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**UNIMAS Undergraduate Nursing Students' Knowledge and Attitude
Towards Cancer Care**

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This project is submitted in partial fulfilment of the requirements for the degree of
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Faculty of Medicine and Health Sciences

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DECLARATION

I hereby declare that this Final Year Project research entitle ‘UNIMAS Undergraduate Nursing Students’ Knowledge and Attitude Towards Cancer Care’ has been carried out originally by me at Faculty of Medicine and Health Sciences, UNIMAS during the period of October 2024 until July 2025 under supervision. I certify that all references used have been properly acknowledged. I further declare that this research has not been submitted to any other university or institute for the award of any degree or diploma.



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ABSTRACT

Introduction: Cancer incidence is rising globally with Asia experiencing a high burden. In Malaysia, this necessitates a well-prepared nursing workforce. This study addressed a critical gap in understanding undergraduate nursing students' knowledge and attitudes toward cancer care, aiming to inform targeted educational interventions.

Objectives: This study measured the level of knowledge, identified the level of attitude, and determined the relationship between knowledge and attitude regarding cancer care amongst undergraduate nursing students at UNIMAS.

Methodology: A quantitative, cross-sectional design was used to survey 162 randomly selected undergraduate nursing students at UNIMAS. Data was collected using a validated, self-administered questionnaire assessing demographics, knowledge of cancer treatment, and attitudes towards cancer care.

Results: Over half of the students (53.7%) demonstrated high knowledge levels, though deficits were noted in areas like chemotherapy and radiotherapy side effect management (46.3% exhibiting low knowledge). A majority (69.1%) reported negative attitudes towards cancer care. No statistically significant correlation was found between knowledge scores and attitudinal scores ($r_s = -.072, p < .361$).

Conclusion: While many students possess foundational knowledge, a substantial proportion hold negative attitudes potentially hindering quality patient care. The lack of correlation between knowledge and attitudes underscores the need for educational reform prioritizing not only knowledge acquisition but also the development of positive attitudes and emotional resilience in cancer care.

Keywords: nursing students, knowledge, attitude, cancer care

ABSTRAK

Pendahuluan: Penyakit kanser semakin meningkat di seluruh dunia dan Asia mengalami beban yang tinggi. Di Malaysia, kita memerlukan jururawat yang terlatih dan bersedia untuk memberikan penjagaan yang terbaik kepada pesakit kanser. Kajian ini menangani jurang kritikal dalam memahami pengetahuan dan sikap pelajar kejururawatan sarjana muda terhadap penjagaan kanser, dengan tujuan untuk memaklumkan perlunya pendidikan yang didasarkan.

Objektif: Kajian ini mengukur tahap pengetahuan, mengenal pasti tahap sikap, dan menentukan hubungan antara pengetahuan dan sikap mengenai penjagaan kanser dalam kalangan pelajar kejururawatan sarjana muda di UNIMAS.

Metodologi: Kuantitatif, kajian keratan rentas telah digunakan untuk meninjau 162 pelajar kejururawatan sarjana muda yang terpilih secara rawak di UNIMAS. Data dikumpulkan menggunakan soal selidik sendiri yang telah disahkan, untuk menilai demografi, pengetahuan tentang rawatan kanser, dan sikap terhadap penjagaan kanser.

Keputusan: Lebih daripada separuh pelajar (53.7%) menunjukkan tahap pengetahuan yang tinggi, walaupun terdapat kekurangan dalam bidang seperti pengurusan kesan sampingan kemoterapi dan radioterapi (46.3% menunjukkan pengetahuan yang rendah). Majoriti (69.1%) mempunyai sikap negatif terhadap penjagaan kanser. Tiada korelasi yang signifikan secara statistik ditemui antara skor pengetahuan dan skor sikap ($r_s = -.072$, $p < .361$).

Kesimpulan: Walaupun ramai pelajar kejururawatan mempunyai pengetahuan asas tentang kanser, sebahagian besar mempunyai sikap negatif yang berpotensi menghalang penjagaan pesakit yang berkualiti. Kekurangan korelasi antara pengetahuan dan sikap menunjukkan keperluan untuk pembaikan pendidikan yang mengutamakan bukan sahaja pemerolehan

pengetahuan tetapi juga pembangunan sikap positif dan ketahanan emosi dalam penjagaan kanser.

Kata Kunci: Pelajar kejururawatan, pengetahuan, sikap, penjagaan kanser

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CHAPTER 1:

INTRODUCTION

1.0 Introduction

In this chapter, the introduction comprises the background of the study in section 1.1, problem statement in section 1.2, research question in section 1.3, and continues with the research aim and objectives. Then, the sections continue with the significance of the study, operational definitions of key terms, which include the concept definitions and operational definitions in section 1.6. Last but not least, a summary is presented at the end of this chapter.

1.1 Background of Study

Cancer ranks as one of the major causes of death globally, placing a significant burden on healthcare systems worldwide. Asia has the greatest cancer death rate, accounting for 56.1% of the global population across all age groups, according to the GLOBOCAN Report 2022, revealed by the International Agency for Research on Cancer and the World Health Organization (Bray et al., 2024). Based on the Summary of the Malaysia National Cancer Registry Report 2017-2021, the number of cancer cases increased from 115,528 to 168,823, which represents a rate of 46.5% (National Cancer Institute, 2024). More than 50,000 cases of cancer were recorded in Malaysia in 2017-2021, and by 2040, the incidence is expected to be double (Schlieman et al., 2020). Thus, nurses have been essential in teaching and assessing cancer patients in addition to helping with the consistent care required to deal with the long-term effects of medical problems (Altre & Chou, 2021). Enhancing patient outcomes requires an awareness of undergraduate nursing students' abilities in caring for cancer patients, since they are the future of the healthcare workforce (Hedenstrom et al., 2021).

During their nursing practicum, students often gain knowledge regarding the treatment of patients who are admitted to the hospital for diagnostic tests or an acute illness. In addition to the various medical services and treatments, patient safety and their high infection risks make it challenging to teach nursing students how to appropriately provide management for cancer patients. According to Seok and Suh (2022), students struggle to learn about the ongoing care needs of cancer patients in terms of daily life during their clinical practicum. Various instructional materials outside clinical practicum courses, such as nursing educational apps, must be created to address these problems and better equip nursing students in caring for cancer patients.

Thus, this study aims to determine to understand the knowledge and attitudes of undergraduate nursing students regarding cancer care. According to Kutluturkan et al. (2023), the results of this study pointed out possible knowledge gaps and highlighted the need for teaching methods and student behaviour changes for nursing students. Additionally, this helped future nurses better understand how to meet the complicated demands of cancer patients and their families, which will eventually result in higher-quality treatment.

1.2 Problem Statement

Cancer care begins with prevention and pain control, but the stigma affects how the community views cancer and the care itself (Elangovan et al., 2017). There are worries that, to give patients high-quality care, education is necessary to support and enhance attitudes towards cancer. Due to a lack of research in this field, studies have suggested that undergraduate nursing courses may not adequately address students' knowledge and attitudes towards cancer care (Hedenstrom et al., 2021). A study by Depacaquivo et al. (2024) reveals that nursing student faced emotional and practical challenges in their oncology placement due to their lack of knowledge and experience in cancer care, which causes them to have

difficulties in providing care. Kapucu and Bulut (2017) indicate that nursing students who care for cancer patients may have negative feelings and attitudes, which include communication problems, fear of death, feeling of pity, and sadness towards cancer patients.

Both undergraduate and graduate students displayed a range of misconceptions regarding their future involvement in cancer treatment when they began working in their clinical settings (Altre & Chou, 2021). This shows a knowledge gap among students, as the majority of nursing program classes concentrate on fundamental science and acute cases of treatments and interventions. Even though nursing syllabi have increasingly included supportive care and palliative care for cancer survivors who have completed their treatment, undergraduate nursing students may still have a knowledge gap regarding these concepts and the transition to survivorship. Furthermore, a number of studies have already been done to investigate registered nurses' attitudes towards the treatment of cancer patients in oncology settings (Hedenstrom et al., 2021; Edwards et al., 2015; Kapucu & Bulut, 2017; Dedeli et al., 2016). However, only a few studies have done to evaluate the treatment and care of cancer patients from students' perspectives and their understanding of cancer (Sharour et al., 2017). Besides, there are also a few research that comprehensively addressed cancer care in nursing (Hedenstrom et al., 2021).

This study fills this knowledge gap by examining undergraduate nursing students' present attitudes and knowledge about cancer care. In order to improve patient outcomes and meet the growing demand for qualified oncology nurses, a better understanding of students' knowledge and attitudes will provide the necessary information for the development of focused educational interventions to increase the students' readiness to provide high-quality cancer care both during clinical placements and their working career.

1.3 Research Questions

This study addresses the following questions:

1. What is the level of knowledge towards cancer care among UNIMAS undergraduate nursing students?
2. What is the level of attitudes towards cancer care among UNIMAS undergraduate nursing students?
3. What is the relationship between knowledge and attitudes towards cancer care among UNIMAS undergraduate nursing students?

1.4 Research Objectives

The general objective of this study is to determine nursing students' knowledge and attitudes towards cancer care.

The objectives of the research are:

1. To measure the level of knowledge towards cancer care among UNIMAS undergraduate nursing students.
2. To identify the level of attitudes towards cancer care among UNIMAS undergraduate nursing students.
3. To determine the relationship between knowledge and attitudes towards cancer care among UNIMAS undergraduate nursing students.

1.5 Hypotheses

Hypothesis: There is a significant relationship between knowledge and attitudes towards cancer care among UNIMAS undergraduate nursing students.

1.6 Significance of the Study

For undergraduate nursing students, this study's findings highlight knowledge gaps and misconceptions among nursing students regarding cancer care. This information is crucial for revising and enhancing the nursing program to ensure that future nurses are adequately prepared to provide high-quality cancer care. Identifying potential knowledge gaps that can introduce information for targeted educational interventions to increase their readiness and interests to practice in oncology nursing (Hedenstrom et al., 2021). By understanding students' attitudes towards cancer patients and their care, the study can identify potential biases or anxieties that might affect their future professional practice. Addressing these attitudes early in their education can foster a more confident approach in caring for cancer patients (Depacaquivo et al., 2024). This is critical given the emotional and physical challenges faced by cancer patients and their families.

For nursing in general, if negative attitudes or lack of knowledge are identified, interventions can be implemented to promote oncology nursing as a rewarding and fulfilling career path and could address the ongoing shortage of oncology nurses. Furthermore, it can inform the need to improve cancer education and support for both nurses and patients. This could introduce information that suggests policy changes aimed at enhancing cancer care in nursing curricula (Altre & Chou, 2021).

1.7 Operational Definition of Key Terms

Here are the conceptual and operational definitions for the key terms tailored to this study:

1. Nursing Students

Individuals who are enrolled in a professional nursing education program (Emire et al., 2022).

Nursing students in this study refer to the participants in this research, who are undergraduate students registered in the Bachelor of Nursing with Honours programme at UNIMAS.

2. Knowledge

An understanding, recognition, or awareness of facts, data, or abilities developed through study or education (Gilan, 2022). In this study, knowledge is applied to the level of awareness and understanding of undergraduates in nursing regarding cancer care. This includes knowledge of the nursing management of treatments and care for cancer patients. The questionnaire for this key term is measured by using true, false, and 'don't know' options. To determine the score of the findings, a pre-determined set of correct answers will be used. Correct answers will be scored as 1 point, then incorrect answers or those who answered "Don't know" will be scored as 0. The score will then be counted up to a maximum of 22. The mean will be used to set a cut-off point at the median score, as above 11 will be determined as high knowledge, while lower than 11 as low knowledge.

3. Attitudes

A predisposition to respond positively or negatively toward a certain concept, individual, or condition (Sanchez et al., 2016). Attitudes in this study represent the feelings, beliefs, and predispositions undergraduate nursing students hold towards cancer patients and their care. The items of the questionnaire to be used to evaluate this key term will be measured by using 4 Likert scale responses which includes agree, slightly agree, disagree, and undecided. The

scoring of each scale will be as follows: Disagree will be scored as 1; Slightly Agree will be scored as 2; Agree will be scored as 3; and Undecided will be scored as 0. The scores of each item will be totalled, and the cut-off levels to determine positive and negative attitude was set at the median score. Scores that are higher than 33 indicate more negative attitudes and difficulty of care towards cancer patients, while scores lower than 33 indicate positive attitudes that the students have towards practices on cancer patients.

4. Cancer Care

A comprehensive guideline with strategies for managing and preventing psychological and physical issues in cancer patients (Mollica et al., 2024). Cancer care in this study refers to the comprehensive range of nursing management and care provided to individuals diagnosed with cancer. This includes nursing management of patients undergoing chemotherapy or radiotherapy.

1.8 Summary

In summary, given the substantial global mortality rate and the consequent strain on healthcare systems worldwide attributable to cancer, a comprehensive understanding of undergraduate nursing students' knowledge and attitudes concerning cancer care is crucial. This study, therefore, aims to thoroughly investigate these aspects among undergraduate nursing students. The findings will be instrumental in developing focused and effective educational interventions designed to enhance the quality of future cancer management and care provided by these students upon entering the nursing career.

CHAPTER 2:

LITERATURE REVIEW

2.0 Introduction

The selected articles used in this literature review are recently published journals and articles from 2015-2025, which were gathered from PubMed, ResearchGate, Google Scholar, and other relevant sources. This review was organized into three sections: the knowledge towards cancer treatments and care, the attitudes towards cancer care, and the relationships between knowledge and attitudes towards cancer care. Consequently, identifying the knowledge and attitudes of cancer care among nursing students is a crucial research topic. Therefore, this chapter will revolve around the connection between knowledge and attitudes towards cancer care among students in nursing students.

2.1 Knowledge towards Cancer Care

Most registered nurses reported that they have a knowledge gap in taking care of cancer patients' psychosocial well-being, despite being familiar with the nursing management for the patient's physical well-being during treatments (Altre & Chou, 2021). In order for nursing students to take part in the care of cancer patients, they require correct knowledge, mentoring, and good role models. According to Hedenstrom et al. (2021), when caring for cancer patients, nurses and students in nursing feel more confident when they are more knowledgeable. Given their symptoms and the adverse effects of their treatments, cancer patients require specialised care. Thus, nurses who work with them must be skilled and well informed in oncology. Nursing students who engage in successful clinical classroom and clinical practice have demonstrated a beneficial impact on their knowledge and attitudes on caring for patients with cancer (Hedenstrom et al., 2021). After completing training, nurses and student nurses are reported to have positive views towards cancer

patients. However, a study by Edwards et al. (2015) found that interventions to improve cancer care education did not show a significant impact on reducing negative attitudes, but they can help nursing students to gain knowledge and clinical skills that enhance their confidence.

A pilot evidence-based educational project that was developed by Altre and Chou (2021) stated that exceptional learning, skill-building programs, or training courses toward cancer care can give healthcare workers the knowledge and attitude they need to attend to cancer patients' treatment. The study revealed that a combination of initiatives of a short program that involves lecture, discussion, and reflection can enhance nursing students' skills, knowledge, and attitudes towards cancer survivorship. Additionally, it was shown that an observational educational experience in an oncology setting enhances nursing students' understanding of cancer care needs (Powell et al., 2019).

Kapucu and Bulut (2017), who examined the experiences of student nurses in providing cancer care, also supported the necessity for education and mentorship to improve knowledge on cancer care among nursing students. They found positive effects for nursing students to have effective preclinical preparation for cancer care and recommended that students who plan to work in oncology settings should possess adequate preclinical knowledge and skills. They also suggested the need for a graded and continuous practical training course for the care of cancer patients, which includes lectures, group discussions, mentorship, and role modelling by staff and teachers, elective courses, and appropriate clinical placements. This is further proven by Hedenstrom et al. (2021), who identified that education, mentorship, and support for nursing students are important in reducing anxiety and despair, and developing confidence in nursing students in caring for cancer patients.

Consequently, these findings highlighted that the mentorship and educational interventions could strengthen nursing students' capabilities to provide cancer care.

2.2 The Attitudes towards Cancer Care

Although cancer survival rates have improved significantly, unfavourable perceptions of cancer persist within society. Research has demonstrated that registered nurses and nursing students have negative views about cancer (Kutluturkan et al., 2023). According to the literature analysed by Kapucu and Bulut (2017), it was identified that nursing students are just as afraid of developing cancer and dying as their patients. These negative feelings may have been influenced by cultural factors. 78.3% of nursing students who had never had a family member with cancer reported several difficulties they had in providing care to cancer patients. However, in a study conducted by Kutluturkan et al. (2023), those who have family members or someone close to them with a cancer diagnosis also had a high level of negative attitudes, particularly about disclosing the cancer diagnosis to others. Psychosocial issues are the causes of this, as cancer patients and their relatives typically hide their diagnoses from others to prevent issues and prejudice at work, home, and in society.

Kapucu and Bulut (2017) reported that the majority of student nurses experienced negative emotions in caring for cancer patients, such as fear, anxiety, pity, and sadness. They also frequently expressed a fear of developing cancer, which prevented them from pursuing careers in oncology. The nursing students also reported various challenges that affected their ability to offer appropriate care to cancer patients, such as communication difficulties, physical care challenges, and ineffective treatment because of their lack of experience. Moreover, the study by Hedenstrom et al. (2021) revealed that nursing students' beliefs toward patients were adversely affected by ineffective communication, self-doubt, and challenges in delivering cancer care physically. Students' negative beliefs were caused by

their lack of experience and knowledge, and fear towards patients and their families. This was also supported by Depacaquivo et al. (2024), stating that students' lack of experience in cancer care causes them to have difficulties in delivering high-quality care.

According to Depacaquivo et al. (2024), who analysed the nursing students' experiences caring for cancer patients during their oncology placement, the nursing students had both practical challenges and emotional issues. The researchers stated that student nurses are often afraid of the unknown, which causes them to experience nervousness before starting clinical placements in oncology. Nonetheless, as the students' progress through the program, their attitudes towards cancer and cancer patients may change as they face and interact with more cancer patients in various clinical settings. This shift may seem to be due to their personal experience and educational background (Kutluturkan et al., 2023).

2.3 The Relationship Between Knowledge and Attitudes on Cancer Care

Nurses who are working in non-specialist wards reported that they have an insufficient oncology education and training (Edwards et al., 2015). Inadequate knowledge of cancer may prevent them from giving appropriate cancer care to the patients and their families. According to Kapucu and Bulut (2017), student nurses are often unable to give proper care for cancer patients, and they may even exhibit unfavourable attitudes or behaviours towards them. This is especially true in situations where even professional nurses find it challenging to care for cancer patients. Therefore, the more nursing students learn, the more positive their attitude toward providing support and adequate care for patients with cancer and their caregivers. According to Kutluturkan et al. (2023), the findings proved that nursing students had negative attitudes towards cancer. This finding corroborates previous research's findings that show the inadequate knowledge on cancer care causes the student

nurses to have difficulties in providing care to cancer patients in clinical placement (Sharour et al., 2017; Surucu et al., 2021)

According to Edwards et al. (2015), nursing students who have participated in cancer education programs have better characteristics such as resilience, courage, positivity, and supportive towards patients. These results seemed to support the claim that education encouraged positive attitudes. Hedenstrom et al. (2021) also revealed that educational programs in enhancing knowledge can improve nursing students' skills and confidence, reduce anxiety, and increase knowledge about cancer care and treatment. Additionally, this study identified that in order to give patients high-quality care, students' knowledge must be expanded in order to promote and enhance positive attitudes towards cancer. Furthermore, during their clinical placements, students should be given educational and practical interventions so that they can develop skills towards patients, such as giving the right information, developing empathy, and acknowledging their needs (Kutluturkan et al., 2023).

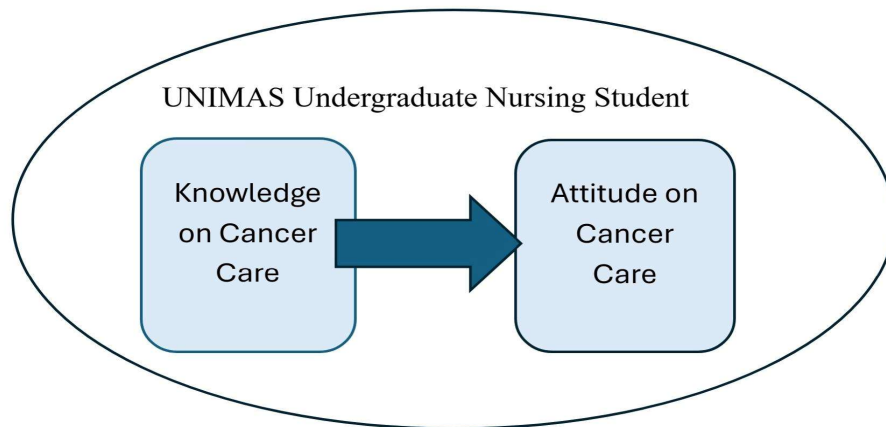
Cancer education inclusion in the undergraduate nursing students' academic program helps them in developing positive attitudes, enhances their field of knowledge, gains experience, and empowers them to approach cancer patients with confidence, all of which contribute to a high standard of care. Such initiatives of developing knowledge and attitudes could boost self-esteem in students in nursing and indirectly improve the quality of care (Hedenstrom et al., 2021). In an innovative teaching method designed to deliver comprehensive cancer care education that encompasses both cancer and survivorship, which was introduced by Edwards et al. (2015), the participants demonstrated good overall knowledge of cancer treatment and care. The students also exhibit better confidence and attitudes in their competency to deliver comprehensive cancer care. According to the findings from the study by Edwards et al. (2015), it is important that cancer education in

cancer care be separated from end-of-life care education so that the students are able to truly develop positive attitudes to cancer care and cancer survivorship.

2.4 Conceptual Framework

Figure 2.1

Conceptual Framework Model



Addressing nursing students' knowledge and attitudes towards cancer patients can ultimately lead to interventions for better patient outcomes. This conceptual framework model is demonstrated in the relationship between knowledge with attitudes toward cancer care among nursing students. In this framework, knowledge is the independent variable, whereas the attitude toward cancer care is the dependent variable. Based on the reviewed literature and Figure 2.1, students' knowledge can influence their attitudes towards cancer patients and their care. Therefore, this study will determine the relationship between these two variables, which are knowledge and attitudes on cancer care among undergraduate nursing students.

2.5 Summary

In summary, the studies reviewed in this chapter reached the same conclusion, whereby they determined that there is a significant correlation exists between knowledge and attitudes in caring for cancer patients by assessing the knowledge and attitudes towards cancer care. The fact that these studies provided recommendations that education and early exposure are needed for better outcomes of nursing students in their clinical curricula and future working journey. The influence of education and mentorship on knowledge and skills towards cancer care was a noteworthy result. Given the growing number of cancer survivors and the impending scarcity of oncology workers, it is critical to incorporate the subject of cancer care and attract students with a demonstrated interest in it early in the workforce development process.

CHAPTER 3:

METHODOLOGY

3.0 Introduction

This chapter presents the research design, research setting, and population. The next section will describe the sampling, which includes sample criteria and sample size, and sampling method. Then, this chapter will further present the research instruments that will be used in this study, ethical considerations, procedures in the pilot study, data collection procedure, and the proposed data analysis. A summary is presented at the end of this chapter.

3.1 Research Design

This research employs a quantitative and cross-sectional design. Cross-sectional studies are known for their efficiency in analysing data from a population at a single point of time (Wang & Cheng, 2020). This design is cost-effective and efficient for measuring health outcomes, identifying health determinants and describing population characteristics, which also could establish preliminary data for future research (Wang & Cheng, 2020). In this study, the findings will contribute to a better understanding of the current state of nursing students' knowledge and their attitudes toward cancer care.

3.2 Research Setting

The study was undertaken at the Faculty of Medicine and Health Sciences, University of Malaysia, Sarawak (UNIMAS).

3.3 Population

The study population in this study is undergraduate nursing students in the nursing programme, UNIMAS. This study includes only degree nursing students from years 1 to 4 nursing students.

3.4 Sampling

Sample criteria

Inclusion criteria:

- a) Enrolled in a nursing programme at UNIMAS
- b) Undergraduate nursing students (include first, second, third-, and fourth-year nursing students)

Exclusion Criteria:

- a) Post-registration nursing students

Sample Size Estimation

The determination of an appropriate sample size is a critical aspect to be included in any research project. A well-calculated sample size can minimize the probability of error while ensuring that the results of the study are reliable and efficient for studying logistics. This will ensure that the resources used for the study can be managed effectively and the research can be completed in a reasonable timeframe. Furthermore, a correctly calculated sample size can significantly increase the probability of achieving research objectives and producing a meaningful result (Martinez-Mesa et al., 2014). Therefore, the Taro Yamane Sample Size Formula is used for this study. The overall number of undergraduate nursing students in UNIMAS is 235, which already excludes post-registration students. Hence, the formula stated is suitable to calculate the sample size population needed for this study among the nursing students, as it is easy to understand.

Taro Yamane's formula:

$$n = \frac{N}{1+Ne^2}$$

Whereby,

n = Sample size

e = Desired level of precision, 5% (0.05)

N = The size of the population (235)

Calculation:

$$n = \frac{235}{1+235(0.05)^2}$$

$$n = 148$$

Calculation after considering a 10% dropout:

$$n = 148 + 10\% \text{ drop out}$$

$$n = 162$$

Thus, based on the calculation, the total number that is required for this study is 162 participants.

Sampling method

This study employed a simple random sampling method. Simple random sampling is a widely accepted and frequently utilized method in quantitative research that utilizes survey instruments (Noor et al., 2022). It is asserted that this method is particularly well-suited for quantitative studies because it provides impartial, representative samples and mitigates the influence of confounding variables for both known and unknown factors that might bias the results. A key advantage of random sampling is that every participant has an equal chance of being selected, which can ensure that the samples are unbiased and could represent a larger population.

To select the samples for this study, a list of students enrolled in the undergraduate nursing program, UNIMAS, from years 1-4 of the nursing program was obtained from the academic office. The list of nursing students was based on the inclusion criteria of this study. Then, every individual was assigned a number. By using a random number generator from a website, a random subset of the population was obtained. The list of names was coded in alphabetical order and arranged based on the year. The names were then included as the study participants.

3.5 Research Instruments

In this study, the data were obtained with a printed self-administered questionnaire, which was distributed to the participants. This set of questionnaires collected the data to identify the undergraduate nursing students' demographic data and determine their knowledge and attitudes towards cancer care. The questionnaire consists of a total of 52 questions. It is adopted and adapted from previous studies, which are Kav et al. (2012), Berger et al. (2018), and Nakamura et al. (2022).

According to Berger et al. (2018), the questionnaire was validated by an expert group of researchers and physicians who reviewed the most relevant items to assess knowledge of cancer treatment. Meanwhile, there were 22 of the Nurses Difficulties in Cancer Care (NDCC) scale used to measure attitudes and difficulties in cancer care (Nakamura et al., 2022). The Cronbach Alpha coefficient for the 2 domains of the questionnaire was 0.69 and 0.73, respectively, which shows an acceptable reliability.

The questionnaire used for this study was divided into 3 sections: Demographic Information Form, Knowledge about Cancer Treatment Care, and Attitudes towards Cancer Care.

Section A: Demographic Information Form

Section A consists of 8 questions of nursing students' demographic data and characteristics regarding cancer knowledge and experience. This includes age, gender, year of program, and personal experiences of caring for cancer patients. They are categorized as independent variables of the study.

Section B: Knowledge of Cancer Treatment and Care

This section contains 22 questions to measure students' knowledge of cancer treatment and care. It also includes nursing management of cancer treatments. The questions are measured by using true, false, and don't know options. The participants must only choose one correct answer for each question in this section. A pre-determined set of correct answers will be applied to determine the score of the data. 1 point score for correct answers, 0 score for incorrect answers or those who chose "Don't Know". The total score will then be up to a maximum of 22. The total score will be used to set a cut-off point at the median score. A total score above 11 will be determined as high knowledge, while lower below 11 is determined as a low level of knowledge.

Section C: Attitudes Towards Cancer Care

This section comprises 22 questions whereby the participants will answer based on their feelings and perceptions of difficulties regarding their care towards cancer patients. The questions are measured by using 4 Likert scale responses which includes agree, slightly agree, disagree, and undecided. The scoring of each scale will be as follows: Disagree will be scored as 1; Slightly Agree will be scored as 2; Agree scored as 3; and Undecided will be scored as 0. The maximum total score will be 66. Thus, the median of the maximum total score will be used to set the cut-off levels to determine positive or negative attitude. Participants with

scores that are higher than 33 indicate more negative attitudes and difficulty in caring for cancer patients. The participant who has lower than 33 points indicates that they have positive attitudes in caring for cancer patients.

3.6 Ethical Consideration

To conduct this study, ethical approval was acquired from the Medical Research and Ethics Committee, Ministry of Health, Malaysia. This study maintains the anonymity of all participants, who were entitled to withdraw from the study at any point in time. Written informed consent was obtained from all participants before their involvement in the study. It is further guaranteed that the identity of the participants will not be disclosed and that their information will be handled confidentially. Necessary permission has been granted to use the scale in the study.

3.7 Data Collection Procedure

3.7.1 Pilot Study

In this study, a pilot study has been carried out to identify any problems with the questions and estimate the length of time needed to complete the questionnaire. It also aims to identify the reliability of the instrument (Elangovan & Sundaravel, 2021). Therefore, 10% of the sample size was selected to participate in this pilot study. 16 respondents who fulfilled the sampling criteria are eligible to take part in the pilot study. These 16 respondents will not be included in the actual study.

Validity and reliability of research instruments are important in the study to ensure an accurate and valid measurement aspect. The validity of the questionnaire was analysed with the Pearson Correlation test. The significance value (Sig. 2-tailed) of each item that is less than 0.05 will be determined as valid. The result of the Pearson Correlation test shows that the questions for knowledge have 13 out of 22 questions that have a significance value

of less than 0.05. The validity test for questions of attitudes shows that 16 out of 22 questions have a significance value of less than 0.05. This shows that both sections of the questionnaire, which are questions of knowledge and attitude, had more than half questions valid to be used to determine the objective of the study. Then, the reliability level will be analysed with the coefficient of Cronbach's Alpha. The value that is more than 0.7 will be considered as acceptable reliability (Mo et al., 2023). From the pilot study, the Cronbach's Alpha value for the knowledge score was 0.753, while the Cronbach's Alpha for the attitude score was 0.918. The reliability of the knowledge score and attitude score is determined as acceptable and excellent, respectively. Thus, the questionnaire was suitable and reliable for this study.

3.7.2 Actual Study

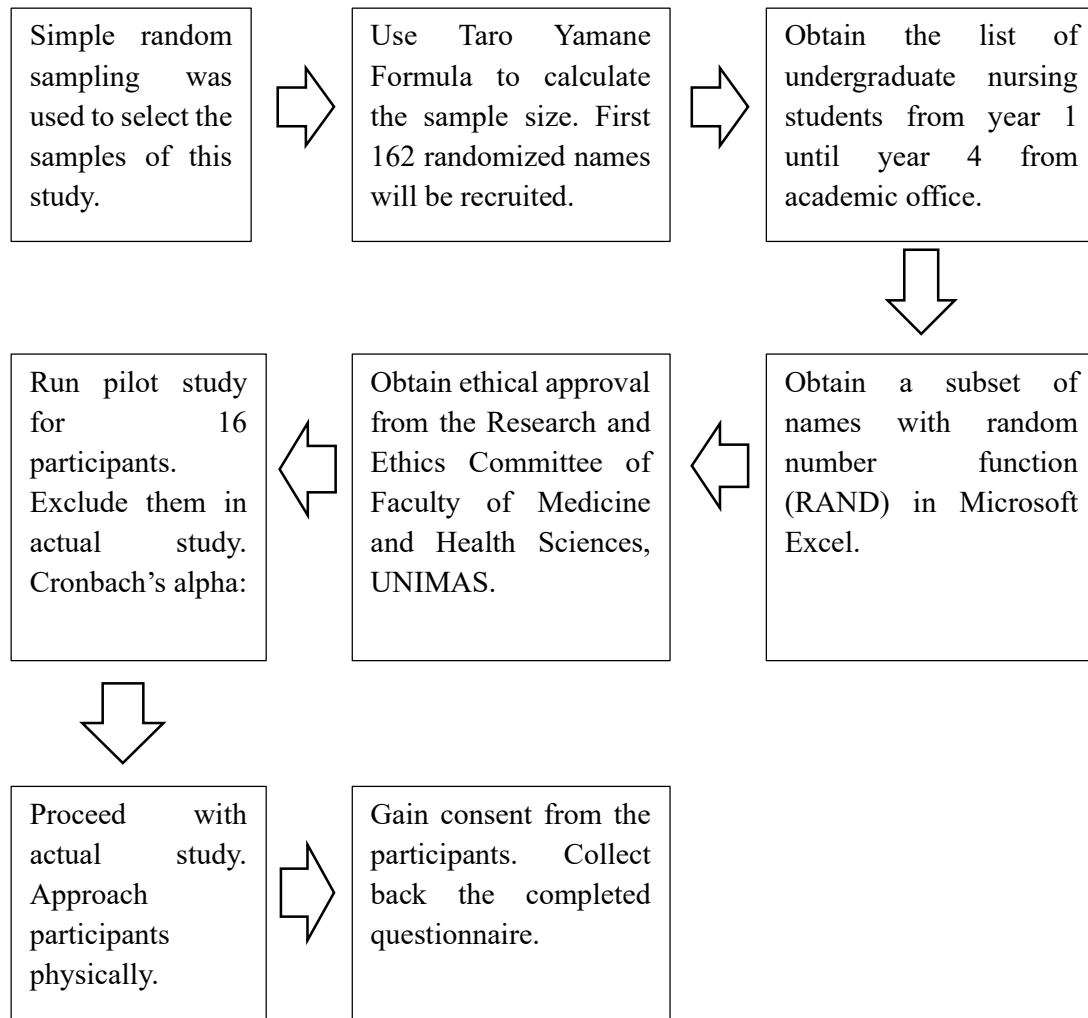
This study employed simple random sampling method to select the samples for this study. A list of students enrolled in UNIMAS undergraduate nursing program from year 1 until year 4 was obtained from the academic office. The list of nursing student was based on the inclusion criteria of this study. Post-registration students were excluded. By using a random number generator with Microsoft Excel, a random subset of the population was obtained. Based on the calculation with Taro Yamane Formula, the total number that is required for this study is 162 participants. Thus, the first 162 randomized names then were included as the study participants.

A paper based (physical) form that includes informed consent form and questionnaire was given to the participants to answer. They were approached physically in respective classrooms and informed about the study and how to fill out the tools. Those who are willing to participate will be asked to sign the informed consent form. The students will complete the questionnaire independently, and will need to be return directly. Any student who are not

willing to participate in the study will be needed to return a blank questionnaire. The procedure of data collection for pilot study and actual study was shown in Figure 3.1.

Figure 3.1

Procedure of Data Collection



3.8 Data Analysis

The data obtained was analysed by using statistical analysis software, IBM Statistical Package for the Social Sciences (SPSS) version 30.0. Descriptive statistics were used to display the data in the form of mean, percentage, and frequencies, which include bar charts and tables. The Kolmogorov-Smirnov test procedure has been computed for interval data to test the normality of the data. Inferential statistics have been utilized to examine the relationship between knowledge with attitude towards cancer care with Spearman Correlation Coefficient test as one of the data is categorical and the other one is numerical continuous data. Spearman Correlation Coefficient will be used either the data distribution for continuous data is normal or not normal. Statistical significance was set on as a *P*-value of less than 0.05. The result of the continuous data shows *P*-value of more than 0.05, indicated the data were normally distributed. Thus, Spearman Correlation Coefficient test was used to determine the relationship between the level of knowledge and attitude towards cancer care among UNIMAS undergraduate nursing students.

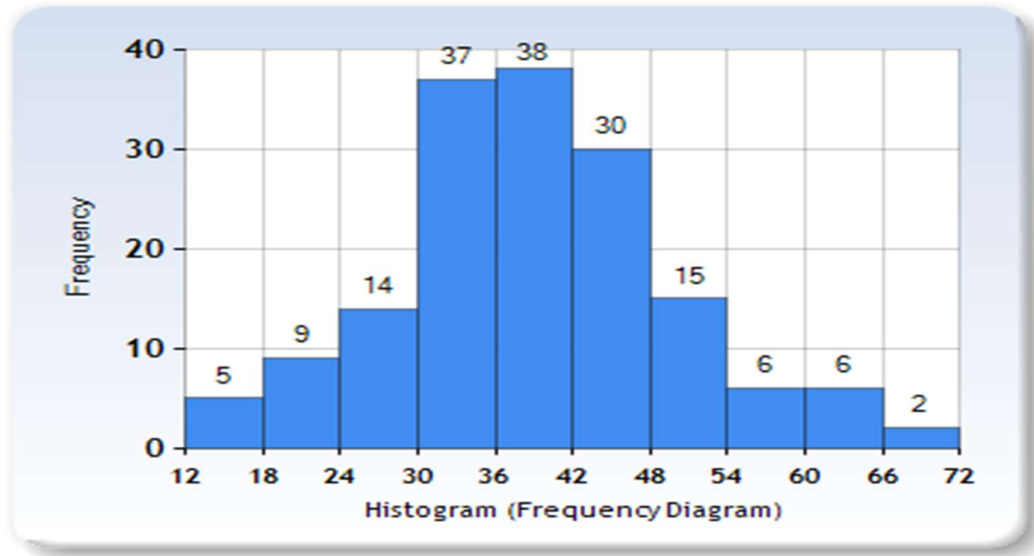
Table 3.1

Normality test for knowledge and attitude score

Item	Descriptive Statistics	Test of Normality (sig)	Interpretation
Knowledge	Mean: 12.08	.004	Not normally
Score	5% Trimmed Mean: 12.03		distributed
Attitude	Mean: 38.69	.200*	Normally
Score	5% Trimmed Mean: 38.59		distributed

Figure 3.2

Histogram of data distribution of the continuous data (Attitude score)



3.9 Summary

In summary, this study is a quantitative and cross-sectional study which was undertaken at Faculty of Medicine and Health Sciences in UNIMAS. This study includes all UNIMAS undergraduate nursing students enrolled in nursing program, excluding post-registration students. The sample size was calculated with Taro Yamane Formula, and the overall participants needed for this study is 162. Sampling method used was simple random sampling. The study instruments consist of three sections and it is a printed self-administered questionnaire which was distributed to the participants individually. Ethical considerations and approval for this study to be conducted have been obtained. The data collection was analyzed with IBM SPSS version 30, which have been used for descriptive and inferential statistical analysis.

CHAPTER 4

RESULTS / FINDINGS

4.0 Introduction

This chapter presents the findings of the data obtained from 162 undergraduate nursing students in the Faculty of Medicine and Health Sciences, UNIMAS. This chapter will show the result of sociodemographic data and characteristics of the participants, their level of knowledge of cancer care, and the level of attitudes towards cancer patients. The relationship between knowledge and attitudes towards cancer care among UNIMAS undergraduate nursing students will be covered in this chapter as well. All the results were acquired based on the research objectives of this study which are to measure the level of knowledge towards cancer care among UNIMAS undergraduate nursing students, to identify the level of attitudes towards cancer care among UNIMAS undergraduate nursing students' attitudes, and to determine the relationship between knowledge and attitudes towards cancer care among UNIMAS undergraduate nursing students. In this chapter, section 4.1 presents the participants' sociodemographic information of the UNIMAS undergraduate nursing students. Section 4.2 and 4.3 shows the level of knowledge towards cancer care among the undergraduate nursing students and the level of attitudes towards cancer care among UNIMAS undergraduate nursing students respectively. For section 4.4, the relationship between knowledge and attitudes towards cancer care among UNIMAS undergraduate nursing students. The summary of the chapter will be presented in section 4.5.

4.1 Sociodemographic Information and Characteristics of UNIMAS Undergraduate Nursing Students

A total of 162 undergraduate nursing students in UNIMAS were recruited. In this study, there are no outlier or extreme values from screening the data. Out of 162 participants, 134 (82.7%) were female and 28 (17.3%) were male (refer table 4.1 below). The highest participants were in the age group of 26.5% (n=43) 21 years old while the lowest participants were from 0.6% of 25 years old age group (n=1) (refer figure 4.2 below). Most of the participants were from year 4 undergraduate nursing students 28.4% (n=46), followed by year 2 nursing students 26.5% (n=43), then year 3 nursing student 23.5% (n=38), and year 1 nursing students 21.6% (n=35). Out of 162 participants, 158 of them have knowledge of cancer (97.5%) and 4 of them are not (2.5%) (refer to table 4.1 below). 102 of the participants (63.0%) does not have relative who has cancer while 60 participants (37.0%) have relative that has cancer. Most of them had meeting with cancer patients 83.3% (n=135) and 16.7% (n=27) had not met cancer patients. Moreover, 120 of the participants have an experience of participation in caring for cancer patients (74.1%), and 42 of them stated not having any experience in caring for cancer patients (25.9%). Out of the 162 participants, 140 (86.4%) have willingness to work with cancer patients and 22 (13.6%) do not have the willingness to work with cancer patients (refer table 4.1 below).

Table 4.1

Sociodemographic Information and Characteristics of UNIMAS Undergraduate Nursing Students (n=162)

Item	Frequency (n)	Percentage (%)
Age		
20 years old	29	17.9
21 years old	43	26.5
22 years old	34	21.0
23 years old	41	25.3
24 years old	12	7.4
25 years old	1	0.6
>25 years old	2	1.2
$\bar{x} \pm SD: 2.85 \pm 1.331$		
Gender		
Male	28	17.3
Female	134	82.7
Year of Study		
Year 1	35	21.6
Year 2	43	26.5
Year 3	38	23.5
Year 4	46	28.4
Having Knowledge of Cancer		
Yes	158	97.5
No	4	2.5
Having a Relative who has Cancer		
Yes	60	37.0
No	102	63.0
Had a Meeting with Cancer Patients		
Yes	135	83.3
No	27	16.7
Having an Experience of Participation in Caring for Cancer Patients		
Yes	120	74.1
No	42	25.9
Willingness to Work with Cancer Patients		
Yes	140	86.4
No	22	13.6

Note. $\bar{X}$: Mean; SD: Standard Deviation

4.2 The Level of Knowledge towards Cancer Care among UNIMAS Undergraduate Nursing Students

Table 4.2 presents the result of the percentage and frequency distribution for the level of knowledge towards cancer care among UNIMAS undergraduate nursing students. Overall, the result of the level of knowledge of cancer care among the UNIMAS undergraduate nursing students shows that most of the participants have high knowledge of cancer care with 87 participants out of 162 (53.7%), while 75 of the participants have low level of knowledge (46.3%) regarding cancer care (refer to figure 4.2 and table 4.2 below). This shows that more than half of the students have a good knowledge of the nursing management on treatments and care for cancer patients.

In table 4.2.2 below, it presents the frequency distribution of the level of knowledge among undergraduate nursing students at UNIMAS, categorized by year of study. The data indicate a clear trend in which the proportion of students with high knowledge increases progressively from Year 1 to Year 4.

In Year 1, 21 (60%) of the students were identified as having low knowledge, while 14 (40%) demonstrated high knowledge. The proportion of students with low knowledge increased to 32 (74.4%) in Year 2, with only 11 (25.6%) categorized as having high knowledge. However, this trend shifts notably in Year 3, where 27 (71.1%) of students were classified as having high knowledge, and only 11 (28.9%) had low knowledge. This positive trend continues in Year 4, with 35 (76.1%) of students demonstrating high knowledge and 11 (23.9%) falling under the low knowledge category.

Table 4.2.1

*Level of Knowledge towards Cancer Care among UNIMAS Undergraduate Nursing Students
(n=162)*

Level of Knowledge	Frequency (n)	Percentage (%)
Low Knowledge	75	46.3
High Knowledge	87	53.7

Note: n: frequency, %: percentage

Table 4.2.2

Frequency distribution of Level of Knowledge between Year of Study among UNIMAS Undergraduate Nursing Students

Year of Study	n (%)	
	Low Knowledge	High Knowledge
Year 1	21 (60)	14 (40)
Year 2	32 (74.4)	11 (25.6)
Year 3	11 (28.9)	27 (71.1)
Year 4	11 (23.9)	35 (76.1)

Note: n: frequency, %: percentage

Table 4.2.3 shows the findings of frequency distribution for the questionnaire regarding knowledge towards cancer care among the nursing students. Generally, students demonstrated a strong understanding of the influence of lifestyle factors on cancer development. A substantial majority 92.6% (n=150) correctly answered that diet can influence the risk of cancer. Similarly, a significant percentage 95.7% (n=155) correctly identified the importance of avoiding alcohol consumption during cancer treatment. A significant number of students, 134 (82.7%) also showed their understanding of chemotherapy's mechanism of action whereby they correctly answered that it prevents cell division. A majority of 123 students (75.9%) correctly recognized diarrhoea and mucous

stools as a common side effect of radiotherapy, and 83.3% (n=135) accurately identified skin soreness as a potential side effect of radiotherapy in the treated area.

Table 4.2.3

Frequency distribution for the question of knowledge towards cancer care among UNIMAS undergraduate nursing students (n=162).

Questions regarding Knowledge	n (%)	
	Correctly Answered	Incorrectly Answered/ Don't Know
1. We know for sure that diet could influence the chances of developing cancer? Answer: True	150 (92.6)	12 (7.4)
2. Chemotherapy only affects cancer cell? Answer: False	104 (64.2)	58 (35.8)
3. It is completely safe to use alternative therapies during chemotherapy/radiotherapy for cancer? Answer: False	38 (23.5)	124 (76.5)
4. To avoid infections during chemotherapy, patient should stay at home as much as possible? Answer: True	76 (46.9)	86 (53.1)
5. During chemotherapy, patient can eat what patient want? Answer: False	96 (59.3)	66 (40.7)
6. Radiotherapy causes pain during the irradiation? Answer: False	40 (24.7)	122 (75.3)
7. Chemotherapy prevents cell division? Answer: True	134 (82.7)	28 (17.3)
8. Radiotherapy only affects cancer cells and not normal cells? Answer: False	90 (55.6)	72 (44.4)
9. Smoking can reduce efficacy of radiotherapy? Answer: True	117 (72.2)	45 (27.8)

10. Fever during chemotherapy is normal and not something that patient should be concerned about. Answer: False	70 (43.2)	92 (56.8)
11. It is recommended to avoid antiemetics until patient become nauseous? Answer: False	54 (33.3)	108 (66.7)
12. Nausea usually occurs immediately after the chemotherapy is administered and last for 2 days? Answer: False	12 (7.4)	150 (92.6)
13. Fever during chemotherapy may be symptom of severe side-effects and patient should immediately contact emergency services or the cancer clinic? Answer: True	115 (71.0)	47 (29.0)
14. Side effects of radiotherapy occur immediately after the first treatment and usually resolve the day after the last treatment? Answer: False	38 (23.5)	124 (76.5)
15. During radiotherapy, patient should stay as sedentary as possible and avoid physical activity? Answer: False	39 (24.1)	123 (75.9)
16. Alcohol should be avoided during the treatment period? Answer: True	155 (95.7)	7 (4.3)
17. The purpose of adding hormonal therapy to chemotherapy/radiotherapy is to slow the growth of cancer cells? Answer: True	104 (64.2)	58 (35.8)
18. Diarrhea and mucous stools is a common side effect of radiotherapy? Answer: True	123 (75.9)	39 (24.1)
19. There is no treatment for radiotherapy-induced diarrhea? Answer: False	77 (47.5)	85 (52.5)
20. During the radiotherapy, the skin may become sore in the area being treated? Answer: True	135 (83.3)	27 (16.7)
21. Radiotherapy-induced pain indicate that the treatment is ineffective?	74 (45.7)	88 (54.3)

Answer: False		
22. It is normal to be sore in the irradiated parts of the body a few weeks after the treatment has been completed?	112 (69.1)	50 (30.9)
Answer: True		

Note: n: frequency, %: percentage

4.3 The Level of Attitudes towards Cancer Care among UNIMAS Undergraduate Nursing Students

Table 4.3 presents the result of the level of attitude towards cancer care among the UNIMAS undergraduate nursing students. Overall, the result of the attitude towards cancer care among the UNIMAS undergraduate nursing students shows 112 out of 162 of the participants have negative attitude of cancer care (69.1%). The other 50 participants have positive attitudes in caring for cancer patients (30.9%) (refer to the figure 4.3 and table 4.3 below). This result shows that majority of the students who participated in this study have negative feelings, perceptions, and difficulties regarding their care towards cancer patients.

Table 4.3.2 present the result of frequency distributions for the question regarding attitudes towards cancer care among the nursing students. A significant proportion of students reported difficulty communicating with patients who lacked complete information regarding their diagnosis or condition, with 28.4% (n=46) agreeing and 51.2% (n=83) slightly agreeing with this statement. Similar challenges were identified when students dealing with patients receiving difficult news, such as a metastatic diagnosis or a poor prognosis as 25.3% (n=41) agreed and 50.6% (n=82) slightly agree. Furthermore, 47.5% (n=77) slightly agreed and 27.2.% (n=44) of students agreed they would find it difficult to cope with patients expressing feelings of hopelessness or a desire to die. Difficulties extended to family interactions as a notable 50.6% (n=82) slightly agreed, and 34.0% (n=55) agreed that they would struggle dealing with patients and family when communication failure occurs. 49.4% (n=80) of nursing student slightly agreed and 30.2% (n=49) agreed that they faced difficulty in communicating with family members who had not been fully informed about the patient's diagnosis. Difficulties communicating with families following the delivery of bad news

(51.9%, n= 84 slightly agreed) and discussing death with the family (22.8%, n=37 agreed) remained prevalent.

Table 4.3.1

Level of Attitude towards Cancer Care among UNIMAS undergraduate nursing students (n=162)

Level of Attitude	Frequency (n)	Percentage (%)
Positive Attitude	50	30.9
Negative Attitude	112	69.1

Note: n: frequency; %: percentage

Table 4.3.2

Frequency distribution for the questions of attitude towards cancer care among UNIMAS undergraduate nursing students (n=162)

Questions regarding Attitudes	n (%)			
	Agree	Slightly Agree	Disagree	Undecided
1. I feel it is difficult to communicate with patients who have not been fully informed of their diagnosis or condition.	46 (28.4)	83 (51.2)	24 (14.8)	9 (5.6)
2. I feel it is difficult to deal with patients after being told “bad new,” such as metastasis and prognosis.	41 (25.3)	82 (50.6)	32 (19.8)	7 (4.3)
3. I feel I don’t have enough time to talk to the patient.	12 (7.4)	47 (29.0)	84 (51.9)	19 (11.7)
4. I feel it is difficult to deal with the anxiety and worries expressed by patients.	25 (15.4)	81 (50.0)	48 (29.6)	8 (4.9)
5. I feel it is difficult to deal with cases where the patient talks about “death” or says, “I want to die.”	44 (27.2)	77 (47.5)	30 (18.5)	11 (6.8)

6. I feel it is difficult to deal with patients who express that they want to die.	43 (26.5)	77 (47.5)	30 (18.5)	12 (7.4)
7. I feel it is difficult to deal with patients whose intentions are unknown due to delirium or decreased consciousness.	38 (23.5)	81 (50.0)	25 (15.4)	18 (11.1)
8. I feel it is difficult to deal with patients and their families when they are not communicating.	55 (34.0)	82 (50.6)	17 (10.5)	8 (4.9)
9. I feel it is difficult to communicate with family members who have not been fully notified of the patient's diagnosis or condition.	49 (30.2)	80 (49.4)	25 (15.4)	8 (4.9)
10. I feel it is difficult to deal with family after being told "bad news," such as metastasis and prognosis.	37 (22.8)	84 (51.9)	33 (20.4)	8 (4.9)
11. I feel I don't have enough time to talk to the patient's family.	17 (10.5)	47 (29.0)	75 (46.3)	23 (14.2)
12. I feel it is difficult to deal with anxiety and worries expressed by the patient's family.	24 (14.8)	88 (54.3)	40 (24.7)	10 (6.2)
13. I feel it is difficult to deal with the topic of "death" with the patient's family.	38 (23.5)	84 (51.9)	29 (17.9)	11 (6.8)
14. I feel it is difficult to have adequate knowledge and necessary skills regarding both chemotherapy and its side effects.	24 (14.8)	55 (34.0)	65 (40.1)	18 (11.1)
15. I feel I have inadequate knowledge of patient care after surgery.	25 (15.4)	72 (44.4)	49 (30.2)	16 (9.9)
16. I feel I have inadequate knowledge of radiation therapy and its side effects.	27 (16.7)	80 (49.4)	42 (25.9)	13 (8.0)
17. I feel I lack the proper knowledge and necessary skills regarding pain, treatment/care, and side effects.	21 (13.0)	75 (46.3)	47 (29.0)	19 (11.7)

18. I feel I lack the proper knowledge and necessary skills to relieve dyspnoea.	22 (13.60)	67 (41.4)	50 (30.9)	23 (14.2)
19. I feel I have inadequate knowledge and lack the necessary skills for fatigue assessment and treatment/care.	22 (13.6)	62 (38.3)	62 (38.2)	16 (9.9)
20. I feel I have inadequate knowledge and lack the necessary skills for nausea assessment and treatment/care.	20 (12.3)	59 (36.4)	69 (42.6)	14 (8.6)
21. I feel I have inadequate knowledge and lack the skills necessary for the assessment, treatment, and care of depression and anxiety.	22 (13.6)	76 (46.9)	53 (32.7)	11 (6.8)
22. I feel I have inadequate knowledge and lack skills regarding delirium assessment and treatment/care.	26 (16.0)	82 (50.6)	44 (27.2)	10 (6.2)

Note: n: frequency, %: percentage

4.4 The Relationship between Knowledge and Attitudes towards Cancer Care among UNIMAS Undergraduate Nursing Students

The data used was categorical data and normality test revealed that the distribution of continuous data was normally distributed (refer section 3.8, table 3.1 above). The relationship between knowledge and attitude was investigated using Spearman correlation coefficient (refer table 4.4). Leclezio et al., (2015) described that the strength of correlation $r = 0.01-0.19$ indicated no/negligible relationship, $0.20-0.29$ indicated weak relationship, $0.30-0.39$ indicated moderate relationship, $0.40-0.69$ indicated strong relationship, >0.70 indicated very strong relationship. Preliminary analyses were performed and there was a violation of the assumptions of normality. There are no outliers or extreme values noted from the box plot. From the table 4.4 below, the result revealed no correlation between knowledge and attitudes towards cancer care among nursing students. The strength of the correlation was found to be negligible with a correlation coefficient of $r_s(162) = -.072, p < .361$, with low score of knowledge ($Mdn = 12$) and high score of attitudes ($Mdn = 39$).

Table 4.4

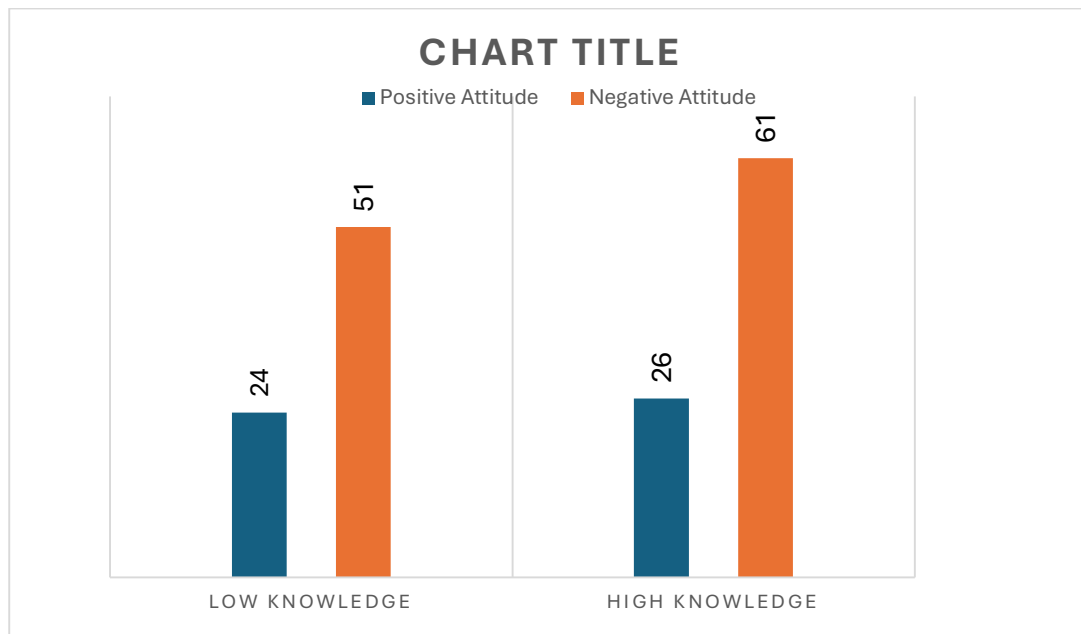
The relationship between knowledge and attitudes towards cancer care among UNIMAS undergraduate nursing students (n=162).

Correlations			Knowledge	Attitude
Spearman's rho	Knowledge score	Correlation Coefficient	1.000	-.072
		Sig. (2-tailed)	.	.361
		N	162	162
	Attitude Score	Correlation Coefficient	-.072	1.000
		Sig. (2-tailed)	.361	.
		N	162	162

Figure 4.4 below illustrates the distribution of attitudes towards cancer care about the level of knowledge among undergraduate nursing students. The data are categorized into two groups: low knowledge and high knowledge. Among students with low knowledge, 24 students (32%) exhibited a positive attitude while 51 students (68%) demonstrated a negative attitude. In the high knowledge group, a slightly higher number of students which is 26 (30%) showed a positive attitude, while 61 students (70%) expressed a negative attitude. The findings indicate that regardless of knowledge level, the majority of students exhibited a negative attitude towards cancer care. Interestingly, an increase in knowledge does not appear to be strongly associated with a more positive attitude, as both knowledge groups reflected a similar distribution in negative attitude.

Figure 4.1

The score of knowledge and attitude towards cancer care among UNIMAS undergraduate nursing students (n=162).



4.5 Summary

In summary, most of the participant of the undergraduate UNIMAS nursing students showed a good knowledge on cancer care. However, the results shows that most of the nursing students have a negative attitude in caring for cancer patients. One of the data was categorical data and the distribution of continuous data was normally distributed, therefore Spearman correlation coefficient to run the relationship between knowledge and attitude towards cancer care. Based on the data, there was a no correlation between knowledge and attitude towards cancer care.

CHAPTER 5

DISCUSSION

5.0 Introduction

This chapter discusses the findings on the level of knowledge and attitude on cancer care among UNIMAS nursing students. This chapter will also present the relationship between the level of knowledge and attitude on cancer care. Other than that, a summary of findings, implications, recommendation, limitations of this study and conclusion will be presented.

5.1 The Level of Knowledge towards Cancer Care among UNIMAS Undergraduate Nursing Students

This study shows that 53.7% of undergraduate nursing students demonstrated high knowledge of cancer care, while 46.3% showed low knowledge of cancer treatments and care. A study by Hedenstrom et al. (2021) directly supports the positive correlation between knowledge and confidence in oncology nursing. 53.7% of students demonstrating high knowledge likely indicate more confidence in providing cancer care. On the other hand, the 46.3% with low knowledge probably have less confidence, which shows the importance improving education as per Hedenstrom et al.'s suggest. The study's results directly support the need for improving knowledge level to increase confidence in caring for patients, as Hedenstrom et al. (2021) suggested. Edwards et al. (2015) stated that interventions may not significantly change students' negative attitudes, even though they have improved knowledge. The finding of a significant number of students (46.3%) with low knowledge suggests that interventions focusing on knowledge acquisition are inadequate. Although improved knowledge may enhance confidence (Hedenstrom et al., 2021), it is necessary to overcome negative attitudes with a more comprehensive approach (Edwards et al., 2015).

According to Edwards et al. (2015), simply increasing knowledge only cannot seem to be enough to shift attitudes. Altre and Chou (2021) demonstrated that combined learning methods (lectures, discussions, reflection) could positively improve knowledge, skills, and attitudes. The finding of 46.3% of students with low level of knowledge suggests that current educational methods may lack a comprehensive and blended learning approach. According to the study's findings, a more comprehensive strategy is required to improve attitudes and knowledge in order to match the success that Altre and Chou (2021) obtained. Powell et al. (2019) highlighted the benefits of observational learning in oncology settings. The 46.3% of students with low knowledge indicate a potential deficiency in experiential learning opportunities. The study's findings support the need for increased hands-on experience, which could be improved by increasing the opportunities for more practical experience, which could enhance both skills and theoretical knowledge (Powell et al., 2019). Kapucu and Bulut (2017) emphasized the importance of preclinical preparation, mentorship, and continuous practical training. The relatively high percentage with low knowledge highlights that there might be gaps in preclinical preparation, mentorship, and structured clinical placements in current nursing program that Kapucu and Bulut advocate for.

The study results reflect concerns about the need for a more comprehensive approach in cancer care education. Although the finding of 53.7% of students possessing high knowledge is a positive finding that aligns with the positive impact of education on students' confidence level (Hedenstrom et al., 2021), the significant 46.3% with low knowledge reveals there is significant potential gaps. The oncology-related content is not included in the syllabus for Year 1 and Year 2 students. As a result, students in these early stages of their nursing program are less likely to show lack of knowledge in cancer care. Oncology education is formally introduced in Year 3, which likely explain the higher knowledge levels observed

among students in their third and fourth years. These gaps highlight the need for more comprehensive educational strategies at early stages of their program that incorporate blended learning methods, experiential learning, mentorship, and structured clinical placements suggested in the literature (Altre & Chou, 2021; Powell et al., 2019; Kapucu & Bulut, 2017).

5.2 The Level of Attitudes towards Cancer Care among UNIMAS Undergraduate Nursing Students

The findings of this study revealed that the UNIMAS undergraduate nursing students have a negative attitude towards cancer care, with a total score of 69.1%. The findings highlight the emotional challenges nursing students anticipate when caring for cancer patients and their families. The nursing students consistently struggle to communicate and cope with emotionally influenced scenarios. These findings align with Kapucu and Bulut (2017), who found that nursing students frequently experienced negative emotions (fear, anxiety, pity, sadness) when caring for cancer patients, often halting due to a fear of contracting cancer themselves. This study also suggests a significant emotional component influencing students' perceptions of oncology nursing. The challenges identified by Kapucu and Bulut (2017), which were communication difficulties, physical care challenges, and ineffective treatment due to inexperience, were likely to contribute to these negative feelings, mirroring potential causes for the negative attitudes found in this study. Kapucu and Bulut's (2017) findings are also supported by a study from Hedenstrom et al. (2021), whereby the researchers linked negative beliefs among nursing students to ineffective communication, self-doubt, and physical challenges in providing care. Their findings consistently align with this study's findings, which show that the lack of knowledge could lead to self-doubt and communication issue, influencing towards negative attitudes. Lack of knowledge and skills

may be the cause of this study's high percentage of negative attitudes, which contributing to the negative attitudes (Hedentrom et al., 2021). A study by Kutluturkan et al. (2023) highlights the influence of personal experience, particularly having family members with cancer, on students' attitudes. As most of the participants in this study do not have any relative who has cancer, this could suggest a possible contributing factor to the 69.1% negative attitude finding. High level of negative attitude aligned with Kutluturkan et al. (2023) findings, whereby students without personal experience might exhibit heightened anxiety and negative feelings due to the unknown aspects of cancer care. Despite that, Depacaquivo et al. (2024) identified practical and emotional challenges nursing students face during oncology placements, including a fear of the unknown, leading to nervousness. The high percentage (69.1%) of negative attitudes in this study may reflect the anxiety and fear of the unknown experienced by students before and during clinical placements. The practical challenges and emotional issues described by Depacaquivo et al. likely contribute significantly to the overall negative attitudes identified in this study. The finding by Kapucu and Bulut (2017) that nursing students fear developing cancer and dying mirrors a possible underlying cause of the negative attitudes found in the current study. Their entire approach to cancer care may be greatly impacted by this fear, which may be influenced by cultural norms and inexperience. The high percentage of negative attitudes in this study suggests that such fear greatly contributes to the unfavourable perception of working with cancer patients. The high percentage (69.1%) in this study indicates a more widespread problem that needs serious attention, even though all of the studies point to different factors that contribute to nursing students' negative attitudes towards cancer care. The combination of communication difficulties, lack of necessary skills, fear, anxiety, lack of proper knowledge, and the influence of personal experience all seems to play a role in contributing to a negative attitude.

These difficulties suggest a comprehensive intervention targeting these multiple factors is needed to improve attitudes toward oncology nursing. The results of this study highlight how urgently we need support systems and efficient teaching methods to overcome these pervasive negative attitudes.

5.3 The Relationship between Knowledge and Attitudes towards Cancer Care among UNIMAS Undergraduate Nursing Students

This study found no significant relationship between knowledge and attitudes toward cancer care among UNIMAS nursing students. The result of the study aligns with Kutluturkan et al. (2023), whereby the study indicated that nursing students often hold negative attitudes toward cancer despite having good knowledge of cancer. This aligns with the current study's finding of a lack of correlation, implying that even students with high levels of knowledge may still hold negative attitudes. The lack of relationship demonstrates that having cancer knowledge only is insufficient to prevent negative attitudes (Kutluturkan et al, 2023). This emphasizes the need for interventions that go beyond simply increasing knowledge to address negative attitudes. Moreover, Hedenstrom et al. (2021) also suggest that knowledge influences confidence but does not fully explain how it affects attitudes. They demonstrated that enhanced knowledge gained through educational programs could improve skills, confidence, and reduce anxiety. However, this study's lack of significant relationship between knowledge and attitude suggests that attitudes cannot be completely shaped by improved knowledge only. This study highlights the need for interventions addressing both knowledge and attitude simultaneously. A study by Edwards et al. (2015) found that nurses in non-specialist wards often lacked sufficient oncology education, impacting their ability to provide adequate care. While improved knowledge can lead to more positive attitudes, as indicated by Edwards et al.'s (2015) findings regarding participants in cancer education

programs, this study suggests that this relationship is not guaranteed, and other factors are at play. The finding of no correlation between knowledge and attitude explains that knowledge does not influence positive attitudes. The lack of correlation suggests that oncology education must comprehensively improve the nursing syllabus and teaching method (Edward et al., 2015).

All of the studies generally support the positive impact of education on knowledge, skills, and confidence in oncology nursing. However, this study's finding of no correlation between knowledge and attitudes highlights a significant gap. The current nursing teaching program and approach to cancer care education should be critically reviewed and revised to incorporate methods that explicitly address and positively influence students' attitudes. The intervention should move beyond knowledge acquisition to encompass comprehensive attitude development by focusing on theoretical and practical aspects, including mentorship and experiential learning suggested by the reviewed literature.

5.4 Implications of the Study

This study showed that the level of knowledge towards cancer care is high. However, the level of attitude towards cancer care among the majority of undergraduate nursing students in UNIMAS is negative. The result also showed no relationship between knowledge and attitudes towards cancer care. These findings indicated knowledge gaps and misconceptions among nursing students regarding cancer care. According to Vera-Ruiz et al. (2025), such information is essential for updating and improving nursing curriculum to guarantee that nursing students are well equipped to deliver improved cancer treatment. Consequently, measures to enhance cancer education for student nurses must be implemented to tackle the persistent lack of cancer nurses by promoting oncology nursing as a career choice. In order to improve cancer care in nursing curriculum, changes in policy might be implemented. It is

essential to overcome these psychological challenges since the reported negative attitudes may also result in lower patient satisfaction and could affect the quality of care provided. Proactively addressing these attitudes may also encourage nurses to take better care of themselves, which could reduce burnout and increase retention rates in the cancer nursing area. In order to provide focused treatments for fostering interpersonal skills and resilience in nursing students, interprofessional training combining nursing students, oncology nurses, psychologists, and interpersonal specialists is necessary, as evidenced by the lack of correlations between knowledge and attitudes.

5.4.1 Recommendations

According to the study's findings, the current nursing curriculum and teaching methodology should be critically reviewed and then improved. Although it seems to be successful in providing basic information about cancer treatment, the present teaching syllabus seems to fall short in developing positive attitudes and making nursing students feel confident and capable. It seems doubtful that the issue will be resolved by merely increasing the amount of information supplied. Instead, educational strategies should be combined with interactive environments and inter-professional approaches that involve cancer patients and their families (Domingo-Oslé et al., 2020). Simulations, role-playing scenarios, and opportunities for direct patient interaction under appropriate supervision may be more effective in fostering a positive attitude toward cancer care (Sweeney et al., 2015). The development of such cancer care simulations, guided by organizations such as the International Nursing Association for Clinical Simulation and Learning, would further guide nursing students in providing care to this patient group (Uslu et al., 2019). Different educational strategies should be used to train nursing students which focus on the emotional, psychosocial, and spiritual aspects of cancer, ensuring that nurses are equipped to provide holistic care to

patients and their families (Uwayezu et al., 2022). Oncology education should incorporate strategies like case discussions, seminars, and community-based educational activities, focusing on health promotion, cancer prevention, early detection, and palliative care (Cavalcante et al., 2021). Such multifaceted training is especially pertinent given the importance of psycho-emotional support for cancer patients, suggesting a possible extension of the nurse's function in providing counselling (Tay et al., 2018). The results of this study should be expanded upon in future research by concentrating on a number of important factors. A larger-scale study involving a more diverse population of nursing students across various institutions is needed to generalize the findings. Considering the limitations on clinical practice due to patient safety concerns and infectious disease outbreaks, drama-based educational content could offer a promising avenue for nursing students to develop empathy and understanding towards cancer patients (Suh et al., 2021). A fresh syllabus and instructional module, simulation-based learning, or cancer nursing-focused mentoring programs might all be part of this. Lastly, it is critical to investigate the connection between students' objective performance in simulated clinical situations and their self-reported level of readiness for cancer care.

5.5 Limitation of the study

This study has several limitations. First of all, the data collection for this study only focused on undergraduate nursing students in the FMHS, UNIMAS. Thus, it has limited generalizability and does not represent other healthcare educational institutes or universities in Malaysia since this study is only involving UNIMAS undergraduate nursing students. In addition, the scope of discussion may not be as broad as the studies conducted by a group of experienced researchers. There is also a time constraint in conducting the study as the course

runs for a short period and is packed with theory classes and practicum. Other than that, financial constraints were also the limitation in this study. Lastly, participants might not be accurate in reporting their knowledge and attitudes, which depending upon the understanding and honesty of the participants, would also be subjected to reporting bias.

5.6 Conclusion

The study revealed that the most of UNIMAS nursing students possess a high level of knowledge but a negative attitude towards cancer care, revealing a complex interplay between factual understanding and emotional responses in caring for cancer patients. The relationship between knowledge and attitude show no relationship. The lack of correlation between knowledge and attitude highlights the critical need to move beyond simply imparting information and to focus on fostering positive perceptions and reducing anxieties surrounding this specialized area of nursing practice. The findings underscore the urgent need for education revisions, targeted interventions, and policy changes to address the identified knowledge gaps and negative attitudes, ultimately ensuring that future nurses are well-equipped to provide high-quality, compassionate cancer care. The recommendations for future research outlined in this chapter provide a roadmap for further research into this crucial area, ultimately informing the development of effective strategies to improve cancer care education and address the ongoing shortage of oncology nurses.

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APPENDIXES

APPENDIX A: ETHICAL APPROVAL APPLICATION LETTER

Pejabat Akademik
Fakulti Perubatan dan Sains Kesihatan
Academic Office
Faculty of Medicine & Health Sciences
☎: 581000 samb 7768
☎: 665152

UNIVERSITI MALAYSIA
SARAWAK
94300 Kota Samarahan

MEMORANDUM

Reference : UNIMAS/NC-21.05/03-03 Jld. 8(119)

To : Vivien Jimbai (78578)
Bachelor of Nursing with Honours
Faculty of Medicine and Health Sciences

From : Dean
Faculty of Medicine and Health Sciences

Date : 05 March 2025

Subject : **Final Year Project - Research Approval: UNIMAS Undergraduate Nursing Students' Knowledge and Attitudes Towards Cancer Care**

The above matter is referred.

The Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS) has granted the **RESEARCH APPROVAL** for this Final Year Project research based on the appraisal by the Department of Nursing, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS) on 24 February 2025. The Final Year Project research details stated below:

Student Name : Vivien Jimbai

Student ID : 78578

Programme : Bachelor of Nursing with Honours

Research Title : *UNIMAS Undergraduate Nursing Students' Knowledge and Attitudes Towards Cancer Care*

Supervisor Name : Miss Chen Ai Ling

Supervisor H/P : +60 19-849 2699

All records and data are to be kept strictly **CONFIDENTIAL** and can only be used for the purpose of this study. All precautions are to be taken to maintain data confidentiality. Permission from the all relevant heads of departments/units where the study will be carried out must be obtained prior to the study.

Please note that the approval is valid from **February 2025** to **November 2025** only. The reference number for this letter must be stated in all correspondence related to this study to facilitate the process.

Thank you with regards and well wishes.

Yours sincerely,



Professor Dr. Asri bin Said
Dean

c.c : Deputy Dean of Undergraduate
: Head of Nursing Department
: Bachelor of Nursing with Honours
: MDJ4653 Final Year Project 1 Course Coordinator

APPENDIX B: PARTICIPANT'S INFORMATION SHEET



PARTICIPANT INFORMATION SHEET

- 1. Title of the study** : **UNIMAS Undergraduate Nursing Students' Knowledge and Attitude Towards Cancer Care**
- 2. Main Researcher** : **Vivien Jimbai**
- 3. Supervisor** : **a) Course coordinator: Miss Feryante Rintika Belansai**
b) Main research supervisor: Miss Chen Ai Ling
- 4. Institution** : **Department of Nursing**
Faculty of Medicine & Health Sciences
Universiti Malaysia Sarawak
- 5. Name of sponsor** : **No external funding**

PARTICIPANT INFORMATION SHEET AND INFORMED CONSENT FORM

(for adult subjects)

6. Introduction:

It is important that you understand why the research is being done and what it will involve. Please take your time to read through and consider this information carefully before you decide if you are willing to participate. Ask the study staff if anything is unclear or if you would like more information. After you are properly satisfied that you understand this study, and that you wish to participate, you must sign this informed consent form.

Your participation in this study is voluntary. You do not have to be in this study if you do not want to. You may also refuse to answer any questions you do not want to answer. If you volunteer to be in this study, you may withdraw from it at any time. If you withdraw, any data collected from you up to your withdrawal will still be used for the study. Your refusal to participate or withdrawal will not affect any medical or health benefits to which you are otherwise entitled.

This study has been approved by the Medical Research and Ethics Committee, Ministry of Health Malaysia.

7. What is the purpose of the study?

The purpose of this study is to determine UNIMAS undergraduate nursing students' current level of knowledge and attitude towards cancer care. By focusing on these key factors, we seek to understand how level of knowledge and positive attitudes may contribute to high quality of care towards cancer patients. This research is necessary to

improve the understanding of how level of knowledge of cancer care could affect students' attitude towards cancer patients.

A better understanding of students' knowledge and attitudes will introduce necessary information for improvements in nursing curricula and their personal behaviours during their educational period. This study can potentially contribute valuable insights into preparing future nurses to effectively address the complex needs of cancer patients and their families, which ultimately leading to improved quality of care.

This research will be conducted for duration of 6 months (25.01.2024 till 30.06.2025). The expected number of participants is 162 individuals.

8. Who can participate in this study?

This study will involve undergraduate nursing students from Faculty of Medicine and Health Sciences, UNIMAS. The inclusion criteria will include undergraduate nursing students from year 1 until year 4 who enrolled in nursing program UNIMAS. The exclusion criteria are post registration nursing students. These criteria collectively aim to create a homogeneous participant group, ensuring that the study's precision, validity, and relevance to the targeted research objectives.

9. What are my responsibilities when taking part in this study?

It is important that you answer all of the questions asked by the researcher honestly and completely which will take about 10-15 minutes of your time.

You will be given a self-administered physical questionnaire to answer and need to be returned to the researcher once completed. This form contains 3 sections will be enquire

about sociodemographic data and characteristics which including your experiences of caring for cancer patients, measuring the level of knowledge of cancer care, and measuring attitudes of caring for cancer patients.

10.What are the potential risks and side effects of being in this study?

Your participation in this study is completely voluntary, and your decision will not affect your future treatment plan, and the risk associated with this study is primarily related to time consumption, otherwise minimal. You are free to decline to answer any of the questions that you feel uncomfortable with. You can opt to withdraw from the study at any point without incurring any questions.

11.What are the benefits of being in this study?

There may or may not be any benefits to you. However, this study holds the potential for significant benefits to both nursing students and oncology nursing. Information obtained from this study will help to identify the relationship between knowledge and attitudes towards cancer care among nursing students. By investigating this relationship, this study aims to highlight knowledge gaps and misconceptions among nursing student regarding cancer care. The findings could introduce interventions to be implemented to promote oncology nursing as a career path which addressing the ongoing shortage of oncology nurses. Furthermore, it can inform the needs to improve cancer education for both nurses and patients. This could also lead to policy changes aimed to enhance cancer care in nursing curricula. However, it is important to note that feedback on study findings will not be provided at the end of the study.

12.Who is funding the research?

This study does not receive any external funding. You will not be paid for participating in this study.

13. Will my medical information be kept private?

All your information obtained in this study will be kept and handled in a confidential manner, in accordance with applicable laws and/or regulations. When publishing or presenting the study results, your identity will not be revealed without your expressed consent. Individuals involved in this study, qualified monitors and auditors, and governmental or regulatory authorities may inspect the study data, where appropriate and necessary.

14. Who should I call if I have questions?

If you have any questions about the study or want more information about this study, please contact the main study researcher, Vivien Jimbai at telephone number 013-713 2919 or email vienica13@gmail.com, or the supervisor of this study, Ms. Chen Ai Ling through email alchen@unimas.my.

If you have any questions about your rights as a participant in this study, please contact: The Secretary, Medical Research & Ethics Committee, Ministry of Health Malaysia, at telephone number 03-3362 8407/8205/8888.



Title of Study: UNIMAS Undergraduate Nursing Students' Knowledge and Attitude Towards Cancer Care

By signing below, I confirm the following:

- I have been given oral and written information for the above study and have read and understood the information given.
- I have had sufficient time to consider participation in the study and have had the opportunity to ask questions and all my questions have been answered satisfactorily.
- I understand that my participation is voluntary and I can at any time free withdraw from the study without giving a reason and this will in no way affect my future treatment. I am not taking part in any other research study at this time. I understand the risks and benefits, and I freely give my informed consent to participate under the conditions stated. I understand that I must follow the study researcher's instructions related to my participation in the study.
- All personal details will be treated as STRICTLY CONFIDENTIAL

Subject:

Signature:

I/C number:

Name:

Date:

Investigator conducting informed consent:

Signature:

I/C number:

Name:

Date:

Impartial witness:

Signature:

I/C number:

Name:

Date:

APPENDIX C: DATA COLLECTION INSTRUMENT

Section A: Demographic Information Form

Please complete the following information.

Fill in the information required. Kindly tick (/) at the relevant column and box provided.

1. Age: _____

2. Gender:

() Female

() Male

3. Year in the Program:

() Year 1

() Year 2

() Year 3

() Year 4

	Yes	No
1. Having knowledge of cancer		
2. Having relative who has cancer		
3. Had meeting with cancer patients		
4. Having an experience of participation in caring for cancer patients		
5. Willingness to work with cancer patients after graduation		

Section B: Knowledge of Cancer Treatment and Care

Instruction: Please tick (/) your answer in the box provided.

Questions regarding knowledge	True	False	Don't Know
1. We know for sure that diet could influence the chances of developing cancer?			
2. Chemotherapy only affects cancer cell?			
3. It is completely safe to use alternative therapies during chemotherapy/radiotherapy for cancer?			
4. To avoid infections during chemotherapy, patient should stay at home as much as possible?			
5. During chemotherapy, patient can eat what patient want?			
6. Radiotherapy causes pain during the irradiation?			
7. Chemotherapy prevents cell division?			
8. Radiotherapy only affects cancer cells and not normal cells?			
9. Smoking can reduce the efficacy of radiotherapy?			
10. Fever during chemotherapy is normal and not something that patient should be concerned about.			
11. It is recommended to avoid antiemetic until patient become nauseous?			
12. Nausea usually occurs immediately after the chemotherapy is administered and last for 2 days?			
13. Fever during chemotherapy may be symptom of severe side-effects and patient should immediately contact emergency services or the cancer clinic?			
14. Side effects of radiotherapy occur immediately after the first treatment and usually resolve the day after the last treatment?			

15. During radiotherapy, patient should stay as sedentary as possible and avoid physical activity?			
16. Alcohol should be avoided during the treatment period?			
17. The purpose of adding hormonal therapy to chemotherapy/radiotherapy is to slow the growth of cancer cells?			
18. Diarrhoea and mucous stools is a common side effect of radiotherapy?			
19. There is no treatment for radiotherapy-induced diarrhoea?			
20. During radiotherapy, the skin may become sore in the area being treated?			
21. Radiotherapy-induced pain indicate that the treatment is ineffective?			
22. It is normal to be sore in the irradiated parts of the body a few weeks after the treatment has been completed?			

Section C: Attitudes towards Cancer Care

Instruction: Please tick (/) your answer in the box provided.

Questions regarding knowledge	Agree	Slightly Agree	Disagree	Undecided
1. I feel it is difficult to communicate with patients who have not been fully informed of their diagnosis or condition.				
2. I feel it is difficult to deal with patients after being told “bad news,” such as metastasis and prognosis.				
3. I feel I don’t have enough time to talk to the patient.				
4. I feel it is difficult to deal with the anxiety and worries expressed by patients.				
5. I feel it is difficult to deal with cases where the patient talks about “death” or says, “I want to die.”.				
6. I feel it is difficult to deal with patients who express that they want to die.				
7. I feel it is difficult to deal with patients whose intentions are unknown due to delirium or decreased consciousness.				
8. I feel it is difficult to deal with patients and their families when they are not communicating.				
9. I feel it is difficult to communicate with family members who have not been fully notified of the patient’s diagnosis or condition.				
10. I feel it is difficult to deal with family after being told “bad news,” such as metastasis and prognosis.				
11. I feel I don’t have enough time to talk to the patient’s family.				
12. I feel it is difficult to deal with anxiety and worries expressed by the patient’s family.				
13. I feel it is difficult to deal with the topic of “death” with the patient’s family.				
14. I feel it is difficult to have adequate knowledge and necessary skills				

regarding both chemotherapy and its side effects.				
15. I feel I have inadequate knowledge of patient care after surgery.				
16. I feel I have inadequate knowledge of radiation therapy and its side effects.				
17. I feel I lack the proper knowledge and necessary skills regarding pain, treatment/care, and side effects.				
18. I feel I lack the proper knowledge and necessary skills to relieve dyspnoea.				
19. I feel I have inadequate knowledge and lack the necessary skills for fatigue assessment and treatment/care.				
20. I feel I have inadequate knowledge and lack the necessary skills for nausea assessment and treatment/care.				
21. I feel I have inadequate knowledge and lack the skills necessary for the assessment, treatment, and care of depression and anxiety.				
22. I feel I have inadequate knowledge and lack skills regarding delirium assessment and treatment/care.				

APPENDIX D: PERMISSION TO USE QUESTIONNAIRE



Request for Permission of Using Study Instruments for Research

1 message

Vivien J. <vienica13@gmail.com>
To: sultan.kav@gmail.com

Fri, 13 Dec 2024 at 23:06

Dear author,

I hope this email reaching you well. I am Vivien Jimbai, a final year nursing student at the University of Malaysia, Sarawak (UNIMAS). I am currently working on my Final Year Project entitled "Nursing Students' Knowledge and Attitudes toward Cancer Care".

I was very impressed by your research article, "Nursing Students' perceptions towards cancer and caring for cancer in Turkey" in Nurse Education in Practice 13, published in 2013.

I'd like to request permission to use the quantitative survey data you developed for your study, which are related to socio-demographic characteristics and experience of caring of cancer patients. They are highly relevant to my research. I'll properly acknowledge your work.

Thank you for your time and consideration.

Kind regards,

Vivien
vienica13@gmail.com



Request for Permission of Using Study Instrument for Research

1 message

Vivien J. <vienica13@gmail.com>
To: kari.sand@ntnu.no <kari.sand@ntnu.no>

Fri, 13 Dec 2024 at 23:14

Dear author,

I hope this email reaching you well. I am Vivien Jimbai, a final year nursing student at the University of Malaysia, Sarawak (UNIMAS). I am currently working on my Final Year Project entitled "Nursing Students' Knowledge and Attitudes toward Cancer Care".

I was very impressed by your research article entitled "Cancer patients' knowledge about their disease and treatment before, during and after treatment: a prospective, longitudinal study" in BMC Cancer that published in 2018.

I'd like to request permission to use the full set of questionnaires you developed for your study, which is measuring the knowledge about breast and prostate cancer, and its treatment. I would also like to request for the value of reliability test (cronbach alpha value) of the questionnaire. They are highly relevant to my research. I'll properly acknowledge your work.

Thank you for your time and consideration.

Kind regards,

Vivien
vienica13@gmail.com



Request for Permission and Questionnaire

1 message

Vivien J. <vienica13@gmail.com>

Fri, 13 Dec 2024 at 21:52

To: nakamura.masako.499@mail.aichi-med-u.ac.jp <nakamura.masako.499@mail.aichi-med-u.ac.jp>

Dear author,

I hope this email reaching you well. I am Vivien Jimbai, a final year nursing student at the University of Malaysia, Sarawak (UNIMAS). I am currently working on my Final Year Project entitled "Nursing Students' Knowledge and Attitudes toward Cancer Care".

I was very impressed by your research article entitled "A Basic Survey on the Learning Needs of Nurses Caring for Patients with Intractable Cancer in Japan Based on Conceptual Education Integrating Oncology and Palliative Care in the Journal of Cancer Education, published in 2022.

I'd like to request permission to use the full set of questionnaires you developed for your study, which are the items from the Integrating Oncology and Palliative Care (IOP) model and the 'Nurses' Difficulties in Cancer Care (NDCC)' scale. They are highly relevant to my research.

If you grant permission, could you please provide the questionnaires? I'll properly acknowledge your work.

Thank you for your time and consideration.

Kind regards,

Vivien
vienica13@gmail.com

APPENDIX E: GANT CHART

	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Meeting with Supervisor												
Determine research title												
Literature Review												
Define Research Problem												
Design Research												
Proposal Defense Presentation												
Submission of FYPI: Final Written Proposal												
Data Collection												
Data Analysis												
Interpretation and Report												
Submission of Written Report Draft												
Submission of FYPII: Final Written Research Report												

APPENDIX F: BUDGET

Items	Quantity	Prices
1. Turnitin Services	1	RM 5.00
2. SPSS version 30 software	1	RM 23.00
3. Transportation fee (Car fuel)	1	RM 20.00
4. Internet data (monthly prepaid)	8	RM 280.00
5. Photocopy and Printing Services	1	RM 80.00
Total Budget		RM 408.00

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