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Caring Till Death: A Phenomenological Study

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Abstract

Death elicits a range of emotions in individuals, making it a universally challenging experience. Coping with the loss of a loved one is particularly difficult, but it is important to recognize that nurses also struggle with the emotional impact of losing their patients. This study explored the impact of successive deaths of patients during a nurse's shift. The study utilized a qualitative phenomenological approach by interviewing nurses who experienced successive deaths during their shifts. The study included nurses from a critical care unit in a tertiary hospital in Laguna who had at least one year of experience, regardless of age or gender. They must have encountered at least two patient deaths during their shifts to qualify. Results showed that nurses experienced emotional turmoil or distress, compassion towards the family, and feelings of incapacity. Nurses employed both internal and external coping strategies to deal with the situation. External coping methods included verbal and non-verbal interactions, while internal coping involved acceptance, prayer, meditation, and the use of medications. The repeated deaths had both positive and negative effects on the nurses. These series of deaths motivated them to improve their care for patients and strive for excellence. On the other hand, they also experienced fear and self-doubt. This study recommends that nurses who encounter multiple deaths during their hospital shifts undergo a debriefing process to assist in coping with the various emotional experiences. Furthermore, nurses impacted by this trauma need training, strategies for coping, and access to therapy to prevent or reduce the negative effects of their experiences on their mental and emotional health.

Keywords: *nurses, patient death, phenomenology, coping*

The COVID-19 pandemic has caused physical, psychological, and emotional strains on the population. Globally, the number of deaths has increased significantly since the pandemic's declaration in March 2020 (World Health Organization, 2021). Reports of death had risen, and people were getting worried and anxious every day. It was reported on November 8, 2021 that there were already 5 million people who have died of COVID-19, which has already spread in six continents (Elflein, 2021). In Southeast Asia, there were 1,182,744 deaths (Worldometer, 2021). Of those recorded deaths, 44,521 were from the Philippines (Center for Strategic International Studies, 2021). These rising statistics have affected nurses working on the frontlines, as they are the ones who care for the patients and are frequently exposed to patient deaths in their day-to-day work.

The nurses' emotional response to death is crucial as they handle these situations. Several studies explored one's reaction to death. For most people, a common fear or phobia is the feeling of dread, anxiety, or fear at the thought of death (Peters et al., 2013). For nurses, facing issues such as the death of the patients they care for is a part of the normal cycle of their professional lives. It may seem easy for some because they have grown accustomed to it, but for others, dealing with death may be one of the most challenging aspects of their profession. The pandemic has made it more challenging as the number of deaths doubled in the succeeding years. Caring for the dead and dying gives rise to several undesired emotions that may affect the quality of patient care (Abu Hasheesh et al., 2021). Personal reactions and attitudes towards death vary. According to the study conducted by Kostka et al., (2021), stress and anxiety in nurses as they observe their dying patients put emotional burdens on nurses, something which has not been given much attention. Despite the challenges, nurses continued to work in hospitals often amidst the shortage of staff, medical supplies, and beds (Al Thobaity & Alshammari, 2020).

Their emotional response to death has not been explored extensively and sufficiently to address the inner battle of nurses that may affect work performance. This study hoped to address the subtle problems nurses encountered in their daily exposure to death. The extensive exploration of the impact of these deaths on nurses' emotional stability is uncovered and given attention. The results of this study may be used to help address the problems nurses encounter in their daily exposure to death. Results may also unravel the impact on practice or work performance.

Methodology

Research Design

This study utilized a qualitative phenomenological research design that focused on understanding the phenomenon of nurses' experience with patients who died under their care in the hospital. This study utilized data gathered from interviews with five nurses who shared their lived experiences when patients died during their shifts. According to Flood, as quoted by Tomaszewski et al., (2021), a phenomenological approach to subjective exploration centers on the substance of a lived experience that can be observed or felt by people who have different points of view. This will describe the phenomenon by looking at it through the eyes of those who have encountered the situation. The goal of this study was to describe the meaning of a specific experience in terms of both what was experienced and how it was experienced (Neubauer et al., 2019).

This study utilized a purposive sampling technique where informants were chosen on purpose based on the criteria set. To identify areas where the researcher will get the informants, the snowball sampling method was used, where the current informant recruits or refers another possible informant for the study. The informants for the study were nurses who were willing to participate in the study, worked in the critical care area in a tertiary hospital in Laguna, Philippines, have at least one year of hospital experience regardless of age and gender, and have experienced at least two patients who died during her shift. Data collection for this study reached the saturation point on the fifth informant.

This study utilized an interview method where questions were asked about their lived experience with the consecutive deaths of their patients during the shift. The interview utilized an open-ended, semi-structured questionnaire such as the following:

1. What are your experiences as you deal with the death of your patient due to COVID-19?
2. What is the impact of your patient's death on your nursing care?
3. How did you cope with the death of your patients, and what coping mechanisms did you use during your experience of grief?

In this study, the researcher relied solely on the informant's answers to the questions. Therefore, responses were triangulated by interviewing co-workers and the nurse's supervisor. Since the researcher is a nurse with similar experience as the informants, a research assistant was hired and trained to conduct the interview.

The Ethics Review Board approved this study, and informed consent was secured before the interview. The researcher explained the purpose and procedure of the study, and a thorough briefing was conducted to prepare the informants for the questions that would be asked. The privacy of the informants and confidentiality of the information was assured, and the researcher emphasized that the information obtained from the interview would be used solely for academic purposes. After the consent was signed without prejudice, the informants were informed of their right to withdraw at any time. Further, this study ensured the voluntary participation of the informants and that no coercion was committed during the study's conduct.

Data Collection

After the study had been approved and ready for gathering, the researcher conducted a pilot study on one of the nurses who worked in the COVID-19 facility in Laguna, who experienced having at least two patients die during their shift.

Before the actual study was conducted, the researcher contacted registered nurses who agreed to participate. The research assistant chosen was a registered nurse who has qualitative research experience, has no series of deaths experienced to avoid personal biases, and is willing to conduct a series of interviews with informants. The researcher had an orientation and a series of meetings with the research assistant to prepare for the actual interview. The research assistant was also orientated on bracketing to temporarily set aside her assumptions during the interview.

After the pilot study, the interview questions were improved to make sure that the informant understood them. Interviews with the main participants were then conducted in one of the rooms of the village clubhouse to ensure the privacy of the informants. The researcher explained the purpose of the study. Orientation was also conducted with a licensed psychologist over a Zoom call before the interview. Initial interview questions were asked to set the tone for the actual interview, making the informants comfortable. The interviewer, who is also a registered nurse, interviewed by asking questions such as the participant's age, years of experience, and number of patient deaths while on duty. This also served as a preliminary interview screening of the patient. Once the patient met the criteria, an actual interview was done. With the permission of the informants, the interview was recorded through Zoom.

Nurses were interviewed, and recording of the whole interview was done, and observance of nonverbal expressions shown by the respondents throughout the interview was also noted. Data was gathered on five nurses, which has reached the point of saturation. Triangulation of the data was done with the colleague and head nurses after the data gathering. Methodological rigor was followed, taking into consideration the following: credibility, transferability, dependability, and confirmability. Thankfully, no breakdown or trauma was observed during the interview. A briefing and debriefing were done before and after the interview. The data gathered was validated back with

the respondents for clarification. Proper care of the recorded materials was observed to maintain the privacy of the patient.

Data Analysis

All the data collected were carefully analyzed using Colaizzi's approach of data analysis. The following are the steps using the Colaizzi process for phenomenological data analysis (Musharyanti et al. (2019).

1. Each transcript was read and re-read to obtain a general sense of the whole content.
2. For each transcript, significant statements that pertain to the concept being explored, such as the lived experience of the nurse during the death of the patient were identified. These statements were recorded on a separate sheet, noting their pages and line numbers.
3. Meanings were formulated from these significant statements from the informants.
4. The formulated meanings were sorted into categories, clusters of themes, and sub-themes.
5. The findings of the study were integrated into an exhaustive description of the phenomenon under study
6. The fundamental structure of the phenomenon was described.
7. Finally, validation of the findings was sought from the research informants to compare the researchers' descriptions of their narrative experiences.

The study has taken steps to ensure it is reliable. The researcher used specific criteria to evaluate credibility, confirmability, trustworthiness, and transferability. To ensure the study's reliability, data was studied over a long period, and different people analyzed the data independently and discussed their findings with colleagues. To ensure authenticity and reliability, detailed records were kept of everything they did throughout the study. This Zoom recording was monitored by the researcher who was not involved in data analysis. Data was also verified with five participants via video call to ensure the results accurately represented their experiences. To make the study results applicable to other situations, extensive information was provided about the participants, where the study was conducted, and a thorough description of the entire process as well.

Ethical Considerations

The study placed a high priority on maintaining the privacy and confidentiality of participants' information. Every individual involved in the study was explicitly informed about the strict confidentiality measures in place to protect the results and their data. Furthermore, the researcher demonstrated a deep respect for each participant's beliefs, gender identity, sexual orientation, and ideological perspectives, ensuring that these aspects were handled with sensitivity and without discrimination.

The study's methodology employed rigorous measures to gather accurate and reliable information. This included conducting detailed surveys and collecting clear, transparent data to prevent any potential misinterpretation of the findings. By ensuring the accuracy and clarity of the data collected, the study aimed to contribute to a more informed understanding of the subject matter.

Results

Table 1

Lived Experience of Nurses Caring for Consecutive Deaths During Their Shift

Theme	Sub-Themes	Informant's Response
Emotional Turmoil/ Distress	Frustration	Minsan, naiinis ako kasi feeling ko wala akong nagawa sa patient ko. Frustrated kasi gusto ko sana gumaling patient ko. Parang na frustrate ako kasi parang gusto mo sana gumaling pero wala ka naman magawa dahil hindi mo alam paano Nawawalan na ako ng gana minsan kasi wala naman akong magawa sa sitwasyon
	Grief	Nakakalungkot ako sa mga mga nangyayari. Minsan ayaw ko na mag open ng Facebook kasi puro nakakalungkot ng mga nakikita mo. It is so depressing at eto ako nag contribute pa sa statistics… haaay nakakalungkot lang. Hindi na maganda ang nangyayari, nakakalungkot na Makita mo namamatay isa isa mga inalagaan mo.
	Fear	Natatakot din ako baka mahawa ako. Natatakot ako halos araw araw at baka mamatayan na naman ako ng pasyente. Minsan may mga nightmares ako at nahihirapan ako matulog sa gabi. Natatakot ako para din sa family ko. Baka magkasakit din sila at mangyari din sa kanila ang mga nakikita ko dito sa hospital. Traumatizing, ayaw ko na maranasan ulit yun. At least ngayon medyo ok na. Takot ako minsan pag mag report sa duty kasi baka mamatayan na naman ako.
	Emotional Pain	Sobrang sakit lang kasi naalagaan na naming sila ng matagal yung isa halos kasama ko na for 2 weeks sa ward.

{table continues on the next page}

		Masakit makita ang reaction ng family nila kasi kami ang bridge nila para makita patient nila eh. Bawal naman sila kaya video call nalang request nila. Emotionally draining, minsan gusto ko matulog nalang buong araw. Nasasaktan din pag namatay ang patient kasi naalagan mon a sila ng matagal eh.
Compassion	Empathy	Naawa ako sa family ng patient ko kasi parang helpless din sila. Wala silang magawa kasi bawal din pumunta ng hospital. Naiisip ko kung gaano ito kahirap sa pamilya. Kapag namatay ang pasyente ko during my shift nahihirapan din ako to inform ang family kasi hindi rin madali sa kanila tanggapin lalo na wala sila sa tabi nito.
	Kindness	Ginagawa ko din ang lahat para Makita man lang ng family ang kanilang patient. Ako na minsan nag ooffer kung gusto nila makakita ang patient nila kahit minsan hirap din sa signal. Masaya ako pag nakikita ko na at least nakakatulong ako sa family. Pag nag tanong ang family kumusta ang patient at gusto nila Makita, I make sure talaga na ok din mukha ng patient or inaayos ko muna para at least di sila mag worry na napabayaan ang patient niila tulod ng mga naririnig sa news.
Feeling of Incapacity	Helplessness	Parang may kulang sa akin as a nurse kasi feeling ko di ko nagawa ang best ko. Parang di ko alam ano gagwin ko kasi wala naman treatment na clear para gumaling ang patient ko. Wala naman kaming magawa na nurses kungdi magbigay ng care based sa symproms lang. Walang magagawa kundi mag pray nalang para sa patient kasi wala naming gamut talaga specific for COVID pa.
	Inadequacy	Minsan tinatanong ko sarili ko kung may kulang ako as a nurse Nakakalungkot lang kasi parang wala naman pang gamot so feeling ko hit and miss nalang talaga.

Table 2

Coping Mechanisms of Nurses Caring for Consecutive Deaths During Their Shift

Theme	Sub-Themes	Informant's Response
External Coping	Verbal interaction	Wala lang nag uusap lang kami sa mga nangyari, parang nakakagaan lang Parang kami kami lang din nag share ng experience naming everytime na magkakasama kami. Hindi rin Namin masabi sa family naming kasi baka ma stress lang sila. Chicka chicka nalang after duty. Isang bahay lang naman kami eh. Wala naman nang ibang magawa kasi lockdown. Feeling ko pag nai share ko ang feelings ko navavalidate siya at alam ko na pareho pala kami na experience din. Sharing of experiences with workmates.
	Non-verbal	Minsan pagdating ko sa room naming after shift wala lang sali salita basta biglang tapik nalang saka nagkakaintindihan na kami (comforting touch). Pag namatayan ka at pagbalik mo sa station minsan wala nang sabi tinginan nalang alam mo na (facial expressions) Nalalampasan din naming siguro ang pandemic dahil grabe talaga ang support naming sa isat isa na para na kaming pamilya lahat (silent support).
Internal Coping	Acceptance	I have no other choice but to accept that this is our life for the moment, and we must live to whatever life throws at us. No other choice but to face reality.
	Prayer and meditation	We have started to have regular prayer and meditation in the ward before our duty starts. It has become a regular habit to gather together in our dormitories to worship. I became prayerful during those times because it assured me that I have God with me.
	Medicating	Because of my anxiety, I have difficulty sleeping at times, which is why I take melatonin every night. We drink medication to help us sleep because of anxiety.

Table 3
Impact of Deaths on Nursing Care

Theme	Sub-Themes	Informant's Response
Positive Impact	Challenged to do the best	My patient's death challenges me to do my best even more. Seeing my patients die, I start to question my capacity if I have already given my best to care for my patients. Because of this experience, I see to it that I give my best care to my patients so that whatever happens, I am comforted that I have given my all to make them feel comfortable as I care for them.
Negative Impact	Fear	Every day, as I start my work, I am afraid because I might have another death in my shift. I am anxious because I might lose another patient. I am afraid to care for another patient because of death. Afraid to see another patient die. Creates a stigma on me every day.
	Self-doubt	I feel as if I am insufficient as a nurse. Questions myself if I am already enough. Did I do my best?

Discussion

Results of the study in Table 1 showed that nurses with subsequent patient deaths during their shift experience varied emotional encounters. The most common experience is emotional turmoil or emotional distress with the subthemes of frustration, grief, fear, and emotional pain. Next is the feeling of compassion towards family members with the sub-themes of empathy and kindness and lastly, nurses felt incapacitated because of their patient's death. This is manifested in the result of the study's sub-themes of helplessness and inadequacy.

According to the National Institute of Aging (2022), providing care and comfort during the final stage of life is a complex and emotionally challenging aspect of nursing. It involves not only attending to the physical needs of the patient but also addressing their emotional and psychological well-being. While the focus is often on the patient and their families, it is essential to recognize and validate the emotions of the nurses involved in end-of-life care. To guarantee that patients have dignity, comfort, and support in their last moments, nurses are essential (Östlund et al., 2019). However, nurses may experience a range of emotions due to the psychological toll of seeing pain and the certainty of death. It is critical to recognize that nurses are people, just like any other healthcare worker, and that they occasionally feel anxious, frustrated, depressed, afraid, or emotionally hurt.

Nurses always show sympathy for the family members, even during the emotional difficulties that come with a death that occurs while they are working. Even while they may experience personal distress with every death of their patients, their demonstrations of empathy and shared pain for the mourning families are still present in all nurses. Rushton et al. (2017) stress the significance of preserving empathy in end-of-life care in their study. It talks about how dealing with patient deaths

frequently causes nurses personal distress and grief but emphasizes how important it is to maintain empathy to provide appropriate patient and family care. Further, in a qualitative study, Coelho et al. (2018) investigate the experiences of nurses providing end-of-life care, emphasizing their empathy and the coping mechanisms they use to get through difficult emotional situations. The study explores the psychological ramifications of giving care to someone who is dying.

Coping mechanisms of nurses caring for consecutive deaths during their shift in Table 2 showed that nurses who experienced a series of deaths during their shift had varied coping mechanisms used. These are the utilization of external and internal coping. External coping utilized were verbal and non-verbal interactions. Verbal such as sharing their feelings, experiences, and apprehensions with colleagues while non-verbal interactions were shown when nurses would just sit beside each other without any verbal interactions and just simply hug each other and burst into tears. The most common nonverbal interactions used were just silence and eye contact which were believed to help understand each other. Nonverbal communication, commonly known as silent communication or body language, holds significant sway in human interactions. Unlike verbal communication, which is straightforward and explicit, silent communication frequently carries profound implications and emotions (Burgoon et al., 2016). An example of this would be a tap on the shoulder or giving them a reassuring embrace which is gentle and comforting contact that can offer emotional support and provide comfort to an individual.

The impact of deaths on nursing care showed that successive deaths during a nurse's shift resulted in positive and negative impacts on their nursing career. Positive because nurses were challenged to do their best to avoid having the same situation again. The study by Hensel and Ellinger (2015) shows that when nurses experience a patient's death, it can help them grow professionally and reflect on their care. By thinking about how they cared for the patient and what happened during the death, nurses can find ways to improve how they work. This reflection can motivate nurses to become better at their jobs by improving their skills and knowledge.

On another aspect, it also created a negative impact on nurses creating fear and self-doubt. It is often observed that nurses often feel anxious about being judged or criticized because healthcare settings are closely monitored for quality. This fear comes from the thorough evaluation processes in place. Nurses may experience fear and anxiety regarding potential criticism or judgment from various stakeholders if a patient's death raises questions about the quality of care provided. This fear is rooted in the desire to deliver excellent care and avoid negative consequences. Research by Aiken et al. (2014) explores the impact of nurse staffing levels on patient outcomes and emphasizes the importance of a supportive work environment to mitigate nurses' fears and promote quality care delivery.

In short, when healthcare settings are closely watched and nurses worry about being judged after a patient dies, it can make them doubt themselves and feel anxious. To deal with this, it's crucial to have workplaces that support nurses well, have enough staff, and provide ongoing training to improve care quality.

Experiencing multiple patient deaths can affect nurses in different ways. It can inspire them to improve their care and aim for excellence, but it can also make them feel fearful and uncertain. Healthcare organizations should acknowledge how this affects nurses and provide support, like debriefing sessions and training in coping skills. Nurses may also benefit from therapy or counseling to manage their emotions. Overall, these measures can help nurses stay mentally well and provide better care to patients. For future studies, it is recommended that a detailed study should be conducted in several specialty areas of the nursing profession not merely focusing on critical care unit nurses.

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The Influence of Vaccine Confidence on Compliance with COVID-19 Minimum Health Standards Among Employees of Sectarian Institutions

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Abstract

The introduction of the COVID-19 vaccines and the strict implementation of minimum health standards during the pandemic lockdowns were met with both opposition and compliance. This study investigated the influence of vaccine confidence on compliance with minimum health standards. A total of 349 purposively sampled employees of seven sectarian higher educational institutions in the Philippines participated in the study. Results from descriptive correlation revealed that respondents were *highly confident* about the COVID-19 vaccine and were also *highly compliant* with minimum health standards. Vaccine confidence was significantly related to and was a predictor of compliance with minimum health standards. Results further showed that respondents under 40 years old were more compliant with minimum health standards. The level of compliance of the participants did not differ significantly when grouped according to sex and educational attainment. It is recommended that data from similar studies be used to predict behaviors in similar scenarios that may occur in the future.

Keywords: *COVID-19, vaccines, vaccine confidence, minimum health standards*

Novel coronaviruses that have emerged from animal reservoirs over the past 20 years are a global public health concern since they cause severe sickness, epidemics, and pandemics. According to the National Institute of Allergy and Infectious Diseases (2020), novel coronavirus infections include coronavirus disease 2019 (COVID-19), Middle East respiratory syndrome (MERS), and severe acute respiratory syndrome (SARS).

Strict implementation and adherence to minimum health (MHS) is still the best defense against communicable diseases (Buhat, 2021). Hand hygiene has been identified as a principal measure for preventing transmission of respiratory diseases (Public Health England, 2020), as well as handwashing. Face mask use has been recognized as a suitable measure within the scientific community as a precautionary preventive measure in the face of acute crises such as the COVID-19 pandemic (Greenhalgh et al., 2020). Likewise, social distancing reduces the risk of either spreading or catching the COVID-19 virus. Adhering to these measures will go a long way to helping save humanity and the globe for better living. According to O'Connell et al. (2023), increased protective behaviors were positively associated with COVID-19 case counts. The risk of COVID-19 infection through contact with contaminated surfaces or objects is possible. Daily cleaning and disinfecting of touch surfaces such as tables, desks, handrails, faucets, doorknobs/handles, light switches, phone handsets, and computer workstations are necessary to reduce COVID-19 infection risk from surface contact (Environmental Health & Safety, 2022).

On May 7, 2023, WHO declared the end of the COVID-19 global health emergency. However, SARS-CoV-2 remains a severe concern for specific sub-populations. It is killing, and it is still changing. The risk remains, and new variants are emerging that cause new surges in cases and deaths, thus requiring continued public health response.

Vaccination is one of the most effective preventive measures against communicable diseases (Public Health Agency of Canada, 2017). Lack of vaccine confidence was one of the top 10 dangers to global health (WHO, 2019), and it exists in most countries worldwide, including the Philippines (Brackstone et al., 2022).

Assessing vaccine confidence and compliance with minimum health standards can leverage health advances in public health. This study aims to determine the level of vaccine confidence and whether it is related to compliance with minimum health standards.

Methodology

The study used a descriptive-correlational design to describe the extent of vaccine confidence, the level of compliance of the respondents with COVID-19 minimum health standards, and the relationship of vaccine confidence to compliance with COVID-19 minimum health standards. It used a survey questionnaire to gather numerical data. The research also used a comparative design to find out if there is a difference in the compliance of the respondents with COVID-19 minimum health standards when the respondents are grouped by age, sex, and educational attainment.

The study used purposive sampling and 349 employees chosen from seven higher education sectarian institutions across the country. Their age ranged from below 40 (37.20%) to 40 and above (62.80%). Most of them were females (62.80%), and 37.20% were males. Educational attainment was as follows: undergraduate (4%), college graduate (42.70%), master's degree holders (42.40%), and doctorate holders (8.905).

The study utilized a questionnaire in data gathering, which was composed of three major parts: Part 1 – Demographic Profile, Part 2 – Vaccine Confidence, and Part 3 – Compliance to COVID-19 Minimum Health Standards. The demographic profile includes age, sex, and educational attainment. The questionnaires for vaccine confidence used a five-point Likert Scale with a degree of intensity: 5 – Strongly Agree, 4 – Agree, 3 – Somewhat Agree, 2 – Disagree, 1 – Strongly Disagree. The questionnaires for compliance with COVID-19 minimum health standards also used a five-point Likert Scale with a degree of intensity: 5- Always, 4 – Often, 3 – Sometimes, 2 – Rarely, and 1 –

Never. The reliability results showed an acceptable index of 0.846 for vaccine confidence and 0.938 for compliance with COVID-19 minimum health standards.

Table 1
Reliability Statistics of the Scales Used

Variables	Cronbach's Alpha
Vaccine Confidence	.846
Compliance with Minimum Health Standards	.938

Upon the approval of the study's conduct, the researcher and her research assistants personally distributed the questionnaires to the participants. Data were collected, encoded, organized, and analyzed using a statistical package for Social Science (SPSS). Mean, standard deviations and frequency were used to quantify the extent of vaccine confidence and the level of compliance with minimum health standards. Pearson product-moment correlation and regression analysis were used to describe the influence of vaccine confidence on compliance with COVID-19 minimum health standards. T-tests were used to describe the significant difference in the respondents' compliance with minimum health standards when the demographic profile of the respondents was considered.

Ethical matters were considered during the study. The respondents were informed that participation is voluntary, so their consent is necessary with the assurance that confidentiality and anonymity are strictly observed.

Result and Discussions

After gathering enough responses, the data were encoded, summarized, and analyzed in SPSS. The results of the statistical analysis are discussed as follows.

Table 2 shows the summary responses of the respondents about the extent of their confidence in COVID-19 vaccines. Most (58%) of the statements that measure the extent of confidence of the respondents toward vaccines were rated *high*, and 42% were rated *somewhat agree*. The grand mean of vaccine confidence is 3.55, and it is interpreted that the respondents are highly confident in the COVID-19 vaccine. Vaccine confidence is the belief that vaccines work, are safe, and are part of a trustworthy medical system (CDC, 2022). The respondents feel that they are in danger if many people are not vaccinated. Experts explain that the virus replicates quickly in unvaccinated people, increasing the chance of mutations (Lennon, 2021). Pain from vaccine injections is joint, and concerns about pain contribute to vaccine hesitancy across the lifespan Pavlova et al. (2023). However, the Philippine Society of Allergy, Asthma, and Immunology [PSAAI] assured the public that the benefits of the vaccine against COVID-19 outweigh the minimum side effects (Fiolet et al., 2022).

Table 2
Extent of Vaccine Confidence of the Respondents

	Items for Vaccine Confidence	Mean	SD	Scaled Responses	Descriptive Interpretation
1.	The COVID-19 Vaccine can create antibodies to almost everyone.	3.83	0.980	Agree	High
2.	The COVID-19 vaccine will work for me.	3.85	1.098	Agree	High
3.	Getting the COVID-19 vaccine is helpful in developing herd immunity.	3.88	1.030	Agree	High

{table continues on the next page}

4.	If I get the COVID-19 vaccine, it will save lives.	3.74	1.097	Agree	High
5.	The speed of development of the vaccines did not compromise the safety of the vaccines.	3.37	1.055	Somewhat Agree	Moderate
6.	It will be dangerous if many people are not vaccinated.	3.59	1.196	Agree	High
7.	Receiving the vaccine is painful but is worth the protection it gives.	3.69	1.142	Agree	High
8.	The side effects of getting the COVID-19 vaccine will be life-threatening.	3.10	1.178	Somewhat Agree	Moderate
9.	The COVID-19 vaccine will significantly weaken my immune system.	3.44	1.141	Somewhat Agree	Moderate
10.	Taking the COVID-19 vaccine will give me complete freedom to get on with life, just as before.	3.17	1.194	Somewhat Agree	Moderate
11.	Getting the vaccine is a sign of great personal strength.	3.19	1.205	Somewhat Agree	Moderate
12.	Taking a COVID-19 vaccine will make me feel like a guinea pig.	3.71	1.232	Agree	High
	Vaccine Confidence	3.55	1.129	Agree	High

Legend: Very High = 4.50 – 5.00, High = 3.50 – 4.00, Moderate = 2.50 – 3.49, Low = 1.50 – 2.49; Very Low = 1.00 – 1.49

Level of Compliance to Minimum Health Standards

The respondents' level of compliance with minimum health standards is summarized in Table 3. Almost all (92%) of the items that were used to assess the compliance of the respondents to minimum health standards were rated "often." The grand mean of compliance with minimum health standards is 3.74 and is interpreted as high. The result of the study confirms that the study of Caldwell et al. (2021) and the study of Buhat (2021) showed that minimum health standards were strictly complied with within the Philippines. According to them, continued compliance with minimum health standards reduced the probability of transmission per contract by 13-17%.

Table 3

Level of Compliance of the Respondents to Minimum Health Standards

Items Compliance to Minimum Health Practices	Mean	SD	Scaled Responses	Descriptive Interpretation
1. I wear a mask at my workplace. (e.g., Office and other work settings that are not my home)	3.60	1.137	Often	High
2. I wear a mask when outside of work. (For example, at the grocery store, when I am using public transportation, or in other aspects of my daily life mingling with people)	3.83	1.211	Often	High
3. I wash my hands with water and soap for 20 seconds.	4.02	0.991	Often	High
4. I use alcohol-based hand sanitizer	4.33	0.940	Often	High

{table continues on the next page}

5. I keep myself at least 2 meters away from others when I go into public or crowded areas.	3.49	1.202	Sometimes	Moderate
6. I clean and disinfect surfaces such as:				
a. handles	3.61	1.152	Often	High
b. doorknobs	3.59	1.157	Often	High
c. tables	3.73	1.111	Often	High
d. light switches	3.54	1.167	Often	High
e. desks	3.69	1.127	Often	High
f. phones	3.76	1.125	Often	High
Compliance with Minimum Health Practices	3.74	1.120	Often	High

Legend: Very High = 4.50 – 5.00; High = 3.50 – 4.49; Moderate = 2.50 – 3.49; Low = 1.50 – 2.49; Very Low = 1.00 – 1.49

The study also supports Liu's (2022) study in China, which found that the majority of their respondents showed a high level of compliance with COVID-19 preventive behaviors among employees returning to work in the post-epidemic period.

The Relationship of Vaccine Confidence and Compliance to COVID-19 Minimum Standards

Table 4 shows the correlation between vaccine confidence and compliance with minimum health standards. The correlation efficiency (r) of vaccine confidence and compliance to minimum health standards is 0.245, with a p-value of 0.00, which is significant at level 0.01. The p-value of 0.00 indicates that the relationship between vaccine confidence and compliance with minimum health standards is significant.

According to Ndejjo et al. (2023), the desire to protect oneself against COVID-19 and the elevated perceived risk of contracting the virus were the main drivers of vaccination adoption. According to the article from The World Bank (2022), the Department of Health reported that with 70 million doses, the Philippines had achieved 77.8% of its target vaccination. As of March 16, 2023, around 79.2 million Filipinos were already fully vaccinated from COVID-19 (Statistica.com). The majority of the subjects in Niu and Scarciotti's (2022) study on non-pharmaceutical interventions (minimum health standards) had received vaccinations. It suggests that individuals who trust vaccinations are more likely to have observed non-pharmaceutical interventions.

Table 4

Correlation of Vaccine Confidence and Compliance to Minimum Health Standards

Vaccine Confidence	Compliance with Minimum Health
Pearson Correlation (R)	0.245**
P-value	0.000
N	349
Verbal Interpretation	Significant

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

The Influence of Vaccine Confidence on Compliance to COVID-19 Minimum Health Standards

The regression analysis results in Table 5 showed that vaccine confidence is a predictor of compliance with COVID-19 minimum health standards, as indicated by an R-squared of 0.060 and an R of 0.245, which are significant at 0.01 with a p-value of 0.00.

Table 5
Regression Analysis for Compliance to Minimum Health Standards

Model	R	R-Squared	Adjusted R-Squared	Std. Error	R-Squared Change	Sig.
1	0.245a	0.060	0.057	10.22726	0.060	0.000

a. Predictor: (Constant), Vaccine Confidence

The R-squared (0.060) indicates the magnitude of variance in compliance with minimum health standards that the influence of vaccine confidence can explain. An R-squared of 0.060 means that the influence of vaccine confidence explains 6% of the variation in compliance with COVID-19 minimum health standards. As a predictor, it can influence 6% of the variation in compliance with minimum health standards.

The regression coefficient (B) of the vaccine in Table 6 is a critical parameter to consider in predicting compliance with minimum health standards. The regression coefficient of vaccine (B=0.292) indicates that for each unit increase in the measure of vaccine confidence, the score of compliance to minimum health standard will increase by 0.292 points.

Table 6
Regression Coefficient

	Unstandardized Coefficients		Standardized Coefficients		
Model	*B*	Std. Error	Beta	*t*	Sig.
1 (Constant)	28.140	2.697		10.433	0.000
Vaccine Confidence	0.292	0.62	0.245	4.699	0.000

a. Dependent Variable: Compliance to Minimum Health Standard

If vaccine confidence is written as VC and compliance to minimum health standards as CTMHS, by using its coefficient, a perfect regression equation that reflects the regression model (Model 1) can be written as follows: CTMHS = 28.140 + 0.292*VC. This equation can be used to predict the influence of compliance with minimum health standards.

The findings above showed that vaccine confidence is a predictor of compliance with minimum health standards. There is no available literature or study directly stating that vaccine confidence is associated with compliance with minimum health standards. However, the Centers for Disease Control and Prevention stated that communities with solid confidence in COVID-19 vaccines result in more adults, adolescents, and children getting vaccinated. This implies that people tend to be vaccinated only when they have the vaccine's confidence. In the study of Niu and Scarciotti (2022) on non-pharmaceutical interventions (minimum health standards), most of the participants of their study were vaccinated. This implies that people who have trust in vaccines are more likely to observe non-pharmaceutical interventions. Their study also showed that participants who observed NPI and were vaccinated were less likely to be affected by COVID-19. From this literature, there is an indirect connection between vaccine confidence and non-pharmaceutical interventions (vaccine confidence leads to vaccination, vaccinated are motivated to observe more non-pharmaceutical interventions) to avoid the severe effects of COVID-19 infections.

Difference in the Level of Compliance to Minimum Health Standards When the Demographic Profile of the Respondents is Considered

Table 7 shows the summary of values that were used to compare the level of compliance to minimum health standards of the respondents, considering their demographic profile, such as age, sex, and educational attainment, using the T-Test. The study used Levene's Test or T-Test significance

value as a reference for significant differences. If the Levene's Test or T-Test significance value is <.05, then the difference is significant.

Age

The age groups that were considered in the comparison were only below 40 and 40 to 59. The age group 60 and above was not included in the analysis because their number was small. Using Levene's or T-Test as a reference for the significance value considering age, the results showed that the respondents whose ages were below 40 had a higher level of compliance to minimum health standards compared to the respondents whose ages ranged from 40-59. Galende (2022) investigated the factors that influence the levels of compliance to minimum health standards among the respondents from the three provinces of Basque Country, Northern part of Spain, during the COVID-19 pandemic, and revealed that age was a significant factor that influenced compliance. The study by Levkovich (2020) found that the age group 31-40 has a higher level of compliance with COVID-19 precautionary measures compared to the age group 41-50 years old. According to Pfattheicher (2020), those who are concerned and empathetic toward the most vulnerable to COVID-19 engage in behaviors that protect them. This may imply that the younger respondent age group is protective of the older ones, making them more compliant with health protocols.

Table 7

T-Test results for Compliance with Minimum Health Standards and Lifestyle Practices

Items	Age (Mean Difference)	Sex (Mean Difference)	Educational Attainment (Mean Difference)
Compliance to Minimum Health Standards	1.29150	-0.37269	058399
Levene's Test/T-Test (p-value)	0.015	0.367	0201

Sex

Table 6 shows that there is no significant difference in the level of compliance to minimum health standards considering sex. Liu (2022) investigated the behavioral compliance and related factors for COVID-19 prevention among employees returning to the workplace and provided strategic recommendations for improving individual-level preventive behavior to prevent a new outbreak in China. The result of their study showed that sex was not associated with the COVID-19 compliance of the respondents in China. The same result was shown in the study of Galende (2022) and her group. When they studied the factors that influence the levels of compliance to minimum health standards among the respondents from the three provinces of Basque Country, Northern part of Spain, during the COVID-19 pandemic, sex was not a significant factor.

Educational Attainment

Table 11 showed that the level of compliance of the respondents to minimum health standards was not significant when their educational attainment was considered. The result of the study is very much related to the study of Roga (2022) about the compliance level towards COVID-19 preventive measures among the Ambo University community members in Ethiopia. It was a cross-sectional study with a sample of 380 randomly selected from the Ambo University community members pursuing different levels of education (college, master's, and doctoral degrees). Results of the study showed that university students pursuing different levels of education did not differ in their level of compliance with the preventive measures for COVID-19.

Conclusion and Recommendations

The extent of vaccine confidence and compliance to COVID-19 minimum health standards of the respondents were both high. Respondents who were under forty years old were more compliant with minimum health standards. However, the respondents' compliance did not differ when sex and educational attainment were considered. Vaccine confidence is a predictor of compliance with COVID-19 minimum health standards. Vaccine education programs or mass awareness campaigns may be designed for community members and leaders. Communities may continuously be oriented about vaccines, how vaccines are developed, and the advantages and disadvantages of being vaccinated. Encourage senior leaders of the community to be vaccine champions and allow them to share their experiences through testimonials, short videos, social media, and blogs.

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Pre-clinical Simulation Skills Training of Medical Students, Satisfaction and Self-confidence Prior to Clinical Clerkship Exposure

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Abstract

Studies on the satisfaction and self-confidence of medical students about their preclinical training are scarce. The preclinical simulation skills training of medical students in an environment that fosters intellectual challenge develops their skills. Knowing the right attitude in preparation for actual clinical/hospital exposures is essential. This research, utilizing a descriptive correlational approach, analyzed the relationship between pre-clinical simulation skills training and the satisfaction and self-confidence of medical students before their clinical clerkship. Data was gathered using a survey questionnaire with 58 medical students in their last leg of medical studies. Medical students are found to have satisfaction and self-confidence, which are necessary as they prepare for their clinical clerkship. This is a timely study to improve the university's medical school curriculum and bridge the gap between theoretical training and actual performance during hospital and clinical rotations. The results of the study may open the chance and opportunity for curriculum enhancement, specifically in the use of simulation skills.

Keywords: *skills training, medical students, preclinical*

The process of producing a competent medical graduate may include being able to deliver expected skills with efficiency (The Oxford Dictionary of English, 2005). This also means that with greater accountability given to medical graduates, they need to develop the competencies required to deliver maximum patient care. Other countries have included competency-based learning in all medical colleges, which shows the expected maximum skills to be delivered by the clinical students to real-life patients. The competencies may include being clinicians, leaders, communicators, lifelong learners, and professionals (Medical Council of India Regulations on Graduate Medical Education. 1997). The medical curriculum in the Philippines has been set to have the graduates meet the program outcomes to work effectively, recognize professional, social, and ethical responsibility, and work independently and with minimum supervision in the clinical area and related fields. The use of simulation in medical education is to develop students' critical thinking skills and confidence as they prepare for their clinical exposure. It provides the opportunity for the students to practice and prepare themselves, given the real-life situation, and the opportunity to make the best decisions they can as they handle patients.

In the clinical field, medical students are expected to perform different clinical procedures on par with other healthcare professionals who have been in the practice for a long time. Medical students are to take care of real-life patients; therefore, there should be no room for mistakes or even a little less than they are expected to do. With the higher expectation from the medical students, their anxiety and stress is believed to be evident in a first-time medical student to be given an actual patient in the clinical area that may affect their decision-making and even in the delivery of care. However, with the chances provided in the medical curriculum to be repeatedly exposed in the preclinical simulation skills laboratory and training with the use of mannequins, the medical students are expected to develop self-confidence and enhance their knowledge given the same situation in the clinical area. Research studies related to this that are specific to medical students are scarce, hence this study.

This study aims to look into the result of the years of exposure and training in the preclinical simulation skills laboratory of medical students in preparation for their clinical clerkship rotation with the specific questions:

1. What is the extent of Preclinical Simulation Skills Training of the medical students
2. What is the extent of Satisfaction and Self-confidence of the medical students?
3. Is there a significant relationship between the Pre-clinical simulation skills training, satisfaction, and self-confidence?

Anxiety and stress (Beauk, 2014) are believed to affect the decision-making of a medical student the first time they are exposed to actual live patients in the clinical area. They may also feel inadequate to carry on what they have learned in their classrooms during their preclinical classes. It is, therefore, important that medical students are equipped not only with the knowledge but also the skills needed to take on their new responsibilities in the clinical area. On this note, skills training is done to prepare them, and in this study, the pre-clinical Simulation Skills Training, Satisfaction, and Self-confidence are highlighted.

Pre-Clinical Simulation Skills Training

In medical school, students are equipped with the knowledge that they need to prepare to manage their patients in the clinical area. Also, they are trained to perform clinical procedures that are necessary in the care of their patients. This has been seen as an essential learning strategy in medical education (Alshammari et al., 2018), which includes building competence in clinical skills, increasing self-confidence, and being able to work collaboratively with other healthcare team members. A study concluded that the skills training done in simulation skills laboratories is noted to be the most effective way to develop the student's skills and knowledge learned through the examples and demonstrations done initially by their professors with the use of the mannequins in

the simulation laboratories (Chernikova, O. et al., 2020). Once they develop their skills (Hegland, P.A et al., 2017) during their preclinical rotations, this will help them get excited and lessen their fears (Zengin, D. et al., 2021) on their first skills experience with actual patients and not have any difficulty in executing the medical procedures (Mato, C. et al., 2022).

During their preclinical simulation skills laboratory training, lectures and lecture demonstrations are done to show how the procedures are being undertaken, which also includes not only the do's and don'ts of the procedure but also the possible reactions and feedback from the patients. Mannequins are being used to replace the actual patients during the return demonstrations. However, proper care is also taught. Part of the learning is the pre-conference and post-conferences, where the professors and instructors are to give feedback to the students as part of the evaluation (Al Khasawneh, E. et al., 2021). This will also allow the students to ask questions, describe their experience, and ask answers to some concerns.

The case situations and the procedures done in the simulation skills laboratories are designed for the students to apply their problem-solving skills (Cook, D.A., 2014) to identify the most needed medical management done in a given time and situation. Students are able to acquire self-confidence through learning the simulation-based program, which lessens their fear when they encounter the same procedures and scenarios in the clinical area and allows them to make sound decisions (Zengin, D. et al., 2021).

Satisfaction

Getting deployed in hospitals during their clerkship may be one of the challenging parts of medical students' lives as they will start to take care of and manage real-life patients, making some of the medical students feel inadequate and insecure in carrying out the clinical procedures. Part of the universities' objectives is to produce doctors who are knowledgeable, skillful physicians in private or government health institutions and hospitals, hence the inclusion of clinical skills in the curriculum, which includes training in different clinical procedures in a given situation.

Getting feedback from students is one way of knowing and finding out "what went right" or "what went wrong" after their class. This is our way of determining whether our students have learned enough, met their expectations, and developed a keen understanding of your topic at hand. This same purpose is being served alike in the simulation skills laboratories, wherein students are asked how well they received the lectures and demonstrations done by their teachers. Simulation skills laboratory is their area of learning where the students are noted to be generally satisfied, may have improved their knowledge aspect, honed their skills in maneuvering the clinical procedures and their skills in communicating with their patients and significant others (Agha S. et al., 2015). Studies were conducted during the pandemic where students were taught to perform clinical procedures in front of their cameras in order to meet the minimum requirements of the class. They have claimed to have ignited students' satisfaction and have been noted to yield promising results (Cant RP. et al., 2014; Basak T. et al., 2016). Moreover, the students claimed to have been satisfied as a result of the clinical environment provided to them, but added to it are the teaching methods used by their teachers, their teachers' favorable treatment of the students (Tabibi, Z. et al., 2019; Hakim A., 2013), the use of different materials in teaching in which the use of mannequins is one. These could also have a huge influence on the satisfaction of the students' learning (Hakim A., 2013).

Inside the simulation skills laboratory, the medical students are given the opportunity to simulate hospital work in the clinical environment pre-clerkship. This is done to prepare the students' knowledge, skills, and attitudes before they are deployed to hospitals during their clinical clerkship. This situation may pose a challenge to them and may or may not make them anxious, which may hinder them from making sound clinical decisions as they manage their patients.

Self-confidence

A medical student's first time working with hospital staff in a clinical institution may create physical and emotional stress for him. Not knowing what to do and how to do things may set him to anxiety and stress and may affect his self–confidence in getting into the clinical setup. The medical curriculum have included the subject to which the students are taught different clinical procedures to prepare them for their clerkship. The preparations are done in the simulation skills laboratory, which is filled with the needed materials for learning. Proctors and faculty members will assist them in the step-by-step process of carrying out procedures. This way, students may feel confident that they will manage the same type of patients in the clinical areas (Al Khasawneh et al., 2021). At times, medical professionals who are working in hospitals encounter medical students who may lack the skills to do the specific procedures, may not be confident enough to carry out orders, or may actually lack interpersonal skills and not be able to communicate well with patients and their significant others.

The purpose of engaging the medical students in the simulation skills laboratory is to teach them the skills needed to work in the hospital, helping them to build confidence and for them to be able to feel satisfied with what they have learned from a simulated hospital setup. A study supports this claim that satisfaction and self-confidence were noted as internal motivations for them to learn more and prepare themselves for challenging clinical exposures (Costa et al., 2020). However, in order to strengthen this drive, they need to have repeated exposures to these clinical procedures in the same simulated hospital setup, thus boosting their clinical judgments and self-confidence (Boling & Hardin-Pierce, 2016). This also increases the student's competence and mastery of the procedures (Offiah et al., 2019; Sam et al., 2023).

It is then the aim of the medical curriculum to include subjects and training in order to hone their knowledge, skills, and competence with the right attitude needed to work in the hospitals and deal with patients. Studies show that people who lack the skills may make bad decisions in the clinical area, and they would not even realize it, lacking insight into how grave their bad decisions may impact their patients (Kruger & Dunning, 1999). This may have been the ultimate downside of not having to equip the medical students with the needed skills and confidence before being deployed in their clinical areas of assignment.

Research studies show that the highest level of confidence is also taken from the medical students' experience in performing the Objective Structured Clinical Examination (OSCE) (Ytterberg et al., 1998) wherein the students are taught the skills in performing physical examinations even in the classrooms (Akbari & Sahibzada, 2020), communicating effectively with the patients as well as dealing with some difficult patient interactions that will also transpire in the clinical areas. This was done virtually during the pandemic, and the results of the study remained the same (Smith & Boscak, 2021).

Research studies prove that the confidence of medical students in doing clinical procedures is because of their repeated exposure to the simulation skills, which increases their interest in the specific topics and boosts their confidence in communicating effectively with the patients (Sutarto et al., 2022).

Methodology

This quantitative study employed the descriptive-correlation design intended to examine the relationship between Preclinical Simulation Skills Training Experience and Medical student's Satisfaction and Self-confidence Prior to Clinical Clerkship Exposure. This design was utilized to determine how a set of variables is related or to test hypotheses regarding expected relations. This is an excellent way to finalize results and prove or disprove a hypothesis because it is about asking people for their opinions in a structured way using pen and paper instruments. It also involves collecting data and describing data to determine the degree of relationship that exists between variables.

The data were gathered among 58 medical students who are enrolled in their last year of medical school, all of whom have earned their bachelor's degree as their preparatory courses. All of the respondents were medical students at the College of Medicine of the Adventist University of the Philippines, who had their lecture and return demonstration training in the simulation skills laboratory during their first 3 years. The sampling technique employed by the researcher in this study was purposive sampling. It is a non-probability sampling method that uses a homogenous group of respondents, specifically coming from a group of medical students who were enrolled in the same institution. The researcher was able to retrieve 58 out of 64 distributed questionnaires, which yielded 90 % retrieval.

Instrumentation

The research instrument utilized in this study was a self-generated questionnaire taken from the related literature that was cited in this study, validated, and conducted. The instrument was intended to answer the following questions: 1. What is the extent of Preclinical Simulation Skills Training of the medical students 2. What is the extent of Satisfaction and Self-confidence of the medical students? 3. Is there a significant relationship between the pre-clinical simulation skills training, satisfaction, and self-confidence?

Data Gathering Procedure

As soon as the instrument was validated, it was sent to the medical students to be answered in the classroom. The respondents who consented to participate in the study were left inside the classroom. However, two respondents have decided not to participate. Upon the completion of the data-gathering process, the researcher sought the expertise of the statistician to treat the data while considering the research problem. The researcher ensured that ethical standards, protocols, security of data, and professionalism were observed accordingly.

Analysis of Data

The following techniques or tools were used to treat the data statistically, presenting and summarizing the data following the specific sub-problems set in the study. These were done with the aid of the Statistical Package for Social Science (SPSS) and Jamovi.

The analysis includes descriptive and inferential statistics, which serve as tools to answer the study's problems. Means and standard deviations were used to describe the subjects' satisfaction and self-confidence and their Preclinical simulation skills training. Pearson—r Correlation was utilized to compute the relationship between Satisfaction, Self-Confidence, and Preclinical simulation skills training.

To identify the degree of correlation, to be noted are (1) negligible positively or negatively correlated if $0 < r < + 0.09$; (2) a weak correlation if $+ .10 < r < + .39$; (3) moderate positive or negatively correlated for $+ .40 < r < + .69$; (4) strong positive or negative correlation when $+ .70 < r < + .89$; and (5) very strong positive or negative correlation if $+ .90 < r < + 1.00$. With a confidence level (α) Of at least 95% or 5% margin of error ($p < .05$), the null hypothesis was tested.

Ethical Considerations

The researcher observed a vital ethical consideration: the utmost protection of the respondents' welfare. Confidentiality and anonymity of any information that was gathered from them were upheld, and all data gathered will only be for specific current research.

Results

Pre-clinical Simulation Skills Training of Medical Students

The result showed that the Pre-clinical simulation Skills training for medical students is deemed necessary ***to a great extent*** and seen as an important learning strategy in medical education (Alshammari et al., 2018). The result showed higher importance on the ***Preconference and Post-conferences as part of the simulation*** which garnered the highest mean (4.30) and SD (0.830), ***Demonstrations done in the simulation laboratory have developed my psychomotor skills*** which garnered the highest mean (4.37) and SD (0.736), and ***Training done in the simulation laboratory has helped me solve possible problems in a given patient situation*** which garnered the highest mean (4.38) and SD (0.739) accordingly. These results were confirmed by studies that concluded that skills trainings are noted to be the most effective way to develop student's skills and knowledge learned through the examples and demonstrations done initially by their professors with the use of the mannequins in the simulation laboratories (Cherbikova et al., 2020).

The item that yielded the lowest was ***Receiving skills training in the simulation laboratory makes me excited for my first skills experience with a real patient*** with a mean (4.58) and SD (0.561). Despite the satisfaction and confidence that the training at the simulation skills laboratory intends to produce (Costa et al., 2020), fears and anxiety are still expected to be felt by the medical students, hence the need for repeated exposure to boost their self-confidence (Boling et al., 2016).

The Overall results imply that Preclinical Simulation skills training is extremely necessary in providing medical students with an environment that fosters intellectual challenge, develops their skills, and hones the right attitude in preparation for their actual clinical/hospital exposures.

This is seen as an important learning strategy in medical education (Alshammari et al., 2018) which includes building competence in clinical skills, increasing self-confidence, and being able to work collaboratively with other healthcare team members. A study concluded that the skills training done in simulation skills laboratories is noted to be the most effective way to develop the student's skills and knowledge learned through the examples and demonstrations done initially by their professors with the use of the mannequins in the simulation laboratories (Chernikova et al., 2020).

Table 1 presents the descriptive results of items under Preclinical simulations skills training

Table 1

Preclinical Simulation Skills Training

Preclinical Simulation Skills Training	Mean	SD	Scaled responses	Verbal Interpretation
1. Simulation skills training includes competence in clinical skills.	4.50	0.676	Strongly Agree	To a great extent
2. My training at the simulation skill laboratory enables me to work collaboratively with other healthcare professionals	4.45	0.649	Strongly Agree	To a great extent
3. Pre-conferences and post-conferences are part of the simulation.	4.30	0.830	Strongly Agree	To a great extent
4. Receiving skills training in the simulation laboratory has excited me for my first skills experience with a real patient.	4.58	0.561	Strongly Agree	To a great extent

{table continues on the next page}

5. Demonstrations done in the simulation laboratory have developed my psychomotor skills.	4.37	0.736	Strongly Agree	To a great extent
6. My clinical competencies are being developed in the simulation skills laboratory.	4.43	0.621	Strongly Agree	To a great extent
7. Training done in the simulation laboratory has helped me solve possible problems in a given patient situation.	4.38	0.739	Strongly Agree	To a great extent
8. Learning procedures in the simulation skills laboratory has helped me acquire self-confidence.	4.43	0.563	Strongly Agree	To a great extent
9. The training we acquired from the simulation skills laboratory has helped me to make a sound decision.	4.37	0.712	Strongly Agree	To a great extent
Overall Mean	4.42	0.487	Strongly Agree	To a great extent

5 Strongly Agree – 4.21-5.00 4 Agree – 3.41-4.20 3 Undecided – 2.61-3.40 2 Disagree -1.81-2.60 1 Strongly Disagree – 1.00-1.80

Verbal Interpretation: To a great extent, To a large extent, somewhat, Little, Not at all.

Satisfaction of the Medical Students on the Preclinical Simulation Skills Training

The results showed ***a great extent*** of satisfaction among medical students with their preclinical simulation skills training mainly done in the simulation skills laboratory with an overall mean (4.22) and SD (0.532). The areas in particular that have made the medical students satisfied are the following: ***I am satisfied with my skills laboratory performance after being trained before the actual return demonstration*** which garnered the highest mean (4.00) and SD (0.974), ***the post conferences for timely feedbacks that were made after the procedures enhances my satisfaction*** which garnered the highest mean (4.13) and SD (0.833), and ***I am satisfied with the mannequins used as simulated patients*** which garnered the highest mean (3.93) and SD (0.821). These results however are being supported by a study that notes that the simulation skills laboratory is their area of learning where the students are noted to be generally satisfied, may have improved their knowledge aspect, honed their skills in maneuvering the clinical procedures, and their skills in communicating with their patients and significant others (Agha et al., 2015).

The Overall results imply that the medical students are generally satisfied to a great extent, therefore preparing them for their clinical clerkship. Simulation skills laboratory is their area of learning where the students are noted to be generally satisfied, may have improved their knowledge aspect, honed their skills in maneuvering the clinical procedures and their skills in communicating with their patients and significant others (Agha et al., 2015; Cant et al., 2014; Basak et al., 2016).

Table 2 presents the descriptive result of the Satisfaction of medical students with the Preclinical Simulation Skills training.

Table 2
Satisfaction of medical students on the Preclinical Simulation Skills training

Satisfaction	Mean	SD	Scaled responses	Verbal Interpretation
1. I am satisfied with the simulation skills environment/setup.	4.10	0.775	Agree	To a large extent
2. I am satisfied with the mannequins used as simulated patients.	3.93	0.821	Agree	To a large extent
3. The teaching methods used by my professors have helped me learn new skills.	4.32	0.770	Strongly Agree	To a great extent
4. I am satisfied with the use of the simulation skills laboratory as my area of learning.	4.18	0.748	Agree	To a large extent
5. I have improved my knowledge retention after being exposed to the simulation skills laboratory.	4.45	0.649	Strongly Agree	To a great extent
6. I have improved my interpersonal skills in the simulation skills laboratory.	4.15	0.820	Agree	To a large extent
7. Clinical simulation of different clinical procedures ignites my satisfaction in learning.	4.42	0.591	Strongly Agree	To a great extent
8. I am satisfied with my skills and laboratory performance after being trained before the actual return demonstration	4.00	0.974	Agree	To a large extent
9. The post-conferences for timely feedback that were made after the procedures enhanced my satisfaction.	4.13	0.833	Agree	To a large extent
10. Respectful treatment of professors to me also contributes to my being satisfied.	4.55	0.622	Strongly Agree	To a great extent
Overall Mean	4.22	0.532	Strongly Agree	To a great extent

5 Strongly Agree – 4.21-5.00 4 Agree – 3.41-4.20 3 Undecided – 2.61-3.40 2 Disagree -1.81-2.60 1 Strongly Disagree – 1.00-1.80

Table 3 presents the descriptive results of items under Self Confidence of medical students on the Preclinical simulation skills training.

The Self-confidence of the Medical Students in the Preclinical Simulation Skills Training

The results showed ***a great extent*** of self-confidence among medical students after their preclinical simulation skills training mainly done in the simulation skills laboratory with an overall mean (4.30) and SD (0.569). The areas in particular that have made the medical students confident in themselves are the following: ***Communication with my simulated patient had increased my self-confidence to finish the procedure*** which garnered the highest mean (4.25) and SD (0.795), ***My repeated exposures to clinical procedures in the simulation areas enables me to be more***

competitive which garnered the mean score (4.30) and SD (0.766), ***Confidence is the outcome of my simulation experience*** which garnered the mean score (4.07) and SD (0.733), accordingly. Research studies support the results, highlighting repeated exposure to different clinical procedures in the simulated hospital setup will boost their clinical judgments and self-confidence (Boiling B et al., 2016). This also increases the student's competence and mastery of the procedures (Offiah, G., et al., 2019; Sam, B., et al., 2023).

On the other hand, the item that yielded the lowest was after exposure to the simulation skills laboratory, where competence ***increased*** with the mean (4.38) and SD (0.666). This way, students felt confident that they will manage the same type of patients in the clinical areas (Al Khasawneh, 2021). At times, medical professionals who were working in hospitals would encounter medical students who lack the skills to do the specific procedures. These students may not be confident enough to carry out orders or may lack interpersonal skills and not be able to communicate well with patients or their significant others. However, through repeated exposures, their competence eventually increases (Offiah et al., 2019; Sam et al., 2023).

The overall results imply that medical students are generally confident in themselves *to a great extent*, which prepares them for their clinical clerkship. Research studies prove that the confidence of medical students in doing clinical procedures improve through repeated exposure in simulation skills, which increases their interest in the specific topics and boosts their confidence in communicating effectively with the patients (Sutarto et al., 2022).

Table 3

Self-confidence of the Medical Students in the Preclinical Simulation Skills Training

Satisfaction	Mean	SD	Scaled responses	Verbal Interpretation
1. I am now confident in caring for similar patients in the clinical areas.	4.15	0.732	Agree	To a large extent
2. Confidence is the outcome of my simulation experience.	4.07	0.733	Agree	To a large extent
3. My repeated exposure to clinical procedures in the simulation areas enables me to be more competitive.	4.30	0.766	Strongly Agree	To a great extent
4. After my exposure to the simulation skills laboratory, my competence has increased.	4.38	0.666	Strongly Agree	To a great extent
5. The clinical simulation skills training has motivated me to develop mastery in the learning environment.	4.43	0.698	Strongly Agree	To a great extent
6. Communication with my simulated patient increased my self-confidence to finish the procedure.	4.25	0.795	Strongly Agree	To a great extent
7. The confidence that I developed gives me the focus on the topic at hand.	4.35	0.685	Strongly Agree	To a great extent

8. I performed well in the procedure/s that I have been repeatedly exposed to.	4.45	0.723	Strongly Agree	To a great extent
Overall Mean	4.30	0.569	Strongly Agree	To a great extent

5 Strongly Agree – 4.21-5.00 4 Agree – 3.41-4.20 3 Undecided – 2.61-3.40 2 Disagree -1.81-2.60 1 Strongly Disagree – 1.00-1.80

Table 4 shows that satisfaction and self-confidence have a significant relationship to the preclinical simulation skills training. A closer examination of the data indicates that these variables have contributed to the overall relationship. Via Pearson r-correlation test, with $p<0.001$, there is a significantly high positive relationship ($r = 0.826$) between Preclinical simulation skills training and Satisfaction. This result implied that medical students are generally satisfied with their learning during their preclinical studies if they are provided with a simulated clinical environment as part of their preparation for handling actual live patients during their clerkship. This result is supported by the study that the students claimed to have been satisfied as a result of the clinical environment provided to them, but added to it are the teaching methods used by their teachers, their teachers' favorable treatment of the students (Tabibi, Z., et al., 2019; Hakim A., 2013), the use of different materials in teaching in which the use of mannequins is one. These could also have a significant influence on the satisfaction of the student's learning (Hakim A., 2013).

Table 4
Correlation Results Between Preclinical Simulation Skills Training, Satisfaction, and Self–Confidence.

		Preclinical simulation skills training	Satisfaction	Self Confidence
Preclinical	Pearsons's r	-		
	df	-		
	p-value	-		
Satisfaction	Pearsons's r	0.826	-	
	df	58	-	
	p-value	<.001	-	
Self-confidence	Pearsons's r	0.710	0.792	-
	df	58	58	-
	p-value	<.001	<.001	-

This is followed by the medical students' self-confidence, which showed a strong and high positive correlation with the preclinical skills simulation skills training via Pearson r-correlation test, with a $p<0.001$ high positive ($r = 0.710$). This result implied that medical students are becoming confident with themselves during the procedures that they perform after their simulation skills training. A study supports this claim that satisfaction and self-confidence were noted as internal motivations for them to learn more and prepare themselves for challenging clinical exposures (Costa et al., 2020). However, to strengthen this drive, they need to have repeated exposures to these clinical procedures in the same simulated hospital setup, thus boosting their clinical judgments and self-confidence (Boling et al., 2016).

Discussion

For the extent of Preclinical Simulation Skills Training of medical students undergoing Preclinical simulation skills Training, it is to a great extent that Preclinical skills simulation skills training is essential in providing medical students with an environment that fosters intellectual challenge, develops their skills, and hones the right attitude in preparation for their actual clinical/ hospital exposures.

The extent of the satisfaction and self-confidence of the medical students after their preclinical simulation skills training is great. This is deemed necessary before their clinical clerkship rotation.

The study shows that Preclinical Simulation Skills Training positively influences the Satisfaction and Self-confidence of medical students, and it must be highlighted as an important part of their learning.

The findings emphasized that Preclinical Simulation Skills Training is essential and should be one of the areas highlighted in learning. Satisfaction and self-confidence of the medical students are achieved by providing them with the necessary procedures and skills and by repeated exposures in the simulation skills laboratories during the preclinical years. Lastly, this study confirmed that the quality of training done in the Simulation skills laboratory during the medical students' preclinical years includes not only exposures to the hospital-simulated environment but also how the trainings are conducted by their mentors.

The study has been conducted in a timely manner to evaluate the curriculum used in the clinical skills training of medical students since its commencement; however, the number of respondents needs to be increased in future studies for stable and better results.

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Assessing Electronic Health Record Utilization in Gitwe Hospital: A Cross-Sectional Investigation of Nurse Experiences and Perspectives

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Abstract

This cross-sectional design study investigated the utilization of Electronic Health Records (EHRs) among nurses at Gitwe Hospital, Rwanda by employing a descriptive-correlational research design. Through a survey administered to a representative sample of 160 nurses, the study aimed to assess the prevalence of EHR utilization, identify barriers, and examine the relationship between EHR usage and healthcare service quality. Results indicate widespread adoption of EHRs among nurses, with perceived benefits including enhanced patient care. However, technical challenges and inadequate training impede optimal utilization. Positive correlations were observed between EHR utilization and patient outcomes, satisfaction, and clinical documentation quality, highlighting the significance of EHR systems in improving healthcare delivery. Recommendations include targeted interventions to address barriers and enhance EHR proficiency among nurses. Future research may focus on investigating the long-term impact of EHR implementation on nursing practice and patient outcomes and assessing the effectiveness of interventions aimed at optimizing EHR utilization in healthcare settings.

Keywords: *Electronic Health Records (EHRs), utilization, technology adoption, healthcare service quality*

The integration of electronic health records (EHRs) within healthcare systems globally, including in Africa, Rwanda, and specifically Gitwe Hospital, presents significant potential to enhance patient care, streamline healthcare professional workflows, and improve overall hospital efficiency. However, despite the considerable promise of EHR implementation, numerous challenges persist, impeding the optimal utilization and realizing its advantages.

Globally, studies have indicated that the combined use of artificial intelligence (AI) and EHRs can substantially impact patient care, healthcare professionals, and hospital efficiency, with an estimated 80% of healthcare providers utilizing EHR systems worldwide (Indira et al., 2023). Similarly, in African hospitals, including Gitwe Hospital, nurse experiences with EHRs have demonstrated positive impacts on healthcare quality, with approximately 65% of healthcare facilities across the continent having implemented some form of EHR system (Horwood et al., 2023). Yet, despite these advancements, persistent challenges such as inadequate training, technical issues, and system usability barriers hinder the successful adoption and utilization of EHRs, affecting approximately 40% of healthcare professionals in Africa (Laukka et al., 2022).

In Rwanda, where the adoption of EHRs is increasing, understanding nurses' experiences and perceptions is critical for ensuring data quality and patient safety, given that approximately 60% of healthcare facilities in the country have implemented EHR systems (Uwase et al., 2023; Adhistya et al., 2023). Studies have highlighted challenges in data completeness, user behavior, system design, and supporting infrastructure, indicating the need for further exploration to address these gaps, which affect approximately 50% of nurses utilizing EHRs in Rwanda (Isano et al., 2023).

At Gitwe Hospital, nurses' experiences with EHRs are pivotal for enhancing healthcare quality. While EHRs have shown improvements in storage, record retrieval, client safety, staff productivity, and overall healthcare efficiency, challenges such as technical issues, lack of computer skills, and heavy workloads persist, hindering optimal utilization (Antwi, 2022; Queirós et al., 2023).

Despite the acknowledged benefits of Electronic Health Records (EHRs) in enhancing healthcare quality globally and in African hospitals like Gitwe Hospital, there exists a significant gap in understanding the specific challenges nurses encounter when utilizing EHR systems. Current literature highlights issues such as training deficiencies and technical barriers but lacks detailed exploration within the context of Gitwe Hospital and Rwanda.

Statement of the Problem

This study seeks to comprehensively evaluate the utilization of Electronic Health Records (EHRs) among nurses at Gitwe Hospital, with a focus on identifying challenges and perceptions associated with their utilization. Specifically, this investigation will seek to answer the following questions:

1. What is the current prevalence of EHR utilization among nurses at Gitwe Hospital?
2. What are the primary obstacles encountered by nurses in effectively utilizing EHR systems within the hospital setting?
    a. Technical issues,
    b. inadequate training, and
    c. heavy workloads
3. Is there a significant relationship between the level of EHR utilization among nurses at Gitwe Hospital and the quality of healthcare services?
4. Is there a significant difference in the prevalence of Electronic Health Record (EHR) utilization among nurses at Gitwe Hospital based on demographic characteristics?
    a. age,
    b. sex,
    c. marital status, and
    d. educational attainment?

This study aimed to investigate and test the following hypotheses:

1. There is no prevalence of EHR utilization among nurses at Gitwe Hospital
2. There are no primary obstacles encountered by nurses in effectively utilizing EHR systems within Gitwe Hospital, specifically:
   a. Technical issues,
   b. Inadequate training, and
   c. Heavy workloads
3. There is no significant relationship between the level of EHR utilization among nurses at Gitwe Hospital and the quality of healthcare services.
4. There is no significant difference in the prevalence of EHR utilization among nurses at Gitwe Hospital

Significance of the Study

This research holds significant implications for various stakeholders, including the Academic and Research Community, Healthcare Practitioners, Hospital Administrators and Management, and Policymakers in healthcare institutions. The importance of this study is outlined as follows:

Academic and Research Community

Academics and researchers in healthcare informatics and nursing research will find value in this study's findings, which contribute to the existing body of knowledge on EHR utilization in African healthcare settings. The study's methodology and results can serve as a basis for further research and exploration into strategies for improving EHR adoption and overcoming implementation challenges in similar contexts.

Healthcare Practitioners

Understanding nurses' challenges and perceptions regarding Electronic Health Record (EHR) utilization is paramount for improving healthcare delivery. By addressing these challenges, healthcare practitioners can enhance patient care, streamline workflows, and optimize hospital efficiency, ultimately leading to better patient health outcomes.

Hospital Administrators and Management

Hospital administrators can benefit from this study's findings by gaining insights into the specific obstacles hindering effective EHR utilization among nurses at Gitwe Hospital. This knowledge can inform targeted interventions such as tailored training programs, infrastructure improvements, and workflow optimizations to address these barriers and maximize the benefits of EHR systems.

Policymakers in Healthcare Institutions

Policymakers play a crucial role in shaping healthcare policies and regulations that influence EHR adoption and implementation. By understanding the specific challenges faced by nurses at Gitwe Hospital, policymakers can develop targeted policies and initiatives aimed at addressing these challenges and promoting the effective use of EHR systems across healthcare facilities in Rwanda and beyond.

This study aims to comprehensively assess the utilization of Electronic Health Records (EHRs) among nurses in Gitwe District Hospital, Rwanda. It specifically focuses on Gitwe District Hospital within the country. Rwanda, being a low- and middle-income nation, faces distinct challenges in healthcare delivery and technological integration. By concentrating on district hospitals, this research endeavors to shed light on the specific challenges and opportunities related to EHR utilization in Rwanda's regional healthcare settings.

The primary participants in this research will be healthcare professionals, specifically nurses, working in Gitwe District Hospital. Their input will be crucial in understanding the current landscape of EHR utilization, as well as the barriers and facilitators associated with its implementation and use within the hospital setting.

To ensure a thorough examination, data collection will involve online surveys and possibly interviews with healthcare professionals. These methods are chosen to capture a wide range of perspectives and experiences regarding EHR utilization in Rwanda. By utilizing both quantitative and qualitative approaches, the study aims to provide a comprehensive understanding of the factors influencing EHR adoption and utilization among nurses.

Potential limitations include time constraints, as some respondents may face difficulties in promptly responding to surveys or interviews due to scheduling conflicts. Additionally, accessing a diverse pool of healthcare professionals may prove challenging, depending on their availability and willingness to participate. Despite these potential limitations, the researcher is committed to mitigating biases and ensuring the credibility of the study's findings through transparent communication, flexible scheduling, and safeguarding participant confidentiality. Efforts will be made to maximize the response rate and ensure the representativeness of the sample to enhance the validity and generalizability of the study's findings.

Methodology

This section discusses the methodology employed to address the research questions and objectives of the study including the research design, population and sampling techniques, instrumentation, pilot study, data gathering procedure, ethical considerations, and data analysis.

Research Design

This study used a cross-sectional research design to investigate the utilization of Electronic Health Records (EHRs) among nurses at Gitwe District Hospital. This study employed three distinct research designs: descriptive evaluative, descriptive correlational, and descriptive comparative approaches.

The descriptive evaluative research design was employed as the researcher assessed the current prevalence of EHR utilization among nurses at Gitwe District Hospital. This approach facilitates a thorough examination of the extent to which nurses are currently utilizing EHR systems within the hospital setting. It involves descriptive statistics to present an overview of EHR utilization rates among nurses.

For the descriptive correlational research design, the primary obstacles encountered by nurses in effectively utilizing EHR systems were identified within Gitwe Hospital, and the relationship between EHR utilization and the quality of healthcare services was examined. This approach allows for identifying correlations between variables such as technical issues, inadequate training, heavy workloads, and the level of EHR utilization and examining the association between EHR utilization and healthcare service quality.

The descriptive comparative research design was employed to compare different groups of respondents based on demographic variables such as age, sex, marital status, and educational attainment. By doing so, it aims to analyze if there are significant differences in the prevalence of EHR utilization among nurses at Gitwe Hospital based on demographic characteristics. This approach enables the researcher to assess the influence of demographic variables on EHR utilization patterns and identify any disparities that may exist among different groups of nurses.

Population and Sampling Techniques

In this study, the population of interest comprises nurses employed in Gitwe District Hospital located in Rwanda. To ensure representative sampling, a stratified random sampling technique was employed. The hospital departments were divided into five strata based on their departments:

Medical-Surgical Department, Emergency Department, Intensive care unit, Pediatrics, Obstetrics -Gynecology.

Gitwe District Hospital has a total of 200 nurses. The Medical-Surgical Department has 40 Nurses, the Emergency Department has 33 Nurses, the Intensive care unit Department has 35 Nurses, the Pediatrics Department has 45 Nurses, and the Obstetrics and Gynecology Department has 50 Nurses. To maintain fairness and reduce bias, five strata-specific "Fish Bowls" will be created, one for each department. The total number of nurses selected from each stratum will be proportionate to its representation within Gitwe District Hospital. In each fish bowl, 32 nurses will be randomly selected from each department to maintain consistency and fairness across the strata. Approximately 160 nurses were chosen from the Hospital.

Instrumentation

The data-gathering tool used in this study was a structured questionnaire consisting of both closed-ended and Likert scale questions. The questionnaire assessed nurses' experiences and perceptions regarding Electronic Health Record (EHR) utilization. Also collected were the participants' demographic information such as age, sex, marital status, and educational attainment. In the pilot testing, 15 registered nurses from the unselected department in the hospital were recruited for this purpose, and the 15 candidates were excluded from participation in the main data collection. The pilot testing helped identify items that meet the threshold fitness, which is Cronbach's alpha value of 0.70 or higher, the items of which were included in the item pool for the study survey.

Data Gathering Procedures

This study adopts primary face-to-face surveys as the main method of data collection with the help of the research assistant. However, recognizing the diverse schedules and preferences of participants during data collection, an online survey option was provided for those unable to participate in face-to-face interactions, such as individuals on off-duty hours or those who prefer online participation. Before initiating face-to-face surveys, the researcher ensured that all necessary materials were organized, including printed questionnaires, consent forms, and documentation tools. Guidance materials were also prepared to assist participants in understanding the survey process and their rights as respondents.

During the introduction phase, the researcher provided an overview of the study objectives, methodology, and ethical considerations to the selected healthcare professionals. This included emphasizing the voluntary nature of participation and the confidentiality of their responses. Questionnaires and consent forms were distributed to participants, ensuring that each respondent received the necessary documentation. Additionally, the researcher documented the participation of the respondents as they engaged in the survey.

Upon completion of face-to-face interactions and online survey submissions, the researcher checked all questionnaires for completeness. Any missing responses were noted and addressed to ensure the integrity of the data. Confidentiality of respondents' information was maintained throughout this process.

Following data collection, the researcher conducted a review of the gathered information to address any missing responses or inconsistencies. The data were then encoded into an Excel spreadsheet, adhering to strict quality control measures. Subsequently, the data were imported into the Statistical Package for Social Sciences (SPSS) for advanced analytical procedures.

All data collected were stored on electronic devices protected by passwords to prevent unauthorized access. Only authorized personnel involved in the study had access to the data. Furthermore, strict protocols were in place to ensure the confidentiality and privacy of respondents' information. Six months after the completion of the study, all the data was permanently destroyed to maintain confidentiality and comply with ethical standards.

Ethical Considerations

Approval was obtained from the home institution's Ethics Review Board (ERB) prior to data collection. The study adhered to ethical guidelines. Likewise, permission was also sought from Gitwe District Hospital before administering the study survey. Informed consent was obtained from all participants, and steps were taken to ensure confidentiality, privacy, and voluntary participation. The risk associated with participating in the study was minimal, such as when participants felt uneasy reflecting on personal experiences related to EHR utilization. Participants were encouraged to take breaks if they felt uncomfortable at any point. They were also informed that they could choose to answer questions at their own pace. Additionally, participants had the option to withdraw from the study at any time without penalty.

While participating in the study has no direct benefits, participants gained insight into the utilization of Electronic Health Records (EHRs) and contributed to the body of knowledge in nursing informatics. This knowledge may later contribute to personal and professional development, enhancing interactions with colleagues and patients.

No personally identifiable name or work ID number were used. The results may, in the future, be used in reports, presentations, and publications, but participants' names were not used. To reduce concerns about confidentiality, participants were assigned each a pseudonym. All files and observation notes were kept in locked drawers.

Data Analysis

The researcher sought the assistance of a statistician to ensure that proper data treatment was applied and that the study's findings were accurate. The data was encoded in Excel and analyzed through Statistical Package for Social Sciences (SPSS) version 21.0. Charts and tables helped visualize the study results. Pearson's Product Moment correlation coefficient was used to analyze the strength and direction of the relationship between variables, such as EHR utilization and perceived obstacles. One-way ANOVA and t-test were utilized to compare means between groups, such as different departments or demographic characteristics, to determine if there are significant differences in EHR utilization. Multiple regression was used to identify predictors of EHR utilization and examine the relationship between multiple independent variables and the dependent variable.

Results

This section summarizes the collected data and presents the study's findings on nurse experiences and perceptions of using Electronic Health Records (EHRs) at Gitwe Hospital. Table 1 presents the demographic information on the study participants, including their age, gender, years of experience as a nurse, and department of work. The majority of the participants were female (70%) and between the ages of 25 and 34 (60.1%). The average years of experience as a nurse was 5.4 years, and the most common department of work was the Medical-Surgical department (40%).

Table 1

Demographic Information of Study Participants

Demographic Information	Frequency (n)	Percentage (%)
Age (years)		
18-24	16	10%
25-34	98	60.1%
35-44	33	20.2%
45-54	8	5%
55 and above	8	5%

{table continues on the next page}

Gender		
Male	49	30.1%
Female	114	70%
Years of Experience as a Nurse		
Less than 1 year	24	15%
1-3 years	73	45%
4-6 years	33	20.2%
7-9 years	16	10%
10 or more years	17	10.4%
Department of Work		
Medical-Surgical	65	40%
Emergency	33	20.2%
Intensive Care Unit	24	15%
Pediatrics	16	10%
Obstetrics-Gynecology	16	10%
Other	9	5.5%

The study participants were predominantly female nurses, reflecting the common gender distribution in the nursing profession. The mean age was 31.2 years. The diverse range of ages from 22 to 56 years contributed to a variety of perspectives. With an average of 5.4 years of nursing experience and a range of 1 to 20 years, the participants demonstrated a mix of professional tenures, enhancing the richness of insights into EHR utilization.

With regard to departmental distribution, the Medical-Surgical department was most prevalent (40%), followed by the Emergency department (25%), Obstetrics-Gynecology (20%), and Pediatric (15%) departments. These distributions provide insights into the prominent areas of nursing practice within Gitwe Hospital.

Overall, the demographic profile highlighted the diverse yet representative nature of the nursing workforce, characterized by predominantly female participants with varying levels of experience across different departments. These findings offer valuable context for interpreting the study's results on EHR utilization in Gitwe Hospital.

Table 2 presents the responses of study participants regarding EHR adoption and use. Over 90% of the participants reported using EHRs in their daily work, with 35.05 % reporting using them often or very often. The most perceived benefit of using EHRs was improved patient care (60.1%), while the most commonly encountered barrier was difficulty in data entry (45%).

Table 2

EHR Adoption and Use Among Study Participants

EHR Adoption and Use	Frequency (n)	Percentage (%)
Use of EHRs in daily work		
Yes	148	91%
No	15	9.2%
How often EHRs are used		
Very Often	49	30.1%
Often	65	40%

{table continues on the next page}

Sometimes	33	20.2%
Rarely	16	10%
Perceived benefits of EHRs		
Improved patient care	98	60.1%
Easy access to patient data	33	20.2%
Better communication with colleagues	24	15%
Time-saving	0	0%
Others (please specify)	8	5%
Barriers to EHR use		
Technical problems	41	25.1%
Inadequate training	33	20.2%
Heavy workloads	89	55%

The survey results on Electronic Health Record (EHR) adoption and utilization among study participants reveal compelling insights into the integration of EHR technology within the healthcare setting. The findings indicate a robust adoption rate, with over 90% of participants reporting daily use of EHRs in their work routines. This highlights the widespread acceptance of this technology among nurses. Among EHR users, a significant proportion (35.05%) reported frequent utilization, underscoring the integral role of EHRs in facilitating daily nursing tasks.

Participants identified various benefits associated with EHR utilization, with the foremost being improved patient care, cited by 60.1% of respondents. This observation aligns with existing literature, emphasizing EHRs' contribution to enhancing patient outcomes through streamlined access to critical patient information and improved communication among healthcare professionals.

Despite the perceived benefits, participants also encountered notable barriers to EHR use, prominently including challenges related to technical problems (25.1%). Additionally, issues such as inadequate training (20.2%) and heavy workload (55%).

Table 3 presents the responses of study participants regarding the various aspects of Electronic Health Record (EHR) utilization. It provides insights into the correlation between nurses' use of EHR systems and measures of healthcare service quality, including patient outcomes, timeliness of care, patient satisfaction, clinical documentation, and error rates.

Table 3
Relationship between EHR Utilization and Quality of Healthcare Services

Measure of Quality	Correlation Coefficient (r)	P-Value	Verbal Interpretation
Patient Outcomes	0.45	< 0.01	Moderate Positive Correlation
Timeline of Care	-0.20	0.05	Weak negative Correlation
Patient Satisfaction	0.55	<0.001	Strong Positive Correlation
Clinical Documentation	0.30	0.10	Moderate Positive correlation
Error Rates	-0.15	0.15	No significant Correlation Observed

The findings reveal a moderate positive correlation between EHR utilization and patient outcomes, indicating that increased use of EHR systems among nurses is associated with improved patient care. This suggests that EHRs play a vital role in enhancing healthcare delivery by facilitating access to patient information, aiding in clinical decision-making, and promoting care coordination.

While a weak negative correlation is observed between EHR utilization and timeliness of care, it is important to note that the effect size is relatively small, suggesting a limited impact on care delivery. This implies that while increased EHR usage may slightly decrease timeliness, its overall influence on the timeliness of care provision is minimal.

The strong positive correlation between EHR utilization and patient satisfaction highlights the significant role of EHR systems in enhancing patient experiences. Higher levels of EHR utilization are linked to increased patient satisfaction levels, possibly due to improved communication, documentation accuracy, and coordination of care among healthcare providers.

Although a moderate positive correlation is noted between EHR utilization and clinical documentation quality, it is not statistically significant at the conventional alpha level. However, the trend suggests that increased EHR usage may be associated with better clinical documentation practices, which are crucial for maintaining accurate and comprehensive patient records.

Interestingly, no significant correlation is found between EHR utilization and error rates, indicating that nurses' use of EHR systems does not directly influence the occurrence of errors in healthcare delivery. This underscores the importance of considering various factors beyond EHR utilization in addressing and mitigating errors in clinical practice.

Table 4 provides a breakdown of EHR utilization among nurses based on different demographic variables such as age, sex, marital status, and educational attainment. It presents the number and percentage of nurses within each category who reported using EHR systems in their daily work.

Table 4

Comparison of EHR Utilization Across Demographic Characteristics

Demographic Variable	Category	Number of Nurses	Percentage of Nurses Using EHR
Age	20-30	50	90%
	31-40	30	85%
	41-50	20	70%
	51-60	10	60%
Sex	Male	30	80%
	Female	80	90%
Marital Status	Single	40	85%
	Married	70	88%
	Divorced	10	75%
Educational Attainment	Diploma	40	85%
	Bachelor's	50	90%
	Master's	20	75%

The table provides a comprehensive comparison of Electronic Health Record (EHR) utilization among nurses based on various demographic characteristics, shedding light on potential disparities and patterns within the nursing workforce.

The findings reveal nuanced variations in EHR utilization across different age groups among nurses. Notably, nurses in the younger age bracket of 20-30 demonstrated the highest utilization rate, with 90% reporting the use of EHR systems in their daily practice. As age increased, there was a gradual decline in EHR utilization, with percentages decreasing to 85% among nurses aged 31-40, 70% among those aged 41-50, and 60% among nurses aged 51-60. This trend suggests that younger nurses may be more inclined towards embracing technological advancements such as EHR systems, while older nurses might exhibit comparatively lower adoption rates.

The data on the respondents' sex exhibit a notable difference in EHR utilization between male and female nurses. While 80% of male nurses reported using EHRs, a higher percentage of female nurses, at 90%, indicated EHR utilization. This gender discrepancy in EHR adoption rates underscores potential gender-related factors influencing technology acceptance and usage patterns among nurses.

Examining EHR utilization in relation to marital status reveals surprising insights. Single nurses displayed a utilization rate of 85%, while married nurses exhibited a slightly higher rate of 88%. Conversely, divorced nurses reported a utilization rate of 75%. These findings hint at potential associations between marital status and EHR adoption, possibly influenced by factors such as work-life balance, personal responsibilities, and organizational support.

Data on educational attainment illustrate varying levels of EHR utilization among nurses based on their educational background. Nurses with a diploma showed a utilization rate of 85%, while those with a bachelor's degree demonstrated a higher rate of 90%. Interestingly, nurses with a master's degree exhibited a utilization rate of 75%, representing a slight decrease compared to bachelor's degree holders. These findings suggest that educational attainment may play a role in shaping nurses' attitudes towards and proficiency in utilizing EHR systems, with higher levels of formal education potentially fostering greater technological fluency.

Discussion

The discussion of the study's findings on nurses' experiences and perceptions of using Electronic Health Records (EHRs) at Gitwe Hospital provides valuable insights into the current state of EHR utilization within the healthcare setting. This section will delve into the implications of the study results, their alignment with existing literature, and the potential implications for nursing practice, education, and healthcare policy.

The demographic profile of the study participants revealed notable characteristics reflective of the broader nursing workforce at Gitwe Hospital. Predominantly female participants, with varying levels of professional experience and distribution across different departments, underscored the diversity within the nursing workforce. These findings provide important context for understanding the perspectives and experiences of nurses regarding EHR utilization.

The high prevalence of EHR adoption and use among study participants, with over 90% reporting daily utilization, highlights the integral role of EHR systems in contemporary nursing practice. The identification of improved patient care as the most perceived benefit of EHR utilization resonates with existing literature, emphasizing the positive impact of EHRs on patient outcomes, care coordination, and clinical decision-making. However, the study also illuminated significant barriers to EHR use, including technical issues, inadequate training, and heavy workloads. Addressing these barriers is essential for optimizing the benefits of EHRs and ensuring their effective integration into nursing practice.

The correlation analysis between EHR utilization and measures of healthcare service quality provided valuable insights into the relationship between technology adoption and patient care outcomes. While increased EHR utilization was associated with improved patient outcomes and satisfaction, it was interesting to note the weak negative correlation with timeliness of care. This underscores the need for careful consideration of workflow implications and the optimization of EHR systems to minimize disruptions to care delivery processes.

The comparison of EHR utilization across demographic characteristics revealed nuanced variations in adoption rates based on age, sex, marital status, and educational attainment. Younger nurses and those with higher educational attainment demonstrated higher utilization rates, highlighting potential generational and educational influences on technology acceptance and proficiency. Understanding these demographic disparities is crucial for designing targeted interventions to support nurses in utilizing EHR systems effectively, regardless of their background or experience level.

Overall, the study's findings contribute to a deeper understanding of the challenges and opportunities associated with EHR utilization in nursing practice. Addressing barriers to adoption, optimizing EHR functionality, and providing ongoing training and support are essential steps towards maximizing the potential of EHRs to enhance patient care outcomes and advance nursing practice. Additionally, future research should continue to explore the longitudinal impact of EHR implementation on nursing workflows, patient outcomes, and healthcare service delivery to inform evidence-based practice and policy development in healthcare settings.

Conclusion

This study concludes that Electronic Health Record (EHR) utilization among nurses at Gitwe Hospital is widespread, with over 90% of participants reporting daily use of EHR systems in their nursing practice. Despite encountering significant barriers such as technical issues, inadequate training, and heavy workloads, nurses identified improved patient care as the primary benefit of EHR utilization. The correlation analysis revealed positive associations between EHR utilization and measures of healthcare service quality, including patient outcomes and satisfaction, underscoring the importance of EHRs in enhancing overall patient care.

Moreover, the comparison of EHR utilization across demographic characteristics highlighted nuanced variations based on age, sex, marital status, and educational attainment, suggesting the influence of these factors on technology acceptance and proficiency among nurses. Younger nurses and those with higher educational attainment demonstrated higher utilization rates, emphasizing the need for tailored training and support initiatives to address demographic disparities in EHR adoption.

Overall, this study provides valuable insights into the current state of EHR utilization in nursing practice at Gitwe Hospital and underscores the importance of addressing barriers to adoption, optimizing EHR functionality, and providing ongoing training and support to maximize the potential benefits of EHRs for patient care. Moving forward, continued research into the longitudinal impact of EHR implementation on nursing workflows and patient outcomes will be essential for informing evidence-based practice and policy development in healthcare settings.

Recommendations

Based on the findings of the study, several recommendations are given to the different stakeholders in the healthcare sector:

Academic and Research Community

In the academic and research realm, there is a need to develop and implement comprehensive educational programs and training initiatives focused on Electronic Health Record (EHR) utilization. These programs should target nursing students and healthcare professionals to equip them with the necessary skills and knowledge to effectively navigate EHR systems in their practice. Moreover, fostering interdisciplinary collaborations between nursing schools and healthcare institutions is crucial. These collaborations can facilitate the integration of EHR training into nursing curricula, providing students with hands-on experience with EHR systems. Additionally, further research is warranted to explore the long-term impact of EHR implementation on nursing practice, patient outcomes, and healthcare service quality. This will help in identifying areas of improvement and refining existing practices.

Healthcare Practitioners

For healthcare practitioners, advocating for ongoing professional development opportunities and resources is essential. Nurses should actively seek out opportunities to enhance their proficiency in EHR utilization, as this directly impacts patient care. Encouraging interdisciplinary teamwork

and collaboration among healthcare providers is also vital. By leveraging EHR technology for improved patient care coordination and communication, healthcare practitioners can enhance the quality and efficiency of healthcare delivery. Furthermore, actively participating in user feedback mechanisms and quality improvement initiatives enables nurses to identify and address usability issues and barriers to EHR adoption in clinical practice, ultimately improving the overall user experience.

Hospital Administrators and Management

Hospital administrators and management play a pivotal role in ensuring the effective implementation and utilization of EHR systems within healthcare facilities. It is imperative for them to invest in robust EHR systems with user-friendly interfaces and interoperability features. These systems support efficient nursing workflows and enhance patient care delivery. Allocating resources for comprehensive training and ongoing support programs tailored to the specific needs of nursing staff is essential. By providing adequate training and support, administrators can empower nurses to utilize EHR systems to their full potential. Additionally, implementing performance metrics and quality indicators allows for the monitoring of EHR utilization rates and the identification of areas for improvement. This data-driven approach helps measure the impact of EHR adoption on healthcare service quality, guiding decision-making processes and ensuring continuous improvement.

Policymakers in Healthcare Institutions

Policymakers in healthcare institutions have the responsibility to develop policies and guidelines that standardize EHR implementation and usage protocols across healthcare facilities. Standardization ensures consistency and interoperability of electronic health records, facilitating seamless information exchange between different healthcare providers and institutions. Advocating for adequate funding and support for EHR infrastructure upgrades, maintenance, and training initiatives is crucial. Policymakers should prioritize investing in EHR technology and providing ongoing support to ensure its sustainable adoption and utilization among nursing staff. Collaborating with regulatory bodies and professional associations is also essential. Establishing best practices and accreditation standards for EHR utilization in nursing practice ensures adherence to industry standards and guidelines, promoting patient safety, data security, and privacy concerns.

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Assessment of HIV Knowledge Prevention Among College Students in a Private School in South Cotabato: A Basis for a Health Education Program

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Abstract

The province of South Cotabato, situated in the SOCCSKSARGEN region, ranks 7th in the Philippines in terms of the prevalence of HIV cases. The increasing epidemic and inequalities in HIV service delivery significantly impact the youth aged 18 – 24 years old. This study aims to assess the HIV knowledge and prevention practices among college students in a private school in South Cotabato. Analyzing data from convenience sampling of 30 respondents, ANOVA and Chi-Square tests showed significantly low levels of knowledge among the youth regarding the mode of transmission of HIV (M=3.13), HIV infection (M=1.7), and diagnostic tests (M=0.23). However, the examination of gender-based disparities in HIV knowledge revealed no significant difference, suggesting consistent levels of knowledge irrespective of gender. No significant variations in HIV knowledge were observed among different age groups. These results emphasize the immediate necessity for thorough health education initiatives aimed at young people in South Cotabato to improve their understanding of HIV and their awareness of the services offered by the government. The study recommends consistently implementing these programs as a fundamental resource for upcoming health education and promotion efforts to address the HIV epidemic in the region.

Keywords: *HIV, AIDS, awareness, transmission, prevention*

Despite global and regional trends of new Human Immunodeficiency Virus (HIV) infection cases being in decline, the new HIV infections in the Philippines have continued to increase through the years (World Health Organization, 2022). According to the Department of Health Epidemiology Bureau, the country saw a 237% increase in new HIV infections from 2010 – 2021. The country also saw a shift of the epidemic from the 25 – 34-year-old age group to the younger population of youth aged 15 – 24 years, with 47% of new infections coming from the youth. In terms of geographical burden, more than half of the diagnosed HIV cases are concentrated in the National Capital Region (NCR), CALABARZON, and Central Luzon. On the other hand, SOCCKSARGEN ranks the 7th region in the country in terms of the HIV burden of disease, with more than half of diagnosed cases coming from South Cotabato (Department of Health Epidemiology Bureau, 2022).

Due to scarce resources to provide public health programs across the whole country, the efforts are targeted mostly to the higher burdened regions and facilities, creating inequality in access to HIV services. Gravely affected by this inequality would be our youth aged 15 – 24 years. Across different national surveys, comprehensive HIV knowledge is very low among Filipinos and much lower among Filipinos aged lower than 18 years. According to the 2018 Integrated HIV Behavioural and Serologic Surveillance, comprehensive HIV knowledge among males who have sex with males (MSM) and female sex workers (FSW) was below 50%. It was found to be the lowest among 15-17 years age group. Also, based on the Youth Adult Fertility Survey 2021, comprehensive HIV knowledge among males and females was just 19%. Lastly, according to the National Demographic Health Survey 2017, comprehensive HIV knowledge among women was just 25%.

Despite efforts of the government to provide HIV prevention, testing, and treatment services to key populations for free, Filipinos are still having a hard time accessing these free services. The HIV care cascade from the Department of Health as of September 2022 shows progress towards the 95-95-95% targets at 63-65-97. This means that only 63% of estimated people living with HIV tested positive and knew their status, 65% of those who knew their HIV-positive status were on life-saving anti-retroviral treatment, and 97% among those tested for viral load were virally suppressed, indicating treatment success.

There are a lot of medical and sociocultural behaviors that affect one's access to HIV services in the country. One of which would be correct HIV knowledge and information on HIV services in the country. Two in three (66%) MSM & Transgender women (TGW) were aware of facilities offering HIV testing. However, this awareness did not directly translate to uptake of service since only 32% of MSM & TGW had an HIV test and were aware of their HIV status within the past 12 months. Further, only a small proportion (8%) of the MSM & TGW population were aware of HIV pre-exposure prophylaxis (PrEP). Low awareness of prevention modalities such as PrEP may mean low uptake among the key population (DOH Epidemiology Bureau, 2019).

Statement of Health Problem

The general goal of this study is to assess HIV knowledge prevention among college students in a private school in South Cotabato. Specifically, this study sought to answer the following:

1. What are the demographic characteristics of the participants in terms of:
   a. Age, and
   b. Sex
2. What is the extent of the knowledge of the participants when it comes to HIV infection, mode of transmission, and diagnostic test?
3. Is there a significant difference between the knowledge score of participants in terms of:
   a. Age, and
   b. Sex

Methodology

Research design

This study employs a quantitative research approach to assess HIV knowledge among college students in a private school in South Cotabato. Additionally, the chosen research design is a cross-sectional design, which is best for collecting data from a population at a specific point in time.

Population and Sampling techniques

The target population for this study is thirty (30) college students from a private school in South Cotabato, Philippines. Among provinces in the SOCCSKSARGEN region, South Cotabato has the highest number of cases among its cities and municipalities. This is the reason why the province is selected. Participants will be selected based on the inclusion criteria: a) age must be 18 to 24 years old, college students. Students who are outside the inclusion age are excluded from this study. Convenience sampling will be used to select the samples from the target population.

Instrumentation

The self-administered questionnaire will be given to the respondents. The survey comprises three sections: The first section involves screening questions to verify eligibility, including inquiries about participants' willingness to participate and current enrolment status as college students in South Cotabato, and includes a notice on data privacy and an informed consent statement. The second section collects demographic information such as gender and age. Lastly, the third section focuses on participants' self-assessment of their knowledge of HIV. The questionnaire had a high-reliability coefficient of 0.823 and consisted of eight questions with binary response options—either yes or no.

Table 1

Scoring and interpretation

Criteria	Very High	High	Average	Low	Very low
Score	8	7	6	4-5	0-3

Data Gathering Procedures

A request letter was sent to the relevant officials at the research site to seek approval for the conduct of the assessment survey, including the ERB approval. Before conducting the survey, the researcher secured informed consent from each respondent. After obtaining consent, the questionnaire was administered to the respondents.

Data Analysis

Analyzing data from 30 respondents selected through convenience sampling involved using quantitative analysis methods such as minimum age, maximum age, mean, Spearman's rho, and Mann-Whitney tests.

Ethical Consideration

The study employed ethical principles emphasizing the importance of obtaining informed consent from individuals, allowing them to autonomously decide whether to participate in a study. This decision should be made voluntarily, without any form of coercion from the researchers, and based on adequate information provided to the participants. Secondly, beneficence refers to the researchers' obligation to safeguard the respondents from potential harm. The respondents' data was safeguarded from public scrutiny, and they were guaranteed that the collected data would be exclusively utilized for research purposes. Thirdly, justice refers to the equitable treatment and allocation of risks and benefits in research, which researchers must be aware of. Furthermore, the

respondent's involvement in the study was optional, and they were explicitly informed that they had the right to withdraw from the study at any point. The survey did not collect any data regarding the participants' specific attributes.

Results

The following section presents the results of the study as categorized under each of the research questions.

Research question 1. What are the demographic characteristics of the participants in terms of: age and sex?

Table 2 presents the demographic profile of the students in a private school in South Cotabato in terms of gender. In line with this, the data suggests that 63.33% of the respondents are male and 36.66% are female.

Table 2

Demographic Profile of the Students on Gender (n=30)

Indicators	Frequency	Percentage
Male	19	63.33%
Female	11	36.66 %

Gender disparities are especially apparent with risky sexual behaviors. According to the HIV/ Acquired Immunodeficiency Syndrome (AIDS) and ART Registry of the Philippines (DOH, 2022), 41 Filipinos have been diagnosed with HIV every day, with a total of 109,982 diagnosed cases since 1984. The majority (94%) of those diagnosed were male, while 6% were female.

Table 3 presents the demographic profile in terms of age among the students enrolled in a private school in South Cotabato. Accordingly, the data suggest that 43.33% of the students are around 19 -20 years old, 26.67% are 21 – 22 years old, and 30% are 23 -24 years old. The recorded minimum age of the participant is 19 years old, while the maximum age of the participant is 24 years old, and with a median age of 21 years old.

Table 3

Demographic Profile of the Students on Age (n=30)

Frequency	4	9	5	3	5	4
Age	19	20	21	22	23	24

Almost half of new HIV infections in 2022 are among the young key population aged 10-24 years (Philippine National AIDS Council, 2022). The young key population experiences more inequality in accessing HIV services as they have lower HIV knowledge, lower access and use of condoms, and lower access to social hygiene clinics in the country (Department of Health Epidemiology Bureau, 2021). These suggest late diagnosis and the need for increased testing and treatment.

Research question 2. What is the extent of the knowledge of the participants when it comes to HIV infection, mode of transmission, and diagnostic test?

There were eight questions asked of the participants. The questions are shown below:

1. Does a handshake transmit HIV?
2. Does normal kissing transmit HIV?

3. Is HIV transmitted by sharing syringes with drug users?
4. Is HIV transmitted via sexual relations without protection?
5. Can a person infected with HIV live without symptoms for many years?
6. Can using the same barber tools transmit HIV?
7. A person needs to be of legal age (18 years old) to avail HIV testing.
8. Mention 2 ways to prevent HIV.

Table 4 presents the HIV knowledge of the students in private schools in South Cotabato. The table indicates how the respondents' knowledge of the mode of transmission of HIV, Diagnostic test, and mode of transmission are low, with a mean of M = 5.07. Thus, this data shows that the extent of the participants' knowledge of HIV infection, mode of transmission, and diagnostic test before the program prevention is LOW.

Table 4
HIV Knowledge of Students

Student	Score obtained	Interpretation
1	6	Average
2	5	Average
3	5	Low
4	5	Low
5	5	Low
6	5	Low
7	4	Low
8	4	Low
9	4	Low
10	5	Low
11	5	Low
12	5	Low
13	4	Low
14	5	Low
15	5	Low
16	6	Average
17	6	Average
18	5	Low
19	5	Low
20	5	Low
21	5	Low
22	4	Low
23	6	Average
24	5	Low
25	6	Average
26	4	Low
27	6	Average

{table continues on the next page}

28	5	Low
29	7	High
30	5	Low
Average knowledge score	5.07	Low

Legend: Very high = 8; High= 7; Average= 6, Low=4-5; Very low= 0-3.

Only 1 in 2 respondents from the 2018 Integrated HIV Behavioral and Serologic Surveillance by DOH had correct knowledge of HIV prevention and transmission, while 43% believe that withdrawal before ejaculation prevents HIV transmission. Further, only 33% were aware of the availability of HIV treatment in the Philippines, while only 35% subscribe to the concept of undetectable=untransmissible (Department of Health – Epidemiology Bureau, 2021).

Aside from other facilitating factors, education is an important strategy in increasing the uptake of HIV services such as HIV testing and thus is an important tool in preventing HIV transmission and reversing the HIV epidemic in the country. Universal public health education had proven to reduce new HIV cases. Strategies such as educating targeted populations can also be employed, such as educating adult sexually active susceptible individuals as the most effective single-group strategy (Hussaini et al., 2011). Mukandavire et al. (2009) add that educating sexually immature (pre and early adolescence) and sexually mature individuals concurrently is more effective in slowing down HIV/AIDS than concentrating on a cohort.

Table 5 presents the knowledge of the respondents regarding the mode of transmission of HIV, Diagnostic tests, and mode of transmission. The data presents that the respondents have Very low knowledge about the mode of transmission of HIV, with mean M = 3.13, Very low on the knowledge about HIV Infection with mean M = 1.7, and very low on the knowledge of the Diagnostic Tests with a mean M = 0.23. For question 8, there are three responses. Abstinence was mentioned 26 times. Be faithful was mentioned 9 times. Last but not least that was mentioned 25 times is the use of condoms.

Table 5

Knowledge of Students When it Comes to Mode of Transmission, HIV Infection, and Diagnostic Test

Student	Mode of Transmission (scores)	HIV infection (scores)	Diagnostic test (score)
1	3	2	1
2	4	1	0
3	3	2	0
4	3	1	1
5	3	2	0
6	3	2	0
7	3	1	0
8	2	2	0
9	2	2	0
10	3	1	1
11	3	2	0
12	3	2	0
13	3	1	0
14	3	2	0

{table continues on the next page}

15	3	2	0
16	4	1	1
17	4	2	0
18	3	2	0
19	3	2	0
20	4	1	0
21	3	2	0
22	3	1	0
23	3	2	1
24	3	2	0
25	4	2	0
26	3	1	0
27	3	2	1
28	3	2	0
29	4	2	1
30	3	2	0
Average score	3.13	1.70	0.23
Interpretation	very low	Very low	Very low

Legend: Very high = 8; High= 7; Average= 6, Low=4-5; Very low= 0-3

Multiple platforms exist for disseminating information for public health use. For online strategies, various platforms can be maximized. Promoting health education through official social media accounts can be an effective, sustainable, and feasible strategy (Sun et al., 2020). Serious health educational games can also be utilized to increase education, targeting various audiences such as clients and healthcare providers (Sharifzadeh et al., 2020).

Research question 3. Is there a significant difference between the knowledge scores of participants in terms of age and sex?

Table 6 presents the difference in the extent of knowledge score of the students between their ages using Spearman's result. The test generated a p-value of 0.647, which is higher than the critical value of 0.05. It shows that regardless of age, the students' knowledge will be the same.

Table 6

The Extent of Knowledge Score of the Students Between Their Ages Using Spearman's Result

Statistic	Value
Correlation Coefficient	0.087
p-value	0.647

Significance: 0.05 level of significance

According to Zizza et al. (2021), most students find it useful to promote information regarding HIV/AIDS and STIs. Likewise, receiving information regarding this would create a perception of "awareness" and "safety" in more than half of high school students and most college students. Students like to get information not only from doctors and health professionals, but also from teachers who were also considered reliable sources of information on HIV/AIDS.

Table 7 presents the difference in the extent of knowledge scores of the students between genders using the Mann-Whitney test. The test generated a p-value of 0.132, which is greater than the critical value of 0.05. This suggests that there is no statistically significant difference in the knowledge scores about HIV between the genders of the participants.

Table 7

The Extent of Knowledge Score of the Students Between Genders Using the Mann-Whitney Test

Statistic	Value
U Statistic	138.0
p-value	0.132

Significance: 0.05 level of significance

School curriculum-based sex education and HIV education interventions can reduce reported risky sexual behaviors in developing countries such as the Philippines and should be implemented more widely (Kirby et al., 2006). The curriculum also increased self-efficacy in refusing sex, increased condom use, lessens sexual partners, and fewer initiations of sex (Fonner et al., 2014). This has been evident in multiple resources across populations such as girls and young women (Singh et al., 2013). Further, HIV treatment literacy enhances the likelihood of initiating and retaining HIV treatment (Koirala et al., 2017).

Discussion

This study highlights several crucial aspects concerning HIV knowledge among college students in a private school in South Cotabato, Philippines. Despite the worldwide and local efforts to fight against HIV/AIDS and the decrease in new infections, the Philippines is still witnessing a worrying increase in new cases of HIV, especially among young people aged 15-24 years. This underscores the pressing need to prioritize HIV education and prevention efforts for this susceptible demographic.

The evaluation of HIV knowledge among the participants reveals significant findings, indicating a deficiency in the level of comprehension in all areas assessed, including transmission methods, HIV infection, and diagnostic examinations. These findings mirror the national patterns that show a lack of sufficient understanding of HIV among Filipinos, especially among young people, as demonstrated by multiple national surveys. The Spearman's result and Mann-Whitney test both indicate that there are no significant differences in knowledge scores based on age and gender. This suggests that regardless of these demographic factors, college students have a uniformly low level of HIV knowledge. This highlights the necessity for focused educational interventions that go beyond demographic limitations to effectively tackle gaps in knowledge and encourage practices for preventing HIV.

This study emphasizes the immediate necessity for extensive HIV education and prevention initiatives that specifically target college students in South Cotabato, Philippines. It is essential to fill in knowledge gaps and raise awareness about HIV prevention measures to effectively reduce the increasing number of new infections, especially among vulnerable populations such as young people. Moreover, it is important to prioritize efforts that aim to provide fair and equal access to HIV services and encourage the participation of key populations. This will help achieve the objectives set out in the national HIV care cascade and reduce the impact of the epidemic in the region.

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Implementation of a Community-Based Family Planning Education Program to Improve Knowledge, Attitude, and Practice of Family Planning among Couples in a Rural Community

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Abstract

The study aimed to improve the knowledge, attitude, and practice of family planning among couples in a barangay in Pahinga Sur, Candelaria, Quezon, by implementing a community-based family planning education program. A quasi-experimental pretest and posttest design was used among 22 participants. Results show that there was a significant improvement in knowledge from "low" in the pretest (M=5.45450) to "high" in the posttest (M=7.86). On the other hand, attitude towards family planning improved from a positive attitude in the pretest (M= 2.8896, SD= 0.33265) to very positive in the posttest (3.8247, SD=.2806). Similarly, in family planning practice, participants showed an increase in their mean scores from good practice in the pretest (M=4.1818) to very good practice in the posttest (M=7.00). Overall, findings from the study showed a significant difference in their knowledge, attitude, and practice of family planning when compared to the baseline and end-line results. Thus, the study's outcome demonstrated that an intervention such as community-based family planning education positively influenced the participants' knowledge, attitude, and practice of family planning. It is recommended that future research accommodate a larger population in similar studies. Inviting couples in family planning education and counseling activities should be considered in the national family planning programs.

Keywords: *family planning education, reproductive health, contraceptives*

By utilizing modern contraceptives to achieve better family health, family planning helps attain the preferred number of children and reach a well-timed pregnancy. Moreover, modern family planning methods successfully prevent pregnancies and bring numerous beneficial effects. According to the Centers for Disease Control and Prevention (2022), intrauterine devices (IUD) have a typical failure rate of 0.8%, while hormonal methods such as implants and injectables have 0.1% and 4%, respectively. Typical failure in the use of combined oral contraceptive pills is 4%, and the progestin-only pill is 7% (Centers for Disease Control and Prevention, 2022).

In contrast, the lack of contraception has an adverse impact on women's lives and health. An example of an outcome is an unintended or unwanted pregnancy, a significant public health issue among women of childbearing age between 14-49 years. It is a global burden with severe consequences, such as health risks for women and children and increasing maternal and child mortality. Seventy-four million women worldwide have an unintended pregnancy, particularly in countries with low to middle countries, resulting in 25 million risky termination of pregnancy and increased maternal mortality by up to 47,000 each year (World Health Organization, 2019).

Although the Philippines have strengthened the Responsible Parenthood and Reproductive Health or the Republic Act 10354 to access contraception through family planning services, several women do not use contraception, leading to adverse health effects. Additionally, unintended pregnancy contributes to a greater risk of neglecting children. For example, children born from unintended pregnancy increase the likelihood of malnutrition, maltreatment, and mortality (Sayehmiri et al., 2019.)

The Philippines is committed to participating in the Sustainable Developmental Goal for the Universal Use of Family Planning by 2030. However, the country may need help as women and couples may be challenged to utilize family planning, leading to an increased rate of unmet needs. According to the Philippine National Demographic Survey in 2022, less than half, or 42%, of married women are acceptors of modern family planning methods, and 17% are acceptors of any traditional method. On the other hand, 24% and 18% of unmarried women use modern contraceptives and traditional techniques, respectively (Philippine Statistics Authority, 2023).

Several reasons hinder women and couples from utilizing family planning, as in the study by Bhatt et al. (2019). The lack of information, social and ethnic norms, and religious principles hinder utilizing family planning. (Bhatt et al., 2019). Additionally, in the Philippines, women who sought family planning services did not receive proper counseling, resulting in no contraception or less effective methods. In a demographic and health survey among 47 low- and middle-income countries, the reasons for no contraception use are mainly health concerns and disapproval from others (Moreira et al., 2019).

Moreover, a critical hurdle to utilizing family planning is the negative attitude toward it, despite a woman's intention to practice proper birth spacing. However, they need more knowledge and information to use family planning methods. Additionally, the husband's education is essential to transcend barriers. Therefore, access to family planning programs can be improved by expanding the understanding of women and couples' aspects and surpassing barriers (Mohamed, 2020).

Regardless of the beneficial effects of family planning, millions of women experience unplanned pregnancies for not practicing family planning. For instance, according to the work of Olubudun et al. (2020), although Nigeria is experiencing a rapid increase in birth rates, the use of contraceptives is considered one of the lowest, mainly in the countryside. According to the study findings, high awareness is incongruent with family planning practices. The authors suggested that family planning programs address barriers and beliefs that could hinder access to family planning. Specifically, programs should promote family planning for birth spacing, male participation, and addressing fears of contraceptive effects on their body (Olubudun et al., 2020)

In rural communities in Candelaria Quezon, such as barangay Pahinga Sur, the effects of community-based family planning education programs still need to be discovered, as studies have yet to be conducted in the municipality. Hence, the purpose of this study is to implement a community-based family planning education program to improve knowledge, attitude, and practice of family planning among couples in a rural community.

Methodology

This chapter discusses the methodology used, including the research design, population and sampling techniques, instrumentation, pilot study, data gathering procedure, data analysis, and ethical considerations.

Research Design

The study employed a quasi-experimental pre-test and post-test design to analyze the effect of the intervention program on the respondents' knowledge, attitude, and practice of family planning.

Population and Sampling Techniques

A community-based family planning education program was implemented to improve knowledge, attitude, and practice of family planning among couples, wherein 22 individuals participated and completed all the required program sessions. Although the program is for couples, most of the male partners were unavailable during the day, while their female partners were available, being housewives. Activities in the program were adherent for couples who live together. Convenience sampling was used, excluding women younger than 15 years old and those older than 49, limiting the respondents to women of childbearing age. The study did not have exclusion criteria for men.

Instrumentation

The instrument used in the baseline was a pretest questionnaire to determine their knowledge, attitude, and practice of family planning. The nine knowledge questions were related to the different family planning methods and their uses. Each question had multiple choices, and participants had to choose the correct answers. Table 1 shows the system scoring for knowledge. The attitude toward family planning questions pertains to their view towards family planning. The questionnaire utilized a 4-point Likert Scale from strongly disagree, disagree, agree, and strongly agree. Table 2 shows the system scoring for attitude. Lastly, the practice of family planning was related to their routine execution of utilizing family planning. According to their family planning practices, participants must choose between Yes or No. Table 3 indicates the system scoring for family planning practices.

Table 1

Scoring System and Interpretation for Knowledge

Knowledge score	Verbal Interpretation
0-2	Very low
3-5	Low
6-7	High
8-9	Very high

Table 2
Scoring System and Interpretation for Attitude

Numeric Scale	Mean Interval	Degree of Intensity	Verbal Interpretation
1	1.00 – 1.50	Strongly disagree	Very negative
2	1.51 – 2.50	Disagree	Negative
3	2.51 – 3.50	Agree	Positive
4	3.51 - 4.00	Strongly Agree	Very Positive

Table 3
Scoring System and Interpretation for Practice

Practice score	Verbal Interpretation
0-1	Very poor
2-3	Poor
4-5	Good
6-7	Very Good

Data Analysis

Data gathering commenced upon approval from the AUP Ethics Review Board and upon getting a letter of endorsement from the Graduate Public Health Department to conduct a health education program intervention in the chosen community. The self-administered questionnaires were first prepared in English and translated into Tagalog. The questionnaires were given directly to the respondents to avoid social desirability bias that could happen if they were directed to any companions. Each questionnaire was checked for completeness and consistency. The data were encoded in Microsoft Excel, and the statistical treatment was finished using the Statistical Package for Social Sciences (SPSS) software.

Data was collected at baseline (day 0 of the intervention program) and again at the end (4 days after the start of the intervention). Profile characteristics are collected at baseline only. The program implementation involved 22 participants who were able to complete all sessions. Data analysis was conducted using SPSS software.

Furthermore, the data were encoded in Microsoft Excel and executed with SPSS. Descriptive statistics were utilized to determine the mean rank and percentage of knowledge, attitude, and practice based on the output of the pretest and post-test results. In addition, the T-test was used for paired sample statistics to determine the mean rank and difference between knowledge, attitude, and practice of family planning from the pretest and post-test results.

Ethical Considerations

It was properly explained that each respondent was not subjected to harm. All the information obtained, and anonymity was applied using codes instead of personal identifiers. Respondents were also informed to answer each question honestly and truthfully to get accurate data for the study. Each respondent was also allowed to ask for any explanation regarding the instrument. Moreover, each respondent was informed that, for any reason, they have the right to refuse to participate in the study if they wished to do so. Finally, informed consent was obtained from each respondent before distributing the questionnaires to maintain a climate of security and comfort for both parties.

Results

Pretest and Posttest Knowledge Results

Table 4 shows the pretest knowledge result with a sample of 22 participants, including women of childbearing age 15-49 and their male partners. The response rate is 100%. Findings showed that participants have low knowledge (M=5.45450).

Table 4
Pretest Knowledge Result (N=22 or 100%)

Items	Frequency	Percentage of participants who answered correctly
What is an effective family planning method that is taken orally and prevents ovulation?	16.00	73%
What is the method of family planning that is placed under the skin and lasts more than three years?	16.00	73%
What is the method of family planning that is injected every three months?	16.00	73%
What is an effective method of family planning inserted in the uterus that lasts 3-8 years?	15.00	68%
What are hormonal pills for breastfeeding mothers?	14.00	64%
What is an effective barrier to pregnancy and sexually transmitted diseases?	11.00	50%
What is the permanent method for men?	11.00	50%
What is the permanent method for women?	11.00	50%
What is one of the criteria for accepting the Lactational Amenorrhea Method (exclusive breastfeeding) as an effective family planning method?	10.00	45%
Overall Mean	5.4545	Low

On the other hand, the posttest result shown in Table 5 indicates an improvement as the majority had a high level of expertise (M=7.86). Significant progress was found between the pretest and posttest results. As shown in the table, participants improved from 73% in the pretest to 100% in the posttest regarding injectables. In addition, knowledge about bilateral tubal ligation increased from 50% in the pretest to 59% in the posttest. In comparison, knowledge of the lactational amenorrhea method increased from 45% in the pretest to 64% in the posttest.

Table 5
Posttest Knowledge Result

Items	Frequency	Percentage of participants who answered correctly
What is the method of family planning that is injected every three months?	22.00	100%
What is an effective barrier to pregnancy and sexually transmitted diseases?	22.00	100%

{table continues on the next page}

What is the permanent method for men?	22.00	100%
What is the method of family planning that is placed under the skin and lasts more than three years?	22.00	100%
What is an effective family plan that is inserted in the uterus and lasts 3-8 years?	21.00	95%
What is an effective family planning method that is taken orally and prevents ovulation?	21.00	95%
What are the hormonal pills for breastfeeding mothers?	16.00	73%
What is one of the criteria for accepting the Lactational Amenorrhea Method (exclusive breastfeeding) as an effective family planning method?	14.00	64%
What is the permanent method for women?	13.00	59%
Overall Mean	7.8636	High

Pretest and Posttest Results of Attitude Toward Family Planning

Findings in Table 6 about the participants' attitudes toward family planning show that the majority had a positive attitude toward it in the pretest result (M= 2.8896, SD= 0.33265). Most know that both partners must decide which family planning they will use (M=3.91, Sd= .294), and they are favorable that good communication is necessary to begin an effective use of family planning (M=3.50, Sd= .673). In contrast, having too many children can affect their family's financial situation; the findings showed a negative attitude among the participants (M=2.36, SD=1.329). In addition, fear of side effects is an utmost concern in family planning use (M=1.45, SD= .963).

Table 6

Pretest Attitude Result (N=22 or 100%)

Items	Mean	SD	Verbal Interpretation
My partner and I must decide which family planning method we will use.	3.91	.294	Very positive
Effective family planning begins with good communication between my partner and me.	3.50	.673	Positive
It is important to consider my family's financial situation before planning for a pregnancy.	3.41	.796	Positive
Withdrawal is as safe as modern family planning methods.	3.05	1.133	Positive
Only the woman is responsible for using contraceptives.	2.55	1.262	Positive
Too many children can affect my family's financial situation.	2.36	1.329	Negative
Fear of side effects hinders my use of the family planning method.	1.45	.963	Very Negative
Overall Mean	2.8896	0.33265	Positive

*Legend: Very negative attitude= 1.00-1.50; Negative attitude= 1.51-2.50; Positive attitude= 2.51- 3.50; Very positive attitude= 3.51-4.00 *Reverse coded; negatively stated item*

On the other hand, after the intervention, as shown below in Table 7 about the posttest result on attitude toward family planning, the participants demonstrated a very positive attitude and significant progress, with an overall score of M= 3.8247, SD= .28206. Their view on good communication from both partners for effective family planning has increased from positive in the

pretest to very positive (M=4.00, SD= .000) in the posttest. Furthermore, their view that having too many children may affect their financial situation has increased from a negative to a very positive attitude (M=3.68, SD= .780). In contrast, fear of side effects that may hinder the use of family planning has improved from very negative in the pretest to very positive (M=3.64, SD= .848) in the posttest.

Table 7
Posttest Attitude Result

Items	Mean	SD	Verbal Interpretation
My partner and I must decide which family planning method we will use	4.00	.000	Very positive
Effective family planning begins with good communication between my partner and me.	4.00	.000	Very positive
Withdrawal is as safe as modern family planning methods.	3.91	.294	Very positive
It is important to consider my family's financial situation before planning for a pregnancy.	3.82	.664	Very positive
Only the woman is responsible for using contraceptives.	3.73	.631	Very positive
Too many children can affect my family's financial situation.	3.68	.780	Very positive
Fear of side effects hinders my use of family planning method	3.64	.848	Very positive
Overall Mean	3.8247	.28206	Positive

Pretest and Posttest Practice of Family Planning Result

Findings in Table 8 on the pretest practice of family planning results show that participants who followed the recommendations for practicing family planning had an overall mean score of M= 4.1818, referring to it as good practice. Most of the participants, 91%, are willing to wait 3-5 years for adequate birth spacing, while 73% discuss with their partners how many children they want.

Table 8
Pretest Practice Result (N=22 or 100%)

Items	Frequency	Percentage of respondents who follow recommendations for practicing family planning
I discussed with my partner how many children I wanted to have.	22	100%
I am confident in using family planning.	22	100%
I use modern family planning rather than the traditional method, such as withdrawal.	22	100%
I make sure to follow the correct instructions for my chosen family planning method.	22	100%
I will wait 3-5 years before the next pregnancy.	22	100%
I consult the midwife whenever I have doubts.	22	100%
I go to family planning counseling before starting family planning.	22	100%
Overall Mean	7.00	Very Good Practice

Difference in Knowledge, Attitude, and Practice of Family Planning Between Pretest and Posttest Results

After the intervention, as indicated in Table 9 about the posttest practice result, it shows a very good practice of family planning with an overall score of M= 7.00 or 100%, which means a significant change in their practice of family planning as all the participants followed the recommendations to practicing family planning.

Table 9

Posttest Practice Result

Items	Frequency	Percentage of respondents who follow recommendations for practicing family planning
I will wait 3-5 years before the next pregnancy.	20.00	91%
I discussed with my partner how many children I wanted to have.	16.00	73%
I am confident in using my method of family planning.	13.00	59%
I go to family planning counseling before starting a family planning method.	12.00	55%
I consult the midwife whenever I have doubts,	9.00	41%
I make sure to follow the correct instructions for my chosen family planning method.	12.00	55%
I use modern family planning rather than the traditional method, such as withdrawal.	10.00	46%
Overall Mean	4.1818	Good Practice

Table 11 shows the difference in knowledge, attitude, and practice of family planning using the pretest result as a baseline. A significant difference was found between the baseline and end-line results regarding knowledge of family planning (M=-2.40909, SD=2.87285). Furthermore, regarding attitude toward family planning, baseline and end-line comparison showed a significant difference (M=-1.43506, Sd=.48790). Lastly, it was also found that there was a substantial difference in the practice of family planning among the participants between the baseline and end-line results (M=-2.81818, Sd=.25172).

Table 11

Difference in Knowledge, Attitude, and Practice of Family Planning Between Pretest and Posttest Results

Measure	Mean	SD	Sig.	Interpretation
Pretest Knowledge - Posttest Knowledge	-2.40909	2.87285	.001	Significant
Pretest Attitude - Posttest Attitude	-1.43506	.48790	.000	Significant
Pretest Practice - Posttest Practice	-2.81818	1.18065	.000	Significant

Discussion

Comparison of Pretest and Posttest Knowledge Results

The study's findings regarding the participants' knowledge of family planning show that participants had low knowledge of family planning in the pretest (M = 5.45450). According to studies, low knowledge can negatively influence attitude and family planning use (Munakampe

et al., 2021). The majority, or 73% of the respondents, were well-informed about the use of oral contraceptives, probably because pills are commonly used among married women, according to the Philippines National Demographic and Health Survey in 2022 (PSA, 2023). In addition, 73% responded correctly to the use of implants. Furthermore, 50% are knowledgeable about the permanent method for women, while only 43% answered correctly to the Lactational Amenorrhea Method criteria. It signifies that most are not aware of exclusive breastfeeding as a method of delaying pregnancy. Similar to the study by Eticha et al. (2023) among postpartum women, this study's findings showed that knowledge of the Lactational Amenorrhea Method is low (Eticha et al., 2023).

Significant improvement was found in the participants' knowledge of family planning from low expertise in the pretest (M=5.45450) to high knowledge in the posttest (M=7.86). Therefore, findings from the current research showed similarity with the previously mentioned study by Yadassa et al. (2023), in which control and experimental groups were used to measure the participants' knowledge. The results showed improved knowledge when comparing their pretest and posttest results. Specifically, findings showed that 54% of women and 45.3% of men in the control group scored >50%. In contrast, among men and women in the experimental group, 78.5% and 59.5%, respectively, scored >50% (Yadassa et al., 2023). Although the current study used only one group to validate the pretest and posttest results, it also demonstrated that community-based family planning education substantially increased knowledge of the different family planning methods and their uses among the participants in barangay Pahinga Sur, Candelaria, Quezon.

Moreover, the intervention concerns guidance to improve couples' reproductive health. It has a positive impact on public health in that it goes beyond contraceptive use and a complete approach to couples. Furthermore, the intervention can be applied in the local government unit, specifically in health centers and community settings. Therefore, educating couples by enhancing their knowledge on reproductive health, contraceptive use, proper birth spacing, and their preferred number of children allows them to have more expanded information about family planning. With their concern addressed, they can use family planning methods without hesitation and fear that may hinder the continued use of contraception. However, it is suggested that when applying the intervention in the National Family Planning Program, trained health professionals in family planning must help to deliver quality health education and family planning services.

Comparison of Pretest and Posttest Attitude Toward Family Planning Results

Regarding the participants' attitudes toward family planning, results showed that participants had a positive attitude in the pretest (M= 2.8896, SD= 0.33265). The majority mutually decide and communicate with their partners on their method of choice since one of the barriers for a woman using family planning methods is the disagreement with their partner. Therefore, the involvement of a partner is a positive indication of continuing contraceptive use (Willcox et al., 2021). In contrast, having too many children can affect their family's financial situation; the findings showed a negative attitude among the participants (M=2.36, SD=1.329). In addition, fear of side effects is an utmost concern in family planning use (M=1.45, SD= .963). The study by Le Guen et al. (2021) demonstrated that women have developed what is called "hormonophia," or excessive fear of hormonal methods of family planning (Le Guen et al., 2021). Therefore, it causes hesitation among women to practice family planning as they think it harms their bodies and health. Consequently, it contributed to the developing criticism of contraceptives.

After the intervention, significant improvement was found in the participants' attitude toward family planning from a positive attitude in the pretest (M= 2.8896, SD= 0.33265) to very positive in the posttest (M= 3.8247, SD= .28206). Their view on good communication from both partners for effective family planning has increased from positive in the pretest to very positive (M=4.00, SD= .000) in the posttest. Furthermore, their view that having too many children may affect their

financial situation has increased from a negative to a very positive attitude (M=3.68, SD= .780). In contrast, fear of side effects that may hinder the use of family planning has improved from very negative in the pretest to very positive (M=3.64, SD= .848) in the posttest.

Similarly, in the study by Mohamed (2020), women had an unfavorable attitude toward family planning before the intervention but had a positive improvement after the intervention, confirming that health education improved knowledge and reflected a favorable attitude toward family planning (Mohamed, 2020). Therefore, family planning education positively affects attitudes toward family planning and can be used as a tool for family planning development in the community. Moreover, it is suggested that side effects and misconceptions must be raised to be adequately addressed for each method, and undergoing family planning is essential before initiating their method of choice.

Comparison of Pretest and Posttest Practice of Family Planning Results

Regarding the participants' practice of family planning, findings showed good practice of family planning in the pretest (M= 4.1818). It is an excellent example of planning for a pregnancy, as previous studies showed that short birth spacing is associated with maternal and child mortality. Furthermore, 55% made sure to follow the correct instructions for their chosen family planning method, while only 46% responded to choosing modern family planning methods rather than withdrawal methods. Although the effectiveness is higher when using modern family planning methods (CDC, 2023). However, some may still choose to use withdrawal. The result was similar to the study by Nguyen et al. (2020), in which it was common to use the withdrawal method among women who did not desire pregnancy (Nguyen et al., 2020).

Furthermore, significant improvement was found after the intervention from good practice in the pretest (M= 4.18) to very good practice in the posttest (M=7.00). All the participants followed the recommended guidelines for practicing family planning. These findings are consistent with the study by Mohamed (2020), in which a significant increase from 31.8% of family planning users before the intervention to 43.1% (Mohamed, 2020) after. However, the current study does not specify the participant's type of family planning method. Nonetheless, all the participants followed the recommendations for practicing family planning to use their method of choice for a planned pregnancy effectively. Therefore, community-based family planning education significantly positively impacted the knowledge, attitude, and practice of family planning among barangay Pahinga Sur participants.

Difference in Knowledge, Attitude, and Practice of Family Planning Between the Pretest and Posttest Results

The study findings showed a significant difference in the participants' knowledge (M = -2.40909, SD = 2.87285), attitude (M = -1.43506, Sd=.48790), and practice of family planning (M = -2.81818, SD = .25172) between the baseline (pretest) and endline results (posttest). The study's findings align with the survey by Yadassa et al. (2023), in which there was a significant difference in the participant's knowledge between the control group and the experimental group. As for attitude, baseline and end-line comparison showed a significant difference (M = -1.43506, SD = .48790), which was consistent with the work of Yadassa et al. (2023), which showed a significant difference in attitude between women in the control and experimental groups.

Findings in the current study indicate that the community-based family planning program positively influenced the practice of family planning, similar to the survey by Sileo et al. (2022), in which contraceptive use became higher from 31% to 40% use after 7 to 10 months of follow up after the intervention. However, the family planning method they preferred was not included in the current study, and the intervention was conducted over a short period. Therefore, there is a need for a follow-up to verify the continuation and consistency of family planning practice among the participants.

The community-based family planning education intervention helped improve the knowledge, attitude, and practice of family planning. The pretest and posttest comparisons showed remarkable improvement. Despite the existing national family planning program, findings from the current study showed the existing gaps in their knowledge, attitude, and practice of family planning. Therefore, the intervention significantly improved the participant's knowledge, attitude, and practice of family planning.

It is recommended that this study be used as a baseline assessment tool to assess the knowledge, attitude, and practice of family planning among couples. At the family planning counseling and education, both partners should be informed about the importance of having common support mechanisms. Health practitioners, including barangay health workers, should monitor family planning current users for continuing use of contraceptives to avoid missed opportunities. The local government units should include community-based family planning education in the national family planning program for couples to reach their reproductive health goals. Stakeholders and policymakers should consider community-based health education programs on family planning for every barangay, with trained health practitioners and barangay health workers in family planning.

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Happy Workers, Productive Workplace: A Stress Management Program for the Government Employees of Northern Samar, Philippines

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Abstract

Stress is common in everyday life, impacting individuals across various settings and occupations. This study aimed to determine the stress management needs of employees in one local government unit (LGU) in Victoria, Northern Samar. This study employed a descriptive research design and convenience sampling of 100 employees who responded to a needs assessment questionnaire designed to characterize the stress landscape within the LGU. Findings underscore the prevalence of workplace stress, attributed primarily to heavy workloads, organizational dynamics, and the absence of mental health support programs. Additional results from the study include insights into job satisfaction, with 66% of respondents indicating satisfaction and 34% reporting discontent. Stress was noted by 59% of participants, with associated symptoms including frequent headaches (20%) and irritability (17%), 34% reporting no symptoms, and five percent reporting other symptoms. The degree of stress varied, with 67% reporting mid-level stress, 25% moderate, and eight percent severe. As for the duration of stress, 55% reported feeling stressed at work for less than a month, 31% for one to three months, and 8% for over a year. Notably, only 12% of respondents reported a focal person's availability to address stress-related concerns, highlighting a significant gap in support structures within the LGU. This study concludes that there is a need for a stress management program for Northern Samar government employees. Recommendations for future studies may consider the inclusion of intervention programs.

Keywords: *stress management, Local Government Unit, workplace stress, needs assessment*

Stress is one of the most common things we experience every day, no matter where we are and what work we do. Stress is defined by the World Health Organization (WHO) as the response people may have when confronted with expectations and circumstances that are not matched to their skills and understanding and that challenge their capacity to adapt. It is not an illness; however, it can cause mental and physical illness if severe and exposed for a prolonged period (Deakin University, 2019). According to the Gallup survey (2022), in 2020, four in every ten people globally experienced stress every day (40%). The survey added that 2020 is the most stressful in recent history. On the other hand, stress can also be considered a motivator; it encourages other people to do their tasks and finish before the deadline. This might not apply to some people who are in the presence of constant stress (also known as chronic stress), leading to adverse effects such as nervous breakdown, unhealthy lifestyle, depression, and heart disease (Gutowski, 2017). The study (Pietromonaco, 2021) explains the two types of sources of stress. The first is internal stress, which comes from within us, such as low self-esteem and worries about losing our job or failing a class. The second source is the external- from our environment, such as relationships with other people, financial problems, significant life changes, family problems, and workplace problems. Among these, 6 in every 10 people (63%) admitted that workplace stress contributes the most to their daily stress (American Psychological Association, 2020).

Workplace Stress Globally is indeed alarming. The survey of State of the Global Workplace 2021 Report, conducted in 116 countries, stated that Workers' daily stress reached a new high last year because of (global border closures, company closures, and employment losses). Forty-three percent of respondents from over 100 nations said they had been stressed most of the previous day, compared to 38 percent in 2019 (Gallup, 2021).

Management programs are already being implemented globally, and their positive effects on the workplace are indeed significant to the point that most workplaces in urban areas are being recommended to implement these kinds of programs in their workplaces (Basu et al., 2016). However, workplaces in rural areas rarely implement these kinds of programs because stress management programs are primarily located in urban areas. Although some studies about stress management in rural workplaces exist in the Philippines, the prevalence of stress in rural workplaces is still high. Stress remains a challenge to every public health advocate, and the need to address it remains. As much as there are many studies about stress-management programs globally, the gap remains as to whether the prevalence of stress, types of stressors, and coping mechanisms of the people working in urban workplaces are different from the prevalence of stress, types of stressors and coping mechanism of the people working in rural workplaces. Hence, this study aims to investigate the stress management needs of government employees and tailor a stress management program for them.

Methodology

Research Design

This study utilized a descriptive research design because a structured questionnaire will assess the participants' demographic, socioeconomic, and health-related characteristics and their knowledge, attitude, and practice regarding stress and stress management. The study also utilized a Pre-test/Post-test design for the program module to determine the knowledge and skills acquired throughout the program.

Population and Sampling Techniques

The program utilized the purposive sampling technique. The researcher chose the Local Government Unit of San Isidro as the workplace and the employees as the main participants in the program. With the administrators' consent, one hundred (100) employees were randomly selected from the list of all employees.

Instrumentation

The study used a structured and self-utilized questionnaire to be distributed to the participants as instrumentation. The questionnaire comprises 50 questions, mostly close-ended questions organized into five categories: 1) Demographic Profile questions that describe the participants' gender, age, nationality, religion, and monthly income. Educational attainment, Marital Status, and Workplace Department; 2) General Health Status Questions that describe the prevalence of stress, magnitude of stress, symptoms experienced due to stress, stress-management confidence level, duration of stress, support system within the workplace that can help employees regarding stress and past existence of stress-management programs; 3) Knowledge Test Questions that describes the level of existing knowledge the participants have with regards to the effects of stress and its management; 4) Perceived Beliefs towards stress with answers in the form of a Likert scale; 5) Stress-Management Practices for the past four weeks with responses ranging from (1) Never, (2) Rarely, (3) Often, (4) Always. These responses will measure the intensity of the participants' stress.

Data Analysis

The research was conducted on the Local Government Unit (LGU) employees of Victoria, Northern Samar, Philippines. Before beginning the data collection procedure, a letter of request was obtained from the Mayor and the Administrator. Following the grant of permission, the questionnaire with consent to participate was delivered and distributed to employees in their respective departments. The collected data was analyzed based on the participants' responses and will serve as the foundation for the program's development.

After the data was gathered, it was analyzed using descriptive statistical analysis. Participant's profiles were organized using average, percentage, and frequency.

Ethical Considerations

Before administering the questionnaire, an application was submitted to the University's Ethics Review Board, and approval was obtained. Consent was secured for voluntary participation before the respondents answered the research questions via Google Form. Names and addresses were not collected, and responses were not associated with their identity. All information was handled with confidentiality.

Results

Results show that 66% of the workers are satisfied with their job, while 34% are not. The main reason for this dissatisfaction lies in the participants' working hours, with 50% working eight hours a day, 32% working seven hours a day, and 18% working six hours per day. Additionally, the occurrence of stress within the workplace caused stress in 59% of the respondents. Of these, 24% experienced frequent headaches, 17% experienced irritability, and 5% experienced multiple symptoms. Data reveals the magnitude of stress, with 8% experiencing severe, 25% moderate, and 67% mild stress. As for the duration, 31% experienced stress for one to three months, 4% for four to six months, 8% for more than a year, and 55% for less than a month. This lowered the confidence or the self-efficacy to manage stress, with 61% being less confident and 3% not confident. According to data, several factors influenced these results, such as the lack of facilities needed for stress relief and the lack of focal persons to facilitate stress management programs; 88% of the participants revealed this.

Another objective that the study focused on is the participants' existing knowledge about managing stress, good stress, bad stress, and level of self-confidence to manage stress. It also analyzed the level of depression, anxiety, and stress of the participants before the start of the program and after the end of the program using the DASS-21 questionnaire. Lastly, it discussed the productivity levels of the participants utilizing the productivity scale every session throughout the program.

Types of Stress

At the end of the program, results show that 96% of the participants responded that they learned about eustress and distress, while four percent responded No.

Magnitude of Stress

At the program's start, 88% of the participants reported being stressed, and 12% responded no, with 13% being mild, 60% moderate, 27% severe, and zero % severe. At the end of the program, results showed that 68% of the participants were stressed, and 32% were not, with 72% being mild and 28% being moderately stressed. Data shows a decrease in stress cases and the magnitude of stress.

Confidence in Managing Stress

At the start of the program, results show that 18% are not confident in managing their stress, 66% are at least confident, and only 12% are confident in managing their stress, while 4% are overconfident. At the end of the program, not confident at all was zero percent, least confident was 20%, confidence was 70%, and overconfident was 10% of respondents.

These results highlight an increase in the participants' confidence levels after the program. Craske et al.'s (2019) study adheres to this result, as the survey advises that participation in stress management seminars increases the confidence level in managing stress. Furthermore, a survey by Luszczynska et al. (2009) highlights that a person with a high self-confidence level has a greater coping capacity against stress.

Table 1

Confidence Level

Confidence level	Pre-test	Post-test
Not Confident at all	18%	Zero percent
Least Confident	66%	20%
Confident	12%	70%
Overconfident	4 %	10%

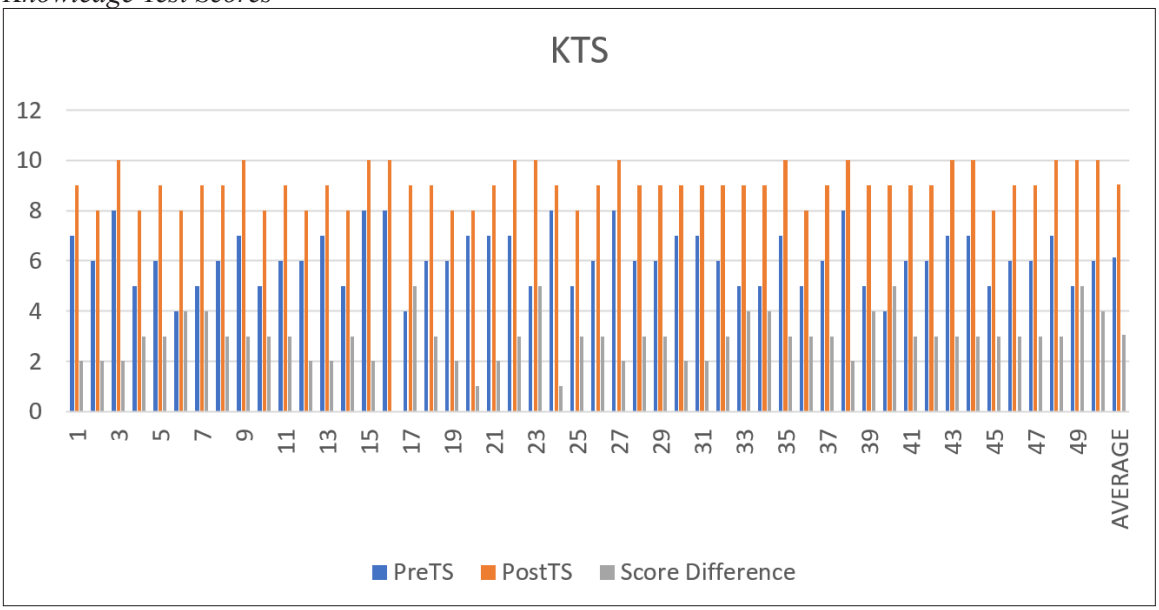
Knowledge Level

At the start of the program, the participants were given a 10-question pretest that would determine their existing knowledge about stress, garnering an average score of six over 10, of which six percent got 4, 26% got five, 32% got six, 24% got seven and 12% got eight. After the seminar, the same 10-question test was given as a posttest, garnering an average of nine over 10, of which 20% got 8, 52% got 9, and 28% got 10.

Results show that the participants' knowledge increased throughout the program. This result is similar to that of Richardson and Rothstein (2008), highlighting the effect of long-term stress management seminars. One of those effects is sustained improvement in stress management among participants even six months after the program. Furthermore, Klink et al. (2001) added that employees who attended stress management seminars or workshops reported significantly increasing their knowledge about stress, stressors, and effective coping mechanisms.

Figure 1

Knowledge Test Scores



Knowledge Shared

After the program, including in the posttest, participants responded to the question and could share their knowledge with someone. Results show that 16% responded with NO, and 84% responded with YES. This data showed that most participants shared what they learned with others. The study of Reblin and Uchino (2008) focused on the mechanism of social support exchange, which explains that a person is most likely to share the coping mechanism and stress management knowledge with the person's family and friends.

Time Management Skill Utilization

After session eight of the program, an activity was given to the participants to learn and utilize their learned skills in efficient time management. The participants applied their knowledge about time management and shared it with others. Out of 35 present participants, 15 shared their activity and how they did it. Data showed that 30% of the participants participated in sharing Time Management activity.

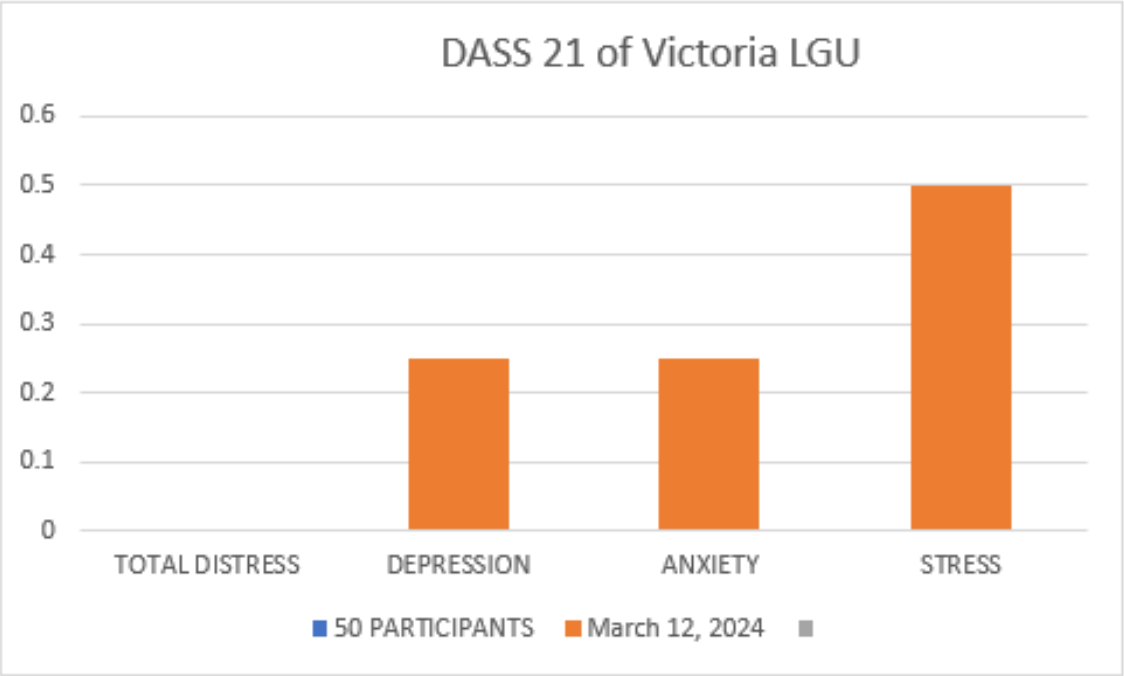
Figure 2

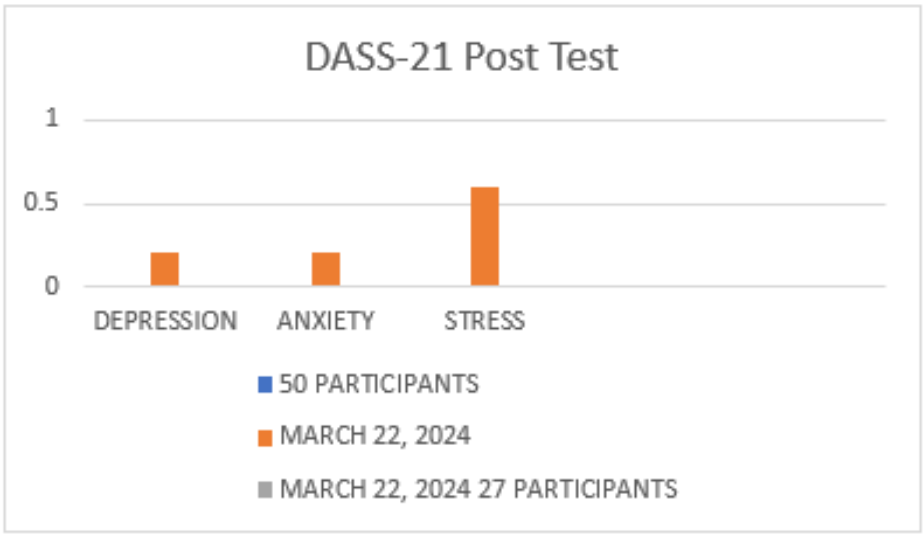
Time Management Sharing

Objective Three

The program implemented DASS-21 and the Productivity scale to measure the level of depression, anxiety, and stress. DASS-21 was done before and after the program to compare the results and identify improvement. The program also implemented a productivity scale for each session throughout the session to measure changes in the productivity of the participants. At the start of the program, DASS-21 results identified 40 Distressed Participants. 25% or 10 participants with depression, 25% or 10 with Anxiety, and 50% or 20 participants with Stress. After the program, DASS-21 results showed a decrease in the number of distressed with 32 participants, of which 20% or five participants with depression, 20% or five participants with anxiety, and 60% or 17 participants with stress.

Figure 3
DASS-21 Pre-test and Post test





The data above highlights the decrease in Depression, Anxiety, and Stress levels of participants after the program. Winefield et al. (2012) analyzed the effect of implementing a stress management program for a large organization and observed significant reductions in depression, anxiety, and stress levels of the participating workers. Carolan et al. (2015) reported a significant decrease in DASS-21 scores post-intervention.

The program also implemented a productivity scale from the start to the last session to investigate the productivity of the participants. As the data shows below, as every session passes, the productivity of the participants also increases gradually. At the start of the program, the participant's average answer to these questions is at a peak. Still, it gradually lowers after each session until the end of the 10th session, wherein data shows high productivity answers. Comparing the result of this study to the study of Allen et al. (2017) and Richardson et al. (2008), it shows that

stress management seminars likely led to high productivity as measured by productivity scales. The study further stated that employees who attended stress management seminars outmatched the productivity scores of the control group. In addition, the study of Du Plessis and Boshoff (2018) highlights the factors that can increase productivity levels in the workplace, and one of those factors is a stress management seminar for employees.

Table 2
Productivity Scale Results

Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
Session 1				
I feel productive at work today	10%	45%	37%	8%
I feel unmotivated at work today	8%	37%	45%	10%
I find work challenging	25%	35%	25%	15%
The task I did today was worth it	20%	40%	25%	15%
I finished the task I was supposed to do today	25%	30%	30%	10%
Session 2				
I feel productive at work today	10%	45%	37%	8%
I feel unmotivated at work today	8%	37%	45%	10%
I find work challenging.	25%	35%	25%	15%
The task I did today was worth it	20%	40%	25%	15%
I finished the task I was supposed to do today	25%	30%	30%	10%
Session 3				
I feel productive at work today	15%	55%	25%	5%
I feel unmotivated at work today	5%	25%	55%	15%
I find work challenging.	20%	25%	50%	15%
The task I did today was worth it	20%	30%	30%	20%
I finished the task I was supposed to do today	15%	55%	25%	5%
Session 4				
I feel productive at work today	13%	50%	24%	7%
I feel unmotivated at work today	5%	25%	50%	20%
I find work challenging.	25%	30%	25%	20%
The task I did today was worth it	25%	60%	10%	5%
I finished the task I was supposed to do today	20%	55%	20%	5%
Session 5				
I feel productive at work today	25%	60%	10%	5%
I feel unmotivated at work today	5%	20%	25%	30%
I find work challenging	4%	15%	45%	36%
The task I did today was worth it	35%	55%	5%	5%
I finished the task I was supposed to do today	25%	60%	15%	0%

{table continues on the next page}

Session 6				
I feel productive at work today	22%	65%	10%	3%
I feel unmotivated at work today	5%	20%	30%	25%
I find work challenging	4%	15%	40%	41%
The task I did today was worth it	40%	55%	10%	0%
I finished the task I was supposed to do today	25%	65%	10%	0%
Session 7				
I feel productive at work today	27%	63%	10%	0%
I feel unmotivated at work today	4%	15%	45%	36%
I find work challenging	5%	16%	43%	36%
The task I did today was worth it	45%	50%	10%	0%
I finished the task I was supposed to do today	30%	60%	10%	0%
Session 8				
I feel productive at work today	31%	60%	9%	0%
I feel unmotivated at work today	4%	10%	45%	41%
I find work challenging	5%	11%	48%	36%
The task I did today was worth it	50%	45%	5%	0%
I finished the task I was supposed to do today	35%	55%	10%	0%
Session 9				
I feel productive at work today	33%	58%	9%	0%
I feel unmotivated at work today	3%	5%	50%	42%
I find work challenging.	3%	8%	45%	44%
The task I did today was worth it	50%	45%	5%	0%
I finished the task I was supposed to do today	40%	50%	10%	0%
Session 10				
I feel productive at work today	39%	55%	6%	0%
I feel unmotivated at work today	2%	5%	45%	57%
I find work challenging.	2%	8%	40%	50%
The task I did today was worth it	50%	50%	0%	0%
I finished the task I was supposed to do today	50%	45%	5%	0%

The results of this study highlight the importance of stress management programs in the workplace. Data has shown that the participants of the program increased their knowledge about stress, increasing their confidence to manage stress, reducing depression anxiety, and ultimately increasing productivity,

Discussion

As shown by the data gathered, stress management programs in LGUs are of utmost significance. The program implemented by the study emphasizes that stress can be managed with practical workshops, seminars, and programs related to stress management. The study further emphasizes the importance of having a focal person and facilities to address these problems and foster a healthy workplace that supports each other. Furthermore, the study's contribution to public knowledge is that rural workplaces, too, are battling against stress and its effects; the lack of stress management programs in rural areas makes it more challenging for the LGUs to cope and who often suffer

from its effects. Additionally, policies that foster healthy workplaces and stress management should be highly encouraged in urban and rural areas. The study concludes that stress management programs benefit employers and employees by increasing happiness, productivity, and confidence in managing stress.

This study recommends that employees attend stress management programs and cooperate with their employer's program to foster a healthy work environment. The study also recommends that employers avail themselves of stress management programs, hire a focal person, and strictly implement policies to promote a healthy workplace. Public health advocates may also raise awareness of the significance of stress management programs and related policies. Future studies may increase the number of participants, including sessions of personal time with a psychologist, exercises, and morning meditations. Lastly, the study recommends alignment with similar government programs.

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Implementing a Health Education Program to Prevent Suicide Among College Students in a Private School in Quezon Province

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Abstract

Suicide is a serious public health problem that can be prevented with timely, appropriate, and low-cost interventions. This program aimed to increase awareness of the risk factors and introduce measures to prevent the incidence of suicide. A pretest-posttest design was used in the study, and 55 fourth-year BS Criminology students in a private school in Quezon province were participants. The tests determined the extent of perceived risk factors of suicide and perceived measures in preventing the incidence of suicide before and after the program. Thomas Joiner's Interpersonal Theory of Suicide guided the study. A structured questionnaire based on the research objectives of the study was used. Findings revealed that participants see suicide as a fatal self-injurious act with intent to die, a mental illness itself, and most suicides are among people of lower socioeconomic status. Social isolation is also a risk factor for suicide attempts. Participants disagreed that a person who seems happy is not at risk of suicide. The respondents reported listening to relaxing music, surrounding themselves with friends who had a positive influence and praying to divert any destructive thoughts. They also accepted things that were beyond their control. The result of the Pre-test and Post-test shows that the value of t is 8.6436, with a p-value of less than .01. The study recommends that the community should adopt the proposed health program entitled "May Kasama Ka: A Health Education Program" to generate awareness of the risk factors of suicide and take measures to prevent the incidence of suicide. Students and youngsters should be encouraged to participate in the health education program. Future studies may include a different locale.

Keywords: *suicide, health education, Quezon province*

Suicide refers to the act of deliberately taking one's own life. Throughout history, suicide has been condemned and condoned by different societies. Psychological theories stress that personality and emotional factors were developed to comprehend the causes of suicide. Sociological theories emphasize the influence of social and cultural pressures on a person. At the same time, social factors like widowhood, childlessness, mental disorders, and physical illness have been associated with suicide rates (Encyclopedia Britannica, 2023).

Recently, suicide was the fourth leading cause of death in the world among the 15-year-old to 29-year-old age group. Over 77 percent of suicides in the world occurred in low- and middle-income countries. Several of these occurred in rural agricultural areas in poor countries. Hanging and the use of firearms are other common methods of suicide (World Health Organization, 2021).

Ramos (2023) cited a report from the Department of Education (DepEd) that revealed that 404 students in different parts of the Philippines committed suicide, while 2,147 students attempted suicide during the academic year 2021-2022. The alarming data gave a snapshot of the mental health crisis in the country. The phenomenon may have also stemmed from the schools' lack of resources and overworked teachers. The government considers this a serious problem since the number of suicides among students continues to grow.

Thomas Joiner's Interpersonal Theory of Suicide explains why people engage in suicidal behavior. The three interlocking circles illustrate the feeling of isolation, the sense of burdensomeness, and the capability for suicide. The focal point of the study was to ascertain the implementation of a health education program to prevent suicide among college students in a private school in Quezon province. Recognizing the different warning signs is the first step in preventing suicide. The response to the warning signs should always be targeted to make the patient safe. Nurses must provide empathy and support. They should also ensure that the patient receives the services necessary to reduce the risk of suicide (Suicide Prevention Resource Center, 2023).

Without a doubt, suicide is a serious public health problem. Nevertheless, it could be prevented with timely, appropriate, and low-cost interventions. For the government to be effective, a comprehensive suicide prevention strategy should be implemented. Prevention and promotion are inevitable to mitigate this mental health crisis. Considering these realities and imparting valuable information, the researcher was motivated to find out the implementing health education program to prevent suicide among college students in a private school in Quezon province.

Methodology

Research Design

This study implemented a pretest-posttest design. The pretest determined the extent of perceived risk factors of suicide and perceived measures in preventing the incidence of suicide before the program. On the other hand, the post-test assessed the level of knowledge on perceived risk factors of suicide and perceived measures in preventing the incidence of suicide after the program.

Sampling Technique

The study's sample consisted of 55 fourth-year BS Criminology students in a private school in Quezon province. The researcher selected the participants using a purposive sampling technique appropriate for the study's nature. Likewise, the researcher set a criterion for choosing the students.

Instrumentation

The researcher designed and utilized a structured questionnaire based on the study's research objectives. It was the primary tool for gathering quantitative data. This research instrument had a series of questions that collected participant data. This data was used for statistical analysis. The questionnaire was composed of three parts. Part 1 identified the demographic profile of the participants in terms of age and gender. Part 2 determined the extent of perceived risk factors of

suicide and perceived measures in preventing the incidence of suicide before the program. Part 3 of the questionnaire tackled the level of knowledge on perceived risk factors of suicide and perceived measures in preventing the incidence of suicide after the program.

To interpret the results, the researcher used a four-point Likert-type scale that described the answers of the participants regarding the extent of perceived risk factors of suicide.

Table 1
Likert-Scale for Perceived Risk Factors of Suicide

Point	Continuum	Scale	Verbal Interpretation
4	3.26 - 4.00	Strongly Agree	Very high
3	2.51 - 3.25	Agree	High
2	1.76 -2.50	Disagree	Low
1	1.00 - 1.75	Strongly Disagree	Very low

To interpret the results, the researcher used a four-point Likert scale that described the answers of the participants regarding the perceived measures to prevent the incidence of suicide.

Table 2
Likert-Scale for Perceived Measures in Preventing Incidence of Suicide

Point	Continuum	Scale	Verbal Interpretation
4	3.26 - 4.00	Always	Very high
3	2.51 - 3.25	Often	High
2	1.76 -2.50	Seldom	Low
1	1.00 - 1.75	Never	Very low

Data Gathering Procedure

After the approval of the questionnaire, the researcher requested the school head to allow the conduct of the study. After permission was granted, the pretest was personally administered to the selected students. Following a cordial greeting, the researcher briefly explained the study. The questionnaires were retrieved after the participants finished answering all the questions. Then, the qualitative data were collected to explain the quantitative results. In this approach, the quantitative data and results provided a general picture of the research problem. After implementing the May Kasama Ka: A Health Education Program to Prevent Suicide Among College Students in Quezon Province, the researcher facilitated the posttest.

Ethical Considerations

Participation in the study was voluntary, and the selected participants could withdraw their participation at any time without consequence to themselves. The data gathered from the participants were treated with strict confidentiality and were used only for the research. All the excerpts from the literature cited in the study were paraphrased to avoid plagiarism.

Results

Demographic Profile

Table 3 shows the age distribution of the respondents. The majority (98%) were in the ages 21 and 22 years old and above.

Table 3
Age

Age Group	Frequency	Percentage
18 years old and younger	0	0%
19 years old	0	0%
20 years old	1	2%
21 years old	26	47%
22 years old and older	28	51%

More than half of them were male, as shown in Table 4.

Criminology is still a male-dominated course because a male perspective shaped it. While efforts have been made to integrate women into the Bachelor of Science in Criminology curricula, progress has been slow (Pub Genius Inc., 2024).

Table 4
Gender

	Frequency	Percentage
Male	28	51%
Female	27	49%

Perceived Risk Factors of Suicide

The second research objective was to determine the perceived risk factors of suicide. Table 6 shows that the participants agreed that suicide is a fatal self-injurious act with intent to die with a weighted arithmetic mean of 3.24; suicide is a mental illness itself with a weighted arithmetic mean of 3.18; the majority of suicides are among people of lower socioeconomic status, and social isolation is a risk factor for suicide attempt both with a weighted arithmetic mean of 3.15; suicide is preventable with a weighted arithmetic mean of 3.11; suicide is the fourth leading cause of death among young people with a weighted arithmetic mean of 3.05; a person who seems sad is at risk of suicide with a weighted arithmetic mean of 2.78; a person who has difficulty in socializing is at risk of suicide with a weighted arithmetic mean of 2.75; and a person's environment cannot be a risk factor for suicide with a weighted arithmetic mean of 2.51 are the perceived risk factors of suicide. While they disagreed that a person who seems happy is not at risk of suicide, with a weighted arithmetic mean of 2.35.

The finding of the study implies that the fourth-year BS Criminology students in a private school in Quezon province perceived that there is a variety of risk factors for suicide. Primarily, they disclosed that suicide is a fatal self-injurious act with the intent to die.

According to Bilsen (2018), suicide is a fatal self-injurious act with some evidence of intent to die. In fact, more than 800,000 people around the world die annually due to suicide. Apart from the direct loss of many young lives, suicide has disruptive psychosocial and adverse socio-economic effects.

Table 5
Perceived Risk Factors of Suicide

Indicators	Weighted Arithmetic Mean	Scale	Verbal Interpretation
1. The majority of suicides are among people of lower socioeconomic status.	3.15	Agree	High
2. Social isolation is a risk factor for suicide attempts.	3.15	Agree	High
3. Suicide is the fourth leading cause of death among young people.	3.05	Agree	High
4. A person who seems happy is not at risk of suicide.	2.35	Disagree	High
5. Suicide is preventable.	3.11	Agree	High
6. Suicide is a fatal self-injurious act with intent to die.	3.24	Agree	High
7. A person who seems sad is at risk of suicide.	2.78	Agree	High
8. A person who has difficulty in socializing is at risk of suicide.	2.75	Agree	High
9. Suicide is a mental illness itself.	3.18	Agree	High
10. A person's environment cannot be a risk factor for suicide.	2.51	Agree	High
Average Weighted Arithmetic Mean	2.93	Agree	High

Legend :

3.26 – 4.00	*\Strongly Agree*	*Very High*
2.51 – 3.25	*Agree*	*High*
1.76 – 2.50	*Disagree*	*Low*
1.00 – 1.75	*Strongly Agree*	*Very Low*

Perceived Measures in Preventing or Reducing the Incidence of Suicide

The third research objective was to determine the perceived measures in preventing or reducing the incidence of suicide. The participants revealed, as shown in Table 6, that the following activities are always the perceived measures in preventing or reducing the incidence of suicide: listening to relaxing music to divert my feelings with a weighted arithmetic mean of 3.64; surrounding themselves with friends who gave positive influence with a weighted arithmetic mean of 3.62; turning to divine help by praying with a weighted arithmetic mean of 3.60; going to a favorite place when feeling lonely or stress with a weighted arithmetic mean of 3.49; getting involved in activities that promote positive mental health such as learning a new hobby with a weighted arithmetic mean of 3.38; and seeing things positively and shared one's feelings when experiencing a problem both with a weighted arithmetic mean of 3.27. They often accepted things that were beyond one's control, with a weighted arithmetic mean of 3.07.

The tabular presentation means that the fourth-year BS Criminology students in a private school in Quezon province perceived that there are different measures in preventing or reducing the incidence of suicide. The prevalence of them was convinced that listening to relaxing music could divert feelings and eventually prevent suicide.

Listening to relaxing music has long been recognized as an effective way of changing emotions. It can also provide solace during difficult times. Likewise, music can effectively support a person dealing with mental health challenges and suicidal ideation (StayAliveMusic, 2023).

Table 6
Perceived Measures in Preventing or Reducing the Incidence of Suicide

Indicators	Weighted Arithmetic Mean	Scale	Verbal Interpretation
1. Accepted things that are beyond one's control.	3.07	Often	High
2. Tried to see things positively.	3.27	Always	Very High
3. Surrounded oneself with friends who have a positive influence.	3.62	Always	Very High
4. Got involved in activities that promote positive mental health such as learning a new hobby.	3.38	Always	Very High
5. Turned to divine help by praying.	3.60	Always	Very High
6. Shared one's feelings when experiencing a problem.	3.27	Always	Very High
7. Go to a favorite place when feeling lonely or stressed.	3.49	Always	Very High
8. Listening to relaxing music to divert my feelings.	3.64	Always	Very High
Average Weighted Arithmetic Mean			

Legend :

3.26 – 4.00	*Always*	*Very High*
2.51 – 3.25	*Often*	*High*
1.76 – 2.50	*Seldom*	*Low*
1.00 – 1.75	*Never*	*Very Low*

Table 7 shows the results of the Pre-test and Post-test. The value of t is 8.643563. The value of p is < .00001. The result is significant at $p < .05$.

Table 7
Pre-Test and Post-Test

	Pre-Test	Post-Test	*Diff* (T2 - T1)	*Dev* (Diff - M)	*Sq. Dev*
1	14	15	1	-2.6	6.76
2	14	15	1	-2.6	6.76
3	13	15	2	-1.6	2.56
4	13	15	2	-1.6	2.56
5	12	15	3	-0.6	0.36
6	12	15	3	-0.6	0.36
7	8	15	7	3.4	11.56
8	10	12	2	-1.6	2.56
9	11	14	3	-0.6	0.36
10	10	12	2	-1.6	2.56
11	11	12	1	-2.6	6.76
12	9	13	4	0.4	0.16
13	12	15	3	-0.6	0.36
14	11	15	4	0.4	0.16
15	5	10	5	1.4	1.96

{table continues on the next page}

16	8	12	4	0.4	0.16
17	4	14	10	6.4	40.96
18	10	15	5	1.4	1.96
19	11	15	4	0.4	0.16
20	10	15	5	1.4	1.96
21	9	12	3	-0.6	0.36
22	11	15	4	0.4	0.16
23	12	15	3	-0.6	0.36
24	9	11	2	-1.6	2.56
25	10	11	1	-2.6	6.76
26	13	14	1	-2.6	6.76
27	7	15	8	4.4	19.36
28	11	15	4	0.4	0.16
29	11	15	4	0.4	0.16
30	13	10	-3	-6.6	43.56
31	12	15	3	-0.6	0.36
32	5	14	9	5.4	29.16
33	12	8	-4	-7.6	57.76
34	3	15	12	8.4	70.56
35	4	10	6	2.4	5.76
36	11	14	3	-0.6	0.36
37	11	7	-4	-7.6	57.76
38	13	14	1	-2.6	6.76
39	10	15	5	1.4	1.96
40	5	14	9	5.4	29.16
41	0	10	10	6.4	40.96
42	11	15	4	0.4	0.16
43	9	14	5	1.4	1.96
44	6	14	8	4.4	19.36
45	10	15	5	1.4	1.96
46	12	13	1	-2.6	6.76
47	13	15	2	-1.6	2.56
48	11	12	1	-2.6	6.76
49	10	12	2	-1.6	2.56
50	11	14	3	-0.6	0.36
51	11	15	4	0.4	0.16
52	11	15	4	0.4	0.16
53	11	15	4	0.4	0.16
54	11	15	4	0.4	0.16
55	12	15	3	-0.6	0.36
			M: 3.6		S: 515.2

Difference Scores Calculations

Mean: 3.6
$\mu = 0$
$S2 = SS/df = 515.2/(55-1) = 9.54$
$S2M = S2/N = 9.54/55 = 0.17$
$SM = \sqrt{S2M} = \sqrt{0.17} = 0.42$

T-value Calculation

$t = (M - \mu)/SM = (3.6 - 0)/0.42 = 8.64$

Discussion

Findings revealed that participants see suicide as a fatal self-injurious act with intent to die, a mental illness itself, and most suicides are among people of lower socioeconomic status. Social isolation is also a risk factor for suicide attempts. Participants disagreed that a person who seems happy is not at risk of suicide. The respondents reported listening to relaxing music, surrounding themselves with friends who had a positive influence, and praying to divert any destructive thoughts. They also accepted things that were beyond their control.

The participants were able to appreciate the health education program and were able to define suicide, identify its risk factors and warning signs, and its prevention. They also know the facts and myths about suicide and know whom to seek help if they know someone who is suffering from suicide. The participants were given a brochure that they could share with others and stand as a guide whenever they had someone with them who experienced signs of suicidal ideation. It was also uploaded to the researcher's social media platform, and they may share it as well. Some students shared it right after each session. I also had the five students who had the highest scores in the pre-test and post-test and had good results in mental health check-in. I saw these characteristics in them while doing the sessions. They enjoyed participating in the program; they can cope with stress, as seen in the mental health check-in. They showed self-confidence in the program and good relationships with their classmates. I saw self-care throughout the program and their productivity in the sessions.

Future researchers should conduct studies in another research locale to complement the information in this study. They may also utilize other research designs and statistical tools.

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"Mind Cure": A Holistic Program to Promote Mental Health Among Depressed Patients in a Lifestyle Medicine Center

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Abstract

Most diseases originate in the mind. Anxiety and depression are common and can be disabling. This study evaluated the effectiveness of a holistic mental health intervention called the "Mind Cure" program. The study was carried out on depressed patients at a lifestyle medicine center. A pretest-posttest study was employed, and six participants were purposively sampled. At the beginning of the study, the participants reported moderate levels of depression and anxiety symptoms with a pre-test mean score of 2.83 (SD = 0.89) on the PHQ-4 depression and anxiety screening tool. After the program, the participants experienced a decrease in the symptoms, reflected in a post-test mean score of 1.88 (SD = 0.26). The program had a positive impact on reducing depression and anxiety symptoms. The study reported an increase in participants' knowledge about depression and lifestyle, with an average score of 10.50 on a pre-test knowledge assessment, increasing to 11.00 after the program. The pre-test mean score for beliefs about depression was 3.26, and the post-test mean score of 3.32 reflected that the participants' beliefs were slightly strengthened. The pre-test mean score for reported lifestyle practices was 2.58, while the post-test mean score was 2.69, indicating increased frequency and greater consistency in healthy behaviors compared to pre-test results. The results suggest that interventions like Mind Cure, focusing on healthy lifestyles and positive beliefs, may hold promise for supporting individuals with depression. The study recommends evaluating the program's effectiveness in a larger sample group.

Keywords: *Mind Cure, depressed patients, depression, mental health*

Depression is a common illness worldwide, with more than 264 million people affected. Depression is different from usual mood fluctuations and short-lived emotional responses to challenges in everyday life. Especially when long-lasting and with moderate or severe intensity, depression may become a serious health condition. It can cause the affected person to suffer greatly and function poorly at work, school, and family. At its worst, depression can lead to suicide. Close to 800,000 people die due to suicide every year. Suicide is the second leading cause of death in 15-29-year-olds (World Health Organization, 2019).

Although there are known, effective treatments for mental disorders, between 76% and 85% of people in low- and middle-income countries receive no treatment for their disorders (Mental Health and Neurological Disorders | NCD Alliance, 2022). Other barriers to effective care are the lack of funding, a shortage of qualified medical professionals, and the stigma attached to mental illnesses in society, as well as inaccurate assessment. People with depression are too frequently misdiagnosed and given antidepressant prescriptions, and people without the disease are too often given the incorrect diagnosis.

Moreover, depression affects the entire body, not just the brain. It has been linked to low-grade inflammation, which is involved in the clogging of arteries and the rupture of cholesterol-filled plaque. Depression also boosts the production of stress hormones, which dull the response of the heart and arteries to demands for increased blood flow. It activates blood cell fragments known as platelets, making them more likely to clump and form clots in the bloodstream. (News-Medical, 2023).

Depression is a common illness worldwide, with an estimated 3.8% of the population affected, including 5.0% among adults and 5.7% among adults older than 60 years. Approximately 280 million people in the world have depression. At its worst, depression can lead to suicide. Over 700,000 people die due to suicide every year. Suicide is the fourth leading cause of death in 15-29-year-olds (WHO, 2021).

In 2014, an American Heart Association statement listed depression as a risk factor for a poor prognosis after a heart attack or unstable angina (chest pain at rest due to reduced blood flow to the heart). One study found that the risk of death in heart attack survivors with depression was three times that of those without depression. (Lichtman et al., 2014)

Given the severity of the worldwide mental health issue, it is crucial to prioritize each patient's mental health. Therefore, MIND CURE seeks to enhance patients' understanding, behavior, and practice of the significance of a healthy lifestyle, a nutritious diet, a trusting relationship with God, and an optimistic view of life in managing depression and fostering mental health to expedite patients' recovery.

Methodology

Research Design

This research study uses two methods, namely, descriptive and quasi-experimental. The descriptive research design in the first phase used the need assessment survey questionnaire, which examined the characteristics of just one sample population. The mixed method quasi-experimental design was done during the second phase of the study, which was the intervention phase using the module "mind cure," a holistic approach to promote mental health among the selected participants with moderate to severe anxiety and depression. Quasi-experiments were conducted to measure the effectiveness of educational and lifestyle interventions. This had been a pre-test and post-test design, where the participant's knowledge, attitude, and practices, as well as the PHQ-4 screen test, were measured before and after the intervention program Sampling Technique.

Population and Sampling Technique

The study was conducted among patients in a lifestyle medicine center. Exclusion criteria include respondents below 18 years old, without a history of depression, and with normal (0-2) PHQ-4 score. This study used convenience sampling, and those who were interested and willing to participate and who passed the criteria were selected as the respondents.

Data Gathering Procedure

The needs assessment form was developed via Google form. It was sent online to all patients of a Lifestyle Medicine Center who are willing and interested in participating in the program. The following phase of the study uses purposive sampling to select six respondents for the analysis based on the inclusion criteria. 1. Ages 18 years old and above. 2. Willing to participate in the survey, 3. With access to social media. 4. Has a family history of depression; 5. Have been diagnosed with depression, 6. Currently taking anti-depressant medications, 7. Willing to manage their depression through lifestyle modification, 8.With PHQ-4 scores of mild (3-5), moderate (6-8), and severe (9-12). 9. Willing to participate in the intervention program.

After the data had been reviewed and the participants were selected, they were given access to our website, where they could view all the details of the program with downloadable materials.

Data Analysis

For objectives 1 and 2, a frequency distribution table was employed, which accounts for the proportion of participants per demographic profile category and family medical background using number tallies and corresponding weight percentages. For objectives 3 and 4, aimed at determining the participants' level of anxiety and depression pre- and post-intervention, as well as the status of their faith and lifestyle practices before and after the program, mean and standard deviation were used to measure the varying levels of the variables mentioned above. The mean and standard deviation calculations were based on the Likert–scale questions answered by the participants themselves. Additionally, tables signifying the corresponding interpretations for each level of belief and lifestyle practices are indicated below.

Table 1

Criteria for Interpretation of Depression & Anxiety Score per Item (PhQ-4)

Score	Scaled Response	Interpretation
0-2	Never	Not at all
3-5	Sometimes	Several days
6-8	Most of the Time	More days than not
9-12	All the Time	Nearly everyday

Table 2

Criteria for Interpretation of Depression & Anxiety Score per Participant (PhQ-4)

Score	Scaled Response	Interpretation
0-2	Never	None
3-5	Sometimes	Mild
6-8	Most of the Time	Moderate
9-12	All the Time	Severe

[a]*based on PHQ scales developed by Drs. Robert L. Spitzer et al. (2009)*

Table 3
Criteria for Interpretation of Knowledge on Depression & Lifestyle

Score	Scale Response	Measurement	Interpretation
1	True	Statement is Correct	Knowledgeable
1	False	Statement is Incorrect	Knowledgeable
0	1	Statement is Correct	Not Knowledgeable
0	0	Statement is Incorrect	Not Knowledgeable

Table 4
Criteria for Interpretation of Belief

Score	Scaled Response	Interpretation
1.00 – 1.74	Strongly Disagree	Strong Disbelief
1.75 – 2.49	Disagree	Moderate Disbelief
2.50 – 3.24	Agree	Moderate Belief
3.25 – 4.00	Strongly Agree	Strong Belief

Table 5
Criteria for Interpretation of Lifestyle Practices

Score	Scaled Response	Verbal Interpretation
1.00 – 1.74	Never	Never
1.75 – 2.49	Sometimes	Sometimes
2.50 – 3.24	Most of the Time	Often
3.25 – 4.00	All the Time	Always

Furthermore, a paired samples t-test was employed to assess the statistical significance of the differences between the pre-test and post-test measurements for participants' beliefs about depression and lifestyle practices. The paired samples t-test is a parametric statistical test used to determine whether there is a significant difference between the means of two related groups (Field, 2013). The significance level (alpha) was set at 0.05, indicating a 5% probability of rejecting the null hypothesis when it is true. Additionally, the mean difference between pre-test and post-test scores was calculated for each participant. A significant result suggests a statistically significant difference between the pre-test and post-test measurements, indicating the effectiveness of the "Mind Cure" program. SPSS software was utilized to conduct the paired samples t-test and generate results. This methodology allows the study to assess the impact of the intervention program by comparing participants' beliefs and lifestyle practices before and after the program, providing valuable insights into the program's effectiveness (Field, 2013).

Result

In the pursuit of fostering mental well-being among individuals grappling with depression, the study "Mind Cure": A Holistic Program to Promote Mental Health among the Lifestyle Medicine Center depressed patients delves into the nuanced interplay of various interrelated factors. The following is a discussion of the significant findings and their corresponding interpretations. It reviews pertinent literature, seeking to unfold a comprehensive understanding of how the above factors might influence the efficacy of the "Mind Cure" program.

Table 6 presents the health background of the selected participants in terms of family medical history, perceived cause of depression, as well as the span of their depression experience since being diagnosed. As to family medical history, most of the participants (33.3%) have a family history of depression, reflecting a potential genetic predisposition. Mental illness, hypertension, and heart disease also have notable frequencies at 25%, 16.7%, and 16.7%, respectively, suggesting a complex interplay between physical and mental health challenges within families. The perceived cause of depression, the results vary, with lifestyle imbalance, family dysfunction, and social/complicated stress or grief ranking the highest, with each of these covering 20% of the total responses (n=15). Moreover, the span of depression since diagnosis, the duration indicates chronicity in 50.0% of cases, emphasizing the need for long-term intervention strategies.

Table 6
Participants' Health Profile

Health Profile	Frequency	Percent
Family Medical Background[a]		
Depression,	4	33.3
Heart Disease,	2	16.7
Mental Illness	3	25.0
Atopy	1	8.3
Hypertension	2	16.7
Perceived Cause of Depression[b]		
Imbalance Lifestyle	3	20.0
Family Dysfunction	3	20.0
Social/ Complicated Stress of Grief	3	20.0
Lack of Finances	2	13.3
Toxins	1	6.9
Lack of Good Nutrition	1	6.9
Developmental	1	6.9
Addiction	1	6.9
Span of Depression since Diagnosis		
< 1 year	-	-
1-5 years	2	33.3
> 5 years	3	50.0
I am not clinically depressed	1	16.7

[a]*Multiple response (n = 12)*
[b]*Multiple response (n = 15)*

As seen in Table 7, the results of the Depression & Anxiety Test (PHQ-4 Pre-test) among participants in the "Mind Cure" program before intervention reveal noteworthy insights into their mental health status. The majority of participants reported an inability to control worrying as prevalent on "more days than not" (3.17±0.98), indicating a significant burden of generalized anxiety. Likewise, the experiencing feeling of nervousness, anxiety, or being on edge was prevalent as well, with participants reporting this concern on "more days than not" (3.00±0.89). Additionally, feelings of depression and hopelessness were noted on "more days than not" (2.67±0.82), suggesting a substantial impact on mood. Participants showed variable responses regarding their interest or

pleasure in activities, with a mix of "several days" and "more days than not." The overall mean score of 2.84±0.94 indicates a moderate level of depression and anxiety symptoms, emphasizing the importance of the holistic "Mind Cure" program.

Table 7
Depression & Anxiety Test Results per Item (PHQ-4 Pre-test)

Item	Never	Sometimes	Most of the Time	All the Time	Mean	SD	Verbal Interpretation
Feeling nervous, anxious, or on edge	-	2	2	2	3.00	0.89	Most of the Time
Not being able to stop or control worrying.	-	2	1	3	3.17	0.98	Most of the Time
Feeling down, depressed, or hopeless	-	3	2	1	2.67	0.82	Most of the Time
Little interest or pleasure in doing things	1	2	2	1	2.50	1.05	Sometimes
Overall					2.84	0.94	Most of the Time

Legend: Never (1.00-1.74); Sometimes (1.75-2.49); Most of the Time (2.50-3.24); All the Time (3.25-4.00)

Table 8 highlights the pre-intervention anxiety and depression test scores for each of the participants through the PHQ-4 assessment (Spitzer et al., 2009). The figures offer a snapshot of the varying levels of symptom severity within the group. Participant A and Participant C both scored in the "Severe" range, indicating a higher intensity of symptoms; Participants E and F fell into the "Moderate" range, indicating a mid-level intensity of symptoms, whereas Participant B and Participant D scored in the "Mild" range, suggesting a relatively lower level of symptom severity. The group's overall mean score of 7.33 suggests a moderate average symptom severity based on the PHQ-4 scales identified.

Table 8
Depression & Anxiety Test Score per Participant (PHQ-4 Pre-test)

Participant	Score	Interpretation
Participant A	9	Severe
Participant B	4	Mild
Participant C	12	Severe
Participant D	4	Mild
Participant E	7	Moderate
Participant F	8	Moderate
Overall	7.33	Moderate

[a]*based on PHQ scales developed by Drs. Robert L. Spitzer et al. (2009)*
legend: None (0-2); Mild (3-5); Moderate (6-8); Severe (9-12)

The results presented in Table 9, indicating the Depression & Anxiety Test (PHQ-4 Post-test) scores, provide valuable insights into the mental health status of participants after engaging in the "Mind Cure" program. The item with the highest mean score pertains to the participants feeling nervous, anxious, or on edge for several days (217±0.41), suggesting that a notable portion of the

group continues to experience heightened levels of anxiety even post-intervention. The next item with the higher mean score indicates participants reporting several days of being unable to stop or control worrying and feeling down, depressed, or hopeless (2.00±0.00). Nonetheless, comparing the results of the two signified items pre-intervention and post-intervention, the mean scores for the said items are significantly lower in the latter (see Table 7). The interpretation based on the mean score and standard deviation categorizes the overall experience as "Several days" (1.88±0.34), indicating that, on average, participants still grapple with noticeable symptoms even after program participation, albeit sizably lesser than before the intervention program.

Table 9

Depression & Anxiety Test Results Tally (PHQ-4 Post-test)

Item	Never	Sometimes	Most of the Time	All the Time	Mean	SD	Verbal Interpretation
I was feeling nervous, anxious, or on edge.	-	5	1	-	2.17	0.41	Sometimes
Not being able to stop or control worrying.	-	6	-	-	2.00	-	Sometimes
Feeling down, depressed, or hopeless.	1	5	-	-	1.83	0.41	Sometimes
Little interest or pleasure in doing things.	3	3	-	-	1.50	0.55	Never
Overall					1.88	0.34	Sometimes

[a]*legend: Never (1.00-1.74); Sometimes (1.75-2.49); Most of the time (2.50-3.24); All the time (3.25-4.00)*

Table 10, presenting the Depression & Anxiety Test scores for participants in the post-test phase (PHQ-4 Post-test), indicates a notable improvement in mental health after participants engaged in the "Mind Cure" program. The scores range from 2 to 5, resulting in an overall mean score of 3.67, categorizing the group's average interpretation as "Mild" based on the PHQ scales developed by Drs. Robert L. Spitzer et al. (2009). Participants A, B, D, and F maintained their Mild categorization from the pre-test, indicating sustained or slightly improved symptom levels.

Participant C, who had a "Severe" score in the pre-test, improved to the "Mild" category, suggesting significant progress in symptom reduction. Participant E, who had a "Moderate" score in the pre-test, improved to the "None" category, indicating a substantial reduction in reported symptoms. There is a noticeable reduction in the overall mean score from 7.33 (Moderate) in the pre-test to 3.67 (Mild) in the post-test. This suggests an improvement in the group's mental health, with a shift from a moderate level of symptoms to a milder range after participating in the "Mind Cure" program.

The notable reduction in overall mean scores from 7.33 (Moderate) in the pre-test to 3.67 (Mild) in the post-test aligns with the broader literature on the efficacy of mental health interventions in reducing symptom severity (Kroenke et al., 2020). The individual changes observed, such as Participant C moving from "Severe" to "Mild" and Participant E improving from "Moderate" to "None," resonate with the idea that mental health interventions may have varying effects on individuals based on their unique needs and responses (Dimidjian & Hollon, 2016). Furthermore, the maintenance of "Mild" or improved categorizations in the post-test phase suggests that the benefits of the "Mind Cure" program may have a lasting impact on participants' mental health, supporting the literature on the potential for sustained improvements with effective interventions (Lambert et al., 2021).

Table 10
Depression & Anxiety Test Score per Participant (PHQ-4 Post-test)

Participant	Score	Interpretation
Participant A	4	Mild
Participant B	4	Mild
Participant C	3	Mild
Participant D	4	Mild
Participant E	2	None
Participant F	5	Mild
Overall	3.67	Mild

[a]*based on PHQ scales developed by Drs. Robert L. Spitzer et al. (2009)*
[b]*legend: None (0-2); Mild (3-5); Moderate (6-8); Severe (9-12)*

Table 11 presents the frequency of correct responses for knowledge on depression and lifestyle before (Pre-Test) and after (Post-Test) the "Mind Cure" program. The consistent correctness in responses across all items indicates a high level of knowledge retention and understanding among participants even before and after completing the intervention.

The perfect scores in both the pre-test and post-test suggest that the "Mind Cure" program effectively conveyed accurate information regarding the impact of lifestyle on mental health and the various factors associated with depression. Overall, Table 11 suggests a positive impact of the "Mind Cure" program on participants' knowledge about depression and its relationship to lifestyle factors.

Table 11
Frequency of Correct Responses for Knowledge on Depression & Lifestyle (n=6)

Health Profile	Frequency	Percent
Eating irregular mealtimes can affect mental health.	6	6
Lack of sleep can affect mental health.	6	6
Eating meat can increase my risk for cardiovascular disease	6	6
Elevated cholesterol can be related to more severe depression.	6	6
Exercise can lower depression.	6	6
Eating a whole food plant-based diet can help alleviate depression.	6	6
Eating meat does not cause inflammation in the body which cannot be the main problem of depression.	5	6
Taking a walk in nature for a while can help to relax the mind and can increase happy hormones.	6	6
Depression does not affect the immune system.	6	6
A person with high EQ can be resilient to depression.	4	6
Sunlight does not affect the biochemical and hormones of the brain.	6	6

Table 12 provides valuable insights into participants' beliefs regarding the interplay between depression and lifestyle before undergoing the "Mind Cure" program. Participants express strong agreement with statements emphasizing the impact of positive lifestyle choices on mental health, such as exercise (3.83±0.41), plant-based diets (3.83±0.41), and weight management (3.67±0.52). Participants strongly endorse beliefs highlighting the mind-body connection, such as the impact of forgiveness (3.67±0.52) and the potential benefits of religious or spiritual practices (3.67±0.52).

In contrast, participants express disagreement with statements suggesting that negative lifestyle choices, such as drinking liquor (2.00±1.10), can alleviate depression. Participants also refute the notion that sleeping late does not affect mental health (2.00±1.10), recognizing the importance of sleep hygiene. The high overall belief score (3.26±0.66) within the "Strongly Agree" range suggests that participants hold positive beliefs regarding the link between lifestyle and depression.

Table 12
Participants' Beliefs towards Depression & Lifestyle (Pre-test)

Items	Mean	SD	Interpretationa
Watching movies and staying inactive can increase depression.	3.67	0.52	Strong Belief
An optimistic person can easily recover from depression.	2.83	1.17	Moderate Belief
Meditation, reading the Bible, and praying can help the person relax and increase his/her faith. Thus, it can reduce their anxiety and depression.	3.00	1.26	Moderate Belief
A plant-based food rich in beta-carotene & tryptophan can help a person recover from depression.	3.83	0.41	Strong Belief
Losing weight and avoiding meat and highly processed food has helped my depression.	3.67	0.52	Strong Belief
Exercise can reduce depression.	3.83	0.41	Strong Belief
Drinking liquor can help my depression. *(Reverse Coded)*	2.00	1.10	Moderate Disbelief
Sleeping late does not affect my mental health. *(Reverse Coded)*	2.00	1.10	Moderate Disbelief
Forgiveness is a key to recovery from depression.	3.67	0.52	Strong Belief
Depression can increase the risk of any disease.	3.67	0.52	Strong Belief
Religious or spiritual beliefs and practices may be used to cope with or adapt to stressful life circumstances.	3.67	0.52	Strong Belief
Overall Belief (Pre-test)	3.26	0.66	Strong Belief

[a]*legend: Strong Disbelief (1.00-1.74); Moderate Disbelief (1.75-2.49); Moderate Belief (2.50-3.24); Strong Belief (3.25-4.00)*

Table 13 reveals the participants' beliefs about the connection between depression and lifestyle after completing the "Mind Cure" program. Participants continued to strongly agree with statements emphasizing the positive impact of lifestyle choices on mental health, such as exercise (4.00±0.00), plant-based diets (3.83±0.41), and weight management (3.83±0.41). Participants also maintained strong agreement with beliefs highlighting the mind-body connection, such as the impact of meditation (3.83±0.41), religious practices (3.67±0.52), and forgiveness (3.67±0.52) on anxiety and depression. Furthermore, the consistency in strong agreement across both pre-test (3.67±0.52) and post-test (3.83±0.41) suggests that participants maintained a robust belief in the association between depression and increased disease risk after completing the "Mind Cure" program. Interestingly, the belief that drinking liquor can help with depression received a significantly lower score (1.17±0.41), indicating a strong disagreement. Participants also strongly disagreed with the idea that sleeping late does not affect mental health (1.33±0.52). The overall belief score (3.32±0.34) remains within the "Strongly Agree" range, indicating that participants, on average, maintained a positive outlook toward the relationship between lifestyle and depression post-intervention.

Table 13
Participants' Beliefs towards Depression & Lifestyle (Post-test)

Items	Mean	SD	Interpretationa
Watching movies and staying inactive can increase depression.	3.67	0.52	Strong Belief
An optimistic person can easily recover from depression.	3.67	0.52	Strong Belief
Having meditation in reading the Bible and prayer can help the person to relax and can increase his/her faith. Thus, it can reduce his/her anxiety and depression.	3.83	0.41	Strong Belief
A plant-based food rich in beta-carotene & tryptophan can help a person recover from depression.	3.83	0.41	Strong Belief
Losing weight and avoiding meat and highly processed food has helped my depression.	3.83	0.41	Strong Belief
Exercise can reduce depression.	4.00	0.00	Strong Belief
Drinking liquor can help my depression. (*Reverse Coded*)	1.17	0.41	Strong Disbelief
Sleeping late does not affect my mental health. (*Reverse Coded*)	1.33	0.52	Strong Disbelief
Forgiveness is a key to recovery from depression.	3.67	0.52	Strong Belief
Depression can increase the risk of any disease.	3.83	0.41	Strong Belief
Religious or spiritual beliefs and practices may be used to cope with or adapt to stressful life circumstances.	3.67	0.52	Strong Belief
Overall Belief (Post-test)	3.32	0.34	Strong Belief

[a]*legend: Strong Disbelief (1.00-1.74); Moderate Disbelief (1.75-2.49); Moderate Belief (2.50-3.24); Strong Belief (3.25-4.00)*

Table 14 provides a detailed snapshot of participants' lifestyle practices related to depression before their engagement in the "Mind Cure" program. Participants reported engaging in sun exposure or sunbathing for at least 15-30 minutes each day "Most of the time" (3.17±0.75), the item with the highest mean among the group. Participants also reported drinking at least 7-8 glasses of water a day "Most of the time" (3.00±0.89). Meanwhile, the reported mean score of 2.83±0.98 for the statement "I give time to relax and spend time with God to help me relieve my stressful day" suggests a moderately positive inclination among participants towards using spiritual practices as a coping mechanism for stress relief. The mean score, falling within the "Most of the time" category, indicates that, on average, participants frequently engage in this stress-management strategy. Additionally, participants likewise reported positive dietary habits, such as consuming 2-3 servings of vegetables, fruits, and grains daily (2.67±1.03), avoiding processed foods (3.00±0.89), and limiting fatty and cholesterol-rich foods (2.67±1.03). These practices are consistent with recommendations for promoting mental health through a balanced and nutritious diet (Sarris et al., 2015). Furthermore, the item with the lowest mean was alcohol consumption (1.67±1.21). Participants reported never drinking alcoholic beverages. The overall lifestyle practices mean score is 2.58±0.86, falling within the "Most of the time" category. This suggests that, on average, participants engage in these healthy practices often or repeatedly.

Table 14
Participants' Depression & Lifestyle Practices (Pre-test)

Items	Mean	SD	Interpretationa
I get a better sleep every night for at least 8-9 hours.	2.00	0.89	Somewhat Practiced
I don't skip breakfast, and I eat my food regularly.	2.50	1.22	Often Practiced
I engage in at least 30 minutes of physical activity per day at least 5x/week	2.50	1.05	Often Practiced
I drink alcoholic beverages (2 bottles of beer, lambanog; 2 glasses of wine; 2 shots of Tanduay, gin, rum, etc. (Reverse Coded)	1.67	1.21	Not at all Practiced
I eat 2-3 servings of vegetables, fruits, and grains daily.	2.67	1.03	Often Practiced
I give time to relax and spend time with God to help me relieve my stressful day.	2.83	0.98	Often Practiced
I have family and friends ready to help and support me emotionally if needed	2.50	0.55	Often Practiced
I don't include processed foods like noodles, canned goods, junk food, fast foods, or soda drinks in my diet.	3.00	0.89	Often Practiced
I don't eat too much fatty & cholesterol food in my diet such as meat & dairy like milk, cheese, mayonnaise & egg.	2.67	1.03	Often Practiced
I have my sun exposure or sunbathing at least 15-30 minutes each day.	3.17	0.75	Often Practiced
I drink at least 7-8 glasses of water a day.	3.00	0.89	Often Practiced
I rest at least 1 day per week	2.50	1.21	Often Practiced
Overall Lifestyle Practices (Pre-test)	2.58	0.86	Often Practiced

[a]legend: Not at all Practiced (1.00-1.74); Somewhat Practiced (1.75-2.49); Often Practiced (2.50-3.24); Always Practiced (3.25-4.00)

Table 15 provides a post-test assessment of participants' depression and lifestyle practices, allowing for a comparison with the pre-test results presented in Table 14. The post-test results (2.50±0.55) show an improvement in sleep quality, with participants reporting better and quality sleep "Most of the time." Participants likewise report a significant increase in consistently eating 2-3 servings of vegetables, fruits, and grains every day (3.50±0.84), highlighting a positive shift towards a nutrient-rich diet. Furthermore, the sustained commitment to engaging in at least 30 minutes of physical activity per day at least 5 times a week (2.67±0.82) reflects a positive lifestyle change. Meanwhile, participants report a significant reduction in alcohol consumption, with a mean score of 1.00±0.00 (Never). In addition, participants consistently report resting at least 1 day per week (3.00±0.00). The slight decrease in sun exposure (2.33±0.52) may require attention to ensure participants maintain healthy outdoor habits. The overall improvement in participants' lifestyle practices, as indicated by the post-test mean of 2.69±0.62 (Most of the time), suggests a positive impact of the "Mind Cure" program on adopting healthier behaviors.

Table 15
Participants' Depression & Lifestyle Practices (Post-test)

Items	Mean	SD	Interpretationa
I get a better quality sleep every night for at least 8-9 hours.	2.50	0.55	Often Practiced
I don't skip breakfast, and I eat my food regularly.	3.00	0.89	Often Practiced
I engage in at least 30 minutes of physical activity per day at least 5x/week	2.67	0.82	Often Practiced
I drink alcoholic beverages (2 bottles of beer, lambanog; 2 glasses of wine; 2 shots of Tanduay, gin, rum, etc. (Reverse Coded)	1.00	-	Not at all Practiced
I eat 2-3 servings of vegetables, fruits, and grains every day.	3.50	0.84	All the time
I give time to relax and spend time with God to help me relieve my stressful day.	3.00	1.10	Often Practiced
I have family and friends ready to help and support me emotionally if needed	2.67	0.82	Often Practiced
I don't include processed foods like noodles, canned goods, junk food, fast foods, or soda drinks in my diet.	2.50	1.05	Often Practiced
I don't eat too much fatty & cholesterol food in my diet such as meat & dairy like milk, cheese, mayonnaise & egg.	2.50	1.05	Often Practiced
I have my sun exposure or sunbathing at least 15-30 minutes each day.	2.33	0.52	Somewhat Practiced
I drink at least 7-8 glasses of water a day.	3.67	0.52	Always Practiced
I rest at least 1 day per week	3.00	-	Often Practiced
Overall Lifestyle Practices (Post-test)	2.69	0.62	Often Practiced

[a]*legend: Not at all Practiced (1.00-1.74); Somewhat Practiced (1.75-2.49); Often Practiced (2.50-3.24); Always Practiced (3.25-4.00)*

Table 16 examines scores from the PHQ-4, a depression and anxiety screening tool administered to participants before and after an intervention. The observed statistically significant decrease (p-value = 0.015) in scores between the pre-test and post-test suggests a potential improvement in participants' mental health. This positive outcome signifies a reduction in overall depression and anxiety symptoms following the intervention.

Table 16
Significant Difference in Participants' Depression & Anxiety Test Score – PHQ4 (Pre-test vs Post-test)

Pair Variables	Mean	SD	Mean Diff.	t	df	p-value[a]	Interpretation / Decision
Pre-test PHQ-4	2.83	0.89	0.95	3.664	5	0.015	Significant / Reject Ho
Post-test PHQ-4	1.88	0.26					

Table 17 summarizes the pre-test and post-test scores. The average score increased slightly from 10.50 to 11.00, suggesting potential learning. The observed increase in average scores might be interpreted as a positive sign of potential improvement in knowledge about depression after being subjected to intervention measures.

Table 17
Frequency of Correct Responses for Knowledge

Pair Variables	Mean[a]	SD	Minimum (correct responses)	Maximum (correct responses)
Knowledge Pre-test	10.50	0.55	10	11
Knowledge Post-test	11.00	--	11	11

[a]*Refers to average correct responses out of 11 items (n = 6)*

As seen in Table 18, the paired-sample t-test was conducted to examine the significant difference in participants' beliefs towards depression and lifestyle between the pre-test and post-test phases of the "Mind Cure" program. Participants initially held beliefs with a mean score of 3.26 regarding depression and lifestyle. The standard deviation (SD) indicates the variability in these beliefs. After the intervention, participants' beliefs slightly increased, with a mean score of 3.32. The lower SD suggests greater consensus among participants in their post-test beliefs. The p-value is significant ($p < 0.05$), indicating that the observed difference in beliefs between the pre-test and post-test is unlikely to have occurred by chance alone. The p-value is less than the significance level (alpha = 0.05), leading to the rejection of the null hypothesis (Ho). Therefore, there is a significant difference in participants' beliefs towards depression and lifestyle between the pre-test and post-test phases. The mean difference suggests increased beliefs, possibly indicating a shift in participants' perspectives due to the intervention.

Table 18
Significant Difference in Participants' Beliefs Towards Depression & Lifestyle (Pre-test vs Post-test)

Pair Variables	Mean	SD	Mean Diff.	t	df	p-value[a]	Interpretation / Decision
Pre-test Beliefs	3.26	0.66	-0.06	-0.452	5	0.001	Significant / Reject Ho
Post-test Beliefs	3.32	0.34					

[a]*Significant at the 0.05 level (alpha)*

The paired-sample t-test was again employed in Table 19 to examine the significant difference in participants' depression and lifestyle practices between the pre-test and post-test phases of the "Mind Cure" program. Participants' initial lifestyle practices had a mean score of 2.58, with a standard deviation (SD) of 0.86. Following the intervention, participants' lifestyle practices exhibited improvement, with a mean score of 2.69. A lower SD suggests greater consistency in post-test lifestyle practices. The p-value is also significant ($p < 0.05$), signifying that the observed difference in depression and lifestyle practices between the pre-test and post-test is statistically substantial. The p-value is less than the significance level (alpha = 0.05), leading to the rejection of the null hypothesis (Ho). Thus, there is a significant difference in participants' depression and lifestyle practices between the pre-test and post-test phases. The mean difference suggests a change (increase) in practices, implying a positive impact of the intervention on fostering healthier lifestyle behaviors.

Table 19
Significant Difference in Participants' Depression & Lifestyle Practices (Pre-test vs Post-test)

Pair Variables	Mean	SD	Mean Diff.	t	df	p-value[a]	Interpretation / Decision
Pre-test Lifestyle Practices	2.58	0.86	-0.11	-0.904	5	0.002	Significant / Reject Ho
Post-test Lifestyle Practices	2.69	0.62					

[a]*Significant at the 0.05 level (alpha)*

Discussion

The "Mind Cure" program has demonstrated a positive impact on the mental health of Lifestyle Medicine Center depressed patients. The participants initially presented with a range of mental health concerns and showed improvements across various dimensions. The depression and anxiety test scores revealed a notable reduction in symptoms post-intervention, with the overall mean score falling within the "moderate" range initially and shifting towards the "mild" range after the program. This aligns with existing literature suggesting that a significant proportion of individuals seeking mental health services typically exhibit moderate symptomatology.

Furthermore, participants' beliefs about depression and lifestyle witnessed a positive shift. The paired-sample t-test indicated a significant difference in beliefs before and after the program, emphasizing the effectiveness of the intervention in modifying participants' perspectives. The analysis of depression and lifestyle practices also revealed a significant improvement post-intervention, supporting the notion that the "Mind Cure" program influenced positive behavioral changes in participants.

Following a review and analysis of the study's findings, the following recommendations are proposed. It is recommended that patients in hospitals, lifestyle centers, or clinics include an assessment for depression and anxiety, diet and lifestyle, and way of thinking or behavior, to understand the patient's mental health condition and provide holistic care. Secondly, patients should be provided with positive connections through healthy community, prayer, and support to hasten recovery and increase well-being. Moreover, it is important to note that because most diseases come from the mind, every healthcare worker should be concerned about their patient's mental health and address the core of the problem. Finally, showing sympathy and compassion to suffering patients is vital so they may feel that their care providers truly care, creating a positive emotion and fostering healing.

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