptive research design because the researchers ought to determine the overall levels of the status of the students in terms of student engagement and academic self-efficacy.

On the other hand, the researchers also used a correlational design to determine if student engagement has a significant relationship with academic self-efficacy. In terms of availability and convenience, the researchers conducted the research at the selected one (1) HEI in Davao City, which has allied healthcare courses. The respondents of the study were second-year college students taking Contemporary World subjects in the current blended learning modality. Using Slovin's formula on a 95% confidence level and 350 as its population size for 2nd-year college students, 184 were considered as sample respondents of the study. The population size was obtained from the Registrar's Office. In addition, the grades were the secondary data obtained from the Registrar's Office in terms of privacy and confidentiality and the Data Privacy Agreement signed by the researchers, Registrar's Office, and Data Privacy Officer of the Institution. This determined if student engagement had a significant relationship with academic self-efficacy. This was also considered to identify if student engagement has a significant difference with academic self-efficacy.

A random sampling method was used in this study. The respondents must have taken the

Contemporary World subject in Second Semester, SY 2020-2021. As they are making use of the blended learning modality (50% face-to-face modality and 50% online learning modality), they

In the conduct of the study, two adapted questionnaires were used. The adapted student engagement questionnaire was from Frederique et.al. (2020), while the academic self-efficacy questionnaire was from Vaculíková (2018). The adapted student engagement questionnaire having an acceptable Cronbach's alpha score of 0.933 comprised three (3) parts, namely: (1) online experience; (2) flexibility of learning, and; (3) self-confidence. The adapted academic self-efficacy questionnaire having an acceptable Cronbach's alpha score of 0.956 was into self-efficacy, anxiety, and intrinsic goal orientation.

The questionnaires underwent criterion-related validity through factor analysis in each

should be able to use Quipper as their Institutional Learning Management System in the subject as partners of blended learning.

variable with its indicators and inter-rater validity. In addition, Cronbach's alpha reliability test was administered to 35 respondents subject to the pilot study.

The questionnaires administered to the respondents were patterned on a 5-point Likert scale (Tables 1 & 2) with designated values to determine the overall responses of the respondents on different specifications. Provisions of ethical considerations such as social value, risks and benefits, voluntary participation, and privacy and confidentiality were embedded in the Informed Consent Form administered to the respondents.

Rating Scale of Student Engagement

Scale	Mean Range	Verbal Description	Interpretation
5	4.20 – 5.00	Always observed	If the indicators described in the item are done at all times.
4	3.40 – 4.19	Frequently observed	If the indicators described in the item are done in most cases but not at all times.
3	2.60 – 3.39	Sometimes observed	If the indicators described in the item are done in half of the instances.
2	1.80 – 2.59	Seldom observed	If the indicators described in the item are done in very few instances.
1	1.00 – 1.79	Never observed	If the indicators described in the item are never done or experienced.

Table 1. 5-point Likert Scale Basis for the Questionnaire

Rating Scale of Academic Self-Efficacy

Level	Rating Scale	Descriptive Rating	Interpretation
5	4.20 – 5.00	Very High	The indicators described in the item are done very satisfactorily
4	3.40 – 4.19	High	The indicators described in the item are done satisfactorily
3	2.60 – 3.39	Moderate	The indicators described in the item are done fair
2	1.80 – 2.59	Low	The indicators described in the item are done poorly
1	1.00 – 1.79	Very Low	The indicators described in the item are done very poorly

Table 2. 5-point Likert Scale Basis for the Questionnaire

To ensure that the administration of the questionnaires is following the minimum health protocols, the questionnaires were administered via Google Forms. An informed consent signing and briefing session will be conducted with the respondents before the administration of the questionnaires.

To determine whether to use a parametric or non-parametric test, the assumptions for Pearson -r and Linear Regression were employed such as a test of normality, linearity, outliers, and homoscedasticity tested at 0.05 level of significance for student engagement and self-efficacy, respectively.

Mean determined the levels of student engagement and academic self-efficacy among the respondents. *Pearson Product Moment Correlation (r)* was used to test the significant relationship between the online experience and confidence in learning materials, flexibility of learning, and complexity of learning materials. Testing of the hypothesis was based on $\alpha = 0.01$ level of significance which met the tests of normality, outliers, and homoscedasticity. *Mediated Regression* determined if student engagement significantly predicts academic self-efficacy.

Results and Discussion

Table 1. Level of Student Engagement among Respondents in Terms of Online Experience

Statement	Mean	Verbal Interpretation
Activities I completed in an online learning platform prepared me for in-class learning	4.04	Frequently Observed
Online materials help me gain a clearer understanding of the subject	3.87	Frequently Observed
Understanding online materials helped me move the topics further in class	3.99	Frequently Observed
Online learning platform materials provided me with opportunities to apply or practice what I learned during in-class sessions	3.75	Frequently Observed
My online experiences helped me engage actively in my learning	3.65	Frequently Observed
I feel more confident coming to class with certain knowledge in advance by studying online	3.65	Frequently Observed
With a certain understanding before coming to class, I'm more likely to ask questions in the class	3.52	Frequently Observed
Overall Mean	3.78	Frequently Observed

Legend: 4.20 – 5.00 Always observed; 3.40 – 4.19 Frequently observed; 2.60 – 3.39 Sometimes observed; 1.80 – 2.59 Seldom observed; 1.00 – 1.79 Never observed

Based on the table presented, the overall mean is 3.78 with a verbal description of frequently observed. The highest mean score ($\bar{x}$=4.04) is located in the item "Activities I completed in an online learning platform prepared me for in-class learning." The lowest mean

form, which is highly used in the pursuit of the blended modality of learning. As student engagement is now strongly associated with e-learning systems, it was believed that the

($\bar{x}$=3.52) is in the item "With a certain understanding before coming to class, I'm more likely to ask questions in the class." This result emphasizes that students are frequently prepared for in-class learning in terms of the activities, they complete in a specific online learning plat

interaction of students in the cognitive, behavioral, and affective dimensions, has had a significant impact on student's academic performance through student grades and performances inside and outside of the classroom (Hussain et al., 2018).

Table 2. Student Engagement among Respondents in Terms of Flexibility of Learning

Statement	Mean	Verbal Interpretation
With online materials provided on an online learning platform, I can study anytime and anywhere I can	4.22	Always Observed
With online materials provided on an online learning platform, I can study at my own pace	4.28	Always Observed
Overall Mean	4.26	Always Observed

Legend: 4.20 – 5.00 Always observed; 3.40 – 4.19 Frequently observed; 2.60 – 3.39 Sometimes observed; 1.80 – 2.59 Seldom observed; 1.00 – 1.79 Never observed

The table shows that with an overall mean of 4.26, it can be seen that flexibility of learning is always observed among students. The highest mean score ($\bar{x}$=4.28) is located in the item "With online materials provided on the online learning platform, I can study at my own pace." With the course of blended learning modality, students make use of online learning platforms to help students in Contemporary World subjects enjoy flexible learning. Adekola, Dale, and Gardiner (2017) mentioned that the teaching-learning needs of the students are changing, especially in the way they engage with others and the way they engage in different pieces of information concerning the place, pace, and time. Suartama, Setyosari, & Ulfa (2019) made sure that in higher education, the blended learning modality is well-executed; hence, deploying a blended learning framework that will allow learners to acquire different pieces of information not just in computers but also in the respective mobile devices, which will allow them to enjoy learning irrespective of the place and convenience.

Table 3. Level of Academic Self-Efficacy among Respondents in Terms of Confidence in Learning Materials

Question	Mean	Verbal Interpretation
I'm confident I can do an excellent job on the assignments and tests in this course	3.81	High
I'm confident I can understand the basic concepts taught in this course	3.38	High
I'm confident I can understand the most complex material presented by the instructor in this course	3.44	High
I'm certain I can master the skills being taught in this class	3.65	High
I try to understand the content of this course as well as possible	3.55	High
I expect to do well in this class	4.19	High
When I take a test, I think about how poorly I am doing	3.85	High
I'm certain I can understand the most difficult material presented for this course	3.67	High
When I take a test I think about how poorly I am doing compared with other students	3.53	High
When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade	3.68	High
Overall Mean	3.71	High

Legend: 4.20 – 5.00 Very High; 3.40 – 4.19 High; 2.60 – 3.39 Moderate; 1.80 – 2.59 Low; 1.00 – 1.79 Very Low

In the table presented, the overall mean is 3.71 with a verbal description of high. The highest mean score ($\bar{x}$=4.19) is located in the item "I expect to do well in this class." The lowest mean ($\bar{x}$=3.44) is in the item "I'm confident I can understand the most complex material presented by the instructor in this course." This result emphasizes that students, during blended learning, have high confidence in learning materials; hence, have high levels of self-efficacy in terms of handling the learning materials effectively. If students wish to achieve academic success, they engage in a vicarious experience. In this way, empathy is developed in a variety of situations. Beri and

Stanikzai (2018) stated that vicarious experiences as a form of academic self-efficacy should be implemented in various aspects of blended learning. In this way, students can comprehend various facets of what people are experiencing in various contexts, thereby enhancing their ability to interact with various pieces of knowledge in various learning dimensions

Table 4. Level of Academic Self-Efficacy among Respondents in Terms of Complexity of Learning Materials

Question	Mean	Verbal Interpretation
In a class like this, I prefer course material that challenges me so I can learn new things	3.79	High
In a class like this, I prefer course material that arouses my curiosity, even if is difficult to learn	4.06	High
Overall Mean	3.94	High

Legend: 4.20 – 5.00 Very High; 3.40 – 4.19 High; 2.60 – 3.39 Moderate; 1.80 – 2.59 Low; 1.00 – 1.79 Very Low

Based on the table presented, the overall mean is 3.94 with a verbal description of high. The highest mean score ($\bar{x}$=4.06) is located in the item "In a class like this, I prefer course material that arouses my curiosity, even if is difficult to learn." With the results, it can be seen that because of the learning materials' complexity, the students have a high perception in terms of using complex materials that arouse their curiosity. In terms of inclusivity and self-efficacy, the importance of mastery experiences in predicting the self-efficacy of learners cannot be overstated. Through mastery of experiences that serve as the focal point of the teaching-learning process, self-efficacy promotes inclusion. Through constructivism that enables mastery experiences, students' prior knowledge can be connected to new information. Prior knowledge must be used as a focal point in the teaching-learning process, particularly in the context of blended learning, which improves the way students engage with different learning contents (Wilson et.al., 2020).

Table 5. Level of Academic Performance of the Respondents

N	Mean of Academic Performance
184	89.25

Table 6. Significant Relationship between Online Experience and Confidence in Learning Materials

		Confidence in Learning Materials
Online Experience	Pearson Correlation	-.210
	Sig. (2-tailed)	.177
	N	184

**. Correlation is significant at the 0.01 level (2-tailed).

Significant Relationship between Flexibility of Learning and Complexity of Learning Materials. As the results of the study tested the significant relationship between flexibility of

learning and complexity of learning materials, it can be seen that at a 0.01 level of significance, there is no significant relationship between flexibility of learning and complexity of learning materials shown in **Table 7**. The data shows that flexibility of learning does not show a significant relationship with the complexity of learning. Hence, this is also inherent to the findings of Landrum (2020) that there is a significant relationship between confidence in learning materials and online experiences. Other factors that have affected the non-significance of the mentioned variables are time constraints, number of the sample respondents available, and other factors that have hampered the conduct of the study.

Table 7. Test of Relationship between Flexibility of Learning and Complexity of Learning Materials

		The Complexity of Learning Materials
Flexibility of Learning	Pearson Correlation	.291**
	Sig. (2-tailed)	.001
	N	184

**. Correlation is significant at the 0.01 level (2-tailed).

Significant Mediation of Academic Self-Efficacy between Student Engagement and Academic Performance. Based on the overall analyses of **Table 8** conducted in terms of mean and their significant difference done in terms of grouping, it is seen that academic self-efficacy does not significantly mediate between student engagement and academic performance.

Tested at a 0.01 level of significance, the mediation regression analysis conducted can be seen that student engagement and academic performance have a significant relationship (p-value= 0.00), which proceeds to the next step of the analysis, which is to test the significant relationship between student engagement and academic self-efficacy. Based on the mediated regression analysis, it can be seen that student engagement and academic self-efficacy have no significant relationship (p-value= 1.35), which means non-significance in terms of mediation; hence, showing no mediation. **Figure 2** highlights the mediation analysis of academic self-efficacy between student engagement and academic performance.

This is also inherent to the findings of Jung et al. (2015) that there may be instances where student engagement and academic performance have a significant difference, but academic self-efficacy does not have a significant mediation of self-efficacy between student engagement and academic performance.

Table 8. Significant Mediation of Academic Self-Efficacy between Student Engagement and Academic Performance

Variables	b	SE	T	p
E→A	-2.267	1.508	-1.504	1.35
E→S	0.609	0.071	8.522	0.00
E→S→A	1.813	1.897	0.956	0.341

Legend: E- Student Engagement; S- Self-efficacy; A- Academic Performance

Figure 2. Mediation Analysis of Academic Self-Efficacy between Student Engagement and Academic Performance
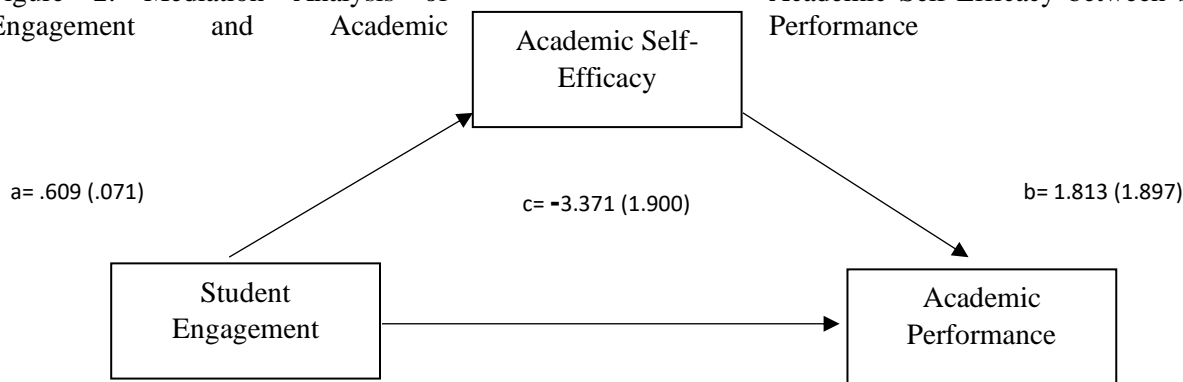
Conclusion and Recommendations

In conclusion, student engagement of students in the Contemporary World at the onset of the blended learning modality has good visibility in online experience and has always demonstrated flexibility in learning. In addition, they have high levels of confidence. They can frequently handle challenges brought by the complexity of learning materials during the blended learning modality. The students also have a satisfactory academic performance in the Contemporary World subject.

However, online experience and confidence in learning materials do not have a significant relationship, which applies the same to the flexibility of learning and complexity of learning materials. Furthermore, academic self-efficacy does not significantly mediate between student engagement and academic performance. These findings suggest that while the students are doing well in the blended learning modality, there may be other factors that affect their academic performance, and further research is needed to explore these factors.

Through systematic examination and careful consideration of the results and findings of this research study, the following recommendations were drawn. The study may be a basis for reference among instructional coordinators, program chairs, and administration. Program chairs may consider the formulation of improving the self-efficacy, academic performance, and engagement of the students in the implementation of the blended learning modality. And, further studies may be formulated for students. It is recommended that similar research may be explored by future researchers.

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Culturally Responsive Teaching Outcome Expectancy: An Exploratory Factor Analysis

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Abstract

The study aimed to determine the level and the underlying constructs of in-service elementary English teachers' Culturally Responsive Teaching Outcome Expectancy (CRTOE) beliefs. A quantitative approach using Exploratory Factor Analysis (EFA) research design was utilized in the study. A survey questionnaire was administered to gather the needed data. A total of 300 in-service elementary English teachers were utilized as respondents of the study through convenience sampling techniques. Mean, standard deviation, and EFA were used as statistical tools in this study. Significant findings revealed that the level of teachers' CRTOE beliefs was described as with very high certainty. Teachers play significant roles in creating a classroom that is culturally responsive and compatible with all students which leads to positive outcomes. Three factors emerged from the extraction of factor analysis namely, school connectedness and partnership, curriculum and instructional strategies, and cultural learning styles and involvement. Moreover, it will be recommended to the school administration to maintain and strengthen the very high confidence of CRTOE beliefs of English teachers by consistently supporting culturally developed activities, English teachers may extend their time and attention to explore and understand more about the diverse cultural backgrounds of the students, English teachers may change the classroom's structure that is compatible with students' home cultures, the factors may be utilized as indicators and predictors, the future researchers may conduct Confirmatory Factor Analysis (CFA) and explore other terms that would best describe each dimension, and similar study may be conducted with English teachers coming from other levels.

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Keywords: Outcome Expectancy, Social Science, Quantitative, Region XI

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Introduction

The Philippines, as a multicultural and diverse country, is composed of an estimated 14-17 million Indigenous Peoples (IPs) with 110 ethnic groups (United Nations Development Programme [UNDP], 2010). In school, teachers and students are culturally different from one another. The diversity of culture has been increasing over time (Serdyukov, 2017). Culture, as recognized by the Philippine education system, is highly associated with the diversity of language, and the distinctive ethnicity of Filipinos influences their backgrounds in culture (Morales, 2014).

In the first decade of implementing the Indigenous Peoples Education (IPEd) Program of the Department of Education (DepEd), it served 42,176 public schools with 2.529 million

IP (Indigenous People) learners around the Philippines (DepEd, 2021). According to Childers (2020), in the classroom, students are diverse in nationalities, mindsets, cultures, and beliefs. This scenario calls for teachers' preparations to meet the needs of diverse learners. In addition, teachers who teach students with different backgrounds should have appropriate training. Coppersmith *et al.* (2019) added that for the teachers to become culturally and linguistically responsive in their field there must be immediate training to address the needs of the increasing number of students from diverse cultures. Culturally Responsive Teaching (CRT) can bridge the gap between student and teacher where it creates a safe space, developing student's sense of belongingness in class despite the differences, and helping the teacher to understand the culturally diverse nuances of the students to avoid issues in the student's achievement (Rucker, 2019). This study focuses on the in-service elementary English teachers' outcome expectancy, which is a belief and a degree that the particular result will occur and there is a predicted positive type of consequence for a person engaging in a behavior (Hernandez *et al.,* 2017). As Brown et al. (2014) discussed, outcome expectancy is one of the theorized terms to complete a particular behavior, develop the motivation for a task, and determine the level of effort given in the face of challenges.

In this vein, this study explored the level of culturally responsive teaching outcome expectancy beliefs of the in-service elementary English teachers in public and private schools. It has been observed that there is a dearth in the literature about this study. Outcome expectancy discusses the beliefs of the teachers that engaging in CRT will have positive outcomes for the students and the classrooms. Further, this study also examined the underlying constructs to determine and specify the items or attributes bound together to have common themes or commonalities. These items or attributes were listed on the

Culturally Responsive Teaching Outcome Expectancy Scale ([CRTOE] developed by Siwatu (2007). The researcher ascertained what constructs would fit the attributes.

The DepEd implemented the National IP Education (IPEd) Policy Framework (DepEd Order #62, s., 2011), and the IP Education (IPEd) Curriculum Framework (DepEd Order #32, s., 2015) to guide the institutions in responding to IP learners in education. These two frameworks were crafted to cater to the needs of indigenous students and also to empower their culture. To intensify its advocacy for culturally responsive education, teachers must formulate culture-based lesson plans (Cuares, 2016).

To strengthen the culturally responsive curriculum, the Gender-Responsive Basic Education Policy (DepEd Order #32, s., 2017) which includes the principles of gender sensitivity, gender equality, equity, non-discrimination, and human rights, was likewise implemented. The DepEd integrates gender equality through a gender-responsive basic education to develop Filipinos holistically with access to culture-based basic education in a safe, learner-friendly, and nurturing place. These are the existing policy frameworks of the DepEd; this study determined if a framework could be developed fit for the in-service elementary English teachers.

The concept of culture comprises behavior patterns, ways, values, goals, assumptions, and understandings that are shared and learned. The world culture originates from *cultura* which means worship or cult and it is the sum of human feelings, lifeways, and interactions (Kangal, 2021). A way of understanding the culture is not only knowing the differences in terms of language but also the different perceptions, attitudes, beliefs, knowledge, and behaviors (LaMorte, 2016). In the classroom, cultural differences exist, English language learners or speakers

have different cultures and it is important for teachers to be mindful of the cultural differences (Alrubail, 2016). There must be cultural connections in the classroom to create meaningful ways for the memory to retrieve and store information (Hammond, 2015).

Culturally Responsive Teaching Outcome Expectancy (CRTOE). There is an increase in the demand for adapting and shifting into multicultural classrooms that is a student-centered approach to teaching like culturally responsive pedagogy. In culturally responsive teaching, there is no formula or fixed line because each classroom has its own needs (Bennett *et al.,* 2018). Further, culturally responsive teaching establishes meaningful lesson plans and demonstrations in the region and all teachers as key players were transformed continuously (DepEd, 2016).

The gender-responsive basic education policy of the DepEd (DepEd Order #32, s., 2017). Gender-responsive basic education is aligned with the Gender and Development (GAD) mandate in the 1987 Philippine Constitution. This policy mandates that gender equality will be integrated into basic education. It aims to establish inclusive education for all genders with equal access to learning opportunities in all spheres of life, equitable outcomes and fair treatment in the

connections to the student's learning in school and their cultures and languages (Writers, 2020).

Towards culturally responsive education for IP learners of the DepEd are moving towards a contextualized curriculum and adopting culturally responsive education. In the process of contextualizing the K-12 curriculum, the educational system is now working to implement the idea of *"culturally sensitive"* and *"culturally responsive"* real in the lives of the IP learners. In Region XI, there were various seminars, workshops, and training conducted on the implementation of IPEd since 2013. There were contextualize

learning process, and so forth.

In general, engaging in culturally responsive pedagogy helped the teachers and students to become culturally aware and culturally responsible with all the diverse information and backgrounds. Teachers engaging in culture can lead to many positive outcomes or behaviors. There is little literature about culturally responsive teaching outcome expectancy of in-service particularly among English teachers both in private and public schools. Thus, this study helped the schools to identify the level of CRTOE beliefs of the in-service teachers and its underlying constructs.

Methods

The study utilized the quantitative research design using Exploratory Factor Analysis (EFA). The respondents of this study were 300 in-service elementary English teachers of the public schools in the division of Davao City and private schools, specifically those members of the Davao Association of Catholic Schools, Inc. (DACS). Convenience sampling was the technique used by the researcher in obtaining the respondents of the study. This sampling had a criterion: the ease

of getting the respondents depending on the geographical locations, costs, and alike. One of the examples of this sampling was recruiting members to answer the survey. Further, the researcher utilized an adapted survey questionnaire developed by Siwatu (2007), *Culturally Responsive Teaching Outcome Expectancy Scale.* The author used this tool in his study entitled *"Preservice teachers culturally responsive teaching self-efficacy and outcome expectancy beliefs."* This is a 26-item scale designed to assess in-service teachers' beliefs that engaging in a culturally responsive

teaching practice will have positive classroom and student outcomes by indicating a probability of success from 0 (entirely uncertain) to 10 (entirely certain).

In gathering the data, permission letters were written and addressed to the Schools Division Superintendent and the Dean of the Graduate School of Education, likewise, endorsement letters were also communicated to all public and private school principals. Davao City Division is the research locale of this research study. Also, the tool was uploaded to Google Forms for ease of gathering the data and considering that there are strict health protocols to be observed in a meeting with the in-service elementary English teachers. Moreover, as to the administration of the tool, letters were written and addressed to the Schools Division Superintendent and all public and private school principals. The requests were approved, and the online survey link was forwarded through the official email address of the principal or the assigned representative of the school.

Moreover, the statistical tools that the researcher used in the computation and interpretation of data of this study were Mean and standard deviation and Exploratory Factor Analysis (EFA). First, Mean and standard deviation were used to answer the level of the CRTOE beliefs of the in-service elementary English teachers, while Exploratory Factor Analysis (EFA) was used to get the constructs of the CRTOE beliefs fit for the in-service elementary English teachers.

Results and Discussion

Table 1. Inservice Elementary English Teachers Culturally Responsive Teaching Outcome Expectancy (CRTOE) Beliefs Level.

Items	SD	Mean	Interpretation
1) A positive teacher-student relationship can be established by building a sense of trust in my students.	1.14	9.34	Very High Certainty
2) Incorporating a variety of teaching methods will help my students to be successful.	.98	9.42	Very High Certainty
3) Students will be successful when instruction is adapted to meet their needs.	.97	9.43	Very High Certainty
4) Developing a community of learners when my class consists of students from diverse cultural backgrounds will promote positive interactions between students.	1.12	9.35 [from	Very High Certainty
5) Acknowledging the ways that the school culture is different from my students' home culture will minimize the likelihood of discipline problems.	1.22	9.26	Very High Certainty

Items	SD	Mean	Interpretation
6) Understanding the communication preferences of my students will decrease the likelihood of student-teacher communication problems.	1.37	9.26	Very High Certainty
7) Connecting my students' prior knowledge with new incoming information will lead to deeper learning.	.96	9.50	Very High Certainty
8) Matching instruction to the student's learning preferences will enhance their learning.	1.03	9.44	Very High Certainty
9) Revising instructional material to include a better representation of the student's cultural group will foster positive self-images	1.12	9.37	Very High Certainty
10) Providing English Language Learners with visual aids will enhance their understanding of assignments.	1.08	9.40	Very High Certainty
11) Students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time.	1.03	9.37	Very High Certainty

12) Conveying the message that parents are an important part of the classroom will increase parent participation.	1.00	9.44	Very High Certainty
13) The likelihood of student-teacher misunderstandings decrease when my students' cultural background is understood.	1.28	9.21	Very High Certainty
14) Changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class.	1.32	9.21	Very High Certainty
15) Establishing positive home-school relations will increase parental involvement.	1.03	9.45	Very High Certainty
16) Student attendance will increase when a personal relationship between the teacher and students has been developed.	1.04	9.45	Very High Certainty
17) Assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned.	.98	9.46	Very High Certainty
18) Using my students' interests when designing instruction will increase their motivation to learn.	.97	9.47	Very High Certainty
19) Simplifying the language used during the presentation will enhance English Language Learners' comprehension of the lesson.	1.01	9.45	Very High Certainty
20) The frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution.	1.39	9.23	Very High Certainty
21) Encouraging students to use their native language will help to maintain students' cultural identity.	1.41	9.24	Very High Certainty
22) Students' self-esteem can be enhanced when their cultural background is valued by the teacher.	.88	9.53	Very High Certainty
23) Helping students from diverse cultural backgrounds succeed in school will increase their confidence in their academic ability.	.97	9.46	Very High Certainty
24) Students' academic achievement will increase when they are provided with unbiased access to the necessary learning resources.	1.22	9.43	Very High Certainty
25) Using culturally familiar examples will make learning new concepts easier.	.98	9.45	Very High Certainty

26) When students see themselves in the pictures that are displayed in the classroom, they develop a positive self-identity.	1.18	9.41	Very High Certainty
Overall	**.89**	**9.39**	**Very High Certainty**

Table 1 presents the level of culturally responsive teaching outcome expectancy beliefs of elementary English teachers. The overall result reveals a mean rating of 9.39, described as a "very high certainty." This result suggests that the teachers have very high confidence that the behavior will lead to a positive outcome. The standard deviation is .89, which means homogeneity of responses among the respondents. Among the items, item 22, "Students' self-esteem can be enhanced when their cultural background is valued by the teacher," got the highest mean rating of 9.53, indicating "very high certainty." English teachers play an important role in developing students' self-esteem. When teachers consider the cultural makeup of the students, there is an improvement in the student's self-esteem. Thus, teachers may utilize activities that align with the diverse cultural backgrounds of students. In this context, every student has a chance to develop their potential, leading to enhanced self-esteem.

On the other hand, the items- "*The likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood*", and "*Changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class*" got the lowest mean rating of 9.21 interpreted as a *"very high certainty."* In this case, English teachers need to create an atmosphere where students' cultural beliefs are respected and heard. This minimizes conflicts or misunderstandings in the classroom. In addition, teachers' beliefs about students' cultural backgrounds should foster holistic development and enhancement of their skills.

Table 2. KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.955
Bartlett's Test of Sphericity	Approx. Chi-Square	9129.477
	Df	325
	Sig.	.000

Bartlett's test of sphericity should be significant ($p<.05$) for the factor analysis to be considered appropriate. The Kaiser-Meyer-Olkin (KMO) index ranges from 0 to 1, with .6 as the minimum value for good factor analysis (Tabachnick & Fidell, 2007). The result showed that the constructs yielded a Kaiser-Meyer-Olkin (KMO) value of .955 and Bartlett Test of Sphericity Chi-square of 9129.477 with a *p*-value of .000, indicating that the data are factorable and it passed the requirement of the EFA. Meanwhile, it is noted that KMO values between .5 and .7 are considered mediocre; values between .7 and .8 are good; values between .8 and .9 are great; and values above .9 are superb (Hutcheson & Sofroniou, 1999). In this study, the KMO value of .955 is

considered superb **(Table 2)**.

Figure 2. *Scree Plot (Eigenvalues)*

EFA's result has identified three linear components within the dataset. The component number and eigenvalues are presented through a scree plot (**Figure 2**). The eigenvalues associated with each factor represent the variance explained by the particular linear component, and the analysis also displayed the eigenvalues in terms of the percentage of variance explained. Eigenvalues represent the total amount of variance that can be explained by a given principal component. They can be positive or negative in theory, but in practice, they explain variance which is always positive. If eigenvalues are greater than zero, it is a good sign (UCLA Regents, 2021). Factor 1 explains 17.35 percent of the total variance and garners

the highest percentage while factors 2 and 3 tallies 1.18 and 1.03 percent. The result reveals that the three factors have an eigenvalue of greater than 1; hence, 3 dimensions are identified. The eigenvalues associated with these factors are shown, and the percentage of variance is explained in the columns labeled extraction sum of squared loadings. The eigenvalues of the factors after rotation are likewise presented. Conversely, Kaiser (1960) proposes dropping factors whose eigenvalues are less than one since these provide less information than is provided by a single variable. If a factor has a low eigenvalue, then it contributes little to the explanation of variances in the variables and may be ignored

as redundant with more important factors. Eigenvalues measure the amount of variation in the total sample accounted for by each

factor.

Table 4. Attributes of School Connectedness and Partnership.

Item Number	Items/Attributes	Factor Score	Dimension
2	Incorporating a variety of teaching methods will help my students to be successful.	.765	
7	Connecting my students' prior knowledge with new incoming information will lead to deeper learning.	.762	
1	A positive teacher-student relationship can be established by building a sense of trust in my students.	.748	
22	Student's self-esteem can be enhanced when their cultural background is valued by the teacher.	.741	School Connectedness and Partnership
23	Helping students from diverse cultural backgrounds succeed in school will increase their confidence in their academic ability	.726	
12	Conveying the message that parents are an important part of the classroom will increase parent participation.	.715	
13	Students will be successful when instruction is adapted to meet their needs.	.685	
14	Simplifying the language used during the the presentation will enhance English Language Learners' comprehension of the lesson.	.672	

Factor 1. *School Connectedness and Partnership.* Principal component analysis (CPA) is a method with a rejection value of 0.40 which means the item number with a score less than 0.40 is rejected in the process or rotation. It is used for extracting the dimensions or factors from the set of items. PCA is psychometrically sound and simpler mathematically, and it avoids some of the potential problems with *"factor indeterminacy"* associated with factor analysis

(Stevens, 1996).

Additionally, Tabachnick and Fidell (2001) also adhered that PCA is a better choice if an empirical summary of data is desired. Items with high factor loadings are 2 (.765), 7 (.762), 1 (.748), 22 (.741), 23 (.726), 12 (.715), 3 (.685), and 19 (.672) respectively which is reflected in **Table 4**. According to the American Psychological Association (2022), school connectedness allows students to be successful in academics

and to engage in good behaviors. The strong participation of family, supportive personnel, inclusive environments, and curricula that show the diverse realities and cultures can help students to be more connected to the school.
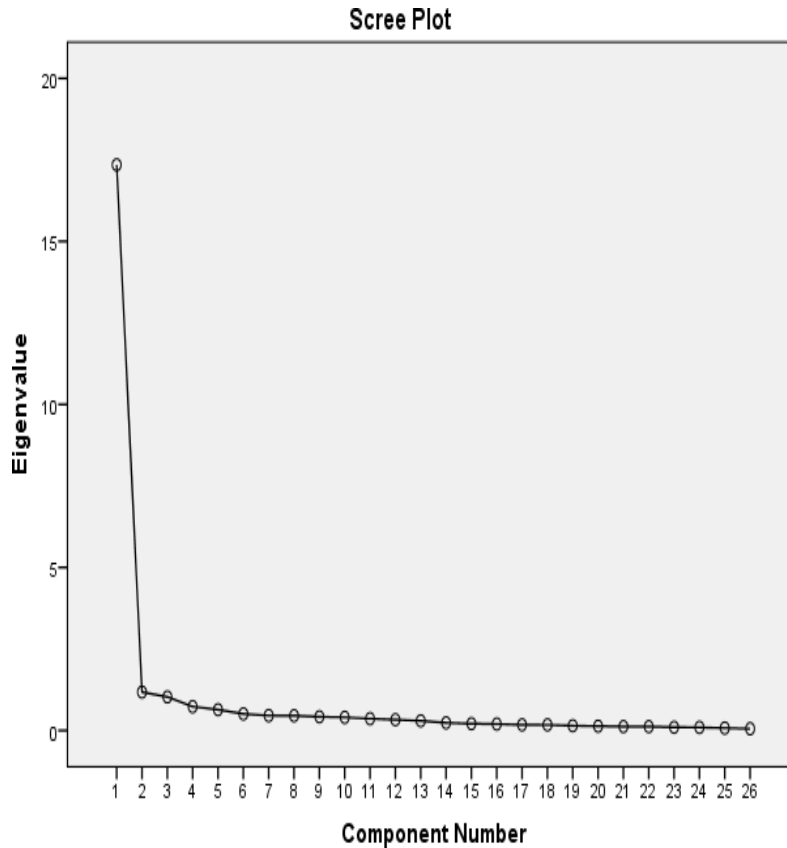
EFA's result has identified three linear components within the dataset. The component number and eigenvalues are presented through a scree plot (**Figure 2**). The eigenvalues associated with each factor represent the variance explained by the particular linear component, and the analysis also displayed the eigenvalues in terms of the percentage of variance explained. Eigenvalues represent the total amount of variance that can be explained by a given principal component. They can be positive or negative in theory, but in practice, they explain variance which is always positive. If eigenvalues are greater than zero, it is a good sign (UCLA Regents, 2021). Factor 1 explains

17.35 percent of the total variance and garners the highest percentage while factors 2 and 3 tallies 1.18 and 1.03 percent. The result reveals that the three factors have an eigenvalue of greater than 1; hence, 3 dimensions are identified. The eigenvalues associated with these factors are shown, and the percentage of variance is explained in the columns labeled extraction sum of squared loadings. The eigenvalues of the factors after rotation are likewise presented. Conversely, Kaiser (1960) proposes dropping factors whose eigenvalues are less than one since these provide less information than is provided by a single variable. If a factor has a low eigenvalue, then it contributes little to the explanation of variances in the variables and may be ignored as redundant with more important factors. Eigenvalues measure the amount of variation in the total sample accounted for by each factor.

Table 3. Total Variance Explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	17.35	66.73	66.73	17.35	66.73	66.73	9.74	37.49	37.49
2	1.18	4.539	71.26	1.18	4.539	71.26	5.16	19.85	57.35
3	1.03	3.962	75.23	1.03	3.962	75.23	4.64	17.88	75.23
Extraction Method: Principal Component Analysis.									

As shown in Table 3, the three factors have a total eigenvalue of 17.35, 1.18, and 1.03 respectively which accounts for 66.73, 4.539, and 3.962. The three factors have total variances of 75.231 percent. Still, the total variances of the 3 components are consistent

before and after extraction and rotations that is 75.231 percent. This implies that 75.23 percent of variances are being shared in the data.

Based on the result of EFA, three dimensions emerged to explain in-service elementary English teachers' CRTOE beliefs.

These dimensions are school connectedness and partnership, curriculum and instructional strategies, and cultural learning styles and involvement.

Table 5. Attributes of Curriculum and Instructional Strategies.

Item Number	Items/Attributes	Factor Score	Dimensions
25	Using culturally familiar examples will make learning new concepts easier.	.412	
8	Matching instruction to the student's learning preferences will enhance their learning.	.401	
10	Providing English Language Learners with visual aids will enhance their understanding of assignments.	.455	
4	Developing a community of learners when my class consists of students from diverse cultural backgrounds will promote positive interactions between students.	.481	
9	Revising instructional material to include a better representation of the student's cultural the group will foster positive self-images.	.461	Curriculum and Instructional Strategies
20	The frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution.	.837	
24	Students' academic achievement will increase when they are provided with unbiased access to the necessary learning resources.	.753	
6	Understanding the communication preferences of my students will decrease the likelihood of student-teacher communication problems.	.714	
5	Acknowledging the ways that the school culture is different from my students' home culture will minimize the likelihood of discipline problems	.690	
13	The likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood.	.603	

Factor 2. *Curriculum and Instructional Strategies*. **Table 5** presents the ten (10) extracted items with the corresponding factor scores to constitute curriculum and instructional strategies. These items are 25 (.412), 8 (.401), 10 (.455), 4 (.481), 9 (.461), 20

(.837), 24 (.753), 6 (.714), 5 (.690) and 13 (.603). Kapur
(2020) referred curriculum to as the outline of varied concepts to be presented to the students to meet the standard and performance content. It contained interactive instruction and learning goals, contents, strategies, resources, and references. Also, it involved total learning experiences, comprehensive academic concepts, lesson plans, *etc.* It aimed to present various disciplines, strategies, knowledge, and other provisions. It is dynamic and it changes based on the actual setting. Whilst, instructional strategies are techniques used by teachers to give the students the assistance to be strategic and independent learners.

Table 6. Attributes of Cultural Learning Styles and Involvement.

Item Number	Items/Attributes	Factor Score	Dimensions
17	Assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned.	.416	
15	Establishing positive home-school relations will increase parental involvement.	.510	
11	Students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time.	.431	Cultural Learning Styles and Involvement
18	Using my students' interests when designing instruction will increase their motivation to learn.	.447	
13	The likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood.	.434	
21	Encouraging students to use their native language will help to maintain students' cultural identity.	.813	
14	Changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class.	.772	
26	When students see themselves in the pictures that are displayed in the classroom, they develop a positive self-identity.	.734	

Factor 3. *Cultural Learning Styles and Involvement.* **Table 6** presents the extracted eight (8) items with respective corresponding factor scores. These items are- (17) assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned, (.416), (15) establishing positive home-school relations will increase parental involvement (.510), (11) students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time (.431), (18) using

my students' interests when designing instruction will increase their motivation to learn (.447), (13) the likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood (.434), (21) encouraging students to use their native language will help to maintain students' cultural identity (.813), (14) changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class (.772), and (26) when students see themselves in the pictures that are displayed in the classroom they develop a positive self-identity (.734).

This result agrees with the findings of Gunduz and Ozcan's (2010) study. The authors claimed that learning styles are proven to be significant in the educational process. It classified varied ways students learn and how they connect information such as reflecting, seeing, hearing, acting, memorizing, and so forth. Likewise, the authors determined that cultures affect the learning style of the students. The student's native languages affect their learning styles. Language and culture are interconnected and embedded to each other and it is not easy to break and separate these two things.

Students learn in many ways, and to promote these learning styles, teachers should utilize a variety of cultural learning styles. Mantiri (2015), firmly believes that students are not the same inside the classroom. Each classroom is diverse and different in its way. Students learn in various ways because of their different experiences every day. Teachers

should relate all learning styles to multiple intelligences, psychological types, cognitive styles, and so forth. Culture captures many aspects, and it has a direct impact on the teaching and learning process.

With this, teachers need to perform culturally responsive practices; they need to be responsive to cultural values, language, learning styles, familial patterns, involvement, and ethnic groups. Teachers must inject respect that ethnic groups have various values in different ways. Also, teachers are challenged to accept cultural diversity which is one of the factors affecting and influencing the learning styles of the students in the classroom. Incorporating and acknowledging ways of learning, cultural patterns, and cultural knowledge is one of the significant ways to achieve students' academic success (Holmes, 2021).

In general, this study revealed a very high certainty level of CRTOE beliefs and 3 factors emerged from the extraction of factor analysis namely, school connectedness and partnership, curriculum and instructional strategies, and cultural learning styles and involvement as presented in **Figure 3**. The null hypothesis is rejected. The survey questionnaire of Siwatu (2007) was reconstructed and presented in **Table 7** which highlighted all the constructs and their corresponding items or attributes based on the results of the study. This was considered as the new tool by the researcher to see all the underlying constructs and their structure and attributes.
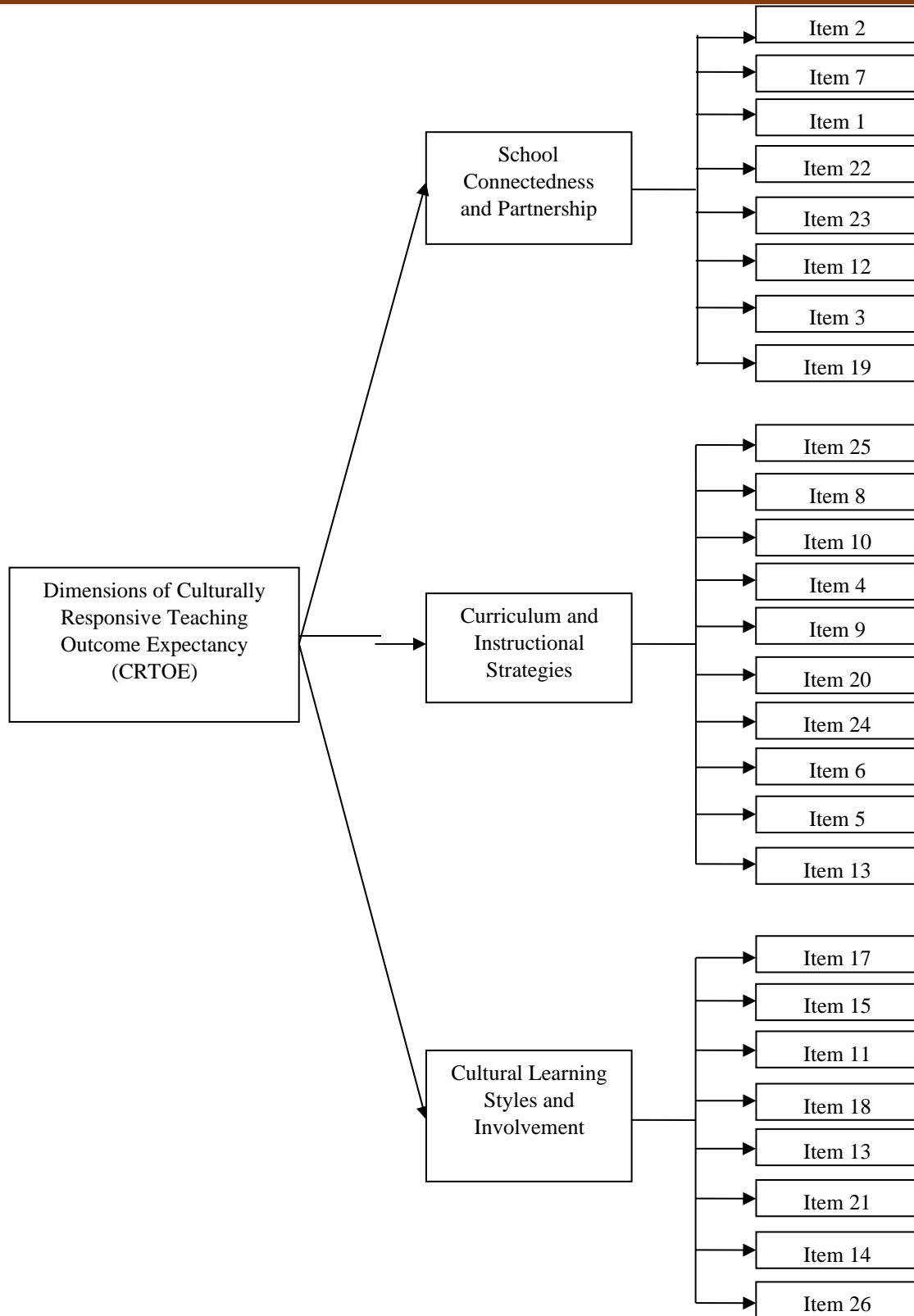
Figure 3. The conceptual paradigm of the study

Summary

This study aimed to determine the level and underlying constructs of in-service elementary English teachers' Culturally Responsive Teaching Outcome Expectancy (CRTOE) beliefs. A total of 300 in-service elementary English teachers, both from public and private schools, were utilized as respondents to the study. The overall result revealed that the level of teachers' CRTOE beliefs had a mean rating of 9.39, and it was described as with very high certainty. It indicates that teachers have very high confidence that the behavior will lead to a positive outcome. Moreover, item 22 which was "*Students' self-esteem can be enhanced when their cultural background is valued by the teacher*," garnered the highest mean rating of 9.53 indicated very high certainty. On the other hand, item 13 which is "*The likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood*", and item 14 "*Changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class*" tallied the lowest mean rating of 9.21 interpreted as a very high certainty. Furthermore, the null hypothesis was rejected as three factors emerged from the extraction of factor analysis such as school connectedness and partnership, curriculum and instructional strategies, and cultural learning styles and involvement. Each factor has different attributes.

Conclusions

The in-service elementary English teachers of public and private schools had very high certainty of Culturally Responsive Teaching Outcome Expectancy (CRTOE) beliefs. Teachers played significant roles in creating a classroom that is culturally responsive and culturally compatible with all diverse students, wherein it leads to good outcomes or behaviors. With this, engaging in CRT and performing all CRTOE promotes positive results for the students, teachers, and schools.

The dimensions or factors of in-service elementary English teachers' Culturally Responsive Teaching Outcome Expectancy (CRTOE) beliefs were (1) school connectedness and partnership,

(2) curriculum and instructional strategies, and (3) cultural learning styles and involvement. Each dimension or factor had different attributes. With this, the null hypothesis was rejected.

2.1. *School connectedness and partnership* had eight attributes such as incorporating a variety of teaching methods will help my students to be successful, connecting my students' prior knowledge with new incoming information will lead to deeper learning, a positive teacher-student relationship can be established by building a sense of trust in my students, students' self-esteem can be enhanced when their cultural background is valued by the teacher, helping students from diverse cultural backgrounds succeed in school will increase their confidence in their academic ability, conveying the message that parents are an important part of the classroom will increase parent participation, students will be successful when instruction is adapted to meet their needs, and simplifying the language used during the presentation will enhance English Language Learners' comprehension of the lesson.

2.2. *Curriculum and instructional strategies* had ten attributes such as using culturally familiar examples will make learning new concepts easier, matching instruction to the students' learning preferences will enhance their learning, providing English Language Learners with visual aids will enhance

their understanding of assignments, developing a community of learners when my class

consists of students from diverse cultural backgrounds will promote positive interactions between student, revising instructional material to include a better representation of the student's cultural group will foster positive self-images, the frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution, students' academic achievement will increase when they are provided with unbiased access to the necessary learning resources, understanding the communication preferences of my students will decrease the likelihood of student-teacher communication problems, acknowledging the ways that the school culture is different from my students' home culture will minimize the likelihood of discipline problems, and the likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood.

2.3. *Cultural learning styles and involvement* had eight attributes such as assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned, establishing positive home-school relations will increase parental involvement, and students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time, using students' interests when designing instruction will increase their motivation to learn, the likelihood of student-teacher misunderstandings decreases when

my students' cultural background is understood, encouraging students to use their native language will help to maintain students' cultural identity, changing the structure of the classroom so that it is compatible with students' home culture will increase their motivation to come to class, and when students see themselves in the pictures that are displayed in the classroom they develop a positive self-identity.

Recommendations

School administration may maintain and strengthen the very high confidence of Culturally Responsive Teaching Outcome Expectancy (CRTOE) beliefs of English teachers by consistently supporting the English teachers' culturally developed context lessons and activities that caters to diverse cultural backgrounds, promotes students' motivation, builds a sense of trust, fosters positive interactions, improves home-school relationships, and measures students' performance.

English teachers may extend their time and attention to explore and understand more about the diverse cultural backgrounds of the students in the class. The more the cultural background is valued, the more their self-esteem will be enhanced. Likewise, English teachers may change the classroom's structure which is compatible with the home culture of the students. Also, the identified factors may be utilized as indicators of Culturally Responsive Teaching Outcome Expectancy (CRTOE) beliefs, and they may be used as predictors to measure teachers' performance in English.

Future researchers may conduct Confirmatory Factor Analysis (CFA) to confirm if the factor fits the data or if it represents the number of constructs.

Future researchers may scrutinize all names of the three dimensions mentioned in the paper and their corresponding attributes. They may explore other terms that would best describe each dimension.

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A similar study may be conducted with English teachers coming from other levels such as junior high school, senior high school, or college. Also, explore teachers who handled other subjects as the respondents of the study.

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MASTER OF SCIENCE IN RADIOLOGIC TECHNOLOGY

Burnout and Home-Based Learning Readiness as Predictors of Turnover
Intention of Radiologic Technology Educators in Southern Mindanao:
A Convergent Mixed-Method Design Study
Leandro O. Dayao Jr., Leonila P. Felizarte

Mediating Effect of Occupational Burnout Between Job Satisfaction and
Organizational Commitment of The Radiologic Technologists in the Hospitals
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Knowledge, Attitude, and Adherence to Radiation Protection among
Radiologic Technologists in Hospitals
Jessa Rose C. Cantomayor

Burnout and Home-Based Learning Readiness as Predictors of Turnover Intention of Radiologic Technology Educators in Southern Mindanao: A Convergent Mixed-Method Design Study

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Abstract

The workplace and higher education have undergone rapid and significant alterations due to the coronavirus (COVID-19) outbreak. This caused educators all across the world to employ remote instruction. According to recent studies, the intention of instructors to leave the profession is a response to the change in the learning setting. Teachers also experienced work-related stress due to the abrupt change in the setting for instruction, which contributed to burnout. Thus, this study utilized a convergent mixed-method design. 73 Radiologic Technology educators were selected using a random sampling technique with mean, Pearson Product Moment of Correlation, and the Multiple Regression test to analyze the data. The thematic analysis data reduction approach was utilized to elucidate the qualitative data. The findings revealed that the Radiologic Technology educators' level of burnout is sometimes evident, their level of home-based learning readiness is high, and their level of turnover intention is sometimes exhibited. Moreover, the results yielded that burnout and home-based learning readiness have a strong correlation with turnover intention. Additionally, the results of the regression analysis revealed that burnout only has a significant prediction of turnover intention. Furthermore, the lived experiences of educators were explained further by the themes revealing the search for greener pastures and the adjustment and coping flexibility in the new normal. Additionally, the impact of these experiences and beliefs included: deeper insights into turnover intention as determined by financial, material, and psychological rewards and re-evaluating the uncertainty of turnover intention amidst ambivalence in the home-based learning setting. Finally, the quantitative findings corroborate the qualitative findings.

Introduction

The global pandemic of Covid-19 has added more stress to all professionals, especially educators. Due to the continuous rise of Covid 19 cases, implementing a work-from-home (WFH) setup in most industries as adopted, which reaps pros and cons for professional educators worldwide (Bansak & Starr, 2021). Because of this abrupt shift from classroom to online teaching, students and educators could not adapt effectively to the new normal (Schmidt & Ramot, 2020). Furthermore, according to a study conducted by Klapproth et al.

in 2020, the educators who took part in their study had medium to high levels of stress.

The pandemic has also fundamentally affected schools in different places, resulting in increased job vacancies due to educators' and staff' retirement and career shift (Carver-Thomas et al., 2021). Will (2021) surveyed nearly 1,000 former public educators in America in December 2020, which revealed that 55% quit teaching in two years leading up to the pandemic, and others left after March 2020. Among all the former e-educators surveyed, 21% left their profession due to stress and insufficient pay. Moreover, Zhang et al. (2022)

emphasized burnout as a significant factor resulting in higher education teachers' resignation.

Ireri (2021) surveyed teachers from public primary, public secondary, and international schools in Kenya to perceive their readings in administering virtual learning. The study showed that 63% of teachers at foreign schools, 84% of instructors in public secondary schools, and 59% of elementary school teachers believe they are underprepared. Moreover, 47.4% of Pakistani teachers surveyed felt that transitioning from conventional to online learning is challenging (Makhdum & Khanam, 2021).

Robosa et al. (2021), the majority of educators in public schools in the Philippines who were interviewed reported feeling stressed and burned out due to the pandemic's resource shortage, management of students, and task submission requirements. Additionally, Gurrea et al. (2021) revealed that educators in private tertiary institutions reveal feeling stressed out due to the variety of demands placed on them at work, particularly the workload associated with the number of online classes they must teach each day, the number of students they must accommodate in Google Classroom for large classes, and the amount of time required to correct students' assignments and other work online. Moreover, his study also revealed that job sati faction and turnover intention are inversely related. Most of the studies conducted are associations between the factors and turnover intention of educators. Maior et al. (2020) revealed that burnout contributes as a significant factor in the turnover intention of educators. Also, Darko (2019) revealed a direct relationship between burnout and turnover intention.

However, researchers have yet to find a study combining burnout and home-based learning readiness as factors contributing to the turnover intention of educators. Additionally, most studies focus on educators from other allied healthcare professions and primary and secondary educators. Hence, there is a need to conduct a study that focuses on Radiologic Technology educators.

Burnout

Burnout syndrome is defined as a long-term negative emotional state marked by decreased self-esteem, motivation, and professional devotion, as well as a general feeling of psychological discomfort. It occurs due to prolonged stress caused by the professional environment (Rusell et al., 2020). The three main characteristics of burnout syndrome are cynicism, emotional exhaustion, and personal accomplishment. Cynicism has been reported to be an outcome of negative leadership, such as abusive supervision (Aboramadam et al., 2020). Emotional exhaustion refers to a feeling of not being able to do more, finding oneself physically and emotionally exhausted. Lastly, Personal Accomplishment refers to the professional's perception of their ability to face their professional challenges, leading to feelings of failure, incompetence, and low self-esteem (Smeds et al., 2020). Different studies on burnout syndrome in educators establish the conjunction of factors related to individual differences and emotional exhaustion caused by increased stressors such as increased deadlines and workload (Bang et al., 2017). In the educational field, educators can go through periods of burnout due to changes in their professional conditions, as is the case of the change in circumstances due to the COVID-19 pandemic (Malureanu et al., 2021). These circumstances can cause changes in motivation producing attrition and weakening the ability to regulate internal emotional responses (Rusell et al., 2020).

Home-Based Learning Readiness

Readiness can be understood as "the cognitive precursor to the behaviors of either resistance to, or support for, a change effort" (Armenakis et al., 1993). Home-based learning readiness is an organization's mental and physical readiness for a home-based learning experience or action (Phan et al., 2017). Furthermore, due to the requirement for social separation as a defense against the spread of the Covid-19 pandemic, schools, colleges, and institutions worldwide have been compelled to transition from classroom instruction to online learning. Faculty members are under more strain since they must possess both

subject matter expertise and instructional and technological expertise (Phan et al., 2017).

Mansor et al. (2021) also revealed the four aspects to appropriately categorize educators' readiness to implement home-based learning during the pandemic: ICT self-efficacy, attitude, perceived behavioral control, and subjective norms. These dimensions were adapted based on Azjen's Theory of Planned Behavior and Bandura's Social Cognitive Theory. Moreover, Palero and Mutya (2022) showed that science teachers' level of readiness towards online distance learning is high, which implies that, despite the challenges and struggles experienced by the teachers, they are still willing to improve their competencies in the online learning setup.

Turnover Intention

Teacher turnover is one of the effects, which is a significant issue globally (e.g., Harrison, Newman, & Roth, 2006; Perrachione, Rosser, & Petersen, 2008). In the United States, it was discovered that between one-third and fifty percent of newly hired instructors departed the field within the first five years (Darling-Hammond, 2003; Ingersoll & Smith, 2003). Any profession that experiences turnover may incur both direct costs (such as separation fees, replacement charges, and training expenses) and indirect costs (such as lost productivity as a new hire gains complete job mastery) (Cascio, 2000; Mor Barak, Nissly, & Levin, 2001). Since teacher turnover has been linked to numerous major educational issues, such as low-quality student instruction, the effects of this phenomenon can be devastating (Levy et al., 2006). Furthermore, Fernandez-Docallas and Batani (2021) revealed a low turnover intention among small public junior high school teachers. Moreover, Heruela (2021) concluded that teachers' grit has a significant indirect correlation to turnover intention, which suggests that an increased level of grit results in a decreased turnover intention.

Burnout and Turnover Intention

The COVID-19 pandemic changed higher education drastically and quickly, as well as the workplace. Numerous staff and professor roles were removed, and other employees also had their work hours reduced or dismissed. Winfield (2022) discovered that the intention to leave one's current employment in higher education increased when staff positions were eliminated, and there were notable levels of burnout. Higher education professionals provided open-ended comments in which they discussed how rising workloads and job demands due to reduced staff were not supported by increased resources, which resulted in burnout. Moreover, University instructors reported feeling of being unsatisfied with the teaching and learning environment because of the increased workload (which included online instruction and technological problem-solving) and its physiological impacts, such as insomnia, tension, and exhaustion (Chen et al., 2020). Additionally, Liu et al. (2021) revealed that burnout significantly influences the turnover intention of Chinese high school teachers.

Home-based Learning Readiness and Turnover Intention

The use of e-learning tools, facilities, and equipment, such as but not limited to computers, smartphones, tablets, and other devices, is required to implement a Home-based learning setup. Cellular mobile applications are the most popular learning tool and online learning resources that assist Home-based learning set-up, according to a recent study by Santiago et al. (2021). On the other hand, asynchronous and synchronous online learning platforms are becoming more and more common, particularly among HEIs. However, several challenges have prompted its deployment despite the flexible learning modality's apparent advantages. Additionally, instructors may have open or closed perspectives regarding a flexible learning environment for various reasons. Some professors who lack technological proficiency may need help to embrace this strategy, according to Mishra et al. (2020). Teachers who are used to the traditional methods of instruction must adopt technology in a home-based learning set-up despite their lack of technological knowledge (Barrot et al., 2021).

It has been stated that for teachers to be effective in open and flexible learning environments, adaptation is required. Rapid changes, such as the switch from face-to-face classes to flexible learning initiatives, may impact teachers' intent to leave the profession at times of crisis (like the COVID-19 pandemic). This is demonstrated by Boamah et al. (2022), who found that interference, burnout, and rapid career transitions affected teachers' inclinations to leave the profession.

Methods

The convergent parallel mixed method design was used in this study to improve both internal and external validity by correlating and supporting the findings regarding the same phenomenon using different methods. The quantitative-predictive design was used in the quantitative phase of the study to determine the

The participants were asked to evaluate statements by answering a numeric response on the predictors. The Maslach Burnout for Educators Inventory was used to determine the level of burnout experienced by the participants. This consists of 22 items that were answered on a 7-point Likert scale. This instrument was also utilized in a study by Vukmirovic (2020) to assess burnout in medical educators.

Furthermore, the Home-Based Learning Teacher Readiness Scale was utilized to determine the readiness for Home-based Learning of the participants. The 26 items on this test were answered on a 5-point Likert Scale, with five being the highest and one being the lowest. Lastly, the turnover intention scale was used to investigate the level of the turnover intention of the participants.

This survey measured how much an individual thought or considered turnover intention and was developed by Martin and Roodt (2008). This survey, which contains 15 items on a 5-point Likert scale ranging from 5 for strongly agree to 1 for strongly disagree, has a Cronbach alpha coefficient of 0.91.

Before the data collection, this research proposal was subjected to the scrutiny of the Ethics Review Committee (ERC) of the Davao Doctors

level of burnout, home-based learning readiness, and turnover intention of Radiologic Technology educators in Southern Mindanao. On the other hand, the qualitative component included narratives extracted from the participants' lived experiences.

The participants in the quantitative strand of the study were Radiologic Technology educators working in higher education institutions in Southern Mindanao with a sample size of 73. A random sampling technique was employed to determine the sample size and to select the participants. Only radiologic technology educators with one year or more of working experience in the selected higher institutions in Southern Mindanao were included as participants in this study. Furthermore, ten radiologic technology educators in Southern Mindanao were selected using a purposive sampling technique to participate in the in-depth interviews in the qualitative strand of this study.

The study used a web-based and on-hand survey questionnaire method to collect empirical data on burnout and home-based learning readiness

College. Ethical issues such as consent, confidentiality, and possible risk were ensured before the study. The guide questions used in the actual data collection passed the ERC and were correctly validated by the panel members and three qualified evaluators from the college, ensuring clarity, suitability, understandability, and capability of the questions to elicit narratives, comments, and insights of the research participants. Then, the collection of the research data commences. The researcher asked for a letter of endorsement from the Dean of the school. Following approval, the researcher communicated with the Program Chairs of the Radiologic Technology departments, with the assistance of representatives, to request an appropriate data collection schedule that does not disrupt work and enough time to facilitate the giving of instructions in answering the questionnaire and interviews.

In the data analysis, the following statistical tools were employed: Mean was used to measure the levels of burnout, home-based learning readiness, and turnover intention among the participants. Pearson Product Moment Correlation was used to determine the relationship between burnout and turnover intention; and home-based learning readiness and turnover intention of

Radiologic Technology educators. Multiple Regression Analysis was used to determine if burnout and home-based learning readiness predict the turnover intention of the Radiologic Technology educators in Southern Mindanao. Creswell's Thematic Analysis was used to analyze the qualitative data. This approach focused on identifying, assessing, and documenting patterns or themes in the data. The researcher initially read and reread the transcripts to familiarize himself with the data before beginning the thematic analysis. To create basic codes, the data was organized. Furthermore, merging-converging and merging-diverging approaches combined the data from the qualitative and quantitative phases. The two databases were combined using these approaches for analysis and comparison (Fetters et al., 2013).

Results and Discussion

Table 1. Levels of Burnout of Radiologic Technology Educators

Levels of Burnout of Radiologic Technology Educators. The data from the participants were analyzed by obtaining the mean of the values. The result of the tabulation on cynicism showed a mean of 2.68 which falls into the description – Burnout is evident a

Furthermore, Rumschlag (2017) found that depersonalization, as one of the indicators of teacher burnout, has the lowest value, with a 6.6 mean score, among all indicators. This proves that depersonalization or cynicism is not educators' primary source of burnout. The result of the tabulation on emotional exhaustion showed a mean of 3.18 which falls in the range of the Likert-scale description – burnout is evident once a month or less. The result showed a slightly higher level of emotional exhaustion in a study conducted by

few times a year or less. The result concurred with the study of Shen (2015), which also showed that there was a moderate level of depersonalization or cynicism that the participants experienced.

highlighted why the people who were questioned felt emotionally exhausted. This includes the uncompensated academic workload that the participants endure at work, such as administrative tasks unrelated to their profession. Furthermore, the result from the tabulation shows that personal accomplishment has a mean of 2.83 which falls in the range of the Likert-scale description – burnout is evident once a month or less. This result is supported by the study of Kokkinos (2007), which concluded that there is a reduced personal

	Mean	Description
Cynicism	2.68	Burnout is evident a few times a year or less
Emotional Exhaustion	3.18	Burnout is evident once a month or less
Personal Accomplishment	2.83	Burnout is evident once a month or less
OVERALL Mean	2.90	Burnout is evident once a month or less

Klusmann (2023), which showed a moderate degree of emotional exhaustion in teachers during the Covid-19 pandemic. This study's qualitative findings also

accomplishment of teachers with teaching experience of 10 years with postgraduate studies.

	Mean	Description
ICT Self-Efficacy	4.18	The Radiologic Technology educator exhibits a high level of HBL readiness.

Attitude	4.25	The Radiologic Technology educator exhibits a high level of HBL readiness.
Perceived Behavioral Control	3.95	The Radiologic Technology educator exhibits a high level of HBL readiness.
Subjective Norms	3.66	The Radiologic Technology educator exhibits a high level of HBL readiness.
OVERALL Mean	4.01	The Radiologic Technology educator exhibits a high level of HBL readiness.

Table 2. Levels of Home-Based Learning Readiness of Radiologic Technology Educators

Level of Home-Based Learning Readiness of Radiologic Technology Educators. Table 2 shows the level of Home-based learning readiness of RT educators. The tabulation result on ICT self-efficacy shows a mean of 4.18 which falls in the range of the Likert-scale description - The RT educator exhibits a high level of HBL readiness. The result concurs with the findings in the study conducted by Bozdogan (2014), which showed a high level of ICT Self-efficacy in pre-service ELT teachers. Furthermore, Sari and Octavia (2021) also showed that Indonesian teachers positively affect ICT self-efficacy. This implies that the educators were competent in employing technology in education.

Moreover, the tabulation results on attitude have a mean of 4.25 which falls in the range of the Likert-scale description - The RT educator exhibits a high level of HBL readiness. Moreover, this concurs with the result of Sari and Octavia (2021), which showed a high level of teachers' attitude in integrating ICT into their pedagogical practices. Furthermore, the result concurs with the qualitative result of this study.

The mean of the values under perceived behavioral control is 3.95, which falls in the range of the Likert-scale description - The RT educator exhibits a high level of HBL readiness. The result is slightly higher than the findings of Gayan Nayanajith and Damunupola (2021), who revealed that students in Sri Lankan private international schools have a moderate level of perceived behavioral control in adopting e-learning.

The result of the tabulation for Subjective norms shows a mean of 3.66 which falls in the range of the Likert-scale description - The RT educator exhibits a high level of HBL readiness. Furthermore, the impact of subjective norms on pre-service and in-service teachers' behavioral intentions to use technology was examined by Ursavas et al. (2019). Their study's findings revealed high subjective norms, indicating that these norms are crucial in determining how people feel about using technology. Furthermore, the qualitative phase of the study concurred with the result. Lastly, the overall mean of all the indicators under home-based learning readiness is 4.01. In conclusion, the level of home-based learning readiness among RT educators in Southern Mindanao is high. This suggests that the participants of this study are ready to use a home-based learning setting at work.

Table 3. Level of Turnover Intention of Radiologic Technology Educators

	Mean	Description
Turnover Intention	2.72	The Radiologic Technology educator sometimes exhibits turnover intention

Level of Turnover Intention of Radiologic Technology Educators. Table 3 shows the level of turnover intention of Radiologic Technology educators. The data from the participants were

analyzed by obtaining the mean of the values. The level of turnover intention of the participants is evaluated using a 5-point Likert. The result of the tabulation on the Turnover Intention of RT educators has a mean of 2.72 which falls in the range of the Likert-scale description - The Radiologic Technology educator sometimes exhibits turnover intention. Sedillo (2020), who also concluded that the intention for turnover among educators of radiologic technology in the Davao Region is moderate, validated the result.

Additionally, Fernandez-Docallas and Batani (2021) showed a slightly lower result that indicated junior high school teachers in Baguio City have a low intention of leaving their jobs. The qualitative findings of this study also examined issues related to participants' intentions to leave their jobs, such as the search for greener pastures, career plateauing, and ambivalence in leaving the job due to their love of work. In conclusion, the Radiologic Technology educators in Southern Mindanao sometimes demonstrate turnover intention.

Table 4. Relationship Between the Variables

Variables	Burnout and Home-based Learning Readiness		Decision to H_01
Turnover Intention	Pearson r	.641	Reject
	Sig (2-tailed)	.000	

Relationship Between the Variables. Table 4 shows the relationship between burnout and home-based learning readiness and turnover intention of Radiologic Technology educators. The Pearson R correlation test tested the relationship between burnout, home-based learning readiness, and turnover intention. Furthermore, the assumptions for the Pearson R test were satisfied before the test. The result revealed that the Pearson correlation between burnout and home-based learning readiness and turnover intention is .641 with a p-value of .000, which means that there is a significant positive high correlation between burnout and home-based learning readiness to turnover intention, thus rejecting the study's hypothesis. Lachman and Diamant (1987) showed a slightly lower result but still showed that burnout has a high correlation to the turnover intention of teachers. Moreover, qualitative findings of this study also suggested that burnout is related to an increased workload, especially tasks unrelated to educators' profession.

Table 5. The Significant Influence of Burnout and Home-Based Learning Readiness on Turnover Intention

Independent Variables	B	Std. Error	R-square	p-value	Turnover Intention	
					Remarks	Decision to H_02
Burnout	.369	.065	.411	.000	Significant at 0.05 level of significance	Reject
Home-Based Learning Readiness	-.050	.131	.411	.706	Not Significant at 0.05 level of significance	Accept

The Significant Influence of Burnout and Home-Based Learning Readiness on Turnover Intention. The influence between the independent variables to the dependent variable was analyzed using Regression analysis. Furthermore, the assumptions of Regression analysis were satisfied before the test. Based on the tabulated data, burnout significantly influences the turnover intention of the participants ($\beta = .369$, p <0.05). This means that the regression test weight for burnout in the prediction of turnover intention is significantly different from zero at level 0.05 (2-tailed). Therefore, for every unit increase in burnout, there is a corresponding increase in turnover intention by .369. This implies that burnout predicts turnover intention, thus, the study's hypothesis was rejected. On the other hand, home-based learning readiness has no significant influence on the turnover intention of the participants ($\beta = -0.50$, p > 0.05). Moreover, this is supported by the study of Costan et al. (2022), which also concluded that the indicators of home-based learning readiness directly affect the intention to teach in a flexible learning set-up. Furthermore, the R-square value of the independent variables is .411 which means that 41.1% of the total variation in the dependent variable was explained in the independent variables.

The results also concur with the qualitative finding of this study, which showed how burnout significantly influences turnover intention. The qualitative findings suggested that emotional exhaustion, an indicator of burnout, was corroborated by the uncompensated academic workload experienced by the participants. This suggests that uncompensated academic workload, like administrative tasks, influences the level of emotional exhaustion of the participants. On the other hand, the qualitative findings of this study support the result of home-based learning readiness' insignificant influence on turnover intention.

Lived Experiences of the Participants On Turnover Intention

Search for Greener Pastures. Across all ten participants in the in-depth interview, participants discussed the issues in their work about turnover intention. The codes that were emphasized are uncompensated academic workload, ambivalence in leaving the job due to love of work, and career plateauing.

Uncompensated Academic Workload., Garcia-Arroyo and Segovia (2019) revealed that work overload has a positive correlation to emotional exhaustion. In congruence with this, the participants of the study have said:

> *"...They put too much on my plate, I have to handle other tasks and teachings, such as HR development, academic support, college supplies, and budgeting. ... Aside from that, when you think that you've done a great job, for them, it's still not enough. -P4*

Ambivalence in Leaving the Job Due to Love of Work. The difficulties mentioned affected the participants' turnover intentions, yet certain factors still prevented them from quitting their jobs outright. Most of the individuals who were questioned during the study discussed their love of teaching. They believe that if one loves what he or she does, he or she will pursue it despite how difficult being an educator is. Additionally, this has an impact on how they view their work. Due to their passion for education, teachers are more understanding of their students' circumstances and enthusiastic, which boosts student engagement. Moreover, Heruela (2021) concluded that teachers' grit significantly influences turnover intention. This implies that educators' passion for teaching lessens the intention to leave their job. To wit:

> *"I always feel energetic, because I do love teaching and that drives me to be*

energetic before I start my classes. ... I always see to it that if not all time but most of the time, I carry a positive energy to share with my students to engage them to listen and to increase their willingness to learn ....." -P6

Career Plateauing. The interview also covered the participants' accomplishments. While some participants claimed to have made significant progress in their responsibilities as Radiologic Technology educators, others did not. Personal accomplishment is the inclination to undervalue one's work, feel unqualified to accomplish one's job duties, and have a generalized low opinion of one's abilities. Moreover, this is also an indicator of burnout along with cynicism and emotional exhaustion. The majority of participants stated that they had already accomplished a lot in their profession due to the difficulties they had overcome, the successes they had attained, and the positive feedback they had received from their students and coworkers. To wit:

"Yes, I think I accomplished a lot already. For the past 10 years, I've thrown myself into this job... Many countless nights that I stayed up late checking papers, spent weekends planning lessons, chaperoning students, and attending conferences." – P4

Adjustment and Coping Flexibility in the New Normal. Utilizing a home-based learning environment as the optimum learning environment in the new normal offered educators benefits and drawbacks. The participants' in-depth interviews covered the positive aspects of the home-based learning set-up, undue work-related challenges, uncertainty in preferences in home-based learning set-up and face-to-face set-up, and ICT-related issues.

Favorable Circumstances. The new normal has made a significant impact on education. As a result, new learning platforms were established to provide quality education despite the pandemic. Furthermore, it was stated by the participants the advantages of a home-based

learning set-up, including the ease of preparation and transportation, schedule flexibility, traffic avoidance, increased financial savings, and prevention of contracting diseases. To wit:

"...home-based learning set-up is easier than the face to face because I can just conduct classes in the comfort of my home, no need to commute. It's one of the challenges in working here in this institution for me is the transportation." -P8

Undue Work-Related Challenges. Participants acknowledged some of the difficulties they had using the home-based learning setup, despite its benefits. Some of the challenges are low productivity due to environmental distractions, lack of resources, and difficulty in the learning assessment of students. Although several participants claimed to be adept at using technology, problems with their computers, phones, and other devices appear challenging to resolve. Additionally, the disruption of internet connectivity, which reduces productivity, is one of the technical concerns mentioned by the participants. To wit:

"...Also, the distractions are there. The background noise, the technical issues, also there are times when the internet is interrupted in the whole day, that makes me so unproductive." -P6

Uncertainty in Preferences. Participants were asked about their preferred method of instruction. While some participants prefer a face-to-face setting, others prefer a home-based setting. The majority of the participants mentioned convenience in terms of preparation and flexibility based on the favorable circumstances mentioned above. However, issues exist around resource constraints and challenges with student learning assessments. Participants stated that face-to-face instruction is most beneficial to student learning because teachers are more likely to explain their ideas clearly and assist students to learn more effectively. Moreover, students would study more and develop their talents with the materials offered at school. Additionally, due to less interaction with

other people and the environment, participants stated that home-based learning is also better at preventing the spread of communicable diseases than face-to-face instruction. To wit:

> *"I think that face-to-face classes are better because I can express my thoughts more during my classes, I can also utilize the materials, facilities, and equipment present at the school for my classes unlike in online classes." -P10*

> *"In terms of safety, since the Covid-19 virus is still present, staying at home and working in a home-based learning set-up is ideal. Additionally, the risk of getting into an accident is low since I'm just at home." -P9*

ICT-Related Issues. Participants in this study acknowledged that these technologies have benefits, but they also noted several limitations that hinder their ability to function as educators. One of these restrictions is the ability to design several test examination formats. Moreover, some participants also mentioned how slow internet connectivity can directly affect their productivity. Furthermore, one participant made it clear that the constrained nature of the questions on online learning platforms makes administering exams more difficult than it is with traditional exams. To wit:

> *"...also there are times when the internet is interrupted in the whole day, that makes me so unproductive." -P6*

> *"Conducting classes utilizing online learning platforms is basic but when it comes to giving tests, I find it challenging compared to actual tests. Creating tests is quite challenging in online learning platforms because of the limitations of other question types like enumeration, matching type, etc." -P10*

Role of Experiences in Shaping the Beliefs and Attitudes

Deeper insights on turnover intention as determined by financial, material, and psychological rewards. During the in-depth interview, participants discussed how their experiences in their work affect their beliefs in turnover intention. Codes under the theme provided were the compensation and opportunities as preventive measures and resilience-hope duality.

Compensation and Opportunities as Preventive Measures. The majority of the participants stated that receiving reasonable compensation had a significant impact on their decision to continue working as RT educators. In addition, the benefits offered by their institution serve as another turnover prevention strategy in addition to the remuneration. Also, one of the participants mentioned that the opportunities offered by their institution also impacted their intention to stay. Some participants also mentioned how their love of teaching keeps them inside the institution. Despite their difficulties as RT educators, their intrinsic passion motivates them to persevere in teaching. The result confirms the findings of Heruela's study from 2021, which showed that teachers' grit drives them to continue working as educators. To wit:

> *"...I cannot afford to quit because there is that innate dedication in teaching like it is a part of my being already, plus I don't have enough money in the bank so I can't leave." -P4*

> *"They support me in everything that I do in the school, they make me feel belonged, and they are very appreciative of everything I do for the program. Next, would be the salary and benefits... Next, would be the opportunities that they have given me. I was able to become more confident in the things that I do now because of the training and opportunities they have provided." -P3*

> *"I love teaching. I find it fulfilling when I see my students learn new things." -P8*

Resilience-Hope Duality. Several participants realized that they had strengthened their resilience by tolerating the negative impacts of an excessive, irrelevant, and onerous workload. In addition to the unrelated workload assigned to them, they want their managers and supervisors to acknowledge their hard effort thoughtfully. One would gradually get more enthused about their work if they were recognized and rewarded for their effort. Moreover, although most participants felt their pay was appropriate, they still sought a raise because of the increased responsibilities. They believe that their pay must be based on the quantity of work assigned and must be different for other instructors with a smaller workload and fewer students. To wit:

> because of the increase in my workload." -P10

Re-evaluating the Uncertainty of Turnover Intention Amidst Ambivalence in the Home-based Learning Setting. Participants discussed how their experiences affect their attitudes concerning teaching in a home-based learning setting. Moreover, some participants discussed positive perspectives, while others revealed unfavorable ones. The codes presented under this theme are the participants' optimistic and pessimistic views in home-based learning settings.

Optimistic Views. Most participants admitted that they would be open to attending workshops and seminars to increase their ICT proficiency. Additionally, the participants believed it was crucial to enhance their technology-handling skills to make the best use of online learning platforms. Some participants also stated that they would be more than happy to attend workshops and seminars if doing so would improve their educator abilities. Most participants also mentioned that they had learned to accept problems and obstacles rather than stressing over them and had been more open about them. Additionally, some participants have shown time awareness in their job as RT educators. They think that to use their time while

> "... I got used to the issues in home-based learning setting already with the help of the training and webinars provided by our institution." -P1

> "...Aside from that, when you think you've done a great job, for them, it's still not enough." -P4

> "I think in academe in any institution, you are not paid by the number of students you handle per section, but by hours that we put in. Thus, I believe that a raise of compensation should be provided." -P9

> "So far, I believe that I am well compensated but there are also times that I am expecting an increase in my salary

performing their profession effectively, educators must eventually become more time conscious. To wit:

> "Yes. If there are better applications to be used to improve the teaching method then yes." -P8

> "I am very much willing to attend, especially anything that would make my job easier." -P7

Pessimistic Views. The in-depth interview also discussed the impact of burnout on participants' attitudes toward working in a home-based learning environment. Some participants admitted that while under stress, they were difficult to approach. One participant also revealed that he could not entertain his students' questions due to exhaustion from work. The stressful events also led to a lack of motivation to work, ultimately reducing their productivity. Finally, some participants felt they had less professional success, affecting their self-worth. To wit:

> "I sometimes think if I have achieved something since I'm just conducting my classes online. But according to my students, I am doing a great job." -P1

> "There are times that I disregard the concerns of my students due to exhaustion in work and stress."

Aspect or Focal Point	Quantitative Findings	Qualitative Findings	Nature of Data Integration
Burnout	**Overall** Mean = 2.90 *(Burnout is evident once a month or less)* **Emotional Exhaustion** Mean = 3.18 *(Evident once a month or less)*	Uncompensated academic workload	Merging-converging
Home-based learning readiness	**Overall** Mean = 4.01 *(The RT educator exhibits a high level of HBL readiness)* **Attitude** Mean = 4.25 *(The RT educator exhibits a high level of HBL readiness)* **ICT Self-Efficacy** Mean = 4.18 *(The RT educator exhibits a high level of HBL readiness)*	Favorable circumstances Undue work-related challenges Uncertainty in preferences ICT-related issues	Merging-diverging
Turnover intention	**Overall** Mean = 2.72 *(The Radiologic Technology educator sometimes exhibits turnover intention)*	Career plateauing Search for greener pastures Ambivalence in leaving the job due to love of work	Merging-converging
Significance of the influence of burnout indicator on turnover intention	**Cynicism** b = 0.241, p = .041 *(There is significant influence)*	Pessimistic Views	Merging-converging

Table 6. Joint Display of Salient Quantitative and Qualitative Findings on Burnout, Home-based Learning, and Turnover Intention

Data Integration of Salient Quantitative and Qualitative Findings. The data explanation aligns with the quantitative phase's variables for burnout, readiness for home-based learning, turnover intention, and the relationship between the variables. The key findings in the quantitative and qualitative phases were integrated using the merging-converging method. Emotional exhaustion has the greatest mean among the burnout indicators, with mean values of 3.18. The results of the quantitative phase were integrated with the qualitative

The result of the level of turnover intention, which has an overall mean of 2.72, which has a descriptive interpretation that states that turnover intention is sometimes exhibited, was integrated with the qualitative findings such as career plateauing, search for greener pastures

Conclusions and Recommendations

The level of burnout among the Radiologic educators in Southern Mindanao is evident once a month or less among Radiologic Technology educators. Moreover, the level of home-based learning readiness among Radiologic Technology educators is high, which suggests that Radiologic Technology educators are ready to utilize a home-based learning setting. Furthermore, the result of the turnover intention of Radiologic Technology educators in Southern Mindanao is sometimes exhibited. This was further integrated with the qualitative findings such as career plateauing, search for greener pastures and ambivalence in leaving the job due to love of work. Additionally, cynicism, an indicator of burnout significantly influencing turnover intention, was integrated with the qualitative finding: the pessimistic views on home-based learning set-up. Furthermore, the relationships are significant among burnout, home-based learning readiness, and turnover intention. The influence of burnout on turnover intention is significant, implying that an increase in burnout would significantly influence turnover intention. On the other hand, home-based learning readiness does not significantly influence turnover intention.

findings, which are the uncompensated academic workload. On the other hand, analysis of data on preparation for home-based learning revealed that attitude and ICT self-efficacy, with respective means of 4.25 and 4.18, are the indicators with the highest means. These results were integrated with the findings in the qualitative phase using the merging-diverging approach, which are favorable circumstances, undue work-related challenges, uncertainty in preferences, and ICT-related issues.

and ambivalence in leaving the job due to love of work. Additionally, cynicism, an indicator of burnout significantly influencing turnover intention, was integrated with the qualitative finding: the pessimistic view on home-based learning settings.

In the qualitative phase of this study, two (2) essential themes were formulated from the extracted ideas in interviews about the participants' lived experiences about turnover intention, which are the search for greener pastures and adjustment and coping flexibility in the new normal. Moreover, deeper insights on turnover intention as determined by financial, material, and psychological rewards and re-evaluating the uncertainty of turnover intention amidst ambivalence in the home-based learning setting are the two essential themes formulated in the role of experiences in the attitude and beliefs of the participants. The key findings in the quantitative and qualitative phases were integrated using the merging-converging method. Emotional exhaustion showed the highest mean among all indicators and was supported by the findings in the qualitative phase, which is the uncompensated academic workload. On the other hand, analysis of data on readiness for home-based learning revealed that attitude and ICT self-efficacy are the indicators with the highest means. A merging-diverging approach was utilized as a nature of data integration for analysis of home-based learning readiness since data from the quantitative phase

seem to differ from the data from qualitative interviews.

For future researchers, to more conclusively demonstrate how these variables affect turnover intention, it is recommended to focus on the indicators of burnout with low levels, such as cynicism and personal accomplishment. It is also recommended to focus on the frequent themes formulated in this study to provide a deeper explanation of how these themes predict turnover intention. Moreover, it is recommended to widen the scope of the study to the entire Mindanao to increase the sample size to establish a solid explanation of how burnout and home-based learning readiness predict the turnover intention of the participants. Lastly, it is recommended that school administrators develop programs like seminars to lessen emotional exhaustion, which would also lessen the turnover intention among educators teaching Radiologic Technology, given that this study revealed the convergence of findings in terms of burnout and turnover intention.

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Mediating Effect of Occupational Burnout Between Job Satisfaction and Organizational Commitment of The Radiologic Technologists in the Hospitals of Region XI

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Abstract

Numerous studies have demonstrated that occupational burnout, job satisfaction, and organizational commitment is an important measuring factors in identifying the success of an organization. Despite its numerous studies, there is very limited research about radiologic technologists and many companies still struggle with how to bind their radiographer workers to the organization. The purpose of this study was to identify the mediating effect of occupational burnout between job satisfaction and organizational commitment of radiologic technologists in private hospitals in the Davao region. The survey was distributed to forty-five radiologic technologists from the private hospitals in Davao Region who were randomly selected from a sample. The result of the study shows that the respondents are less likely to experience burnout from their work, thus representing a relatively decent level of job satisfaction and organizational commitment. Based on the results, shows that occupational burnout significantly affects job satisfaction and job satisfaction affects organizational commitment. Furthermore, occupational burnout is inversely related to job satisfaction. Lastly, occupational burnout has a relationship with organizational commitment but does not significantly mediate with job satisfaction.

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Introduction

Currently, radiology departments are under increasing burnout due to frequent sources of pressure for radiographers, especially during this pandemic crisis such as a lack of personnel, on-call requirements, challenging supervisors, inadequate work facilities, and new protocols that have been established which could result in a decrease of job satisfaction and organizational commitment (Lohikoski, et al., 2019). Consequently, reliable actions should be taken to safeguard the physical and emotional health of the healthcare workers, improve their working environment, and increase awareness of burnout (Alrawashde, et al., 2021).

According to Ranjbar (2020) and Rhoades and Eisenbergrn (2022), organizational commitment is significantly related to occupational burnout in which the employer depends on how much the organization values its employees. On the other hand, many organizations reveal that the responsibility of healthcare institutions and managers are thought to be major contributors to occupational burnout and half the scale were healthcare professionals due to work demand for it affects the quality of their services, resulting in dissatisfaction and resignations. (Alrawashdeh, et al. 2021 & Alrawashdeh, 2020). Additionally, in the study of Baird, et al., (2019), their results emphasize the significance of providing adequate facilities and employee organizational commitment within hospitals

and recommend that the administration should try to improve the provision of such resources to elicit employee organizational commitment within their hospitals.

Based on the research of Abellera and Bauyot (2019), conducted at a tertiary hospital, it was found that there was a substantial correlation between occupational burnout and job satisfaction occupational burnout strongly impacts job satisfaction which suggests that occupational burnout has a favorable impact on job satisfaction (Tus, 2021). The same study was also conducted on another profession and found that occupational burnout and job satisfaction have a positive significant relationship but were not predicted with job satisfaction (Magbanua, 2018 & Bravo, et al. 2021). To prevent the negative impacts of job burnout on employees' job satisfaction, Tus (2021) recommends that managers must regularly monitor the level of job satisfaction and organizational commitment as this signifies the level of burnout of the employees. Furthermore, if strains mentioned above were not frequently observed, it will result in stress-related illnesses, depression, a decline in quality of life at work, job satisfaction, and organizational commitment of radiographers which directly corresponds to behavioral

changes when providing services to the patients (Lohikoski, 2019).

Thus, to know the mediating effects of occupational burnout, a continuous study between job satisfaction and organizational commitment is essential for any management to improve the quality of their working environment (Hussain & Khayat, 2021). With a few research about this topic in the field of radiologic technology and based on a study conducted in Iraq, job satisfaction and organizational commitment are crucial factors in improving effectiveness in work; however, their study is only limited to nurses' performance, therefore, they suggested for a larger and different sample size at different hospitals to expound the gap in their research (Karem, 2019; Alakhras & Al-Mousa, 2022). Hence, the goal of this paper is to fill the gap in the aforementioned study and increase the reliability of the topic by studying the mediating effect of occupational burn-out between organizational commitment and job satisfaction through the help of the literature mentioned above and help develop workable strategies and foster a productive environment for a radiologic technologist as there is no study conducted in Davao Region (Region XI).

Methods

The researcher utilized a descriptive correlation. The descriptive approach to research allows for the investigation of the target variables to be done using a wide range of research techniques. On the other hand, in the correlational approach, relationships between variables are sought after. Since it is necessary to determine the size of the variables, the correlational technique is defined by quantification. Correlational techniques strike a compromise between accuracy and relevance. Precision is lost since the data were not gathered in a controlled environment. However, information gathered through informal methods, like interviews, adds relevance—a link to actual events. Finally, correlational approaches only produce circumstantial, not causative, evidence

(Bhandari, 2022).

Moreover, the research was conducted within the administrative region of Davao (Region XI). Furthermore, the research will be conducted in any Department of Health-accredited hospital radiology or radiological sciences department with at least level one (1) service capability (an operating room, a recovery room, maternity facilities, isolation facilities, a clinical laboratory, an imaging facility, and a pharmacy).

In addition, the participants of this study are radiologic technologists from the Davao region. There were forty-six (46) respondents in this study. This was based previously on the current populations of radiologic technologists

in Davao City, and through the Raosoft calculator. The researcher also considers a non-response rate of twenty percent (20%). Simple random technique sampling was considered to select the respondents. A sample without replacement can be obtained from a sample with replacement by simply removing the duplicates. Of course, the sample size may thereby be reduced, so that additional elements of the population may have to be sampled. Olken, Frank; Rotem, D. (1986).

This study used a questionnaire adopted from various works of literature. The questionnaire was submitted to a panel of experts for feedback, suggestions, improvements, and refinements. Part I of the survey questionnaire is an occupational burnout questionnaire, Part II is an organizational commitment questionnaire, and Part III is a job satisfaction survey. The study's range of means was based on the capacities of means of Chavez, (2012).

Furthermore, to estimate the associations between organizational commitment and job satisfaction, the researcher utilized a regression analysis. The strength and direction of the association between two variables were also determined by the researcher using a Pearson correlation coefficient to measure a linear correlation. The entire sum of the values in a sample divided by the total number of values in your sample gives you the mean, which is also referred to as the mean. R-Squared was also used to determine the percentage of a dependent variable's variation that is explained by an independent variable in a regression model. Lastly, the Sobel test was used

in this study to determine whether the mediating variable (Occupational burnout) affects the independent variable (Job Satisfaction) on the dependent variable (Organizational Commitment) outcome of interest. This is done by testing the hypothesis that there is no statistical difference between the total effect of job satisfaction and organizational commitment and the direct effect of job satisfaction and organizational commitment after taking into account the influence of occupational burnout.

Although this study is one of the first to investigate the mediating effects of occupational burnout between organizational commitment and job satisfaction among radiologic technologists in the private hospitals in the Davao Region (Region XI), it has a few limitations that must be carefully addressed. This study will only be conducted within Davao Region (Region XI), excluding radiologic technologists employed at the government hospital and clinics in the surrounding area. The study will employ a descriptive research methodology, specifically a correlational approach.

Finally, the study will focus on the mediating effects of occupational burnout between organizational commitment and job satisfaction working in private hospitals in the Davao Region (Region XI). The scope of this study will be limited to regular, non-supervisory Radiologic Technologists working in private hospitals in Davao Region (Region XI).

Results and Discussion

This chapter deals with the presentation, analysis, and interpretation of data. The first table describes the level of occupational burnout of the respondents. The second table shows the level of job satisfaction of the respondents. The third table describes the level of organizational commitment of the respondents. The fourth table describes if there is a relationship between job

satisfaction and organizational commitment. The fifth table describes the test of significance between job satisfaction and occupational burnout. The sixth table describes the effects of occupational burnout and organizational commitment. And lastly, the seventh table describes the mediating effects of occupational burnout between job satisfaction and organizational commitment.

Table 1. The Level of Occupational Burnout Among the Respondents

Parameters	M	SD	Interpretation
Emotional Exhaustion	2.6	0.5577	Low
Depersonalization	2.0	0.4743	Low
Decrease Personal Accomplishment	2.5	0.6254	Low
Over-all	2.4	0.4838	Low

This result agrees with the study of the first objective of the study is to know the level of occupational burnout among the respondents. The overall score of the level of occupational burnout of the respondents shows is low, M = 2.3791 and SD = 0.4838. This implies that the respondents demonstrate a very low level of occupational burnout. According to de Pavia, et al. 2017, occupational burnout has different levels depending on the profession and workload. Professionals such as nurses and doctors show high occupational burnout while other professionals show low occupational burnout.

Table 2. The Level of Job Satisfaction Among the Respondents

Parameters	**M**	**SD**	**Interpretation**
Pay	3.0	0.8595	Moderate
Promotion	2.9	1.0427	Moderate
Supervision	3.9	1.0037	High
Fringe Benefit	3.3	1.0155	Moderate
Contingent Rewards	3.1	1.0282	Moderate
Co-worker	4.0	0.7197	High
Communication	3.8	0.9505	High
Over-all	**3.4**	**0.6862**	**High**

The goal of this table is to know the level of job satisfaction of the respondents. The result shows that the overall mean is 3.4269, this implies that the respondents manifest high job satisfaction according to the Likert scale. Concerning the study conducted by Bacayo, (2017) on other healthcare professionals in Davao City, Philippines, and Selangor, Malaysia; the result shows that respondents are satisfied with their job, and has no significant difference between the two countries.

Table 3. The Level of Organizational Commitment Among the Respondents

Parameters	M	SD	Interpretation
Affective Commitment	3.5	0.8103	High
Continuance Commitment	3.0	0.7721	Moderate
Normative Commitment	3.2	0.7869	Moderate
Over-all	3.3	0.6628	Moderate

The goal of this table is to know the level of organizational commitment of the respondents. Overall scores show that the level of organizational commitment of the respondents is moderate, M=3.2545; SD=0.6628. This implies that the respondents occasionally demonstrate organizational commitment. The moderate result indicates that the respondents are productive and committed which results in strong teamwork. According to Indeed Editorial Team, (2023), hospital companies Davao Region have a high rate of organizational commitment and has the potential on achieving their goals toward good organizational culture.

Table 4. Relationship Between the Job Satisfaction and Organizational Commitment Among the Respondents

Parameters	r-value	p-value	Interpretation
		Organizational Commitment	
Job Satisfaction	0.3292	0.0000	Significant

This table wants to reveal if there is a relationship between job satisfaction and organizational commitment among the respondents. Values show that there is a significant relationship between job satisfaction and organizational commitment with a p-value of 0.0000 but a weak relationship with an R-value of 0.3292. This indicates that job satisfaction has a significant effect on organizational commitment. This demonstrates that burnout is associated with poor views, low-interest rates, and job unhappiness, as well as negative effects on job satisfaction, productivity, and surroundings at work (Tarcan, et al., 2017; Gonçalves 2021) This implies that a high level of work satisfaction among employees will also translate into a high level of organizational commitment, and vice versa (Hiola & Hanurawan, 2022).

Table 5. Test of Significance Between Job Satisfaction and Occupational Burnout

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.564	.324		11.012	.000
	Job Satisfaction	-.346	.093	-.490	-3.732	.001

a. Dependent Variable: OB

The above table shows the test of significance between job satisfaction and occupational burnout among the respondents and it reveals that job satisfaction has a significant effect and inverse relationship with occupational burnout with a b-value of -.346 and p-value of 0.001. This implies that for every unit increase in occupational burnout, there is a decrease in the level of job satisfaction. In a study conducted on United Kingdom health professionals, burnout affects job satisfaction, possibly due to demographic and personal factors. (Tarcan, et al., 2017) Burnout has also been linked to disengagement, dissatisfaction, and negative effects on nurses' job satisfaction, productivity, and surroundings (Tarcan, et al., 2017; Almato et al., 2020).

Table 6. Organizational Commitment and Burn-out of the Respondents

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.(p-value)
	B	Std. Error	Beta		
(Constant)	1.938	.947		2.048	.047
Occupational Burnout	.062	.228	.045	.271	.788

a. Dependent Variable: OC

The above table shows the test of significance between occupational burnout and organizational commitment among the respondents. The result reveals that occupational burnout has a direct relationship with organizational commitment with a b-value of .062 but has no significant effect with a p-value of .788. According to Jun, et al., (2021), Commitment and burnout are linked in many workplace settings, particularly in health organizations and educational institutions.

Table 7. Test of Mediation of Occupational Burnout to Job Satisfaction and Organizational Commitment

Variables	B	SE	t	p
JS → OB	-.346	.324	-3.732	.000
OB → OC	.062	.228	.217	.788
JS → OB → OC	.341	.160	2.128	.039

Legend: JS- Job Satisfaction; OB- Occupational Burnout; OC- Organizational Commitment

Step A: Bivariate regression between x and y (IV and DV)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.158	.483		4.466	.000
	Job Satisfaction	320	.138	.329	2.313	.025

a. Dependent Variable: Organizational Commitment

Step B: Direct effect x and m (IV and MV)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.564	.324		11.012	.000
	Job Satisfaction	(a)-.346	.093	-.490	-3.732	.001

a. Dependent Variable: Occupational Burnout

Step C: X and M as independent variables in SPSS and Y as the dependent variable

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.(p-value)
		B	Std. Error	Beta	t	
	(Constant)	1.938	.947		2.048	.047
	Job Satisfaction	(c).341	.160	.351	2.128	.039
	Occupational Burnout	(b).062	.228	.045	.271	.788

a. Dependent Variable: OC

Step D: Sobel Test using Sobel Test Calculator

Sobel test statistics: -0.2712; p-value: 0.7862

The result indicates that organizational commitment has a significant relationship with job satisfaction with a p-value of 0.047 and has a direct relationship with organizational commitment with a b-value of 1.938. On the other hand, occupational burnout has a direct relationship with organizational commitment with a b-value of 0.062 but has no significant effect on the level of organizational commitment with a p-value of 0.788. Sobel's test result indicates that occupational burnout does not significantly mediates the level of organizational commitment considering the effects of the level of job satisfaction with occupational burnout. The degree of burnout was an expected significant predictor of job satisfaction, which means that higher burnout scores are associated with lower levels of job satisfaction

(Alrawashdeh, 2021). Organizational commitment is an organizational concept with significant outcomes for organizations, just like organizational motivation, absenteeism, staff turnover, and prosocial conduct (Karabulut, et al., 2017). The same result was revealed in the study of Seyyedmoharram, et al., 2017, at the University of Medical Sciences.

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Time Management and Stress as Predictors of Work-Life Balance among Master's Degree Students in Radiologic Technology

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Abstract

Work-life balance has become one of the main concerns of those working professionals enrolled in a postgraduate master's program. This specifically talks about the capacity to meet the demands of multiple roles in one's personal, professional, social, and academic lives. This study aimed to determine if time management and stress predict the work-life balance of the Master of Science in Radiologic Technology students. The research was conducted on the students who enrolled in the Master of Science in Radiologic Technology program in a selected school in Davao City. A non-experimental descriptive-predictive design was employed in the conduct of the study. The results revealed that the overall level of time management of master's students in Radiologic Technology was high, the stress of master's students in Radiologic Technology was moderate, and the work-life balance of master's students in Radiologic Technology was moderate. In addition, the findings revealed no significant relationship between time management and work-life balance. Meanwhile, there is a negative correlation between stress and work-life balance. Furthermore, regression analysis results showed that between time management and stress, only stress was a significant predictor of the work-life balance of master's students in Radiologic Technology. Based on the findings of the study, it is recommended that future researchers make intervention studies addressing the time management, stress, and work-life balance of students who are working part-time or full-time. In addition, to further improve the future study on the predictors of work-life balance, future researchers may explore other factors in determining what predicts work-life balance.

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Introduction

In this competitive world, working people are now compelled to have additional knowledge (Sprung & Rogers, 2020). In addition, according to these authors, one step to increasing understanding is enrolling in a postgraduate or master's program. Their educational and career growth offers opportunities to pursue higher career paths and take on leadership positions with expanded responsibilities (Kelly & Le Rossignol, 2022). This also strengthens people's identity through practical and theoretical scientific knowledge (Sprung & Rogers, 2020). However, when working professional decides to study, they experience difficulties regarding multiple roles in life or a work-life balance (Maharani et al., 2020).

In addition, an imbalance between multiple responsibilities and roles of graduate students may cause stress and impacts the student's work-life balance, which then incorporates their quality of life

(Yusuf et al., 2020). Graduate students experience high levels of uncertainty as they balance personal and academic responsibilities, maintain mental health, and manage stress (Abetz, 2019; Nicklin et al., 2019). New graduate students experience various stress levels transitioning from undergraduate programs to balancing professional work and graduate programs (Bussel, 2020). Furthermore, Nicklin et al.'s (2019) study, which included both part-time and full-time postgraduate students at a university in the United States, gathered data on enrichment in work, school, and personal life, including developing skills and knowledge and its impact on mood.

A study in the Philippines, particularly in Manila, conducted by Rungduin and Miranda (2020) revealed that out of 75 respondents, 53 graduate students stated that their workload affects their graduate education. 42% of their respondents reported that work overload affects their graduate studies the most, and 27% reported that other important factor, such as the multifaceted nature of their work, affects their studies. Their study also revealed that the most pressing life concern of graduate students is the financial aspect (62.67%/14 respondents), followed by thesis-related concerns (7 respondents) and health concerns (6 respondents). These conclude that factors such as poor work-life balance, overloaded work from employment and studies, health issues due to too much stress, and paying for graduate education are affecting the completion of graduate degree students, especially those working full-time.

In Tagum City, Philippines, Espiritu et al. (2022) revealed that challenges like financial support, real-world job experience, and character development are the student's primary motivators behind working while studying at a university for better self-development and gaining more knowledge and skills for better employment. In addition, their participants revealed that effective ways of overcoming these challenges are through effective time management, self-discipline, and being responsible for balancing different roles in life.

Most previous studies focus on undergraduate students' time management, stressors, and work-life balance. In particular, Tetteh and Attiogbe's (2019) study revealed that 41% of their respondents experience difficulties finding time for studies due to work requirements, 37% cannot plan personal activities well, 29% have limited time for family and social activities, 26% has less time to study due to demands at home, and 22% has health challenges leading to a poor work-life balance. In addition, Gallardo-Lolandes et al. (2020) revealed that increased students' stress levels had been seen as a threat and impacted living a balanced life. Therefore, many problems arise when students experience stress and workload and need more flexible time management (Sallehuddin et al., 2019).

Graduate students, however, are faced with an array of responsibilities in their professional and personal lives (Nicklin et al., 2019). Nevertheless, less research has been done investigating the combined effect of time management and stress and whether they significantly predict the work-life balance among graduate students, specifically in the Master of Science in Radiologic Technology. Therefore, the researcher seeks to determine if time management and stress can predict the work-life balance among Master of Science in Radiologic Technology students. This can also provide additional information on how they can handle stress, manage time, and balance their work-life activities.

Time Management

Time management is essential in all aspects of an individual's life, whether personal, professional, business, organizational, or educational (Tus, 2020). Mind Tools Content Team (2022) defined time management as a set of practices, principles, systems, and skills that work together to

help people get more value out of their time to improve their quality of life. Moreover, time management requires conscious control over the time spent on different types of work, thus increasing the quality and efficiency of a product of activity (Kashyap, 2022). Time management is the art of organizing, scheduling, budgeting, and arranging one's time to generate productivity and work effectiveness. The authors stressed that good time management involves scheduling necessary activities and tasks. Self-discipline is required in time management, such as keeping a daily reminder, planner, or calendar to help stay on task (Arumugam et al., 2021).

Stress

Every undergraduate and graduate student will feel the effect of stress at some point in time, and it is, in fact, an avoidable aspect of their life (Rana et al., 2019). The authors also stated that some students handle stress more efficiently than others, and some feel more stressed out than others, but no one can remove stress from their lives. From a psychological perspective, stress is "A potential imbalance or an imbalance between someone's requirements and the ability to meet them." Sredniawa et al. (2019). Furthermore, the authors stated that it has negatively influenced every aspect of human life: psychological, social, and physical. Acute stress, especially traumatic episodes, is considered dangerous, and chronic stress is also potentially harmful.

Work-Life Balance

Kumanu (2022) defined work-life balance as the relationship between non-work and work aspects

of individuals' lives. The author went on to say that it is common knowledge that limiting one aspect— usually work—will free up more time for the other to achieve a satisfactory work-life balance. Work-

life balance meets non-work and work demands while properly prioritizing work and lifestyle responsibilities (Kukhnavets, 2021). They specified that these responsibilities include family, extracurricular, school, and social duties. According to Kohll (2021), work-life balance is essential for a healthy working environment; maintaining balance helps prevent burnout and reduces stress in the workplace. The authors added that a work environment that prioritizes work-life balance saves money for employees and keeps a productive and healthier workforce.

Relationship between Time Management and Work-Life Balance

Zorec et al. (2021) revealed a linear relationship between time management and work-life balance. This means that the higher the time management level, the better an individual's work-life balance. The researchers concluded that better time management positively impacts people's lives. Lastly, time management was acknowledged as a key intrinsic contributor to an effective work-life balance (Picton, 2021).

In addition, time management is one of the best methods to balance professional and personal life (Abdallah &Hammound, 2020). The authors stated that to reach a work-life balance; an individual must: Prioritize tasks and events both at work and in private life; Schedule leisure activities with friends and family while not doing anything related to work; The "to-do list" setting; and establish which thing is essential and which is less important. They also recommended establishing a clear plan of action to balance personal and professional life. Also, it is vital to maintain a work-life balance and properly manage activities so that there is time for family, friends, work, and themselves (Adisa et al., 2022).

Relationship between Stress and Work-Life Balance

It is widely acknowledged that stress is one of the significant consequences of poor work-life balance (Panoian et al., 2022). Narwal et al. (2021) concluded that there is a link between work-life balance and stress. In that case, students with a healthy work-life balance also have lower stress levels. This may be because students who manage their tasks more effectively have more time to sleep, which leads to less stress (Lippke et al., 2021). Moreover, some literature highlights that students' primary source of stress involves conflict between academia and work-life balance. In particular, a recent survey by Woolston (2019) found that among 6,300 Ph.D. students worldwide, 36% have sought help for anxiety, often due to being over-stressed.

Similarly, using surveys as a valid method of collecting data and allowing statistical analysis of responses, studies have shown that some females have reported higher stress levels than males (Jowkar et al., 2020; Manolova et al., 2019). Moreover, the rising number of female professionals revealed that they were more prone to stressors from having children, which created limited career opportunities (Goldberg et al., 2021). The authors noted that this is further heightened when their work responsibilities interfere negatively with family events. Therefore, a lack of flexibility at work, excessive working hours, and an unfriendly working environment may lead to work-family conflict and poor work-life balance, especially for professional women (Cvenkel, 2021).

Methods

The non-experimental descriptive-predictive method was used to determine if time management and stress predict the work-life balance of master's students in Radiologic Technology. The study's respondents were only the students who enrolled in the Master of Science in Radiologic Technology program from the first semester of 2019 to the first semester of 2023, with a sample size of 100. Yamane's formula was employed to determine the sample size, and a simple random sampling technique was used to select the respondents. The study used electronic forms for the data collection. There was no face-to-face interaction since not all participants are based in Davao City. The respondents were asked to evaluate statements by answering numerically on the indicators. The study used a 5-point Likert scale anchored by (5) always, (4) often, (3) sometimes, (2) rarely, and (1) never.

The study employed adapted and modified questionnaires from different works of literature. The questionnaires have undergone an inter-rater reliability and validity test by three experts in the field. The survey questionnaire consists of three parts: Part I is the time management questionnaire, Part II is the stress questionnaire, and Part III is the work-life balance questionnaire. All of the survey questionnaires underwent reliability and consistency testing. The results of the reliability analysis using Cronbach Alpha revealed that the time management questionnaire ($\alpha=0.753$), stress questionnaire ($\alpha=0.724$), and work-life balance questionnaire ($\alpha=0.867$) are acceptable and show good internal consistencies.

The following steps have been undertaken during the study. The researcher got an ethics clearance from the Research Ethics Committee office of Davao Doctors College, Inc. Next, a letter requesting to conduct a research study was given to the Program Chair of the Master of Science in Radiologic Technology program at Davao Doctors College, Inc. Upon approval, a letter asking permission was forwarded to the Registrar's office requesting the data consisting of the list of only the full name of the enrollees under the Master of Science in Radiologic Technology from the first semester of 2019 to the first semester of 2022. When the head of the Registrar's Office signed the letter, they gave the researcher consent to retrieve the data. While retrieving the data, the researcher signed a data privacy agreement form from the Registrar's Office to ensure confidentiality.

After retrieving the data, the researcher filled out the application for permission to conduct a study at Davao Doctors College and submitted all the requirements, such as the permission letter, approved ERC form, Ethics Certificate, research instrument, informed consent, and the actual manuscript, to the research office. After approval from the research office, the researcher administered the survey questionnaires. The researcher contacted the participants through a social media platform like Facebook Messenger. The participants gave their consent before participating in the survey. Those who signified participation were directed to the online consent form and actual questionnaire through electronic forms. Upon opening the electronic form link, the respondents were presented with the online consent form on the first page. The respondents were requested to confirm their voluntary participation by choosing "yes" after the first statement: "I have read the information provided above. I have been given a chance to ask questions. My questions have been answered to my satisfaction, and I consent to participate in this study. I have been given a copy of this form, and I can withdraw my consent at any time and discontinue participation without penalty."

Only those who gave permission were part of this study. The survey instrument was administered entirely online using electronic forms. This study has no face-to-face interaction since not all participants are based in Davao City. After gathering the data from the respondents, the researcher sought the expertise of the statistician for the encoding and precise analysis and tabulation of data.

In the data analysis, the following statistical tool was employed: Mean was used to measure the time management, stress, and work-life balance levels of Master of Science in Radiologic Technology students. Pearson Product Moment Correlation was utilized to determine the relationships among time management, stress, and work-life balance of Master of Science in Radiologic Technology students. The results were tested at a 0.05 alpha level of significance. Multiple Linear Regression was used to determine whether time management and stress significantly predict the work-life balance among Master of Science in Radiologic Technology students.

The following statistical tools were used in the study: Mean was used to measure the levels of time management, stress, and work-life balance of Master of Science in Radiologic Technology students; Pearson Product Moment Correlation was utilized to determine the relationships among time management, stress, and work-life balance of Master of Science in Radiologic Technology students. The results were tested at 0.05 alpha significance level; Multiple Linear Regression was used to determine whether time management and stress significantly predict the work-life balance among Master of Science in Radiologic Technology students.

Results and Discussion

Table 1. Level of Time Management of Master's Students in Radiologic Technology

	Mean	Std. Deviation	Descriptive Level
Short Range Planning			
I make a list of the things I have to do each day.	3.34	1.148	Moderate
I plan your day before I start it.	3.73	1.072	High
I make a schedule of the activities I have to do on work days.	3.73	1.145	High

I write a set of goals for myself for each day.	3.32	1.188	Moderate
I spend time each day planning.	3.20	1.101	Moderate
I have a clear idea of what I want to accomplish during the next week.	3.80	0.974	High
I set and honor priorities.	4.27	0.827	High
Category Mean & SD	**3.63**	**0.839**	**High**
Time Attitudes			
I often find myself doing things that interfere with my schoolwork simply because I hate to say "No" to people.	3.14	1.025	Moderate
I feel that I am in charge of my own time, by and large.	4.02	0.791	High
On an average class day, I spend more time on personal grooming than doing schoolwork.	2.49	0.959	Low
I believe that there is room for improvement in the way I manage my time.	4.45	0.783	High
I make constructive use of my time.	3.86	0.817	High
I continue unprofitable routines or activities.	3.04	1.014	Moderate
Category Mean & SD	**3.50**	**0.461**	**High**
Long-Range Planning			
I usually keep my desk clear of everything other than what I am currently working on.	3.86	1.054	High
I have a set of goals for the entire quarter.	3.51	1.020	High
I comply with the assignment ahead of time.	3.84	0.940	High
When I have several things to do, I do things one at a time.	4.01	0.835	High
I regularly review my class notes, even when a test is not imminent.	3.25	1.009	Moderate
Category Mean & SD	**3.69**	**0.680**	**High**
Overall Mean	**3.61**	**0.535**	**High**

Table 1 shows the level of time management of master's students in Radiologic Technology. The Master of Science in Radiologic Technology (MSRT) students' time management contains three indicators, namely short-range planning, time attitude, and long-range planning. It garnered an overall mean of 3.61 with a description of high and a Standard Deviation (SD) of 0.535. This means that the level of time management of MSRT students is high or often evident. Meanwhile, the result of SD is less than 1, which denotes that respondents' answers are not so dispersed from one another.

The results conform with Pertiwi's (2021) study, wherein the majority of their respondents possess a moderate level of time management, while a few possess a high level of time management scores. However, no participants in their study have a low-level score. Meanwhile, a survey conducted by Bhattacharya et al. (2022) revealed that most participants scored moderate to low, and a few scored a high level of time management. Researchers portray time management as a multidimensional process including short- and long-term planning, monitoring time spent, setting and prioritizing goals, and allocating time (Wolters & Brady, 2020).

Table 2. Level of Stress of Master's Students in Radiologic Technology

	Mean	Std. Deviation	Descriptive Level
Financial Issues			
Personal finances	3.67	1.006	High
Accommodation	2.43	1.328	Low
Transport	2.64	1.360	Moderate
Cost of books/ equipment	2.57	1.437	Moderate
University fees	3.09	1.303	Moderate
Category Mean & SD	**2.88**	**0.892**	**Moderate**
Personal Issues			
Relationship with family members	2.43	1.328	Low
Relationship with partner	2.08	1.277	Low
Loneliness	2.45	1.266	Low
Physical health	2.86	1.349	Moderate
Psychological health	2.87	1.390	Moderate
Stressful events	3.24	1.164	Moderate
Mood	2.94	1.213	Moderate
Category Mean & SD	**2.70**	**0.943**	**Moderate**
Academic Issues			
Intellectual demands of the future	3.12	1.085	Moderate
Physical demands of the course	2.93	1.148	Moderate
Time demands of the course	3.16	1.143	Moderate
Uncertainty about expectations in the course	2.94	1.099	Moderate

Amount of material to be learned in the course	2.87	1.070	Moderate
Overall level of stress	3.17	1.064	Moderate
Category Mean & SD	**3.03**	**0.883**	**Moderate**
Overall Mean	2.87	0.752	Moderate

Table 2 shows the stress level experienced by MSRT students in terms of financial, personal, and academic issues. It garnered an overall mean of 2.87 with a description of moderate and a standard deviation of 0.752. This denotes that MSRT students sometimes manifest stress. This conforms to the study of Allen et al. (2020) that there is a high-stress level among graduate students. The authors reported that graduate students might be confronted with rigor and stress, and they will begin to feel emotional exhaustion and strain. They added that higher stress levels were related to higher exhaustion levels. According to Charles et al. (2022), factors such as financial concerns, social support, perceived institutional discrimination, poor mentorship, etc., affect graduate students' stress levels.

Table 3. Level of Work-life Balance of Master's Students in Radiologic Technology

	Mean	Std. Deviation	Descriptive Level
I currently have a good balance between the time I spend at work and the time I have available for non-work activities.	3.59	0.933	High
I have difficulty balancing my work and non-work activities.	3.41	0.986	Moderate
I feel that the balance between my work demands and non-work activities is currently about right.	3.34	0.855	Moderate
Overall, I believe that my work and non-work life are balanced.	3.52	0.915	High
Overall Mean	**3.47**	**0.700**	**Moderate**

Table 3 exhibits the level of work-life balance of MSRT students. The highest mean is 3.59 in the aspect of currently having a good balance between time spent at work and time available for non-work activities. On the other hand, the lowest mean is 3.34 regarding the right balance of work and non-work demands. The mean values of the participant's answers range from 3.34 to 3.59, with an overall mean of 3.47, described as a moderate level, and a standard deviation of 0.700. This entails that MSRT students sometimes exhibit work-life balance.

This conforms to the study of Yusuf et al. (2020), wherein graduate students indicated work-life balance as one of the top five factors that positively impact their quality of life, leading to better well-being. In addition, their study shows that most respondents were part-time students, and a few were full-time students who experienced an excellent work-life balance that positively impacted their quality of life. In addition, Zorec et al.'s (2021) study revealed that most of their respondents successfully balanced their work and personal lives and had a good work-life balance. Gragnano et al. (2020) reported work-life balance as an individual's

perception that non-work and work activities are agreeable and promote growth conforming to the individual's current priorities.

Table 4. Relationship of Time Management and Stress on the Work-life Balance of Master's Students in Radiologic Technology

INDEPENDENT VARIABLE	WORK-LIFE BALANCE			
	r	p-value	Remarks	Decision on Ho
Time Management	0.154	0.127	Not Significant	Accepted
Stress	-0.424	0.000	Significant	Rejected

Table 4 shows the correlation test of time management, stress, and work-life balance of MSRT students. The results revealed that the relationship between stress and work-life balance in MSRT students is highly significant (p<0.05) with a correlation coefficient of (r=-0.424). Because the p-value of 0.000 is less than 0.05 alpha significance level, the null hypothesis stating there is no significant relationship between Stress and Work-life Balance of Master of Science in Radiologic Technology Students was rejected. However, the negative correlation coefficient (r=-0.424) indicates an inverse relationship between stress and work-life balance. This implies that the high stress experienced by MSRT students would decrease their work-life balance.

The findings conformed to the study of Daly (2019), which revealed a highly significant relationship between stress and work-life balance. However, they revealed that there is also a positive relationship between stress and work-life balance which indicates that the participants who experience a higher level of stress experience a higher level of work-life balance. Meanwhile, the study of Aruldoss et al. (2020) contradicts the result of the previous

study as they revealed that job stress has a negative relationship between stress and work-life balance which indicates that as job stress levels increase, the work-life balance of the participants decreases.

In addition, Narwal et al. (2021) concluded that there is a link between work-life balance and stress. In that case, students with a healthy work-life balance also have lower stress levels. This may be because students who manage their tasks more effectively have more time to sleep, which leads to less stress (Lippke et al., 2021).

On the other hand, the relationship between time management and work-life balance is not significant (p>0.05) and has a correlation coefficient of (r=0.154). Since the computed p-value (0.127) is greater than 0.05 alpha significance level, the null hypothesis was accepted, expressing no significant relationship between Time Management and Work-life balance of Master of Science in Radiologic Technology Students. The findings were in contrast to the study of Zorec et al. (2021), whose study revealed a linear relationship between time management and work-life balance.

Table 5. Prediction of Time Management and Stress on the Work-Life Balance of Master's Students in Radiologic Technology

	Standardized Coefficients	t	p-value	Remarks	Decision on Ho
	Beta				
Time Management	0.155	1.713	0.090	Not Significant	Accepted
Stress	-0.425	-4.693	0.000	Significant	Rejected

Table 5 represents the prediction of time management and stress on the work-life balance of MSRT students. The results show that between time management and stress, only stress is a significant predictor of the work-life balance of MSRT students (p<0.05). In particular, stress generated a p-value less than 0.05 (p=0.000) and a negative standardized coefficient value of (β = - 0.425). This means that for every value increase in stress, the work-life balance of MSRT students goes down by 0.425. Thus, for every unit increase in stress level, there is a corresponding decrease in work-life balance. The results suggest that stress is highly significant and predicts the work-life balance of MSRT students.

This conforms to the recent study by Daly (2019), which revealed that stress predicts work-life balance. They revealed that participants' stress significantly increased based on the level of their work-life balance. According to Panoian et al. (2022), stress is widely acknowledged as one of the significant consequences of poor work-life balance.

On the other hand, time management is not a significant predictor of work-life balance (β = 0.155, p>.05). The results conform with the recent study of Hashim & Azahari Jamaludin (2022), wherein their study also revealed that time management does not predict and has no significant influence on work-life balance. However, the authors still suggested that it is essential to maintain a work-life balance and properly manage activities so that there is time for family, friends, work, and themselves.

Lastly, the findings were evident in the regression analysis results that there is a 20.4% variance of work-life balance of MSRT students as indicated by R-square=0.204. This means that 79.6% of the variation can be attributed to other factors besides stress in predicting work-life balance. The results were lower than the findings of Daly (2019) and Hashim and Azahari (2022), showing 26% in time management and 50% in stress in the variance explained by the previous researchers of time management, stress, and work-life balance.

Conclusion and Recommendations

Based on the findings of the study, the following is concluded: Master's students in Radiologic Technology always practice time management. On the other hand, master's students in Radiologic Technology sometimes experience stress. Meanwhile, students in a Master of Science in

Radiologic Technology sometimes exhibit work-life balance. Time management does not have a relationship with work-life balance. Therefore, whether time management increases or decreases, it will not affect the work-life balance. Meanwhile, stress has a highly significant and negative relationship with work-life balance. Hence, when the stress levels of master's students in Radiologic

Technology increase, their work-life balance will decrease. Lastly, between the two independent variables - time management and stress- only stress significantly predicts and may contribute to the work-life balance of master's students in Radiologic Technology.

This study suggests that the school administrators continue to intensify the curriculum in the academics and the human needs of the MSRT students and attempt to support the students working and studying to achieve work-life balance. Since there is only an average work-life balance, students may strive harder and explore more possible ways to attain their academic and professional success goals. It is also recommended that future researchers make intervention studies addressing the time management, stress, and work-life balance of students who are working part-time or full-time. Lastly, to further improve the future study on the predictors of work-life balance, future researchers may explore other factors, such as attention span, teacher factors, procrastination, etc., in determining what predicts work-life balance.

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The Intent to Migrate Overseas Among Radiologic Technologists In Davao City: A Binary Logistic Regression Analysis

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Abstract

This study examined the factors influencing migration intent among Radiologic Technologists in Davao City, finding that 68.8% expressed intent to migrate. The study emphasized the significant influence of macro-level factors such as career opportunities and employment conditions. Family pressure and social networks also showed varying degrees of influence, while the macro factor had statistically significant predictive capacity, unlike the micro and meso factors, which had limited predictive capacity. These findings underscore the importance of considering macro-level factors when addressing migration concerns in the healthcare workforce. Recommendations include targeted interventions for young technologists, gender-inclusive strategies, strengthening educational programs, addressing income disparities, monitoring demographic profiles, resolving socioeconomic factors, investing in healthcare infrastructure, providing detailed information on local opportunities, and exploring international collaborations. By implementing these strategies, Davao City can ensure the retention of skilled radiologic technologists, create an attractive work environment, and effectively mitigate migration concerns in the healthcare workforce.

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Keywords: Intent to Migrate, Social Science, Descriptive-Predictive, Davao City

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Introduction

Over the past years, a significant trend has emerged where healthcare workers from developing countries are seeking opportunities in economically developed countries worldwide. This migration phenomenon has raised concerns regarding the shortage of local healthcare professionals and its potential adverse impact on the health sector. It is a long-standing issue that is likely to persist in the coming years (Murataj et al., 2022). Driven by a worldwide scarcity of healthcare professionals, this phenomenon is widely acknowledged as a crisis in human resources within the healthcare sector. In the last 50 years, affluent nations have experienced a growing demand for skilled healthcare workers, yet they have struggled to adequately train and retain a workforce capable of meeting their needs. Consequently, these countries have increasingly relied on healthcare professionals trained abroad to bridge the gap. (Bludau, 2021) Southeast Asian countries, including the Philippines, have witnessed a substantial outflow of healthcare personnel, including Radiologic Technologists, to countries belonging to the Organization for Economic Co-operation and Development (OECD). This migration is driven by the desire for better salary opportunities and improved working conditions (Owusu et al., 2017). For instance, in the United States, the healthcare workforce comprises a significantly high proportion of immigrants, with over 2.6 million individuals working in the sector (Batalova, 2020).

The Migration Policy Institute, based on data from the US Census Bureau American Community Survey, reported that 16.4 percent of healthcare workers in health diagnosing and 2 treating fields are immigrant workers, with 198,000 out of 1,212,000 professionals (U.S. Census Bureau, 2018). Similarly, in the United Kingdom, the National Health Service relies heavily on non-British workers, with approximately 220,000 out of 1.4 million employees representing over 200 different nationalities. Among them, Asians account for a significant portion, with over 95,000 workers, including 30,356 Filipinos (Baker, 2022). The Philippines, in particular, has experienced a widespread phenomenon of healthcare professionals seeking employment opportunities overseas. It is widely accepted that Filipino healthcare workers, especially those in the medical field, are inclined to work abroad for better remuneration and career prospects (Abrigo& Ortiz, 2019). According to the Philippine Statistics Authority, there were an estimated 1.77 million Overseas Filipino Workers from April to September 2020, and the remittances from land-based Filipino migrants, including health workers, contribute substantially to the country's economy (Philippine Statistics Authority, 2022). The Philippines' healthcare system faces difficulties staying viable and raises questions about whether it will be able to provide services that exceed the required minimum standards. Global healthcare systems already faced an uncertain future due to imbalances in the supply and demand of healthcare workers before COVID-19. This scenario has gotten worse as a result of factors like poor long-term workforce planning, low employee retention, and global demand for healthcare personnel. (Murataj et al., 2022). Skills are honed with experience and these skills make competent and effective healthcare professionals that we need in the nation's healthcare system. Thus, it becomes 3 crucial for healthcare institutions to identify and understand the factors that drive healthcare workers to pursue overseas migration. By doing so, they can develop strategies that aim to maintain and sustain the delivery of quality

healthcare, mitigating the impact of the global shortage of healthcare workers (Guinto et al., 2017).

Methods

This study employed the descriptive-predictive method. In the descriptive phase, quantitative data was collected through surveys and questionnaires to provide a comprehensive overview of migration intent among Radiologic Technologists in Davao City. This encompassed various factors such as demographic characteristics, employment conditions, career opportunities, and social networks, allowing for a systematic assessment and detailed description of migration intent.

To develop a predictive model, binary logistic regression analysis was utilized. This statistical technique aimed to identify and quantify the significant factors that influenced the likelihood of Radiologic Technologists intending to migrate overseas. The regression model facilitated the estimation of probabilities and the identification of variables contributing to the prediction of migration intent. By analyzing these factors, the study provided insights into their relative importance and impact on the likelihood of migration among Radiologic Technologists.

The study was conducted in randomly selected hospitals in Davao City, including a Philhealth Accredited Level 4 Facility, a hospital and community-based ministry, a multidisciplinary tertiary research hospital, a 100-bed tertiary hospital, and a privately-owned hospital and medical resort. One additional hospital in the region was also included. The respondents initially consisted of 75 Registered Radiologic Technologists, but one hospital declined participation, resulting in 64 participants. Data collection primarily took place online due to the availability of respondents.

The questionnaire used in the study consisted of 11 questions divided into three sections. Section 1 focused on the sociodemographic profile of the respondents, including age, gender, educational background, years of experience, and employment status. Section 2 addressed migration intent, assessing the likelihood of respondents intending to migrate for work purposes. Section 3 measured the level of influence of micro, meso, and macro factors on migration intent using a 5-point Likert scale. The questionnaire aimed to capture relevant information regarding migration intent among radiologic technologists in Davao City and the perceived influence of factors at different levels. The collected data were analyzed using binary logistic regression analysis to identify significant factors associated with migration intent.

Results and Discussion

Table 1. Sociodemographic Profile of the Respondents

		Frequency	Percent
Age	below 30	39	60.9
	30-40	21	32.8
	above 40	4	6.3
	Total	64	100.0
Sex	Male	36	56.3
	Female	28	43.8
	Total	64	100.0
CS	Single	47	73.4
	Married	17	26.6
	Total	64	100.0
EA	College Undergraduate	3	4.7
	College Graduate	55	85.9
	Post-Graduate	6	9.4
	Total	64	100.0
Income	below P10,000	1	1.6
	P10,000-P29,999	44	68.8
	P30,000-P69,999	8	12.5
	P70,000-P119,999	5	7.8
	above P120,000	6	9.4
	Total	64	100.0

The demographic profile of the respondents in this study, which focused on the factors influencing the intent to migrate overseas among Radiologic Technologists in Davao City, is as follows: In terms of age, there were 39 respondents below the age of 30, accounting for 60.9% of the total participants. Additionally, there were 21 respondents in the 30-40 age category, comprising 32.8% of the total. Lastly, 4 respondents were above the age of 40, representing 6.3% of the total sample size. Overall, the study included a total of 64 respondents. Regarding sex, the study comprised 36 male respondents, making up 56.3% of the total sample, while there were 28 female respondents, accounting for 43.8% of the participants. In terms of civil status (CS), the majority of respondents were single, with 47 individuals falling into this category, representing 73.4% of the total sample. On the other hand, 17 respondents were married, comprising 26.6% of the participants. When considering educational attainment (EA), the study included 3 respondents who were college undergraduates, making up 4.7% of the total sample. Additionally, 55 respondents were college graduates, accounting for 85.9% of the participants. Lastly, 6 respondents held post-graduate degrees, representing 9.4% of the total sample. Examining income levels, there was 1 respondent with an income below P10,000, making up 1.6% of the participants. Furthermore, 44 respondents had incomes ranging from P10,000 to P29,999, comprising 68.8% of the total sample. Additionally, 8 respondents fell into the income bracket of P30,000 to P69,999, representing 12.5% of the participants. Moreover, 5 respondents had incomes ranging from P70,000 to P119,999, making up 7.8% of the sample. Lastly, there were 6 respondents with incomes above P120,000, accounting for 9.4% of the total sample.

Table 2. Intent to Migrate

Intent to Migrate

		Frequency	Percent	Valid Percent	Cumulative Percent
	No Intent	20	31.3	31.3	31.3
Valid	There is intent	44	68.8	68.8	68.8
	Total	64	100.0	100.0	100.00

The intent to migrate among the radiologic technologists in the study showed that 44 respondents, accounting for 68.8% of the total sample, expressed an intent to migrate overseas. On the other hand, 20 respondents, representing 31.3% of the sample, reported having no intent to migrate.

Table 3. Level of Influence

	Mean	Std. Deviation	Interpretation
Micro			
Benefits	3.88	1.215	Very Influential
Salary	4.16	1.198	Extremely Influential
Category Mean	4.02	1.155	Extremely Influential
Meso			
Family Pressure	2.14	1.193	Slightly Influential
Social Network	2.56	1.308	Moderately Influential
Category Mean	2.35	1.150	Slightly Influential
Macro			
Career Opportunities	3.78	1.253	Very Influential
Employment Conditions	3.50	1.247	Moderately Influential
Overall Influence	3.34	1.018	Moderately Influential

Legend:4.20 - 5.00: Extremely Influential;3.40 - 4.19: Very Influential;3.40 - 4.19: Very Influential;2.60 - 3.39: Moderately Influential;1.80 - 2.59: Slightly Influential;1.00 - 1.79: Not influential

The table displays mean scores and standard deviations for the influential factors affecting radiologic technologists' migration intentions at micro, meso, and macro levels. Benefits have a high influence at the micro level (mean = 3.88), particularly retirement plans and healthcare coverage. Compensation has a significant impact (mean = 4.16) on migration decisions. At the meso level, family pressure has a marginal influence (mean = 2.14), while social networks have a moderate influence (mean = 2.56). On the macro level, professional advancement and specialized positions strongly impact migration intent (mean = 3.78), while employment conditions have a moderate influence (mean = 3.50). Overall, micro, meso, and macro factors have a moderately influential effect on migration intent (mean = 3.34).

Table 4. Predictive Significance of Micro, Meso, and Macro Factors

Variables in the Equation

		B	S.E.	Wald	df	P-value	Exp(B)
Step 1[a]	micro	-.161	.640	.063	1	.802	.852
	meso	.817	.483	2.869	1	.090	2.264
	macro	1.352	.663	4.155	1	.042	3.867
	Constant	-4.955	1.587	9.747	1	.002	.007

Note: Nagelkerke R Square =.518

The logistic regression analysis examined the predictive significance of the factors influencing the intent to migrate among radiologic technologists. The results revealed that only the macro factor had a statistically significant predictive significance (p-value = 0.042). The micro and meso factors did not reach statistical significance (p-values of 0.802 and 0.090, respectively). The odds ratio (Exp(B)) for the macro factor was 3.867, indicating that individuals with higher scores on the macro factor were approximately 3.867 times more likely to express the intention to migrate overseas compared to those with lower scores.

Conclusion and Recommendations

The demographic profile of registered radiologic technologists in Davao City reveals important insights into the workforce composition. The study indicates a predominantly young workforce with a higher representation of males. Most respondents have completed college education and fall within the income range of P10,000 to P29,999. These findings provide context for understanding migration intentions among radiologic technologists. The study highlights a significant proportion of radiologic technologists expressing an intent to migrate overseas, indicating the need to investigate the influencing factors and their implications for the healthcare workforce in Davao City.

The influential factors analysis reveals that benefits, compensation, professional advancement, and specialized positions have a substantial impact on migration intent, while family pressure, social networks, and employment conditions have varying levels of influence. Overall, the combined effect of micro, meso, and macro factors on migration intent is moderately influential. Policymakers and healthcare organizations can leverage these insights to develop targeted interventions addressing pay, career prospects, benefits, social networks, and working conditions, thus retaining qualified personnel within the field and the local healthcare system. Additionally, logistic regression analysis emphasizes the significant predictive power of macro-level factors in migration intent. This calls for addressing broader socioeconomic factors such as economic conditions and opportunities abroad to reduce migration intentions among radiologic technologists.

Based on these conclusions, several recommendations are proposed. These include implementing targeted interventions for young radiologic technologists, promoting gender equality and inclusivity, strengthening educational and training programs, addressing income disparities, monitoring workforce demographics, resolving socioeconomic factors, providing information on local opportunities, investing in healthcare infrastructure, exploring international collaborations, and continuing research and monitoring efforts.

By implementing these recommendations, it is anticipated that migration intentions among radiologic technologists in Davao City can be mitigated, leading to a more stable healthcare workforce and the provision of quality healthcare services to the local population.

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Attitude and Compliance on Infection Control Measures among Radiologic Technologists in Selected Private Hospitals in Metro Manila, Philippines

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Abstract

The Radiology Department has potential risks of disease transmission, which someone should avoid by employing adequate infection prevention and control methods. Implementing standardized infection prevention and control techniques becomes increasingly essential as current radiology practice evolves into a more clinical role. The study aims to determine the relationship between attitude and compliance with infection control measures among Radiologic Technologists working in selected private hospitals in Metro Manila, Philippines. A descriptive-correlational method based on adapted questionnaires was conducted from January to March 2023. This quantitative study used a simple random sampling technique to survey seventy-eight (78) Radiologic Technologists working in selected five (5) private hospitals in Quezon City. Frequency and Percentage, Mean, Standard Deviation, Pearson Product Moment Correlation (Pearson R), and Hierarchical Multiple Regression were the statistical methods used in the study. The findings showed that Radiologic Technologists' overall attitude and compliance were very high and are significantly related. It means the respondents complied with the infection control measures in their perspective hospitals. In addition, the results using Hierarchical Multiple Regression analysis revealed that demographic profile in terms of sex, years of experience, type of hospital, and types of imaging modality assigned does not significantly moderate the relationship between attitude and compliance on infection control measures among Radiologic Technologists in selected private hospitals in Metro Manila, Philippines. This study discovered new information to help researchers and hospital policymakers to improve infection control guidelines.

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Introduction

The potential risks of disease transmission exist in the Radiology Department, and they should be prevented by implementing proper infection prevention and control measures (Yu et al., 2020). Peng et al. (2020) found that only 40% of radiology department professional staff have sufficient knowledge of infection control practice. Also, the results of the Srivastava et al. (2021) survey indicated that most standard precautions, except for strict hand hygiene and needle/sharps injury prevention, were practiced only after the pandemic outbreak. It explains why implementing standard precautions for all patient care is essential in Radiology Departments and must re-organize their facilities and staff to enhance safety and minimize the risks of infection (Stogiannos et al., 2020) and must follow standard precautions to prevent disease in healthcare institutions (Abed Alah et al., 2021).

Kim & Park (2021) stated that the greater the perception of a safe environment, the more positive the attitude toward infection prevention and control, and the higher the compliance with infection

prevention and control procedures. Another study by Al-Ahmari et al. (2021) shows the respondents' positive (88.2%) attitude toward infection control policies and procedures. At the same time, in the Cavite, Philippines, Maristela et al. (2019) study revealed that respondents know the standard precaution for infection control, which leads to excellent handwashing practice and safely handling needles and other sharp devices in the clinical area.

Several researchers have looked into many studies on different aspects of healthcare worker's knowledge, attitudes, and practices on infection control to solve the issue primarily; only nursing students, medical students, nursing practitioners, and other healthcare workers have been the subject of most of these studies (Al-Ahmari et al., 2021; Radzak et al., 2021; Maristela et al., 2019; Lobo et al., 2019; Rabbani et al., 2021; & Sharma, M. & Bachani; R., 2023). In contrast, other research focuses on COVID-19-related knowledge, attitudes, and practices (Elgyoum et al., 2020; Abuzaid et al., 2022; Jimenez et al., 2023). Nevertheless, the attitude and compliance of Radiologic Technologists about infection control measures generally, as opposed to simply the pandemic specifically, only a few were conducted on Radiologic Technologists (Dihako et al., 2023; Aljondi et al. (2021); & Abdelrahman et al., 2019).

Furthermore, this study examined the relationship between attitude and compliance with infection control measures among Radiologic Technologists in selected private hospitals in Metro Manila, Philippines. It would determine if Radiologic Technologists adhere to the infection control policies implemented by their affiliated hospitals. In this way, it could be used as a basis by the hospital management for conducting programs that strengthen the infection control measures in the institution to prevent acquiring infections. Moreover, this study could determine and provide additional information on how the attitude and compliance of Radiologic Technologists contribute to infection control measures in the institution.

Methods

The study used a descriptive-correlational research design; a descriptive study determines the level of attitude and compliance on infection control measures among Radiologic Technologists, while a correlational study was used to measure the relationship between attitude and compliance on infection control measures among Radiologic Technologists in selected private hospitals in Metro Manila, Philippines, particularly in Quezon City. The researcher chose Quezon City because of the number of hospitals available (more than ten private hospitals) to obtain the recommended sample size for the study. Respondents were chosen by implementing the simple random sampling technique. Among the one hundred three (103) total population, the calculated sample size using Raosoft.com (sample size calculator) was eighty-two (82). Only seventy-eight (78) Radiologic Technologists working in selected private hospitals responded. Individuals in supervisory/management positions were excluded since they are not handling patients and procedures, and other healthcare professionals were excluded since the study focused only on Radiologic Technologists.

This study employed adapted questionnaires from Sugathan et al. (2018) and Kim & Park (2021). Twelve items were used to assess Radiologic Technologists' attitudes and compliance toward infection control measures. The researcher submitted the questionnaire to the expert validators for comments, suggestions, improvements, and refinements with an overall rating of 3.67. Content validity was used in determining whether the measurement instrument adequately covers all relevant aspects of the research study. Moreover, the researcher conducted a pilot study to test the questionnaire's reliability to ensure that the items and questions were clear and understandable to the respondents. Internal Consistency Reliability was used in assessing the extent to which the items or questions within a measurement instrument were interrelated and measured in the same construct and evaluated using Cronbach's alpha. The result of the pilot study measures the internal consistency of all items in attitude with a total Cronbach alpha=.722. At the same time, compliance measures the internal consistency of all items with a total Cronbach alpha=.704.

The researcher took the requisite steps during the data collection process. The researcher asked for permission from the selected private hospital's Research Director or Head of the Radiology Department by sending a request letter

that expresses the purpose and aim of the researcher with a brief explanation of the study to survey the Radiologic Technologists in their hospital. The letter was duly noted by the researcher's adviser and the Program Chair of the Master of Science in Radiologic Technology from Davao Doctors College, Inc. After the approval from the selected private hospitals, the researcher asked the contact person and requested a suitable data collection schedule that would not interfere with the respondents' jobs.

The survey was conducted face-to-face, and the researcher handed over personally the request letter, informed consent form, and survey questionnaires to the respondents. The respondents affixed their confirmation on the informed consent form, which will specify their voluntary participation in the study. Only those who attest to their consent were considered part of the study. The explanation of the study and instruction for the tests was incorporated into the questionnaires. A data screening was performed after getting the respondents' responses to minimize the possible outliers during the analysis. It followed the encoding, tabulating, and evaluating. Lastly, the researcher consulted a statistician for the precision of mathematical data computations.

In the analysis of data, the following were the statistical methods used in this study: Frequency was used to examine the demographic profile of Radiologic Technologists in terms of sex, years of experience, type of hospital employed, and type of imaging modality assigned. The percentage was used to examine the demographic profile of Radiologic Technologists by the number of ratios as it can be expressed in 100. Mean was used to measure attitude and compliance with infection control measures among Radiologic Technologists in selected private hospitals in Metro Manila, Philippines. At the same time, Standard Deviation was used to examine the values among the responses. Pearson Product Moment Correlation (Pearson R) was employed to determine the relationship between attitude and compliance with infection control measures. Furthermore, Hierarchical Multiple Regression was used to determine if demographic profile significantly moderates the relationship between attitude and compliance on infection control measures among Radiologic Technologists in selected private hospitals in Metro Manila, Philippines.

Results and Discussion

Table 1. Demographic Profile of the Respondents

	Frequency	**Percentage**
Sex		
Female	38	48.72
Male	40	51.28
Years of Experience		
Less than 3 years	33	42.308
3 years and more	45	57.692
Type of Hospital-employed		
Level II	25	32.051
Level III	53	67.949
Type of Imaging Modality Assigned		
One Imaging Modality Assigned	49	62.821
2 and more Imaging Modality Assigned	29	37.179

Table 1 shows the demographic profile among Radiologic Technologists in the selected private hospitals in Metro Manila, Philippines. A total of 78 radiologic technologists responded and completed the questionnaire. More than half of the respondents, 51.28% (40), were males, and only 48.72% (38) were females. 57.7% (45) of the respondents had more than three years of experience, and 42.3% (33) had less than three years of experience. Also, 67.9% (53) of respondents were from level III hospitals, while only 32.1% (25) were from level II hospitals. Moreover, it was noted that 62.8% of the respondents had been assigned only one imaging modality, and 37.2% had been given more than two imaging modalities. The present result was the same as the other studies that revealed that the level of infection prevention and control practices (Ellasus & Lopez, 2021) and compliance (Alakhras M. et al., 2020) among healthcare personnel was no significant difference across the demographic profile of the respondents. Same with the study of Al-Ahmari et al. (2021) that there were no statistically significant differences regarding respondents' attitudes according to their sociodemographic characteristics.

Table 2. Attitude of Radiologic Technologists on Infection Control Measures

Attitude on Infection Control Measures	Mean	Std. Deviation	Verbal Description
Handwashing/hand sanitizer	4.231	0.755	Very High
Sharp objects disposal	4.859	0.278	Very High
Wearing of gloves	4.14	0.635	High
Wearing personal protective equipment (PPE)	4.679	0.546	Very High
Wearing protective eyewear/goggles	4.731	0.481	Very High
Wearing of mask	4.929	0.209	Very High
Attitude	**4.429**	**0.244**	**Very High**

Table 2 shows the respondents' attitudes results toward infection control measures. The result generates an overall mean of 4.429, exhibiting a very high attitude toward infection control measures. It means that Radiologic Technologists always exhibit infection control measures. It is a positive indication that Radiologic Technologists have understood, believed, and saw the importance of infection prevention and control, resulting in a positive attitude towards infection control measures. The result of this study was supported by the study of Al-Ahmari et al. (2021), which shows the respondents' positive (88.2%) attitude toward infection control policies and procedures. Moreover, the results manifest that the highest mean among the six indicators is wearing masks (4.929), exhibiting a very high level of attitude, which means Radiologic Technologists always exhibit infection control measures in terms of wearing masks. Radiologic Technologists know the importance of always wearing masks to prevent infections spread by respiratory droplets. It has the same result as Larebo & Abame's (2021) study, where 97.3% wore face masks on hospital premises.

On the other hand, the lowest mean among the six indicators is wearing gloves (4.14), exhibiting a high level of attitude which means Radiologic Technologists often exhibit infection control measures in terms of wearing gloves. The Radiologic Technologists frequently used gloves in their designated hospitals. In contrast to these findings, a study by Al-Ahmari et al. (2021) reported that 72% strongly agreed/agreed that using gloves for all patient care contacts was a helpful strategy for reducing the risk of transmission of organisms.

Table 3. Compliance of Radiologic Technologists on Infection Control Measures

Compliance with Infection Control Measures Kim & Park (2021)	Mean	Std. Deviation	Verbal Description
Prevention of cross-infection	4.769	0.351	Very High
Use of protective devices	4.734	0.368	Very High
Disposal of sharps	4.734	0.368	Very High
Compliance	4.661	0.272	Very High

Table 3 shows the respondents' compliance results on infection control measures. Regarding the total compliance score, it was found that Radiologic Technologists scored an overall mean of 4.661, exhibiting a very high level of compliance, which means that Radiologic Technologists always have compliance with infection control measures. It is a positive indication that they demonstrate their attitude and skills by performing the infection control measures that result in positive compliance. It was supported by Naji et al. (2022) study results revealed that more than half of the participants had appropriate practice (51.6%) toward infection prevention and control. Regarding respondents' performance towards infection control, the majority (72%) have performed well (Ahmed et al., 2019).

Moreover, results manifest that the highest mean among the three indicators is the prevention of cross-infection (4.769), exhibiting a very high level of compliance, which means that Radiologic Technologists always have compliance on infection control measures in terms of prevention of cross-infection by the washing of hands and proper wearing of gloves. It indicates remarkable compliance among Radiologic Technologists by showing their willingness to comply with the infection control guidelines regarding the prevention of cross-infection. It was supported by AlAhdal et al. (2019) study, which stated that most respondents conveniently practice hand hygiene before and after encountering patients.

The lowest mean among the three indicators is the disposal of sharps (4.481), exhibiting a very high level of compliance which means that Radiologic Technologists always have compliance with infection control measures in terms of disposal of sharps. It indicates that the respondents strongly agree on infection control measures in terms of the disposal of sharps. It was supported by Al-Ahmari et al. (2021) study that the respondents strongly agreed (51.4%)/agreed (20.8%) that healthcare workers should never do sharps recapping. Respondents of Asuke et al. (2020) said they would dispose of sharps immediately in safety boxes (98.4%).

Table 4. Relationship between Attitude and Compliance among Radiologic Technologists on Infection Control Measures

		R-value	Magnitude	P-value	Remarks
Handwashing/hand sanitizer	Compliance	0.478	Moderate	0.041	Significant
Sharp objects disposal	Compliance	0.423	Moderate	0.047	Significant
Wearing of Gloves	Compliance	0.055	Very Low	0.635	Not Significant
Wearing of PPEs	Compliance	0.221	Low	0.049	Significant
Wearing Protective Eyewear	Compliance	0.459	Moderate	< .001	Significant
Wearing of Masks	Compliance	0.468	Moderate	0.030	Significant
Attitude	Compliance	0.405	Moderate	0.047	Significant

Table 4 shows the test result of the relationship between attitude and compliance with infection control measures. Handwashing attitude and compliance has a moderate, positive significant relationship (R=.478, p-value=.041). It means the respondents complied with the infection control measures such as handwashing/hand sanitizer. It can be supported by the study of AlAhdal et al. (2019) that most respondents conveniently practice hand hygiene before and after patient encounters—the majority (87%) of respondents in Rabbani U. & Al Saigul AM. (2021) study, constantly cleaning their hands with soap or alcohol-based rub and washing hands was quite common practice.

Sharp object disposal has a moderate positive significant relationship with compliance (R=.423, p-value=.047). It means the respondents complied with the infection control measures in sharp objects disposal. It can be supported by the study of Khalid (2019) that needles must not be re-sheathed/recapped, same with Al-Ahmari et al. (2021) study that 51.4% strongly agreed. Most participants (65%) disagreed that sharp needles could be bent or broken after use.

Surprisingly, the results in attitude among Radiologic Technologists on wearing gloves are not significantly related to their overall level of compliance (R=.055, p=.635). It means that the respondents do not wear gloves which negates the relationship towards their compliance with infection control measures. It indicates that the respondents did not strictly follow the wearing of gloves protocol. Thus, the respondents are more prone to contracting infections by touching patients. Despite the availability of infection control practice standards, respondents in the Saraswathy et al. (2021) study failed to comply with practices such as wearing gloves while in contact with blood, body fluids, excretions, and secretions.

Wearing personal protective equipment (PPE) has a low positive significant relationship with compliance (R=.221, p-value=.049). It means the respondents complied with the infection control measures regarding wearing personal protective equipment (PPE). It is supported by the study of Prakash et al. (2020) that overall compliance for PPE usage was 96.3%.

Wearing protective eyewear has a moderate, positive significant relationship with compliance (R=.459, p-value=<.001). It means the respondents complied with the infection control measures, such as wearing protective eyewear. The same study by Hughes et al. (2021) recommends that healthcare workers wear eye protection when doing treatments that may result in splashing, spraying body fluids, or being within 2 meters of a coughing patient. Similarly, according to the Al-Ahmari et al. (2021) study, 19% of respondents always wear protective goggles during procedures, whereas 95.8% feel that wearing eye goggles during aerosol-producing activities is mandatory (Thazha et al., 2022).

Wearing masks has a moderate, significant relationship with compliance (R=.468, p-value=0.030). It means the respondents complied with the infection control measures, such as wearing masks. Regarding the use of masks, (74%) agreed that healthcare workers should always wear masks at work, and wearing masks during practice effectively prevents infection among healthcare workers (Rabbani et al., 2021).

The respondents' overall attitude and compliance are significantly related (R=.405, p-value=0.047). It means the respondents complied with the infection control measures in their perspective hospitals. It has a similar result to Rahiman et al. (2019) study that showed a positive correlation was found between respondents' total attitude and total practice scores (r = 0.48 p < 0.01).

Table 5A. Moderating Effect of Demographic Profile (Sex) in the Relationship between Attitude and Compliance

	Beta	Standardized	t-value	p-value
Constant	3.191		6.403	< .001
Attitude	0.333	0.726	2.981	0.004
Sex	-0.061	-0.113	-0.193	0.847
Interaction	0.011	0.101	0.153	0.879

R=0.758; R=0.575; F=33.373; p<.001

Table 5A shows the moderating effect of sex on the relationship between attitude and compliance. Data shows that the moderating effect is not statistically significant (t=0.153; p=0.879). The influence of attitude on compliance is significant (t=2.981; p=0.004). An increase in the level of attitude is an increase in the level of compliance by 0.333, holding all other variables constant. An R2 value of .575 shows that 57.5% of the variation in compliance can be explained by attitude and gender. However, the moderating effect is not significant. The findings suggest that the sex of the respondents is not associated with the relationship between attitude and compliance regarding infection control measures.

Table 5B. Moderating Effect of Demographic Profile (Years of Experience) in the Relationship between Attitude and Compliance

	Beta	Standardized	t-value	p-value
Constant	2.904		5.596	< .001
Attitude	0.371	0.809	3.262	0.002
Years of Experience	0.115	0.209	0.365	0.716
Interaction	-0.012	-0.104	-0.173	0.863

R=0.766; R=0.587; F=35.011; p<.001

Table 5B shows the moderating effect of years of experience in the relationship between attitude and compliance. Data shows that the moderating effect is not statistically significant (t=-0.173; p=0.863). The influence of attitude on compliance is significant (t=3.262; p=0.002). An increase in the level of attitude is an increase in the level of compliance by 0.371, holding all other variables constant. An R2 value of .587 shows that 58.7% of the variation in compliance can be explained by attitude and years of experience. However, the moderating effect is not significant. The findings suggest that the respondents' years of experience are not associated with the relationship between attitude and compliance regarding infection control measures.

Table 5C. Moderating Effect of Demographic Profile (Type of Hospital-Employed) in the Relationship between Attitude and Compliance

	Beta	Standardized	t-value	p-value
Constant	3.304		2.417	0.018
Attitude	0.238	0.519	4.822	0.011
Type of hospital-employed	-0.106	-0.182	-0.224	0.823
Interaction	0.048	0.417	0.482	0.631

R=0.784; R=0.615; F=39.396; p<.001

Table 5C shows the moderating effect of the type of hospital employed on the relationship between attitude and compliance. Data shows that the moderating effect is not statistically significant (t=0.482; p=0.823). The influence of attitude on compliance is significant (t=4.822; p=0.011). An increase in the level of attitude is an increase in the level of compliance by 0.238, holding all other variables constant. An R2 value of .615 shows that 61.5% of the variation in compliance can be explained by the attitude and level of the hospital. However, the moderating effect is not significant. The findings suggest that the type of hospital of the respondents is not associated with the relationship between attitude and compliance regarding infection control measures.

Table 5D. Moderating Effect of Demographic Profile (Type of Imaging Modality Assigned) in the Relationship between Attitude and Compliance

	Beta	Standardized	t-value	p-value
Constant	2.837		5.702	< .001
Attitude	0.429	0.937	3.924	< .001
Type of Imaging Modality Assigned	0.192	0.343	0.481	0.632
Interaction	-0.059	-0.533	-0.676	0.501

R=0.771; R=0.595; F=36.196; p<.001

Table 5D shows the moderating effect of the type of imaging modality assigned (1 and 2 or more dichotomized data) in the relationship between attitude and compliance. Data shows that the moderating effect is not statistically significant (t=-0.676; p=0.501). Still, the influence of attitude on compliance is significant (t=3.924; p<.001). An increase in the level of attitude is an increase in the level of compliance by 0.429, holding all other variables constant. An R2 value of .595 shows that 59.5% of the variation of compliance can be explained by attitude and the number of imaging modalities assigned. However, the moderating effect is not significant. The findings suggest that the respondents' type of imaging modality assigned is not associated with the relationship between attitude and compliance regarding the infection control measures.

Conclusion and Recommendations

More male Radiologic Technologists were working in private hospitals than female Radiologic Technologists. There was a higher percentage of Radiologic Technologists working for more than three years at a private hospital than with less than three years of experience. More census was presented for Radiologic Technologists working in level III private hospitals than in level II private hospitals. More Radiologic Technologists were assigned to one imaging modality than to two or more imaging modalities.

The Radiologic Technologists displayed a very high level of attitude toward infection control measures indicating that Radiologic Technologists strongly agree and always exhibit infection control measures; thus, they understand, believe, and know the significance of infection prevention and control, resulting in a positive attitude towards infection control measures. In addition, the Radiologic Technologists showed a very high level of compliance with infection control measures indicating that Radiologic Technologists always have compliance with infection control measures; thus, they demonstrate their skill by taking positive action toward infection prevention and control by complying with infection control measures. However, even though their attitude and compliance on infection control measures were high, it was stated that attitude among Radiologic Technologists on wearing gloves is not significantly related to their overall level of compliance, implying that Radiologic Technologists do not wear gloves at the hospital; thus, they demonstrate a negative attitude by not showing the skill or actions to comply with the infection control guidelines that could further increase the risk of contracting an infection.

On the other hand, the level of attitude of the Radiologic Technologists had a significant relationship towards their compliance with infection control measures, explaining that

Radiologic Technologists had a strong background or foundation with regards to infection control protocols and possessed a solid capability to comply with the infection control measures. Demographic profiles of Radiologic Technologists in terms of sex, years of experience, type of hospital employed, and types of imaging modality assigned are not significantly related to the attitude and compliance with infection control measures. It implies that no matter what Radiologic Technologists' sex is, how many years they are working in a hospital, what level of the hospital they are working in, and if they were assigned to any imaging modalities, it does not influence and is not associated with their attitude and compliance on infection control measures.

The following statements were the recommendations based on the outcomes of the summary and conclusions: Hospitals may create instructions to be followed by the Radiologic Technologists and may provide medical supplies and other resources to support appropriate infection control guidelines. Hospitals may conduct continuous infection prevention and control education, training programs, and updating the infection control guidelines to keep Radiologic Technologists well-informed with the latest information to impact their attitudes positively to maintain a good attitude toward infection control measures. Hospitals may continue to monitor, observe, and do performance feedback on practicing the infection control protocol in Radiologic Technologists' daily work to maintain high compliance with infection control measures to reduce and prevent contracting an infection. Future researchers should study other demographic profiles and influencing factors or indicators that did not correlate positively with the other variables mentioned in the study. Also, it may add other variables to establish a relationship with infection control measures. Future researchers may consider including public hospitals, more wide settings like one region or more cities to acquire a more comprehensive study with a broader and different environment of hospitals. Lastly, future researchers should consider conducting a study for the recorded cases of Radiologic Technologists that have been infected during their work due to failing to follow the infection prevention and control guidelines or having low compliance with infection control measures.

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Probabilistic Estimation of Passing the Radiologic Technology Licensure Examination: Formulation of HEI's Enhancement Policy

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Abstract

Every educational institution strives to increase passing rates on all licensure examinations, which is an excellent tool for evaluating the school's performance. This study identifies the probability of passing the licensure examination at the selected Higher Education Institution in Kidapawan City. A total of 88 Bachelor of Science in Radiologic Technology graduates from 2017 to 2022 who took the licensure examination at the selected Higher Education Institution (HEI) participated in the study. A quantitative, descriptive-predictive method was used to identify the variables predicting whether students will pass the licensure examination. The General Weighted Average (GWA), 2nd-semester internship grade, average internship grade, and pre-board scores differ significantly between those who failed and those who made it to the licensure examination, according to the findings of this study. For the predictors, a binary logistic regression analysis was performed, and the results revealed that the pre-board scores, particularly for radiation physics and Radiological Sciences, and the general weighted average significantly predict the likelihood of passing. Increasing both pre-board cluster scores multiplied the possibility of passing the licensure examination by 5.939 and 3.918 times, assuming they remained constant. To increase the licensure examinations, a plan of action was suggested for policy enhancement.

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Introduction

To practice as Radiologic Technologist in the Philippines, students must face the final step, which is passing the Radiologic Technologist Licensure Examination. The examination determines a graduate's readiness to practice his chosen field. In the past five years, the national passing rate of the RT licensure examination has ranged from 42.8% to 51.9%. The numbers suggest that half of the RT graduates who took the examination failed to pass and were not qualified to practice the profession. This daunting trend warrants an investigation of the factors associated with the licensure examination performance of RT graduates (Talaroc et al., 2019).

Ensuring very high marks for the radiologic technologist examination seems to be challenging. The Canadian Association of Medical Radiation Technologists (CAMRT), a governing body in Canada for nuclear Medicine, radiological, radiation therapists, and magnetic resonance imaging technologists, reported that rates for international applicants in 2021 were only 28.8% of the initial writes, while 34.2% for rewrites which were below the Canadian passing rates of 89.1% and 62.7%, respectively (Canadian Medical Radiation Technologists [CAMRT}, 2021.

The Department of Health officer in charge, Maria Rosario Vergerie, said in the report of the GMA

News last September 2022 that there is a low supply of Radiologic technologists in the country (GMA News, 2022). Not only the Philippines but also the US lacks radiologic technologists or radiographers. According to the American Society of Radiologic Technologists (2019), the US experiences almost 8.5% understaffing of radiologic technologists while 18,000 Radiologic Technologists are required to fulfill the demand of the industry in the country according to Banares, during the Radiologic Technologist national convention last November 2022 in Baguio City. Understaffing could compromise the delivery of quality care to patients. These may also cause stress and burnout for the healthcare worker, leading to a higher risk of errors (Poon et al., 2022).

A Higher Education Institution in Kidapawan City offers a Bachelor of Science in Radiologic Technology. This educational institution aims to provide the world with healthcare practitioners who are competent, efficient, and equipped with all the necessary skills and knowledge. It continues its endeavor to be a school to perform in the licensure examinations, particularly in Radiologic Technology. It has a passing rate of 57.7% in July 2018, 25.2% in July 2019, 16.7% in December 2021, and 33.3% in the December 2022 Radiologic Technologist Licensure Examination (Professional Regulatory Board [PRC]). However, results from July 2019, December 2021, and December 2022 licensure examinations are below the national passing rate, and a downward trend can be observed in the passing rate of the institution from 2018 to the present. To produce globally competitive radiologic technologists, the institution needs an in-depth consideration of the different factors that affect its licensure examination performance. This research seeks to determine the probability of passing the licensure examination among the Bachelor of Science in Radiologic Technology graduates. Results would help the institution develop strategies, policies, and programs that will address difficulties and challenges to ensure favorable results in the examination.

Methods

The Radiologic Technology graduates of the selected HEI in Kidapawan City in the year 2017-2022 were the participants of the study. The participants must be a graduate of BS- Radiologic Technology in the selected HEI and took the licensure examination last July 2018, July 2019, December 2021, and December 2022 whether they passed or not. Although quantitative research requires a probabilistic sampling technique, this study employed Complete Enumeration to acquire all variables or data readily available.

The study requires secondary data. It was conducted by retrieving the data needed by sending a letter to the HEI and Review Center in which the data needed was readily available. After the GWA, the Clinical Education Grade, and the Pre-board scores were collected, it was then analyzed statistically.

The study incorporated Mean and Standard Deviation to reflect the graduates' GWA, Clinical Education grades, and Pre-Board Scores. Frequency and percentage were also used in identifying the Licensure Examination Performance of the selected HEI. On the other hand, T-test Independent Sample was used to test the significant difference between the GWA, Clinical Education Grade, Pre-Board Scores, and the Licensure Examination between the passers and the flunkers, while, Binary Logistic Regression Analysis was used to determine if the Pre-Board scores, College GWA, and the Clinical Education Grade significantly predict the model.

Results and Discussion

Table 1. Level of Performance in the Pre-Board Examination

	Lowest	Highest	Mean	Sd
Radiation Physics and Protection	23.000	71.000	45.693	11.380
Image Production and Evaluation	23.000	95.000	47.360	15.081
Radiologic Positioning and Special Procedures	22.000	83.000	41.446	13.064
Patient Care and Management, Anatomy and Physiology with Medical Terms	27.000	72.000	50.324	11.670
Radiological Sciences	23.000	67.000	41.608	10.079
Average	28.600	74.600	45.231	10.891

The study's first objective was to determine the pre-board examination performance of the licensure examination graduates. The lowest and highest values, as well as the mean value, for respondents to the pre-board examination, are shown in Table 1. The lowest value among respondents for cluster 1 (Radiation Physics and Protection) was 23, and the highest was 71, with a mean value of 45.69. Cluster 2 (Image Production and Evaluation) has a lowest value of 23 and a highest value of 95, with a mean value of 47.36. The lowest value for cluster 3 (Radiographic Positioning and Procedures) was 22, and the highest was 83, with a mean value of 41.45. The lowest value for cluster 4 (Patient Care and Management, Anatomy and Physiology with Medical Terms) was 27, and the highest was 72, with a mean of 50.32. For cluster 5 (Radiological Sciences), the mean value was 41.61, with a minimum value of 23 and a maximum of 67. The average lowest value among respondents from all clusters was 28.60, while the average highest value was 74.60, for an overall mean value of 45.32. These results show that the respondents performed well in their pre-board examination in Cluster 4 but required more preparation in Cluster 3.

Table 2. General Weighted Average Grade of the Participants

	Highest	Lowest	Mean	Sd
General Weighted Average	1.720	2.880	2.412	**0.271**

Table 2 presents the general weighted average grade of the participants. Among the 88 participants, the highest general weighted average grade was 1.7, while the lowest of 2.9, with a mean value of 2.412.

Table 3. General Weighted Clinical Education Grade

	Highest	Lowest	Mean	Sd
Clinical Education Grade (1st Sem)	1.400	3.4350	2.418	**0.385**
Clinical Education Grade (2nd Sem)	1.600	3.450	2.278	**0.449**
Average Internship Grade	1.800	3.450	2.308	**0.386**

Table 3 presents the generally weighted internship grade of the participants. Among the 88 participants, the highest general weighted internship grade during the Junior Internship (1st sem) was 1.40, while the lowest was 3.44, with a mean value of 2.41. For the Senior Internship (2nd sem), the highest value among respondents is 1.6, and the lowest is 3.46, with a mean value of 2.28. The average highest value among respondents is 1.80, while the lowest is 3.45, with a mean value of 2.30.

Table 4. Licensure Examination Performance

	Frequency	Percentage
Passer	40	45.46
Flunker	48	54.54

Table 4 shows the Licensure examination performance of the selected HEI from the 2018- 2022 Radiologic Technologists Licensure Examination. Fewer graduates are now Radiologic Technologists, as evidenced by the proportion of graduates who passed the exam (40, or 45.46%) compared to those who failed (48, or 54.54% of the total participants).

Table 5. Significant Differences in the Pre-board score, General Weighted Average, and Clinical Education Grade analyzed according to Licensure Examination Result

	Licensure Result	Mean	t-value	p-value
General Weighted Average	Flunker	2.505	3.815	$< .001$
	Passer	2.300		
1st Semester Clinical Education Grade	Passer	2.460	1.130	0.262
	Flunker	2.368		
2nd Semester Clinical Education Grade	Passer	2.396	2.789	0.007
	Flunker	2.138		
Average Clinical Education Grade	Passer	2.428	2.172	0.033
	Flunker	2.252		
Radiation Physics and Protection	Passer	51.769	5.767	$< .001$
	Flunker	39.111		
Image Production and Evaluation	Passer	53.641	4.144	$< .001$

	Licensure Result	Mean	t-value	p-value
Radiographic Positioning and Procedures	Flunker	40.556		
	Passer	46.605	3.798	< .001
	Flunker	36.000		
Patient Care and Management, Anatomy and Physiology with Medical Terms	Passer	55.763	4.669	< .001
	Flunker	44.583		
Radiological Sciences	Passer	46.816	5.366	< .001
	Flunker	36.111		
Average Pre-board exam	Passer	50.731	5.328	< .001
	Flunker	39.272		

Table 5 shows the test result of a difference in the general weighted average, 1st-semester internship grade, 2nd-semester internship grade, average internship grade, and pre-board examination result analyzed according to their licensure examination result. Data shows that the difference is statistically significant for their general weighted average, where higher GWA was seen among students who passed the examination (t=3.815; p<.001), meaning that null hypothesis 1 was rejected. This indicates that how the respondents performed in their classes can significantly predict their licensure examination performance. This relationship affirms the findings of several studies showing that improving academic performance increases the likelihood of passing the licensure examination (Alipio, 2020).

Moreover, the 1st-semester clinical internship grade does not differ significantly (t=1.130; p=0.262), or the null hypothesis was accepted. Their 2nd-semester clinical internship grade differs significantly (t=2.2789; p=0.007), consistent with the result of their average clinical internship grade (t=2.172; p=0.033), which both will reject the null hypothesis 1 since both p-values were less than 0.05. Though the

internship is indispensable in the respondents' educational journey, the results confirm the findings of the study made by Cahapay and Toquero, which reveals no significant relationship between internship performance and performance on the board (Cahapay & Toquero, 2022).

The table also confirmed that all their pre-board examination result differs significantly. Across all clusters, the p-value tallied a figure below 0.05 means the null hypothesis 1 was rejected. For cluster 1, the highest average grade was seen among those who passed than those who flunked the exam (t=2.172; p=0.033); the mean score for those who passed was 51.769 and 39.11 for those who failed. Pre-board examination results, therefore, indicate the respondents' preparedness to perform well in the licensure examination, as revealed in the study conducted by Amanonce and Maramag (2020) found a positive correlation between LET performance and pre-board examination. The same was confirmed in the study by Terano (2018) suggested that the pre-board examination significantly predicts performance in the ECE licensure exam.

Table 6. Influence GWA, Clinical Education Grade, and Pre-Board Scores in the Licensure Examination Result

	Estimate	Odds Ratio	Z	Wald Statistics	p-value	Lower Bound	Upper Bound
Intercept	-8.731	1.615×10^{-4}	-4.019	16.156	< .001	-12.988	-4.474
Cluster 1	0.103	1.108	2.437	5.939	0.015	0.020	0.185
Cluster 5	0.102	1.107	1.979	3.918	0.048	0.001	0.202

Nagelkerke=0.041; Cox and Snell=0.067; McFadden=0.045; VIF1=1.206; Tolerance1=0.829; VIF2=0.829; VIF2=1.206

Table 6 shows the result of the binary logistic regression analysis on determining the predictors of passing the radiologic technologic licensure examination. Among the seven variables regressed in the equation, the pre-board score for Radiation Physics and Protection (cluster 1) and Radiological Sciences (cluster 5) significantly predict their probability of passing. An increase in the student's score in cluster 1 grade increased their odds of passing the examination by 5.939 times, holding the cluster 5 grade constant. Moreover, increasing the student's grades in cluster 5 increased their odds of passing the examination by 3.918 times, having a cluster 1-grade constant. The table shows that the model only influenced 4.1% to 6.7% in the likelihood of passing the examination. This model clarifies that there are still other variables not captured in the study that influenced the passing of the examination. Test of assumption for multicollinearity was also seen in the model and confirmed that the variables regressed were entirely independent. The Variance Inflation Factors 1 and 2 and the tolerance factors are .829 and 1.206, respectively, suggestive of the entire independence of the variable used.

The model explains roughly 7% of the likelihood of passing the examination. Meaning there are still other variables not captured in the study. In the study of Talaroc et al. (2021), entitled "Factors Associated with Licensure Examination Performance of Radiologic Technology Graduates", other variables captured that were significant predictors of passing include College admission test, terminal competency assessment, and internship grade. Alternatively, in the study conducted by Alipio (2020), the variables with the highest loading on the discriminant function were RT professional subjects, including first-year, fourth-year student, junior, and sophomore GWA subjects. Based on the findings of Dayaday's (2018) study titled "Factors Affecting the Performance in the Licensure Examination of Electrical Engineering on the Graduates of the University of Southern Mindanao," one of the primary reasons for the poor performance of the examinees on the licensure examination was the lack of laboratory/equipment available to them during their stay in school. Dayaday also focused on the retention policy of the institution, the curriculum, and the examinee's review preparation but demonstrated that these factors have less of an impact on the examinee's performance. It can also be learned that certain factors can affect examinees' performance from those who did not pass the examination. According to the findings of Albina et al.'s study titled "Factors and Challenges Influencing the Criminologists Licensure Examination Performance through the Non-passers' Lens", the family and home environment can significantly impact examinees' performance on the CLE. Also, factors such as the review center and personal factors may have an impact.

Conclusion and Recommendations

The pre-board scores, the general weighted average, the 2nd-semester clinical education grade, and the average clinical education grade are good predictors of passing the licensure examination for radiologic technology while the 1st-semester grade results do not predict the probability of passing the examination. As evident from the data collected, a higher number of flunkers compared to passers is observed in the HEI. All variables are found to have a significant difference between the passers and flunkers of the RTLE and all the variables regressed, Cluster 1 (Radiation Physics and Protection) and Cluster 5 (Radiological Sciences) predicts significance in the passing of licensure examination. Increasing the Cluster 1 grade holding the Cluster 5 constant will increase the chances of the examinee passing the licensure examination and conversely. It implies that students may concentrate on those two clusters, but they must also be reminded that all clusters contribute to the overall average score. Cluster 5 comprises the majority of the special modalities in the field of Radiologic Technology, whereas Cluster 1 concentrates primarily on the fundamentals, which are essential for addressing complex topics in the remaining clusters. Students need to make the most of their time throughout their college years, but they also need to make the most of the possibilities they have to participate in clinical education training. These are the opportunities that provide them the chance to put their theoretical knowledge into practice.

Instructors, on the other hand, must employ different teaching techniques to ensure that students acquire knowledge and become subject experts by encouraging attending seminars and training to enhance their knowledge in the field. Conducting regular evaluations of the student's performance is also recommended. The proposed enhancement plan for the administrators of the HEI can be used and discussed for review, implementation, and evaluation. Also, the sense of urgency in implementing the enhancement policy is encouraged. For future researchers, the same study can be conducted in a qualitative method or mixed method and may focus on a higher sample size, maybe region-wide or 2 or more institutions.

Indicators	RRL for Policy Enhancements	Proposed Interventions for Enhancement
• Increase the General Weighted Grade of the • Increase Clinical Education Grade	• **Test-taking strategies:** In his paper on test-taking strategies, Dodeen (2015) argued that test-taking strategies help students apply their classroom knowledge to the test and positively affect their test performance. The importance of testing strategies will unquestionably improve the examinees' attitudes toward the test, reduce their anxiety level, and consequently improve their test performance. These techniques or strategies are: selecting the correct option by estimating, managing time effectively, surveying the questions before answering, addressing difficult questions, addressing	**Teaching Test-taking strategies:** Faculty or the program must introduce or teach students the techniques to increase their confidence in taking exams.

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Indicators	RRL for Policy Enhancements	Proposed Interventions for Enhancement
• Increase Pre-board score	multiple-choice questions, and discovering the underlying keywords.	
	• **Six Sigma Method:** According to Kaudhik and Khanduja's (2010) paper "utilizing six sigma for improving pass percentage of Students: A technical institute cases study", the Six Sigma Method provides a philosophy for meeting the industry's diverse requirements and enhancing customer satisfaction. It is typically used in academic institutions to increase their productivity. The report emphasizes the need for improved faculty, a solid infrastructure, more financial aid, improved faculty relations, and well-designed curricula. Six Sigma also implies statistical measurement, a management strategy, and a quality culture.	**Adoption or implementation of the six sigma method:** The administrators may revisit its plan and policies and may want to include the six sigma method in crafting their plans for the institution.
	• According to the findings of Dayaday's (2018) study on the factors influencing the performance of electrical engineering students on the board exam, effective teaching strategies and the dissemination of instructional materials significantly impact board exam performance. Teachers and students must also be adequately accommodated; therefore, laboratories and other physical infrastructure must not be neglected, and in a study of 1,017 student teachers, Amanonce (2020) emphasized the significance of aligning the instructional material with the licensure examination competencies. This could be accomplished by enhancing the faculty's knowledge and abilities. Effective faculty development programs improve instructors' leadership and mentoring skills, teaching styles, assessment procedures, and curriculum support (Guraya & Chen, 2019). Student achievement rises once teachers are better equipped, which may correlate with improved board exam performance. The pedagogy, the instructional processes, and other relevant and significant means and or interventions that the institutions provide are pivotal in assuring learning takes place and, eventually, equip a graduate to make	**Faculty Upskilling or Reskillings:** Administrators must create programs for faculty development or encourage their faculty to join seminars, workshops, and training to increase their professional knowledge.

Indicators	RRL for Policy Enhancements	Proposed Interventions for Enhancement
	it to the board examination and consequently practice his profession	
	• **Entrance examination or Admission Test:** The entrance examinations and admissions tests of the various colleges and universities were a tool to assess if students are qualified to admit to the program and sustain till the last year for graduation; because of this, many practice setting percentage or score for the different program upon admissions. Taroc et al. (2021) believed that college admission significantly increased the likelihood of passing the Radiologic Technology licensure examination; the same was true for electrical engineering (Dayaday, 2018). The college entrance examinations allow admissions personnel to assess the student's strengths and weaknesses.	**Establishing the reliability of the Entrance examination or Admission Test (Dagdag, 2018)**: Requiring all students to take the Entrance examination or Admission Test to evaluate the students before admission, and the college/institution must also ensure the reliability of the tests they are giving. High scorers should be admitted to the program, or each program may have a minimum score requirement for applicants.
	• **Mock Board Examinations:** The mock board examination helped the students grasp the test format and motivated them to prepare for the licensure examination. The Mock Board examination is valuable in screening at-risk and more problematic students. Mock Board Examination is also recommended to prepare students for their respective licensure examinations (Dadian et al., 2022).	**Institutionalization of Mock Board Examination:** The department must practice giving mock exams to the incoming graduates to evaluate the student's preparedness for the board exam.

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Mediating Role of Self-Concept on the Relationship between Interpersonal Relationships and Anger Management of Radiologic Technologists in the Selected Hospitals in Davao City

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Abstract

This study aimed to see the mediating effect of self-concept on the relationship between interpersonal relationships and anger management. The descriptive-correlational design was utilized in this study. A total number of 169 Radiologic Technologists from selected private hospitals in Davao City were the respondents of this research. Mean, Pearson Product-Moment Correlation, Regression analysis, and Sobel z-test were the statistical tools used in this study. The findings showed that Radiologic Technologists' interpersonal relationship was at a very high level, self-concept was at a very high level, and anger management was also very high. Moreover, the results yielded that Radiologic Technologists' interpersonal relationship and anger management had a positive correlational relationship. Similarly, interpersonal relationships and the self-concept of Radiologic Technologists had a positive correlational relationship. Furthermore, self-concept and anger management had a positive correlational relationship. In addition, the mediation analysis showed that self-concept partially mediated the relationship between interpersonal relationships and anger management with a reduction of beta value (from .807 to .601). This study discovered new information that may help researchers in healthcare institutions to develop programs related to anger management among Radiologic Technologists and other healthcare professionals.

Introduction

In the different medical professions, anger is a significant emotional issue that usually arises from stress. Sadly, such emotion has negative impacts on the healthcare quality of services provided by such professionals (Lyung, 2018; Abeno, 2018). Radiologic technologists who provide direct care to patients and their families were found to be among the highly stressed individuals in the medical profession (Esthea, 2019). Their sustained stress eventually results from raging, which is the violent manifestation of anger (Yiwi, 2017). If a person's stress level is not controlled, it also results in negative health implications such as depression, decreased life quality, and interpersonal problems (Tsopuy, 2019).

To counteract such situations, individuals should have anger management practices. Steps include the need to recognize someone's anger. One must defuse their anger by alleviating such feelings before expressing words and thoughts (Dewi&Kyranides, 2022). In addition, anger management training also aids in improving individuals' ability to change and improve their behavior during stressful situations (Lotfalizadeh et al., 2020). Likewise, anger

management plans must focus on individual approaches to expressing anger (Lasebikan, 2019), such as staying calm. In the study of Abutego (2019), they found that medical professionals in Davao del Sur tend to have anger management issues that are born out of their stress.

In the local context, minimal and scarce studies were done about the identified variables in this study. The study of Abutego (2019) in Davao del Sur only revealed the level of anger management of medical professionals. Sadly, correlational studies which aim to determine the relationship between interpersonal skills and anger management were not done lately. A few were done but, they were outside the Philippines, such as in the work of McConnell (2018) conducted in the United States, Askari (2019) in Europe, and La and Yun (2019) in Asia. Unfortunately, these studies also had varying dimensions that had been investigated. So, significant questions about this discipline arise, such as "What is the reality of the interplay among the identified variables within the locale of Davao and its respondents?".

Hence, this leads the researcher to conduct the study on The Mediating Role of Self-Concept on the Relationship between Interpersonal Relationships and Anger Management of Radiologic Technologists in the Selected Hospitals in Davao City; it is beneficial to contribute efficient and adequate provisions to the patient, and other health care professionals. To drive efforts, appropriate patient care, and foster a healthy working environment for the radiologic technologist in Davao City.

Due to this, the researcher deemed that this study was necessary to occupy this gap in knowledge. Through this study, the researcher can occupy this identified niche and prevent it from further expanding into a knowledge void. Moreover, through the accomplishment of this study, the researcher could be able to utilize the results to communicate to the different hospitals

about the essentiality of establishing interpersonal relationships among colleagues and clients, as well as the necessity of anger management to guarantee efficient performance of roles and responsibilities within the workplace. Furthermore, through this study, future researchers may be able to utilize its results to be used as the basis for their study and even adapt the methodologies herein so that they could also investigate the same topic within their various locales and contexts.

Methods

The quantitative descriptive-correlational research design was used to determine the relationship between interpersonal skills, self-concept, and anger management among radiologic technologists working in selected hospitals in Davao City. Meanwhile, correlational design is necessary to see whether interpersonal skills are correlated with anger management. Moreover, this study will also determine if self-concept has a mediating effect on the relationship of the aforesaid variables.

The respondents of the study were regular registered radiologic technologists working in selected hospitals in Davao City with a sample size of 169. The said number is based on the computation of the sample size using the Raosoft calculator, and a simple random technique was used to select the respondents. Only full-time radiologic technologists with 1-year or more of working experience in the selected hospital were included as respondents in this study. Due to the pandemicsituation caused by COVID-19, on the day of data collection, the study used a web-based survey method to collect empirical data on the relationship between interpersonal skills, self-concept, and anger management of radiologic technologists working in selected hospitals in Davao City. There was no face-to-

face interaction in the context of the new normal. Because respondents completed web surveys on their own time and at their own pace without waiting for an interviewer, they had less social desirability bias than interviewer-administered modes.

The researcher took the necessary steps during the data collection process. The Program Chair of the Master of Science in Radiologic Technology took note of a letter authorizing the study. It was then sent to each of the hospitals' official email addresses for approval, with the assistance of each institution's Chief Radiologic Technologists. Furthermore, a web-based survey method to collect empirical data on the relationship between interpersonal skills, self-concept, and anger management of radiologic technologists working in selected hospitals in Davao City. In exchange for their voluntary participation in the study, respondents were asked to confirm their informed consent online via Google form, as specified in the instrument. This study only considered those who signed a consent form. As a result, the survey was

carried out online, and the study's explanation and test instructions were included in the questionnaires. Then came the encoding, tabulating, and evaluating. The data were screened during the study to eliminate any potential outliers. A statistician was consulted to ensure the precision of mathematical data computations.

In the analysis of data, the following statistical tool was employed: **Mean** used to characterize self-concept, interpersonal relationship, and anger management of radiologic technologists in selected hospitals in Davao City. **Pearson Product Moment Correlation**. was utilized to investigate the relationships of self-concept, interpersonal relationship, and anger management of radiologic technologists in selected hospitals in Davao City. Further, this was used since assumptions were fulfilled for the parametric test. **Sobel z-Test**. This will be used to test the significance of the mediating role of self-concept on the relationship between interpersonal relationships and anger management among radiologic technologists.

Results and Discussion

Table 1. Summary of Level of Interpersonal Relationship among Radiologic Technologists

Interpersonal Relationship	Mean Rating	Std. Deviation	Descriptive Level
Trust	4.56	.508	Very High
Self-Disclosure	3.85	.792	High
Genuineness	4.48	.597	Very High
Empathy	4.34	.617	Very High
Communication	4.31	.675	Very High
Comfort	4.33	.598	Very High
OVERALL Mean & SD	**4.31**	**.545**	**Very High**

Table 1 reflects the level of Interpersonal skills of radiologic technologists that are highly

manifested by the respondents of this study. The six indicators of interpersonal skills have an

overall weighted mean of 4.31 and a standard deviation of .545, with a quantitative description categorized as very high. This denotes those radiologic technologists, have a very high interpersonal relationship with their workmates. In addition, trust is the most highly manifested by radiologic technologists given a mean rating of 4.56 with a quantitative description of very high. This implies that radiologic technologists are trustworthy. Moreover, self-disclosure has the lowest mean rating of 3.85, with a quantitative description of high. This implies that radiologic technologists are uncomfortable expressing their emotions to their workmates. The table shows, most respondents have strong interpersonal relationships with their co-workers and they enjoy working with them, and their co-workers frequently support them at work. These results imply that most radiologic technologist trusts their colleagues rather than expressing their intense emotions towards their colleagues.

The result conforms to the findings of Almodovar et al. 2018 stating that radiologic

technologists must be able to relate with their patients and treat them as if they were members of their own families. It is also supported by Chichirez and Purcărea (2018) that interpersonal skills relate to the ability to respond to patients' feelings and is about maintaining therapeutic relationships. Furthermore, among the indicators of interpersonal relationships, trust is a fundamental concept in medical practice, this was supported by Sripad et al. (2022), who said that during the pandemic, hospital staff feared getting viruses from community health workers hindering client trust in the provision of healthcare services. It also reported that pre-pandemic trust is a protective factor for health workers in the provision of services to clients, especially during times when health information sharing is greatly challenged.

Table 2. Summary of Level of Anger Management among Radiologic Technologists

Anger Management	Mean Rating	Std. Deviation	Descriptive Level
Escalating Strategies	4.07	.802	High
Calming Strategies	4.23	.692	Very High
Negative Attribution	4.36	.625	Very High
Self-Awareness	4.30	.644	Very High
OVERALL Mean & SD	**4.24**	**.626**	**Very High**

Table 2 reflects the level of Anger Management of radiologic technologists which is highly manifested by the respondents of this study. The four indicators of anger management have an overall weighted mean of 4.24 and a standard deviation of .626, with a quantitative description categorized as very high. It denotes that radiologic technologists have very high anger management. In addition, negative attribution is

the most highly manifested by radiologic technologists, given a mean rating of 4.36 with a quantitative description of very high. This implies that radiologic technologists are helpful. Moreover, escalating strategies have the lowest mean rating of 4.07, with a quantitative description of high. This implies that radiologic technologists can manage their physical and psychological exhaustion well regardless of workload. Generally, it is presented from the

table that most of the respondents have very high anger management. These results imply that radiologic technologists ensure that they are helpful rather than expressing their thoughts to feel calm in every situation.

The results of the table above conform to the study of Abutego (2019), his study shows that medical professionals in Davao del Sur have anger management issues that are caused by stress. It is also supported by Maslach, Jackson &Leiter (2018) that anger is a syndrome defined by emotional weariness, depersonalization, and diminished personal accomplishment that can develop in persons who work with others in some way. Furthermore, negative attribution is one of the four indicators of anger management that analyzes the level of physical and psychological weariness experienced by the individual as being related to work with members, as indicated by Saganan (2019).

Table 3. Summary of Self Concept among Radiologic Technologists

Self-concept	Mean Rating	Std. Deviation	Descriptive Level
Challenge	4.47	.580	Very High
Freedom	4.31	.653	Very High
Respect	4.52	.539	Very High
Warmth	4.49	.586	Very High
Control	4.61	.524	Very High
Success	4.53	.591	Very High
OVERALL Mean & SD	**4.49**	**.507**	**Very High**

Table 3 reflects the level of Self-concept of radiologic technologists which is highly manifested by the respondents of this study. The six indicators of self-concept have an overall weighted mean of 4.49 and a standard deviation of .507, with a quantitative description categorized as very high. This denotes that radiologic technologists have a very high self-concept within the workplace, and the values of the responses are closely related. In addition, control is the most highly manifested by radiologic technologists, given a mean rating of 4.62 with a quantitative description of very high. This implies that radiologic technologists ensure patient safety and comfort in all procedures. Moreover, freedom has the lowest mean rating of 4.31, with a quantitative description of very high. This implies that radiologic technologists provide opportunities to make decisions and express emotions toward co-workers. Generally, it is presented from the table that most of the respondents have a very high self-concept. These results imply that the radiologic technologist ensures giving quality service rather than making decisions.

In connection to that, the result conforms to the findings of MacLeod & Moore (2018) which revealed that self-concept is a multifaceted construct that evolves through a combination of emotional regulation, personality characteristics, identity, and life experience. The researcher also discovered that a high degree of self-concept leads to high-quality patient care, high job satisfaction but low burnout levels, and a low intention to leave the field (Sharbaugh, 2019). Furthermore, social support is a need rather than a want among the markers of self-concept control, and as such, a lack of belongingness may have pathological repercussions, as supported by Baumeister and Leary (2016).

Table 4. Summary of Relationship among Interpersonal Skills, Anger Management
and Self Concept of Radiologic Technologists

		Pearson Correlation	P Value	Interpretation (null hypothesis)	Remarks
1.	Interpersonal relationship and anger management of radiologic technologists;	.807	<.001	Rejected	Significant
2.	Interpersonal relationship and self-concept; and	.797	<.001	Rejected	Significant
3.	Self-concept and anger management	.774	<.001	Rejected	Significant

Table 4 presents the summary of the relationship among variables interpersonal relationship and anger management, interpersonal relationship and self-concept, and self-concept and anger management.

Relationship between Interpersonal Relationship and Anger Management of Radiologic Technologists. Based on the results of the study, there is a significant relationship between interpersonal relationships and anger management as provided by the Pearson correlation = .807, p-value <.005 (.001).

In line with this, McConnell (2018) found that interpersonal ties were associated with anger management in the United States, Askari (2019) in Europe, and La and Yun (2019) in Asia. It has been discovered that developing interpersonal relationships is advantageous in the medical industry. Through interpersonal relationships, medical professionals could be able to gain a substantial understanding of the status of their patients. According to Yun and Yoo (2021), developing effective interpersonal skills among individuals benefits from good communication. Most importantly, good interpersonal skills are beneficial for medical professionals so that they could be able to manage their stress before it ends up in anger.

Relationship between Interpersonal Relationship and Self-concept of Radiologic Technologists. Based on the results of the study,

there is a significant relationship between interpersonal relationships and self-concept as provided by the Pearson correlation = .797, p-value <.005 (.001).

Theories like emotional intelligence, which emphasizes how important it is to be able to understand and manage one's emotions, are associated with successful outcomes in interpersonal interactions. As stated by Schutte (2018), higher levels of emotional intelligence are associated with better performance on social skills tests, greater interpersonal cooperation, and considerably more effective personal partnerships.

Relationship between Self-concept and Anger Management of Radiologic Technologists. Based on the results of the study, there is a significant relationship between self-concept and anger management as provided by the Pearson correlation = .774, p-value <.005 (.001).

According to Faustino's (2022) research, Goleman's theory of mind suggests that better recognizing ourselves, living at least with who we are, and proactively directing our thoughts, emotions, and behaviors all depend on our ability to monitor our thoughts and feelings from one second to the next. Furthermore, as cited by the same author, the expression of anger and one's self-concept are directly related. When using the California Psychological Scale to measure rage arousal, people with low self-esteem performed much worse. Self-aware people are more likely to act consciously than carelessly, have excellent

psychological health, and have a positive outlook on life.

Furthermore, Sabancoullar and Doan (2017) believed that a positive professional self-

concept not only increases service quality, but it also correlates to high job satisfaction, decreased stress levels, and burnout.

Mediation Analysis

The data were analyzed using the regression method as input to the Medgraph. In Table 5, the result of regression is shown. Mediation analysis was developed by Baron and Kenny (1986). The use of additional mediation analysis to further assess the significance of the mediation effect was applied to the variables since the three paths are significant. The Sobel z-test was utilized to further reveal if the relationship between the independent variable on the dependent variable is not significant, then full mediation is achieved. Hence, if the relationship is significant with an evident decrease in beta value, then full mediation takes place (Baron & Kenny, 1986).

Table 5 shows the use of Medgraph involving the Sobel Test which provides an

analysis of the significance of the mediation effect. Hence, it can determine whether the mediation is full or partial. As can be gleaned in Figure 3, the direct effect of interrelationship skills on anger management is decreased from a beta of .807 to .601 when the mediator variable was placed in the relationship model. Since the beta value after the mediator is placed in the model is only reduced but still significant, it would imply a partial mediation.

Meanwhile, Sobel's test denotes that there is a significant mediation that takes place in the model ($z= 4.764511$, $p<0.05$). Since it has a partial mediation, it could claim that affective self-concept is the reason how interpersonal relationships can influence anger management. This indicates that self-concept is a contributory factor in interpersonal relationships that affects anger management.

Table 5
Type of Mediation Used

Type of mediation		Significant		
Sobel z-value		4.764511	*p =*	0.000006
95% Symmetrical Confidence interval				
	Lower	**.19331**		
	Higher	**.46350**		
Unstandardized indirect effect				
	a*b	**.32841**		
	Se	**0.6893**		
Effective Size measures				
Standardized Coefficients			R² Measures(Variance)	
Total:		**.807**	**0.786**	
Direct:		**.601**	**0.099**	
Indirect:		**.285**	**0.686**	
Indirect to Total ratio				

0.353   0.874
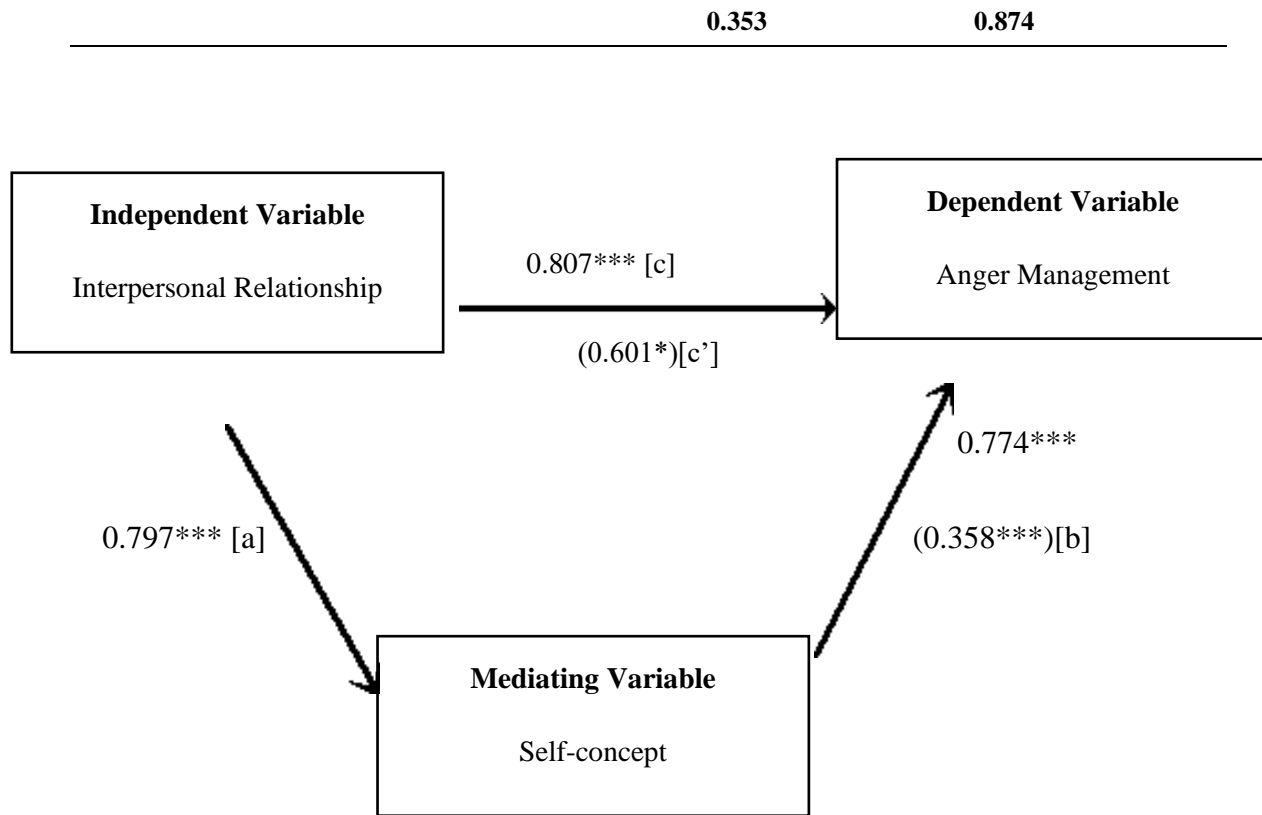
Figure 3. Mediation Model

On the other hand, the effect size (β= -0.285) measures how much of the effect of interpersonal relationship (IV) on anger management (DV) can be attributed to the path (IV to MV to DV). The total effect (β= -0.807) is the summation of both direct and indirect effects. The direct effect (β= .601) is the size of the correlation between an interpersonal relationship (IV) and anger management (DV) with self-concept (MV) included in the regression.

The indirect-to-total ratio index reveals an R-square of .874. This means that about 87.4 percent of the total effect of the IV on the DV goes through the MV, and approximately 12.6 percent of the total effect is either direct or mediated by other variables not included in the model. Furthermore, this means that the relationship between interpersonal relationships

and anger management is significantly mediated by self-concept. The results of the study are congruent with the findings of Tas and Iskender (2018), who discovered that people with positive self-notions manage their anger better than those with negative concepts. In the investigation of Yun & Yoo (2021), they stated that establishing good interpersonal skills among individuals aids in good communication. Most importantly, good interpersonal skills are beneficial for medical professionals so that they could be able to manage their stress before it ends up in anger. Furthermore, findings from a study conducted by Faustino (2022) on the self-concept, interpersonal relationship, and anger management of Davao City traffic enforcers reveal that both self-concept and interpersonal relationship are positively associated with anger management. Another

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study, by Kyoungsun and Yang-Sook (2021), found that anger control increased psychological well-being.

Conclusion and Recommendations

Radiologic technologists have a very high level of interpersonal relationships. Specifically, trust got the highest mean rating which connotes that radiologic technologists perceived the importance of trust in the practice of their profession. Table 1 revealed the six indicators of interpersonal skills have an overall weighted mean of (4.31) and a standard deviation of (.545), with a quantitative description categorized as very high. Table 2 shows the result for the four indicators of anger management which have an overall weighted mean of (4.24) and a standard deviation of (.626), with a quantitative description categorized as very high. It denotes that radiologic technologists have very high anger management. Table 3 revealed the result for the six indicators of self-concept which have an overall weighted mean of (4.49) and a standard deviation of (.507), with a quantitative description categorized as very high. This denotes that radiologic technologists have a very high self-concept within the workplace, and the values of the responses are closely related. The tables 4 presented the summary of the relationship among variables interpersonal relationship and anger management, interpersonal relationship and self-concept, and self-concept and anger management, based on the study of the results of, a significant relationship between interpersonal relationship and anger management as provided by the Pearson correlation = .807, p-value <.005 (.001), the result for the significant relationship between interpersonal relationship and self-concept as provided by the Pearson correlation = .797, p-value <.005 (.001), and the result for the significant relationship between self-concept and anger management as provided by the Pearson correlation = .774, p-value <.005 (.001). As a result, radiologic technologist value honesty, sincerity, and openness in their profession. Anger management is very highly manifested by radiologic technologists. They perceived that they can ensure their thoughts feel calm in every situation regardless of how stressful the occupation is (escalating strategies), they take time out to calm down themselves (calming strategies), they recognize the value of working with others and thus being helpful at work (negative attribution) and they have high emotional intelligence(self-awareness). Radiologic technologists have a very high level of self-concept. They understand that the practice of their profession poses a lot of challenges which include the provision of radiologic service viewed as inconvenient, frightening, or even a painful intrusion of client's privacy. Practitioners understand the value of communication at work and to optimize patient's healthcare experience, they know that procedures related to radiology should be explained well to clients. However, the study's findings imply that technicians believe they can aid and respond to their patient's needs, cherish independence, and anticipate being welcomed to participate in sharing their ideas. They also value respect for their clients and coworkers. Results show that there is a significant relationship between interpersonal skills and anger management, interpersonal skills and self-concept, and self-concept and anger management. Radiologic technologists understand the value of managing their anger in the conduct of their profession. Given the study's findings, it implies creating interpersonal relationships and self-concept. There is a significant mediating role of self-concept in the relationship between anger management and interpersonal relationship. As a result, radiologic technologists perceived that aside from the development of interpersonal skills to manage anger issues, self-concept should be considered as well.

This study suggests the following: Administrators of the hospitals may come up with an assessment review regarding the current status

of the radiologic technologist's interpersonal skills, self-concept, and anger management. Results may be considered as a basis for how administrators will provide intervention to prevent issues related to the provision of the client's medical experience. It is also recommended to develop training programs to improve technologists' interpersonal relationship skills, anger management, and self-concept. Considering that technologist works as part of a team, hospital management should be able to provide a working environment that will foster support to practitioners in terms of communication, job control, and respect. Administrators of hospitals may come up with an assessment review regarding the current status of the technologist's interpersonal skills, self-concept, and anger management. Since technologists understand that the practice of their profession poses a lot of challenges which include provisions of radiologic service viewed as inconvenient, frightening, or even painful intrusion of client's privacy. It is also recommended that Professional organizations come up with events that

will provide training programs to RTs to improve their interpersonal relationship skills, self-concept, and anger management. The provision of quality circles among RTs that will promote a healthy venue for the exchange of effective healthcare practices is advised. It is suggested that future research may consider the sample size that can also be collected in a larger population since the present study has concentrated on Davao City private hospitals only. The scope of future research on anger management can be widened to boost the results. It should be noted that the study only looked at self-concept and interpersonal skills as significantly correlated with anger management.

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Readiness and Ability of Radiologic Technologists to Respond to Radiation Emergencies in Selected Clinical Institutions in Region X and XI, Philippines

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Abstract

Radiation emergency preparedness refers to an overall skill set of knowledge and abilities of the responders to counter and mitigate the possible occurrences of radiation disaster events. The study's purpose was to determine the level of radiation emergency preparedness among Radiologic Technologists working in hospitals in Region X and XI, Philippines. The study used the quantitative descriptive-correlational research design. The respondents who were selected were working in nuclear medicine departments. Using the Yamane formula, there is a total sample size number of forty – five (45) respondents who participated in the study from an assumed number of fifty (50). Survey questionnaires in a blended approach were applied to gather information. Frequency and Percentage, Mean and Standard Deviation, Chi-Square Test, and Multiple Hierarchical Regression Analysis were the statistical techniques used in the study. Results appeared that Radiologic Technologists' overall level of readiness for radiation emergency preparedness was high (4.16), indicating a high commitment to the preparations for radiation emergencies, and Radiologic Technologists' ability to respond to radiation emergencies was very high (4.46). In addition, the results showed that radiation emergency preparedness and the ability of Radiologic Technologists displayed a significant relationship on radiation emergencies (p-value = 0.000). Increasing training on radiation emergencies would increase the level of preparedness. Only the type of hospital positively moderates the independent and dependent variables of the study (p-value = 0.002), indicating that public hospitals were more alert and mandated in increasing their radiation emergency preparedness due to the accommodation of a larger number of hospital patients. This study came upon new knowledge that can support researchers in regulating radiation emergencies.

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Introduction

Radiation emergency preparedness refers to the responders' overall skill set of knowledge and abilities to counter and mitigate the possible occurrences of radiation disaster events (UNDRR, 2021). As explained by OSHA (2021), this can include a wide variety of accidental and planned incidents, ranging from minor to enormous scale. It spills or releases radioactive materials from facilities used for research or radiologic medical procedures and transportation accidents of radiopharmaceuticals in nuclear medicine. A survey was conducted by Encabo et., al (2020) in medical and non-medical institutions in Metro Manila about detecting radiation leakage or anomaly by observing a radiation distribution map. They found t a slight irregular fluctuating level of radiation in the surroundings with a possibility of radiation dispersion. They recommended their study to be a baseline reference for severe cases of radiation emergencies.

Meanwhile, Radiologic Technologists

were the responders in the hospitals for radiation emergency occurrences, and it turns out 56 % of the respondents needed more re-training and education in these important measures (Sing Emergency Radiology, 2022). A study was conducted in Egypt, emphasizing there was a significant difference in the effects of improving radiographers' radiation emergency preparedness for radiological emergencies as it is significantly correlated with the radiographer's continuing education and training in such matters of limited opportunities (IAEA, 2021.).

Furthermore, in the Philippine setting, an article studied by Kromek (2018), specifically on healthcare workers, clarified that over 70 % of these respondents indicated that they were inadequately prepared for a radiation emergency. In addition, there was an incident in Bulacan, Philippines, where nuclear materials used for medical were misplaced. Since a long time had passed, they assumed these radioactive materials had already leaked. The authorities were concerned about the high radiation emission levels even though it was fully shielded. Ong (2020) urged to pass a request for all the medical radiation workers in the country to be ready anytime if they encounter these types of rare but dangerous and alarming situations.

Through objective observations, the radiation emergency preparedness of Radiologic Technologists was not frequently studied in the selected regions due to inadequate related case studies through searching in trusted online websites where the previous studies and articles were only focused generally on the Radiologic Technologists' perception only in radiation protection. It was not explicitly focused on what triggered the reasons for establishing radiation protection.

With these phenomena, the study assessed the level of readiness and ability of the Radiologic Technologists in responding to radiation emergencies working in hospitals in Region X and Region XI, Philippines. The study also assessed the relationship between the readiness and ability of the Radiologic Technologists to respond to radiation emergencies and their relationship to the moderating effect, the demographic profile of the respondents. The study can be utilized as a tool by addressing the levels of their readiness and ability because anytime there could be an occurrence of a radiation emergency since it was lowly recognized and appreciated. Moreover, this study provided a piece of information on how vital radiation emergency preparedness. (Torani, 2019).

Methods

This study employed the descriptive-correlational research design to assess the level of readiness and ability to respond to radiation emergencies among Radiologic Technologists working in hospitals in Regions X and XI. The respondents of the study were registered Radiologic Technologists working in radioactive sources such as nuclear medicine with a sample size of 45. The participants were selected using straightforward methods such as a simple random sampling technique. Only Radiologic Technologists with six (6) months or more of experience and currently working in the selected hospitals were included as participants in the study to ensure homogeneity. During the period of data collection, due to the Covid-19 pandemic gradually easing because of the low counted number of active cases, the study utilized the online and actual survey approach within the same time frame given by the researcher to the participants to collect data on the readiness and ability of Radiologic Technologists to respond towards radiation emergency.

By providing scaled options to the indicators, respondents were asked to rate statements. This study used a 5-point Likert scale with the following anchors: (5) always exhibited, (4) oftentimes demonstrate, (3) occasionally exhibited, (2) rarely exhibited, and (1) does not exhibit. A mandated letter authorizing the study was sent to each of the selected public and private hospitals that have radioactive material source sites, such as nuclear medicine departments, acknowledged by the Master of Science in Radiologic Technology Program Chairperson. The researcher performed the necessary steps during the data collection process. The adapted research instrument was extracted by the researcher and removed the survey questions which were not related to the study and went for an evaluation for validation from the selected thesis experts and was approved. Before the survey, the

researcher conducted a pilot study. The pilot study displayed a Cronbach alpha of (0.855) for the indicator Radiation Emergency Preparedness, (0.878) for the Training and Response, and (0.838) for the Ability to Respond which interpreted that the research instrument expressed a high reliability.

Due to the Covid-19 pandemic, and for the research study to continue and achieve the sample size number, the study utilized the blended approach of the online and actual survey with the time frame of two (2) months from January 2023 to February 2023 due to the different work schedules of the participants. Respondents who answered were able to control their own time as long as it was within the time frame of the study. For one and a half months, a website link containing the survey questions using google forms was sent to all of the participants who answered online, and for the remaining two (2) weeks, the researcher went to the participant's workplace and personally handed in the paper-based survey questionnaires for those who answered in the actual approach. These two types of approaches in answering survey tools exhibit the flexibility, accuracy, and dependability of conducting studies. (DeFranzo, 2023). Respondents were asked to attach their acknowledgment of the informed consent form both in the online and paper-based survey, which was described in the research tool for their voluntary involvement in the study. Only those who attested their consent were considered as part of this study. Consequently, the survey was conducted on a mixed method. Survey instructions were also included in the questionnaire. Then the data gathered proceeded to encoding, synchronization, tabulating, and evaluation. The data was assessed to abolish any possible outliers during the study through the use of the Test of Assumptions. A statistician was consulted to interpret the data gathered for the accuracy of the mathematical data calculations.

The following statistical tool was used to analyze the data: Frequency and percentage were utilized to determine the respondents' demographic characteristics. Mean was used to measure the levels of readiness and ability to respond to radiation emergencies of the respondents. Standard Deviation was used to measure the degree of homogeneity of statistical results gathered from the respondents. Pearson R Product Moment Correlation was used to examine the relationship between readiness and ability to respond to radiation emergencies. Multiple Regression Analysis with Hierarchy was utilized to depict if demographic profile significantly moderates the relationship between readiness and ability to respond to a radiation emergency.

Results and Discussion

Table 1. Summary of Level of Radiation Emergency Preparedness

	Mean	Sd	Description
1. The hospital has a specific plan for handling radiation emergency victims	4.44	0.99	Strongly Agree
2. The hospital notifies the staff to prepare for handling radiation emergency victims at all times.	4.37	0.96	Strongly Agree
3. The hospital has trained staff to handle radiation emergency victims.	4.33	1.04	Strongly Agree
4. The hospital has an isolation ward to hospitalize victims who are internally contaminated by radiation.	4.33	1.18	Strongly Agree
5. The hospital allocates a budget to plan treatment for radiation emergency victims	3.91	0.99	Agree
6. The hospital's ED and ERT don't have designated established protocols for treating radiation emergency patients.	3.55	1.13	Agree

	Mean	Sd	Description
7. I have adequate knowledge of radiation emergency response operations.	4.17	0.91	Agree
Average	**4.16**	**0.76**	**High**

Level of Radiation Emergency Preparedness. The data above presented the survey results on the radiation emergency preparedness level among Radiologic Technologists. It explained that the average mean of the participant's responses ranged from (3.55) to (4.44), with an average mean of (4.16). The radiation emergency preparedness was perceived as high as it was presented in the total mean value. This was a good sign that the Radiologic Technologists had a principal purpose in the application and maintenance of radiation emergency tasks in their respective workplace (Watkins et al., 2018). The highest mean was for statement 1: "The hospital has a specific plan in handling radiation emergency victims," which meant that the hospital and Radiologic Technologists oftentimes exhibited a readiness to respond to clinical radiation emergencies. This particular item and its result coincide with the article of REMM (2020), wherein hospitals with a potent and updated radiation emergency plan orderly addresses the general and specific issues concerning the occurrence and risk reduction of radiation hazards. The lowest mean was in statement 6: "The ED / ERT of my hospital does not have specific SOP in handling radiation emergency victims.", which meant the participants stated that the emergency departments (ER)/ emergency response teams (ERT) occasionally exhibited a readiness to respond in radiation emergencies.

Brewer et., al (2020) explicated their study in new south wales about rural and urban emergency departments' readiness for radiation emergencies and elaborated on the situation of these areas that displayed a frequent readiness for radiation emergencies and concluded that there was also a high level of readiness to respond to radiation emergencies among respondents. Furthermore, the results also conveyed that medical emergency responders, such as Radiologic Technologists who were highly prepared for radiation emergencies, were focused on regulating their standards of preparation.

Table 2. Summary of Level of Readiness -Training

	Mean	Sd	Description
1. The training office department of my hospital conducts training programs in relation to radiation emergency response.	4.31	0.99	Strongly Agree
2. I am required to attend training in relation to radiation emergency response.	4.33	0.85	Strongly Agree
3. The Emergency or evacuation department of the hospital has a shower room to decontaminate radiation emergency victims.	3.88	1.22	Agree
4. The Emergency or evacuation department of my hospital has an isolation room to be used in providing prompt treatments to contaminated victims.	4.37	0.91	Strongly Agree

	Mean	Sd	Description
5. The number of staff in the ED / ERT of my hospital is adequate to handle radiation emergency victims and general emergency patients at the same time.	4.00	1.10	Agree
6. If given the chance, I want to participate in planning a radiation emergency response.	4.64	0.74	Strongly Agree
7. I have the time to attend conferences related to radiation emergency response operations.	4.51	0.84	Strongly Agree
Average	**4.29**	**0.70**	**Very High**

Level of Readiness- Training. As shown in Table 2, the Radiologic Technologists displayed a very high level (4.29) of radiation emergency readiness when it came to training. Generally, it was explained in the average mean that most of the participants in hospitals had a high level of readiness in radiation emergencies in various approaches in terms of training (Kulka et al., 2018). Meanwhile, each mean of the statement reflected in how good the agreement was, where the highest mean score (4.64) was statement 6: "If given the chance, I want to participate in planning a radiation emergency response. As expressed by Liutsko et., al (2020), the preparedness against radiation and nuclear accidents depended on the hospitals and medical radiation responders in how they actively participated in the training and programs. The more these medical radiation responders were active, the more level of preparedness was exceptional. The lowest mean score (3.88), was statement 3: "The Emergency or evacuation department of my hospital has shower rooms to decontaminate radiation emergency victims," which meant that the Radiologic Technologists had an adequate agreement about this statement. The result is also interconnected with the study of Salleh et al. (2021) about the ER/ERTs, which expressed a moderate level of readiness to respond to radiation in an emergency whereby the collaboration of other departments in handling radiation emergency victims was essential for the goal of reducing the dangers.

Table 3. Summary of the Level of Ability to Respond

	Mean	Sd	Description
1. All radiation emergency victims can be treated as general emergency patients	3.93	1.13	Agree
2. Victims exposed to radiation levels of 10 rem (100 mSv) and above are not required to undergo blood examination.	3.82	1.24	Agree
3. Prompt treatments are supposed to be provided to patients who are internally contaminated by radiation.	4.44	0.78	Strongly Agree
4. I stay calm when dealing with radiation emergency cases.	4.60	0.72	Strongly Agree
5. I have to wear all lead apparel (gloves, head cover, goggles, mask, gown, apron) before handling any radiation emergency victims.	4.57	0.86	Strongly Agree
6. I have to ensure no radioactive material contaminates my body/clothes after handling contaminated victims.	4.68	0.73	Strongly Agree
7. The decontamination process for victims of radiation contamination should be conducted in isolated areas.	4.578	0.81	Strongly Agree
8. Victims with radiation contamination should be contaminated	4.17	1.07	Agree

first, even though their health condition is critical.

9. Contaminated gloves can be removed together with the uncontaminated gloves.	3.86	1.25	Agree
10. I have to report to the person in charge if colleagues are getting ill after handling radiation emergency victims.	4.75	0.67	Strongly Agree
Average	**4.46**	**0.64**	**Very High**

Level of Ability to Respond. The table above constituted the level of ability to respond to radiation emergencies of the respondents. It was noted that most of the participant's reactions unfolded that the level of ability to respond to radiation emergencies shows a very high mean average of 4.46, which depicted that Radiologic Technologists always exhibited an ability to respond to radiation emergencies. (Tener, 2019). As expressed also by Liutsko et., al (2020), those medical workers which includes Radiologic Technologists who had consistently and actively participated in the radiation hazard preparations in their hospitals exhibited a high level of mental and actual capability to handle radiation emergencies after the series of radiation leakage preventive measures. The highest mean score (4.75) was in statement 10: "I have to report to the person in charge

if colleagues are getting ill after handling radiation emergency victims." It meant that the participants revealed an amount of strong agreement. The results followed the Veneema et al. (2019) study, which expressed the relevance of supporting, helping, and treating their colleagues first and foremost if exposed to radiation leakages and showing symptoms. The lowest mean score (3.82) was statement 2: "Victims exposed to a radiation level of 10 rem (100 mSv) and above are not required to undergo blood examination." This meant that the respondents moderately agreed that victims exposed to high radiation levels, such as 10 rems or 100 millisieverts and above, were required to undergo blood examinations due to the restricted availability of such blood tests and expensive types of machinery in detecting radiation levels on humans (Griswold, 2018).

Table 4. Summary of Test of Relationship Between Readiness and Ability

		R-value	Magnitude	p-value	Remarks
Radiation Emergency Preparedness	**Ability**	0.772	High	0.000	Significant
Training Response	**Ability**	0.901	Very High	0.000	Significant
Average Readiness	**Ability**	0.864	Very High	0.000	Significant

Relationship between Readiness and Ability. Table 5 presented the test of the relationship between readiness and respondents' ability toward radiation emergency. It showed a significant relationship between radiation emergency preparedness and ability (r=0.772; p=0.000) and training response and ability (r=0.901; p=0.000). The overall readiness of the respondents was also significantly related to their ability (r=0.864; p=0.000), so the null hypothesis was rejected, stating there is no significant relationship between readiness and the ability of Radiologic Technologists to respond to radiation

emergencies. The results were backed up also by the article of Veenema et., al (2019). It is understood that people have different training backgrounds; emergency responders with consistent background training have a strong foundation for radiation emergencies. Ready Gov (2023) considered the idea that in radiation emergencies, being completely ready anytime would increase the chance of having a high degree of ability to perform the various procedures that includes what to prepare before, during, and after radiation accident preventive measures.

Table 5. Summary of Moderating Effect of Demographic Profile on Readiness and Ability

Model 1- Sex	Beta	Std. Error	t-value	p-value
Constant	1.357	1.678	0.809	0.423
Readiness	0.697	0.385	4.823	<0.001
Sex	0.135	0.885	0.153	0.879
Interaction	0.058	0.204	0.285	0.777
R=0.869; R²=0.754; F=41.985; p<0.001				
Model 2- Age	**Beta**	**Std. Error**	**t-value**	**p-value**
Constant	1.921	1.024	1.875	0.068
Readiness	0.576	0.239	2.415	0.020
Age	-0.698	0.851	-0.820	0.417
Interaction	0.181	0.198	0.918	0.364
R=0.869; R2=0.737; F=42.071; p<0.001				
Model 3- Years in Service	**Beta**	**Std. Error**	**t-value**	**p-value**
Constant	0.544	1.007	0.540	0.592
Readiness	0.945	0.235	4.013	< .001
Years in Service	0.614	1.056	0.582	0.564
Interaction	-0.173	0.247	-0.702	0.487
R=0.897; R2=0.804; F=56.070; p<0.001				
Model 4- Type of Hospital	**Beta**	**Std. Error**	**t-value**	**p-value**
Constant	1.449	0.815	-1.777	0.083
Readiness	1.354	0.190	7.119	< .001
Type of Hospital (1-Private; 2-Public)	1.901	0.566	3.359	0.002
Interaction	0.416	0.131	-3.161	0.003
R=0.870; R²=0.757; F=42.071; p p<0.001				

Level of Moderating Effect of Demographic Profile on Readiness and Ability of the Radiologic Technologists. The table above shows the results of the demographic profile. In Table 5, Model 1 shows the moderating effect of sex on the relationship between readiness and ability of Radiologic Technologists. As confirmed in their interaction variable (Sex and Readiness), the p-value is 0.777, suggesting that the model was not statistically significant. This portrays that sex did not moderate the relationship between readiness and ability of the Radiologic Technologists. The results were also explained in the study of Choi et., al (2021) that even though socioeconomic profiles or categories such as sex were selected as one of the models of the moderating variable, it did not assure to mediate the level of preparedness in radiation emergencies.

In Table 5, Model 2 expresses the age-related moderating impact on the connection between readiness and ability of the Radiologic Technologist. As confirmed in their interaction variable (Age and Readiness), the p-value is 0.364 which suggests it was not statistically significant. This shows that age did not moderate the relationship between readiness and ability of Radiologic Technologists. The results confirmed in the study of Choi et., al (2021) that even though socioeconomic profiles or categories such as age were selected as one of the models of the moderating variable in nuclear radiation emergency preparedness, it did not mediate the level of preparedness on radiation emergencies.

Additionally, Table 5, Model 3 shows the moderating effect of Years in Service on the relationship between readiness and ability of Radiologic Technologists. As confirmed in their interaction variable (Years in Service and readiness), the p-value is 0.487, suggesting it was not statistically significant. This showed that Years in

Service did not moderate the relationship between readiness and acceptance. The results also aligned with the study of Choi et., al (2021) that even though socioeconomic profiles or categories such as years in service were selected as one of moderating variables in nuclear radiation emergency preparedness, it did not mediate the level of preparedness in radiation emergencies.

Lastly, Table 5, Model 4 showed the moderating effect of the Type of Hospital on the relationship between readiness and ability. As confirmed in their interaction variable (Type of Hospital and readiness), the p-value is 0.003, suggesting a full moderating effect. An increase in readiness was an increase in ability by (1.354), holding all other variables constant, complementing the null hypothesis stating that demographic profiles

significantly moderated the relationship. The results were aligned with the article of REMM (2023), wherein clinical organizations such as public tertiary hospitals were always prepared for radiation emergencies since more patients catered to such large clinical institutions. They also stated that government hospitals generally have a lower cost of expenses, which was why most of the patients always preferred to be hospitalized in public hospitals, with the result of having the hospitals almost occupied every day. In case there was a little massive dispersion of radiation leakage or emergencies, if not intervening at the most critical and crucial time, many hospitalized patients, patient's families, hospital workers, and nearby communities were more prone. They affected by radiation contamination than in private organizational settings (REMM, 2023).

Conclusion and Recommendations

There were younger Radiologic Technologists working on medical radioactive sources than the old respondents. There was a higher percentage of junior Radiologic Technologists than seniors Radiologic Technologists employed in hospitals. More employee censuses were presented for the private hospitals than the public hospitals in nuclear imaging. The Radiologic technologists displayed a high level of readiness towards radiation emergencies propounding the idea of exhibiting a readiness to combat radiation accidents anytime. However, even though their preparedness and training level were high, emergency departments were adequately prepared in their area for decontamination procedures. Nuclear medicine departments exhibited moderate collaboration and teamwork connection. In terms of ability to respond, Radiologic Technologists had a very high level of ability to respond, which implies that they always exhibited a solid capability to counteract radiation emergencies.

On the other hand, despite their very high ability to respond, it was stated that they moderately agreed on the radiation exposure levels indicated, stating that they occasionally

exhibit knowledge about the principles of occupational and public exposure dose limits and devices. The level of readiness of the Radiologic Technologists had a robust significant relationship towards their ability to respond to radiation emergencies, explaining that those with a high level of preparation had a strong background or foundation with regards to radiation emergency preparedness and possessed a solid capability to counteract the radiation emergencies. Only the type of hospital established a significant relationship in mediating the readiness and ability to respond to radiation emergencies of the

Radiologic Technologists which implies that even how old the respondents were, no matter what their sex, and no matter how many years they had to work, it does not influence the level of readiness and ability. Public clinical institutions such as government tertiary hospitals had a vast number of catering patients in all areas of their hospital, and more monetary budgets from the national and local governments were needed against radiation emergencies.

The following statements were the recommendations based on the outcomes of the summary and conclusions: Hospitals must

conduct updated programs of their radiation emergency preparedness to the medical radiation emergency responders. Hospitals must establish updated monitoring compliance steps or procedures of any platforms with regards to assessing the current levels of abilities of the Radiologic Technologists to respond to radiation emergencies. Private and public hospitals should always conduct a continuous assessment of the Radiologic Technologists' readiness and ability through regular improvements of their radiation emergency response plans. Future researchers should conduct a study about the models of the

demographic profile and other influencing factors that did not display a positive correlation among the variables mentioned in the study. Lastly, future researchers should conduct a study about possible radio-biologic effects from radioactive dispersion on medical radiation workers and as well as patients in case of radioactive or radiation emergency in the country or at least specifically in every Philippine region.

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Radiologic Technologists' Knowledge, Attitude and Practices on Radiation Protection:
Formulation of Radiation Protection Plan

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Abstract

Medical imaging makes X-ray exams easier with the advancement of technology, but it can potentially expose patients to more radiation if misused. Inconsistencies in implementing radiation protection programs result from neglecting protective apparel and the lack of commitment among Radiologic Technologists to adhere to certain radiation protection protocols. This quantitative descriptive-correlational study investigates Radiologic Technologists' radiation protection knowledge, attitudes, and practices, the correlation of knowledge and attitudes to that of the radiation protection practices. Seventy-seven Radiologic Technologists from public and private medical facilities participated in the study. Most respondents deeply understood radiation protection, except for where to place a personal dosimeter while wearing a protective apron. Most respondents were optimistic about validating a female patient's pregnancy before x-ray examinations. In contrast, most were pessimistic about the use of protective equipment. In North Cotabato, there was widespread adherence to proper radiation confinement by closing the door during an X-ray examination. However, the use of calipers to reference the exposure factor was uncommon. No statistical link was found between knowledge, attitude, and radiation protection practices. The radiation protection plan developed for this research should be implemented in North Cotabato radiological facilities to maintain and fulfill the requirement for a sustainable protection strategy.

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Introduction

Researchers have studied the effects of radiation for decades, compiling a wealth of data and developing successful ways to reduce radiation exposure (Sherer et al., 2021). As medical imaging advanced to the point where examinations may be done with less time and trouble, some of these newer techniques also exposed patients to higher doses of radiation (Waheed et al., 2022). With this, Radiologic Technologists (RTs) need to be more knowledgeable about the radiation safety characteristics of equipment like digital radiography (Moolman et al., 2020). For the very same reason, knowledge retention of radiological equipment operation and safety is extremely important in adhering to safety protocols (Hankin & Jones, 2020; Behzadmehr et al., 2021). Healthcare personnel were identified to have a lack of

understanding of radiation protection as a potential risk to patients and co-workers (Batista et al., 2019). In Turkey, even Radiologic Technologists who operate an X-ray machine daily need more knowledge and awareness about radiation protection (Zekioğlu & Parlar, 2021). Due to a lack of information about radiation protection, work attitudes influence the workplace safety culture, such as neglect of its use because it prolongs the examination (Lewis et al., 2022). Also, Radiologic Technologists in Greece were still determining the accuracy of personal dosimeters and their significance in dose monitoring (Goula et al., 2021).

According to Abuzaid et al. (2019) and Kaka et al.

(2022), the amount of knowledge of healthcare personnel correlates strongly with the level of adherence to radiation safety practices, whereas El- Aish (2020) found no statistical correlation between attitude and radiation protection practices. In Saudi Arabia, 100 radiographers from government and private hospitals were surveyed about their knowledge and attitude toward radiation protection; education and experience had a significant impact (Alotaibi & Alkhalifah, 2019) while Shabani et al. (2018) and Parniani et al. (2023) that found no connection between Radiologic Technologist educational level and duration of employment to the radiation protection knowledge and attitude. Due to a lack of training and updating, radiation safety measures are inadequate in various parts of the world, particularly in the proper use of radiation protection devices (Partap et al., 2019; Shafiee et al., 2020; Karaarslan et al., 2020).

Methods

The study employed a descriptive-correlation design to determine the demographic profiles of the respondents and the correlation between knowledge and attitude toward radiation protection practices. The Radiologic Technologists in the selected Hospitals and clinics in the Province of North Cotabato were the respondents of this study. This employed a Stratified Random Sampling using the facility type as the strata for sampling. Only those licensed X-ray and Radiologic Technologists who worked in the radiology department and operate X-ray machines took part in the study.

Using Slovin's Formula, the sample size is 77 respondents out of 98 Radiologic technologists in the province. The respondents were informed about the purpose of the study and given informed consent to participate in this research.

The study was conducted by drawing on a survey questionnaire which is physically hand-in to the respondents and others were sent via google forms. Before the administration of survey questionnaires, it was subjected to validation and reliability testing. Three (3) experts in the field were asked to validate the instrument. After this, the researcher conducted a pilot study wherein thirty (30) respondents were requested to answer

The dedication of Radiologic Technologists to radiation safety could put medical imaging in peril if these programs receive less support (da Conceicao et al., 2021; Lewis et al., 2022; Abdelrahman, 2018; Maina et al., 2020). The researcher is eager to investigate the status of radiation protection among Radiologic Technologist due to contradicting observations regarding the relationship between knowledge and attitude to radiation protection practices (Shabani et al., 2018; Parniani et al., 2023; Alotaibi & Alkhalifah, 2019; El-Aish, 2020; Abuzaid et al., 2019; Kaka et al., 2022). Investigating the knowledge, attitudes, and practices in radiation protection is crucial for improving the occupational and general safety of Radiologic technologists, staff, and patients in North Cotabato. The research also recommends and provides plans to build a more sustainable radiation protection strategy in the province.

the survey questionnaire followed by a Cronbach's Alpha reliability analysis which indicates the reliability of survey questionnaires with an alpha-value of 0.820 which is acceptable.

There were four (4) parts of the survey questionnaire. The first part of the questionnaire pertains to the respondent's demographic profile. This includes educational attainment, length of service, and Facility employed. The second part of the questionnaire contained statements that will test their level of knowledge and understanding of radiation protection. The third part of the questionnaire contains statements that describe their attitude towards a certain aspect of radiation protection. Lastly, the fourth part of the questionnaire will describe the extent Radiologic Technologist practices in radiation protection.

The study incorporated Frequency Distribution and Percentage to describe the radiologic technologists' demographic profile in terms of educational attainment, length of service, and facility employment. Moreover, average scores have been drawn from the respondents to gauge their level of knowledge while the Mean was used to measure the levels of attitude and practices of radiologic technologists on radiation protection. On the other hand, Spearman rho was utilized to determine the correlation between Radiologic Technologist's knowledge and attitude to the extent

of their radiation protection practices.

Results and Discussion

Table 1. Demographic Profile of the Respondents

Profile		Frequency	Percentage
Educational Attainment			
Associate degree in Radiologic Technology		9	11.7
Bachelor's degree in Radiologic Technology		64	83.1
Bachelor's degree under Ladderized program		4	5.2
	Total	**77**	**100.0**
Length of Experience			
less than 2 years		10	13.0
2 years to 5 years		27	35.1
6 years to 10 years		25	32.5
11 years and above		15	19.5
	Total	**77**	**100.0**
Facility Employed			
Government Hospital		22	28.6
Private Hospital		46	59.7
Diagnostic Clinic		9	11.7
	Total	**77**	**100.0**

Table 1 shows the demographic profile of the respondents. For educational attainment, most of the respondents are Graduates of 4- year Bachelor's degrees in Radiologic Technology who are licensed professionals which are 64 (83.1%) out of 77 respondents. Only 9 (11.7%) are Associate Degree holders and 4 (5.2%) are Bachelor's degree holders under a ladderized program, both demographics are licensed holders in x-ray technology and radiologic technology, respectively.

For the length of service, 27 (35.1%) of the respondents have experience ranging from 2 years to 5 years while respondents have experience ranging from 6 years to 10 years is 25 (32.5%). Those with lesser experience account only for 10 (13%) respondents while respondents which much longer experience are 15 (19.5%) of the sampled population. For the facility, the respondent currently employed, those who are working in government hospitals are 22 (28.6%), and those who work in private hospitals where the majority of respondents are currently employed account for 46 (59.7%). Only 9 (11.7%) of the respondents are working in a diagnostic clinic.

Table 2.1 Knowledge of Radiologic Technologists in Radiation Protection

	N	Score	Verbal Interpretation
Knowledge of Radiation Protection	77	14.39	Satisfactory

Legend: 20.00-17.00 –Excellent; 16.99-13.00 –Satisfactory; 12.99-9.00 –Average; and 8.99-below –Poor.

Table 2.1 shows the level of knowledge with an average score of 14.39 based on the correct responses of the respondents. This means that the knowledge of Radiologic Technologist in North Cotabato is Satisfactory. This implies that the level of knowledge about radiation protection among Radiologic technologists in North Cotabato

province is high. The finding is consistent with the study by Nyathi (2022) which demonstrated that the level of knowledge in radiation protection among radiographers is satisfactory which emphasized that radiographers are knowledgeable and aware of the radiation protection applied in medical imaging. It also revealed that the Radiologic technologists are highly knowledgeable about the radiation risk involving pregnant patients in the first trimester having the highest correct responses. This is in agreement with the findings of Ihle et al. (2019) that knowledge of radiation risk in pregnant patients is considerably high which prompted them to ask the patient before having an x-ray examination. Also, the study of NG and SA (2020) revealed that 194 out of 195 radiation workers are highly aware of the radiation protection procedures for pregnant women. The second highest is the awareness about keeping radiation dose reports which indicates that their knowledge of their personal dose level is very important. This is in keeping with the study of Alyami, and Nassef (2022), that as part of regular inspection, radiation dose records of personal monitoring devices are kept and readily available for radiation protection planning.

In contrast, most of the Radiologic Technologists were least knowledgeable about the proper placement of dosimeters when using a protective apron. This implies that Radiologic Technologists are not aware or knowledgeable about the proper wearing of personal dosimetry while having x-ray procedures. The study conducted by Ridzwan et al (2021) revealed that the lack of standardized placement of dosimeters led to the erroneous placement of dosimeters in the body particularly when using lead gowns. This was also supported by Shafiee et al (2020), who that not all medical professionals assigned to radiology, particularly in interventional radiology are knowledgeable on the proper use of monitoring devices. In addition, Radiologic Technologists exhibit less knowledge about proper distancing and positioning away from the source of radiation when using mobile radiographic machines. In the study of Otomo et al (2023), they emphasized the importance of sufficient understanding of proper distancing among Radiologic Technologist when using mobile radiography, as it will provide a greater amount of radiation exposure to scattered radiation which can be lessened with proper distancing, and positioning away from the source of radiation.

Table 2.2 Attitude of Radiologic Technologists in Radiation Protection

	Overall Mean	SD	Descriptive Rating
Attitude to Radiation Protection	2.38	0.58	Disagree

Legend:

Mean Interval	Descriptive Rating	Interpretation
4.21-5.00	Strongly Agree	Very High Negative Attitude
3.41-4.20	Agree	High Negative Attitude
2.61-3.40	Neutral	Moderate Negative Attitude
1.81-2.60	Disagree	Positive Attitude
1.00-1.80	Strongly Disagree	Very Positive Attitude

The attitude of Radiologic Technologists in radiation protection was drawn using a 5-point Likert scale which is interpreted in reverse, meaning the highest mean value leans toward the negative attitude while the lowest mean value leans towards the positive attitude. Most respondents exhibit negative attitudes towards the use of radiation protection apparel as it is uncomfortable.

irritating and time-consuming to wear. this implies that the Radiologic Technologist has a moderate negative attitude toward wearing protective apparel. A qualitative study also found out that Radiologic Technologists believed that radiation protection garments are burdensome and uncomfortable. Several of the Radiologic Technologists disclosed that they had developed

musculoskeletal pain as a result of wearing protective apparel; other Radiologic Technologists emphasized the significance of utilizing protective apparel; however, the designs of some garments are irritating and uncomfortable to wear (Ridzwan et al., 2019). Also, the study of Lewis et al (2022) revealed that most Radiologic technologists indicated that using protective apparel only takes examination longer.

On the other hand, respondents have a positive attitude toward the importance of confirming female patients for pregnancy even with the warning sign posted in conspicuous areas. Since respondents are highly knowledgeable about the risk of radiation to pregnant women, they also developed positive attitudes about radiation protection for them by confirming the patient for pregnancy. This is associated with the International Atomic Energy Agency (n.d) pronouncement, which states that radiological facilities have certain procedures in confirming

pregnant patients that whenever possible, one should ask about the 10-day rule and confine the radiological examination of the lower abdomen and pelvis to the 10-day interval following the onset of menstruation. The second most positive attitude about radiation protection is the importance of the radiographic technique chart. This finding was emphasized by Wells (2020), who that despite the digitalization in radiography, the development of technique charts must outweigh radiation protection and optimum image quality. Finally, the overall mean of 2.38 dictates that most respondents have a positive attitude about radiation protection which implies that Radiologic technologists were a positive attitude about the importance of radiation protection for the safety of their patients and also themselves. This is supported by Lewis et al. (2022), which highlighted that radiographers felt that using radiation protection devices and apparel is extremely important, pleasant, and beneficial.

Table 3. The extent of Radiologic Technologist practices in Radiation Protection

	Overall Mean	SD	Description
Practice in Radiation Protection	3.65	0.61	Often

Legend:

Mean Interval	Descriptive Rating	Interpretation
4.21-5.00	Always	Extensively follow RP Practices
3.41-4.20	Often	Fairly Follow RP Practices
2.61-3.40	Sometimes	Somewhat Follow RP Practices
1.81-2.60	Rarely	Not Extensively RP Practices
1.00-1.08	Never	Do Not Follow RP Practices

Table 3 presents the extent of Radiologic Technology practice in radiation protection. Overall means of 3.65 revealed that Radiologic Technologist practices in radiation protection are mostly extensively adhered to in their respective work. This indicates that despite the challenges in radiation protection, Radiologic Technologist significantly adheres to radiation protection practices. The finding is in keeping with Abuzaid et al. (2019) which revealed that most radiographers have good adherence to radiation protection practices. The result also negates the observation of Farzanegan et al (2020), that Radiologic Technologist protection is poorly practiced. Most of the respondents extensively

adhere that closing the doors in the examination room and proper collimation is essential in radiation protection. This implies that Radiologic Technologists routinely performed and observed the closing of the door before having x-ray exposure and proper collimation for optimal image production and reduction of scattered radiation. This finding was highlighted by Jiang et al (2021) that radiographers secure and re-examine if the door is tightly closed before starting the examination. Also, the study of Abuzaid et al (2022) revealed that out of 140 participants, 46% of them always adhere to proper collimation and 37% adhere to proper collimation most of the time, especially in mobile radiography. Proper

collimation practices reduce the X-ray field size which helps reduce patient exposure, improper collimation will increase patient dose while compromising the quality of the image which in turn accommodates repeat examination of the patient (Dotson et al., 2019).

In contrast, the use of a caliper for exposure factor referencing and the use of lead rubber gloves were the least practiced protection. This would indicate that the caliper is unimportant for exposure factor referencing as many of the imaging systems provides optimal image quality however it would unnecessarily provide improper exposure factors to the patient especially when Computed or Digital radiography is in use. According to Cakir et al (2021), the use of fixed

exposure parameters can give harm the patient especially patients of neonatal age. This means further that having accurate and consistent exposure factors appropriate for individuals body thickness can be achieved by using calipers (Rollins, et al., 2022). Also, with regards to the use of lead rubber gloves, Ridzwan et al (2019) highlighted that the reason for non-adherence to the use of lead rubber gloves is that it is uncomfortable to wear and time-consuming which is very much the same as the attitude expressed by the respondents. Similarly, Alshabi et al (2022) revealed that only 1.8% of the research participants adhered to the use of protective gloves which means the majority of the participant do not use protective gloves anymore.

Table 4. Relationship between level of knowledge, and attitude to the extent of radiation protection practice

Variable	rho-value	p-value	Decision	Remarks
Knowledge and Practices	- 0.28	0.07	Accept Ho_1	Not Significant
Attitude and Practices	- 0.24	0.21	Accept Ho_1	Not Significant

Note: p<.05 (Significant)

Table 4 presents the relationship between the level of knowledge and attitude to the extent of radiation protection practice among Radiologic technologists. It revealed that between knowledge and Radiologic Technologist practice in radiation protection, the rho-value is -0.28 which represents a negatively weak correlation. Furthermore, a p-value of 0.07 indicated that the null hypothesis is accepted and that there is no statistical relationship between the knowledge and Radiologic Technologist practice in radiation protection. This implies knowledge of radiation protection has nothing to do with Radiologic Technologist practices in radiation protection. The finding negates by Abuzaid et al (2019) and Kaka et al (2022) who revealed that the amount of knowledge of healthcare personnel has a substantial correlation with the level of adherence to radiation safety practices that are in existence.

Between attitude and the practices in radiation protection, it revealed a negatively weak correlation having a rho-value of -0.24. Furthermore, no statistical correlation between knowledge and practices was observed with a p-value of 0.21. This implies the extent of radiation protection practices among Radiologic technologists is the same regardless of the Radiologic Technologist's attitude towards radiation protection. This was supported by the study of El-Aish (2020), which found that attitude and radiation protection practices have no statistical correlation. In contrast, the finding contradicts the study of Lewis et al (2023) which revealed that inadequate radiation protection practices can be attributed to the negative attitude of radiographers about the dangers of ionizing radiation; this significantly means that compliance to such measures is rather a personal preference.

Assumption	Inputs	Activities	Short-term Outcomes	Long-term outcomes
This model assumes the following: 1. Engagement of national agencies in the improvement of radiation safety initiatives 2. More community-based research approaches in radiation protection 3. Enhanced literatures about the status of	• Data from researchers • Group of Chief Radiologic Technologist in North Cotabato • Group of Radiation Protection of North Cotabato • Philippine Hospital Association- North Cotabato Chapter • Local Government Support • Feedback from Radiologist	• Conduct radiation protection forum with the group of Chief RTs and RPOs. • Establish a universal guideline in radiation protection with the pledge to abide the said guidelines. • Coordination with HEI for local research activities, lectures and seminars that would emphasize radiation protection and interventions. • Conduct Semi -annual Radiation protection training course for continuous professional development and updates. • Creation of Radiation Protection Society in North Cotabato to spearhead the radiation protection initiatives	• More awareness of Radiologic Technologist in radiation protection • Improve radiation protection practices due to more emphasized importance of radiation protection. • Enhanced collaboration between different radiological facilities • Decrease radiation dose levels for Radiologic Technologist and patient due to strict adherence to radiation safety protocols	Improved the knowledge, attitude and practices in radiation protection of Radiologic Technologist in North Cotabato **Impact** Established a more improved **Radiation Safety Culture in North Cotabato**

Table 6. Proposed Radiation Protection Plan

Fig 1. Logical Model of Proposed Radiation Protection Plan

Based on the findings, action steps have been drawn based on the proposed radiation protection model represented in Figure 1. The proposed radiation protection plan assumes that the national agencies will initiate and improve certain policies in radiation protection by enhancing rules in regulations related to radiation protection programs. The academic community will also engage in further study to mitigate efforts in understanding the real scenario of radiation protection particularly in rural areas. This will enhance the body of knowledge for the betterment of occupational and health safety standards.

To provide meaningful improvement of radiation protection knowledge, attitude, and practices in radiation protection in the province of North Cotabato. The group of Chief Radiologic Technologists and Radiation Protection Officers in the province must convene for a radiation protection forum to discuss the establishment of radiation protection programs universal to all facilities in the province. The set guidelines of radiation protection must include, annual radiation protection training and workshop for Radiologic technologists, and the creation of the Radiation Protection Society in North Cotabato to spearhead the radiation protection initiatives. With the plans and programs being realized, the radiation protection awareness of Radiologic Technology in the province will improve. Collaboration among them will also strengthen with an emphasis on the importance and benefits of maintaining radiation protection practices. Regarding the attitude of Radiologic technologists in the use of Protective apparel, it is highly recommended to use well-designed apparel that is more comfortable and less irritating to use. Below are samples of well-designed radiation protection apparel in Figure 2.

Highly Recommended Design for Protective Apparel	Least recommended Design of Protective Apparel

Fig 2. Radiation Protection Apparels

Conclusion and Recommendations

The current study concluded that Radiologic Technologists in North Cotabato have satisfactory knowledge, mostly have positive attitude**s,** and had fairly adhered to radiation protection practices. However, it also indicated that other aspects of radiation protection ha**ve** been neglected particularly the use of protective apparel like lead rubber gloves as well as the use of calipers for exposure factor referencing. The negative attitude towards the use of protection apparel may be attributed to poor design, lack of integrity checking**,** or unavailability of apparel in facilities which was also observed in most research.

The adoption of the proposed radiation protection plan is needed to mitigate serious steps in addressing concerns in radiation protection. The Radiologic Technologists are recommended to stay committed to radiation protection by attending training and seminars **about** radiation protection initiatives. Radiation Protection Officers should also be active in promoting effective radiation protection initiatives, constantly updat**ing** their radiation protection manuals**,** and strictly monitor**ing** the radiation protection activities within their respective radiological facilities. Lastly, Further research is recommended supplement the body of knowledge using mixed-method to capture lived experiences and for better inferential analysis

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Knowledge, Attitude, and Adherence to Radiation Protection among Radiologic Technologists in Hospitals

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Abstract

Radiation protection is one of the most essential parts of the work of the day-to-day life of radiologic technologists. Therefore, this study aimed to probe the relationships between knowledge, attitude, and adherence among radiologic technologists in Midsayap, Cotabato. The study employed descriptive-predictive research. A total of 30 radiologic technologists were respondents employed in six (6) hospitals in Midsayap between March and April 2023. Results showed that the overall knowledge of radiologic technologists was very high, and the radiologic technologists' attitude was very high. Meanwhile, knowledge had a significant positive relationship with the adherence of radiologic technologists to radiation protection, with a correlation coefficient r-value of 0.444 and a p-value of less than 0.05. Furthermore, the result of the regression analysis showed that attitude significantly predicts the adherence of radiologic technologists to radiation protection, and knowledge is not a significant predictor of the adherence of radiologic technologists to radiation protection. The findings were apparent in the regression analysis results, wherein the two independent variables explained 49.8 percent of the variance in adherence. The radiologic technologists were aware of radiation protection. They were to continue a good performance in reducing unwanted radiation exposure, participate in radiation protection training and seminars, and maintain good adherence and compliance in updating and implementing the policy and protocols of radiation protection to achieve efficiency of services in a safe work environment and supervision of radiation protection equipment and devices.

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Introduction

As a result of using X-rays in radiology departments, employees and patients in this area may be in danger (Parniani et al., 2022). Although some health problems following low-dose radiation exposure might not appear immediately away, other illnesses may take time to show (Yildiz et al., 2022). Other facilities had radiation leakage due to cracks in the X-ray room's wall and the door leading into the room (Alyami & Nasseff, 2022). Furthermore, there is room for improvement in radiation protection knowledge (Girgin, 2022).

According to a South African study, radiation protection practices were lacking because radiation is invisible (Lewis et al., 2022). Also, in a study in Northern Ireland and the United States, healthcare workers had a negative attitude about radiation dose and hazards (Tagle et al., 2021). Similar findings in Iran showed that the level of radiation protection

among radiology staff needs to be improved, which might be due to the lack of ongoing training courses concerning protection (Masoumi et al., 2018). Poor radiation protection practices were also found in studies conducted in Northern Nigeria and California; in Modjo Hospital in Ethiopia, 80% had inadequate knowledge, and 70% had unsafe practices (Lewis et al., 2021). The UAE scored 75.2% for adherence to radiation protection practices, with 57.4% of radiographers showing good adherence, 26.9% showing moderate adherence, and 15.7% showing poor adherence. (Abuzaid et al., 2019).

In the Philippines, there are about 14,000 workers that have been monitored in 2018, and the results show that in conventional radiology practices, more than 70% of workers did not receive doses above the recording level (Romallosa et al., 2019).

The problem is that health professionals need to understand their role (Goula et al., 2021). Furthermore, many studies have investigated that healthcare workers with good knowledge may need a better attitude and adherence to radiation protection (Behzadmehr et al., 2020). Studies have shown that patients and healthcare professionals have a poor understanding of the risks and safety associated with radiation exposure. There needs to be more knowledge among healthcare professionals regarding the issues of radiation hazards and radiation protection (Mawphlang et al., 2021). However, studies have shown that most modern radiation protection instruments were lacking, and the application of shielding devices such as gonad shields for protection was neglected (Medhin, 2022). Several studies have emphasized that some participants greatly underestimated the importance of using radiation equipment to reduce the radiation dose (Abuzaid et al., 2019). Another study has reported inadequate use of safety measures and practices in ionizing radiation facilities (Bolbol et al., 2021).

Radiation is a component of a radiologic technologist's everyday job. It is highlighted that certain international studies have poor radiation protection practices. Hence, the researcher decided to conduct a study based on the experience of the radiologic technologists on radiation protection at Midsayap, North Cotabato. The radiologic technologist can use the result of the study as a guide to enhance local radiology services and provide precise guidelines for implementing radiation safety measures for patients and healthcare professionals.

Methods

The radiologic technologists who worked in Midsayap were the respondents of this study. The study employed a universal sampling technique. A descriptive-predictive method was used to determine if knowledge and attitude could predict the adherence of the radiologic technologist to radiation protection. A complete enumeration technique was employed to determine the sample size, and purpose sampling was used to select the respondents. Only 30 radiologic technologists who worked in private and public hospitals in Midsayap, North Cotabato, were included as respondents in this study.

The study used an adapted questionnaire. A complete enumeration technique was used to determine the sample size, and purposive sampling was used to select the respondents. The researcher submitted the questionnaire to the panel of experts for comments, suggestions, improvements, and refinements with an overall rating. Afterward, the researcher conducted a pilot study to ensure that the items and questions were clear and understandable to the respondents, followed by a Cronbach's alpha reliability analysis. The questionnaire contained questions that sought to ascertain the radiologic technologist's knowledge, attitude, and adherence to radiation protection.

The questionnaire is a cross-sectional study carried out among practicing radiographers. Moreover, the mean was used to determine the average response to the levels of knowledge, attitude, and adherence of the radiologic technologist to radiation protection. At the same time, Pearson product-moment correlation was utilized to determine the relationship between knowledge, attitude, and adherence of the radiologic technologist

to radiation protection. Furthermore, multiple regression analysis was used to measure the influence of the radiologic technologist's knowledge, attitude, and adherence to radiation protection.

The result of the study can be used as a basis to improve radiology services, especially in local areas, and provide accurate standards for practicing radiation protection for the public and healthcare workers.

The data was screened during the study to eliminate any potential outliers. A statistician was consulted to ensure the precision of mathematical data computations. In the analysis of data, the following statistical tool was employed: Mean was used to determine the average response to the levels of knowledge, attitude, and adherence of the radiologic technologist to radiation protection. Pearson Product Moment Correlation was utilized to determine the relationship between knowledge, attitude, and adherence of the radiologic technologist to radiation protection. Multiple Linear Regression Analysis was used to measure the influence of the knowledge, attitude, and adherence of the radiologic technologist on radiation protection.

Results and Discussion

Table 1. Level of Knowledge

Knowledge	Mean Rating	Std. Deviation	Description
1. I am familiar with the ALARA principle.	4.90	0.305	Very High
2. Time, distance, and shielding are the 3 important factors in maintaining radiation protection.	4.80	0.407	Very High
3. I know what a TLD badge is.	4.87	0.346	Very High
4. I am familiar with the terms; stochastic and deterministic effects.	4.67	0.606	Very High
5. I have an idea about the various protective equipment.	4.77	0.430	Very High
6. I have an idea about the radiation risks.	4.87	0.346	Very High
7. I know what source-to-image distance (SID) is.	4.77	0.504	Very High
8. I have an idea about lead aprons.	4.83	0.461	Very High
OVERALL Mean	**4.81**	**0.300**	**Very High**

Table 1 shows the level of knowledge of radiologic technologists regarding radiation protection. It is shown that the overall mean value of 4.81 and the standard deviation of 0.300 exhibits a very high level. The results denote that the participants have constant knowledge of radiation protection in their departments. Meanwhile, the highest mean value is 4.90 for statement 1: "I am familiar with the ALARA principle," which indicates that they are constantly aware of the ALARA principle. Followed by a 4.87 mean rating for statement 3: "I know what a TLD badge is." And statement 6: "I have an idea about the radiation risks." Moreover, among the 8 statements, statement 4: "I am familiar with the terms stochastic and deterministic effects.", yielded the lowest mean score of 4.67. This indicates that the participants have occasionally known about the different effects of radiation.

This conforms to the study of Zervides et al. (2020), who found that the levels of

knowledge in radiation protection are of a very high standard and indicated the importance of educating radiographers about the requirements of national radiation protection legislation. This is supported by Abuzaid et al. (2019) stated that the highest knowledge would play a significant role in reducing the radiation to the patients and staff. In addition, Shabani et al. (2018) stated

that the level of knowledge of the medical staff about radiation protection is essential to reduce their exposure to ionizing radiation while conducting radiological examinations, and policies support radiation protection in medical practice to ensure the safety of the medical staff.

Table 2. Level of Attitude

Attitude	Mean Rating	Std. Deviation	Descriptive Level
1. I always wear the personal dosimeter during my shift.	3.33	1.295	Moderate
2. I wear a lead apron and other protective devices when doing X-ray examinations.	3. 77	1.006	High
3. I use the shortest exposure time possible and follow proper exposure factor settings.	4.47	0.973	Very High
4. I wear a gonadal shield when doing radiographic procedures.	3.33	1.493	Moderate
5. I follow the standard distance of the X-ray tube when performing X-ray procedures.	4.70	0.466	Very High
6. I use the radiation symbol light when performing X-ray procedures.	4.80	0.407	Very High
7. I properly use the collimator.	4.73	0.521	Very High
8. I always follow the ALARA principle.	4.73	0.785	Very High
OVERALL Mean	**4.23**	**0.613**	**Very High**

Table 2 shows the level of attitude of radiologic technologists towards radiation protection. It is shown that the overall mean value of 4.23 and the standard deviation of 0.613 exhibits a very high level. The results indicate that the participants have a constant attitude toward radiation protection in their department. Meanwhile, the highest mean value is 4.80 for statement 6: "I use the radiation symbol light when performing x-ray procedures," which indicates that the participants constantly use radiation symbol signs to remind the others that they have started their procedure. It is followed by a 4.73 mean rating for statement 7: "I

properly use the collimator." And statement 8: "I always follow the ALARA principle." Moreover, among the 8 statements, statement 1: "I always wear the personal dosimeter during my shift." And statement 4: I wear gonadal shield during radiographic procedures," which yielded a mean rating of 3.33 as the lowest value. This indicates that the participants occasionally use radiation protection equipment when performing the X-ray procedure. This conforms to the study of Lewis et al. (2023), which found that radiation protection was suboptimal despite diagnostic radiographers having a good attitude, a subjective norm, and perceived

behavioral control toward radiation protection. Park et al. (2021) stated that attitudes toward radiation protection represent the level of awareness of efforts to reduce the risk of radiation exposure.

Table 3. Level of Adherence

Adherence	Mean Rating	Std. Deviation	Descriptive Level
1. I make sure to provide lead aprons and other radiation protective devices to patients, watchers, and other hospital personnel who will undergo radiation exposure to adhere to the ALARA principle.	4.33	0.802	Moderate
2. I ensure proper source-to-image distance (SID).	4.73	0.450	High
3. I ensure the room door is closed before making the exposure.	4.97	0.183	Very High
4. I ensure proper collimation.	4.83	0.379	Moderate
5. I repeat radiographic examinations only when necessary.	4.87	0.434	Very High
6. I ensure to ask my female patients whether they are pregnant before the examination.	4.67	0.661	Very High
7. I ensure the radiation symbol light is on when performing X-ray procedures.	4.83	0.379	Very High
8. I make sure to use markers when performing X-ray procedures.	4.70	0.535	Very High
OVERALL Mean	**4.74**	**0.282**	**Very High**

Table 3 shows the level of attitude of radiologic technologists towards radiation protection. It is shown that the overall mean value of 4.74 and the standard deviation of 0.282 exhibits a very high level. The results denote that the participants have a constant adherence to radiation protection. Meanwhile, the highest mean value is 4.97 for statement 3: "I ensure the room door is closed before making the exposure." It is followed by a 4.87 mean rating for statement 5: "I repeat radiographic examinations only when necessary." Moreover, the 8 statements, statement 6: "I ensure to ask my female patients whether they are pregnant before the examination.", yielded a mean rating of 4.67 as the lowest value. This indicates that some participants are aware of their female patients for their radiation protection. This conforms to the study of Yusuf et al. (2020) that radiographers had an overall high adherence to radiation protection practices; therefore, the degree of compliance with safety standards is determined by the accessibility of personnel protection and safety equipment, as well as by the guiding concepts and methods used. According to Jha (2020), one crucial element in achieving good practice in the radiology department is adhering to safety protocols.

Table 4. Correlation between Knowledge, Attitude, and Adherence of Radiologic Technologists to Radiation Protection

INDEPENDENT VARIABLES	Adherence			
	R	p-value	Remarks	Decision on Ho
Knowledge	.444	.014	Significant	Rejected
Attitude	.694	.000	Significant	Rejected

Alpha: 0.05

Table 4 shows the correlation test between knowledge, attitude, and adherence of radiologic technologists to radiation protection. The results reveal a significant and positive relationship between knowledge and adherence of radiologic technologists to radiation protection (r=.444, p<.05). This suggests that the increase in knowledge would also likely increase the adherence of radiologic technologists to radiation protection. The result conforms to the findings supported by the study of Abuzaid et al. (2019), which found that knowledge and adherence will play a significant role in reducing the radiation exposure of patients and staff. According to Alsiddiky et al. (2021), the knowledge scores correlate significantly and positively with good radiology safety practices, who noted a positive correlation between adherence to safety practices and knowledge of radiation safety. Similarly, the relationship between attitude and adherence of radiologic technologists to radiation protection is significant. It has a positive relationship (r=.694,

p<.05). This suggests that the improvement in attitude among radiologic technologists is likely to increase their adherence to radiation protection measures. This is supported by the findings of Alsiddiky et al. (2021), whose safety procedures and attitudes about radiation safety converged significantly and positively.

However, the correlation coefficient of knowledge(r=0.444) is lower than that of attitude (r=0.694). This suggests that, rather than knowledge, attitude is a stronger predictor of the future. This is supported by Lewis et al. (2022), who showed that 60% of participants had a positive attitude toward radiation protection, and more than half of the participants had average knowledge and practice regarding radiation protection. According to Fiagbedzi et al. (2022) revealed that the knowledge of radiation protection practices was generally high, but more is needed.

Table 5. Influence of Knowledge and Attitude on the Adherence of Radiologic Technologists to Radiation Protection

Model	Unstandardized Coefficients		Standardized Coefficients	T	p-value	Remarks
	B	Std. Error	Beta			
(Constant)	2.861	.618		4.628	.000	
Knowledge	.138	.146	.147	.950	.351	Not Significant
Attitude	.287	.071	.623	4.018	.000	Significant

Note: R=.706, R-square=.498, F=13.383, P=.000

Table 5 represents the influence of knowledge and attitude on the adherence of Radiologic technologists to radiation protection. Knowledge is not a significant predictor of the adherence of radiologic technologists to radiation protection (β=.147, p>.05). This means that

knowledge does not contribute to the adherence of radiologic technologists to radiation protection. A previous study by Fiagbedzi et al. (2022) found that among radiographers, radiation safety knowledge was not a statistically significant predictor of radiation training. According to Abuzaidet al.

(2019), there is a need to increase knowledge and awareness toward adherence to the radiation protection guidelines.

On the other hand, the results indicate that only attitude was found to be a significant predictor of adherence of Radiologic Technologists to radiation protection. In particular, attitude generated a p-value less than 0.05 (p=0.000) and a positive standardized coefficient value of (β=.623). This denotes that the regression weight for attitude in the prediction of adherence is significantly different from zero at the 0.05 level (two-tailed). Thus, for every unit increase in attitude, there is a corresponding increase in adherence. This suggests that a positive attitude contributes to the adherence of radiologic technologists to radiation protection.

However, both knowledge and attitude influence the adherence of Radiologic Technologists to radiation protection. This is supported by the findings of Abuzaid et al. (2019) the response and behavior of the personnel are influenced by their level of radiation protection awareness. According to Shabani et al. (2018), the significance of excellent practice, proper understanding, and a positive mindset is to lower public exposure to imaging technologies. This is supported by Lewis et al. (2022) stated that the knowledge was a radiographer's personal choice. Radiographers' non-public preference changed inspired by the collective insouciant attitude that caused, in large part, terrible radiation safety compliance.

Lastly, the findings were apparent in the regression analysis results wherein 49.8 percent of the variance of adherence was explained by the two independent variables as indicated by R2 = .498. This means that 50.2 percent of the variation in adherence of radiologic technologists to radiation protection can be attributed to other factors aside from knowledge and attitude.

Conclusion and Recommendations

The level of knowledge is very high. This indicates that they know radiation protection. Thus, this means that the knowledge of the radiologic technologist aligns with the legislative guidelines, which can contribute significantly to adherence to radiation protection. The level of attitude is very high. This indicates that they have an attitude toward radiation protection. Thus, this means that radiologic technologists have an active approach toward radiation protection equipment and devices. The level of adherence is very high. This indicates that they adhere to radiation protection. Thus, this means that radiologic technologists are fully aware of radiation protection and can achieve good compliance. Attitude has a significant and positive relationship with the adherence of Radiologic Technologist to Radiation Protection. The improvement in attitude among Radiologic Technologists will likely lead to an increase in their adherence to radiation protection because the compliance of Radiologic Technologists is in good attitude. Among the two independent variables, knowledge, and attitude, only attitude significantly predicts the adherence of radiologic technologists. Therefore, the Radiologic Technologist's attitude may determine the outcome within the radiology department.

Since the descriptive level of knowledge is very high, it is recommended that radiologic technologists continue to participate in radiation protection training and seminars to increase their level of knowledge. Since the descriptive level of attitude is very high, it is also suggested that the radiologic technologist continue a good performance in reducing unwanted radiation exposure of patients and staff, and a good attitude in radiation protection practices to achieve efficiency of services in a safe work environment, and supervision in radiation protection equipment and devices. Since the descriptive level of adherence is very high, it is also suggested that the radiologic technologist

maintain good adherence and compliance in with a positive attitude to sustain the outcome of updating and implementing the policy and radiology. Conduct a needs analysis to continue protocols of radiation protection and continue to the excellent knowledge and attitude of the follow the safety guidelines of practice within radiologic technologist toward radiation the radiology department. Only attitude protection adherence. In the scope of Region XII, significantly predicted the adherence of the future researcher could study the entire radiologic technologists. Therefore, it is Mindanao, the entire nation, or the entire recommended that radiologic technologists Philippines towards the scope, or use another should continue and maintain excellent work design, as the findings are very high.

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MASTER OF ARTS IN NURSING

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Self-Concept, Interpersonal Relationship, and Anger Management of Staff Nurses in Selected Hospitals in Davao

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Abstract

The study aimed to determine the levels and relationship between self-concept, interpersonal relationship, and anger management among staff nurses in selected hospitals in Davao Region. Using the descriptive-correlational research design, the study was conducted among 173 staff nurses using the quota sampling method. The study used a standard questionnaire adopted from the studies of Woods (1998) and Stith et al. (2002), with Cronbach Alpha results of .88 and .85 respectively. The results revealed that the majority of the respondents were female staff nurses, ages 25-30 years old, and have 1-5 years length of service in the hospital. Also, the respondents showed a higher degree of freedom and warmth in caring for their patients but need to improve in making decisions in the context of nursing practice, including organizational structures, governance, rules, policies, and operations. Overall, staff nurses have modest self-concepts. Furthermore, results showed that the respondents have a high level of interpersonal relationships with an emphasis on comfort with others. They have a moderate level of anger management particularly on negative attribution. Moreover, the staff nurses' self-concept and interpersonal relationships were significantly related to their level of anger management. This relationship is positive, suggesting that when the self-concept and interpersonal relationships of staff nurses are enhanced, their anger management also improves.

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Introduction

Nowadays, the medical environment has become more competitive in terms of satisfying various patient desires and providing better service (Hageela, 2018). This highly competitive environment leads to stress; repetitive and ongoing stress can lead to rage or intense anger. Anger is defined as a natural emotion that activates a self-protection mechanism in a stressful situation (Abbureah, 2017). Extreme stress or uncontrollable anger can harm physical health, which can lead to difficulties such as inadequate life, self-concept, interpersonal issues, and depression. Bhutto (2019) claims that when it comes to interpersonal issues, nurses have the most difficulty managing anger. According to Churra (2017), nurses with suppression-type anger control have more interpersonal and self-concept problems overall,

particularly avoidant-type interpersonal problems such as egocentricity, non-assertiveness, avoidance, and coldness. This situation may result in low job satisfaction, difficulties achieving organizational commitment, and a higher prevalence of depression, fatigue, and perceived stress in angry people (Abella, 2019).

Liunee (2018) discovered that the level of anger varies with culture in the United States of America (USA). In older adults, self-concept and interpersonal relationships were positively correlated. Consistent with previous research, anger was linked to poor physical health and depression (Quinn, 2019).

Moreover, previous research in Saudi Arabia has shown that varying workloads, interruptions, and distractions are common occurrences in the nursing profession and have a significant impact on nursing performance, self-management, and concept (Cox-Fuenzalida, 2017; Spence et al., 2017; Hauck, 2018). In a study conducted by Haraman (2018) in Manila, Philippines, it was discovered that girls had lower positive emotions and significantly had a higher trait of anger than boys.

For over a century, scholars from various disciplines have been concerned with global self-concept and domain-specific professional self-concept (James, 2019). Before reviewing studies on professional self-concept, it is important to examine its relationship with a person's global self-concept and its existence as something that can be measured to provide a new look at what has gone before and developments in this area to provide new insight.

Interpersonal support assists people in coping with life changes or difficulties by meeting their situational needs (Xu & Burleson, 2017). According to Goldsmith's (2019) research, a variety of factors causing stressful situations influence the influence of social support. Individuals, for example, prefer different types of social support depending on their needs in various situations. Offerings of love, friendship, trust, and reassurance are associated with resilience (Wilks& Spivey, 2017). Although

interpersonal support from family members is effective in times of workplace crisis, interpersonal support from friends is also beneficial when the problematic issues involve the employees' well-being (Antonucci, 2018).

Individual anger management has significant social and interpersonal consequences. According to Rime (2017), many prominent previous studies have demonstrated that anger issue episodes typically result in long-term mental and social consequences and effects. According to Bach and Wyden (2019), angry feelings are unavoidable in a relationship, and expressing them is essential for intimacy.

Most of these studies have used qualitative methods and experimental approaches, revealing a positive and straightforward relationship between self-concept and anger management (Hayat et al., 2020). A person's anger expression style is influenced by both education and social context. Expression of feelings is generally accepted in an individualistic society that values individual independence and autonomy. In contrast, anger expression is considered inappropriate in a collectivist society, which emphasizes values such as harmonious relationships and group cohesion. As a result, members of society tend to suppress their feelings as they adjust according to the demands of individualist or collectivist societies. Inappropriate anger expression, on the other hand, harms self-concept and interpersonal relationships with others.

Consequently, appropriate anger management is required to maintain physical and psychological health. Additionally, appropriate anger expression techniques are essential for interpersonal relationship adjustment as well as social adaptation and development. Hence, it is necessary to analyze anger expression styles by categorizing them into naturally occurring subgroups that can better account for everyone's characteristics. Thus, this research aims to identify the self-concept, interpersonal relationships, and anger management of staff nurses in the Davao Region. The findings of this study may help and may be used as the foundation for developing anger management programs for nurses in the future.

Methods

The study was conducted among the selected hospitals in Davao Region. Davao Region is an administrative region in the Philippines, designated as Region XI.

A quantitative descriptive-correlational research design was used for this study. According to Shuttleworth (2014), this method investigated the relationship between two (or more) variables. Fernandez (2014) also stated that correlational research is also known as associational research. Relationships between two or more variables were studied without any attempt to influence them. Descriptive and correlational studies looked at variables in their natural settings and did not include treatments imposed by the researcher (Simon, 2018).

The total number of respondents was 173 out of the total population of 311 staff nurses from selected hospitals in Davao Region, particularly in Davao City and Tagum City. The quota sampling technique was used to select respondents for this study. Raosoft calculator was used to calculate the number of samples. This was a non-probability sampling method that relied on a predetermined number or proportion of units being chosen at random. This was known as a quota. One divided the population into mutually exclusive subgroups (called strata) and then recruited sample units until the quota was met.

The study employed questionnaires adopted from different studies. The first section of the instrument is about the demographic profile of the respondents which was measured in terms of age, sex, and length of service. The second section of the instrument is the self-concept adapted from Woods (1998) indicated challenge, freedom, respect, warmth, control, and success. The reliability of the original scale obtained a Cronbach's alpha value of 0.88. The instrument is composed of 39 statements. Furthermore, the third part of the instrument concerns about interpersonal relationships of staff nurses adapted from Stith et al. (2002). This questionnaire had a total of 38 statements divided into trust, self-disclosure, genuineness, empathy, comfort, and communication. The reliability of the original scale obtained a Cronbach's alpha value of 0.85. On the other hand, the questionnaire on anger management is adopted from the study of Shrand and Devine (2013). This is measured in terms of *escalating strategies, calming strategies, negative attribution, and self-awareness*. The instrument is composed of 40 statements.

Results and Discussion

Table 1. Profile of the Respondents

	Frequency	Percentage
Age		
25 – 30	**80**	**46%**
31 – 35	**53**	**31%**
36 – 40	**33**	**19%**
41 – 45	**7**	**4%**
Total	**173**	**100%**
Sex		
Male	**72**	**42%**

	Frequency	Percentage
Female	<u>**101**</u>	<u>**58%**</u>
Total	**173**	**100%**
Length of Service		
1 – 5	**121**	**70%**
5 – 10	**39**	**22%**
11 – 15	**12**	**7%**
16 – 20	<u>**1**</u>	<u>**1%**</u>
Total	**173**	**100%**

Table 1 shows the demographic profile of the respondents. Out of 173 staff nurses, 80 or 46% of the population has an age range of 25-30 years old, however, only 7 or 4% of the staff nurses have an age range of 41-45 years old. Also, the results indicate that 101, or 58% of the staff nurses are female, and 72, or 42% of them are male. In terms of the length of service, 121 or 70% of the population renders 1-5 years; 39, or 22% of them are within 5-10 years in their job; 12, or 7% of them renders 11-15 years of service, and only 1 or 1% staff nurse renders 16-20 years of service in the workplace.

Table 2. Level of Self Concept of Staff Nurses

Indicators	**Mean**	**Sd**	**Description**
Challenge	3.37	0.73	Moderate
Freedom	3.69	0.43	High
Respect	3.13	0.67	Moderate
Warmth	3.78	0.44	High
Control	3.13	0.67	Moderate
Success	3.14	0.66	Moderate
OVERALL MEAN	**3.37**	**0.45**	**MODERATE**

Legend: 5.00 - 4.21 – Very High; 4.20 – 3.41 – High; 3.40 - 2.61 – Moderate; 2.60 - 1.81 – Low; 1.80 - 1.00 – Very Low SD; Standard Deviation

The table shows that staff nurses convey a high level of warmth to their patients, with a mean of 3.78. On the other hand, they need to improve on the aspect of control (M=3.13). These suggest that staff nurses display the best way of offering themselves to care for their patients but need more authority and freedom to make decisions in the context of nursing practice, including organizational structures, governance, rules, policies, and operations. Overall, the staff nurses have a moderate self-concept, which implies that they have an average image of themselves. Nurses' self-perception is important because it affects their motivations, attitudes, and behaviors toward their patients

This implies that staff nurses communicate effectively with patients, establish physical contact and a positive relationship, and allow them to assess themselves and demonstrate their human side. The family's strong sense of belonging has positively reflected motivation, participation, and ability to relate to their environment. Self-efficacy has also been studied because competence senses that a person has when dealing with problems. When experienced to a high degree, all protective factors investigated produced positive results. The extent to which an individual feels accepted, included, and respected in their environment is defined as a family sense of belonging (Goodenow, 2019). Acceptance

reflects a sense of belonging, which in turn influences aspects of a learner's behavior (Osterman, 2017). According to Goodenow (2018), employees who have a strong sense of belonging are more likely to be resilient because they believe they have the resources to overcome challenges.

Conversely, the indicators that received the lowest mean of 3.13 with a standard deviation of 0.67 and a descriptive level of moderate are respect and control. This implies that nurses learn about their patient's interests, respect their patient's privacy, and

address their patients' health-related needs. Furthermore, nurses are emphasized for spelling out the rules and expectations of the patients, involving patients in the setting of rules, maintaining consistent enforcement, and motivating patients well. Baumeister and Leary (2016) reconciled this by hypothesizing that social support is a need rather than a want, and thus a lack of belongingness may have pathological consequences. As previously stated, the school environment is possibly the most important context in which the employee strives for a sense of belonging (Berk, 2017).

Table 3. Level of Interpersonal Relationship among Staff Nurses

	Mean	Sd	Descriptive
Trust	3.41	0.70	High
Self Disclosure	3.76	0.54	High
Genuineness	3.48	0.77	High
Empathy	3.50	0.72	High
Comfort	3.86	0.40	High
Communication	3.51	0.65	High
OVERALL MEAN	**3.59**	**0.59**	**HIGH**

Legend: 5.00 - 4.21 – Very High; 4.20 – 3.41 – High; 3.40 - 2.61 – Moderate; 2.60 - 1.81 – Low; 1.80 - 1.00 – Very Low SD

The table above shows the level of interpersonal relationships among staff nurses. As reflected in the tabulated data, the overall mean is 3.59, with a standard deviation of 0.59 and a descriptive level of high. The findings imply that nurses highly establish positive relationships with their peers. They also have an ongoing, positive rapport which can have a far-reaching impact and can lead to effective patient care as well as team-building in nursing departments. This is supported by a study conducted by Xu and Burleson (2017), who stated that interpersonal support assists individuals in coping with life changes or difficulties by meeting their situational needs. According to Goldsmith

(2019), a variety of factors causing stressful situations influence the influence of social support. Individuals, for example, prefer different types of social support depending on their needs in various situations.

The indicator with the highest mean is comfort with 3.86, and standard deviation of 0.40, and a descriptive level of high. This implies that staff nurses seek the attention of their coworkers when they are having problems, would like their coworkers to be with them when they are lonely, and are satisfied with their family relationships. On the other hand, the indicator with the lowest mean is trust, with

a mean of 3.41, a standard deviation of 0.70, and a verbal description of high. Such a result implies that

their coworkers cannot always be trusted and that their coworkers tell lies if they benefit from i

Table 4. Level of Anger Management of Staff Nurses

		Mean	Sd	Descriptive
Escalating Strategies	Category Mean	3.40	0.70	Moderate
Negative attribution	Category Mean	3.52	0.51	Moderate
Self Awareness	Category Mean	3.29	0.77	Moderate
Calming Strategies	Category Mean	3.29	0.77	Moderate
Over All Mean		3.37	0.67	Moderate

Legend: 5.00 - 4.21 – Very High; 4.20 – 3.41 – High; 3.40 - 2.61 – Moderate; 2.60 - 1.81 – Low; 1.80 – 1.00 – Very Low

Table 4 shows the level of anger management among staff nurses in terms of escalating strategies, negative attribution, self-awareness, and calming strategies. The overall mean is 3.37, with a standard deviation of 0.67 and a descriptive level of moderate. This implies that the nurses occasionally reduce their emotional feelings as well as the physiological arousal caused by anger. Similarly, Tian (2019) discovered that personnel should be able to remain calm and not easily become angry towards their coworkers, as well as become responsible and aware of the behavior that they displayed towards their coworkers regardless of how angry they are. Tian also proposed that an individual's general perception of life, moods, and dispositional characteristics may all play a role in anger management. The concept of affectivity is related to anger management. A zest for life, pleasurable engagement, excitement, social activity, and extraversion are all signs of high positive affectivity, whereas low positive affectivity is characterized by feelings of sluggishness, drowsiness, fatigue, lethargy, and sometimes loneliness (Yung, 2018). People with high positive affectivity report more pleasant events, whereas those with low positive affectivity are less likely to report positive feelings (Watson et al, 2018).

Among the indicators, negative attribution receives the highest mean of 3.52 with a standard

deviation of 0.51 and a descriptive level of moderate. This implies that the nurses' coworkers enjoy making them angry, but they are nice to them and wonder what they want. Hughes (2018) discovered in his study that there are a large number of employees with high levels of anger mismanagement who remain in their positions, posing difficulties such as lower performance and negative attitudes toward other employees and their students. According to a recent study, most traffic officers report higher levels of stress, anger mismanagement, mental health difficulties, and emotional exhaustion (Yang et al, 2017).

Moreover, the indicators with the lowest mean are 3.29 stating self-awareness and calming strategies. Their standard deviations are 0.77, with a descriptive level of moderate, which implies that nurses stake time out to control their anger at their workmates, and they often think of something pleasant to keep from thinking about their anger at their workmates. This is consistent with the findings of Demerouti, Bakker, Nachreiner, and Schaufeli (2017), who discovered that people who are in good psychological health and have a positive outlook on

life tend to act consciously rather than react passively.

Table 5. The Relationship between Self Concept and Anger Management, and Interpersonal Relationship and Anger Management among Staff Nurses

Anger Management	r Value	p Value	Decision	Remarks
Self Concept	0.909	0.000	Reject	Significant
Interpersonal Relationship	0.490	0.000	Reject	Significant

Note: $p < 0.05$

Table 5 shows the relationship between self-concept and anger management, as well as interpersonal relationships and anger management. The results show that there is a significant positive relationship between self-concept and anger management with a p-value of .000 and an r-coefficient of .909. Specifically, the strength of the correlation between the two variables is moderate and directly proportional, which suggests that an increase in self-concept is correlated with an increase in anger management. This finding is consistent with the findings of Biaggio (2018), who investigated the effect of self-concept on anger arousal. Biaggio discovered that low self-concept subjects scored significantly lower on anger arousal as measured by the California Psychological Given the previous findings, it was predicted that a direct relationship would exist between self-concept and the expression of anger. High-arousal subjects also scored lower on self-acceptance than medium-arousal subjects, but not significantly so. This relationship is investigated in the study across several dimensions, including self-concept level, anger awareness, anger expression, and gender.

Similarly, the table above also shows that there is a significant positive relationship between interpersonal relationships and anger management with a p-value of .000 and an r-coefficient of .490. The strength of the correlation is moderate and directly proportional. This implies that an improvement in interpersonal relationships is also associated with an improvement in anger management. Such findings contradict Sulan's (2017) study, which found that people with interpersonal problems had the least amount of anger-control style. Individuals in the suppressive anger-control group, on the other hand, had more interpersonal problems than those in the other groups (Lahin, 2017).

Table 6. The Significant Influence of Self Concept and Interpersonal Relationship on Anger Management of Staff Nurses

Anger Management	Standard Error	Beta	T	Sig.	Remarks
Self Concept	0.057	0.909	23.999	0.000	Significant
Interpersonal Relationship	0.043	0.001	0.031	0.976	Significant

Note: B = .909, p <0.05 B = .001.131, p >0.05 Interpersonal Relationship (B = .001.131, p >0.05; (B = .001.131, p >0.05. p-value of .976

The table above presents the results of the regression analysis, which shows the significant influence of anger management. Based on the tabulated data, the self-concept has a significant direct influence on the anger management of the respondents (B = .909, p <0.05). This means that the regression weight for self-concept in the influence of anger management is significantly different from zero at the 0.05 level (two-tailed). Therefore, for every unit increase in self-concept, there is a corresponding increase in anger management measures by .909. This suggests that self-concept can help with anger management. As a result, strong self-concept among staff nurses can improve their anger management. This was supported by Foster and Lomas' (2018) study, which stated that anger is a somatic response to the perception of oneself as helpless in achieving a goal with another person. While the latter definition is slightly more limited in its emphasis on interpersonal components, both acknowledge the role of self-concept as a primary causal factor in the etiology of anger. Burns (2019),

on the other hand, identified a primary source of self-concept as an individual's perception of himself in comparison to his "ideal self-image."

Likewise, interpersonal relationships have no significant direct influence on the anger management of the respondents (B = .001.131, p >0.05. This means that at the 0.05 level, the regression weight for interpersonal relationships in the prediction of anger management is not significantly different from zero (two-tailed). With a p-value of .976, interpersonal relationships do not significantly influence respondents' anger management. This contradicted Rime's (2017) findings, which stated that beneficial individual anger management has significant social and interpersonal consequences. This asserts that numerous prominent previous studies have demonstrated over time that anger issue episodes usually result in long-term mental and social consequences and effects.

Conclusion and Recommendations

Based on the results presented, most of the respondents were female and millennial staff nurses, and they are working for 1-5 years in the hospital. Respondents stated that they are not well informed about their roles, values, and behaviors, and as a result, they are less likely to positively influence patient healthcare.

The staff nurses developed strong positive relationships with their colleagues and maintain an ongoing and positive rapport, which can have a far-reaching impact and lead to effective patient care.

The respondents stated that they are sometimes unable to remain calm and easily become angry towards their coworkers, as well as becoming irresponsible and unaware of their behavior toward their coworkers. This implies that staff nurses communicate well with the patients, establish physical contact and good relationship, allow them to

assess themselves on their own, and show their human side. Furthermore, there is a significant positive relationship between self-concept and anger management, as well as interpersonal relationships and anger management. On the other hand, Self-concept significantly influences anger management. However, interpersonal relationship does not have a significant direct influence on anger management.

On the findings that were gathered, the following recommendations were offered for consideration. For the patients, based on the results of the study, the levels of self-concept and anger management of staff nurses are moderate thus patients are recommended to keep calm and empathize to express their concerns to be able to maintain and stabilize the situation between a nurse and the patient. For the staff nurses, since it has been shown that self-concept can influence anger management and that respect and control gained the lowest mean, nurses should be involved in

decisions relating to their care, and social activities have to be promoted by the hospital management for the nurses to be thoroughly engaged. Although the overall outcome of interpersonal relationships was positive, however, trust gained the lowest mean among other indicators. Thus, it is suggested that they should provide activities for nurses to be more compassionate, spend appropriate time with patients, demonstrate active listening, and help to advise and resolve the patient's problems which will all contribute to building a trusting, respectful relationship. They should also foster therapeutic relationships with those they serve by taking the initiative to establish interactive programs for nurses as part of their regular workplace activities.

Additionally, with the results presented, where the levels of self-concept and anger management are moderate, to help one struggling with anger issues, anger management programs should be implemented. The administration should prioritize planned interventions for nurses' welfare, should assess patient safety while implementing interventions, delegate interventions as appropriate, and document interventions performed. The study would also aid in future research, in which according to the study's findings, interpersonal relationships have no significant direct influence on anger management. This information may assist them in obtaining more specific references and data on the subjects of the study, and they may provide similar studies aligned with the variables of the study, or research on other variables that may be relevant to the main variable. Moreover, they may conduct the study with a larger group of respondents or conduct a mixed-method study about this topic.

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In Caring for A Loved One: Lived Experiences of Minor Caregivers Of Dialysis Patients

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Abstract

Children need access to care that is comprehensive, coordinated, family-centered, and compassionate. This study aims to explore and identify the stressors and investigate the stress management and coping mechanisms of the children of dialysis patients in Cotabato City, as they are given less attention when the parents are experiencing chronic diseases in general. A descriptive-phenomenological research design was used to acquire an in-depth understanding of the experiences of twelve participants, consisting of six females and six males, who were all between thirteen to sixteen years old. The study found that minor caregivers who cared for their parents or loved ones experienced: Fierce storms, Turbulent water, Feeling Overwhelmed, and Walking on a Tightrope. The participants' means of coping with the challenges of their experience were capsulized in the themes: Setting the sail, Navigating through Storms, Anchoring in the Harbor, and Working with Crew. The insights that participants shared with other caregivers and the community, in general, were the themes: Grand voyage, Lighted light bulb, Maintaining the vessel, and passing the torch. It is difficult for minor caregivers to persevere and step up to the responsibility at a young age. The study highlights the need for comprehensive, coordinated, family-centered, and compassionate care for children of dialysis patients.

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Keywords: *Minor Caregiver, Health, Descriptive Qualitative Study, Cotabato City, Philippines*

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Introduction

Children must have access to thorough, well-resourced, compassionate, and family-centered care. Their evolving physical, emotional, and developmental needs must be the main focus of this care. However, as the child develops to function normally and effectively as an adult, these needs must be continuously met (Kyle & Carman, 2020). Children's health and well-being are known to be significantly influenced by their parents or guardians. Better outcomes for both parents and children are the result of caregiving that is family-centered. Moreover, Kyle and Carman (2020) found that dialysis had a significant social impact on children and families.

Kyle and Carman (2020) suggested that childhood adversities are associated with the stress response of children later in life. Psychological stress is already considered a public health issue in the USA. This raises concern regarding the studies on the psychological challenges of children in the Philippines. As of today, children-focused studies

have been given less concern when it comes to the subject of family health, in this regard, of dialysis patients. Moreover, a study in United Kindom by Carer's Trust (2020) highlights that young carers are twice as likely to experience mental health problems, such as anxiety and depression, and are more likely to have lower educational attainment compared to their peers. findings from surveys and research on young carers and their families, and highlights the challenges and difficulties faced by young carers, including a lack of support, social isolation, and negative impacts on their physical and emotional health. In addition, the study conducted by Shen and there was an effort by the National Mental Health Program in the mid-1990s with the goal is to integrate mental health services in the community setting (Kyle & Carman, 2020).

Additionally, a study by Hara (2018) explored the experiences of young female caregivers in the Philippines and the extent of their caregiver burden and revealed that young female caregivers experience a significant amount of physical, emotional, and financial burden in caring for their ill family members, which affects their well-being and daily lives where it concluded that the study emphasizes the need for interventions and support systems to address the caregiver burden experienced by young female caregivers in the Philippines, to improve their well-being and ability to provide care.

Deprived of the primary requirements essential for the development of children has detrimental reported impacts. A review of the literature by Oja et al. (2018) suggested that children with ill parents are prone to psychiatric disorders, which could lead to moderate levels of anxiety or depression. These findings have yet to be explored in the country. The patient care system for dialysis patients in the country focuses only on the patient and overlooked the impact of inclusive treatment on the aspect of family, particularly children of dialysis patients. Studies from other countries have explored the impact of parental illness on children's well-being and the challenges they face as caregivers in

other countries, there is still a need for research that is specific to the Filipino context. Specifically, there is a need for research that examines the unique cultural, social, and economic factors that shape the experiences of children as caregivers in the Philippines. This study will be the first to conduct an in-depth assessment of the health status of children with their parents on dialysis in Cotabato City. The study adheres to the Philosophy of pediatric nursing, as it is stated that children should be given their needs access to family-centered and compassionate care. Furthermore, this study will investigate the effect on the children of dialysis patients, identify the stressors on the children during the treatment process, and how they manage stress and cope with or without their parents. Furthermore, this study may also serve as an intervention to improve the dialysis patient care system in the locality of Cotabato City.

Methods

This research study was conducted in Cotabato City, an independent city grouped with the province of Maguindanao with an estimated population of 325,079 (DOH Region 12, 2021.).
The study used purposive sampling to select participants based on the objectives of the research. The researcher evaluated each dialysis center in Cotabato City for dialysis patients who have children before the sampling period. The survey questionnaires were semi-structured and divided into two parts. The first part of the questionnaire pertains to the respondent's demographic profile. This includes name, age, and sex. The second part of the questionnaire contained questions that sought about their experiences in caregiving.

The study incorporated Thematic analysis to code and group categories of the formulated metaphors and their associated statement. Participants' views, behaviors, and honesty were analyzed concerning their responses. Data were generated as codes and were combined to determine

the broader idea and organized, and identified significant narratives observed among participants.

Results and Discussion

Table 1. Participants' profile

Code Name	Age in Years	Sex	Study Group
Participant 1	16	Female	FGD
Participant 2	15	Male	FGD
Participant 3	15	Male	FGD
Participant 4	14	Male	FGD
Participant 5	16	Female	FGD
Participant 6	15	Female	IDI
Participant 7	16	Female	IDI
Participant 8	14	Male	IDI
Participant 9	15	Female	IDI
Participant 10	13	Female	IDI
Participant 11	14	Male	IDI
Participant 12	16	Male	IDI

Focus group discussion (FGD), In-depth interview (IDI).

A total of twelve participants were interviewed, and their experiences as minor caregivers were analyzed. The thematic analysis revealed key themes that emerged from the coded statements. A total of five participants for the FGD, and seven for the IDI. Participants and their parents were fully informed of their rights and given the option to withdraw from the study at any time. Strict adherence to minimum health protocols ensured the safety of everyone involved during the interviews.

The collected data in this study, obtained through in-depth interviews and focus group discussions, underwent transcription and analysis using thematic analysis. Statements specifically related to the experience of being a caregiver to a dialysis patient were identified, coded, and organized into similar categories. Among these statements, those considered significant for the study were associated with formulated meanings.

Table 2. Sample of Significant statements and Formulated meanings

Significant Statements	Formulated Meanings
1. *"When I found out that my father was going to undergo dialysis treatment, I was scared and sad because we knew that he would be treated with dialysis for the rest of his life and I was not sure if he would recover from his illness. But we do not lose hope."*	Fear of the unknown Hopefulness
2. *"When my mother became toxic during dialysis, I didn't know what to do, but the nurses and doctors were there to help my mother."*	Confusion and Hopefulness
3. *"It's hard especially since I don't know about dialysis. About the consequences. The advantage and disadvantage that it may bring to us."*	Absence of Knowledge
4. *"What I had in my mind at first was that dialysis would only be done once, but I was wrong it would be for life. I was very sad because I was worried too much because my father is the only one who supports us because my mother doesn't have a job, she just stays at home."*	Lack of Financial Support Financial worry
5. *"Different. Very different. At this age, I should be enjoying my teenage years just like others however, because of this situation I wasn't able to do that. I'm not saying it's a burden however, it limits my actions."*	Social Cost of Caregiving
6. *"It had a big impact on me, especially in my studies, because since my father got sick, I took care of him. I stopped studying when he started dialysis because we don't have the budget and we could not afford the school fees and his medicine. By the grace of Allah, I was able to study again because of my aunt, but sometimes I couldn't go to school because no one could watch him every time he had dialysis."*	Balancing Caregiving and Academic Responsibilities
7. *"The experience will help you shape and mature in any way possible thus, gives you satisfaction that you know at that age you can be a soldier in real life."*	Personal Growth through Difficult Challenges
8. *"At first I blame God for what I am suffering from and my loved ones But then I realize why God tested us. Especially to us as a Muslim, we believed that Allah tested us or Allah tested those He loves."*	Faith in the Face of Adversity
9. *"My grandmother support my father, she never abandoned my father, and if it wasn't her my father wouldn't be able to get dialysis because we don't have money."*	Impact of Familial Support
10. *"As a teenager the lesson that I learned and continue learning from my experience is that there's no age for becoming responsible for anyone, anybody can be responsible enough of taking care of a family member who is severely sick. I am happy and proud that at a young age, I can help by taking care of my mother's health."*	Life Lessons Learned

Significant Statements	Formulated Meanings
11. *"As of now, I learned that nothing is more important than health. Just like what saying said that health is wealth which is indeed true. So do take good care of your health."*	Importance of Self-Care
12. *"The only thing I can suggest to them who's doing caregiving as I am is that never become lazy towards taking care of your loved ones who are suffering from acute diseases and never become tired. Padayon lang! Life is beautiful despite all challenges that the world is throwing us. And always remember that you're alone There is us."*	Being Prepared and Taking Responsibility for Personal Growth and Well-being

Presented in table 2 provides examples of these significant statements and their corresponding formulated meanings. In total, twelve significant statements were collected and incorporated into the thematic analysis. The analysis provided valuable insights into the challenges, coping strategies, and overall dynamics of this caregiving role. The findings from these significant statements contribute to a deeper understanding of the caregivers' experiences and enrich the knowledge surrounding caregiver-patient interactions in the context of dialysis treatment.

Table 3. Formulated meanings and Cluster themes

Formulated Meanings	Cluster Themes
1. Fear of the unknown	1. Internal struggle **(Turbulent storm)** 2. This internal struggle on the difficulties and obstacles that minor caregivers face when accepting it and providing care to their loved ones, as well as the strength and perseverance required to overcome them.
2. Hopefulness	
3. Mental and Physical Exhaustion	
4. Absence of Knowledge	3. Insufficiency Struggles (**Feeling overwhelmed**) 4. This insufficiency struggles of minor caregivers in providing care to their loved ones undergoing dialysis and the lack of knowledge and financial support of minor caregiving dialysis patients is a significant issue that needs to be addressed.
5. Lack of Financial Support	
6. Financial worry	

Formulated Meanings	Cluster Themes
7. Social Cost of Caregiving	5. External Struggle (**Walking on a Tightrope**) 6. This external struggle highlights the impact that caregiving can have on society as a whole, including the financial, emotional, and physical costs associated with providing care. This also explores the challenge of juggling the demands of caregiving with the pursuit of academic goals and caregiving responsibilities.
8. Balancing Caregiving and Academic Responsibilities	
9. Personal Growth through Difficult Challenges	7. Coping through learning experiences (**Navigating through Storms**)
10. Faith in the Face of Adversity	8. Coping through faith and belief (**Anchoring in the Harbor**)
11. Impact of Familial Support	9. Coping through familial support (**Working with Crew**)
12. Life Lessons Learned	10. Learnings from the Experience (**Lighted light bulb**)
13. Importance of Self-Care	11. Taking Good Care of One Self (**Maintaining the Vessel**)
14. Being Prepared and Taking Responsibility for Well-being	12. Insights to share with the general public (**Passing a Torch**)

A total of fourteen formulated meanings were generated with their associated metaphors and codes shown in Table 3. The thematic analysis revolved around the challenges that minor caregivers face while taking care of their loved ones undergoing dialysis. The challenges are categorized into four areas, namely finance, psychology, physical health, and social well-being. The unexpected costs associated with caregiving, such as transport, special dietary requirements, and unexpected time off from work, were found to be a significant burden for minor caregivers. The psychological impact of caring for a loved one with a chronic illness, such as fear, grief, worry, stress, and anxiety, was also found to be challenging. As supported by Ong et al. (2018), the strategies involved in the coping mechanism are to identify possible sources of stressors.

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│       IN CARING FOR A LOVED ONE: LIVED EXPERIENCES OF │
│         MINOR CAREGIVERS OF DIALYSIS PATIENTS"        │
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| Disruptive Storm | Setting the Sails | A Grand Voyage |

- Turbulent water
- Feeling Overwhelmed
- Walking on a Tightrope

- Navigating through Storms
- Anchoring in the Harbor
- Working with Crew

- Lighted Light Bulb
- Maintaining the Vessel
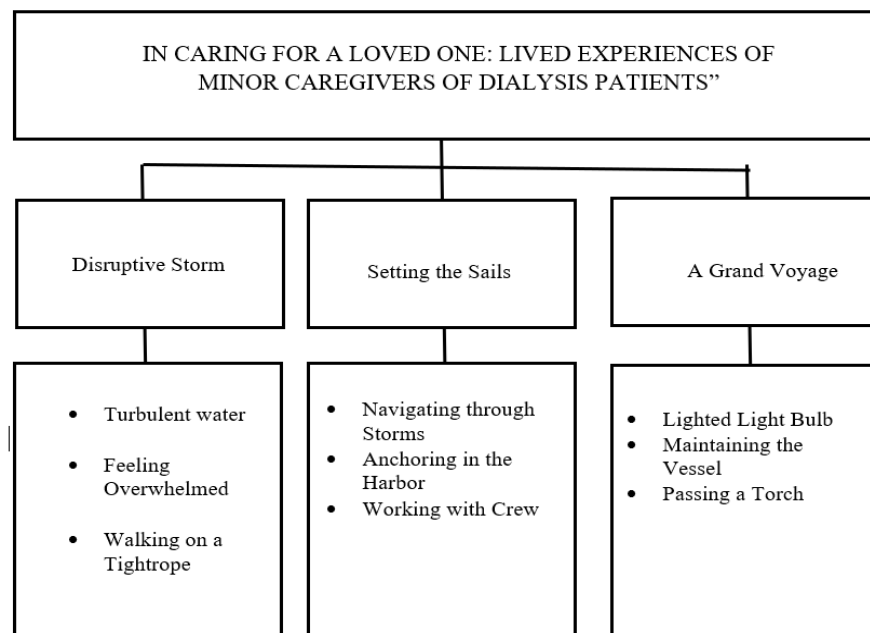- Passing a Torch

Figure 1. Thematic map

Shown in Figure 1 are the cluster themes and emerging themes from the Analysis of the transcribed data. These emergent themes were identified as: *"Fierce Storm that Threatens to Sink the Ship of Life," "Setting Sails Towards Valuable Horizons," and "Setting Sail on A Grand Voyage."* Collectively, these three emergent themes shed light on the overall essence of the lived experiences of minor caregivers who care for their loved ones undergoing dialysis.

The analysis and identification of these emergent themes offer a comprehensive understanding of the challenges, aspirations, and transformative journeys experienced by minor caregivers in their caregiving roles. This observation is consistent with Lepore & Revenson (2016) where struggles refer to a challenging life situation or experience that an individual faces, which can have negative effects on their physical and mental well-being, social relationships, and overall life satisfaction. Minor caregivers experienced physical strain due to the demands of providing care, such as helping with mobility, medication administration, and monitoring dialysis treatment (Pai et al., 2017).

Emergent Theme: Fierce Storm that Threatens to Sink the Ship of Life

One cluster theme that emerges is the metaphorical turbulent storm that rages within minor caregivers. This represents their internal struggles,

Turbulent water

The study from the University of East Anglia (2019) says that caring for a family member or friend with a chronic illness, disability, mental health condition, or substance misuse issue can be emotionally challenging, and minor caregivers may experience high levels of stress, anxiety, and depression and can lead to mental exhaustion which can impact their ability to cope with their caregiving responsibilities and to maintain their mental health.

Feeling Overwhelmed

Caring for dialysis patients poses challenges that require specific skills and knowledge, particularly for minor caregivers. Children or teenagers assisting in the care of a parent or grandparent on dialysis may lack essential knowledge and require additional support. Concerns arise in areas such as comprehending the physical and emotional demands of caring for a dialysis patient. Minor caregivers have difficulty grasping the significance of adhering to dietary restrictions or medication schedules and may struggle to provide sufficient emotional support. Additionally, they may lack understanding regarding potential risks associated with dialysis treatment, including recognizing signs of infection or other complications and responding appropriately in emergencies.

including intense emotions such as sadness, anger, fear, and frustration. These emotions can be overwhelming but can be managed through mindfulness and self-compassion. By acknowledging and processing these emotions, caregivers can grow stronger, gaining wisdom, compassion, and inner strength.

Moreover, minor caregivers experienced a lack of self-care due to their caregiving responsibilities.

Minor caregivers may prioritize the needs of their loved ones over their own needs, which can lead to a lack of self-care and self-neglect (Barron, 2016).

Dialysis patients and their minor caregivers need to communicate openly and honestly about their needs and concerns. Patients should not hesitate to ask for help when they need it, and caregivers should feel comfortable expressing their own support needs.

Walking on a Tightrope

Balancing the external struggles of minor caregivers is akin to walking on a tightrope in a sailing ship, where even the slightest misstep can derail them from their course. It involves skillfully navigating the numerous demands and obligations in their lives, from work and family responsibilities to personal goals and self-care. Striking this delicate balance is an act of resilience and self-mastery, allowing them to navigate life's challenges while honoring their priorities and well-being.

Studies such as Musick & Wilson (2016), the National Alliance for Caregiving, and the American Association of Retired Persons (AARP) (2016) emphasize the importance of time management in balancing caregiving responsibilities with other obligations. Effective time management techniques, such as creating to-do lists, setting

priorities, and breaking tasks into manageable chunks, can help caregivers reduce stress and increase life satisfaction.

Emergent Theme: Setting the Sails

Nurturing the growth and development of minor caregivers is just like a sailing ship that sets sail towards new horizons, personal growth and development involve taking risks and embarking on new journeys towards uncharted territories. It requires leaving their comfort zone and exploring new possibilities. In this metaphor, the minor caregiver is the captain of the ship, and the seed of self-evolution is the vessel that carries them toward their destination of self-discovery and personal transformation.

Like a sailing ship, the journey of self-evolution can be challenging and unpredictable, with unforeseen obstacles and changing conditions. However, just as a skilled captain navigates through storms and rough waters, the individual can learn to adapt and overcome challenges on their journey towards personal growth. One important skill that young caregivers can develop is time management. Caregiving requires a significant amount of time and energy, and balancing caregiving responsibilities with school, work, and other activities can be challenging. they become more organized and efficient in all areas of their lives.

Navigating through storms

Minor caregivers of family members undergoing dialysis can be compared to sailing ships navigating through storms. The journey of caregiving involves facing challenges and obstacles, requiring perseverance and resilience to stay on course. Despite the difficulties, caregiving can foster personal growth and development, enhancing resilience and coping skills. This research indicates that caregiving can increase maturity, self-esteem, and a sense of purpose in young caregivers consistent with the findings of Pinquart & Sorensen (2017) where caregiving can have positive effects on the emotional and psychological well-being of young caregivers. The study revealed that caregiving can improve self-esteem, increase feelings of competence and mastery, and enhance social relationships and support. It can also improve emotional well-being, self-esteem, and social relationships.

Anchoring in the harbor

Faith in God provides solace and comfort for minor caregivers facing the challenges of caring for a loved one undergoing dialysis. Similar to a sailing ship seeking refuge in a safe harbor, faith involves finding comfort in God's love during times of difficulty and uncertainty. It requires trusting in God's guidance and surrendering control to His plans. This faith empowers caregivers to navigate through rough waters, staying steadfast in their beliefs and values. Studies show that faith and religious coping can have a positive impact on caregivers' well-being, reducing stress, depression, and anxiety while increasing life satisfaction and resilience. Consistent with the finding of Weathers et al. (2016) where Spirituality also serves as a source of resilience, promoting better emotional and psychological outcomes for caregivers.

Working with crew

The support of family is crucial for minor caregivers as they endure sacrifices to care for their loved ones undergoing dialysis. Like a sailing ship that relies on all hands on deck, family support involves working together as a team to face challenges and provide stability. It offers direction, purpose, and a sense of belonging during uncertain times. With family support, minor caregivers

experience positive outcomes, such as improved well-being and personal growth. These findings are supported by Hughes et al. (2016) that family support buffers the negative effects of caregiving stress, leading to lower levels of depression and anxiety, and higher life satisfaction. It also fosters the development of essential life skills and promotes a sense of responsibility and independence in young caregivers.

Emergent Theme: A Grand voyage

Lighted light bulb

The insights gained by minor caregivers of family members undergoing dialysis are like embarking on a grand adventure, filled with growth and connection. It involves stepping out of their comfort zone, sharing unique perspectives, and bridging gaps to create unity. By sharing their experiences, minor caregivers can offer valuable advice to other young caregivers, helping them cope with the challenges of caregiving. Sharing insights among caregivers fosters a sense of support and lessens feelings of isolation, consistent with the findings of Thompson & Sobralske (2019) which states the importance of sharing experiences and insights among young caregivers, as it helps them feel less isolated and more supported. Realizations experienced by minor caregivers are compared to a light bulb turning on, illuminating their understanding and inspiring continued learning and growth. Caregiving teaches important skills such as effective communication, organization, and self-care.

Realizations experienced by minor caregivers can be compared to a light bulb turning on, bringing new insights and understanding. These realizations can be overwhelming or subtle, but they shape their lives and inspire growth. Caregivers of dialysis patients learn valuable knowledge and skills, such as managing medical care, effective communication, and problem-solving. They also learn the importance of self-care and resilience in managing the demands of caregiving. Recognizing the contributions of minor caregivers and supporting them is crucial.

These findings are also emphasized in the study of K. E., & Lachs, M. S. (2016) also emphasized the importance of providing support and resources for adolescent caregivers, as they are a vulnerable population at risk of academic and social challenges, suggesting that sharing insights and experiences among adolescent caregivers can help them feel less isolated and more supported.

Maintaining the vessel

Self-care is crucial for maintaining overall health and well-being. It involves intentional practices to promote physical, emotional, and mental well-being. Neglecting self-care can have negative consequences, so it's important to understand its significance. Self-care benefits include improved physical health through activities like exercise and a healthy diet as found in the study by Chen et al.

Passing a torch

Sharing the experience was likened to passing a torch from one crew to another during the voyage, igniting the flame of inspiration and passing it on to others. It was a way of connecting with other minor caregivers who shared the same situation, sharing joys, sorrows, triumphs, and failures, and forging deeper connections and understanding. It could result from a shared passion, mutual interest, or common goal, bringing them together in pursuit of

Conclusions and Recommendation

The study explored the lived experiences of children caring for their sick family members undergoing dialysis. Through in-depth interviews and focus group discussions, the study uncovered significant themes related to the challenges, growth, and resilience of minor caregivers. The findings

(2019). It also has positive effects on emotional and mental well-being, reducing stress, anxiety, and depression. Additionally, self-care enhances relationships by enabling better communication and setting boundaries. Practicing self-care is essential for a balanced and fulfilling life, which is supported by Cramer et al. (2016) stating that self-care was found to be positively associated with relationship satisfaction and stability.

something greater than themselves. At times, sharing the experience was humbling as they learned from others and gained new perspectives. Other times, it was exhilarating as they celebrated successes and reveled in achievements.

Minor caregivers of dialysis patients had a unique perspective on the challenges and rewards of caring for a loved one with a chronic illness. Through their experiences, they were able to provide valuable insights and advice to other young caregivers who were also facing similar challenges.

emphasized the need for healthcare providers to acknowledge and address the physical, emotional, and financial burdens faced by these young caregivers. Healthcare practitioners should prioritize the mental health of minor caregivers and provide resources and interventions to help them cope with their responsibilities. Seeking help from the local community health centers and officials could also improve the gathering of data.

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Compliance with Infection Control among Nurses Assigned in Isolation Wards in a Government Hospital in Cotabato City During COVID-19 Pandemic

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Abstract

Hospital Infection control is very essential for the safety and well-being of patients, hospital staff, and visitors to the hospital. It affects various Departments of the hospital. Using the descriptive design, this study was conducted on sixty staff nurses using the universal sampling technique. The study utilized a researcher-made questionnaire and WHO health protocol as a tool for the data gathering. The results showed that most of the nurses often complied with infection control specifically the personal protective equipment and hand hygiene. When it comes to donning and doffing most of the nurses complied it always. Overall, the results showed that nurses often complied with infection control during the COVID-19 pandemic.

Introduction

Infection control measures are important in the prevention and mitigation of COVID-19 spread within healthcare facilities. These practices are designed to reduce the risk of hospital-associated infections and to ensure a safe and healthy hospital environment for our patients, healthcare providers, and visitors (World Health Organization, 2021). Healthcare workers are susceptible to catching the 2019 coronavirus disease at work. For infection prevention and control, it is essential to use safe procedures when interacting with patients who have COVID-19 (Centers for Disease Control and Prevention, 2021).

Southeast Asia (SEA) was among the first regions to experience the scourge of the virus. Within nine months of its first reported case, SEA had recorded 11.3 million COVID-19 cases with a 3.3 case fatality rate (Chu, et al., 2022). An early report showed that the infection rate among HCWs globally was at 3.9 percent, but the actual number could have been much higher given that data on HCW infections in many countries were not readily available at that time. Even local studies have confirmed the high risk of exposure of HCWs to the disease (Villanueva et al., 2020).

The Philippines was the second country to report its first COVID-19 infection, which occurred on 22 January 2020 and which proceeded to infect three million of its population, 6.8 percent of which were still noted to be active cases by the end of 2021 (DOH, 2021). In a retrospective analysis based on admitted COVID-19 individuals in a referral hospital in metropolitan Manila, infected health workers accounted for 26.6 percent of these patients (Agrupis et al., 2021). By the end of 2021, the Philippine Department of Health (DOH) had recorded a total of 28,744 health workers who had tested positive for COVID-19, with the percentage of those who had recovered, died, or were still in a critical condition at 99.3 percent (28,539), 0.4 percent (115), and 3.2 percent (372), respectively (DOH, 2021).

The Department of Health (2022), Center for Health Development SOCCSKSARGEN Region conducted an Infection Prevention and Control (IPC)

Training in the context of COVID-19. Cotabato Regional and Medical Center (CRMC), is the referral center for re-emerging infectious diseases in SOCCKSARGEN Region. The high rate of infected HCWs has huge implications for sustaining the capacity of health facilities to adequately support the surge of patients needing critical care. Ensuring their safety is vital, since any additional infected health personnel further reduce the already inadequate number of human resources in an overwhelmed health system, leaving HCWs excessively stressed and having to work for longer hours to the point of exhaustion (Morales, & Lema, 2021).

The observed problem of compliance with Infection control among Nurses connotes an area of concern as this translates to possible harm to patients and health workers caused by healthcare-associated infection. This study aimed to assess HCWs' Compliance with Infection control during the COVID-19 pandemic. The results are anticipated to help examine COVID-19 infection trends among HCWs and develop mitigation strategies to lower COVID-19 transmission and safeguard our HCWs at work.

Methods

The study utilized a quantitative descriptive-survey research design using the input-process-output (IPO) model for this study. It is descriptive because it presents the demographic profile, and compliance on infection control of Nurses in an Isolation ward during the COVID-19 pandemic in terms of personal protective equipment, hand hygiene, and donning and doffing. The data for this study were processed through profiling and the use of a survey questionnaire. An intervention program will be formulated afterward based on the data that will be gathered.

The study was conducted in a government hospital in Cotabato City founded in 1916, located at Rosary Heights 10 Sinsuat Avenue, Cotabato City with 600 bed capacities. In addition, there are 60-bed capacity in Covid Isolation wards. Presented below is the site map of the study setting.

Research respondents will be the Nurses assigned in an isolation ward selected through complete enumeration. The supervisor will be the one to rate the compliance on infection control practices of 60 nurses assigned in the isolation ward through a random direct observation during duty hours. These respondents possess the following characteristics: legal age, a staff nurse of the institution, and willingness to participate in the study.

The study utilized the researcher-made questionnaire and the WHO health protocol as a tool for collecting the data. It is composed of 3 parts. The first part is the demographic profile of the staff nurses in terms of age, civil status, and length of service as a Covid-nurse. The second part is the researcher-made questionnaire that focuses on the compliance with infection control practices of participants during the COVID-19 pandemic. The scores under this parameter will be measured and interpreted on a 5 -point Likert scale.

In addition, the questionnaire had undergone content validation by 3 experts with an average rate of 86%. And also, the questionnaire had undergone a reliability test to ensure that the questions are valid for use with the Cronbach alpha result of .823.

The study utilized frequency and percentage distribution to describe the demographic profile in terms of age, civil status, and length of service as a Nurse. Moreover, mean and standard deviation was utilized to measure compliance with infection control during the COVID-19 pandemic in terms of personal protective equipment, hand hygiene, and donning and doffing.

Results and Discussions

Table 1. Demographic Profile of the Respondents

Demographic Profile	Frequency (n=60)	Percentage (%)
Age		
20-24	11	18.3
25-29	33	55.0
30-34	8	13.3
35-39	5	8.3
40-44	2	3.3
45-49	1	1.7
Total	60	100
Sex		
Male	11	18.3
Female	49	81.7
Total	60	100
Civil Status		
Single	25	41.7
Married	33	55.0
Widowed	2	3.3
Total	60	100
Length of service		
6 months-1 year	6	10.0
1-2 years	5	8.3
2-3 years	17	28.3
3 years above	32	53.3
Total	**60**	**100**

Table 1 presents the demographic profile in terms of age, sex, civil status, and length of service of the staff nurses who participated in this study. The majority of the respondents were between ages 25 to

29 years old (33 out of 60 respondents; 55%), and females (49 out of 60 respondents; 81.7%). In terms of civil status, 33 out of the 60 total respondents (55%) were married and twenty-five respondents were single (41.7%), and two were widowed (3.3%). In terms of length of service, the majority of the respondents were three years above (32 out of 60

respondents; 53.3%). These results imply that, overall, the majority of the respondents were between ages 25 to 29 years old, females, married, and working as staff nurses for three years and above.

Table 2. Compliance with infection control of Nurses

Indicator	Mean	SD	Description
Protective Personal Equipment	4.06	0.39	Often
Hand hygiene	4.17	0.33	Often
Donning and Doffing	4.52	0.50	Always
Overall	**4.32**	**0.24**	**Often**

Legend: 5.00 - 4.50 – Always; 4.49 - 3.50 – Often; 3.49 – 2.50 – Sometimes; 2.49 - 1.50 – Rarely and, 1.49 – 1.00 – Never

The table above shows the level of compliance with infection control among the respondents. As reflected in the tabulated data, the overall mean of 4.32, (SD=0.24), and a descriptive level of often. This implies that Nurses often complied with infection control during the COVID-19 pandemic. It was supported by the study conducted in Nigeria revealed that community health workers have poor practices of preventive measures aimed at controlling the spread of COVID-19 infection (Omoronyia et al., 2020). This differs from other recent studies, like the study in China, which found that 89.7% of healthcare workers followed correct practices regarding COVID-19 (Zhang et al., 2020). Another study is from Nigeria, and the results showed that the health workers in this study demonstrated good practices towards COVID-19 (Ejeh et al., 2020).

Study shows that most healthcare practitioners in Saudi Arabia have a "high compliance level" to infection control practices during the coronavirus pandemic. This implies that hospital staff often practice measures that prevent and control infection. Such study findings are supported by studies in the Philippines, Bangladesh, and the United States (Alqahtani's, 2020).

Accordingly, hospital staff has a high compliance score to key performance indicators for patient safety outcomes in infection control (Feliciano et al., 2020).

A study in Bangladesh shows a significant improvement in infection control practices among health practitioners. Furthermore, anecdotal reports from management showed statistically significant improvements in healthcare workers' compliance with basic infection control practices (Ara et al., 2018). Most healthcare practitioners in Saudi Arabia have a "very high level of compliance" to hand hygiene protocols during the coronavirus pandemic. Similarly, a high hand hygiene compliance score (91.6%) was observed among nurses in Qatar. The highest compliance score was observed after blood and body fluid exposure (80.0%) and after patient contact (85.5%).

On the contrary, a study in China reported that healthcare workers' adherence to hand hygiene recommendations remains suboptimal, with a compliance rate of 30%. Hand hygiene is a fundamental and essential tool for reducing healthcare-acquired infections (Alqahtani, 2020). A series of procedures known as standard precautions are always used in the care of patients in all medical

settings. The cornerstone of infection prevention and control continues to be standard measures. These safety measures rely on the patient-healthcare worker interaction's nature and whether or not a known infectious pathogen will be exposed. Hand hygiene, personal protective equipment, respiratory hygiene, coughing manners, cleaning and disinfecting equipment and environmental surfaces, safe injection techniques, and drug storage and handling are all considered standard precautions (Centers for Disease Control and Prevention, 2021).

Despite the preventive measure's guidelines, some studies showed or revealed that health workers need to improve in terms of practices towards the prevention of COVID-19. These include the study in India that showed the existence of inadequate needle safety precautions, low compliance with standard guidelines, and improper disposal of sharps among the healthcare workforce in the trauma care setting. This is similar to the study conducted in Northwest Ethiopia showed a low score of the health worker's preventive practices towards Covid-19 that gives, 38.7% due to the difference in the economic status of the country, which increases the capacity and distribution of protective equipment of the healthcare system (Kassie et al., 2020).

The indicators with the highest mean were donning and doffing with a mean score of 4.52, (SD=0.50), and a descriptive level of always. It is supported by the study conducted by Fu et al, 2020, it was discovered that, despite the difficult processes involved in donning PPE, everyone was able to focus on them without much difficulty, and the environments where it was done were kept clean. The PPE was also sterile and clean; therefore, there was little chance of contracting COVID-19. Staff is more prone to mistakes due to tiredness during PPE donning due to the lengthy hours of intense diagnostic and treatment responsibilities and highly strenuous physical activity. The PPE was exposed to high-risk conditions and contaminated after prolonged contact with COVID-19 patients. Since medical workers may become infected when

donning PPE without being aware of it, as opposed to direct occupational exposure, which is always treated right away, improper donning of PPE can be more dangerous.

Further, one of several crucial strategies for prevention and control is standardizing the processes for donning personal protective equipment (PPE) to stop the pandemic from spreading further and to guarantee the safety of frontline medical staff (Singhania et al., 2020). Even the best-engineered personal protection equipment (PPE) may fall short if used improperly, allowing Contamination to spread to healthcare workers and patients. Knowing that seeing is believing, researchers at the University of Pittsburgh Medical Center (UPMC) Presbyterian Hospital obtained permission from healthcare workers to record how they gowned, gloved, and engaged in other related clinical practices. They found that in nearly 80% of the PPE simulations, workers became contaminated (Pyrek, 2018).

On the other hand, the indicator with the lowest mean was personal protective equipment with a mean score of 4.06, (SD=0.39) with a descriptive level of often. The result implies that the majority of the respondents complied with infection control most of the time, specifically the personal protective equipment. The use of appropriate personal protection equipment (PPE) and adherence to hand hygiene standards are advised by the WHO and other national and international public health authorities (Ramanathan et al. 2020). As a result, every possible transmission can be stopped, protecting HCWs frequently. The mortality rates of COVID-19-infected patients are often decreased with more aggressive care that requires close contact with these patients, even though the most effective interventions to protect HCWs are to physically isolate HCWs from infectious patients and body fluids. (Delgado et al., 2020).

However, there is a big difference in the accessibility and application of PPE and hand hygiene recommendations, which are commonly

disregarded in many medical facilities when addressing COVID-19 patients. Healthcare professionals are more likely to contract the COVID-19 virus while doing their duties, which is crucial in the fight against the pandemic (Verbeek et al., 2020) and (Id et al., 2021).

Conclusions and Recommendations

The current study concluded that compliance with infection control of Nurses is often in terms of personal protective equipment. The respondents often use hand wash/ hand- sanitizer after removing the gloves. But they are always practicing wearing clean gowns/aprons to prevent the soiling of clothes during procedures that are likely to generate splashes of blood, body fluids, secretions, or excretions.

Study findings also showed that the Nurses always complied with infection control in terms of donning and doffing. The respondents always tied their gowns and fastened them at the neck and waist, applied eye protection/goggles, applied foot cover, and safely remove the protective clothing after handling patients. It is shown that the respondents
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always practice infection control specifically donning and doffing all the time.

However, there is still a need to update the compliance on infection control of nurses regarding infection prevention by the provision of in-service training. Moreover, continuous monitoring of nurses' practice paralleled with strict implementation of infection control guidelines should be exercised.

There is a need to conduct a similar study in a wider scope such as other standard precautions to increase the reliability of findings. Furthermore, other moderating variables can also be considered. Further qualitative research on behavioral factors is also recommended to determine actual practices

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Take A Leap of Faith: Lived Experiences of TB Dots Nurses On The Implementation Of The National Tuberculosis Program Amidst Covid-19 Pandemic

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Abstract

This study was focused on understanding the experiences of the TB DOTS Nurses on the implementation of the National Tuberculosis Program amidst the Covid-19 pandemic. Using the qualitative descriptive-phenomenological method, fifteen TB DOTS nurses were purposively selected to participate in the face-to-face in-depth interview, with the observance of the minimum health protocols. Using Colaizzi's approach of qualitative data analysis, the experiences of TB DOTS Nurses who are the implementers of the TB program at the height of the pandemic were capsulated in the themes: Menace of Uncertainties, Seeing Light in Darkness, and Establishing a Strong Foundation. The TB DOTS nurses' means of coping with the new situation like the risk of implementing the NTP amidst the COVID-19 pandemic were expressed in the themes: Reaching Out, Acclimating Constructive Outlook, and Pillars of Support. Finally, the insights that they shared with their peers and society, in general, are the themes: Building Resilience, Consciousness, and Adherence to Healthy Measures and Upgrading Services. Adopting the reality of the new challenges, similar to past crises, and one action they can take right now is to recognize and adjust to the changes. They accept this condition to adapt and proceed with their personal and professional lives.

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Keywords: TB DOTS Nurses, Health, Descriptive-Phenomenology, Davao City.

Introduction

The TB DOTS nurses are among those responsible for delivering the National Tuberculosis Program services; they are critical to the success of implementing the TB program for NTP patients because they are the ones who provide each patient with the best care possible to improve health and reduce suffering for all involved. On the other hand, the National Tuberculosis Program was among the many health services that were affected by the COVID-19 pandemic, which had a detrimental effect on the program's implementation and its implementers, especially the TB DOTS Nurses (Ferrera et al., 2020).

The COVID-19 pandemic has had a profound impact on TB DOTS nurses and their patients worldwide. During the pandemic, the following are some of the global conditions of TB DOTS nurses: Disruptions in TB care: The pandemic has resulted in substantial disruptions in TB care services, such as delays in diagnosis and treatment, interruptions in drug supplies, and a decrease in TB screening and testing. This has made it more difficult for TB DOTS nurses to care for their patients, resulting in a rise in the number of TB cases and deaths worldwide, and elevated risk of COVID-19 infection: Because of their close closeness to patients

and the necessity to provide therapy and medicines, TB DOTS nurses are at an elevated risk of contracting COVID-19. This has increased their workload and stress levels while also putting them in danger of suffering serious diseases from COVID-19 (World Health Organization, 2021).

The COVID-19 epidemic has had a profound impact on the TB DOTS nurses' experiences in the Philippines. Here are some of their pandemic experiences: Care disruptions: The pandemic has produced disruptions in TB care services in the Philippines, including delays in diagnosis and treatment, as well as a decrease in TB screening and testing. This has made it more difficult for TB DOTS nurses to care for their patients, resulting in a rise in the number of TB cases, and mental health issues: The pandemic has taken a toll on the mental health of Filipino healthcare personnel, notably TB DOTS nurses. Because of the difficulties of giving care during a global health crisis, many nurses have suffered heightened stress, anxiety, and burnout (Philippine National Tuberculosis Program, 2020).

In Region XI, manpower like the TB DOTS nurses was interrupted during the peak of the pandemic because the TB program is one of the Department of Health's divisions that is most exposed to infectious diseases. As a result, many employees like TB DOTS nurses contracted COVID and were quarantined, which led to the lockdown of the TB DOTS Centers. Another circumstance that interferes with the program is when the workforce was used for COVID-related tasks and activities. All of this and more greatly affect the NTP services that are already in place amidst the COVID-19 pandemic (Amoguis et al., 2022).

The primary goals of TB disease treatment are to cure the individual patient, reduce the risk of death and disability, and reduce the transmission of M. tuberculosis to others. To achieve these objectives, TB disease must be treated for at least 6 months, and in some cases even longer parallel to

proper management. All of this alongside other responsibilities in carrying out the TB program is delivered by the TB DOTS Nurses, however, the majority of the initiative operations and goals of the TB DOTS Nurses for the aforementioned program had been put on hold because of COVID-19. Therefore, it is vital to explore and understand the lived experiences of the TB DOTS Nurses to further evaluate of what are the particular hindrances, challenges, and coping strategies they applied that affect in implementation of the aforementioned program during the height of the pandemic. Thus, this study primarily aims to understand the lived experiences of TB-DOTS Nurses in the implementation of the National Tuberculosis Program of the Department of Health amidst the COVID-19 Pandemic.

Methods

The researcher utilized the qualitative descriptive phenomenology research design to understand the lived experiences of the TB DOTS Nurses in the implementation of the NTP (National Tuberculosis Program) of the Department of Health (DOH) amidst the COVID-19 pandemic.

The participants were chosen based on the criteria set by the researcher and the said participants were those TB DOTS Nurses affiliated with the TB DOTS Centers in Davao City who have experience in implementing the National Tuberculosis Program at the height of the pandemic and in the field for at least 6 months. On the other hand, TB DOTS nurses who are new in the field, and who are affiliated outside the Davao City TB DOTS Centers would not be eligible as respondents to the study.

The participants who met the criteria were initially contacted through text and calls by utilizing the updated contacts of the Region XI NTP Directory, on where the initial approach to

participate in the study was asked, and consultation on their protocol for conducting the study in their TB DOTS Centers was also requested. An individual interview process was then created and the schedule was strictly followed. In addition to taking concise findings, the researcher directly recorded and transcribed the interviews for data analysis. To allow for the many trends that develop throughout the interviews, open-ended questions were also formulated.

Observations of the participants' hand gestures, body language, and behaviors throughout the interview were also considered by the researcher. Since the interpretation of data is required for the meaning and understanding of lived experiences, secondary data sources for the current study were also utilized including recent studies, articles, journals, and reviews of related literature.

In addition, the data gathering was done by conducting in-depth interviews which were performed individually with the fifteen participants of the study. An in-depth interview was utilized as a research method to gather detailed and comprehensive information from the TB DOTS Nurses about their experiences, beliefs, attitudes, behaviors, or opinions on the implementation of the NTP amidst the COVID-19 pandemic.

Additionally, to achieve the objective of this study, the following questions were asked: "What are the lived experiences of TB DOTS Nurses in implementing the National Tuberculosis Program amidst the COVID-19 pandemic?", "How do these participants cope with the challenges of their experiences?", and "What insights can the participants share to their peers and the society in general?".

Furthermore, the study was conducted at various DOH-approved TB DOTS Centers in Davao City where the TB DOTS nurses are associated and that offer free TB programs and services; these are the following: Davao Chest Center, Agdao TB DOTS Center, District A TB DOTS Center, District B Health TB DOTS Center, District C TB DOTS Center, Metro Davao Medical and Research Center Inc.- Chest Wellness Center, Davao Doctors Hospital TB DOTS Center, Buhangin TB DOTS Center, Sasa TB DOTS Center, Tibungco Doctors Hospital TB DOTS Center, Bunawan TB DOTS Center, Calinan TB DOTS Center, and Baguio TB DOTS Center.

Moreover, the descriptive phenomenology method of Colaizzi was utilized for analyzing the dialogue between the researcher and the participants. This process was used to interpret qualitative research data to identify expressive fragments of information and organize them into themes or clusters (Morrow, 2015)

Results and Discussion

Table 1. Participants' Profile

Code name	Age (in years)	Gender	Civil Status	Occupation
Participant 1	50	Female	Married	Nurse-CHO

Code name	Age (in years)	Gender	Civil Status	Occupation
Participant 2	35	Male	Single	Nurse-CHO
Participant 3	54	Male	Married	Nurse-CHO
Participant 4	36	Female	Single	Nurse- CHO
Participant 5	53	Female	Single	Nurse- CHO
Participant 6	37	Female	Married	Nurse- CHO
Participant 7	44	Female	Single	Nurse- Priv
Participant 8	57	Female	Married	Nurse- CHO
Participant 9	37	Female	Married	Nurse- CHO
Participant 10	51	Female	Married	Nurse- CHO
Participant 11	59	Female	Married	Nurse- CHO
Participant 12	58	Female	Widow	Nurse- CHO
Participant 13	38	Female	Single	Nurse- Priv
Participant 14	38	Female	Single	Nurse- CHO
Participant 15	42	Female	Married	Nurse- Priv

Figure 1. Thematic Map
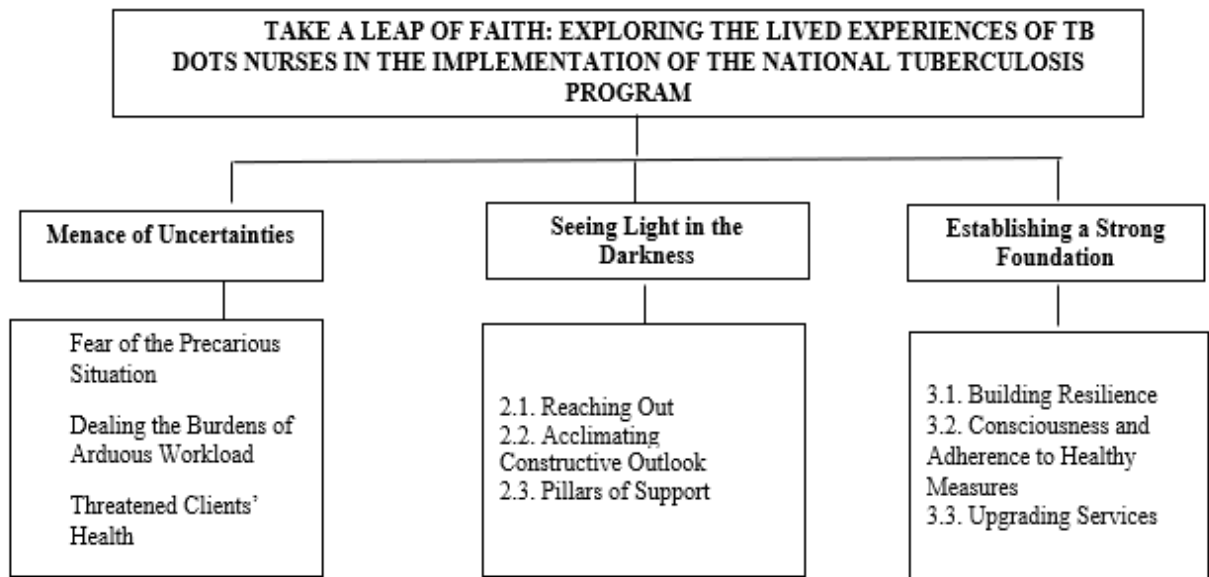
Using a descriptive phenomenological approach adapted from Colaizzi (1978), significant statements were extracted from the data, and a formulation of meaning was assigned

to each significant statement that answer the objectives of the study. After looking at and familiarizing the responses, a total of 395 significant statements were extracted from the transcriptions. Data were then organized into cluster themes. Themes were reviewed to make sure that none of them overlap in meaning.

The cluster themes were later combined to form the general emergent themes. Out of the nine cluster themes, three emergent themes were created. These themes aim to organize the lived experiences of the participants.

The three themes extracted are the *Menace of Uncertainties*, *Seeing Light in Darkness, and Establishing a Strong Foundation*. These three themes also capture the viewpoint of the participants in their journey to recovery.

The first emerging theme, the *Menace of Uncertainties*, reflects the participants' fears, anxieties, and difficulties. It relates to the participants' experiences as they dealt with difficulties, apprehensions, and unclear plans for how to continue providing TB services given the risk of COVID-19. During the onset of the pandemic, the majority of the participants were on edge and worried about how to provide TB services. It was extremely taxing on their physical and mental well-being to handle the added workload brought on by the pandemic and the fear of caring for TB patients because COVID and TB share similar symptoms and indicators, making them more susceptible to the virus. This encapsulates their experience of doubt and uncertainty in the face of threatening situations.

Uncertainty in disease and situation is described as a cognitive condition caused by a lack of clues to create a cognitive schema or interpretation of a situation or occurrence. It claims that controlling uncertainties is crucial to strange situations and disease adaption, and his theory explains

how people cognitively integrate illness-related events and generate meaning from them (Fernandez-Araque et al., 2020).

This general theme is further broken down into more specific cluster themes that cover the vital aspects of their experiences. The first cluster theme derived is *"Fear of the Precarious Situation"*, which focuses on the participants being frightened of the possibility of acquiring COVID-19 disease as NTP implementers. The second cluster theme is *"Burden of Arduous Workload"* which manifests the participants' difficulties and challenges in the performance of their duties considering the changes due to the pandemic. The third cluster is *"Threatened Clients' Health"* which speaks about how the pandemic could compromise the treatment of patients. Their apprehensions of conceivably being diagnosed with COVID-19 caused them to defer and avoid consultations which could result in the severity of their conditions.

Cluster Theme 1.1: Fear in the Precarious Situation

The early responses of the participants upon becoming aware of the pandemic are described in the cluster theme, Fear in the Precarious Situation. Given the pandemic circumstances, the majority of the participants seemed anxious, confused, and concerned about the risks associated while implementing the TB program. According to some participants, the first question that came to mind was how can they able to manage and deal with the hazards of COVID-19. Concern about treating and interacting with TB patients since they will be more vulnerable to virus exposure given that COVID and TB have symptoms in common.

The anxiety, mental distress, negative emotions, pressure, challenges, and COVID-19 alone add to the worries and fear of the participant as a frontline of NTP implementation at the height of the

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pandemic. All of these challenges indicate that TB DOTS Nurses are experiencing mental and emotional hardship while they conduct the TB program during the height of the pandemic.

COVID-19-related fears recruit not only fear of the unknown but also the anxiety that accompanies situations that are unpredictable and uncontrollable. So the fear of this undetectable threat is easily learned, irrespective of the probability of its occurrence. (Choelo et al., 2020). Further, fear or anxiety can be brought about both by knowing or having more information and by fear of the unknown related to the virus. An uncertain and continuous threat can become chronic and burdensome (Mertens et al., 2020).

Obtaining insight into the current scenario, explaining, and comprehending the psychosocial difficulties of TB DOTS nurses throughout their challenging NTP implementation amidst the COVID-19 pandemic, will be extremely beneficial in extending information on how to cope with the pandemic and the fear of the unknown. It can also prevent psychological trauma caused by the pandemic. Using the lived experiences of TB DOTS nurses on the implementation of the National Tuberculosis Program amidst the COVID-19 pandemic. It would be the most useful technique to communicate the psychological problems and worries of our healthcare providers (Moradi et al., 2020).

Cluster Theme 1.2. Dealing the Burdens of Arduous Workload

The cluster theme Burden of the Arduous Workload relates to the difficulties of the participants in the implementation of the tuberculosis program. There were adjustments because of the new protocols. Some of the participants are also handling multiple programs which makes it even harder for them. Concern has been raised about the formation of the COVID-19

pandemic, for which the majority of medical professionals lacked prior expertise.

Further, participants were also permeated with thoughts and feelings about being physically exhausted with the adjustment of using the personal protective equipment and being overworked as a result of several additional duties, such as Covid activities, with the pandemic's impact on the program as an implementer. There were noticeable modifications to their NTP schedule, and implementation setup, such as from group orientation to individual scheduling, and stringent use of personal protective equipment by implementing the abovementioned program. As stated by the participants the unexpected change in what practices they used to apply, restricted lockdowns, and the community's dread of seeking consultation at TB DOTS Centers were among the issues that severely interrupted the TB program.

This experience of the participants is consistent with the research findings of Mergenthaler et al. (2023) revealing that human resources for the implementation of the tuberculosis program lacked the necessary time and material resources to complete TB responsibilities during the COVID pandemic without working significant amount of overtime or making other sacrifices to the quality of TB service delivery. In the same manner, Razu et al. (2021) also discovered about healthcare providers experienced higher workload and psychological distress during the pandemic.

Moreover, the healthcare system is under a lot of strain as a result of the COVID-19 pandemic. The COVID-19 burden has been imposed on the workforce during the COVID-19 crisis without adding new workers to the system, despite several responsibilities such as the concurrent follow-up of patients with tuberculosis and other infectious diseases (Shahnavazi et al.,

2022).

Cluster Theme 1.3: Threatened Clients' Health

The majority of the participants said that the most difficult aspect of carrying out the program at the height of the pandemic was the patient's poor seeking behavior. According to the participants, knowing this to be the case, they already foresee a significant decline in the success rate of treatments, and as a result, they have begun to think about the number of patients who will soon develop multidrug resistance leading to more severe conditions.

Furthermore, another aspect that could also affect the treatment and detection of cases among tuberculosis patients is related to the changes in the program processes and procedures. According to the TB DOTS nurses they have faced significant challenges as a result of the sharp reduction in TB testing and treatment during the peak of the COVID-19 pandemic. The participants claim that the program's major initiative is to boost case finding and detection to completely eradicate TB which is done by active case finding, mass orientation, and screening. However, the Department of Health, Local Government Unit, and Barangay Officials temporarily ceased the aforementioned activities owing to Covid principles and protocols.

Lastly, some participants raised the issue of other presumptive TB patients and even confirmed TB patients being reluctant to seek medical care for their TB sickness because they are afraid of being labeled as a Covid case and false rumors that are spread by misinformation which could also affect initiation of their treatment and result to decline in their health condition.

The above result conforms with the research findings of Hashem et al. (2022) which reveal that there was a noticeable drop in tuberculosis case detection during the COVID-19 pandemic. Similarly, Kamaludin et al. (2022) found that the pandemic harmed the implementation of the TB program. It has also affected TB services, particularly case detection and quick testing which is linked to less effective TB care and treatment (Iskandar et al., 2021).

Emergent Theme 2: Seeing Light in the Darkness

The second emerging theme, *Seeing Light in Darkness*, conveys the participants' manner of managing and overcoming the various hurdles during the pandemic. It portrays their efforts to reach out and still provide effective services to the patients. Further, the participants were also able to adapt despite the complexity and changes in their work environment. Support networks through their colleagues played also a significant role in dealing with the challenges.

To emphasize the important aspects leading towards their adjustment in implementing the TB program in line still with the COVID threat, the emergent theme is further broken down into three cluster themes. The first cluster theme is *"Reaching Out"* which illustrates the participants' determination in implementing a strategy for implementing TB programs to the target clientele while still keeping up with the threat posed by COVID-19. The next cluster theme is *"Accepting and Adjusting from Hurdles"* which expresses the coping strategies that the participant adopted to deal with the challenging situation. The last cluster theme is "*Seeking External Support*" which covers the vital contributions of the participants 'coworkers.

Cluster Theme 2.1. Reaching Out

This relates to the participants' experience on how they deal effectively with

the implementation of the national tuberculosis program during the pandemic. Based on the sentiments of the participants, this is also the part of the implementation where they felt the frustration of low success rate and low detection rate, as a result, it has a significant impact on their first TB elimination attempt before the pandemic. However, their concerns for the patients' welfare made their considerable efforts possible. They expressed their readiness to take on the implementation through the following statements:

Nurses have been on the front lines, accountable for implementing comprehensive care for all sorts of individuals. Given that nurses make up the bulk of healthcare practitioners, they play an important role in health services. The fulfillment of their role as implementers had been greatly affected because of the pandemic. Conversely, they extended the extra mile to ensure that the needs of the patients with tuberculosis were facilitated and attended to. This is following the NTP Manual of Procedure (2018) which makes sure that a patient-centered approach is practiced in the entire course of TB management. The Global Fund (2022) also adopted programs to address treatment barriers looking for ways to bring the services closer to the patients' residences since most of the treatments are conducted at home.

Cluster Theme 2.2. Accepting and Adjusting from Hurdles

The theme relates to the participant's acceptance of the situation. It communicates about grasping a positive way of thinking that increases their chance of adaptation and adjustment. Many of them also accentuated the need to relax and adapt given the variety of tasks in the implementation of the program associated with the new changes brought about by the pandemic.

The responses demonstrate the participants' acceptance of their challenges as TB implementers. These coping processes produce adaptive or inefficient reactions. Adaptive reactions support the person's integrity as well as the adaptation goals. A person's primary goal is to adapt to external stimuli to attain what is expected of them, growth, development, and achievement. Ineffective reactions neither promote integrity nor help adaptive outcomes (Themes, 2017). Optimism has been demonstrated to directly and positively influence work engagement among healthcare workers during the COVID-19 pandemic, both of which are desirable outcomes (Zhang et al., 2020).

Cluster Theme 2.3. Seeking External Support

The cluster theme *Seeking External Support* was extracted from the participants' positive experiences in facing the challenges as TB implementers during the height of the pandemic. This includes the outpouring of support and encouragement received from their colleagues and superiors. At first, the idea of TB implementation in the presence of COVID-19 terrified the participants, but upon experiencing their colleague's and superior's support and encouragement, the implementation of the program become acceptable and manageable. During the interview with the fifteen participants, the word "colleagues" was repeated at least thirty-three times. This supports how important colleagues is in standing up to unforeseen challenge. The Department of Health's adaptation plan and techniques to implement the program in the Covid-19 are one of the factors that may put their concerns to rest, together with the backing of their peers and superiors.

The coworkers and superiors ameliorated the burden of the NTP implementers. In line with this, the majority

of healthcare employees with good management who supported them had better ways to address the requirements of the workers and perhaps lessen anxiety levels during the pandemic (Skogsberg, 2022). Supportive relationships with co-workers played a key role in reducing their stress and anxiety (Muoio, 2020).

Emergent Theme 3: Establishing a Strong Foundation

This explores their ideas on how everyone should approach the TB program in line with the pandemic, and what advice they can give to greatly enhance the adaptation and further ensure effective and efficient services despite pressing conditions. The participants also realized that all the struggles and fear are worth it. In terms of the participant's experience, they start to reminisce about the factors that lead to their adaptation and adjustment and all the people that provided support to them. It also provided a clear picture of being cognizant of the importance of maintaining good health in building resistance against possible diseases. In addition, health programs can be improved by advancing the services through the provision of adequate services with more sophisticated facilities. This is also the point in their journey where they think of the lessons they learned from the experience, and how they can share it with their colleagues and society.

Furthermore, the manner of establishing a strong foundation can be represented by the cluster themes: *Building Resilience, Consciousness, and Adherence to Healthy Measures and Upgrading Services.*

Cluster Theme 3.1. Building Resilience

Being resilient, flexible, and optimistic was also repeatedly mentioned as important factors in implementing the TB program throughout the pandemic's peak. The participants often get worried about the fear of the unknown, with that, the participants advocated that flexibility, adaptation, and remaining positive in the face of adversity were the most important factors in their ability to continue serving the community, particularly in implementing the national tuberculosis programs amidst Covid-19. Some comparable statements are:

Building resilience in nurses and other healthcare professionals can help them avoid job-related problems like burnout, anxiety, and depression while also improving patient outcomes (Baskin & Bartlett, 2021). This can also be enhanced by promoting positive emotions (Bozdağ & Ergün, 2021).

Cluster Theme 3.2. Consciousness and Adherence to Healthy Measures

The findings of the study show that most participants consider the pandemic as an eye-opener to everybody especially in taking care of our health, in contrast to the early stages and peak of the epidemic, there is a greater emphasis on dread, anxiety, and uncertainty, when compared it to now, their way of thinking is more focused on the positive impact brought about by the difficult scenario in part of the nurse and the patients thru enhanced health-seeking behavior. This also emphasized being health conscious and complying with health protocols as a weapon against any disease.

The first set of lessons that seems similar among the participants is that everyone should follow the health protocols laid out by the health officials.

The health belief model states that people will engage in preventive health behaviors when they regard themselves as being at risk for pandemic scenarios: perceived susceptibility or as being at substantial risk for the disease: perceived severity (Fikriana et al., 2021).

Cluster Theme 3.3. Upgrading Services

This relates to the period when the worst has passed, and the participants were ultimately able to adjust in some way to the pandemic adaptation's new normal implementation of the national tuberculosis program. This also embodies the participants' recommendations to improve the services and facilities of the TB DOTS program in line with the pandemic situation. Government must concentrate vital services in their attempts to guarantee the sustainability of care provision and make strategic moves to ensure that increasingly restricted resources benefit the public to the greatest extent as much possible.

They must also adhere to the minimum health protocols, and highest precautionary standards, particularly in hygiene procedures, and provide enough supplies, including personal protective equipment. This necessitates careful planning and concerted action on the part of governments, health facilities, and their management. During the pandemic, well-organized and prepared health systems can continue to offer equal access to vital service delivery, reducing fatality and preventing an increase in mortality rate especially to

The three themes extracted are *Menace of Uncertainties*, *Seeing Light in Darkness, and Establishing a Strong Foundation*. These three themes also capture the viewpoint of the participants in their journey to recovery.

When the TB program was implemented during the height of the pandemic, the majority of the participants felt uncertain, anxious, and challenged. Furthermore, because the participants were at risk of viral exposure and because TB and Covid share several symptoms, nearly all of the participants were concerned about contracting the disease. Then some participants found it difficult to continue to implement the TB program because of an increased workload and unexpectedly added

National Tuberculosis Program (WHO, 2020).

Furthermore, considering the ongoing Covid danger, participants expressed their concerns and proposals for improving the National Tuberculosis Program's services. The participants want to express their concerns to the Department of Health and the Local Government Unit in particular.

Increased demand for healthcare services due to COVID-19, challenged the health facilities and healthcare systems. During the current COVID-19 pandemic, TB services must be prioritized as essential, and that access to care is assured and effectively maintained to avoid a negative impact on TB care and adverse patient outcomes. (Chapman et al, 2021).

In line with the above strategy, the utilization of virtual care and digital health technology, decentralizing TB treatment to community health workers, and assisting commercial health sectors and academic research institutes to offer TB testing and treatment may all be necessary to prevent TB diagnosis and treatment delays owing to COVID-19. This could also help improve services and achieve commendable results (Alene et al., 2020).

Covid-related tasks. Lastly, many were worried for their safety and were afraid of what was about to happen in the future.

The study findings have important implications for nursing practice, research, and education. Understanding the experiences of the TB DOTS nurses, their perceptions, and how they cope when they find it difficult to implement the NTP with satisfactory job outcomes in light of the threat that Covid has brought, has significance for learning about their perspectives, experiences, and potential contributions to developing successful adaptive strategies that will be useful in the future.

It discloses the experiences of the participants during the NTP implementation at the height of the pandemic. First, most of the participants experienced struggle in implementing the NTP at the peak of the Covid-19 pandemic. Moreover, the uncertainties of how to deal with and implement the TB program with the threat of the pandemic contributed to stress, anxiety, and fear of TB DOTS nurses. Then the majority of the respondents were concerned that they may not produce acceptable work outcomes. They also experienced physical, emotional, and psychosocial pressure and tension. In conclusion, the pandemic threat caused TB services to be disrupted, which resulted in a low case detection rate and potentially low success rates due to the low number of patients who sought medical attention during the peak period out of fear of being labeled as a Covid case.

The significant analysis and interpretation of the experiences of the TB DOTS Nurses, who were one of the implementers of the National Tuberculosis Program during the height of the Covid-19 pandemic, in providing information about their difficult experiences, will allow policymakers such as the Department of Health and the Local Government Unit to develop an effective adaptation plan to be prepared in the event of a similar scenario in the future. This can assist other healthcare professionals in gaining knowledge of the most efficient ways to handle TB cases in light of the pandemic.

This study's findings also contribute information regarding TB DOTS nurses, their experiences and perspectives during the difficult execution of the TB program at the height of the pandemic, and how these individuals adapt when faced with challenges brought by the Covid-19 situation. The exploration of their experiences will raise the awareness of the policymakers such as DOH, LGU, and healthcare professionals about how to overcome and adapt to a challenging situation, and that will prevent interrupting the TB program management and services despite difficult situations like the COVID-19 pandemic, to continue our effort to eradicate Tuberculosis.

The majority of participants considered that the support of their colleagues and superiors aided in the continuation of the program despite the new challenging situation. Furthermore, the barangay council's assistance, aided in efficiently tracing and extending the TB services that Covid had halted. Moreover, the participants have different opinions and recommendations to improve in dealing with the services of the TB DOTS program at the height of the COVID-19 pandemic.

The following are the TB DOTS Nurses' proposals for improving the TB DOTS program's services in the face of the pandemic threat: sufficient manpower, a TB DOTS Center or facility that is suitable and equipped for handling cases of infectious disease, proper coordination with local officials for effective information dissemination, a seminar or program that will assist the Barangay Health Workers in updating and enhancing their knowledge of NTP updates and management, a wide range free TB services such as Chest X-ray, and GeneXpert testing, and a decentralized set-up of TB Services in Davao City. Last but not least, having the ability to adapt to difficult situations like implementing the TB program under the threat of the COVID-19 pandemic requires flexibility and resilience.

For every hurdle in their quest to implement the TB program at the height of the pandemic, all the participants realized the need and importance of adaptability. Since Covid-19 is a new and unpredictable virus, the participants experienced intense fear throughout the early stages of the pandemic. As time passes, the TB DOTS nurses, their managers, and policymakers can create an adaptive strategy in response to the challenging circumstances, as a result, several strategies and TB initiative activities were resumed. TB DOTS nurses, and other allied health practitioners can sustain and continue their effort towards TB elimination despite the threat of COVID-19, with a hope that this will push the

disease farther towards the end of the tunnel, for the Philippines to be TB-free.

This study contributes to the field of knowledge of nursing practice, education, and research by creating an understanding to learn from the experiences of TB DOTS nurses on the implementation of the National Tuberculosis Program amidst COVID -19 pandemic. This study allows us to remember the words of one of the various implementers of the TB program who are the TB DOTS Nurses, unfolding their viewpoints about struggle, challenges, and difficult experiences, and how they overcome their experiences and to continue to serve the community, advocating for the general population to join the herd to end Tuberculosis.

In conclusion, the participants had anxiety and bias concerning their experiences. However, due to varying situations, they faced a variety of hurdles during their journey to overcome changes in implementing the TB program at the height of the pandemic. Having the necessary support and strategies provided to them, with a newly discovered optimistic outlook on coping with the new situation, as a result, the participant will be able to produce an acceptable work outcome. It was evident that these TB DOTS nurses had problems along the route, that they experienced hesitations and unanticipated events associated with implementation of the abovementioned program with the threat brought by Covid-19 and the effect to them both in their personal and professional lives. Thus, they were able to win against obstacles and adversities that stood in their way. They found themselves free of the bonds of anxiety and fear attaining a greater level of their work satisfaction.

Recommendations

It is important to remember that research findings from a qualitative, phenomenological-focused study like this are rarely generalizable or transferable to other situations. Contends that phenomenology aims to produce a thorough explanation of the phenomena that leads to an understanding of the basic framework of lived experiences. Furthermore, the data gathering of the study was through In-Depth-Interview only with a sample size of fifteen participants, and it was conducted at various TB DOTS Centers in Davao City. If it is feasible, the future researcher should also consider conducting the study in other provinces with TB DOTS Centers using an additional data gathering method like Focus-Group-Discussion.

Finally, future researchers may need to focus on specific topics such as connecting relationships between patients and healthcare workers, awareness development, and additional methods, plans, strategies, and measurements to adapt to the new situation by the TB DOTS nurses who continued to face difficult circumstances as a result of the threat that Covid-19 presented and which significantly impacted the operation of the National Tuberculosis Program.

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Insights from the lived experiences of clinical instructors on the implementation of blended learning modality during the COVID-19 pandemic

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Abstract

During the COVID-19 pandemic, schools shifted to blended learning to deliver quality education, however, there were issues and difficulties during its implementation. This study aimed to explore and describe the insights from the lived experiences of Clinical Instructors on the implementation of blended learning modality during the COVID-19 pandemic in a state university in the Province of Cotabato. The descriptive-phenomenology was used to explore the insights of the fourteen Clinical Instructors (CIs) who underwent an in-depth interview and focus group discussion. Using Colaizzi's qualitative data analysis, results showed that the challenges experienced by Clinical Instructors during blended learning were Facing Abrupt Change, Teaching-Learning struggles, Students' inactivity, and unstable internet connectivity. Their means of coping with the challenges they experienced include Creating Strategies, Acquiring techno skills, a Positive outlook, and implementing protocols. The insights that clinical instructors shared with their peers and nursing education, in general, were the themes: Embracing Changes, Genuine attitude, Mastery of concepts, and Teacher-students relation. To improve coaching and teaching abilities, clinical instructors require tools and assistance such as open channels of communication, provision of useful materials for teaching preparation programs, and a variety of learning platforms in online and in-person discussions. Clinical instructors should be given ongoing support, recognition, and compensation mechanisms, to motivate and reward them.

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Introduction

As COVID-19 forced students, teachers, and staff to move to work from home during the crisis, universities equipped to provide both online and in-person instruction to fulfill the demands of blended learning, which has become the new norm. In the Philippines, blended learning is still a relatively new concept. However, there are issues and difficulties with this blended learning that are important to look into, particularly in higher education institutions, which obstruct good and efficient teaching and learning delivery.

According to Aji et al. (2020), a poor internet connection, time consumption, and a lack of

knowledge were some of the challenges identified by the teachers while implementing blended learning. Because not all students have a strong network, having a bad internet connection was a significant issue for teachers. Additionally, it is time-consuming for teachers to create, gather and arrange instructional material in blended learning before using it for instruction—lastly, the teacher lacks experience with implementing blended learning.

To adopt blended learning in classes, the teacher must make extensive preparations, and the university must provide the necessary, appropriate tools and technology. Instructors must be proficient in using cutting-edge technology and creating teaching strategies and resources for the online LMS platform (Usmani, 2021). Managing time, learning, and

communication effectively are skills that teachers must acquire in order to utilize blended learning.

The Philippines, wherein it has reintroduced blended learning, confronts difficulties. For example, aside from the possible emergence of a new outbreak (Magsambol, 2020), the Department of Education reported that the Philippines' evaluation of five-week research on limited face-to-face instruction in select schools indicated various concerns observed by educators and students in handling classes on blended learning (Malipot, 2022).

According to Aldosemani et al. (2018), teachers need help using blended learning due to a lack of faculty training and support, language limitations, and inadequate promotion incentives for its start-up. These issues raised by Aldosemani et al. (2018) are equally evident in underdeveloped nations like the Philippines. Dotong et al. (2016) provided examples of several ICT integration barriers, including a lack of ICT facilities, inadequate maintenance of current ICT resources, and a lack of an ICT budget (Tomaro, 2018).

In a local setting, amid the challenges of implementing blended learning, a state university in Cotabato Province obtained a Certificate of Authority from CHED to reintroduce limited physical education programs for medical courses, such as nursing, after adhering to the rules (Doctor, 2021). Furthermore, higher education institutions adhere to the health protocols imposed by the government (Schleicher, 2020).

Thus, this study aimed to provide insights and a general picture of the lived experiences of clinical instructors in implementing blended learning amid the COVID-19 Pandemic and how the CIs cope with their struggles. Moreover, this study envisioned highlighting the insights of clinical instructors in delivering quality education amid the COVID-19 pandemic in delivering instruction through a blended learning setup by documenting their lived experiences and insights on implementing blended learning.

Methods

This study used a descriptive phenomenology to document the realities of implementing blended learning among clinical instructors by recording insights from their lived experiences, challenges, and coping into delivering quality education in blended learning.

The study was conducted in a state university in the Province of Cotabato offering a program of Bachelor of Science in Nursing approved by the University Board of Regent in 2011. During the lockdown, the university implemented an online modality to cater to the learning of the students. On July 29, 2021, the Commission on Higher Education (CHED) allowed the state university in the Province of Cotabato to hold limited face-to-face classes for the nursing program with observance of the strict implementation of the standard health protocols. Hence, the state university in the Province of Cotabato is implementing a blended learning modality.

A purposive sampling technique was employed to select research participants for the study. Thus, the researcher chose participants based on the following criteria: have served as full-time clinical instructors during the COVID-19 pandemic and employed as permanent or Contract of Service. Fourteen CIs were chosen from a state university in Cotabato Province. Thus, seven CIs were selected for an in-depth, one-on-one interview, and another seven participants were selected for focus group discussion.

In developing and recognizing essential themes and core ideas in the study, after each interview, the researcher replayed the recordings, reflective notes were made, and the interviews were transcribed verbatim. In addition, the researcher's notes noted the participants' body language, tone of voice, emotions, and feelings. Subsequently, the researcher arranged and organized the gathered data, which were transcribed, analyzed, and interpreted.

Then, the researcher formulated themes using Collaizzi's (1978) method to analyze the compiled results obtained from the participants. As a concluding step to this entire process, the researcher had the participants re-evaluate the generated themes as a final validating step of the researcher to confirm the accuracy of their intended message for the study.

The participants were assured that all data and information would be kept confidential.

The reliability of the research is one of those shared realities that readers and writers might find some common ground, even though it is a subjective reality (Stahl & King, 2020). Lincoln and Guba's (1985) methodology for determining trustworthiness is predicated on applying four overarching criteria. These qualities are credibility, transferability, dependability, and confirmability. The researcher had taken each of these factors into consideration in the study.

Results and Discussion

The participants of the study were all clinical instructors who had at least a Master's degree (13) and with Ph.D. units (1) in nursing education. They have been in service for one to five years. To observe confidentiality, they were given pseudonyms for their code names in this study. Through purposive sampling, 14 participants were chosen from a state university in Cotabato Province and they willingly consented to the study. Their age ranged from thirty-forty years old.

Colaizzi's (1978) seven stages were used to arrange the data, beginning with extracting essential statements. Including sample statements from individual interviews aided the understanding of data processing. Then, themes were examined and discussed to describe the phenomenon in-depth.

Thus, this descriptive phenomenological qualitative study focused on elucidating the lived experiences, challenges, coping mechanisms, and insights of Clinical Instructors in delivering quality education during blended learning at the state university of Cotabato Province while the COVID-19 pandemic was occurring. These are supported further by the emerging themes: *Facing abrupt change, Creating strategies, and Embracing changes.*

EMERGENT THEME 1: FACING ABRUPT CHANGE

The emerging theme, "Facing abrupt change," describes the difficulties and concerns of CIs during face-to-face classes in a traditional classroom and online classes in a virtual classroom amid the COVID-19 pandemic. It relates to the experiences of CIs during COVID-19. It surprised them to the sudden shift of teaching modality from traditional face-to-face classes to online classes then online learning to blended learning, the combination of online and face-to-face classes, considering that online classes can also be both synchronous and asynchronous.

This abrupt shift posed numerous adversities for medical educators, who had to deal with the students' loss of hands-on experience (Franchi, 2020), lack of interaction, and engagement, in addition to generating new teaching resources for virtual teaching since transferring the same material and teaching strategies used for F2F teaching would be unsuitable (Evans et al., 2020).

According to Aji et al. (2020), a poor internet connection, time consumption, and a lack of knowledge on using advanced technologies were some of the challenges identified by the teachers while implementing blended learning. Such data were reflected in the respondents' verbalization. They expressed the challenges they experienced in managing a blended-based classroom. Moreover, they disclosed information such as the difficulty in managing their time, the difficulty in teaching their lessons, and the difficulty in checking their students' outputs. They further disclosed the lack of response from their students during online classes and the problems they experienced due to internet connectivity. These experiences were further discussed in the cluster themes: *teaching-learning struggles; students' inactivity; and unstable internet connectivity.*

Cluster Theme 1: Teaching-Learning Struggles

"Teaching-learning struggles" was a theme that described the difficulty of the CIs in managing the class and in delivering the lessons in physical and virtual classrooms. In addition, it illustrates the challenges experienced by CIs in integrating the lesson with the appropriate teaching strategies.

During the COVID-19 pandemic, the classes shifted from traditional face-to-face instruction to blended learning. Given that the Philippine education system has become accustomed to the traditional classroom setup, it is a significant change

for tertiary teachers to shift to a different setup, especially in healthcare education, where the nursing course is skill-based (Fukada, 2018). Hence, they require student intervention in their teaching and learning approaches.

The improper procedure may cause damage to the patient's upper respiratory tract and infection or lead to hypogastric crises (Chang et al., 2022). Thus it should be taught face-to-face. The respondents' responses were illustrated in the verbalization:

> *"It is not easy to teach nursing skills in an online class. These nursing skills should be taught personally." (Participants 7 and 11)*

As a result, CIs faced many problems and challenges as blended learning was implemented. Hence, there were dilemmas about how CIs would provide quality education with online classes for their nursing students. Also, they had concerns about how they would manage and monitor their face-to-face classes without compromising the health of others, considering that there had been a government-imposed protocol.

Furthermore, they had concerns about what they should do to deliver all the topics in their syllabus in ways their students could understand and apply. These challenges were shared by the respondents who experienced such problems amid blended learning. The respondents' responses were illustrated in the verbalization:

> *"We have two preparations for online and f-2-f lecture, which means an added load to us and it is time-consuming. Time management is a struggle for us because we have a hectic schedule and heavy workload due to the blended learning setup." (Participants 1, 3, and 6)*

The significant challenges experienced by CIs included difficulty in managing their time since they needed to prepare two or more instructional materials for every type of class: online and face-to-face. It is time-consuming, considering that most of their time was spent in preparation for their upcoming class. According to Alvarez Jr. (2020), it was discovered that planning for lectures or developing web-based instructional materials platform take longer than in-person connection. Educators, therefore, perceive a need to invest more time in tasks like building the course platform,

uploading teaching materials, responding to inquiries, and assessing students' online work. These were reflected in the verbalization:

> *"It is difficult to assess students' outputs submitted online. Thus, we need to adapt assessment tools to evaluate online outputs." (Participants 3 and 4)*

CIs had trouble checking students' outputs. In the accounts of Rabori et al., (2021), they stated that mastery is one of the competency-based models. Mastery models engage learners in contemplative practice by increasing the difficulty of repetitive tasks while providing coaching to guide their progress.

Hence, it was difficult for the CIs to check and give feedback on the student's activities. Furthermore, CIs needed help teaching nursing courses or lessons since they did not only focus on theories and concepts. The difficulty in integrating their lesson was depicted in the verbalization:

> *"We are new in this pandemic, so we struggle with how we can deliver our lessons to our students and determine the best online platforms for our classes." (Participants 1, 2, and 9)*

The struggle of both CIs and students during blended learning was visible in some way. Cabello (2022) stated that in this time of the pandemic, the delivery of instruction—which is something that participants frequently struggle with—represents the true war in the field of education. The quality of education being delivered is low, with fewer students understanding ideas that require repetition due to several factors. It can be seen that the instructors' initial reaction was fear about how they would deliver their topics to their students in a way they would understand. They were also worried about their student's interests in the course. These were reflected in the verbalization:

> *"My first reaction is fear on how to handle the blended learning set-up." (Participants 6 and 7)*

The lack of institutional policies on the use of blended learning, a lack of ICT training or knowledge (such as technophobia), a lack of confidence to use a blended learning approach, and limited access to computer labs were other factors that respondents perceived as making it difficult to implement blended learning in a classroom setting. As a result, these were seen as obstacles to the deployment of blended learning (Alvarez, Jr., 2020).

"Our problem is there are still some students who are not familiar with the lesson. Supposedly they have a background in it already because the topics were discussed during online classes. (Participants 5, 11, and 12)

Another problem of the CIs was the redundancy of the lesson; they had to tackle again in the face-to-face class what they had discussed during the online class. The CIs were expecting that during face-to-face classes students have a prior knowledge about the lesson because they already discussed it during online class. Debatur (2020) stated numerous reasons why students lack interest in distance learning: they need help adapting to the current situation since they are used to the traditional approach to learning

According to Cabello (2022), under this new normal, graduation or completion rates may be reached, but the caliber of graduates is still in doubt (Asarta & Schmidt, 2020).

Cluster theme 2: Students' Inactivity

The theme, *"Students'inactivity",* entails the lack of response and interaction of students during an online class. The effort of the CIs to prepare themselves for their class and provide instructional materials and informative lessons to their students seemed useless since their students show a lack of interest during online classes.

The concern of the CIs when having an online class was the student's interest. Some students were present during an online class. However, the attention they were giving to their instructors and the lesson being delivered could not be guaranteed. Hence, the CIs were struggling in keeping their students attentive to the lesson they were imparting so that their effort would not be wasted and they could provide quality education. These were reflected in the verbalization:

"There is no definite interaction with the students. Certainly, students are just present online, but it does not guarantee that they listen to online lectures." (Participants 5 & 7)

Technology integration in education may tamper with the students' learning activities since there is much temptation in a distance learning setup. With the participant's answers, numerous ideas could be grasped. Students were attending online classes but might not be mentally present. Furthermore, classes were deemed ineffective due to students' inactivity during class.

Gonzaga and Ledesma (2022) claim that during the COVID-19 pandemic, students experienced tension, worry, and anxiety about contracting COVID-19 both while traveling to and from school and inside the building. Feelings of resentment or aggravation were noticeable among the students throughout the week they had to attend their online lessons as a result of their inability to hear the teacher well because of problems with the school internet from where the teacher was transmitting. The students' online classes also experienced boredom as a result of the same technical issues brought on by a weak internet signal. Hence, it can be inferred that the described issues prevent the students from having the necessary abilities to participate in and finish all school-related activities, which exacerbates their negative emotions like anxiety, fear, and boredom.

" While online, behind that screen students are sleeping, doing other activities or just trying to log in their account just for the sake of attendance but the attention and learning is not there." (Participants 3 and 9)

Because classes were conducted online and students experienced social isolation, they might lose motivation for their chosen course. These attitudes resulted in a lack of confidence to interact with their classmates and CIs, too much flexibility, and a lack of human contact because the online class limits students' communication with their classmates and instructors using their gadgets. Moreover, students would need to focus more due to the temptation of the various social media platforms in the gadget they were using in their online classes.

Cluster theme 3: Unstable Internet Connectivity

The theme, *"Unstable Internet connectivity,"* revealed the significant role of the Internet in a blended learning approach. The student's interest may also be affected by the poor access to the online community, either of the student or the CIs themselves, since the Internet in the Philippines is generally extremely low. In 2020, the country ranked 119th of 139 for mobile speed and 106th of 174 for broadband speed (Rodriguez, 2020).

Besides, it is not a widespread commodity since 2019, when the COVID-19 pandemic started. Given the rank of the Philippines as one of the countries with slower internet connections, this was considered one of the significant challenges faced by the CIs.

> *"Some students cannot attend online classes due to poor signal." (Participants 3, 4, 6, and 11)*

The Internet has become one of the most valuable commodities in the country since the advent of online classes and blended learning. However, considering the poor internet connectivity, it is difficult for the CIs to conduct online classes and for the students to attend the class because of numerous factors: geographical area and financial stability. Moreover, one factor mentioned was the unpreparedness for the shift in class modality. Some CIs did not have enough resources, such as gadgets and fast internet connections.

> *"We are unprepared for the pandemic, and our resources are not enough to sustain online classes, like our internet connection. Hence, I provided my internet connection to have online classes." (Participants 3 and 5)*

For instance, when the CI used to screen-share to play a video as part of their lesson, classes were interrupted because of a slow connection that caused the video presentation to stop. The slow internet connection and the lack of technological skills among CIs brought back the cause of the student's lack of interest. Hence, poor internet connectivity may destroy learners' learning desire during blended learning.

For Aldosemani et al. (2018), the lack of faculty training, especially on gadgets, and support for the resources they need, such as a good internet connection, makes the situation more complicated. Moreover, poor internet connectivity may hinder the smooth flow of online classes.

Dotong et al. (2016) provided examples of several ICT integration barriers, including a lack of ICT facilities, inadequate maintenance of current ICT resources, and a lack of an ICT budget. In truth, there are still places in the Philippines, especially in the countryside, where obtaining a steady supply of energy and internet is difficult. As a result, it hinders and negatively impacts teachers' capacity to develop their ICT skills and integrate them into their teaching and learning (Alvarez, Jr., 2020).

EMERGENT THEME 2: CREATING STRATEGIES

The second emergent theme is "Creating strategies" which describes the coping mechanisms of CI to survive blended learning amid COVID 19 pandemic. This covers the experiences of clinical instructors on how they coped with the challenges they experienced during blended learning. With this, CIs created alternatives to adapt to the current situation and performed actions that led them to success.

Wolverton et al. (2020) stipulated that independent learning, computer efficacy, external expectations, personalized learning, interest, and skill improvement are the factors that motivate CIs to cope with blended learning. The data were reflected in the verbalization of the respondents. They discussed their coping mechanisms to survive blended learning amid the COVID-19 pandemic.

With this, information such as learning educational gadgets, educational sites, and apps in order to conduct online classes; securing materials for online learning for the students and CIs throughout the semester; accepting the realities of blended learning caused by the global pandemic; and setting class goals, are shared as ways of coping with blended learning. The coping strategies of the CIs were further explained in the cluster themes: *Obtaining techno skills; a positive outlook; and implementing protocols.*

Cluster Theme 1: Obtaining Techno Skills

The theme, "Obtaining techno skills", posited one of the essential coping mechanisms used by CIs during blended learning. This is a strategy for learning how to use gadgets and apps appropriate for the program. However, since several CIs were not technology-savvy, they asked for help to fit in and adapt to blended learning.

The problems cited were difficulty in uploading instructional materials, editing videos to be presented in the class, and making presentations for lectures. Indeed, participants asked for help from those who knew how to navigate applications on

gadgets, which was supported by the following verbalization:

"I asked someone to teach me how to navigate educational apps and master computer programs since I am not techno-savvy regarding video recording and uploading videos to YouTube." (Participants 2 and 4)

According to Usmani (2021), instructors are responsible for creating instructional materials, which may include animated or realistic movies, online tests, homework assignments, and exercises. Universities must also have the necessary technological staff and resources to support blended learning. Cabello (2022) stated that it is necessary that professors in higher education have access to online learning activities that support students' overall growth (Kireev et al., 2019).

The university provided a common platform with the students to make blended learning easier for the CIs and the students. Thus, having a VLE as a platform for lectures and activities helped CIs easily upload the activities and materials. Furthermore, they asked for help from people who knew how to manage such a tool.

"We asked someone to teach us how to use Google Meet and Zoom since they are mainly used for online learning. Positively, the University trains us how to use our own VLE (virtual learning environment)." (Participants 1 and 4)

Aside from that, installing a fast internet connection helped CIs to lessen the burden and worries brought by blended learning. Moreover, taking the initiative and effort to buy things that could help in conducting an online class was one of the coping mechanisms of CIs, which was seconded by the responses:

"Buying gadgets and installing personal internet connection help us in our online classes. Whether we like it or not, these are essentials in the new normal of education. "(Participants 2 and 3)

Learning and acquiring technologies are required for blended learning because they will allow CIs to reach their students in a distance learning setting. Moreover, the CIs tried to learn how to use the technology, such as navigating applications for video editing, making PDF workbooks, uploading activities, and giving feedback through online platforms.

Alvarez, Jr. (2020) stated that teachers should have at least the necessary knowledge and skills to blend teaching and learning activities properly in a blended learning setting. As a result, the usage of technological tools should best match the needs of the students while ensuring that the course's combination of online and classroom instruction is appropriate (Chaeruman et al., 2018).

Cluster theme 2: Positive Outlook

The theme, "Positive outlook", noted the CIs' psychological coping exercise to fit in the new typical classroom setting. Since the COVID-19 pandemic created an impact on different institutions around the globe, especially in the sector of education. The sudden shift of class modalities from traditional face-to-face to blended learning forces tertiary educators to adapt to the current situation, especially those educators that are in line with healthcare education.

Change is constant. This phrase was proven by the learning approaches used by educators during the pandemic. The need to change the teaching approach resulted in the adaptation of educators to the situation to cope with blended learning amid the pandemic, as mentioned by the respondents:

"To overcome all the challenges in conducting blended learning, I think it helps when we have in mind that all teachers worldwide are experiencing the same problems. With this kind of mindset, the stress of CIs is reduced." (Participant 1)

Participants reflected on what they did to cope with the new learning and teaching approaches. Because they had no choice, they conditioned themselves to accept and willingly use the blended learning approach to provide quality education to their learners. Moreover, thinking about others suffering because of the pandemic helped in the gradual acceptance of the status quo. To set things straight, the status quo is defined as "the existing state of affairs"; therefore, it can be identified as positive or negative depending on the circumstances in any situation.

"To effectively handle the challenges, I maintain a mindset that blended learning is the new

normal of education. If we keep questioning the status quo, our thinking will not progress, which will eventually affect our performances as CIs." (Participant 6)

It is necessary to keep in mind that there is nothing people can do about the current situation in the world. Moreover, people need to accept and blend into the "new normal" gradually, if not willingly. Cabello (2022) stated that in order to be a resilient professor, one must succeed in the face of significant academic difficulties. Even though the silent tears shed during the blended learning mode of instruction may not be heard, they should still be thought about.

Settling for the things people are used to will only hinder the process and progress of change within oneself as well as with others. The coping mechanisms of educators were reflected in the statement below:

"We must go with the flow. We still need to abide by the system for blended learning to achieve our course's goals and objectives." (Participants 6 and 11)

Although there were plans when blended learning started, unexpected happenings may have triggered the change of plans. However, goals and objectives should be set before the start of every course to identify the type of teaching strategy to be used in lessons and to have a concrete result.

Everybody has a distinct level of acceptance, which is consistent with the idea that everyone has a special manner of adjusting to this new normal. While some teachers may learn the hard way, others may have bittersweet experiences with online classes, and some are lucky enough to dance to the beat of technology (Cabello, 2022).

Cluster theme 3: Implementing Protocols

The theme, "Implementing protocols", depicts the CIs' solution to the problem doing teaching and learning recognizing the health protocol and the strategy of employing a minimal number of students in one class setting.

This alternative created an equal opportunity for the student's learning activities without compromising the health of both students and faculty. However, it could be considered as more

workloads for the CIs. The class of medical course students was divided into half to follow the protocol for face-to-face learning. As a result, half of the class should attend online classes on a certain day, and the other half should have face-to-face classes at the university.

"During the f-2-f learning setup, we limit the number of students inside the classroom. If we cannot accommodate all students, we schedule half of the class in the next session." (Participants 2 and 4)

These coping mechanisms of the CIs were challenging on their end because they should conduct two classes for one lesson every day and should make one or more instructional materials in every lesson of two different class modes: online and face-to-face. Moreover, the teaching strategies they used might vary depending on their class's mode.

Previtali and Scarozza (2019), for instance, found that a mixed classroom with a high-class size makes it difficult to provide timely feedback; as a result, the requirement for instructional support may help ease students' fears. This simply serves to demonstrate that, even in a blended learning setting, class size plays a crucial role in the delivery of teaching and learning since it has an impact on how teachers instruct and control the learning environment (Alvarez, Jr., 2020).

Emergent Theme 3: Embracing Changes

The third emerging theme, "Embracing Changes", describes the insights and apprehensions of the CIs' on how they continue improving and advancing despite the shift in the educational landscape. Consequently, CIs try to learn and practice the needed materials and skills to teach their students the intended course in the most appropriate and timely manner. These efforts are the result of the CIs' love for their job, as well as their students. Their motivation to cope with and surpass the status quo is the patience they confide in the situation to continue providing learning to the students and their understanding of the students during blended learning.

CI's experiences during blended learning amid the pandemic impacted their teaching capabilities, and the situations they experienced

affected the role they played in the university as well as in the lives of their students.

Accordingly, providing students with a relevant and high-quality education is essential to their journey as future medical and healthcare professionals. It requires knowledge about the concepts and theories, skills for the actual practices, and a heart for their actions. Since a pandemic is still going on (as of this writing), CIs needed help in providing this kind of education, considering that the program for nursing requires integration and skills.

Four (4) qualities of teachers were identified as being particularly important for intrinsic motivation: having sincere care for the caliber of their instruction, understanding the need for pedagogical change, being able to critically reflect on their instruction, and having the imagination to experiment with technology. These are just a few examples of qualities that make good teachers (Bruggeman et al., 2019).

CIs' experiences were reflected in their verbalization. They expressed their insights as CIs to their peers as to what they would do to continue in their profession, even when unexpected challenges may come and may tamper with their drive as professionals. These insights were further elaborated in the cluster themes: *genuine attitude; mastery of concepts; and teacher-student relation.*

Cluster Theme 1: Genuine Attitude

The cluster theme, "genuine attitude", implies the viewpoint of CI to be open-minded, resilient, and flexible in teaching the course, such as using different teaching strategies in any class mode and being physically, psychologically, and emotionally prepared for any change in course or teaching modes.

Since nursing is more focused on applying the concepts and theories to the actual situation, during online classes, CIs exerted efforts to deliver the course in ways the students could understand, such as making video presentations about the concepts that needed integration. However, during face-to-face classes, CIs let the students perform those concepts seen in the video presented during online classes. This was reflected in the respondents' verbalization:

"I think I need to teach the nursing students clinical skills personally. When I teach nursing skills in an online class, I am assessing if they know the concept and I am checking students' skills during face-to-face classes." (Participants 1 and 13)

On the other hand, one participant stated that CIs should be flexible to quickly adapt to any situation, especially during blended learning, when educators must be used to both online and face-to-face classes combined. Moreover, being a flexible educator means being knowledgeable about using technology tools and being skilled in editing, making video presentations, PowerPoint presentations, or the basics of computers. Attending seminars and webinars could help in achieving such skills and knowledge.

"It is important to be flexible in adapting the necessary skills and conditions for online and face-to-face classes. Despite the situation, we must deliver their deliverables with integrity. Indeed, we should have a passion for teaching." (Participants 2 and 5)

The implementation of blended learning needs to consider an adjustment period for students and teachers to adopt this modality (Rendón et. al., 2022). Professors in higher education might discover incorporating technology into blended learning (Rasheed et al., 2020) because it is now required, important, and necessary. Flexibility is a must for instructors. (Cabello, 2022). It was a challenge for CIs to adapt to the situation, considering that they, too, were bombarded with responsibilities, not just at work but also in their respective households.

"We need to adapt to the blended learning setup amidst the pandemic by learning the required skills, such as attending seminars or webinar that enhances computer-related skills." (Participants 3 and 10)

Another insight shared by one participant was open-mindedness and resiliency. Exercising oneself to be open-minded will help one understand and overcome every challenge. When CIs or educators, in general, are used to the traditional approach to teaching, and the class suddenly shifts to blended learning, they need to be resilient to adapt easily to blended learning. This was proved by the verbalization:

"As a CI, we should be open-minded about what will happen because no one knows what the future holds. Whatever happens, we should continually hone ourselves to adjust to the new learning set-up". (Participant 6)

"Be resilient, resiliency is the key to success. (Participants 9, 10, and 13)

Being resilient in all areas of our lives is crucial during this pandemic (Walsh, 2020). According to Abdullah et al. (2020), one needs adaptation and flexibility to deal with technological changes if one want to become resilient in higher education (Cabello, 2022).

Cluster Theme 2: Mastery of Concepts

The theme, "mastery of concepts", depicts the usefulness of knowing every course and topic the CIs would provide to their students. Since blended learning began, some students have been using Google in their online classes, so it was easier to search for the topic they were studying. Sometimes, they would test their CIs' mastery of the topic and would ask them questions with the answer they already searched for. It is for the students and the love of their teaching the CIs are still able to fuel their advocacy in teaching.

Moreover, mastering the concepts, principles, methods, practices, and theories would help CIs explain the course well since some students were interactive. The stated sentiments were reflected in the verbalization:

"As a CI, we should read more on our topics because students tend to ask questions and sometimes test you if you know the answer." **(Participants 5 & 7)**

The CIs should master their course to deliver and execute the concepts, principles, methods, practices, and theories on nursing since they teach one of the most crucial professions. Furthermore, they should try to develop their skills and knowledge by reading continuously. Moreover, this would also prove the credibility and reliability of the CIs in their chosen field.

Insufficient clinical competence in a teacher decreases students' trust and stifles student-teacher interaction (Kol & İnce, 2018). Given the importance of clinical education, clinical instructors should be conscious of their professional obligations, make an effort to advance their theoretical and clinical expertise, and take into account the fundamentals of professional ethics. Also, by cooperating with their more seasoned coworkers, they can learn more (Soroush et al., 2021).

Cluster theme 3: Teacher-Students Relation

The theme, "Teacher-students relation ", describes the qualities and characteristics of a CI to their student to provide quality and standard education amid the COVID-19 pandemic. Students have their individuality: different opinions, experiences, and levels of understanding, so educators should improve themselves in handling their students.

Aside from the goal of providing quality and standard education, future healthcare educators should have a heart for what they ought to do to fulfill their responsibility, even when situations are getting out of hand. Thus, long patience with the students and passion to teach is the key to delivering and fulfilling their responsibility as educators. These were affirmed in the following verbalization:

"I suggest to future educators that they must have patience in teaching, especially in this time of crisis, considering that students are also facing hardships in their studies." (Participants 1, 2, and 7)

In other scenarios, CIs should also get to know their students: the challenges they are facing, their situations, their skills, and their difficulties, for them to understand and assess their students better.

"Being a CI, we need to adjust to our students and empathize with them. However, CIs should remember that too much empathy leads to students' developing negative habits among learners. Regardless of the situation, students should be encouraged to learn and to rely so much on their CIs." (Participant 7)

Additionally, CIs should empathize with their students' struggles because everyone is affected by blended learning, especially students. Some students struggle to keep up with the class because of specific issues with their families, neighbors, and

within themselves. Hence, CIs should be the people who understand them and consider them to a certain extent.

According to Armellini et al. (2021), students value teachers who show an interest in their personal lives. Good communication and relationship development encourage deeper engagement with academic work and foster a sense of belonging. The value that in-person sessions provide to students' learning is linked to their

Implications to Practice and Recommendations

The experiences of clinical instructors during blended learning amid the COVID-19 pandemic emphasize several challenges that these instructors had to overcome in day-to-day classes. Moreover, CIs constantly need help with the different teaching strategies they will use to provide their student with quality and relevant education, considering that nursing education is skill-based. In addition, the sudden shift in the mode of teaching-learning in the Philippines gives a hard time to the education system, faculties, and students, considering that the internet connectivity in the country is slow.

Primarily, the findings of this study were significantly instrumental in knowing and understanding the challenges experienced by CIs during blended learning. As evident in the theme, *facing abrupt change*, it was revealed that the CIs had a blended schooling dilemma, students' interaction below par, and poor access to the online community, which becomes a struggle for CIs during blended learning along with keeping up with their responsibility in the university and their household. It did not help that the students showed a lack or no interest in what the CIs were teaching during online classes, making them not knowledgeable about the course the CIs were teaching.

Reaching the student during blended learning was hard. One factor was due to poor internet connection. Hence, the challenges experienced by CIs somewhat affected their ways of teaching and the learning acquired by the students. However, despite the challenges, they must continuously seek improvements, be it with how they manage their class, deliver their deliverables, or improve themselves using different teaching strategies with technology

attendance at those sessions. Students express a willingness to reciprocate by devoting themselves more deeply and meaningfully to the educational process. The promotion of well-being and good mental health is greatly aided by a sense of belonging, which is essential for student engagement, retention, and academic achievement (McBeath et al., 2018).

intervention. One of the study's themes is *creating strategies,* which states the coping me*chanism of CIs to adjust easily to blended learning.* T*hus,* CIs would have to learn the newly introduced LMS and explore technological tools to quickly adapt because as the world innovates, methods and teaching strategies also innovate.

Hence, CIs should learn, understand, and explore new teaching methods to blend in with current and different situations that may happen in the future. They should also exercise patience in handling their students because certain circumstances may be out of anyone's control. The CIs' passion for educating future nurses was underscored in the theme, of *embracing changes,* which implied that the CIs learn to love and value their job genuinely. Through this, CIs will not have a hard time joining and adapting to the "new normal" because they become equipped with skills and knowledge, not just on the theories and concepts of nursing but also in using the technology needed in teaching. Additionally, they will be armored with genuine love, patience, and understanding with their job and their students.

As for the implications of the findings of this study to nursing education, by considering that the participants have shared the challenges they experience during blended learning, such as internet connectivity, it can be inferred that there is a need to provide a strong internet connection for both teachers and students as internet connectivity may affect the mode of teaching and teaching strategies of the CIs, as well as the learning process and learning interest of the student. On the other hand, the participants shared their hardships in navigating technological tools because they were not technology-savvy. Moreover, there is a need to conduct studies that could identify the feasibility of establishing a stable internet

connection and creating a workshop for CIs who need to be equipped in using the technology.

Once the internet connection is fixed and the workshop is established, the future researcher may focus on the perception of the receiving ends and the effectiveness of establishing a workshop for CIs. The study's proponent intends that, when these studies are integrated into actual scenarios, the quality of life of the CIs, students, and the institution may improve significantly and positively.

The study offers insights into how we can improve nursing practice by innovating, particularly by improving nursing skills. This research work also offers insights into how to advance the practical skills of nurses by continuously learning about nursing theories and applications. Furthermore, the research posited the importance of improving nursing knowledge by attending seminars and advancing educational attainment. Indeed, the study revealed that nursing as a profession is essential, which is more evident because of the pandemic.

On the other hand, this qualitative research contributes to the growing field of nursing practice and provides a platform for researchers in the nursing field, particularly on nursing education, policies in nursing and healthcare, healthcare systems, and healthcare management. Indeed, this paper underscored the status quo of nursing education and health care amid the pandemic, which paved the way to understanding that our national government, through learning institutions, should invest in nursing school institutions since it is integral considering the ongoing pandemic.

Also, this research endeavor further revealed that more research on the nursing field should be conducted to generate ideas to strengthen nursing education, which will lead to improving nursing and healthcare policies and systems, considering that we are still in a pandemic.

The researcher of this study has made the following recommendations for future researchers, which focused on the understanding lived experiences of the CIs during blended learning – to enhance the credibility, transferability, dependability, and conformability of future studies; 1) conducting a similar study directed to the experiences of the nursing students during blended learning, 2) preference to use both qualitative and quantitative research designs simultaneously.

Since the study has already started on the insights from the lived experiences of clinical instructors during blended learning amid the COVID-19 pandemic, it is also recommended to make a study about the experiences, challenges, coping mechanisms, and insights of nursing students during blended learning. It is integral to determine how they addressed learning during the pandemic, thinking that nursing education needs integration and practice, how they deal with pressure since they are not in contact with their instructors and classmates, and how they cope with the pressure in distance learning.

In addition, using quantitative research in supplementing data for this qualitative study is recommended to ensure the richness of the data and its reliability and accuracy.

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Patients' Awareness, Acceptance, and Perceived Benefits of Telehealth Nursing in a Level-I Hospital in IGACOS

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Abstract

Using the descriptive research design, this study determined the level of awareness, acceptance, and perceived benefits of telehealth nursing in a Level-I hospital in Samal City. A researcher-made questionnaire with Cronbach's ā=0.926 was used to survey the 200 respondents who were purposively selected for this study. Results revealed that most respondents were females aged 18 to 35 years old, who were college graduates in terms of education and living in rural areas. Further, the respondents were highly aware of telehealth nursing, primarily about the scheduling and services it provides, but they need more familiarity with the referral system through telehealth. Furthermore, the respondents perceived that telehealth is highly beneficial particularly on health accessibility but with lesser agreement in terms of its timely care benefit. Also, the respondents favorably accept the use of telehealth nursing services. Moreover, in terms of acceptance of telehealth nursing, the respondents have a high level of acceptance of the use of telehealth nursing consultation but identified barriers, such as poor internet connectivity, inability to afford a smartphone load, and delayed replies from telehealth providers. Hence, an enhancement program for such concerns was proposed accordingly.

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Introduction

The utilization of telehealth services in delivering healthcare to patients continues to expand particularly in this time of pandemic as an emergency response. Telehealth nursing is a relatively new concept that is radically changing the state of the healthcare system. The recent COVID-19 climate has caused an increase in telehealth use, with consumers now using remote care in lieu of in-person appointments. In response to this demand, healthcare providers in Samal City have scaled their offerings of telehealth, but improvements to efficiency, cost control, patient outcome, and satisfaction hold steady or drop. The low reported acceptance or usage rate of telehealth in Samal City raises a concern.

Accessibility to healthcare is a top concern globally, especially in remote areas where people's mobility and getting medical information to the public remain challenging. WHO defined telehealth as the valuable utilization of technology aiding health-related endeavors; telehealth services can

replace face-to-face visits (Gagnon, 2020). In Australia, the government promotes telehealth as a solution to the challenge of providing health services across geographically dispersed countries (Bradford et al., 2019).

In the Philippines, problems with telehealth adaptation were evident due to challenges in system governance and implementation (Ong et al., 2022). Telehealth is still relatively underdeveloped and has recently been introduced to the masses. The government must still promote public awareness and acceptance of telehealth (Macariola et al., 2021). This concern has resulted in thousands of underserved Filipinos needing reachable and affordable medical attention (Gajarawala et al., 2020). In Davao City, telehealth has been practiced during the height of the COVID-19 pandemic. However, with the easing of the health protocol restrictions, patients now have the option for in-person consultations due to customs and familiarity.

Evidence is abundant from several studies that affirm Filipinos' awareness, perceptions, and acceptance regarding telehealth and highlight the importance of promoting the accessibility of services (Almeida et al., 2022). For telehealth initiatives to succeed, the public must recognize and understand the potential benefits (Bradford et al., 2019). One review of telehealth studies summarizing multiple trials reports that up to 70% of patients asked to try telehealth refused to participate or prematurely discontinue utilization. However, few studies have examined the reasons for acceptance or refusal of telehealth, especially among HF patients who need daily symptom management at home. Research addressing this question is important given the current efforts to expand telehealth benefit coverage among Medicare recipients.

Moreover, it was found that increasing emphasis on patient awareness and perception benefits, providing efficient and quality care, and minimizing costs have also led to higher telehealth implementation (Gajarawala et al., 2020). With this

study, the researcher aims to collect data on telehealth's awareness, acceptance, and perceived benefits as a medical service from Level-I hospital patients. Considering the prevalence of adverse events globally, this study intended to achieve a more comprehensive view of its associated issues, which may also provide a glance into opportunities for enhancement.

Methods

A total of 200 respondents were selected through the purposive sampling technique. They were selected on the following criterion: must be 18 years of age and above, without regard to gender and sexual orientation, regardless of their educational attainment, technological literacy, location, a patient of the selected institution, mentally fit, know how to utilize the use of computers, smartphones, tablets, and other devices; and willing to participate in the study.

This study used the descriptive survey using the Input-Process-Output (IPO) model to describe the respondents' demographic profile and determine their levels of awareness, acceptance, and perceived benefits of telehealth nursing among patients in the level-I hospital in PEEDO-DDNH IGACOS Zone. These data were gathered through profiling, the use of a survey questionnaire, and the focus group discussion, and were processed through statistical tools afterward. A proposed enhancement program was created after that.

Two hundred (200) respondents were chosen to participate in this study using the purposive sampling technique method. In selecting the respondents, the following inclusion criteria were implemented; the study respondents were men and women aged 18 and above, regardless of their educational attainment, technological literacy, and location, whether they live in a rural or urban area, presently living in the Island Garden City of Samal, Davao del Norte at the time of the study. The data gathering started on February 2023 and ended on March 2023.

The data needed for this study were gathered using a researcher–made survey questionnaire with

four parts. Before the administration of survey questionnaires, the instrument was subjected to validation and reliability testing. Three (3) experts in the field were asked to validate the research instrument. After this, the researcher conducted a pilot study wherein thirty (200) respondents were requested to answer the survey questionnaire followed by a Cronbach's Alpha reliability analysis or consistency testing.

There were four (4) parts of the survey questionnaire. The first part identified the demographic profile of the respondents in terms of age, sex, educational attainment, technological literacy, and location. The second part of the questionnaire contained a total of fourteen (14) items that determined the level of awareness of the respondents on telehealth nursing in terms of scheduling (5 items), services (5 items), and referral system (4 items). The third part of the questionnaire

is about the level of acceptance of telehealth nursing and contains five (5) items that determine the level of awareness. Lastly, the final part of the survey questionnaire determined the perceived benefits of telehealth nursing, containing fifteen (15) items. In terms of time efficiency (5 items), cost savings (3 items), healthcare accessibility (2 items), and Timely care (5 items).

The study incorporated Frequency Distribution and Percentage to determine the demographic profile of the respondents in terms of age, sex, educational attainment, technological literacy, and location. Moreover, Mean and Standard Deviation were used to measure the level of the respondents' awareness, acceptance, and perceived benefits of telehealth nursing.

Results and Discussion

Table 1. Demographic Profile of the Respondents

Demographic Profile	Frequency (n=200)	Percentage (%)
Age*		
18 to 35 years old	100	50.00
35 to 60 years old	92	46.00
61 years old and above	8	4.00
Total	200	
Sex		
Male	68	34.00
Female	132	66.00
Total	200	
Educational Attainment		
College Graduate	72	36.00
College Undergraduate	64	32.00
Highschool Graduate	55	27.50
Highschool Undergraduate	9	4.50
Total	200	

Technological Literacy		
Poor	11	5.50
Fair	35	17.50
Good	101	50.50
Very Good	37	18.50
Excellent	16	8.00
Total	200	
Location		
Urban	93	46.50
Rural	107	53.50
Total	200	

Note (*): Age ranges are based on the ranges set by Robert Havighurst in his Developmental Task Theory (Bialowas, 2022).

The various demographic profile of the respondents was shown in Table 1 presents the demographic profile of the respondents in terms of age, sex, educational attainment, technological literacy, and location. In terms of age, most of the respondents – 100 out of 200 respondents, 50% - ranged from 18 to 35 years old. This result suggests that the respondents were in Early Adulthood Stage – a stage wherein humans learn how to be productive members of society. Adults manage to select a mate, raise a family, manage a home, and further their career. We are interested in learning to give and receive love in intimate and long-term relationships and guiding the next generation's development, typically by becoming parents (Bialowas, 2022).

A higher proportion of the respondents were females of 132 (66%) while males were composed of 68 (34%). Regarding educational attainment, the majority of respondents in this study, 72 out of 200 (36%), were college graduates, while nine out of the total respondents were high school freshmen (4.50%). Regarding technological literacy, half of the respondents in this study – that is, 101 out of 200 respondents (50.50%) – had a good level of proficiency or were in the middle range. At the same time, 11 out of 200 respondents (5.50%) were at a poor level. Moreover, 107 out of 200 respondents (53.50%) in this study live in rural areas and 93 out of 200 respondents (46.50%) in this study live in urban areas.

Table 2. Level of Awareness of Telehealth Nursing of the Respondents

Indicator	Mean	SD	Description
Scheduling	4.38	0.55	Highly Aware
Services	4.39	0.49	Highly Aware
Referral System	4.36	0.48	Highly Aware
Overall	4.38	0.51	Highly Aware

Legend: 5:00 – 4.21 – Highly Aware; 4.20 – 3.41 – Aware; 3.40 – 2.61 – Somewhat Aware; 2.60 – 1.81 – Less Aware; 1.80 – 1.00 – Not Aware; SD – Standard Deviation

Table 2 shows the level of awareness of telehealth nursing in terms of scheduling, services, and referral system. The overall mean was 4.38, with a standard deviation of 0.51 and a descriptive level of highly aware. This implies that the respondents had a high level of awareness regarding telehealth nursing, with consistent and minimal variation across all categories. Likewise, the study of Shouman et al. (2022) also yielded results that show the high awareness percentage of telehealth among attendees was 64.7%, while the willingness or acceptance to implement telehealth was 78%. Both awareness and willingness were significantly associated with age groups, location, and technological literacy among patients in the multivariable analysis.

Among the indicators, services received the highest mean of 4.39 with a standard deviation of 0.49 and a descriptive level of highly aware. This implies that the respondents were mindful, confident, and highly aware of telehealth nursing services— conversely, the result of Assaye et. Al (2022) showed that approximately 56.4% of respondents knew 57.4% of telehealth services. Over half of the participants were well-versed in and aware of telehealth applications and services.

Moreover, the indicator with the lowest mean was the referral system, with 4.36. Its standard deviation was 0.48, with a descriptive level of highly aware, it appears to be conscious when it comes to the referral system, and the respondents are aware of the limitations of the hospital. This concurs with the study of Gadenz et al. (2021), in which implementing telehealth strategies to support referral management has been shown to improve primary care resolution and facilitate care coordination.

Table 3. Level of Perceived Benefits of Telehealth Nursing of the Respondents

Indicator	Mean	SD	Description
Time Efficiency	4.39	0.66	Highly Beneficial
Cost Savings	4.42	0.61	Highly Beneficial
Health Accessibility	4.46	0.57	Highly Beneficial
Timely Care	4.32	0.55	Highly Beneficial
Overall	4.40	0.60	Highly Beneficial

Legend: 5:00 – 4.21 – Highly Beneficial; 4.20 – 3.41 – Beneficial; 3.40 – 2.61 – Somewhat Beneficial; 2.60 – 1.81 – Less Beneficial; 1.80 – 1.00 – Not Beneficial; SD – Standard Deviation

The table above shows the level of perceived benefits of telehealth nursing in terms of time efficiency, cost savings, health accessibility, and timely care. As reflected in the tabulated data, the overall mean was 4.40, with a standard deviation of 0.60 and a descriptive level of highly beneficial. The result implies that most respondents perceived telehealth nursing as favorable, desirable, and helpful.

The indicators with the highest mean were health accessibility with 4.46, standard deviations of 0,57, and described as highly beneficial. This implies that health accessibility could be highly beneficial to the respondents toward telehealth. A similar result was reflected in the study of Ng et al. (2021), which revealed that accessibility to telemedicine has improved, but inequities are a source of concern. Awareness raising and training programs, such as installing and deploying online web conferencing platforms, should be considered to make telehealth accessible to vulnerable populations. One way to improve patient access through telehealth is by allowing patients to see their providers over the phone (Bocas, 2022). These results agree with the findings of Ncube et al. (2023), wherein it was determined that patients identified multiple benefits of telehealth: We believed it could provide improved access to specialists and medical facilities, reduced costs, convenience, and preventive care, and could help address identified health problems.

On the other hand, the indicator with the lowest mean was timely care, with a mean of 4.32, a standard deviation of 0.55, and a verbal description of highly beneficial. During the focus group discussions, most respondents said telehealth promptly addresses common medical concerns and provides safe diagnosis and remote treatment. This contradicts numerous studies pointing out that the healthcare provider's considerable challenge is directing patients to the right specialist or healthcare provider as fast as possible (Ross, 2019).

Table 4. Level of Acceptance of Telehealth Nursing of the Respondents

Indicator	Mean	SD	Description
Level of Acceptance	4.22	0.87	Highly Acceptable
Overall	4.22	0.87	Highly Acceptable

Legend: 5:00 – 4.21 – Highly Acceptable; 4.20 – 3.41 – Acceptable; 3.40 – 2.61 – Somewhat Acceptable; 2.60 – 1.81 – Less Acceptable; 1.80 – 1.00 – Not Acceptable; SD – Standard Deviation

Table 4 shows the level of acceptance of telehealth nursing with a mean score of 4.22, a standard deviation of 0.87, and a descriptive level of highly acceptable. This implies that the respondents had an adequate and positive attitude towards it, and there is less variability in the responses. The mean score of 4.22 implies that 50 percent of respondents scored four or higher, while the other 50 percent scored less than 4. This indicates that most respondents had a favorable view of telehealth nursing. For instance, in the study of Crouch, Winters, Zhang, and Stewart (2023), while the Covid-19 pandemic has affected how we work, where we can go, and what we must wear, telehealth has become increasingly more available. As this study suggests, participants in the Southern United States have been more open to using telehealth. Investors, providers, and stakeholders should see this as a significant sign of more telehealth acceptance in the future. Diseases that spread like Covid-19 could be ripe ground for telehealth development. Telehealth visits for diseases like flu and other respiratory illness might receive more acceptance among patients.

Conclusion and Recommendations

The current study concluded that most respondents are aged 18 to 35, female, college graduates with good technological literacy, and live in rural areas. The respondents had a highly aware level of awareness of telehealth nursing regarding scheduling, services, and referral system. The respondents possessed highly beneficial levels of perception of the benefits of telehealth nursing in terms of time efficiency, cost savings, health accessibility, and timely care. However, there is some variation in how respondents perceive each of these benefits, particularly regarding time efficiency. The mean perceived level of benefits across all categories is 4, with standard deviations varying between categories. This indicates that most respondents perceived telehealth nursing to have positive benefits, with relatively low levels of variation in their responses. The respondents had a highly acceptable level of acceptance of telehealth nursing, with most having a positive attitude toward it. There is less variability in the responses. This indicates that most respondents had a favorable view of telehealth nursing. It differs from their telehealth barriers, such as poor internet connectivity, inability to afford a smartphone load for mobile data, and delayed replies from the telehealth workers.

It has also been identified during the focus group discussion that one of the reasons why they choose telehealth nursing or virtual consultation rather than going to the hospital is the accessibility, cost savings, and time efficiency, especially for those people who live in a rural area that has poor transportation accessibility. In addition, they also identified the barriers to having a telehealth consultation, such as poor internet connectivity, inability to afford a smartphone load for mobile data, and delayed replies from the telehealth workers.

For these reasons, the researcher formulated several enhancement programs that addressed these areas in their acceptance, awareness, and perceived benefits of telehealth nursing. Program: 1. Allocation of Intensive Education Campaigns in the Telehealth Program in the City. Program: 2. Putting up free access to the internet and computers in Barangay Health Centers tied up with private telecommunication providers such as Globe, DITO, or Smart. Program: 3. Increasing patient engagement and satisfaction regarding the Referral System and Timely Care. Utilizing Nursing and Medical Staff in the Telehealth Staff – Out Patient Department.

Based on the findings that were gathered, the following recommendations were offered for consideration: This study determined that the respondents were primarily females ages 18 to 35, college graduates with good technological literacy, and living in rural areas. The study's findings may also encourage men to seek telehealth regardless of age, especially those living in urban areas, even if they are not experts in using technology. The findings of this study may also aid the health care providers, especially those who are serving at the telehealth consultations and are in direct contact with

these telehealth patients, in identifying what the barriers of telehealth are and how to enhance the acceptance, awareness, and perceived benefits of using telehealth nursing. The study's findings may also guide hospital administrators to create standard policies and procedures, identify and dedicate staff to facilitate, and invest in infrastructures necessary to support telehealth encounters through improved connectivity and buy appropriate types of equipment. Future researchers may use the nonparametric technique information that was gathered as a reference for further research on this subject. The findings of this study may serve as a great resource of information in highlighting the current level of awareness, acceptance, and perceived benefits in a Level-I hospital in the Island Garden City of Samal, Davao Del Norte, towards telehealth nursing.

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Faith or Health: Struggles of Diabetic Muslim Patients during Ramadan

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Abstract

The objective of this study was to investigate the experiences of Muslim diabetic patients during Ramadan at a level 1 private hospital in Isulan Sultan Kudarat, using qualitative research methodology utilizing the phenomenological approach. There were ten diabetic Muslim participants in this study who were purposively chosen as they are admitted to the hospital during Ramadan and diagnosed for at least two years. There were five participants for the focus group discussion and in-depth interview. The findings of the study showed that in hot water encounters, spiritual vs. physical, expectation vs. Reality, and intellect vs. emotion were among the challenges experienced by the participants. Correspondingly, bearing the brunt, devotion to God, being physically sensitive, lightening the load, and following the doctor's advice were the coping mechanism done by the participants. Lastly, insights to prepare for the worst, Respect for one's beliefs, be sensitive to someone in need, and educate and nurture was the certain thought that could be imparted to diabetic Muslim patients, especially during the time of Ramadan.

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Introduction

Muslims who observe Islam consider fasting throughout the month of Ramadan to be a significant religious duty. According to estimates, 79% of Muslims who have Type 2 Diabetes fast during Ramadan experience an increased risk of hypo- and hyperglycemia, and had a substantial impact on glycemic control (Al-Arouj et al., 2019). Elbagir et al., 2018 agreed that those who fasted during Ramadan were more likely to experience difficulties, especially if they had poor glycemic control. These findings demonstrate that Muslims with type 2 diabetes may experience difficulties fasting throughout Ramadan and may benefit from personalized management techniques.

Numerous Muslim diabetic patients insist on fasting throughout Ramadan, which poses a medical problem for both them and their medical professionals (Al-Arouj, et al., 2019). Medical personnel need to be more aware of potential dangers related to Ramadan fasting as well as strategies to reduce those risks. Not only in Indonesia, Pakistan, and the Middle East, but also in North America, Europe, and Oceania these challenges are quickly becoming global ones (Al-Musnad, 2020).

Considering this conundrum, nurses working in the field of universal healthcare are unsure how to provide Muslim diabetic patients with high-quality care. The challenging duty of giving Muslim patients sound medical advice about the benefits and risks of fasting is placed on nurses (Bulucu-Büyüksoy, 2020). Therefore, healthcare professionals must be aware of any

potential dangers associated with Ramadan fasting and have the requisite strategies to mitigate those risks (Almalki, 2018).

Muslims across the nation maintain a fast from dawn to dusk during the holy month of Ramadan, which is celebrated by all adherents of Islam (Al-Shahri & Al-Khenaizan, 2020). Muslims who fast seek a deeper level of intimacy with God. Fasting is regarded as a deeply intimate act of prayer (Alghafli · 2019). Muslim patients with diabetes who must choose between their health and their faith are extremely concerned because of their profound reverence and loyalty to their Islamic beliefs.

In this study, it is crucial to make clear that fasting is commonly understood to mean refraining from food and liquids for about 16 hours per day for 29 days. Since fasting is seen as a profoundly personal act of worship to God, the mental struggle of a devoted diabetic Muslim patient is evident. Fasting is undoubtedly challenging for Muslim diabetic patients since they must choose between their health and their faith.

Healthcare professionals in Isulan, Sultan Kudarat, struggle to give Muslim patients the right medical advice about the effects of fasting during Ramadan because of this conundrum. Therefore, it is crucial for nurses, who are on the front lines of providing high-quality healthcare, to be aware of and prepared for the potential effects of Ramadan fasting. This study was proposed to solve medication gaps, ease those hazards among diabetic Muslim patients, and reduce those dangers based on this point of view.

Method

This study used a qualitative descriptive-phenomenological research method to gain a thorough understanding of the Ramadan experiences of diabetic Muslim patients. The descriptive phenomenological study was employed because it enables the researcher to preserve the "voice" of the participants without excluding their points of view through analysis (Giorgi & Giorgi, 2017). In-depth interviews and focus groups were employed in this study to collect data. Qualitative methods encourage high depth and detail in data collecting and offer a significant quantity of information about a small number of people (Patton, 2015).

A descriptive-phenomenological design is appropriate to be used in this study because it allows us to understand the essence of diabetic Muslim patients' experiences and challenges during the entire duration of Ramadan.

The data gathering took place in the municipality of Isulan, Sultan Kudarat, a 1st class municipality in the province of Sultan Kudarat. For purposes of this study, the research locale focuses on the Muslim Diabetic patients at Isulan Doctor's Specialist Center Inc. Alongside the demographic data, is the profile of the religious affiliation of the municipality, the majority or 47.9 % of the population are Catholics, while 29.5% are Islam believers.

In this qualitative study, purposive sampling was applied. The study's participants were chosen on purpose. They are specifically chosen because they are Muslims who have been admitted to a level 1 hospital in Isulan, Sultan Kudarat, have had a diabetes diagnosis for at least two years, are at least 40 years old and above, and are currently residents of Isulan, Sultan Kudarat, regardless of their gender or marital status. Five (5) Muslim diabetes patients served as the key informants for the In-Depth Interview (IDI) and five (5) participants were used for the Focus Group Discussion (FGD).

To acquire accurate information about the real-life experiences of Muslims who have been diagnosed with diabetes, themes were developed throughout the interview. This investigated the question of whether Muslim diabetes patients should observe the compulsory 29-day fast of Ramadan of 16 hours a day or should deviate from it because of their health.

Both the IDI and FGD employed the same set of questionnaires. The interview provided the informants with the chance to express their thoughts and further share their own experiences. To clarify and explain general or ambiguous issues regarding their experiences, further

probing and follow-up questions are suggested and expressed about the material that was revealed and shared. Hence, the conducted interview lasts for approximately 45 to 60 minutes.

To generate themes with precision, the study adhered to Colaizzi's (1978) descriptive phenomenological methodology. The result is a succinct yet comprehensive explanation of the phenomenon under study, supported by the people who contributed to its creation. The actions taken during the analysis process are described in the paragraphs that follow.

First, familiarization. The researcher read through the transcripts of every participant's

narrative numerous times to become familiar with the data. Second, the researcher found important quotes that have a direct bearing on the topic under study. After carefully examining the significant utterances, the researcher determined meanings that were pertinent to the phenomenon. Fourth, the researcher organized the meanings that had been determined into themes that were present in all narratives. Fifth, the researcher included all the topics that were generated in a thorough account of the phenomenon. Finally, the researcher condensed the lengthy description into a succinct, compact statement that only included the elements judged to be crucial to the phenomenon's structure.

Results and Discussion

The steps represented by the Colaizzi process for descriptive-phenomenological data analysis (Sanders, 2013; Speziale & Carpenter, 2013) were used to organize, provide structure to, and elicit meaning from the closer introspection on experiences of the diabetic Muslim patients during Ramadan in this section's narrative dialogue with the study participants, which was translated and was presented in English in this chapter.

Regardless of gender or marital status, all participants had to be Muslims who had been admitted to a level 1 hospital in Isulan, Sultan Kudarat, had a diabetes diagnosis for at least two years, and were current residents of Isulan, Sultan Kudarat. The data was gathered through a thorough interview that was audio recorded and a discussion with a focus group. The study's participants received verbal and written assurances that their anonymity would be protected. The audio and video recordings were safely kept after the study was over. The demographic survey's data was collected without identifying any individual. Also, participants

were informed that they could discontinue the study or the interview whenever they desired.

Accurately describing people's lives and experiences is the goal of descriptive phenomenological methods. Epoché, which means "to discard any knowledge not instantly provided to awareness and then treat what is offered not as actually existent but just as something presented to consciousness," is a technique used in this method (Giorgi et al., 2017). Colaizzi's (2013) seven-step method of descriptive phenomenological analysis was used to combine several important claims and topic clusters into a comprehensive description that helps to fully describe the phenomena.

Twelve semi-structured interview transcripts yielded a total of 115 notable statements. The researcher then gave the individuals' statements significance by extrapolating relevant remarks from all of their data sources. The initials of prospective cluster themes concerning each significant remark were used to code each created meaning. The example of articulated meanings emerging from key utterances is seen in Table 2 below.

Table 2. Formulated Meaning from Significant Statements

Significant Statements	Formulated Meanings
I sacrifice for my faith, but when I get tired, I just rest at home. I refrain from doing another routine task then I pray to Allah to give me strength so I can pursue my goal because I believe that when I fast Allah will heal me because I am doing this for Him	Trusting one's faith.
I do not miss fasting every Ramadan. I can survive without eating for long hours so I can show my great sacrifice for Allah	Believing one's body capacity

Following the formulation of the meanings for the 115 key statements, cluster themes representing related concepts to the study's aims were derived by grouping or clustering the formulated meanings. Spiritual against physical, expectation versus reality, intellect versus emotion, devotion to God, being physically sensitive, lightening the load, following doctors' advice, preparing for the worst, respect for one's belief, being sensitive to someone in need, and educating and nurture were the 11 cluster themes that were found. The cluster theme "Spiritual versus physical" was formed by grouping coded constructed meanings obtained from comparable significant statements. An example of this cluster topic is shown in Table 3 below.

Table 3. Development of Cluster Themes

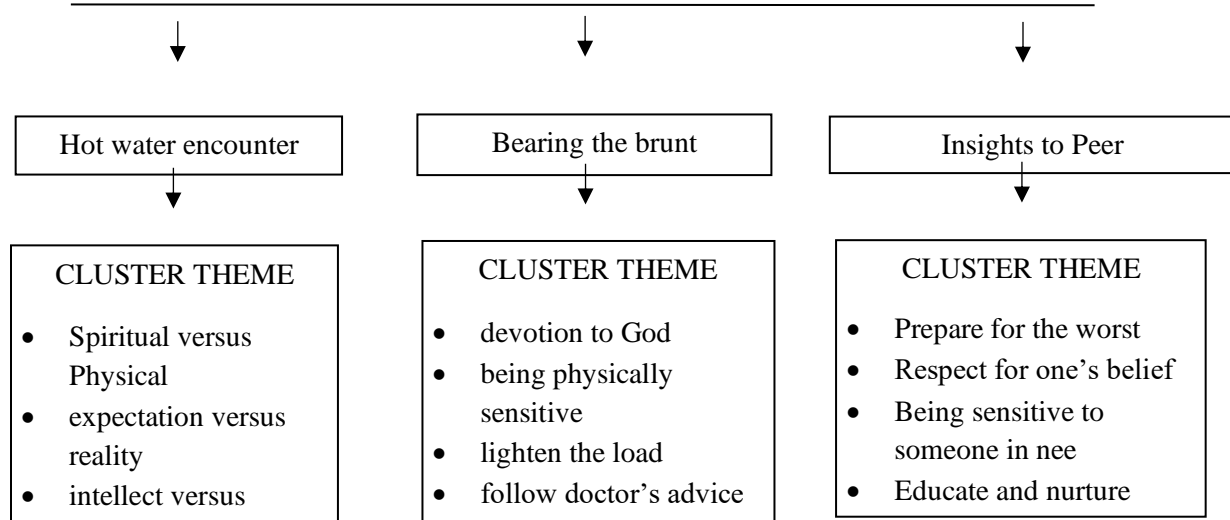| Formulated Meanings	Cluster Themes
	Spiritual vs Physical
Trusting one's faith.	This cluster theme shows that the diabetic Muslim patient during Ramadan truly believes in the essence of fasting and believes to thrive in it even with a diabetic condition.
Believing one's body capacity	

The ten cluster themes gave rise to three emergent topics, which served as the basis for the conclusions reported in the study. Hot water encounters, taking the brunt, and peer insights were the three emerging themes. The themes that surfaced during the data analysis process served as the basis for accurately reflecting the participants in this study's lived experiences.

The narratives of the participants offered a thorough description of their lived experience through the process of extracting significant statements, formulating meanings, and building cluster and emergent themes.

The narratives of the participants, which were taken from the interview data, are used to describe the emergent themes in the section that follows. It includes a summary of the participant's responses to the following research question: "What are the challenges encountered by diabetic Muslim patients in the observance of Ramadan?, "How do the participants cope with the challenges of their experiences" and "What insights can participants share to their peers and the community in general"?

Shown below is a thematic map of this study:

FAITH OR HEALTH: STRUGGLES OF DIABETIC MUSLIM PATIENT DURING RAMADAN

Hot water encounter	Bearing the brunt	Insights to Peer
CLUSTER THEME • Spiritual versus Physical • expectation versus reality • intellect versus	**CLUSTER THEME** • devotion to God • being physically sensitive • lighten the load • follow doctor's advice	**CLUSTER THEME** • Prepare for the worst • Respect for one's belief • Being sensitive to someone in nee • Educate and nurture

Emergent Theme 1. Hot water encounter

The experience of the participants as regards their challenges battling against diabetes during the Ramadan period is related to encountering hot water. The participants emphasized that in such an occasion, it has always been their struggle just as anybody's experience with what is unusual to their practice. But because in Islamic culture, Ramadan is the most sacred month of the year, they needed to at least dispose of themselves properly for the culture.

It is crucial for diabetic Muslims to carefully control their blood sugar levels and avoid consequences like infections, which can be more common among diabetics. In some circumstances, washing oneself with hot water might raise the risk of infection, particularly if the water is extremely hot or the skin is already vulnerable owing to high blood sugar (Ahmad et al., 2020).

Muslim diabetic patients may need to take other considerations linked to religious rituals and diabetes treatment into consideration in addition to controlling blood sugar levels and avoiding infections. For instance, fasting during Ramadan is a significant religious tradition for Muslims, but diabetes individuals may find it difficult to manage their blood sugar levels and prevent issues like hypoglycemia (Al-Adsani, et al., 2020). Muslim diabetic patients may need to engage with their healthcare practitioner to create a specialized plan for treating their diabetes during Ramadan to meet these issues. This may entail modifying medication dosages, routinely checking blood sugar levels, and altering the timing and nature of meals during non-fasting hours (Alkaabi, et al., 2018).

Therefore, it is crucial for diabetic Muslims to be upfront with their doctor and to consult Islamic scholars who are educated about

the relationship between diabetes and their religion for advice. Together, patients and healthcare professionals can create efficient diabetes management plans that maintain significant religious practises (Iddir, et al., 2021).

Cluster Theme 1: Spiritual versus Physical

In general, issues about the non-material, intangible parts of human existence, such as one's beliefs, values, and emotions, are referred to as "spiritual." It might include activities like prayer, meditation, or introspection and is frequently linked to religious or philosophical traditions.

The term "physical," on the other hand, refers to the observable, material elements of human existence, including the body, the senses, and the physical setting. This can involve things like physical activity, proper nutrition, and medical care.

Although the spiritual and physical sides of human experience are distinct from one another, they are nonetheless linked. For instance, some people may discover that practicing spiritual disciplines like meditation helps them feel more rooted and better equipped to handle problems with their physical health. Similarly, maintaining good physical health can help one's capacity for spiritual practice and a sense of well-being. The following are the utterances of the participants.

I know that it's difficult for me but I know the command of Allah, so even how hard is, I chose to obey God. **Participant 1**

I sacrifice for my faith, but when I get tired, I just rest at home. I refrain from doing another routine task then I pray to Allah to give me strength so I can pursue my goal because I believe that when I fast Allah will heal me. After all, I am doing this for Him. - **Participant 10**

I do not miss fasting every Ramadan. I can survive without eating for long hours so I can show my great sacrifice for Allah. - **Participant 2**

In this context, a Ramadan Prospective Diabetes Study was carried out by Ahmedani et al. (2020) to examine the influence of spirituality on diabetes self-management during Ramadan among Muslim patients with diabetes. The study's findings imply that addressing the spiritual requirements of Muslim diabetes patients can be a crucial part of managing diabetes throughout Ramadan. To determine the impact of a spiritual program on glucose control and quality of life among Muslim patients with type 2 diabetes during Ramadan fasting, Al-Adsani et al. (2021) conducted a randomized controlled experiment. The study's findings showing the spiritual program improved glycemic control and quality of life in the intervention group support the idea that meeting the spiritual needs of Muslim diabetic patients can help them fare better during Ramadan.

Cluster Theme 2: Expectation versus Reality

Differences between one's expectations or anticipation of an event or experience and the actual reality or outcome of that event or experience are referred to as anticipation vs actuality. At times, people may have low expectations or expect a bad experience, only to discover that things turned out better than they had anticipated. Anticipation vs reality can be used to describe the expectations and perceptions of patients and healthcare professionals regarding the effects of fasting on glucose control and overall health outcomes in the context of diabetic Muslim patients during Ramadan. Depending on their views or prior experiences, some patients and healthcare professionals may believe that fasting during Ramadan will deteriorate glycemic control and raise the risk of complications, while others may have more optimistic expectations.

The reality of Ramadan fasting for diabetic Muslim patients may occasionally match their expectations, resulting in anticipated improvements in glucose control and general health outcomes. Yet, in other situations, the truth might not match expectations, resulting in unexpected results and significant difficulties with diabetes treatment. Hence, it is crucial for healthcare professionals to be aware of how fasting may affect glycemic control and to collaborate with patients to create tailored management strategies that consider the anticipated difficulties and dangers during the fasting period. The following utterances are within the context of anticipation versus reality.

When I discovered that I have Diabetic I thought I can survive the day. But when I started fasting, my body struggled so I decided that I will not any more join fasting because I already experience how to be rushed to the hospital because of weakness and nausea. **-Participant 6**

I expect that when I fast, my physical condition can improve however when I did, I was rushed to the hospital due to low blood sugar levels. Now I realized that I need to also consider my body condition before fasting. However still, I am happy that I am doing this sacrifice for Allah." **Participant 4**

Given the context, Al-Mesbah et al. (2018) carried out a cross-sectional study to evaluate patients with type 2 diabetes expectations and views of fasting during Ramadan. According to the study, patients anticipated a variety of benefits from fasting, such as enhanced spiritual well-being, improved glycemic management, and social advantages. Yet, the study also discovered that several patients were worried about how fasting would harm their ability to control their diabetes and general health. A systematic evaluation of studies on how fasting during Ramadan affects diabetes patients' glycemic control was carried out by Mansouri et al. in 2019. The review discovered that the effects of fasting on glycemic control varied depending on patient-specific characteristics, including medication use and dietary patterns, and that some patients' glycemic control improved during fasting while others saw it deteriorate.

Cluster Theme 3: Intellect versus Emotion

The friction or conflict that can exist between rational thought and emotional responses in behavior or decision-making is referred to as intellect against emotion. This can appear in a variety of ways, such as when a person must decide whether to trust their instincts or rely on reason or when they must control their emotional reactions to make the best option possible.

Intellect versus emotion can be used to describe the difficulties of juggling the emotional and social aspects of fasting during this significant religious period with the need to maintain optimal glycemic control and prevent potential health complications in the context of diabetic Muslim patients during Ramadan.

When working with diabetic Muslim patients during Ramadan, healthcare professionals should consider the emotional and social factors that may affect the patient's behavior and decision-making. They should also collaborate with the patients to develop management plans that strike a balance between these factors and the need for the best possible glycemic control and overall health outcomes. This may entail modifying medication schedules, continuously monitoring glucose control throughout the fasting period, and offering education and support to patients to assist them in making educated decisions and managing emotional reactions to fasting. Consider the following transcripts uttered by the participants in this context:

One has to decide whether to fast or not to fast because according to Allah He will give you a beautiful life, you can enter paradise and He will forgive your sin.

Participant 2

After I fasted and went to the doctor for a check-up, I discovered that my condition worsens. Before I completely trust Allah and never minded about my diabetes but I neglected the possible consequences on my body so my feet were cut because I did not listen to the doctor's advice during the early stage. ***Participant 3***

Only Allah can give me strength, so I just follow the instruction of Allah given in the Quran Anyway no one dies for not eating for several hours that's why I survived the fasting because I know Allah is with me. ***Participant 4***

Having pointed out those utterances, several studies postulated something. In this study by Almalki, et al., 2020, diabetic Muslim patients who fast during Ramadan had their glycemic control and emotional intelligence levels examined. The authors discovered a correlation between emotional intelligence and better glycemic control throughout the fasting period, indicating that emotional elements may be important for managing diabetes during Ramadan.

Emergent Theme 2. Bearing the brunt

"Bearing the brunt" refers to having to endure the unfavorable effects of a circumstance or choice, frequently without any control or influence. It can be used to describe a variety of situations, such as personal difficulty or hardship as well as social or political injustice.

Bearing the brunt can allude to the difficulties and unfavorable health effects that certain patients may have because of their diabetes and fasting during this significant religious time for Muslim patients with diabetes. Patients with uncontrolled diabetes or other comorbidities, for instance, may be more susceptible to problems including dehydration and hypoglycemia during the fasting period. In addition, patients may experience social stigma or prejudice because of their illness or how they manage it throughout Ramadan.

Being able to establish the context, Al-Arouj et al. (2018) emphasize the significance of tailoring treatment regimens for every patient, considering elements including age, comorbidities, and glycemic control level. Additionally, they stress the importance of patient support and education in ensuring the safe and efficient management of diabetes throughout Ramadan.

According to Salti et al., 2018, patients with type 1 diabetes were more likely to experience hypoglycemia when fasting throughout Ramadan. They discovered that individuals who regularly checked their blood glucose levels and altered their medication schedules were better able to control their diabetes while fasting.

Lastly, Hassanein et al. (2018) stress the possible difficulties and dangers of fasting for diabetic patients and offer suggestions for modifying medication schedules, checking blood glucose levels, and managing complications like hypoglycemia. Additionally, they stress the value of patient support and education and offer suggestions for ways to get around obstacles to safe and efficient diabetes management throughout Ramadan.

Overall, these studies shed light on the difficulties that Muslim diabetic patients may have when fasting during Ramadan and offer suggestions for managing diabetes safely and successfully during this significant religious time.

Cluster Theme 1: Devotion to God

Muslim practices of the Five Pillars of Islam—shahada (statement of faith), salah (prayer), zakat (charity), sawm (fasting), and hajj—are a major expression of their devotion to God (pilgrimage to Mecca). Muslims are required to make a pilgrimage to Mecca at least once in their lifetime if they are physically and financially able, pray five times a day, give to charity, fast during the month of Ramadan, and publicly profess their belief in Allah.

In Islam, devotion to God entails submitting to His will and following His instructions as stated in the Quran and the teachings of Prophet Muhammad. Muslims consider it to be their duty to worship God and carry out His will for them in this life and the next. Many Muslims find comfort and direction in their devotion to God, which helps them overcome the difficulties of daily life and find peace and fulfillment in their spiritual journey. The following are utterances of the participants as an expression of their devotion to God:

I am willing to be hungry for Allah as long as I am showing Him my
full trusted obedience. ***Participant 4***

I know that when it comes to the law of Allah, I need to do a sacrifice so I can enter His paradise." **Participant 1**

I believe that my fasting will give me strength so I can pay my sins to Allah. **Participant 2**

In the beginning, it was really difficult to fast when you are diabetic. You will feel some physical discomforts and extreme hunger but because I need to obey Allah, even how difficult it is for me. **Participant 5**

The given context, result of this study supports several studies that were conducted along with the given context. During Ramadan, many Muslim diabetic patients place a high priority on their devotion to God. According to Mohd Nor et al. (2018), patients with more positive religious coping strategies had better psychological health and glycemic control than those with more negative religious coping strategies. According to Ahmedani et al. (2020), patients who had higher degrees of spirituality and religious piety were more likely to follow their diabetes self-management routines throughout Ramadan. Furthermore, Afandi et al. (2021) discovered that people who had a strong faith in God were more likely to put their commitments to their religion above their health during a fast. According to these studies, religious coping mechanisms and spiritual practices may benefit diabetic Muslim patients' psychological health, glycemic control, and self-management of their diabetes throughout Ramadan.

Cluster Theme 2: Being Physically Sensitive

The term "physically sensitive" describes a person who is especially sensitive to bodily sensations or stimuli, which frequently lead to discomfort, pain, or other unpleasant feelings. This may show up as having a low pain threshold, having sensory overload, or being quickly startled by specific stimuli, among other manifestations.

Being physically sensitive might be an issue for Muslim diabetic patients during Ramadan because fasting can be physically taxing and may even aggravate pre-existing medical issues. Studies have looked at how fasting during Ramadan affects diabetic patients' physical sensitivity, notably in terms of pain perception and glycemic management. The following transcripts are utterances of the participants as regards being physically sensitive:

I sacrifice for my faith, but when I get tired, I just rest at home. I refrain from doing another routine task then I pray to Allah to give me strength so I can pursue my goal because I believe that when I fast Allah will heal me. After all, I am doing this for Him. - **Participant 10**

Every time I fast, I use to find other activities to do just to divert my attention from my hunger and thirst. I read Quran and worship Allah. When I get tired, I just go to sleep to recharge my body so

when I woke up, I got my strength renewed and I am well again.
Participant 4

According to a study by Al-Arouj et al. (2019), diabetic individuals who fasted throughout Ramadan reported being more sensitive to pain than those who did not. The study also discovered that neither patient group's glycemic control was significantly impacted by Ramadan fasting. Similar findings were made by Beshyah et al. (2019), who discovered that diabetic patients who fasted throughout Ramadan experienced higher levels of hypoglycemia than diabetic patients who did not fast, which may be related to the increased physical sensitivity brought on by fasting.

Al-Arouj, et al. (2019) investigated how Ramadan fasting affected diabetes patients' perceptions of pain. According to the study, diabetic individuals who fasted throughout Ramadan experienced greater levels of pain sensitivity than diabetic patients who did not fast. In either patient group, the study did not discover any appreciable effects of Ramadan fasting on glycemic management.

Cluster Theme 3: Lighten the Load

In general, the phrase "lighten the weight" refers to the process of easing a burden or stress. In the context of healthcare, it can refer to tactics or measures intended to lessen the toll of illness or enhance patients' quality of life.

When referring to diabetic Muslim patients during Ramadan, "lightening the load" may refer to tactics designed to make controlling diabetes and fasting during this time easier. Assisting patients in managing their illness throughout the fasting period, may involve dietary changes, modifying medication schedules, and offering education and support. Below are the utterances of the participants:

When I was tired, I tried to sleep and get rest. When I woke up, I felt that I was strong again. When I think that I need a doctor, I get a consultation so I can avoid possible worse scenarios. **Participant 4**

When I am fasting, I just stay at home instead of going around and being tired. I just read Quran so I will not be hungry or thirst easily. Maybe, it's just okay if I do not have diabetes that I can be capable of working. **Participant 2**

Given the context of the study, there are several studies on various strategies for lightening the load for diabetic Muslim patients during Ramadan. An organized diabetes education program's effects on glucose control and quality of life in diabetic patients who planned to fast throughout Ramadan were examined by Al-Arouj, et al. (2019). According to the study, patients who participated in the education program had better glycemic control and higher reported quality of life scores than those who did not.

Faleh, et al. (2020) investigated how a modified Ramadan fasting schedule affected diabetes patients' glucose management. According to the study, compared to patients who followed a conventional fasting regimen, those who followed a modified fasting regimen

had better glycemic control and suffered fewer bouts of hypoglycemia. A systematic analysis of the literature on the effects of Ramadan fasting on glycemic control in diabetic patients was carried out by Hassanein et al. in 2021. The review discovered that a variety of tactics, including food changes, physical activity, and medication changes, can be useful in treating diabetes during the fasting days of Ramadan and enhancing glycemic control.

Cluster Theme 4: Follow Doctor's Advice

To "follow a doctor's advice" is to do as instructed by a medical professional regarding one's health or medical condition. It entails following the physician's recommendations for medicine, lifestyle modifications, nutrition, exercise, and any other procedures required for the treatment and management of a specific health issue. It's imperative to follow a doctor's instructions for the best possible health and treatment results. To completely comprehend the advice offered and how to properly execute it, it's crucial to ask questions and be open with the doctor.

For Muslim diabetes patients who fast throughout Ramadan, it's crucial to heed their doctor's recommendations for medication administration, blood glucose monitoring, and dietary modifications to maintain top health throughout the month-long celebration. Here are the following utterance by the participants as regards following the doctor's advice:

I suggest to my peers that they do their best to stay healthy and follow the proper way if they feel something bad. When needed, they need to consult the doctor to avoid the worsening of the problem. **Participant 4**

My advice to my fellow Diabetic patient during Ramadan is that when they feel bad about their body, they need to see the doctor and follow the doctor's advice. **Participant 1**

Following the context of the utterance, several studies are in some way parallel with the current study. During Ramadan, diabetic Muslim patients may experience changes in their blood glucose levels and an increased risk of complications, according to a systematic review and meta-analysis by Ibrahim et al. published in 2018. As a result, these patients need individualized medical advice to ensure safe and effective fasting.

A structured education program that concentrated on medication management, blood glucose monitoring, and dietary adjustments was found to be effective in improving glycemic control and lowering the risk of hypoglycemia in diabetic Muslim patients who fasted during Ramadan, according to another study by Almalki et al. published in 2019. According to a 2020 randomized controlled experiment by Al-Rubeaa et al., telemedicine-based interventions with remote monitoring and guidance from medical professionals may also assist diabetic Muslim patients to fast successfully throughout Ramadan.

Emergent Theme 3: Insights to Peers

Sharing knowledge, experiences, or expertise with coworkers or other professionals in the same sector or industry is referred to as "Insights to Peers." It entails sharing insightful knowledge or counsel that can assist peers in

enhancing their performance or achieving better results in their corresponding roles. Peer insights can be shared in a variety of ways, including by presenting research results, discussing best practices, giving comments, or delivering coaching or mentoring. In the case of diabetic Muslim patients, insights from peers may entail exchanging information and expertise on the best ways to manage diabetes while fasting throughout Ramadan. Peers can offer advice on how to guarantee safe and successful fasting, including regular blood glucose testing, modifying medication dosage and timing, and making the proper food adjustments.

Having said those, a 2018 study by Abdu et al. found that educating healthcare professionals on diabetes can improve their understanding of and confidence in managing diabetes while fasting during Ramadan, as well as their capacity to educate and counsel patients. Peer support groups may be useful in fostering

self-management behaviors and enhancing glucose control in diabetic Muslim patients who fast throughout Ramadan, according to a 2019 study by Alramadan et al.

Pathan et al., 2020 stated in a comprehensive review and meta-analysis that managing diabetes during Ramadan requires collaborative care models involving a range of healthcare professionals, such as primary care doctors, endocrinologists, and pharmacists. Also, they underlined the necessity of interprofessional education and training to enhance provider collaboration and communication. Therefore, discussing experiences with colleagues regarding diabetic Muslim patients during Ramadan might encourage cooperation and knowledge exchange among healthcare professionals, enhance the standard of care and results for these patients, and foster teamwork.

Cluster Theme 1: Prepare for the Worst

A frequent expression that conveys the idea of being ready for the worst-case scenario is "prepare for the worst." It entails exercising caution and taking early measures to lessen the possible harm caused by unforeseen circumstances or events. This could entail establishing emergency response protocols, developing contingency plans, purchasing insurance, or engaging in other types of risk transfer.

The adage "Be ready for the worst" can be used to describe a variety of events, including financial crises, personal difficulties, and natural disasters. Individuals and organizations can improve their resilience and capacity to deal with adversity, as well as reduce the potential impact on themselves and others, by anticipating and preparing for the worst-case situation. Consider the following utterance from the participants below as regards preparing for the worst:

Make sure that the family knows what you are feeling so they can prepare for emergencies whenever possible. The people you are with should be aware of what to do in case of an emergency. **Participant 4**

There was a time when I lost consciousness because of hypoglycemia and my family panicked about what to do. So, I think it is important to be fully aware of your health condition. Do not wait until you cannot carry yourself before asking for help. Let the people with you be aware of your condition so they will be guided on how to help you when you feel worst. **Participant 8**

According to a 2019 study by Chentli et al., systematic diabetes education programs may help diabetic Muslim patients get ready for

Ramadan fasting while lowering their risk of hypoglycemia and other problems. According to the study, patients who got organized education

had a better awareness of the advantages and disadvantages of fasting and were more likely to make the necessary changes to their medication and food plans. Also in 2020, Pathan et al. released a systematic review and meta-analysis that emphasized the significance of frequent blood glucose monitoring and glycemic control in diabetic Muslim patients throughout Ramadan. The authors suggested that patients regularly check their blood glucose levels, make necessary adjustments to their medication and food plans, and cooperate with their healthcare professionals to set realistic and doable objectives for glycemic management.

Cluster Theme 2: Respect for one's belief

The act of embracing and appreciating others' values, ideas, and opinions—even when they diverge from one's own—is referred to as respect for one's beliefs. It entails accepting and respecting people's freedom to have and share their own opinions without hindrance or bias. An important component of fostering social harmony, diversity, and inclusiveness is respect for one's beliefs. It entails treating others with dignity despite their backgrounds, beliefs, or customs and calls for open-mindedness, tolerance, and understanding.

Respect for one's beliefs is crucial in a variety of situations, but it is especially crucial in the healthcare industry since patients may hold varying cultural or religious beliefs that have an impact on their health and wellness. Healthcare professionals are urged to respect and consider these beliefs while also providing care that is grounded in science and sensitive to cultural differences. Moreover, respect for one's religious convictions is essential for establishing interfaith understanding, as well as a peaceful and inclusive society. Even when people have different thoughts or opinions, it enables them to have fruitful talks and develop deep connections. Below is the transcript spoken by the participant as regards respect for one's beliefs:

I am devoted to Allah and I am willing to do everything that will make him happy. Every Islam believer should adhere to the teaching of Allah about fasting however if a member of the family decides to stop fasting, I will control him/her because it is his/her commitment to Allah and I respect his decisions. **Participant 5**

Hui et al. (2020) also stressed in a review study the significance of cultural sensitivity and tolerance for Muslim patients during Ramadan, as well as the special difficulties that they can encounter. According to the paper, healthcare professionals should collaborate with patients to create tailored management regimens that take into consideration their cultural and religious practices and offer clear instructions on how to manage their diabetes while fasting.

Healthcare professionals must be sensitive to cultural differences, sympathetic to their patients' plight, and understand to respect the beliefs and traditions of diabetic Muslim patients throughout Ramadan. However, managing diabetes requires a team-based, tailored approach that respects individuals' cultural and religious views as well as their medical history, medication use, and dietary habits (Abdu et al., 2018; Chentli et al., 2019; Hui et al., 2020).

Cluster Theme 3: Being Sensitive to Someone in Need

Being sensitive to someone in need is being conscious of their emotional state and

reacting with kindness and compassion. This can entail paying attention to their worries, expressing support and encouragement, and, if possible, offering useful assistance. This is how the participants expressed themselves during the interview. Magnitude of expression yielded to

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how they manage to continue their own lives by still becoming attentive to the needs of others especially those who have the same condition as them. The following are the transcripts of the participants as regards being sensitive to the need of others

When somebody is fasting and I know he/she is diabetic, I make myself aware of her/him especially since I know how difficult it is to have hypoglycemia and other complications during delayed meals. I also tell other members of the family how to respond to her when she feels physically bad. ***Participant 7***

I help my peers to do simple tasks when fasting. I know how difficult to fast while having Diabetes. When they want to have rest, I understand her. ***Participant 4***

A further point made by Ali et al. (2020) was the significance of sensitivity and empathy in providing patient-centered care for diabetic Muslim patients during Ramadan. The study made clear how important it is for medical professionals to comprehend the difficulties and worries of their patients and to collaborate with them to create specialized management regimens that take into consideration their cultural and religious beliefs.

Also, a study by Alshamsi et al. (2021) discovered that healthcare professionals who showed empathy and sensitivity to their diabetic Muslim patients during Ramadan were more

likely to build a connection with them, gain their trust, and deliver quality medical care. The study advised healthcare professionals to manage diabetes holistically and patient-centered, with an emphasis on the unique requirements and preferences of each patient.

Therefore, healthcare professionals must be sympathetic, caring, and culturally aware to meet the needs of diabetic Muslim patients throughout Ramadan. Also, managing diabetes demands a cooperative and patient-centered approach that considers the difficulties and worries of each patient (Al Sifri et al., 2018; Ali et al., 2020; Alshamsi et al., 2021).

Cluster Theme 4: Educate and Nurture

Effective healthcare for Muslim diabetic patients during Ramadan requires both education and caring. Patients' health outcomes and quality of life can be enhanced by educating them about their illness, giving them the tools and knowledge, they need to control their diabetes, and nurturing them via support and

encouragement. In the course of the interview with the participants, they were so clear to emphasize the principle behind education and nurturing. Amidst the time devoted to Ramadan, education continues, and it further nurtures their attitude towards maintaining observance of Ramadan even if they are having diabetes condition. Consider the transcript below:

Patients with Diabetics should be oriented with the pros and cons of fasting. They must follow the doctor's advice to avoid problems in their health. ***Participants 2***

In addition, Talsania et al. (2020) discovered that education and empowerment were crucial in encouraging self-management and diabetes control among diabetic Muslim patients during Ramadan. According to the study, healthcare professionals should concentrate on increasing their patients' self-efficacy and confidence in controlling their diabetes through goal setting, counseling, and education.

Furthermore, a study by Al-Khawaldeh et al. (2021) emphasized the value of fostering and assisting diabetic Muslim patients throughout Ramadan through a patient-centered and collaborative approach to care. According to the

study, medical professionals must develop close bonds with their patients that are founded on empathy, respect, and trust as well as offer them emotional and practical support throughout the fasting time.

Therefore, healthcare professionals must adopt a proactive and patient-centered approach to care to educate and support diabetic Muslim patients during Ramadan. This approach should center on giving patients the knowledge and skills they need to effectively manage their diabetes and on offering them emotional and practical support throughout the fasting period (Khatib et al., 2019; Talsania et al., 2020; Al-Khawaldeh et al., 2021).

Conclusion and Recommendations

This study employed the descriptive-phenomenological research methodology. In-depth face-to-face interviews were done separately with each informant. Understanding people's perceptions, viewpoints, and comprehension of a particular event is the goal of phenomenological research (or phenomenon). Through direct inquiry and description of occurrences, as consciously experienced by the study's respondents, phenomenology research aims to describe a "lived experience" of a phenomenon (Water, 2016).

Focus group discussions, interviews, and participation/observation were all part of the data collection process. It investigated problems, probe into phenomena, and examine and interpret unstructured data. Any unstructured data, including open-ended survey responses, literature studies, audio recordings, films, photos, and social media, are included in this analysis.

Following the formulation of the major statement meanings, cluster themes were created by grouping or clustering the meanings to represent concepts linked to the study's goals. Following are the twelve cluster themes that were found: spiritual vs. physical, expectation vs. reality, intellect vs. emotion, devotion to God, being physically sensitive, lightening the load, respect for one's belief, being sensitive to someone in need, and educating and nurturing.

The twelve cluster themes gave rise to three emergent themes, which served as the basis for the research's conclusions. The following were the emerging themes: hot water encounter, bearing the brunt, insights to peers.

The researcher came up with the following recommendations for further studies to help with data collection to ensure credibility, transferability, dependability, and confirmability.

First, is the application of a different kind of triangulation, specifically data triangulation or combining two triangulation techniques. In-depth semi-structured interviews and a focus group discussion that was facilitated by a questionnaire approved by nursing research specialists were the two ways utilized in this study's approach triangulation to collect data. However, it is also strongly advised to use a different kind of triangulation or a combination of triangulation techniques when collecting and analyzing data to further boost the study's credibility. The sort of triangulation that involves obtaining data using various sampling techniques, such as gathering data from various persons or data sources at various times or in various settings, may be used by other researchers. This type of triangulation is more properly known as data triangulation.

Secondly, researchers may also further research studies regarding response strategies for

Diabetic patients who fast during emergencies. Further research on the perspectives of Islam Practices on fasting healthy and safely. Also recommended further understanding of the

travails of nurses assigned to Diabetic patients. Subsequently, efforts can continue to discover how Diabetic Islam believers gather information and make judgments about fasting.

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The Mediating Effect of Academic Stress on the Learning Engagement and Academic Success of Nursing Students of Selected Schools in Digos City

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Abstract

This study aimed to determine the mediating effect of academic stress on the learning engagement and academic success of nursing students. Using the descriptive predictive research design, the study was conducted among 263 nursing students in Digos City, selected using a simple random sampling technique. Results showed that the nursing students in Digos City were predominantly female, ages 18 to 21 years old, single, and in their senior year. The respondents showed a moderate level of learning engagement, academic success, and academic stress. Further, the correlation analysis displayed a positive relationship among variables. This suggests that nursing students who were highly engaged in their learning will likely succeed academically. Furthermore, academic stress partially mediates the relationship between learning engagement and the academic success of nursing students. This denotes that learning engagement and academic stress are significant predictors of the academic success of nursing students. This further shows, that for students to have academic success, their learning engagement should be improved through assessing and addressing academic stress.

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Introduction

Learning engagement is a broad phrase that involves both efficacy and student effort. Students determine their level of effort and, hence, their level of learning. The range of learning engagements encompasses all academic programs, from early childhood to post-graduate, and instructors face significant challenges in engaging students in the learning environment (Hamra, 2019). The emergence of the COVID-19 epidemic exacerbated the effort of educators to create an exciting learning environment. Colleges and universities have been forced to transition from face-to-face instruction to online and virtual classrooms. As a result of this unprecedented abrupt transformation, students and teachers found themselves in an unfamiliar learning environment. Thus, teachers and students had an unsatisfactory virtual learning experience due to a general lack of preparedness and bandwidth constraints. Further, the pandemic of COVID-19 has significantly disrupted the medical and health profession's education and training and ongoing professional development (Andoh, R. & Henaku, 2020).

Learning engagement and academic success are frequently related in the medical and health professions. Nursing professors are usually expected to make the theoretical concepts they

provide attractive and engaging so students can connect the course topic to its practical application. Students who engage in their learning will achieve academic success but will also be skilled problem solvers, self-assured, straightforward, and resilient when faced with future obligations for greater levels of patient care (Bayoumy & Alsayed, 2021). Anxiety and stress, on the other hand, have been noted as critical issues experienced by nursing students during the pandemic, according to research. (García-González et al., 2021; Sheroun et al., 2020). Stressors such as a lack of professional knowledge and skills, theory-practice gaps, inability to interact effectively with patients, fear of making errors, feelings of ineptitude, and patient observation cause nursing students to suffer varying degrees of stress. Stress affects nursing students' learning and has been linked to academic failure and harmful conduct (Admi et al., 2018; Li & Hasson, 2020; Stankovska et al., 2018; Yüksel & Bahadır-Yılmaz, 2019).

Stress levels of nursing students arise significantly during the COVID-19 pandemic and might directly impact their learning engagement and, eventually, their academic success. On this premise, the researcher felt the tenacity and urgency to conduct the study entitled, the mediating effect of academic stress on the learning engagement and the academic success of nursing students in Digos City. Further, the researcher searched thoroughly and found no comparable studies focusing on nursing students' learning engagement and academic success during the COVID-19 epidemic and the mediation role of academic stress.

Methods

This study used a predictive-correlational research design. A quantitative technique was used in the study to determine the categorical variables and inspect the level to which more than one variable was associated with or related (Cook & Cook, 2008).

The province of Davao del Sur, Digos City, would be the research site. The number of nursing students in Digos City was estimated at 870; 267 were used as the sample size, with a 5% margin of error and a 95% confidence level. A reliability test was conducted for the instrument for the final survey, and the sample size calculator (Raosoft) was utilized to determine the sample size of respondents.

The simple random sampling method was used in this study to cover the selected nursing schools in Digos City. During the conduct of the data gathering, there were 263 successful responses taken from two Medical Schools in Digos City, which will be an alias as School A and B in this study. The total number of respondents taken for the study is more than sufficient according to Bongomin et al., (2018).

The questionnaire was divided into three sections, and the first part collected information on the respondent's age, school, marital status, and year level. This section also offers instructions for completing the questionnaire. The second section of the questionnaire focused on nursing students' learning engagement. It used an adapted questionnaire taken from the survey of Dixson (2015) entitled "Online Student Engagement (OSE) Scale for the Indicator Learning Engagement ."

On the other hand, an adapted questionnaire was used to measure the academic success of nursing students, which was taken from the study by Lomax et al. (2011) entitled "Predicting Students ' Academic Performance in College Using a New Non-cognitive Measure: an Instrument Design and a Structural Equation Exploration of Some Non-cognitive Attributes and Academic ."

Furthermore, the student's academic stress questionnaires were adapted from Zheng et al.'s (2020) study entitled "Autonomy Support and Academic Stress: A Relationship Mediated by Self-regulated Learning and Mastery Goal

Orientation ."The questionnaire items were rated using the 5-point Likert's Scale with options ranging from Strongly Agree to Strongly Disagree.

Results and Discussions

Table 2. Profile of the Nursing Students in Digos City

Profile	Frequency	Percent
Age		
18 to 21	247	93.91
22 to 26	11	4.18
27 to 31	5	1.91
Total	**263**	**100.0**
Sex		
Male	108	41.1
Female	155	58.9
Total	**263**	**100.0**
Marital Status		
Single	259	98.5
Married	4	1.5
Total	**263**	**100.0**
Year Level		
First-year	64	24.3
Second year	70	26.6
Third year	18	6.8
Fourth-year	111	42.2
Total	**263**	**100.0**

The profile of the nursing students in Digos City was taken according to age, sex, marital status, and year levels. It can be gleaned in Table 1 that according to the profile, in terms of age, the nursing students in Digos City are dominantly in the age range of 19 to 21 (n=247), which constitutes 93.91 percent of the total respondents. Followed by 22 to 26 (n=11), which constitutes 4.18 percent, and 1.91 percent of nursing students between 27 to 31 (n=5). Regarding gender, the total respondents, 263, are dominantly female (n=155), constituting 58.9 percent, followed by males (n=108), constituting 41.1 percent. Regarding their marital status, the profile of the nursing students in Digos City is dominantly single (n=259), which constitutes 98.5 percent, and pre-dominantly married (n=4), which is 1.5 percent of the total respondents. Lastly, the profile of the respondents in terms of year levels was also taken and computed. Results revealed that nursing students in Digos City are dominantly in their senior year or fourth-year level (n=111), constituting 42.2 percent. Pre-dominantly, nursing students in Digos City are in

their junior year or second year (n=70), constituting 26.6 percent of the total respondents. Also, first-year nursing students constitute 24.3 percent (n=24.3); third-year students (n=18) constitute 6.8 percent. The profile of the nursing students in Digos City in terms of age is similar to Tosun and Sinan's (2020) study, which revealed that nursing students in Turkey have a mean age of 21.19 and are dominantly female which constitutes 88.6 percent of the total nursing students. Likewise, Zhi et al.'s (2022) study on

psychological stress in nursing showed that the nursing students in the locality are dominantly the age range of 18-23 and are females, constituting 89.6 percent of the nursing population in the province of Hubei, China. Further, the research finding corroborates the study of Keener et al. (2021), which revealed that nursing students during the pandemic are in the age range of 18-26, and most are female, single, and in their senior year.

Table 3. Level of Learning Engagement of the Nursing Students in Digos City

Indicator	Mean	SD	Interpretation
Skills	**3.26**	1.32	Moderate
Participation	3.22	1.33	Moderate
Performance	3.22	1.27	Moderate
Emotion	**3.18**	1.30	Moderate
Overall	**3.22**	**1.31**	**Moderate**

Legend: 5.00 - 4.21 – Very High; 4.20 – 3.41 – High; 3.40 - 2.61 – Moderate; 2.60 - 1.81 – Low; 1.80 - 1.00 – Very Low; SD – Standard Deviation

The nursing students' learning engagement levels in Digos City were considered. As shown in Table 3, learning engagement was measured using the following indicators: skills, participation, performance, and emotion. Computed results revealed that learning engagement has an overall mean score of 3.22, assessed as "moderate." Among all the indicators, skills have the highest mean score of 2.36, descriptively interpreted as "moderate." Participation as one of the indicators for learning engagement has a mean score of 3.22, assessed as "moderate." Similarly, performance has a mean score of 3.22, interpreted as "moderate." Lastly, emotion, as one of the indicators, has a mean score of 3.18 and is assessed as "moderate."

The abovementioned results indicate that nursing students have moderate learning engagement during and post-pandemic because of the minimal effects on their skills,

participation, performance, and emotion. This finding corroborates Kang and Zhang's (2020) study, which highlighted that the students adapted the e-learning process with limited digestion and integration to academic learning during the pandemic and post-pandemic. Further, Halif et al.'s (2020) study emphasized the decreasing satisfaction of the students with the concept of learning engagement. The study also stressed the importance of personal growth and learning engagement in conjunction with relevant academic activities.

Similarly, according to Xerri et al.'s (2018) research findings, low to moderate academic activity participation among students might lead to discontent, unpleasant experiences, and dropping out of school. Conversely, the studies conducted by Kay and Pasarica (2019) and Tang et al. (2022) found that students' learning engagement is associated with the

teacher's creativity in teaching. Research findings have shown that the teaching style and strategies

of the instructor affect students' behavioral and emotional engagement.

Table 4. Level of Academic Success of the Nursing Students in Digos City

Indicator	Mean	SD	Interpretation
Academic Self-efficacy	**3.18**	1.25	Moderate
Achievement motivation	**3.31**	1.34	Moderate
Academic Engagement	3.27	1.32	Moderate
Overall	**3.25**	**1.30**	**Moderate**

Legend: 5.00 - 4.21 – Very High; 4.20 – 3.41 – High; 3.40 - 2.61 – Moderate; 2.60 - 1.81 – Low; 1.80 - 1.00 – Very Low; SD – Standard Deviation

The levels of academic success of the nursing students in Digos City were also taken and measured using the indicators of academic self-efficacy, achievement motivation, and academic engagement, as shown in Table 4. Results revealed that academic success has an overall mean score of 3.25, interpreted as "moderate." Academic motivation has a mean score of 3.31, also assessed as "moderate." Further, academic engagement as one of the indicators for academic success has a mean score of 3.27, descriptively interpreted as "moderate." Lastly, academic self-efficacy was used as one of the parameters for academic success. Results revealed a mean score of 3.18, also interpreted as "moderate." The moderate result indicates that the nursing students had excellent self-efficacy, motivation, and engagement during the spread of the COVID-19 pandemic.

The study of Handoyo et al. (2021) has shown that self-efficacy contributes to nursing students' academic success. Further, the study highlighted that self-efficacy includes clinical realities, clinical environments, students' academic capabilities, and personal factors. In addition, Albagawi et al.'s (2019) study viewed

self-efficacy as a personal motivation that helps nursing students believe in their ability to respond to challenging situations and manage any associated problems. Further, Alosaimi's (2021), Moghadari-Koosha et al.'s (2020), and Shehadeh et al.'s (2020) studies emphasized that having a moderate level of self-efficacy is a good indicator of predicting nursing students' academic performance, especially in clinical practice.

Likewise, according to Roshangar et al. (2020), nursing students are more likely to have low self-efficacy. However, nursing students with moderate to high levels of self-efficacy have higher self-esteem because they can manage stress and build relationships, which leads to successful function. Mthimunye and Daniels (2019) highlighted that academic success is closely related to motivation, cultural values, and beliefs about learning. Further, it was emphasized in their study that self-efficacy has a significant impact on student's academic performance. Lavasani and Khandan's (2020) study confirmed that there are three psychological variables relative to students' academic success: emotional intelligence, self-efficacy, and self-esteem.

Table 5. Level of Academic Stress of the Nursing Students in Digos City

Indicator	Mean	SD	Interpretation
Academic Workload	3.12	1.17	Moderate
Teacher Expectation	**3.26**	1.26	Moderate
Pressure to Perform	**3.11**	1.23	Moderate
Academic Self-Perception	**3.11**	1.18	Moderate
Overall	**3.15**	**1.21**	**Moderate**

Legend: 5.00 - 4.21 – Very High; 4.20 – 3.41 – High; 3.40 - 2.61 – Moderate; 2.60 - 1.81 – Low; 1.80 - 1.00 – Very Low; SD – Standard Deviation

The academic stress of the nursing students in Digos City was measured using the indicators: academic workload, teacher's expectations, pressure to perform, and academic self-perception. Table 5 shows the level of academic stress among nursing students in Digos City. Results revealed that academic stress has an overall mean score of 3.15 (SD = 1.216), descriptively interpreted as "Moderate." The moderate overall result was because of the indicator. Teachers' expectations as one of the indicators for academic stress have a mean score of 3.26 and are assessed as "Moderate." The academic workload has a mean score of 3.12, interpreted as "Moderates." Regarding the indicators of pressure to perform and academic self-perception, both have mean scores of 3.11 also interpreted as "Moderate."

The study's finding corroborates Aihie and Ohanaka's (2019) research, which highlighted that students' academic stress was affected by individuals' perceptions of their academic frustrations, conflicts, pressures, and academic responses to their goals. Further, according to Asif et al.'s (2020) study, other sources of academic stress may be caused by their teachers' excessive workload, unhealthy classroom competition, time pressures, and lack of finances. From a different viewpoint, the study of Pajarianto et al. (2020) explained that academic stress could come from home. It implied that students are burdened with homework assignments from family and school, which makes them experience stress and could eventually affect their academic performance.

Table 6. Correlation Analysis of the Variables

Pair	Variables	Correlation Coefficient	p-value	Decision on Ho
1. IV and DV	Learning Engagement and Academic Success	.889	.000	Reject
2. IV and MV	Learning Engagement and Academic Stress	.807	.000	Reject
3. MV and DV	Academic Stress and Academic Success	.857	.000	Reject

Legend: p<0.01, significant

Displayed in Table 6 are the results of the correlation between the independent (learning engagement), independent (academic success), and mediator (academic stress) variables. Bivariate correlation analysis using Pearson product-moment correlation was employed to determine the relationship between the variables.

The first zero-ordered correlation analysis between learning engagement and academic success revealed a computed r-value of .880 with a probability value of p<0.000, which is significant at the 0.01 level. The result indicates a moderate correlation between the two variables that increased learning engagement will increase the academic success of nursing students in Digos City. Hence, the null hypothesis, which states that there is no significant relationship between learning engagement and academic success, is therefore rejected.

The abovementioned findings of this study corroborate Özgenel and Bozkurt's (2019) research which states a positive relationship between students learning engagement and their academic success. Thus, the finding has shown that students were working hard to get good grades and reached them by focusing and staying up the lesson (Aihie & Ohanaka, 2019). Further, based on the study of Carmona-Halty et al.

(2021), learning engagement is related to a positive emotion, self-efficacy, which, in turn, predicts academic success. Conversely, the studies found by Crouch et al. (2019) and Özgenel and Bozkurt (2019) found substantial correlations between school participation levels and academic performance and judgments of procedural, distributive, and interactional fairness.

The second bivariate correlation analysis involves the nursing students' learning engagement and academic stress, which yielded an R-value of .807 with a probability value of p<0.000, significant at 0.01 level. Results indicate a positive and moderate correlation between the two variables. Thus, the null hypothesis, which states that there is no significant relationship between learning engagement and academic stress, is also rejected.

The positive correlation between learning engagement and academic stress was similar to the study finding by Asif et al. (2020). The finding indicated that one of the critical factors influencing pupils' preparedness for self-directed learning is academic stress. Students who expressed high levels of academic stress might have lower autonomy, motivation, and efficiency when learning at a personal pace and

completing their online coursework. Furthermore, the study's result was similar to Moreno-Fernandez et al.'s (2020) finding, which emphasized that students frequently experience academic stress. Busari explains how tension and concern can emerge from academic stress and pressure, leading to various learning issues. He warns that how students respond to academic stress will depend on their personalities and how well they learn.

The third correlation analysis was between academic stress and the academic success of nursing students in Digos City. Academic Stress and Success revealed a computed R-value of .857 with a probability value of p<0.000, which is significant at 0.01 level. The result indicates a moderate and positive correlation between the variables. Thus, the null

hypothesis of no significant relationship is likewise rejected.

The moderation correlation between academic stress and academic success was supported by Goldman and Bell (2022), who emphasized that the previous studies show that periods of extreme stress harm mental and physical health, which makes academic success challenging to achieve. Thus, high-stress levels were found to have a direct negative impact on academic success at all levels. Similarly, the studies of Schneider et al. (2020), Suleman et al. (2019, and Van Hoek et al. (2019) revealed that the current research postulates that the high-stress shift paired with the already overwhelming stress of the pandemic and heightened uncertainty damaged teacher coping strategies which may have aggravated the stress on students and thereby harming their academic progress.

Table 7. Mediation Results of the Variable in the Four Criteria of the Presence of Mediating Effect

Step	Path	Beta (Unstandardized)	Standard Error	Beta (Standardized)
Step 1	c	.936	.030	.880
Step 2	a	.735	.033	.807
Step 3	b	.823	.031	.857
Step 4	c	.845	.027	.889

Data were analyzed with the linear regression method as input to the medgraph. In Table 7, the results of the mediation analyses are displayed. Mediation analysis developed by Baron and Kenny (1986) is the mediating effect of a third variable in the relationship between two variables.

Four steps must be taken for a third variable to act as a mediator. In Table 7, these are categorized as Steps 1 to 4. In Step 1, learning engagement as the independent variable (IV) significantly predicts the academic success of the nursing students, which is the dependent variable

(DV). In Step 2, learning engagement significantly predicts academic stress, the mediator (M). Similarly, in Step 3, academic stress significantly predicts academic success. Complete mediation can be obtained if the influence of the independent variable on the dependent variable becomes non-significant at the final step. It means all the effects of learning engagement toward academic success run through academic stress. Moreover, the regression coefficient is significantly reduced at the final step but remains significant. In that case, partial mediation is obtained, which implies that

part of the learning engagement (IV) is mediated by academic stress (MV). However, other parts are either direct or mediated by other variables not included in the model.

Shown in Figure 3 is the result of the computation of mediating effects. The Sobel test yielded a z-value of 17.053 with a p-value of 0.000, which is significant at a 0.05 level. The result means that the mediation accounted for by academic stress on the relationship between learning engagement and academic success is significant. Hence, the null hypothesis that academic stress does not significantly mediate the relationship between learning engagement and academic success is rejected. Thus, the finding has shown that there is a partial mediation of the academic stress (MV) to the learning engagement (IV) and the academic success (DV) of the Nursing Students in Digos City.

The partial mediation result of this study is similar to the finding of Singh et al. (2020). The result mentioned that academic stress impact of energy consumption in prolonged academic strain

and a gradual decline in students' passion for learning activities. Academic stress can be caused by several factors, including obligatory academic responsibilities, submitting assignments by the due date and passing examinations, and more. Moreover, Adil et al.'e (2021) and Ma and Bennett's (2021) research found that academic pressure can make pupils sad, might make them indulge in cheating habits, a lack of interest in their studies, and impaired learning and development.

Furthermore, mediating academic stress and academic success corroborated Pascoe et al.'s (2020) research finding. The study's result emphasized that academic-related stress, defined as the continual pressure students feel to do well in school and worry about getting bad grades, is a frequent experience that many students self-report. Also, data show that higher stress is connected with drug use among students and that perceived social support, especially from within the school setting, may favorably moderate this association.
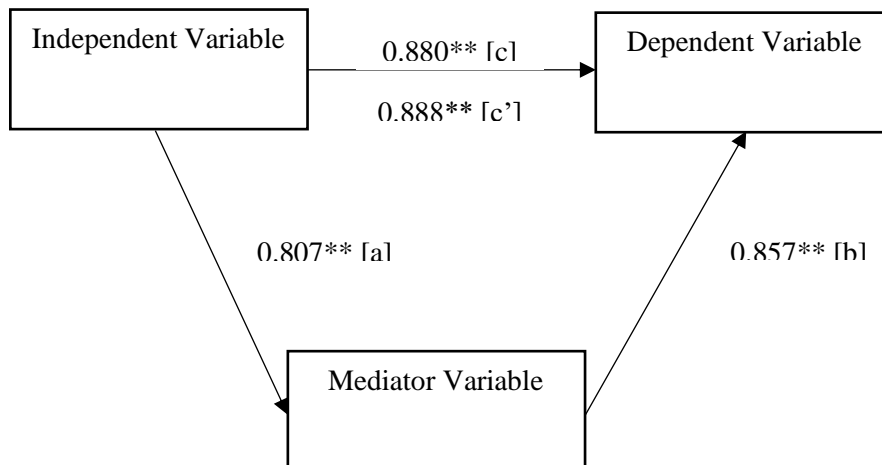

Figure 3. Medgraph Showing the Variable of the Study

Conclusions and Recommendations

This study revealed a moderate level of learning engagement, academic success, and academic stress. The relationship between learning engagement and academic success indicates a significant and positive relationship between the two variables. In comparison, the link between learning engagement and academic stress revealed a significant relationship between the two variables. Similarly, the correlation analysis between academic stress and success reveals a positive correlation. Further, results showed that academic stress significantly mediates the relationship between learning engagement and success. However, although the mediating effect is not evident, the mediating variable, academic stress, improves the direct effect of learning engagement (IV) and academic success (DV). These findings support the Social Exchange Theory based on this study. It agrees with the theory that learning engagement from support fosters a more significant commitment and a positive attitude toward learning, resulting in higher or improved academic success and increasing nursing students' desire to participate in the learning process.

The school administration may adopt the findings of this study as the basis for policy review and recommendation to ensure that learning engagement is given priority in the learning process and that the instructors will continue to be creative and strategic in teaching nursing students in Digos City. Further, the study's findings will assist school administrators in developing programs that would help nursing students minimize the causes of academic stress. Also, since stress is inevitable, the school administrator may develop programs or activities to help students cope with academic stress.

Moreover, the study's result may benefit the Nursing program coordinator. The Nursing Program Coordinator ensures that all the school administrator programs will be appropriately implemented. They know the prevailing status of nursing students in terms of learning engagement, academic success, and academic stress. The program coordinator may use the study findings to monitor the faculty members to sustain learning engagement.

In addition, the nursing students in Digos City could use the study's findings as information on how academic stress may affect the variables of learning engagement and academic success. In effect, they may look for other activities to lessen academic stress despite the busy schedule and school demands.

Lastly, future researchers may replicate the study in other geographic and industries using different methodologies and instruments, which may provide different yet relevant results. Further, researchers may also work on the triangulation data analysis in Qualitative research studies. The study will be helpful for the researchers to study in other urban areas in the Davao region.

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Knowledge, Attitude, and Practices on Hypertension Control Among Residents in a Selected District of Davao City

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Abstract

This study determined the knowledge, attitude, and practices on hypertension control among young adults, using the descriptive-predictive research design. A complete enumeration of 1,145 male and female young adults residing in District D, Davao City were surveyed. The study employed adapted questionnaires from Han et al. (2011), Shrestha et al. (2021), Findlow & Seymour (2011), and San and Plianbangchang (2018). The questionnaires were modified and subjected to validity and reliability testing with Cronbach's alpha results of Knowledge=0.942, Attitude = 0951, and Practices = 0.943 respectively. The results revealed that most of the respondents were female, ages 24 to 28 years old, college undergraduates in terms of education, and employed earning 10,000.00 and below monthly. Further, the respondents were highly knowledgeable about hypertension control, primarily on its symptoms and danger but need to improve on their knowledge of its cause. They also showed a satisfactory attitude concerning hypertension control but showed poor hypertension control practices, particularly in physical activity, dietary patterns, stress management, and blood pressure monitoring. They have a better attitude in observance of medication use, smoking, and alcohol consumption. Furthermore, the knowledge and attitude of young adults are positively correlated to their practices on hypertension control. Multiple linear regression also showed that Attitude was more important than Knowledge in predicting hypertension control practices of young adults. Consequently, a proposed community wellness program to further develop and improve young adults' knowledge, attitude, and practices on hypertension control was recommended.

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Introduction

Nowadays, Health clinical industries have also estimated an increase in patients diagnosed with non-communicable diseases. Also, for non-communicable diseases, specifically Hypertension, the researcher observed that the prevalence of young adults with Hypertension had risen by nearly 40% since 2018. Moreover, this is an alarming situation for the community of Davao City, in which Hypertension prevalence must be around in the late adult but not in young adults. Thus, the resident's Knowledge, attitude, and practices (KAP) must be assessed.

Assessment of Knowledge, attitudes, and practices (KAP) is crucial to hypertension control; however, few data are available from developing nations where Hypertension has recently been recognized as a significant public health concern (Stevens et al., 2019). Globally, KAP was used to

assess Hypertension prevalence and control in Seychelles Islands Indian Ocean The results show that fewer participants had positive expectations, positive attitudes, and appropriate practices for Hypertension and relevant healthy lifestyles. There was also little difference between aware hypertensives, unaware hypertensives, and non-hypertensives (Aubert et al., 2019).

A study that analyzed hypertension prevalence across 14 years, from 1997 to 2010, found that the prevalence of Hypertension in Zimbabwe was 30%, resulting in an alarming situation in the region (Heller & Kishore, 2017). Also, the KAP model (Chengberengwa & Naidoo, 2019a) shows that the number of people with Hypertension in South Africa rose from 18% in 2016 to 46% in 2019.

Davao, a developing city in the Philippines, had estimated an increase in patients diagnosed with non-communicable diseases, specifically Hypertension. Also, the researcher observed that District D of Davao City had risen nearly 40% of Hypertension prevalence in residents. Furthermore, there is currently little research assessing risk factors and adherence to hypertensive control in young adults (Chengberengwa & Naidoo, 2019a). Improving public knowledge and awareness of the risks and complications of hypertension has been a component of efforts to control hypertension (Lane et al., 2019; Asgedom, 2019). Thus, this study determined Knowledge, Attitude, and Practices for hypertension control among residents in the selected District of Davao City. This paper reported on the quantitative baseline findings on the community's Knowledge and awareness of Hypertension.

Methods

The residents, ages 18 to 38 years old in District D of Davao City were the respondents of this study. This study employed a Complete enumeration Technique which includes residents diagnosed or not diagnosed with Hypertension and within the specified age range of the study. Also, the study does not include the respondents diagnosed with comorbidities and pregnant. Also, not meeting the latter was considered disqualified and excluded as study participants.

The study was conducted through face-to-face interviews. Before the administration of survey questionnaires, the instrument was subjected to validation and reliability testing. Three (3) experts in the field were asked to validate the research instrument. After this, the researcher conducted a pilot study wherein thirty (30) respondents were requested to answer the survey questionnaire followed by a Cronbach's Alpha reliability analysis or consistency testing.

There were four (4) parts of the survey questionnaire. The first part was socio-demographic data: Age, Sex, Occupation, Educational attainment, and Economic Status. The second part had 20-item questions, including the level of knowledge regarding causes, symptoms and danger, and prevention and control. Part three was for Attitude toward hypertension control. Lastly, a 13-item question was used to determine the level of practices of hypertension control.

The study incorporated Frequency Distribution and Percentage to describe the resident's demographic profile in terms of Age, Sex, Occupation, Educational attainment, and Economic Status. Moreover, Mean was used to measure the levels of knowledge, attitude, and practices of residents on hypertension control. Also, Pearson Product Moment Correlation of Coefficient was

utilized to determine the association between residents' knowledge, and attitude to practice hypertension control, while multiple linear regression was used to examine Knowledge and Attitude contribution to hypertension control practices towards hypertension control among residents.

Results and Discussion

Table 1. Demographic Profile of the Respondents

Demographic Profile		Frequency	Percentage (%)
Age			
18 – 23		375	32.75
24 – 28		455	39.74
29 – 33		215	18.78
33 – 39		100	8.73
	Total	**1145**	**100**
Sex			
Male		446	38.95
Female		699	61.05
	Total	**1145**	**100**
Occupation			
Employed		665	57.21
Unemployed		266	23.23
Others		224	19.56
	Total	**1145**	**100**
Educational Attainment			
Elementary level		55	4.80
Elementary Graduate		196	17.12
Junior High School Level		33	2.88
Junior High school Graduate		115	10.04
Senior High School level		101	8.82
Senior High School Graduate		179	15.63
Vocational Education		88	7.69
Undergraduate College Level		223	19.48
Bachelor's Degree Graduate		135	11.79
Graduate Degree		20	1.75
	Total	**1145**	**100**
Economic Status			
10,000 and below		633	55.28
10,000 to PHP 15,000		325	28.38
16, 000 to PHP 20,000		116	10.13
PHP 21,000 to PHP 25,000		33	2.88
PHP 26,000 to PHP 30,000		18	1.57
PHP 31,000 to PHP 35,000		15	1.31
PHP 36,000 to PHP 40,000		5	0.44
	Total	**1145**	**100**

The various demographic profile of the respondents was shown in Table 1 which is the first objective of the study. One thousand one hundred forty-five (1 145) residents participated in the study. Also, frequency and percentage (%) were shown in the table. Noticeably, most respondents were under 24 to 28 years of age (39.74 %), followed by 18 to 23 years old (32.75 %), while respondents aged 33 to 39 had 8.73% of the total population. Most of the

respondents were Female (61.05 %), and most were employed (57.21 %). Also, most respondents were undergraduate college level (19.48 %), followed by Senior High School graduates (15.63 %). Also, most

Social and demographic aspects play a crucial role in healthcare and require attention toward developing customized approaches to involve individuals in their well-being. Research indicates that patient engagement with healthcare is influenced by factors such as gender, income, level of education, and socioeconomic status (Sun et al., 2019). Also, Singh et al. (2018) provided an instance where they studied the distinct communication styles of males and females with their healthcare providers. Their findings revealed that while women were

respondents were under 10 000 PHP and below (55.28 %) and 10 000 to 15 000 PHP (28.38 %) of the total population

inclined to seek care more frequently, men were more likely to discuss health risk factors. Healthcare providers can utilize these insights to tailor their communication approach to individual patient requirements, especially while engaging both genders in their health journey. Consequently, it is imperative to continue identifying patient characteristics linked to patient engagement and interaction with healthcare providers to create personalized interventions according to patients' needs and engagement levels (Ray, 2020).

Table 2. Knowledge of residents on Hypertension control in terms of Cause, Symptom and Danger, and Prevention.

Indicators	Mean	Description
Cause	3.028	Satisfactory
Symptom and Danger	4.165	Very Satisfactory
Prevention	3.74	Satisfactory
Overall	**10.567**	**Satisfactory**

Presented in Table 2 is the Knowledge of residents on Hypertension control in terms of Cause, Symptom and Danger, and Prevention. Based on the results, the overall mean of knowledge had 10.567, implying that the level of knowledge of Hypertension control among residents was satisfactory. Also, the symptom and danger indicator had the highest mean score of 4.165, which implies that the level of knowledge among young adults is very satisfactory. However, although it is satisfactory, the indicator causes had the lowest mean score.

Chingberengwa et al. (2019a) discovered that Knowledge of hypertension in an urban community in southern Zimbabwe was poor, with

less knowledge of the following statements: 64.8% of respondents stated that stress was the primary cause of hypertension, 85.9% said that palpitations were a symptom of hypertension, and 59.8% of respondents added salt to their food (Chingberengwa & Naidoo, 2019b). Thus, the community hypertension knowledge was poor. This was associated with an absence of education and a strong belief in herbal and traditional medicines in the community, which influenced hypertension-related attitudes and practices. Dietary risk factors were associated with ignorance. Inadequate availability of hypertensive medications at the clinic led to deteriorating hypertension care and poor hypertension outcomes in the community (Mills et al., 2018).

Table 3. Level of the attitude of residents towards hypertension control.

Indicator	Mean	Description
Attitude	4.254	High

Legend: 4.21 – 5.0 Very High; 3.41 – 4.20 High; 2.61 – 3.40 Moderate; 1.81 – 2.60 low; 1.0 – 1.80 Very low

Presented in Table 3 is the level of attitude of residents towards hypertension control. The results show a positive attitude towards Hypertension control (4.254). Also, residents had a very positive attitude about hypertension, a common cardiovascular condition. However, residents had a very negative viewpoint on the statement that only salt restriction is sufficient for hypertension prevention.

Focusing on people's knowledge and attitudes regarding disease prevention and control is predicated on the notion that if individuals perceive themselves as vulnerable to a condition with potentially severe consequences, they are more likely to take actions that they believe will reduce their risks (Asad et al., 2021). As Hypertension increases in low-income countries, where there is a lack of appropriate medical care to manage the disease at an advanced stage, it is essential to focus on available prevention and control measures. For this reason, it is necessary to comprehend the dynamics of communities' knowledge of risk factors and attitudes toward preventing through lifestyle modifications (Tirune et al., 2020).

Also, a community-based study revealed that health beliefs and attitudes have a significant relationship with lifestyle and influence lifestyle modification. Respondents who underestimate the risks and are resistant to health promotion have a less healthy lifestyle, including higher cardiovascular risk factors, than others (Asad et al., 2021). It was observed that a positive attitude is related to marital status, educational attainment, and comprehensive knowledge about hypertension and its prevention (Mantyselka et al., 2019; Tirune et al., 2020).

Table 4. Level of practices of residents towards hypertension control.

Practices	Mean	Description
Medication Use	2.62	Moderate
Physical Activity	2.4	Low
Dietary patterns	2.47	Low
stress management	2.25	Low
Smoking and Alcohol Consumption	3.28	Moderate
Blood Pressure Monitoring	1.52	Low

Legend: 4.21 – 5.0 Very High; 3.41 – 4.20 High; 2.61 – 3.40 Moderate; 1.81 – 2.60 low; 1.0 – 1.80 Very low

Presented in Table 4 is the Level of practices of residents toward hypertension control. The overall level of practice on hypertension control of residents had 2.53, which means that the respondents sometimes practice hypertension control. Moreover, the highest mean statement answered by the respondents had respondents who smoked more than one cigarette per day. However, the lowest mean scored by the respondents measuring their blood pressure daily implies that residents never practice

hypertension control

Hinto et al. (2020) reviewed and identified areas where additional evidence is required to guide clinicians who manage hypertensive adolescents. While it is evident that elevated blood pressure in young adults has significant adverse effects in later life, there is limited evidence that interventions can reduce the risk of cardiovascular events or negative brain structure changes (Chimberengwa et al., 2019a). As the number of young adults worldwide with hypertension rises, randomized controlled trials of interventions are urgently required to answer this question. Efforts have been made to increase the applicability of risk scores to young adults, including the use of lifetime risk and cardiac age scores (Haase et al., 2019).

Moreover, San and Plianbangchang (2018) recommended that adopting a healthy lifestyle is the first step in preventing hypertension. Community members, particularly youth, should be educated on the risk factors, presenting symptoms, and average hypertension values, as smoking and alcohol consumption are highly prevalent in the area (Chimberengwa et al., 2019b). In contrast to other practices, most individuals lack blood pressure knowledge and conduct regular blood pressure checks. Increasing community awareness and altering health risk behaviors would be facilitated by promoting public education in the workplace (Horsa et al., 2019).

Table 5. Test of Relationship of Knowledge and Attitude towards Practices

Variable	Practices			
	r	p-value	Decision	Remarks
1. Knowledge	0.082	< 0.005	Reject Ho	Significant
Cause	0.709	<0.001	Reject Ho	Significant
Symptom and Danger	0.502	<0.001	Reject Ho	Significant
Prevention	0.607	<0.001	Reject Ho	Significant
2. Attitude	0.434	<0.001	Reject Ho	Significant

Note: p<0.05 (Significant)

Table 5 shows the test of the relationship between Knowledge and Attitude toward Practices on Hypertension control among young adults. For Knowledge and Practices on Hypertension Control, it shows a weak positive significant relationship between Knowledge towards Practices on Hypertension control (r=0.082, p= <.005), which also implies that the null hypothesis is rejected. Also, cause, symptom and danger, and prevention show a strong positive significant relationship to practices of hypertension control. Furthermore, the Attitude towards Practices on hypertension control had a positively moderate significant relationship (r=0.434, p= <.001), implying that the null hypothesis is rejected.

This finding is consistent with the study conducted by San and Plianbangchang (2018), which is a significant association between

hypertension knowledge and attitude (p=0.046) toward hypertension practices. Also, similar findings were found in the study done in Malaysia, where there was a significant association between attitude and knowledge, practice and learning, and practice and attitude (Pickens, 2017: Rashidi et al., 2018).

Similarly, a study assessing Hypertension KAP among hypertensive patients in Iran revealed that patients' HTN knowledge was average (Rashidi et al., 2018). In contrast, two investigations conducted in Sudan (Abdalla, 2022) and Ethiopia (Bogale et al., 2021) found that Hypertension was well understood. 88% of hypertensive patients enrolled in the study by Machaalani et al. (2022) were aware of the normal blood pressure range, and 79% were aware that obesity is a risk factor. These rates are highly similar to those found in the KAP

study conducted in Iran (Rashidi et al., 2018). Although 98% of patients knew that HTN could be treated with medication, some believed it could be treated with traditional medicine (17%) or garlic (40.4%).

Also, Machaalani et al. (2022) study had a similar result: a positive correlation was observed between attitude and knowledge, with the attitude score also improving as the duration of HTN increases. Contrary to Rashidi et al.'s findings, the time was not associated with any KAP score parameter (Rashidi et al., 2018). Furthermore, hypertension awareness and adherence to dietary recommendations are crucial for preventing hypertension and its complications. Similar to the assessment of the understanding and compliance of hypertensive young adults in Bontoc, Mountain Province, Philippines, Hypertensive young adults are aware of hypertension facts, but their attitude and behavior may cause them to ignore hypertensive symptoms. Young adults with hypertension are highly compliant with their dietary regimen, but culture, traditions, and practices occasionally interfere with its maintenance. In addition, it is noted that there is a significant correlation between hypertension awareness and attitude and dietary regimen compliance among hypertensive young adults (Kiblasan et al., 2015).

Furthermore, a similar result was conducted by Shrestha et al. (2021) which more than half of the study population had good self-care practices, and more than half had positive attitudes. There was a significant correlation between education level and hypertensive patients' dietary patterns and attitudes, but no correlation was found between sociodemographic variables and patients' self-care practices. In addition, the attitude and self-care practices of hypertensive patients were found to be substantially associated (p=0.002) (Ademe et al., 2019). It is recommended, therefore, that educational interventions and awareness initiatives on educational and dietary habits that could improve the attitude and practices of all patient groups and thereby prevent further complications of the disease receive more attention (Kafle et al., 2018).

Table 6 Test of Prediction of Knowledge and Attitude towards residents' Practices on Hypertension Control

Variable	Practices				
	B	T	p-value	Decision	Remarks
1. Knowledge	-0.00000785	-0.002	0.998	Accept Ho	Not Significant
2. Attitude	0.791	15.988	<.001	Reject Ho	Significant

Table 6 shows linear regression analysis summary results of Knowledge and Attitude toward predicting young adult's practices on Hypertension Control. The results show that the Attitude factor can only significantly predict the practice of Hypertension control among respondents (b=0.791, p=>0.001). However, Knowledge did not contribute to the variability in the Knowledge and Attitude to Practice model (b=-0.00000785, p=0.998).

Hypertension is a severe global issue. Appropriate lifestyle changes are the fundamentals of hypertension prevention and control. In a similar knowledge, attitude, and practices (KAP) study conducted by Bogale et al. (2020), 200 (73%) of the total participants had good knowledge, 182 (66.4%) had a positive attitude, and 136 (49.6%) had excellent practice regarding the recommended lifestyle modifications for hypertension management. Regarding lifestyle modification factors, demographic profiles such as age, marital status, and educational attainment were significantly associated with health practices. However, only a positive attitude was found to be related to effective lifestyle modification practices.

The proposed wellness prevention program was developed in response to the survey findings of young adults. The wellness program seeks to assist communities in disseminating information and ensuring that

appropriate management is provided to all patients, particularly those with hypertension; increasing their knowledge, attitude, and skills in the prevention, management, and intervention of hypertension; and decreasing the risk of hypertension through the use of nutrition and exercise-focused lifestyle interventions. Young adults who wish to participate in this program must have at least one of the following risk factors for hypertension: obesity, an improper diet, or a lack of physical activity.

Moreover, the wellness programs will be able to provide hypertensive medicines for free, especially for low-income patients. Also, to teach participants treatment adherence, patients have prescribed medicines, teach them how to take them at home, show the patient the appropriate dose and explain how many times a day to take medication. Furthermore, to promote a healthy eating lifestyle, participants will be able to attain the nutritional requirements for a healthy lifestyle and be knowledgeable about Healthy Diet.

The Work Well program seeks to provide at-risk participants with an intervention in which they commit to making changes and applying their acquired knowledge into practice. A similar result was conducted by Yobut (2020), which also suggests intervention programs for their respective employees who were diagnosed hypertensive. Based on their results, the proposed wellness prevention program was developed in response to the wellness village employee survey findings. The wellness program aims to reduce the risk of hypertension among employees, raise their awareness of the dangers of hypertension, improve their knowledge, attitude, and skills in the prevention, management, and intervention of hypertension, and reduce the risk of hypertension through nutrition and exercise-focused lifestyle interventions (Sison et al., 2020b). Participants in this program must have at least one of the following lifestyle risk factors for hypertension: being overweight, consuming an unhealthy diet, or being physically inactive. Before the wellness intervention commences, a health assessment questionnaire will be distributed to employees as a screening tool (Hwang et al., 2020).

Conclusion and Recommendations

The current study concluded that the level of knowledge of Hypertension control regarding Cause and Symptom Danger was very knowledgeable. On the contrary, most of the respondents in Prevention or Control were relatively less knowledgeable. It implies that young adults' knowledge of practices on Hypertension control is low. Thus, proper seminars and guidance from health experts should be encouraged.

For respondent's level of understanding towards Attitude in terms of positive was very high. Also, the knowledge of the opposing viewpoint of respondents was High. This means that young adults' attitude towards Hypertension control shows enthusiasm for Hypertension management. However, in terms of practices on Hypertension control, respondents had low medication use, low physical activity, unhealthy dietary patterns, not on the minimum intake of alcohol and cigarette consumption, and were prone to stress. This indicates that young adults had a low level of practice in Hypertension control. Thus, intervention programs are recommended

to increase their motivation to practice Hypertension control.

Still, linear regression assessed a significant positive relationship between Knowledge and Attitude to practices of Hypertension control. This indicates that the Knowledge and Attitude of the respondents are still crucial in relevance to the Hypertension control practices of residents.

However, multi-regression suggests that the Level of Attitude was substantial and had more influence in predicting the Hypertension control level of practice than Knowledge. Thus, wellness program made to seeks to assist communities in disseminating information and ensuring that appropriate management is provided to all patients, particularly those with hypertension, increasing their knowledge,

attitude, and skills in the prevention, management, and intervention of hypertension; and decreasing the risk of hypertension through the use of nutrition and exercise-focused lifestyle interventions. Young adults who wish to participate in this program must have at least one of the following risk factors for hypertension: obesity, an improper diet, or a lack of physical activity.

There is a need to conduct a similar study to include demographic data and correlate to its variable. Select other parameters of factors that can affect Hypertension control, specifically on practices on Hypertension Control. Also, healthcare providers recommended conducting healthcare lectures for Hypertension control among young adults. Also, it suggested that health providers must have an activity to let young adults practice Hypertension control

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Point of No Return: A Narrative Inquiry on the Life of a Patient with End-Stage Renal Disease

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Abstract

End Stage Renal Disease has killed many Filipinos, which represents 5.84% of all the deaths in the country. According to the Department of Health (DOH), chronic kidney disease (CKD) is the fourth largest cause of mortality in the Philippines. The study focuses on the lived experiences of a patient who shared his struggles and coping mechanisms. The patient was purposely selected among those who were rehabilitated in a private hospital in Kidapawan City. This study employed the qualitative narrative approach whose results were then sorted out into themes and codes, to emphasize the recurring challenges of the participant. The participant's narrative of the meaning and struggles of having the disease include the themes: Foreshadowing of the Future: The Shocking Truth, Grafting of Life: Strangled by the Struggles, Outsourcing Cures and Rescues, giving up on Hopes: Renal Collapse, the study concluded that to be able to extend their lives, individuals with ESRD must be psychologically, emotionally, and financially prepared for the obstacles they will encounter. It was also recommended that open discussion about this topic should be welcomed in the family of the patient so that proper communication will take place and the right coping mechanisms will be deployed

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Introduction

World Health Organization (WHO) data published in 2020, Renal Disease has killed 39, 380 Filipinos, which represents 5.84% of all the deaths in the country. According to the Department of Health (DOH), chronic kidney disease (CKD) is the fourth largest cause of mortality in the Philippines. Despite its significant incidence, kidney failure (and its early phases) continues to receive little attention in most poor and middle-income nations, where it is currently the tenth greatest cause of mortality and one of the main causes of hospitalization. This study magnified the case of a patient diagnosed with End Stage Renal Disease in the hope that would shed light on issues faced by the patient and the family, their struggles, and coping mechanisms.

More than 800 million people worldwide, or over 10% of the global population, have progressive chronic kidney disease. National Library of Medicine cited that kidney problems are notably common among older patients, women, and the marginalized sector and among people diagnosed with diabetes mellitus and hypertension. Economically, kidney diseases have become a huge

burden among low to average-income countries whose hospitalization services can only provide the bare minimum and are least equipped to resolve the consequences. This vulnerability has made chronic kidney disease one of the leading causes of mortality around the globe (Kovesdy, 2022). In the Philippines, the Department of Health warned that the country's overall morbidity and mortality rates have increased mostly because of Non-Communicable Diseases (NCDs), particularly chronic kidney disease (CKD). In the Philippines, the Department of Health warned that the country's overall morbidity and mortality rates have increased mostly because of Non-Communicable Diseases (NCDs), particularly chronic kidney disease (CKD). If neglected, CKD can lead to more serious side effects including End-Stage Kidney Disease (ESKD), which necessitates more frequent and fast therapies. As such, national efforts in raising awareness about kidney diseases in the country such as the celebration of National Kidney Month were proclaimed.

In Mindanao, Davao was recorded as the 3rd highest producer of people diagnosed with chronic kidney diseases since 2017 (Cudis, 2022) which prompted the government to remind all Dabawenyos to take care of their health seriously (Bad-ang, 2022). In the record, kidneys under 35 years old still function 100% but after that, the kidney's usefulness declined by 1% each year. Therefore, kidneys would lose 20% of their functionality by the time patients are at the age of 55. This decline was also evident among patients in Kidapawan where the researcher found his study subject. And since there are no existing studies that involve the locals in this area, the author intended to close this research gap.

This research aimed to further develop an understanding of the struggles of patients with End Stage Renal Disease on their treatment plan that may affect their quality of life. This study would also give an in-depth analysis in identifying the range of adaptation and stress-coping mechanisms in combating these struggles according to their treatment plan.

Further, this research investigated the ways of improving services to renal patients as part of a wider modernization initiative and to create evidence-based results of the patient's needs.

Methods

This research study utilized a qualitative narrative research design since this only probed the lived experiences of one patient diagnosed with End Stage Renal Disease (ESRD). This type of design was utilized to engage with the experience and meaning-making processes of diverse individuals or groups in a specific phenomenon such as the life struggles of patients with End Stage Renal Disease (ESRD).

The study took place in Kidapawan City where the patient lived most of his remaining days. Kidapawan is the capital of the Province of Cotabato, Philippines and is officially known as the City of Kidapawan (Cebuano: Dakbayan sa Kidapawan; Hiligaynon: Dakbanwa sang Kidapawan; Maguindanaon: Kuta nu Kidapawan; Jawi: Obo Monuvu: Ingod to Kidapawan). It has 160,791 residents, according to the 2020 Census.

The participant of this research is a 74-year-old male, and residing in Kabacan, Cotabato. A set of criteria was set to identify the actual participant. When his kidney condition worsened, his brother donated his kidney. The researcher found that his case was rather interesting for he was able to live beyond the expected number of three years based on evidence that a grafted kidney could serve its new body.

The information imperative for this study was gathered primarily from the input of the

participating patient from in-depth, one-on-one interviews. These pieces of information were then cross-examined based on the statements disclosed by the patient's family.

The results of the interview were transcribed and later sorted out into themes. This was validated by the secondary sources of the patient, his daughter for example. Data Triangulation (called participants or source triangulation) was applied in the study.

To have a systematic and organized collection of data, the researcher formulated a logical course of action. After obtaining the approval from the Master of Arts in Nursing Program chair of Davao Doctors College (including the authorizing body of the participating institution) to conduct the study, the informed consent of the participating patient was obtained before data gathering. In addition, the results were then compiled and analyzed by the researcher as soon as all of which have been obtained from the participating dialysis patient. Lastly, final validation was conducted.

The protocols for this study complied with the ethical standards and principles outlined in pertinent guidelines, such as the Declaration of Helsinki, WHO recommendations, Good Clinical Practice (GCP) recommendations, and National Ethics Guidelines for Health Research. In addition, approval to conduct the study from the Program Chair of the Master of Arts in Nursing and Ethics Review Committee of Davao Doctors College was obtained before data gathering. The researcher asked permission to conduct the study and for the disclosure of the name of the participating healthcare institution.

Results and Discussion

End-Stage Renal Disease (ESRD) is described by the Center for Medicare & Medicaid Services as a medical illness in which a person's kidneys cease functioning permanently, necessitating a regular course of long-term dialysis or a kidney transplant to preserve life. Living with chronic illnesses like kidney disease can take a huge toll on the physical health of the patient. In addition, it can also radically change the way they think and feel about themselves and society. Kidney disease has been one of the illnesses that required lifetime treatment which leads to the recurring question: How can a weak patient build strength knowing that his days are numbered?

In this chapter, the qualitative analysis of the data and results are presented. The researcher dealt with this chapter using themes characterizing specific perceptions and experiences that the researcher saw relevant to the questions that this research intended to unearth. The emergent themes became the backbone of the findings which were then broken down to codes by indexing the experiences of the patient with End Stage Renal Disease. The analyses were divided into three parts which were the dominant themes of this research. The experiences of the patient were triangulated with the available related review of the literature and results showed consistency even in cases of ESRD abroad. This study entitled Point of No Return: A Narrative Inquiry on The Life of a Patient with End Stage Renal Disease showed the resilience of the patient despite the certainty of his death.

Theme 1: Foreshadowing of the Future: The Shocking Truth

The patient's journey as a renal patient began in the year 1993. On a rather normal day, he felt excruciating pain in his lower back and unusual discomfort while urinating. He kept it for several days but when the pain reoccurred, he asked his daughter to have him checked by a doctor. Knowing that he had the same symptoms as his deceased wife, he feared that he will also undergo the same struggles. He was shocked when he found out about his condition. The patient went under the knife to remove the stones that developed in his kidney. This operation took a huge toll on his health. His activities changed. His diet is regulated. His dependency on his family significantly increased.

After six years, when the patient was only 54 years old in the year 1999, his most dreaded fear happened, which altered the direction of the life of each member of his family. In one of his consultations, he was told that his kidneys' conditions exacerbated and had evolved to End Stage Renal Failure, a condition that is not new to him.

Albeit the pressing challenges, the family decided to bring him to Manila, and had himself evaluated for a kidney transplant. To lengthen the patient's lifeline, the family had to look for potential donors for the kidney. Johns Hopkins Medicine explained that a kidney transplant is a surgery conducted to replace a damaged kidney with a healthy kidney from a matching donor. The kidney may come from a dead organ donor or a living donor. Family members or others who are a good match may be able to donate one of their kidneys. This type of transplant is called a living transplant. People who donate a kidney can live healthy lives with one healthy kidney. But who on earth would agree to sacrifice his/her kidney just to extend someone's life? This question baffled the patient's family for some time. During the search, some donors braved the donation but were found to be unmatched. Desperation crept in until someone stepped up. The patient's brother told him that he was willing to donate his kidney since their genetic makeup was perfectly accorded.

From his reaction that a donor finally matched, it was evident that he wanted another shot at life. However, the kidney from his brother could only last for a certain time until it started to reject his body. He and his brother went under the knife and the new kidney lasted a decade before it started to malfunction. He asked if there is a possibility for a third chance at life. He bargained with his doctor for another kidney transplant, but he was told that his body would not take it. That day he knew that there was no other option but to accept the certainty of his death.

Despite their willingness to help the people around he still went through the five stages of grief just like the majority of the patients. The first jab usually is taken in the emotional aspect. The second stage is Anger. The third stage is Bargaining. The fourth stage is depression. The fifth and final stage is Acceptance.

Theme 2: Grafting of Life: Strangled by the Struggles

The second recurring theme delved more into how the patient endured all the struggles that he encountered and how he held on to his dear life Kubler-Ross (2022) capped that not everyone who goes through a life-threatening or life-changing incident feels all five of the responses as per discussion in the first theme, and not everyone who does will feel them in the sequence listed.

In his case, he wanted to extend his life by following the doctor's orders which is to undergo a blood transfusion and prepare his body for a kidney transplant. This theme is coded into two: 1) Outsourcing Cures and Rescues and finally 2) Leaving the Legacy which enumerated all the lessons that he learned while coping with the terminal disease.

Theme 3: Giving up on the Hopes: Renal Collapse

The patient tried to fight the depression but his state couldn't deny otherwise. His illness was consuming his mental peace and physical well-being. Every day he had to look at his daughter's eyes thinking that he has become a burden to his family for less than a decade. Every time he went to the hospital, he couldn't help himself but be occupied by the idea that his medication was losing all his family's savings and hard-earned properties. He was haunted by guilt and anxiety taking into account that his family had sacrificed a lot for him to live. Sometimes, he will find himself crying on his bed waiting for death to arrive. He was torn between fighting for his place on earth and letting go of everything because his family had gone down the drain with him for the last nine years. Every day in his prayers, he yearned for a miracle to come so God can bring him back to normal. But it didn't. The certainty of death emotionally tortured him every single day.

This theme was divided into two: First is Acceptance and Gratitude and second is Leaving the Legacy. Both revolve around the central idea that the patient had fully accepted his demise and that the extended life was more than he could be thankful for.

Conclusion and Recommendations

In the advent of looking for answers about the life of a renal patient diagnosed with terminal disease, this study in general yielded results that punctuated the struggles in mental, emotional, physical, and financial aspects.

The results of this narrative helped the medical industry tap into the deployment of coping mechanisms for both the patient and the immediate family in combating the obstacles brought about by End Stage Renal Disease. The author realized that people diagnosed with terminal illnesses such as End Stage Renal Disease are automatically nudged into a situation where the patients need to face the certainty of death without being oriented about the various aspects that they need to prepare with.

This study has yielded results that reminded the nursing profession that patients with terminal illnesses such as End Stage Renal Disease need to live the remaining days of their lives in a controlled environment filled with psychosocial support. The results of this research may be of great help in adding value and updated information in improving palliative health care and improving the services of the patients.

In the greater scheme of things, psychosocial support has been the vantage point of the family to succeed in the deployment of effective palliative health care. This study will be able to put the nursing industry on better leverage by probing more into the aspects which may help patients with End Stage Renal Disease in processing thoughts about their death and what can they do while still being alive. This study will open more doors for local research, especially in Mindanao, Philippines where most patients come from low and middle-income families to probe more into their struggles and coping mechanisms and other aspects which this research has not tackled with,

Finally, no money and emotional support can challenge death. Every individual must put a premium on their health to avoid terminal diseases and be able to live a life that is meaningful, satisfying, and disease-free.

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Burnout, Work Environment And Turnover Intentions of Nurses In Selected Hospitals In Davao Occidental

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Abstract

This study aimed to determine the level of burnout and work environment on turnover intentions of nurses among public and private hospitals in Malita, Davao Occidental. Predictive - correlational research design was utilized in this study. The Total Enumeration Sampling technique was used in the selection of respondents in Malita, Davao Occidental. Standard adopted questionnaires were used in data gathering. The results of the study found that the level of burnout with an overall mean of 2.23 implies that the nurses seldom feel physical or mental stress. Meanwhile, the work environment with an overall mean of 3.13 showed that nurses sometimes maintain a good work environment. Furthermore, the turnover intentions were revealed to be moderate with a mean of 3.09 which implied that the nurses sometimes feel like leaving their jobs. Burnout and work environment in the turnover intentions of nurses revealed both variables significantly influence with a p-value of 0.034 and r = 0.300. An intervention plan entitled "Group Dynamics and Team Building of Nurses in the New Normal" was proposed to improve the results obtained in determining the significant relationship between Burnout, Work Environment, and the turnover intentions of nurses.

Introduction

In this trying time where various medical institutions suffered profound effects because of COVID-19, nurses, and medical practitioners have combatted burnout because of the rising cases. Consequently (Hence), maintaining an equilibrium in the work environment will inevitably lead to better human capital (Kula, 2019). Various instances wherein nurses in the Municipality of Malita quit their jobs and travel abroad to suffice their financial needs and worth as a nurse. Indeed, the role of nurses has been viewed as a very important human resource in medical health provisions, especially in this COVID-19 pandemic where their services are badly needed, however, burnout and work-environment have been the major factors that compel them to quit their jobs (Greegy, 2021).

In the global context, there is a rising body of literature on burnout and turnover intentions of nurses in this time of pandemic. In California, the federal data from the National Center on Nurse Statistics (NCNS) has shown dramatic increases in turnover among public and especially private hospitals. Hence, there is a bleak scenario when it comes to nurse staffing and turnover reported from

the year 2019 to 2021 (WHO, 2021). The data from the Centers for Medicare and Medicaid Services in the United States has shown dramatic increases in turnover among nurses since COVID-19 pandemic surges. In addition, burnout has been an underlying cause for some nurses to quit their jobs as this has increased their stress levels (Rana & Soodan, 2019). On the other hand, the work environment is another factor that should be taken into consideration since it enables nurses to do their tasks and jobs efficiently (Cherry & Jacob, 2020).

In the Philippine context, the same scenario is likewise evident. A study on organizational commitment and turnover intention among rural nurses in the Philippines specified that there is an unrelenting migration trend of Filipino nurses to other countries which threatened the quality of patient care services in the country during this time of pandemic (Labrague et al., 2020). Hence, the Philippines is expecting a constant turnover of nurses that could be due to low salaries, workloads, lack of challenge, and other personal circumstances (De Los Santos, 2021).

A similar scenario has been evident in Davao Occidental hospitals where nurses have been experiencing a remarkably high rate of turnover which is one-fourth of the total number of nurses (De Los Santos, 2021). The voluminous workloads, understaffing, low salaries, and security have induced several nurses to resign and migrate to other countries (Bautista et. al, 2020).

This study sought to know the level of burnout and work environment on turnover intentions of nurses in this trying time. In the above-mentioned situations, there is a pressing need to bridge the gap, considering there are numerous studies about burnout that correlate to turnover intentions but still, there are no established explanations for why these occurrences continue to exist. This study will open possibilities for the personal growth and professional development of nurses who have been the frontrunners as COVID-19 surges. More so, this study can be used in generating

relevant information that will confirm the impact of burnout on to work environment and turnover intentions of the nurses in this pandemic. The results, as well, may become a basis that can be used by head nurses and medical administrators in crafting relevant and empirical intervention programs to strengthen the well-being of nurses so that they would stay committed to their organizations in this difficult time.

Methods

This study utilized the total enumeration sampling technique in the selection of nurses as respondents of the study from both public and private hospitals of Malita, Davao Occidental. A list of nurses as respondents was secured from the Provincial Health Office's inventory of nurses. More so, the researcher provided a set of desired criteria as to who qualified to be the study's respondents, which included: a). respondents must be a nurse in the hospitals of Malita, b) these respondents should be working as a nurse from the year 2019-2022 when the COVID-19 pandemic surges. Hence, the researcher fully explained the scope of the study, obtained their consent before administering the survey questionnaire, and clarified its implications and risk.

The study employed a standard adopted questionnaire for burnout and work environment and turnover intentions. The dimension of burnout used the inventory adapted from Copenhagen Burnout Inventory (CBI) developed by Kristensen et al. (2004) as utilized by Ranzi (2019). The instrument was divided into three subscales which are Personal Burnout with six items, Client-Related Burnout with six items, and Work-Related Burnout with seven items of symptoms of exhaustion. Also, Cronbach alpha was used to measure internal consistency, that is, how closely related a set of items were, and was utilized to measure reliability. A "high" value for

alpha does not imply that the measure is unidimensional.

As for the work environment, this study used the Practice Environment Scale of the Nursing Work Index (NWI). The 31-item questionnaire was divided into 5 indicators which were Nurse participation in hospital affairs (9 items), Nursing Foundations for Quality of Care (10 items), Nurse Manager, ability, leadership, and support of nurses (5 items), Staffing and resource adequacy (4 items) and Collegial Nurse-Physician relations (3 items).

Meanwhile, for turnover intention, the Turnover Intention Scale (TIS) of Bothma and Roodt (2013) was utilized. The 15-item questionnaire was not divided into subscales since the turnover intention in this study was unidimensional. Hence, Cronbach alpha was used to measure internal consistency, that is, to determine how closely related a set of items were, and was utilized to measure reliability. A "high" value for alpha does not imply that the measure is unidimensional. The items in each of the survey questionnaires had undergone revisions to contextualize some items with the present study and the inception of the COVID-19 pandemic and make the scales parallel in all sections of the survey questionnaire. The questionnaires were subjected to validity by different experts in the field of educational leadership and some allied fields. Hence, the questionnaire had undergone a reliability test.

Results and Discussion

Table 1. Level of Burnout in Terms of; Personal Burnout, Work Related Environment, Client-Related Burnout

Burnout	Mean	SD	Interpretation
Personal Burnout	2.51	0.28	low
Work-Related Burnout	2.05	0.33	low
Client-Related Burnout	2.14	0.25	low
Overall Mean	2.23	0.21	low

The level of burnout among nurses during the pandemic. It shows that the overall mean of their burnout is 2.23 which is described as low. All indicators were rated low but "personal burnout" was relatively rated the highest, with a mean of 2.51 which would tell that nurses have felt stressed and frustrated in their personal lives, while "work-related burnout" was rated the lowest, with a mean of 2.05 which would imply that nurses are not so stressed in workplaces. This also implies that though nurses occasionally feel burnout, it is mainly attributed to personal or private matters and is least associated with their work. The result was buoyed by Naz et al. (2019) in their study that nurses experienced less job burnout because they have confidence in their abilities to deal with stressful and challenging situations more effectively. Further, Li (2018) stated that nurses do not feel personal burnout when they have the necessary skills and drive to do their tasks day by day. Alfugaba and Alsharah (2018), indicated that the level of personal burnout in nurses was found to be affected by gender, marital status, and experience, but not education.

Table 2. Level of Work Environment

Nurses' Work Environment	SD	Mean	Description
Participation in Hospital Affairs	0.32	2.89	Moderate
Nursing Foundation for Quality Care	0.37	3.34	Moderate
Nurse, Manager Ability, Leadership, and Support	0.31	2.97	Moderate
Staffing and Resource Adequacy	0.37	3.20	Moderate
Collegial Nurse-Physician Relations	0.46	3.25	Moderate
Overall Mean	0.24	3.13	Moderate

The level of work environment among nurses during a pandemic. It shows that the overall mean of their work environment is 3.13 which is described as moderate. All indicators were rated moderate and this implies that they sometimes maintain a good work environment. The result was supported by Khakurel et al. (2018) who stated that the work environment helps organizations to improve effectiveness and allows employees to benefit from collective knowledge. They also explained that the working environment designed to suit employee satisfaction and free flow of exchange of ideas is a better medium of motivating employees towards higher productivity.

Examining the dimension of participation in hospital affairs reveals that it ranges from 2.89 to 3.34. Notably, the dimension, of *participation in hospital affairs* has a mean rating of 2.89. It is described as moderate which means that in this aspect, nurses' managers sometimes maintain a good work environment. The result is parallel to the study of Park et al. (2018) which held that the nurse's role in enacting participation in the hospitals is complex, having to accommodate each patient's risks and characteristics, highlighting the need for good assessment skills.

Also, the indicator *nursing foundation for quality care* has a mean of 3.34 which is described as moderate. It means that the nurse's manager sometimes maintains a good work environment. Indeed, this result was supported by Smith et al. (2020) who said that working with clinically competent staff nurses and providing an active

quality assurance program will surely uplift nursing care among hospitals. Hence, a clear philosophy of nursing that pervades the patient care environment is also a manifestation that nurses in hospitals have quality care toward their patients (Beardsmore & McSherry, 2019).

As to the indicator *nurse, manager ability, leadership, and support,* it has a mean score of 2.97 which is described as moderate. This implies that the nurse manager sometimes maintains a good work environment. Hence, Grubaugh and Flynn (2018) specified that nurses who serve in management positions are expected to not only make vital decisions to assist in patient care but also expected to carry out defined duties. The result was parallel to Morsiani et al. (2017) notion that managers need strong communication and leadership skills.

Concerning the indicator *staffing and resource adequacy,* it has a mean of 3.20 which is described as moderate. It means that the nurse's manager sometimes maintains a good work environment. Consequently, based on the result above, Park et al. (2018) agree that enough staffing is vital for an organizational human resource in which nurses were able to contribute to effective patient care as well as to be a predictor of nurse job satisfaction.

Lastly, on the indicator, *collegial nurse-physician relations* have a mean score of 3.25 which is described as moderate. This implies that in this respect the nurses' manager sometimes maintains a good work environment. This holds as St-Pierre and

Warsame (2020) explicated that a more collegial, unified relationship between nurses and physicians leads to improved patient care and increases the power of nurses and physicians to protect the best interests of patients.

Table 3. Level of Turnover Intentions

	SD	Mean	Interpretation
Turnover Intentions	0.38	3.09	Moderate

It displays that the overall mean of their turnover intentions during the pandemic is 3.09 which is described as moderate. It implies that the nurses sometimes feel like leaving their jobs. Siddiqui et al. (2012), as cited by Wiley (2018), revealed that the significant predictors of turnover intention among the different hospitals are low pay, bad working conditions, security, promotion, recognition, and principal. On the other hand, the study by Conklin et al. (2019) denotes that a great percentage of the nurses indicated a preference to remain in their current institution. In addition, the overall standard deviation is 0.38 which is less than one denoting that the respondents have ratings that are practically nearly identical.

Table 4. Test of Relationship between Burnout, Work Environment, and Turn-over Intentions of Nurses

	Turn-Over Intentions of Nurses			
	R	p-value	Decision	Remarks
Burnout	.180	.211	Accept Ho1.1	Not Significant
Work Environment	.300	.034	Reject Ho1.2	Significant

It shows that r = .180 signifies a very low positive relationship between burnout and turn-over intentions of nurses, which is further described by a p-value of .211 (p >,05) that there is no significant relationship between burnout and turn-over intentions. The result was supported by Mota et al. (2021) who said that the burnout of nurses and their turnover intentions show that the set of personal and organizational variables are the most frequent result being analyzed. On the other hand, the result was negated by Aronsson et al. (2017) which elucidated that burnout correlates with turnover intentions.

On the other hand, the result shows that work environment and turnover intentions of nurses during the pandemic have a significant positive low relationship with a two-tailed p-value of .034, and r = .300 (p < .05). Indeed, working environment is the sum of the interrelationship that exists within the employees and the environment in which the employees work where turnover might derive (Aronsson et al., 2017).

Table 5. Significant Influence of Burnout and Work Environment in the Turnover Intentions of Nurses

Individual Influence of Predictors	ß	p-value	t	Remarks
		Turn-Over Intentions of Nurses		
Burnout	.603	.024	4.46	Significant
Work Environment	.656	.005	8.71	Significant

r^2 = .150
F= 5.310
p=.008

The data shows that both variables burnout and work environment could significantly influence nurses' turnover intentions on their independent capacity (p<.05). This was supported by Eles et al. (2020) who said that perceived stress, burnout, and work environment were directly proportional to emotional exhaustion and depersonalization; and was inversely proportional to personal accomplishment and work-related factors. However, between the two variables, the work environment is the better influencer with a higher beta coefficient of .656. It means that a unit expansion in the work environment leads to a .656 increase in turn-over intentions of nurses. Indeed, Massoudi and Hamdi (2019) insisted that issues of organizational and work environment influence employee's productivity which may lead to quitting jobs and finding new ones.

As to the regression model, the R square of .150 connotes that 15.0 percent of the variation in nurses' turn-over intentions can be attributed to the combined influence of burnout and the work environment. It means that there are other factors equivalent to 85 percent not covered in this study. It was parallel to the study of Zaldok et al. (2021) which explicated that since the COVID-19 pandemic has had a major impact on nurses' professional and personal lives, burnout and work-environment affected the lives of nurses which may lead to turnover intentions, stress, and frustrations.

Conclusion and Recommendations

Based on the data gathered, analyzed, and interpreted, the following are the findings of the study: In terms of the work environment of nurses, it turned out to have an overall mean of 3.13 which is described as moderate. It implies that the nurse manager sometimes maintains a good work environment. In addition, the overall standard deviation denotes that the respondents have ratings that are practically nearly identical. Likewise, the five indicators namely, participation in hospital affairs, a nursing foundation for quality care, nurse, manager ability, leadership and support, staffing and resource adequacy, and collegial nurse-physician relations showed to be moderate and implies that nurses' manager sometimes maintains a good work environment. Regarding the turnover intentions of nurses, it turned out to be moderate. It implies that the nurses sometimes feel like leaving their jobs. The relationships between burnout and turn-over intentions of nurses, and work environment and turn-over intentions of nurses showed to have a very low positive relationship between burnout and turn-over intentions of nurses, which further described that there is no significant relationship between burnout and turn-over intentions. The result of the work environment and turnover intentions of nurses during the pandemic have significant positive low relationships.

Subsequently, as to the influence of burnout and work environment on the turnover intentions of nurses during the pandemic, it revealed that both variables burnout and work environment could significantly influence nurses' turnover intentions in their independent capacity. However, between the two variables, the work environment is the better influencer which means that a unit expansion in the work environment leads to an increase in the turnover intentions of nurses. As to the regression model, the

variation in nurses' turn-over intentions can be attributed to the combined influence of burnout and work environment which means that there are other factors equivalent to 85 percent not covered in this study.

Lastly, an intervention plan is proposed to improve the results obtained in determining the significant relationship between burnout, work environment, and turnover intentions of nurses entitled "Group Dynamics and Team Building of Nurses in the New Normal"

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Patients Satisfaction with the Quality of Nursing Care in a Government Hospital

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Abstract

This study aimed to determine patients' satisfaction with the quality of nursing care in a government hospital. It utilized a questionnaire adapted from the study of Laschinger et al. (2005) that underwent a validity and reliability test, with a Cronbach alpha result of .97. The participants of the study were the 200 purposively selected patients who were nineteen years old and above, presently admitted for more than two days, or about to be discharged from the District Hospital, in Maguindanao, at the time of the study. Results revealed that most of the respondents were single females, ages 30-40 years old, and college level in terms of education. Further, the patients were satisfied with the overall quality of nursing care and the health services they received during their hospitalization but have lesser satisfaction with the nursing skills and competence of nurses. Furthermore, despite patients' lesser degree of belief in the nursing skills and competence of nurses in the hospital, patients still have the highest regard for and recommend the hospital for healthcare concerns.

Introduction

Nurses are essential operators on the frontline and compose the largest section of the healthcare workforce (World Health Organization, 2020). Nurses play a critical role in providing proper patient care and spend the most time with them compared to the rest of the medical force. Understanding the quality of nursing is a cornerstone for healthcare providers, administrators, and legislators Albashayreh et al. (2019). Therefore, ensuring that nursing care is of the highest quality is vital.

Patients' satisfaction with nursing care has been reported in the literature as the most important predictor of overall satisfaction with nursing care and an important goal of any healthcare provider Githemo et al. (2018). Patient satisfaction in different countries can vary due to various factors, such as available facilities. Moreover, the health system's

attention to the factors that might create dissatisfaction in patients and attempts to solve them is a crucial feature of the developed country's health system. Among the problems that might negatively affect the quality of services are the low nurse/patient ratio and heavy patient workload. Notably, these findings might be rooted in low expectations of patients with health care services Daramola et al. (2018). The same results were corroborated by Parizad et al. (2021).

The patient's satisfaction level is measured based on several factors reported mainly by the patient. Based on satisfaction level, researchers can introduce new policies and plans and improve patients' satisfaction levels and achieve better outcomes (Ismayyir, 2020). These factors cover all services by health personnel, including nurses, and represent the attitude of patients about general

appearance, cleanliness, peace, and waiting time Owaidh et al. (2018). Patients' satisfaction is affected by mental perception, awareness of their rights, personnel's communication abilities to establish a mental relationship with patients, and other factors such as cultural, social, economic, and personality background. In addition, demographical factors such as age, sex, and education level can affect satisfaction levels (Ng & Luk, 2019).

A Philippine study that utilizes the SERVQUAL dimension employed Descriptive-evaluative and descriptive-comparative designs to measure patient satisfaction in healthcare. Overall results show that nurses could deliver the services satisfactorily to the patient's satisfaction (Orte et al., 2020). Moreover, a pre-validated 16-item, 5-scale questionnaire was distributed to 200 eligible patients, and results showed a proportion of highly satisfied patients in 13 of 16 items specifically, on 'health care availability,' 'service efficiency,' 'technical competencies', and 'health communication' De Mesa, et al. (2019).

In the Philippines, more recent data on patient satisfaction with nursing care quality needs to be collected. Only three studies were found by the researcher that looked into the levels of patient satisfaction. In De Mesa et al. (2019), a pre-validated 16-item, 5-scale questionnaire was distributed to 200 eligible patients, and results showed a proportion of highly satisfied patients in 13 of 16 items specifically, on 'health care availability,' 'service efficiency,' 'technical competencies' and 'health communication' De Mesa et al. (2019). In two earlier Philippine studies, Abustan et al. (2012) found out that most respondents were female, had elementary education (graduate/undergraduate), and stayed in the hospital for 1-5 days. The patient's level of satisfaction showed that in terms of

Methods

This study used a quantitative descriptive study to describe the demographic profile of the hospital's patients, including age, sex, marital status, and educational attainment. Also, the patient's satisfaction with the nursing

administering medications is the highest and other health therapeutics and the lowest in implementing immediate, appropriate interventions. The respondent's demographic profile has no significant relationship with their level of satisfaction provided by the staff nurses with safe and quality nursing care Abustan et al.(2012). Meanwhile, a study was conducted by Villaruz-Sulit et al. (2009) to determine patient satisfaction with nursing care (PSNC) in the medical wards of the UP-Philippine General Hospital (UP-PGH). Their results revealed that only 34.3% (95% CI 28% 40%) and 35% (95% CI 26% 44%) were highly satisfied with their experience regarding the nurses caring attitude and skill/competence, respectively. Only 17.2% (95% CI 12% 22%) were highly satisfied with the nurses as information providers. Moreover, only 57.8% (95% CI 52% 64%) were highly satisfied with the overall evaluation of care Villaruz-Sulit et al. (2009).

In addition, the need for more freely available recent research data on patient satisfaction with nursing care quality in the local setting is a research gap that this investigator would like to fill. Given the cited gaps, the researcher was inspired to embark on a study to determine the levels of satisfaction of patients with nursing care quality in a district hospital in Buluan, Maguindanao, in terms of variables related to nursing care quality, such as nurse-to-patient information and communication, nursing abilities and competence, and fulfillment of patient needs. It likewise investigated the overall perception of patients regarding their hospital experience. The findings yielded from the study are expected to generate inputs into improving efforts and strategies in the nursing care quality protocol of government district hospitals.

service provided is under close observation. This design aims to describe a population, situation, or phenomenon accurately and systematically. It can answer what, where, when, and how of the events observed or studied. The variables can be understood or provided answers. Moreover, descriptive research design can use many methods to

investigate one or more variables. Bloomfield and Fisher (2019).

Using PSNCQQ, we measured the quality of nursing care. Moreover, the data gathered underwent statistical analysis. The researcher used the analysis to propose an intervention program.

This questionnaire was adapted and translated from the PSNCQQ (Laschinger et al., 2005). The questionnaire measured the level of satisfaction of patients on the quality of nursing care and the overall perception of the patients on the quality of nursing care. The questionnaire used a 5-point Likert scale varying from "very high" to "very low."

The data needed for this study were gathered with the use of a questionnaire adapted from the study of PSNCQQ (Laschinger et. al., 2005), was modified and subjected to validity and reliability testing, which has four parts, the first part identified the: demographic profile of the respondents in terms of their age, gender, marital status, and educational attainment. In addition, the second part of the questionnaire contained a total of 19 items that determined the level of satisfaction of patients with the quality of nursing care in terms of information and communication, nursing care and attitude, and nursing skill and competence (5 items). The scores are measured and interpreted in a 5-point Likert scale: 5 – Very High, 4 - High, 3 - Moderate, and 2 – Low, 1 - Very Low.

Results and Discussion

Table 1. Sociodemographic Profile of Respondents

Indicators	Frequency (n=200)	Percentage Distribution
Age		
19-29	57	28.50
30-40	62	31.00
41-51	47	23.50
52-62	21	10.50
63-73	13	6.50
Total	200	100
Sex		
Male	77	38.50
Female	123	61.50
Total	200	100
Marital Status		
Single	91	45.50
Married/Cohabiting	84	42.00
Separated	12	6.00
Widowed	13	6.50
Total	200	100
Educational Attainment		
College Graduate	22	11.00
College Level	55	27.50
High School Graduate	55	27.50
High School Level	24	12.00
Elementary Level	26	13.00
Did not go to school	18	9.00

Total	200	100

The table shows that the most significant number of respondents were from the 30-40 age bracket at 62 (31%), followed by the 19-29 age bracket at 57 (28.50%), and the lowest number of respondents, 63-73 age bracket at 13 (6.50%). More than half (61.50%) of the study subjects were females, and most patients (45.50%) were single. Most respondents in terms of marital status were either single 91 (45.50%) or married/cohabiting 84 (42.00%). The rests were either widowed 13 (6.50%) or separated 12 (6.00%). It has been noted that in this study, the number of married respondents outnumbered those who were single. Regarding the highest educational attainment, some were college- or high-school graduates at 55 (27.50%) each. Those with elementary level education numbered 26 (13.00%), followed by those with high school level education 24 (12%). College graduates comprised 22 (11.00%) of respondents—those who did not go to school numbered 18 (9.00%) of the total.

Table 2. Level of Patient Satisfaction on Nursing Care Quality

Parameters		Mean	SD	Interpretation
Information and Communication		3.96	0.45	High
Nursing Care and Attitude		4.00	0.39	High
Nursing Skill and Competence		4.11	0.44	High
	Overall	**4.02**	**0.39**	**High**

Legend: 4.21-5.00 Very High; 3.41-4.20 High; 2.61-3.40 Moderate; 1.81-2.60 Low;
1.00-1.80 – Very Low.

Nursing Skill and Competence obtained a mean of 4.11, the highest among the three categories. Information and Communication, with a mean of 3.96 being the lowest. However, all three categories merited a descriptive interpretation of High. The overall mean rating on the level of patient satisfaction was 4.02, with an interpretative description of High.

The results of this study on the level of patient satisfaction with quality nursing care showed that the respondents were highly satisfied with the level of nursing care they received throughout their hospital stay. Regarding information and Communication, items under this category received an overall mean rating of 3.96 with a descriptive equivalent of High. Item 1, "information you were given," and Item 4," information given by nurses" - both received the highest mean rating of 4.16, respectively, followed by Item 2, "instructions" - 4.07. The items with the lowest mean rating include Item 3, "ease of getting information" - 3.89, and Item 5, "informing family and friends" - 3.67. All five items merited a descriptive interpretation of High.

The results imply that when it comes to information and Communication, patient satisfaction largely depends on the information given to the patient and the information given by nurses, as well as the instructions. On the other hand, data also revealed that patients sometimes find difficulty in obtaining information. The study likewise shows that nurses need to improve on informing family and friends of the condition of the patients.

Regarding nursing care and attitude, the overall patient satisfaction level garnered a mean rating of 4.00, with a descriptive interpretation of High. Likewise, all items under this category merited a descriptive interpretation of High. Items with the highest mean ratings include Item 11, "daily routine of nurses" - 4.42, and Item 7, "Concern and caring by nurses" - 4.22. Item 12, "helpfulness" - 4.19, and item 8, "attention of nurses to your condition" - 4.11. The four items with the lowest mean include Item 6, "involving family

or friends in your care" - 3.48, and Item 9, "recognition of your opinions" - 3.71. Item 13 - 3.81, and Item 10 "Consideration of your needs" - 3.83.

This implies that patient satisfaction largely hinges on the concern and care shown by the nurses by being helpful and giving enough attention to the patient's needs and condition. On the other hand, results also reveal that nurses need improvement in involving family and friends in patient care and recognizing the patient's opinion while considering their condition.

The study's results suggest that patient satisfaction largely hinges on the ability of the nurses to continue to coordinate with patients after discharge and in giving discharge instructions. Moreover, the results also reveal that nurses value their patient's privacy more and improve on providing a restful atmosphere

for the patients. These results quite resonated with a study by Trotta, R. L. et al. (2020), "Nurses' engagement with patients, the anticipation of patients' needs, responsiveness to patient's concerns, and teaching practices positively influence patient satisfaction with Communication with nurses. These behaviors resonated most strongly with patients during particularly memorable moments of uncertainty and vulnerability throughout a hospital stay."

Moreover, another study by Clarke S. P. et al. (2003) offered interesting findings that say that direct links can be found to a low nurse-to-patient ratio when a facility has high mortality rates resulting from preventable complications. This phenomenon clearly shows the imperative presence of a caring nurse in the patient.

Table 3. Overall Perception of Patients

Parameters	Mean	SD	Interpretation
Quality of Care and Services	4.13	0.54	High
Quality of Nursing Care	4.20	0.55	High
General Health	4.44	0.55	Very High
Hospital Recommendation	4.60	0.51	Very High
Overall	**4.34**	**0.54**	**Very High**

As shown in Table 3, the overall perception of patients on the four parameters merited an overall rating of Very High with a mean of 4.34. Hospital Recommendation garnered the highest mean of 4.60, followed by General Health at 4.44. Overall Quality of Nursing Care at 4.20 and Care and Services at 4.13 both merited a rating of High.

The results imply that the patients in this study were highly satisfied with their hospital experience. They would highly recommend the hospital facility to others since they perceived that their general health had considerably improved following the high quality of nursing care and services they received during their hospital stay. Conversely

proportional to patient satisfaction is evidence-based practice (EBP). The underlying assumptions of EBP are that EBPs result in better patient outcomes and are associated with reducing errors, risks, and costs. Connor, L., et al. (2023). Better patient outcomes, likewise, patient satisfaction, are known to be correlated with evidence-based practice in quality nursing care.

Furthermore, another study by Goes, M. et al. (2023) showed findings that suggest that patient satisfaction is an indicator that may be quantitatively measurable, with functional capacity and quality of life considered very significant predictors of patient satisfaction with nursing care experience.

Proposed Enhancement Program

The findings of this study revealed that although the overall level of patient satisfaction with nursing care quality was high, improvements still need to be carried out in such aspects as Information and Communication, Nursing Care and Attitude, and Nursing Skill and Competence.

Thus, the nursing care quality program geared towards further improvement is recommended to improve nursing staff responsiveness leading to improved patient satisfaction. The program is seen to help with the regular seminar and training on skills to attend to patients. The seminar must hammer the imperatives of healthcare. This program must be implemented regularly – every trimester. This program must be planned following the PIME context – Planning, Implementation, Monitoring, and evaluation. Highly positive results must display a high patient satisfaction level.

Proposed Intervention Program

Title	Nursing Care Quality Improvement Program to Enhance Patient Satisfaction
Objective	To enhance levels of patient satisfaction with nursing care quality in a government hospital in terms of information and communication; nursing care and attitude; and nursing skill and competency through nursing staff quality improvement. Strengthen individualized care.
Person Involve	Nurse, Patients/ Watcher
Budget	None
Time Frame	Daily Nurse-Patient/ Watcher Interaction in the unit
Activities	• direct care, the maximum interaction or being in front of the patient • Adopting communication techniques such as AIDET (acknowledge, introduce, duration, explanation, thank you) • Nurses must use clear, relevant, simple, adaptable, and credible language when communicating verbally. Non-verbal communication, such as the nurse's gait, posture, facial expressions, tone of voice, eye contact, and hand-body movement, • Actively educating and involving patients and families in education programs for healthcare professionals, and managers, where patients and families share their experience of care; • Nurses use their senses and attentiveness to analyze verbal and nonverbal communication with conscientiousness to a patient. Active listening involves: Listening to the patient, Comprehending or understanding what the patient is saying, Retaining the information provided by the patient, and Using the information provided by the patient to respond in a caring and appropriate manner or propose a solution • Encouraging patients and families to be involved and to speak up; • Strengthening communication among patients, family members, caregivers, and staff; • Eliciting and taking account of patients' preferences; • Communicating information on risk and probability; • Sharing treatment decisions; • Managing time effectively.

Title	Nursing Care Quality Improvement Program to Enhance Patient Satisfaction
Expected Outcome	- Improved patient satisfaction with the quality of nursing care and service delivery, - Strengthened information and communication between and among nursing staff and patients, - Enhanced nursing care attitudes and communication - Fortified nursing skills and competence. - The performance standards and targets reached in terms of quantity, quality, time frame, and location. - Improvements validated satisfaction from patients, effective nurse-patient communications, an increase in the quality of nursing care, and efficient management. - Patients and family will be able to involve in their care and express in terms of their needs and care, treatment decisions, - Nurses-patient relationship enhanced. - Shorter hospital stay.

Conclusions and Recommendations

This study aims to assess patient satisfaction with the quality of the nursing care provided to them during their hospital stay. The results reflect a high level of patient satisfaction with the quality of nursing care in the hospital. Therefore. Continuous investigation of nursing practice efficiency is needed.

1. The findings of this study revealed the various ages, sexes, marital status, and educational attainment of patients. The data shows more patients between 30-40 years old, around 63 out of 200. And the lowest number of patients is between 63-73 years old, that is 13 patients. Moreover, The patients' level of education – College graduate, college level, high school, was observed to have a significant influence on patients' level of satisfaction; therefore, providing patients with education and information on their conditions, allocation of sufficient time for talking, listening to patients, showing individualized interest, and understanding all play a vital role in ensuring that patients feel valued and cared for. Their level of education helped them understand their healthcare needs and appreciate the nursing care rendered.

2. The findings in this study revealed that most patients had high levels. Satisfaction with nursing care and factors like individualized care, patient acceptance, and nurse reassurance significantly influenced patient satisfaction. In addition, patient satisfaction is used to give healthcare providers an idea about the level of the services they provide and identify any limitations or gaps in the services that could be improved. It showed that nurse information, communication, nursing care attitude, and nursing skills and competence are good.

3. The findings of the study results showed that the overall perception of patients on the four parameters merited an overall rating of Very High. This means that patients are perceived to be satisfied with the quality of nursing care and are most likely to recommend the hospital to their relatives and friends.

4. Based on the study's findings, the intervention program proposed is a regular seminar on quality nursing care - it must be trimester. It must be planned using the PIME context so that it can be followed through from the planning stage to the evaluation.

Based on the findings that were gathered, the following recommendations were made:

Patients. Active patients and significant others involved in their condition and care encouraging to verbalize feelings or speak up.

Nursing Services and Administration. Nurse leaders and healthcare administrators need to maintain quality nursing

care through periodic assessment and evaluation of all aspects of the nursing care process. Develop strategies and interventions to improve nursing care based on patients' expectations emphasizing teaching and information dissemination. Utilize the findings to recognize the strengths and weaknesses of nursing services and adopt necessary measures to enhance the quality of nursing care to increase patient satisfaction.

Hospital Administration. Ensure every department is not just adequately staffed but staffed with highly motivated, skilled healthcare professionals who know what is expected of them and who are all working towards a common goal. Interact with staff and patients to gain relevant and crucial feedback on the organization's functioning. Adjust training or continuing medical education requirements. It regularly evaluated business operations within the hospital and identified opportunities for enhancement. Determining

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which issue to address and setting the measurement criteria, conducting observations of the processes related to the problem, collecting data, and then developing and executing an action plan. Following the action plan's implementation, monitor the change's efficacy to ensure sustained improvement. Prioritize the changes that will be most beneficial for the hospital and the largest patient population segment.

Future Researcher. Future researchers may use the information that was gathered as a reference for further research on this subject. More specifically, the findings of this study may serve as a great resource of knowledge in

Based on the findings of the study, the crafting of a proposed intervention program should be carried out that should focus on nursing training programs that improve patients' satisfaction and enhance the quality of nursing care in district hospitals.

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