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Knowledge, Awareness and Attitude on Patient Safety among UNIMAS Undergraduate Nursing Students

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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ABSTRACT

Patient safety is a vital component of quality healthcare and a core responsibility for all healthcare professionals, especially nurses. This study explored the knowledge, awareness, and attitudes of undergraduate nursing students at Universiti Malaysia Sarawak (UNIMAS) toward patient safety. A total of 140 Year 2 to Year 4 students participated in the study through a self-administered questionnaire adapted from the World Health Organization (WHO). The results showed that most students had a moderate level of knowledge, with a mean score of 25.74 (SD = 3.725). While 40.7% demonstrated good knowledge, a small percentage (4.3%) showed poor understanding of patient safety concepts. In terms of awareness, the majority (75.7%) also fell into the moderate range, but notably, none of the participants reached a good level of awareness. The mean score for awareness was 18.61 (SD = 1.648). Attitudes towards patient safety were generally neutral, with 71.4% of students holding neutral views and only 28.6% expressing a positive attitude (mean = 72, SD = 5.741). A weak but statistically significant positive correlation was found between awareness and attitude ($r = .286$, $p = .001$). These findings suggest that while students have a foundational understanding of patient safety, there is room for growth particularly in fostering deeper awareness and more positive attitudes. Enhancing nursing education through more focused curriculum content, practical learning experiences, and ethics-based discussions could better prepare future nurses to uphold patient safety in real-world settings. Continued research and educational innovation are essential to improving care quality and patient outcomes.

Keywords: patient safety, nursing students, knowledge, awareness, attitude, UNIMAS

ABSTRAK

Keselamatan pesakit merupakan komponen penting dalam penyampaian penjagaan kesihatan berkualiti dan menjadi tanggungjawab utama semua profesional kesihatan, khususnya jururawat. Kajian ini bertujuan untuk mengkaji tahap pengetahuan, kesedaran, dan sikap pelajar kejururawatan di Universiti Malaysia Sarawak (UNIMAS) terhadap keselamatan pesakit. Sebanyak 140 pelajar tahun kedua hingga tahun keempat telah menyertai kajian ini melalui soal selidik kendiri yang diadaptasi daripada World Health Organization (WHO). Keputusan kajian menunjukkan bahawa majoriti pelajar mempunyai tahap pengetahuan sederhana dengan skor purata 25.74 (SD = 3.725). Walaupun 40.7% pelajar menunjukkan pengetahuan yang baik, terdapat juga sebilangan kecil, iaitu 4.3%, yang menunjukkan pemahaman yang rendah terhadap konsep keselamatan pesakit. Dari segi kesedaran, majoriti pelajar (75.7%) juga berada pada tahap sederhana, namun menariknya, tiada seorang pun peserta yang mencapai tahap kesedaran yang baik. Skor purata bagi kesedaran adalah 18.61 (SD = 1.648). Sikap pelajar terhadap keselamatan pesakit pula umumnya bersifat neutral, dengan 71.4% pelajar memegang pandangan neutral dan hanya 28.6% yang menunjukkan sikap positif (purata skor = 72, SD = 5.741). Analisis korelasi menunjukkan hubungan positif yang lemah tetapi signifikan secara statistik antara tahap kesedaran dan sikap pelajar ($r = .286$, $p = .001$). Ini menunjukkan bahawa walaupun pelajar mempunyai pemahaman asas mengenai keselamatan pesakit, terdapat ruang yang besar untuk memperkukuh kesedaran yang lebih mendalam dan membentuk sikap yang lebih positif. Untuk itu, penambahbaikan dalam pendidikan kejururawatan amat diperlukan, khususnya melalui pengukuhan kandungan kurikulum yang lebih fokus, pengalaman pembelajaran praktikal, serta perbincangan berasaskan etika. Pendekatan ini berpotensi untuk

menyediakan jururawat masa depan yang lebih bersedia dalam memastikan keselamatan pesakit terjamin dalam situasi klinikal sebenar. Kajian lanjutan dan inovasi dalam pendidikan adalah penting untuk terus mempertingkatkan kualiti penjagaan dan hasil kesihatan pesakit.

Kata kunci: keselamatan pesakit, pelajar kejururawatan, pengetahuan, kesedaran, sikap, UNIMAS

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LIST OF ABBREVIATIONS

UNIMAS	Universiti Malaysia Sarawak
KAA	Knowledge, Awareness and Attitude
SPSS	Statistical Package for the Social Sciences

CHAPTER 1: INTRODUCTION

1.0 Introduction

The background of the study, problem statement, research questions, study objectives, significance of the study, definitions of key terminology, and chapter summary are all covered in this chapter.

1.1 Background of study

Patient safety remains a critical global concern, as unsafe medical practices continue to cause significant harm and loss of life worldwide. According to the World Health Organization (WHO), approximately one in ten patients is harmed during healthcare delivery, and over three million deaths occur each year as a result of unsafe care. Many of these incidents are preventable, with studies estimating that about half of patient injuries sustained during hospitalization could have been avoided (Lima Júnior et al., 2023). The burden is especially heavy in low-income countries, where hazardous medical practices contribute to 134 million adverse events and 2.6 million deaths annually (World Health Organization, 2024). These alarming statistics underscore the urgent need for robust patient safety initiatives on a global scale.

Despite international efforts, progress in implementing effective patient safety measures has been uneven. The Global Patient Safety Action Plan 2021–2030, adopted by the World Health Assembly, provides a strategic framework for countries to improve patient safety at every level of healthcare. However, only about a third of countries have developed national patient safety plans, and just 11% report having sufficient resources and capacity to manage

patient safety effectively (Ahsani-Estahbanati et al., 2022). This highlights persistent challenges such as limited funding, inadequate infrastructure, and insufficient workforce, particularly in low- and middle-income countries.

In Malaysia, patient safety remains a pressing issue, with concerns ranging from prescription errors and healthcare-associated infections to communication breakdowns within healthcare teams. Nurses, who provide the majority of direct patient care and serve as the frontline defenders of patient safety, play a pivotal role in addressing these challenges. Their knowledge, awareness, and attitudes toward patient safety are crucial in fostering a culture of safety and minimizing risks in clinical practice.

Recognizing the significant impact nurses have on patient outcomes, there is a growing emphasis on strengthening patient safety education within nursing programs. By equipping nursing students with the necessary knowledge, skills, and attitudes, educational institutions can help build a safer healthcare environment for all. In light of this, the present study aims to investigate the knowledge, awareness, and attitudes of undergraduate nursing students regarding patient safety, acknowledging their vital influence on the future of healthcare delivery (Ayyad et al., 2024).

1.2 Problem statements

Patient safety remains a persistent and complex challenge in healthcare, with improper medical procedures and adverse events continuing to cause preventable harm and mortality worldwide (Mistri et al., 2023). Despite advances in healthcare systems, recent reports highlight that new clinician including nurses face significant difficulties transitioning from education to practice, a problem exacerbated by workforce shortages, disrupted training during the COVID-

19 pandemic, and insufficient hands-on learning opportunities. Without robust preparation and support, these challenges can lead to loss of confidence, increased burnout, and a diminished culture of safety, ultimately resulting in preventable patient harm.

Nursing students, as future frontline caregivers, play a crucial role in ensuring patient safety. However, their ability to practice safely and effectively is often hindered by inadequate knowledge, low awareness, and neutral or even apathetic attitudes towards patient safety (Ghosh et al., 2024). A lack of knowledge among nursing students can contribute to serious errors, such as medication mistakes and failure to recognize early warning signs of patient deterioration, directly impacting patient outcomes (Ghosh et al., 2024). Moreover, negative or indifferent attitudes, coupled with limited awareness, can result in poor adherence to safety protocols, hazardous practices, and an inability to appreciate the broader implications of patient safety for healthcare quality (Skaria et al., 2019; Rustam & Putri, 2021).

Specific domains such as medication safety, infection control, communication, teamwork, and ethical decision-making continue to reveal gaps in competence among nursing students (Ghosh et al., 2024; Zhang et al., 2021). These gaps underscore the need for comprehensive assessment of nursing students' knowledge, awareness, and attitudes (KAA) regarding patient safety. At UNIMAS, there is a notable lack of tailored, comprehensive evaluations of nursing students' KAA on patient safety, further complicated by evidence that the current curriculum may not sufficiently emphasize patient safety competencies or provide adequate exposure to real-world safety practices (Ghosh et al., 2024; Mistri et al., 2023).

Given these urgent concerns, this study aims to address these gaps by examining the knowledge, awareness, and attitudes of UNIMAS undergraduate nursing students toward patient

safety. By identifying specific shortcomings, the findings can inform targeted educational strategies and policy interventions to enhance nursing education, strengthen patient safety competencies, and foster a culture of safety in clinical settings-ultimately supporting safer transitions from education to practice and better patient outcomes.

1.3 Research questions

1. What is the level of knowledge on patient safety among UNIMAS undergraduate nursing students?
2. What is the level of awareness of UNIMAS undergraduate nursing students towards patient safety?
3. What is the level of attitude of UNIMAS undergraduate nursing students towards patient safety?
4. Is there any relationship between the level of knowledge, awareness and attitudes towards patient safety among UNIMAS undergraduate nursing students?

1.4 Aim of the study

This study aims to examine the knowledge, awareness, and attitude of UNIMAS undergraduate nursing students towards patient safety.

1.5 Research objectives

1. To assess the level of knowledge regarding patient safety among UNIMAS undergraduate nursing students
2. To evaluate the awareness of patient safety among UNIMAS undergraduate nursing students.

3. To examine the attitudes of UNIMAS undergraduate nursing students towards patient safety
4. To determine the relationship between knowledge, awareness and attitudes towards patient safety among UNIMAS undergraduate nursing students.

1.6 Hypotheses

- Null Hypothesis (H_0): There is no significant relationship between the level of knowledge, awareness, and attitudes towards patient safety among UNIMAS undergraduate nursing students.
- Alternative Hypothesis (H_A): There is a significant relationship between the level of knowledge, awareness, and attitudes towards patient safety among UNIMAS undergraduate nursing students.

1.7 Significance of study

Patient safety is a critical component of effective healthcare. In order to ensure the welfare of patients, nursing students are indispensable as future healthcare professionals. Nevertheless, Ghosh et al. (2024) assert that this necessitates having the requisite knowledge, awareness, and attitudes regarding patient safety. The significance of this investigation lies in its objective to identify deficiencies in the knowledge, comprehension, and attitudes of nursing students regarding patient safety at UNIMAS.

Insightful analysis of areas in which nursing students may require additional assistance or instruction will be provided by the findings of this study (Skaria et al., 2019). By stressing these deficiencies, the study can guide changes in teaching strategies and the undergraduate

nursing curriculum to equip students for clinical work. This can include suggestions for improving present teaching approaches or including more patient safety-oriented materials into classes.

The outcomes of this study should increase awareness among managers and nursing teachers on the need of patient safety competencies. This knowledge helps evidence-based ways to improve nursing education to be developed to guarantee that students are ready to spot, control any hazards in clinical environments.

The objective of this investigation is to assess the knowledge, awareness, and attitudes of nursing students with respect to patient safety. Consequently, the findings will inform the development of healthcare policies and training programs that will foster a culture of safety in clinical settings. The acquired skills could serve as a catalyst for group projects that are designed to improve patient safety outcomes and ongoing professional development projects.

All things considered, the contributions of the study will be fairly beneficial in improving safer, more effective patient care approaches and nursing education. Nursing students might be certain they graduate with the knowledge needed to offer safe, high-quality healthcare services by filling up the observed gaps, therefore benefiting patients as well as the healthcare system generally.

1.8 Definition of key terms

1.8.1 Knowledge

Knowledge was understood as the awareness, understanding, and skills developed through education, experience, or reasoning, allowing individuals to effectively process and

apply information (Nonaka & Takeuchi, 1995). In the context of this study, knowledge referred specifically to the level of understanding UNIMAS undergraduate nursing students had about patient safety. This was measured using the knowledge section of a WHO-validated questionnaire on patient safety. The assessment included seven items rated on a five-point Likert scale, with responses ranging from “very low” to “very high.” Each level was assigned a score whereby, one point for “very low” up to five points for “very high.” A higher total score indicated a stronger grasp of patient safety concepts. Based on Bloom’s cut-offs points, students who scored 80% or higher were considered to have good knowledge, those scoring between 60% and 79% were classified as having moderate knowledge, and scores below 60% indicated poor knowledge.

1.8.2 Awareness

Awareness was defined as the ability to perceive and recognize both internal states and the external environment (Brown & Ryan, 2003). In this study, the World Health Organization's "Patient Safety – Curriculum Guide, Topic 1 questionnaire on patient safety" was used to assess participants' level of attentiveness. The test consisted of six questions on a five-point Likert scale to measure awareness of patient safety. The response options were: strongly disagree, disagree, neutral, agree, and strongly agree. Each "strongly disagree" received one point, "disagree" received two points, "neutral" received three points, "agree" received four points, and "strongly agree" received five points. Good awareness was indicated if participants scored above 80% in the awareness-related questions, moderate awareness if they scored between 60% and 79%, and poor awareness if they scored below 60%.

1.8.3 Attitude

Attitude refers to how individuals feel about something where it ranging from strong disapproval to strong support as it can shape their thoughts, emotions, and behaviours (Eagly & Chaiken, 2007). In this study, attitude specifically referred to how UNIMAS undergraduate nursing students personally viewed patient safety. This was measured using the attitude section of a WHO-validated questionnaire. The assessment consisted of 20 items rated on a five-point Likert scale, with response options including "strongly disagree," "disagree," "neutral," "agree," and "strongly agree." Each response was scored from one to five, with higher scores reflecting a more positive attitude. Overall scores were then interpreted based on percentage cut-offs whereby students who scored 80% or above were considered to have a positive attitude towards patient safety, those scoring between 60% and 79% were seen as having a neutral attitude, and scores below 60% indicated a negative attitude.

1.8.4 Patient Safety

Patient safety means keeping patients from getting hurt and lowering the risks that come with healthcare (Mistri et al., 2023). The World Health Organization's ("Patient Safety – Curriculum Guide, Topic 1 questionnaire on patient safety") is used in this study to measure information, awareness, and attitudes about patient safety. Seven elements were included in the knowledge section. However, for the awareness and attitude section consisted of 6 and 20 items respectively.

1.8.5 Nursing Student

Zhou et al. (2022) defined a nursing student as an individual enrolled in a recognised nursing school, undertaking the process of acquiring knowledge and skills essential for

delivering safe and effective patient care. In this study, a nursing student specifically referred to an individual enrolled in the nursing programme at UNIMAS, including those in Years 1 through 4.

1.9 Summary

This chapter covered the study's background, including an explanation of the patient safety and why it is crucial in patient care in health care settings. It also covered the study's problem statement, which highlights the dearth of research on nursing students in Malaysia's KAA toward the patient safety. The goals and importance of doing this study are also discussed in this chapter. The focus of the following chapter will be on the literature review that was conducted for this study.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter is to establish a general understanding of the research topic through a literature review. It provides a general picture of how different populations, both locally and globally, feel and perceive about patient safety. The information of literature review was retrieved from several online databases including Google Scholar, PubMed, and ResearchGate. The keywords used for the literature search includes “knowledge”, "awareness," "attitude," and "patient safety". Previous studies that were published in the last ten years were included for this literature review.

2.1 Patient Safety

Patient safety is a critical component of healthcare quality that is dedicated to reducing the risk of preventable injury during treatment (Mitchell, n.d.). It covers strategies to reduce errors, lower hazards, and ensuring positive results for patients. The World Health Organisation (WHO) estimates that patient safety concerns impact millions of people every year with one in ten patients suffer injury while in a hospital. This underscores the urgent need for effective safety protocols, as medication errors, surgical complications, and healthcare-associated infections (HAIs) are among the most frequently occurring adverse outcomes (World Health Organization, 2024).

In low- and middle-income countries, it is estimated that improper medical care results in over 134 million adverse events annually, resulting in the fatalities of 2.6 million individuals (World Health Organization, 2024). Furthermore, hospitals in nations with high incomes

allocate approximately fifteen percent of their budget to address safety concerns (The Economics of Patient Safety, 2017)

The World Health Organization (2024) indicates that approximately one in thirty staff nurses commits medication errors annually, with nearly one-fifth of these errors deemed significant. Surgical safety is still a very big problem, as complications happen in 10% of operations. Berlin (2017) says that mistakes made during surgeries cause about a million deaths every year. Many of these deaths could have been avoided by following safety checklists and procedures. In the same way, HAIs affect up to 10% of hospitalised people around the world, making illness and death rates higher (World Health Organization, 2024). Levine et al. (2024) assert that patient safety concerns transcend hospitals, affecting outpatient and community care environments as well. In these settings, diagnostic errors and inadequate follow-up contribute considerably to adverse outcomes. It is estimated that five percent of patients in primary care are affected by diagnostic errors, which frequently result in delayed or wrong therapies (Singh et al., 2017)

There are several factors that affects patient safety. The World Health Organization (2024) reported that low staff-to-patient ratios and insufficient financing aggravate safety issues made worse in environments with limited resources. A study in Malaysia, identified insufficient staffing, inadequate training, and communication to be the most major concerns limiting patient safety practices (Sok May et al., 2024). Despite all of these problems, there is still progress being made. Hospitals have seen a 20% decrease in the number of injuries that may have been avoided since the year 2019. This is because hospitals have put in place a lot of quality improvement measures and given their staff more training on how to keep patients safe (Mistri

et al., 2023) The World Health Organisation's Global Patient Safety Action Plan (2021–2030) is an international initiative designed to enhance the safety and consistency of healthcare environments globally (World Health Organization, 2024)

To sum up, patient safety is a crucial but challenging element of healthcare that requires ongoing efforts to solve systemic concerns, increase communication, and promote transparency and responsibility. Patients, healthcare workers, and governments must collaborate to make healthcare facilities safer worldwide.

2.2 Knowledge on Patient Safety among Undergraduate Nursing Students

Nurses hold a central role in safeguarding patient safety due to their close and continuous interaction with patients. Consequently, it is imperative that nursing students, as future healthcare providers, are equipped not only with theoretical knowledge but also with the practical skills necessary to ensure safe patient care. Patient safety education, therefore, must prepare students to recognize, prevent, and effectively respond to potential risks in clinical settings.

Studies conducted in Malaysia and neighbouring countries reveal a complex picture. While many nursing students demonstrate a baseline understanding of patient safety concepts, this knowledge often remains superficial and does not consistently translate into confident, competent clinical practice. For instance, research by Zulkifli et al. (2021) among Malaysian nursing students found that although students generally performed well on knowledge assessments, many reported difficulties applying safety principles in real-life clinical situations. This gap between knowing and doing suggests that classroom instruction alone is insufficient

to prepare students for the dynamic and sometimes unpredictable nature of healthcare environments.

Similar challenges have been observed in other regional contexts. Biswas & Thomas (2024) reported that nursing students in India expressed greater confidence in their theoretical knowledge than in their ability to implement patient safety measures during clinical placements. This hesitancy is often linked to limited hands-on experience and fear of making errors in high-stakes settings. Ghosh & Mohd Binti Said (2024) further highlighted that even senior nursing students, despite increased exposure, frequently lack the assurance needed to manage patient safety incidents independently.

In Malaysia, these educational gaps are compounded by systemic and cultural factors. High student-to-instructor ratios limit personalized mentorship, while resource constraints restrict access to simulation-based learning opportunities that are crucial for building practical skills. Moreover, the hierarchical nature of clinical environments may discourage students from voicing safety concerns, hindering the development of a proactive safety culture (Zulkifli et al., 2021). Language barriers and cultural nuances also play a role in communication challenges, which are critical to preventing errors and promoting teamwork.

Addressing these issues requires a multifaceted approach. Nursing curricula should move beyond traditional didactic methods to incorporate experiential learning strategies such as realistic simulations, case-based discussions, and reflective practice. Equally important is fostering an educational climate that encourages open communication and empowers students to advocate for patient safety without fear of retribution. Tailoring these interventions to the

Malaysian healthcare context-considering local resource limitations and cultural factors-will be essential for their success.

In conclusion, while Malaysian nursing students possess foundational knowledge of patient safety, there remains a significant gap in translating this knowledge into safe clinical practice. Bridging this divide demands curriculum reforms that emphasize experiential learning and mentorship, alongside systemic changes that nurture a culture of safety. By doing so, nursing education in Malaysia can better prepare future nurses to deliver care that is not only knowledgeable but also confidently safe and effective.

2.3 Awareness on Patient Safety among Undergraduate Nursing Students

Awareness of patient safety is a cornerstone of nursing education, as it empowers students to recognize potential risks and adhere to protocols that protect patients from harm. While nursing students generally understand the importance of patient safety, research indicates that there remain gaps in their comprehensive awareness and practical readiness to implement safety measures effectively.

Studies conducted in Malaysia provide valuable insights into this issue. For example, a cross-sectional study at a private Malaysian university found that nearly all nursing students demonstrated good knowledge and a positive attitude toward patient safety, with over 90% recognizing its importance in both education and clinical practice (Zulkifli et al., 2021). These findings are encouraging and suggest that Malaysian nursing students are well aware of patient safety principles.

However, despite this positive awareness, challenges persist in translating knowledge into practice. International research echoes these concerns. Kim & Seomun (2023) reported that nursing students in South Korea exhibited notable deficiencies in understanding the critical roles of communication and collaboration in patient safety. They emphasized the need for nursing curricula to incorporate interprofessional simulations and collaborative learning to build these competencies. This is particularly relevant to Malaysia, where hierarchical clinical cultures and communication barriers can impede effective teamwork and safety advocacy.

Similarly, Colet & Cruz (2015) found that although Saudi Arabian nursing students had positive attitudes toward patient safety, their knowledge of specific safety procedures and error prevention techniques was lacking. This pattern of positive attitudes but incomplete understanding is reflected in Malaysian contexts as well, where students may be aware of patient safety concepts but feel less confident in applying them during clinical placements (Zulkifli et al., 2021).

Further highlighting this gap, Farokhzadian et al. (2022) observed that Iranian nursing students felt moderately confident in their patient safety competencies, particularly struggling with understanding human and environmental factors influencing safety. This nuanced awareness gap underscores the complexity of patient safety education and the need for Malaysian nursing programs to address these broader dimensions beyond procedural knowledge.

Importantly, local studies also reveal systemic and educational barriers that affect awareness and application. Limited clinical exposure, high student-to-instructor ratios, and insufficient simulation training reduce opportunities for students to practice safety skills in

realistic settings (Zulkifli et al., 2021). Moreover, cultural factors and communication challenges within Malaysian healthcare settings may further hinder students' ability to advocate for patient safety effectively.

In conclusion, while Malaysian nursing students generally demonstrate good awareness and positive attitudes toward patient safety, there is a clear need for educational strategies that bridge the gap between awareness and clinical competence. Enhancing experiential learning, fostering a supportive safety culture, and addressing local systemic challenges will be crucial to preparing nursing students to uphold patient safety standards confidently and effectively in their future practice.

2.4 Attitude on Patient Safety among Undergraduate Nursing Students

The attitudes of nursing students toward patient safety play a crucial role in shaping safe healthcare practices. While knowledge provides the foundation, it is a positive and proactive attitude that motivates students to apply safety principles consistently and advocate for patient well-being. However, research shows that many nursing students, including those in Malaysia, face challenges in developing the confidence and mindset necessary to fully embrace patient safety culture.

A study by Nadarajan et al. (2020) involving 350 Malaysian nursing students revealed a significant lack of confidence in reporting patient safety incidents. Students expressed fear of negative consequences and perceived a lack of support from senior staff, which discouraged open communication about errors. This highlights a critical cultural barrier within Malaysian clinical settings, where hierarchical structures may inhibit junior staff and students from

speaking up. Without addressing these cultural and organizational factors, efforts to improve patient safety attitudes may fall short despite formal education.

In contrast, research from Africa by Biresaw et al. (2020) showed that a majority of nursing students held positive attitudes toward prioritizing patient safety in clinical practice. Their willingness to act ethically and prevent errors underscores the importance of nurturing such attitudes early in training. For Malaysia, this suggests that integrating ethics and values-based education into nursing curricula can strengthen students' commitment to safety, especially in environments where cultural norms may otherwise discourage assertiveness.

However, Alandajani et al. (2022) found that even when nursing students possess good knowledge of patient safety, many hesitate to engage actively in safety discussions or adhere rigorously to protocols. This knowledge-attitude gap indicates that awareness alone is insufficient to foster a culture of accountability and proactive safety behaviour. For Malaysian nursing education, this underscores the need for targeted interventions that build not only knowledge but also confidence and a sense of responsibility.

Addressing these challenges requires a comprehensive approach. Akram et al. (2024) emphasize that bridging the gap between knowledge and attitude involves experiential learning, mentorship, and supportive clinical environments. Locally, Coyoca et al. (2024) advocate for practical training and mentorship programs tailored to Malaysia's healthcare context, which includes hierarchical clinical cultures and resource constraints. Such strategies can empower nursing students to overcome cultural barriers, develop positive safety attitudes, and contribute meaningfully to safer patient care.

In summary, while Malaysian nursing students generally recognize the importance of patient safety, their attitudes are shaped by complex educational, cultural, and organizational factors. To cultivate a proactive and confident safety culture, nursing education in Malaysia must go beyond theoretical instruction to include experiential learning, ethical training, and mentorship within a supportive clinical environment. Only then can future nurses be fully prepared to champion patient safety in their professional roles

2.5 Relationship between Knowledge, Awareness and Attitude on Patient Safety among Undergraduate Nursing Students

Understanding the interplay between knowledge, awareness, and attitude toward patient safety is fundamental to preparing nursing students to become effective advocates for safe healthcare practices. These three components are interconnected and collectively influence how students perceive, internalize, and apply patient safety principles in clinical settings.

Several studies demonstrate a positive correlation between knowledge and attitude among nursing students. For instance, a mixed-method study conducted among nursing students in Malaysia found that students with higher knowledge scores about patient safety also exhibited more positive attitudes toward safety practices (Ghosh & Mohd Binti Said, 2024). This suggests that enhancing students' knowledge through comprehensive education can foster more constructive attitudes, which are critical for safe clinical behavior. Similarly, Zulkifli et al. (2021) reported that 98.9% of Malaysian nursing students had good knowledge of patient safety, and a majority showed positive attitudes, indicating a significant relationship between these factors in the local context.

Awareness acts as a bridge linking knowledge and attitude. It reflects students' ability to recognize patient safety issues and understand their importance in real-world clinical environments. Studies show that higher awareness enhances the likelihood that students will adopt positive attitudes and engage in safety-oriented behaviours. For example, Baek & Shin (2025) found that nursing students' patient safety confidence-closely related to awareness-mediated the relationship between their attitudes and their willingness to participate in safety activities, emphasizing the dynamic interaction among these constructs.

However, knowledge and awareness alone are insufficient without the right attitude. Alandajani et al. (2022) highlighted a discrepancy where nursing students possessed good knowledge but demonstrated hesitancy and less commitment to actively practicing patient safety, underscoring that attitude is a critical determinant of translating knowledge into action. This gap is particularly relevant in Malaysia, where hierarchical clinical cultures and limited experiential learning opportunities may hinder students' confidence and proactive engagement in patient safety.

Furthermore, clinical experience and educational interventions significantly influence this triad. Duhn et al. (2012) observed that final-year nursing students had higher knowledge and more positive attitudes compared to juniors, suggesting that increased clinical exposure and practical training strengthen awareness and foster favourable attitudes. This finding aligns with local studies recommending the integration of simulation-based learning and mentorship to enhance students' experiential knowledge and confidence (Coyoca et al., 2024).

In the Malaysian context, fostering a patient safety culture in both academic and clinical settings is essential to reinforce the relationship between knowledge, awareness, and attitude.

Structured education that combines theoretical instruction with practical application, supported by positive role models and open communication, can empower nursing students to internalize patient safety values and translate them into consistent safe practices (Zulkifli et al., 2021).

In summary, the relationship between knowledge, awareness, and attitude on patient safety among undergraduate nursing students is mutually reinforcing. Knowledge enhances awareness, which in turn shapes attitudes that motivate safe behaviors. Strengthening this relationship through well-designed curricula, experiential learning, and supportive clinical environments is crucial for preparing Malaysian nursing students to become confident, competent, and proactive patient safety advocates.

2.6 Conceptual framework

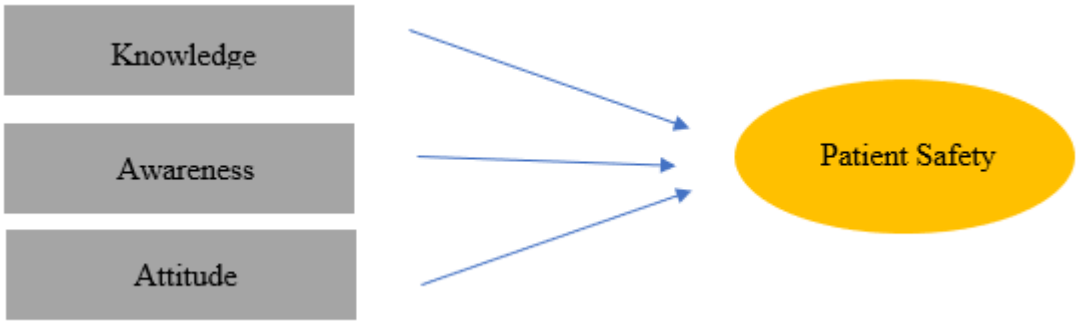


Figure 2.1 Conceptual Framework

The conceptual framework for this study is grounded in the understanding that knowledge, awareness, and attitude toward patient safety are interconnected factors that collectively shape how nursing students engage in safe clinical practices. Each of these elements plays a distinct but complementary role in influencing patient safety outcomes. Knowledge represents the foundational understanding of patient safety principles and guidelines

(Ayyad et al., 2024). It equips students with the essential information needed to recognize potential risks and implement safety measures effectively. However, knowledge alone is not sufficient to guarantee safe practice. Awareness on the other hand builds upon knowledge by reflecting the students' mindfulness and attentiveness to patient safety issues in real-world clinical environments (Sen et al., 2020). It involves recognizing the importance of safety protocols and being alert to potential hazards, which is crucial for timely and appropriate action. Attitude encompasses the students' feelings, beliefs, and values toward patient safety. A positive attitude fosters motivation and commitment to uphold safety standards, influencing behaviours such as vigilance, communication, and advocacy for patients (Ghosh & Mohd Binti Said, 2024). Therefore, the framework posits that these three variables are interrelated whereby enhanced knowledge can increase awareness, and together, they contribute to shaping a more positive attitude toward patient safety. This positive attitude is essential because it drives the consistent application of safety practices in clinical settings. By exploring these relationships, the study aims to highlight how strengthening knowledge and awareness through education and practical experiences can nurture more positive attitudes, ultimately leading to safer patient care. This holistic approach recognizes that fostering patient safety is not merely about imparting information but also about cultivating a culture of safety through engagement, reflection, and ethical commitment. In essence, this framework serves as a guide to understand and improve the factors that prepare nursing students to become competent, conscientious, and safety-conscious professionals who prioritize the well-being of their patients.

2.7 Summary

An analysis of nursing students' knowledge, awareness, and attitudes (KAA) about patient safety indicates a distinct disparity upon closer examination. Although numerous studies globally have examined KAA concerning patient safety among nursing students and healthcare professionals, there is a notable deficiency of study on this topic in Malaysia, particularly in Sarawak. However, existing studies have highlighted varying levels of patient safety knowledge, with gaps in awareness and inconsistent attitudes toward implementing safety practices in clinical settings.

These studies emphasize the importance of understanding the interplay between knowledge, awareness, and attitudes in shaping nursing students' patient safety behaviors. Effective application of safety procedures is sometimes hampered, though, by cultural and educational gaps as well as the hierarchical character of healthcare organisations. Focussing on how UNIMAS nursing students combine theoretical knowledge, practical awareness, and proactive attitudes in clinical environments, this study is therefore essential to evaluate their KAA in respect to patient safety.

This problem is not limited to Malaysia since the literature exposes worldwide difficulties in fostering a safe culture among nursing students. This study is to provide light on the knowledge, awareness, and attitudes of undergraduate nursing students towards patient safety, therefore stressing areas of need for nursing education and training. The results will help to highlight areas of weakness in competence and attitudes and provide suggestions for areas of improvement and to strengthen the patient safety culture among future nurses.

CHAPTER 3: METHODOLOGY

3.0 Introduction

The methodology used to achieve the research objectives will be covered in this chapter and will be broken down into several subheadings, including the research design in Section 3.1, the research setting in Section 3.2, the inclusion and exclusion criteria in Section 3.3, the sampling method and sample size in Section 3.4, the research instrument in Section 3.5, the ethical consideration in Section 3.6, the data collection procedure in Section 3.7, the data analysis procedure in Section 3.8, and finally, the overarching conclusions in Section 3.9.

3.1 Research design

A cross-sectional quantitative research methodology was implemented in this investigation to examine the attitudes, knowledge, and awareness of patient safety among undergraduate nursing students at UNIMAS. This study adopted a quantitative design because it allowed the researcher to collect and analyse numerical data, thereby enabling objective and generalizable conclusions.

Quantitative research offered several advantages for methodical and objective study of events. Firstly, this approach ensured objective outcomes, which were crucial for enhancing the reliability and credibility of the findings (Burrell & Gross, 2017). Secondly, quantitative methods were well-suited for this study involving nursing students across multiple cohorts, as they facilitated data collection from a larger sample within a relatively short period (Faber & Fonseca, 2014).

Data were collected at a single point in time using a cross-sectional approach, which enabled the researchers to assess the current levels of knowledge, awareness, and attitudes

regarding patient safety within the target group. This approach was efficient for investigating correlations between variables and identifying trends without requiring long-term follow-up (Burrell & Gross, 2017).

3.2 Research setting

This research was conducted at the University of Malaysia Sarawak (UNIMAS) in Kota Samarahan, Sarawak, within the Faculty of Medicine and Health Sciences (FMHS). The Bachelor of Nursing with Honours curriculum was a four-year program offered by the faculty.

3.3 Research Population

The study population consisted of nursing students who were enrolled at the University of Malaysia Sarawak (UNIMAS). Participants included students from Year 2 to Year 4 of the Bachelor of Nursing program. At the time of the study, the program had a total enrolment of 184 nursing students, comprising 63 second-year students, 57 third-year students, and 64 fourth-year students.

3.3.1 Inclusion criteria

The study's inclusion criteria comprised undergraduate nursing students enrolled in Years 2 to 4 of the Bachelor of Nursing program at the University of Malaysia Sarawak (UNIMAS). Participation was voluntary, and students who expressed a willingness to engage in the study were selected as respondents.

3.3.2 Exclusion criteria

This study excluded postgraduate nursing students, first-year students, those who participated in the pilot study, and any students who were unwilling or hesitant to give their

consent. Postgraduate students were left out because their advanced education and clinical experience were quite different from those of undergraduate students. Including them could have introduced variations in the data that would have distracted from the study's focus on the undergraduate nursing experience.

Similarly, first-year students were excluded because they generally had little to no clinical exposure at that stage. As Baig et al. (2024) pointed out, their limited practical experience might affect their knowledge, awareness, and attitudes toward patient safety. Including them could have weakened the reliability of the study's findings.

3.4 Sampling method and sample size

To ensure representativeness, simple random sampling was used. Each student in the population was assigned a unique identifier, and participants were randomly selected using SPSS software until the target sample size was reached. Although Excel is commonly used for randomization, SPSS was chosen in this study because it offers more advanced random sampling functions and ensures greater accuracy and reproducibility in the selection process. Using SPSS also allowed for seamless integration with subsequent data analysis, streamlining the research workflow and minimizing the risk of errors during data handling (Sil et al., 2019). The sample size calculation was based on the Taro Yamane formula, which is widely used for determining sample sizes from known finite populations. Using a 95% confidence level and a 5% margin of error, the formula is expressed as:

$$n=\frac{N}{1+N\,(e)^2}$$

N = The population size

n = The sample size

e = margin of error (0.05)

Year 2: 63, Year 3: 57, Year 4: 64; Total population = 179 participants

Calculation: $n = \frac{184}{1+184\ (0.05)^2}$

= 126 participants

A ten percent attrition rate equated to thirteen participants. However, to account for potential non-response or dropout, the researcher recruited 14 additional participants, bringing the final sample size for this study to 140 individuals. This adjustment was made to compensate for any participants who might have chosen not to participate in the study.

3.5 Research instrument

Data were gathered using the Patient Safety Questionnaire developed by the World Health Organization (WHO), a trusted and widely used tool in healthcare education research. This questionnaire was thoughtfully designed with four sections to capture a comprehensive picture of the participants:

- **Section A** collected basic demographic details such as age, gender, year of study, and clinical experience
- **Section B** focused on patient safety knowledge through seven items rated on a 5-point Likert scale. To interpret the results meaningfully, scores were categorized as Good (80–100%), Moderate (60–79%), or Poor (<60%), following Bloom's taxonomy (Chandio et al., 2016)

- **Section C** explored awareness of patient safety with six items, also using a 5-point Likert scale and including some reverse-coded questions to ensure thoughtful responses. The scoring followed the same classification as knowledge.
- **Section D** assessed attitudes toward patient safety via 20 items, again on a 5-point Likert scale, with negative items reverse-coded to maintain consistency. The scoring mirrored that of awareness and knowledge.

The researcher chose to administer the questionnaire exactly as it was originally developed to preserve its validity and reliability. Before the main study, a pilot test was conducted to check that the questionnaire was clear and consistent. Encouragingly, the internal consistency measured by Cronbach's alpha was expected to exceed 0.7, indicating that the tool reliably captured the intended concepts. Cronbach's alpha of the knowledge, awareness and attitude sections in previous study were 0.87, 0.71 and 0.73 respectively (Cervera-Gasch et al., 2021).

3.6 Ethical consideration

Before starting the study, ethical approval was obtained from both the University of Malaysia Sarawak (UNIMAS) and its Faculty of Medicine and Health Sciences (Appendix A: Ethical Approval Application Letter). The researcher made sure every participant fully understood the study's purpose through an information sheet accompanying the questionnaire. This sheet explained the research objectives and assured participants that their responses would be treated with strict confidentiality and used solely for research purposes (Appendix B: Informed Consent)

Participation was entirely voluntary, and informed consent was obtained from each student who agreed to take part. To protect privacy, no names or identifying information were collected, and all data were securely stored with access limited to authorized personnel only. The research is committed to destroying the data two years after the study's completion, honouring the trust participants placed. Throughout the process, respect, confidentiality, and integrity were the researcher's guiding principles.

3.7 Data collection procedure

3.7.1 Pilot study

Before launching the main study, a pilot test was conducted to ensure the questionnaire was clear, reliable, and well-suited for our participants. Fourteen nursing students who met the inclusion criteria took part in this preliminary phase. These students were excluded from the main study to avoid bias, as they had already completed the questionnaire.

When analysing the pilot data, the knowledge section showed excellent internal consistency, with a Cronbach's alpha of 0.92, indicating that the items consistently measured what they were intended to. The attitude section also demonstrated strong reliability, with a Cronbach's alpha of 0.84, giving us confidence that the questions effectively captured students' attitudes toward patient safety.

However, the awareness section initially presented a lower Cronbach's alpha of 0.668, suggesting some inconsistency among the items. After careful discussion with the research supervisor and considering best practices in scale refinement, this item was removed. Following its deletion, the Cronbach's alpha for the awareness section improved significantly to 0.711,

indicating acceptable internal consistency (Reilly & Dillon, 2013;Gliem & Gliem, 2003). Removing items that do not correlate well with the rest of the scale is a standard and recommended procedure in psychometric evaluation to enhance the reliability and validity of measurement instruments (Reilly & Dillon, 2013). This process, often referred to as "debugging" or "item purification," helps ensure that the questionnaire items collectively measure a coherent and unified construct (Jehad et al., 2023). Moreover, the deleted item's content may have introduced ambiguity or a different interpretation among respondents, which can reduce consistency. For example, the statement that "Errors are made by most healthcare professionals" might have elicited varied responses due to differing perceptions of error prevalence or professional accountability, thereby affecting its alignment with the overall awareness construct. By refining the awareness section from six to five items, the scale became more focused and reliable, strengthening the quality of the data collected and ensuring that subsequent analyses would be based on a robust measurement tool (Gliem & Gliem, 2003;Jehad et al., 2023).

This iterative process underscored the importance of carefully evaluating each item to ensure the questionnaire truly reflects the constructs we aimed to measure. The pilot study gave the researcher valuable insights and confirmed that the refined instrument was both reliable and ready for use in the main study.

3.7.2 Data collection

This study utilised randomisation to reduce selection bias and enhance sample representativeness (Vaidyanathan, 2024). Therefore, a simple random sampling was implemented, which entailed the allocation of participants to the research by a random sequence generated by the Statistical Package for the Social Sciences (SPSS) software. The

technique commenced with the compilation list of qualified participants in accordance with the established inclusion and exclusion criteria. Subsequently, each participant was allocated a distinctive identification. A random sequence of identifiers was generated by the random number generation tool in SPSS. The investigation enrolled individuals who were associated with the identifiers provided. Sil et al. (2019) asserted that this strategy guaranteed that each eligible participant possessed an equal and independent probability of selection, hence diminishing the potential for systematic bias and enhancing the validity of the study's findings. Furthermore, SPSS software guaranteed that the randomisation process was consistent and reproducible, thereby complying with the most rigorous standards in quantitative research methodologies.

The researcher physically gave the participants the questionnaires during planned class hours. Students who agreed to be part of the study signed an informed consent form. Approximately 30 minutes were allocated for the participants to complete the questionnaire. Should any participant have failed to finish within this period, they were permitted to turn in the finished questionnaire at a later date through the cohort's class representative. The researcher maintained contact with participants through each cohort's class representative, especially for participants who completed the questionnaire beyond the planned session, to guarantee follow-up. This assisted to guarantee the completion of the study and handle any problems or worries during the data collecting phase.

3.8 Data analysis

Data analysis was done using IBM SPSS Version 27.0 software. Descriptive and inferential statistical approaches were used to analyse this study. In order to analyse socio

demographic information, knowledge, awareness and attitudes, descriptive statistics were used. To highlight the socio-demographic data, knowledge, awareness and among UNIMAS undergraduate nursing students toward patient safety, the results were presented in the form of means, percentages, frequencies, and frequency distribution. Non-normal data was tabulated using the median and interquartile range.

The statistical differences in KAA among the respondents' study years were analysed using inferential statistics. A non-parametric test was applied as the inferential statistic type. The relationship between KAA on patient safety among undergraduate nursing students at UNIMAS was examined using the Spearman or Pearson correlation test. Normally distributed data was examined with Pearson correlation test while not normally distributed data was examined using Spearman correlation test.

3.9 Summary

This chapter provides a detailed description of the procedures that were used to assess the attitude of UNIMAS undergraduate nursing students and how they perceive patient safety. The research design was cross-sectional quantitative study. This study was carried out at the UNIMAS Faculty of Medicine and Health Sciences. This study included 140 nursing students as participants. A self-administered questionnaire was distributed physically to the participants in the faculty. The collected data was analysed using the IBMSPSS version 27.0. Both descriptive and inferential statistics were used to measure the data. Spearman’s or Pearson correlation test was used to measure the relationship between KAA on patient safety among the UNIMAS undergraduate nursing students.

CHAPTER 4: RESULTS

4.0 Introduction

In this chapter, the result of the data analysis is presented based on the research objective of this study which consists of: 4.1 Participant's sociodemographic characteristics, 4.2 Knowledge on patient safety among UNIMAS undergraduate nursing students, 4.3 Awareness on patient safety among UNIMAS undergraduate nursing students, 4.4 Attitude towards patient safety among UNIMAS undergraduate nursing students 4.5 Inferential statistics, and 4.6 Relationship between the level of knowledge, awareness and attitude towards patient safety among UNIMAS undergraduate nursing students. A simple random sampling method was used, and about 140 respondents participated in this study. Data analysis was conducted by using SPSS version 27. A total of 140 respondents from Year 2 to Year 4 were involved in this study. The calculated sample size based on Yamane's formula was 140 respondents. Therefore, this represents a response rate of 100.0% from the respondents for this study.

4.1 Socio-demographic characteristics of the study sample

Table 4.1 presents the socio-demographic characteristic of the respondents. Out of the total number of respondents, the majority were 83.6% (n=117) female, followed by males 23 (16.4%). For age, there is no outliers or extreme values noted from the box plot for age. A Kolmogorov-Smirnov test show that the data was not normally distributed, $D(139) = .182$, $p = <.001$. The median age among the participants is 22 years old (IQR = 2 years old). The maximum age is 26 years old while the minimum age is 21 years old. The range is 5 years old. The mode age is 23 years old. The clinical experience of the respondents was categorized into two

categories with 37.9% (n=53) of the respondents with less than 6 months of clinical experience and 62.1% (n=87) respondents with more than 6 weeks of clinical experiences.

Table 4.1 Distribution of respondents by socio-demographic attributes of UNIMAS undergraduate nursing students (n=140)

Attributes	Categories	Frequency	%
Sex	Male	23	16.4%
	Female	117	83.6%
Year of Study	Year 2	46	32.9%
	Year 3	47	33.6%
	Year 4	47	33.6%
Clinical experience	Less than 6 months	53	37.9%
	More than 6 months	87	62.1%

4.2 Knowledge on patient safety among UNIMAS undergraduate nursing students.

Table 4.2 below presents the descriptive statistics regarding participants' knowledge and understanding related to patient safety and human error. The results are based on self-reported responses measured on a five-point Likert scale (1 = Very Low to 5 = Very High).

The highest mean score (M = 3.94, SD = 0.681) was observed for the statement *"I understand the elements that impact patient safety"*, indicating a generally high level of understanding among the respondents. This is followed by *"I understand the responsibilities of healthcare organizations (e.g., hospitals, clinics) in error reporting"* (M = 3.89, SD = 0.686), and *"I understand the approaches to addressing errors through communication"* (M = 3.74, SD = 0.695).

On the other hand, the statement *"I know the procedures for reporting errors"* recorded the lowest mean score (M = 3.29, SD = 0.886), suggesting a relatively lower level of knowledge in this area among the participants. Despite this, a majority (43.6%) still rated themselves at a medium level, indicating room for further education or reinforcement in error reporting

processes. The overall mean score in this 7-item question of Knowledge on Patient Safety was 25.74, and standard deviation of 3.725.

Overall, the results reflect a moderate to high level of knowledge regarding various aspects of patient safety and human error among the respondents.

Table 4.2 Knowledge on patient safety among UNIMAS undergraduate nursing students (n=140)

Statements	**Frequency (n)**					
	Very Low	**Low**	**Medium**	**High**	**Very High**	**Mean + SD**
I know various types of human error	1 (0.7%)	6 (4.3%)	60 (42.9%)	61 (43.6%)	12 (8.6%)	3.55 (0.743)
I know various factors that contribute to human error	1 (0.7%)	3 (2.1%)	49 (35.0%)	77 (55.0%)	10 (7.1%)	3.66 (0.676)
I understand the elements that impact patient safety	1 (0.7%)	1 (0.7%)	28 (20.0%)	86 (61.4%)	24 (17.1%)	3.94 (0.681)
I understand the approaches to addressing errors through communication	0%	4 (2.9%)	45 (32.1%)	75 (53.6%)	16 (11.4%)	3.74 (0.695)
I know actions that should follow after an error occurs	0%	13 (9.3%)	41 (29.3%)	65 (46.4%)	21 (15.0%)	3.67 (0.843)
I know the procedures for reporting errors	2 (1.4%)	22 (15.7%)	61 (43.6%)	43 (30.7%)	12 (8.6%)	3.29 (0.886)
I understand the responsibilities of healthcare organizations (e.g., hospitals, clinics) in error reporting	0	3 (2.1%)	32 (22.9%)	82 (58.6%)	23 (16.4%)	3.89 (0.686)
Mean = 25.74 SD = 3.725						

SD = Standard Deviation

Figure 4.1 presents the distribution of respondents' levels of knowledge on patient safety. The knowledge score was categorized into three levels: poor (0–20), moderate (21–27), and

good (28–35). Bloom’s baseline cut-off point was used in this study to classify each respondent's total score as either poor, moderate or good using SPSS. The Bloom baseline cut-off point refers to a specific threshold used to categorize levels of knowledge based on Bloom's Taxonomy. It is commonly used for converting continuous data into more easily handled discrete categories.

In this study, the majority of UNIMAS undergraduate nursing students demonstrated a moderate level of knowledge (n = 77, 55.0%), followed by those with a good level of knowledge (n = 57, 40.7%). Only a small proportion of respondents were identified as having a poor level of knowledge regarding patient safety (n = 6, 4.3%).

These findings suggest that most students possess an adequate understanding of patient safety, though there remains room for improvement, especially in elevating knowledge from moderate to good and addressing the small minority with poor knowledge.

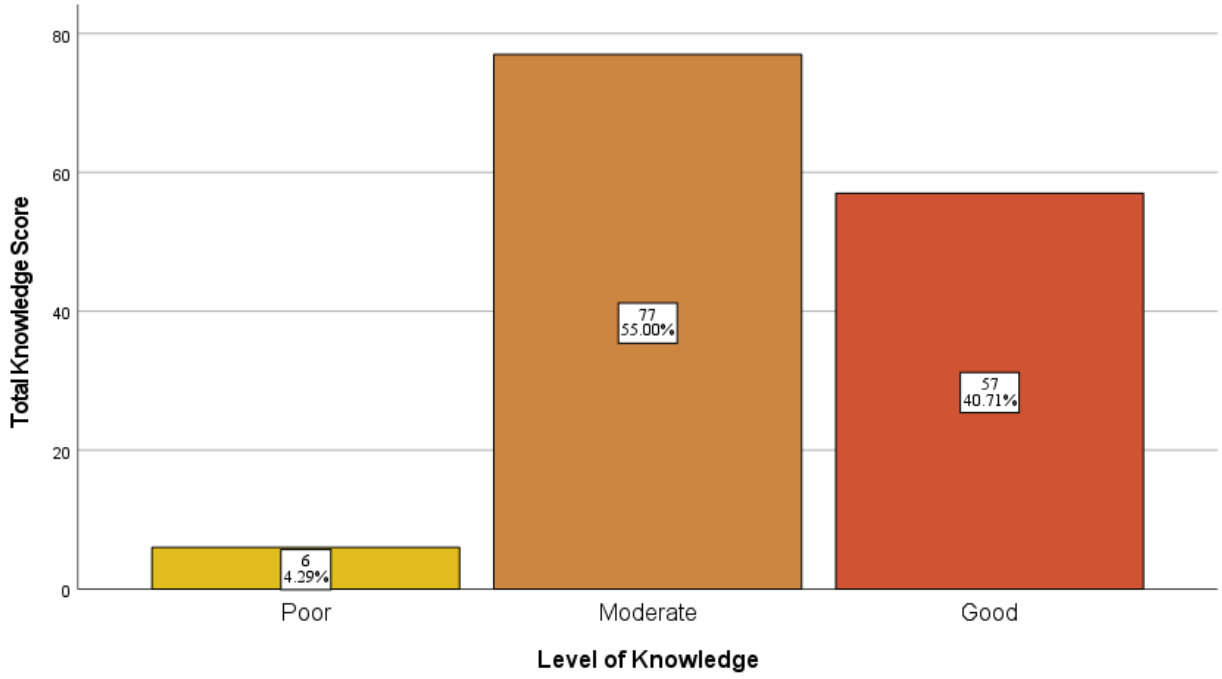


Figure 4.1 Level of Knowledge on patient safety among UNIMAS Undergraduate Nursing Students (n=140)

4.3 Awareness on patient safety among UNIMAS undergraduate nursing students.

Table 4.3 illustrates the participants' level of awareness regarding various aspects of patient safety. A majority of respondents expressed confidence in the healthcare system, with 65% agreeing and 18.6% strongly agreeing that there is a safe system of healthcare for patients in their country. This is reflected in a relatively high mean score of 4.01 (SD = 0.611), indicating that most participants were aware of safety structures in place within the healthcare system.

Notably, the highest mean score was recorded for the statement regarding healthcare workers being trained in patient safety practices (M = 4.38, SD = 0.569). More than half of the respondents (53.6%) agreed and 42.1% strongly agreed, highlighting a strong awareness and belief that proper training in patient safety is being emphasized among healthcare professionals.

In contrast, awareness appeared to be more mixed when it came to statements related to specific patient safety risks. For example, the statement *"It is rare for patients to receive the wrong medication"* had the lowest mean score of 2.94 (SD = 0.907), with 41.4% responding neutrally and 29.3% disagreeing. This suggests some uncertainty or scepticism among respondents about the frequency of medication errors, which may reflect their real-life observations during clinical practice.

Similarly, when asked whether medical errors occur frequently, responses were more varied. While half of the participants (50%) agreed, a significant portion remained neutral (32.9%), resulting in a moderate mean score of 3.55 (SD = 0.808). This implies that while there is some awareness of the issue, the perception of how often these errors occur may not be fully clear to all students.

Lastly, awareness of global patient safety concerns was moderately strong. When presented with the fact that approximately one in ten hospitalized patients worldwide will face an adverse event, 50% agreed and 12.9% strongly agreed, with a mean score of 3.73 (SD = 0.718). This reflects a fair level of awareness regarding the broader risks patients face during hospitalization. The overall mean score for this tool was 18.61 (SD=1.648).

Overall, these findings suggest that while students show strong awareness of the healthcare system's safety structure and the importance of training, there is less certainty when it comes to the frequency and nature of specific safety incidents such as medication errors and adverse events.

Table 4.3 Awareness on patient safety among UNIMAS undergraduate nursing students (n=140)

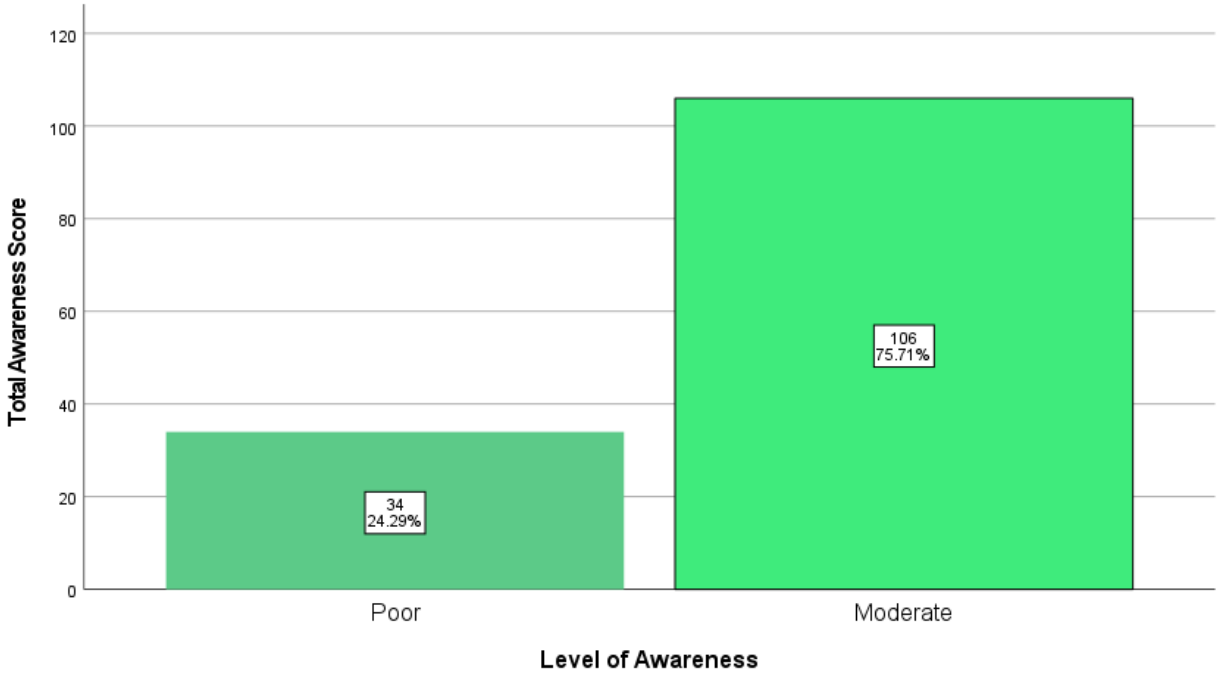
Statements	**Frequency (n)**					
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Mean + SD**
There is a safe system of healthcare for patients in my country.	0	1 (0.7%)	22 (15.7%)	91 (65.0%)	26 (18.6%)	4.01 (0.611)
Medical errors occur frequently	2 (1.4%)	11 (7.9%)	46 (32.9%)	70 (50.0%)	11 (7.9%)	3.55 (0.808)
It is rare for patients to receive the wrong medication.	5 (3.6%)	41 (29.3%)	58 (41.4%)	30 (21.4%)	6 (4.3%)	2.94 (0.907)
Healthcare workers are trained in patient safety practices	0%	0%	6 (4.3%)	75 (53.6%)	59 (42.1%)	4.38 (0.569)
Approximately one in ten hospitalized patients worldwide will face an adverse event.	0%	4 (2.9%)	48 (34.3%)	70 (50.0%)	18 (12.9%)	3.73 (0.718)
Mean = 18.61 SD = 1.648						
SD = Standard Deviation						

Figure 4.2 presents the distribution of awareness levels on patient safety among UNIMAS undergraduate nursing students, categorized into three levels: poor, moderate, and good. Based on the scoring range, none of the respondents demonstrated a good level of awareness (score 24–30), which is a notable finding. Bloom's baseline cut-off point was also used in this study to classify each respondent's total score as either poor, moderate or good using SPSS.

The majority of participants (75.7%) fell under the moderate awareness category (scores between 18 and 23), indicating that while they possess a fair understanding of patient safety, there remains room for improvement. Meanwhile, 24.3% of the students were categorized as

having poor awareness (scores between 0 and 17), suggesting a lack of adequate knowledge or exposure to patient safety principles among nearly one-fourth of the cohort.

Figure 4.2 Level of awareness on patient safety among UNIMAS undergraduate nursing students(n=140)



4.4 Attitude towards patient safety among UNIMAS undergraduate nursing students

Based on Table 4.4 the statement with the highest mean score was "*Learning from my mistakes can help me prevent future incidents."* (4.51, SD=0.569), followed by "*Managers in the healthcare system will expect us to prioritize patient safety*" (4.33, SD=0.568). Meanwhile, the statements with the lowest mean score were "*Managers in the healthcare system will prioritize meeting performance targets over patient safety*" (2.84, SD=1.029). The overall mean score for this tool was 72 (SD=5.741).

Table 4.4 Attitude towards patient safety among UNIMAS undergraduate nursing students (n = 140)

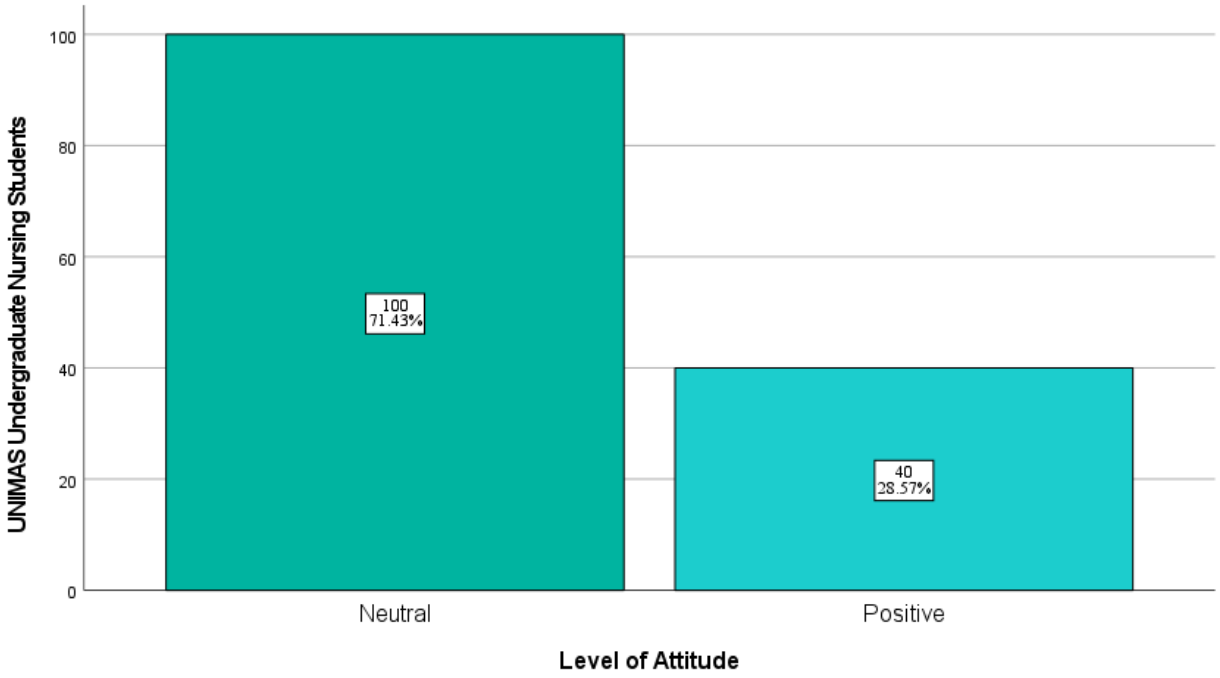
Statements	**Frequency (n)**					
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Mean + SD**
I would find it easy to share details about an error I made.	2 (1.4%)	25 (17.9%)	53 (37.9%)	52 (37.1%)	8 (5.7%)	3.28 (0.874)
It is simpler to assign blame than to focus on understanding the causes of errors.	20 (14.3%)	58 (41.4%)	36 (25.7%)	23 (16.4%)	3 (2.1%)	3.49 (1.000)
I feel confident addressing someone who is neglecting patient safety.	2 (1.4%)	23 (16.4%)	60 (42.9%)	48 (34.3%)	7 (5.0%)	3.25 (0.841)
I am comfortable discussing errors made by others.	3 (2.1%)	25 (17.9%)	54 (38.6%)	54 (38.6%)	4 (2.9%)	3.22 (0.849)
I consistently ensure that patient safety remains uncompromised.	3 (2.1%)	11 (7.9%)	40 (28.6%)	66 (47.1%)	20 (14.3%)	3.64 (0.899)
I believe completing error reporting forms contributes to improving patient safety.	0	0	18 (12.9%)	82 (58.6%)	40 (28.6%)	4.16 (0.665)
I am open to discussing my own mistakes and focusing on their causes to enhance safety.	0	2 (1.4%)	18 (12.9%)	83 (59.3%)	37 (26.4%)	4.11 (0.665)
Learning from my mistakes can help me prevent future incidents.	0	0	5 (3.6%)	58 (41.4%)	77 (55.0%)	4.51 (0.569)
Acknowledging and addressing my mistakes will be a critical part of my professional role.	0	1 (0.7%)	12 (8.6%)	69 (49.3%)	58 (41.4%)	4.31 (0.658)
It is essential for me to learn effective ways to	0	0	6 (4.3%)	84 (60.0%)	50 (35.7%)	4.31 (0.551)

acknowledge and address my errors by the end of medical school.						
Nurses will be dedicated to identifying and addressing patient safety risks.	0	0	10 (7.1%)	85 (60.7%)	45 (32.1%)	4.25 (0.577)
Nurses will not criticize me for making mistakes.	15 (10.7%)	46 (32.9%)	55 (39.3%)	21 (15.0%)	3 (2.1%)	3.35 (0.936)
Doctors will be committed to identifying and addressing patient safety risks.	0	7 (5.0%)	43 (30.7%)	69 (49.3%)	21 (15.0%)	3.74 (0.772)
Doctors will not criticize me for making mistakes	20 (14.3%)	51 (36.4%)	46 (32.9%)	19 (13.6%	4 (2.9%)	3.46 (0.992)
Managers in the healthcare system will facilitate error reporting.	0	2 (1.4%)	39 (27.9%)	81 (57.9%)	18 (12.9%)	3.82 (0.660)
Managers in the healthcare system will prioritize meeting performance targets over patient safety	6 (4.3%)	34 (24.3%)	43 (30.7%)	45 (32.1%	12 (8.6%)	2.84 (1.029)
Managers in the healthcare system will expect us to prioritize patient safety.	0	0	7 (5.0%)	80 (57.1%)	53 (37.9%)	4.33 (0.568)
Being transparent and honest about my mistakes will be acceptable in my workplace.	0	2 (1.4%)	32 (22.9%)	68 (48.6%)	38 (27.1%)	4.01 (0.749)
Admitting to an error I made would result in fair and just treatment by management.	0	3 (2.1%)	34 (24.3%)	75 (53,6%)	28 (20.0%)	3.91 (0.725)
Mean = 72 SD = 5.741						
SD = Standard Deviation						

The total mean score for the 19-item questions on attitude towards patient safety was 72, and the standard deviation of 5.741. Each statement was graded with a 5 Likert scale ranging

from 1 for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree. Next, the total score of each respondent was calculated in SPSS and then categorized as either positive, neutral and negative attitude using Bloom's baseline cut-off point. Based on Figure 4.4, the level of attitude towards patient safety was divided into 3 levels: negative attitude with a score of below 60%, neutral attitude with score between 60% to 80% and good attitude with a score of above 80%. The findings also reveal that most of the respondents scored neutral attitudes, 100 (71.44%) towards patient safety, followed by positive attitude 40 (28.6%) meanwhile none of them scored negative attitudes. These results were presented in Figure 4.3 with the level of attitude towards patient safety among UNIMAS undergraduate nursing students.

Figure 4.3 Level of attitude towards patient safety among UNIMAS undergraduate nursing students



4.8 Inferential statistics between knowledge, awareness and attitude on patient safety

A normality test was conducted to determine whether the data collected from the sample were normally distributed or not before continuing with the statistical test for the inferential statistic. Table 4.5 shows the significant value of Kolmogorov-Smirnov for the knowledge on patient safety, awareness on patient safety and attitude towards patient safety. The significant value for the knowledge on patient safety p= .033, which is less than the p-value of 0.05. Similarly, the significant value for awareness and attitude towards patient safety were p<.001 and p = .005 respectively. Thus, according to Beers (2022), the data were not normally distributed. Therefore, a non-parametric test which is Spearman's Rho correlation analysis would be used for the inferential test as the data is not normal (Grant, 2021).

Table 4.5 Normality test for the level of knowledge, awareness and attitude towards patient safety

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Knowledge on patient safety	.079	140	.033	.975	140	.012
Awareness on patient safety	.172	140	.000	.956	140	.000
Attitude towards patient safety	.093	140	.005	.988	140	.247

4.9 Relationship between the level of knowledge, awareness and attitude towards patient safety among UNIMAS undergraduate nursing students.

Table 4.6 shows the results of a Spearman's rho correlation analysis examining the relationship between knowledge, awareness, and attitude towards patient safety among

UNIMAS undergraduate nursing students. The analysis revealed statistically significant positive relationships among all three variables.

There was a moderate positive correlation between knowledge and attitude towards patient safety ($r = .448$, $p < .001$), suggesting that students who are more knowledgeable about patient safety tend to have a more positive attitude towards it. In addition, a weak but significant correlation was found between knowledge and awareness ($r = .262$, $p = .002$), indicating that students with greater knowledge are generally more aware of patient safety issues.

Similarly, awareness and attitude were also positively correlated, though the strength of the relationship was weak ($r = .286$, $p = .001$). This means that students who are more aware of patient safety are likely to demonstrate a more positive attitude, even if the connection is not as strong.

Overall, these findings suggest that enhancing both knowledge and awareness could contribute to more positive attitudes toward patient safety. This highlights the need for nursing education programs to integrate patient safety content more thoroughly by helping students not just understand the concepts, but also apply them with the right mindset in clinical practice.

Table 4.6 Relationship between knowledge, awareness and attitude on patient safety among UNIMAS undergraduate nursing students (n=140)

			Knowledge on patient safety	Awareness on patient safety	Attitude towards patient safety
Spearman's rho	Knowledge on patient safety	Correlation Coefficient	1.000	.262**	.448**
		Sig. (2-tailed)	.	.002	.000
		N	140	140	140
	Awareness on patient safety	Correlation Coefficient	.262**	1.000	.286**
		Sig. (2-tailed)	.002	.	.001
		N	140	140	140
	Attitude towards patient safety	Correlation Coefficient	.448**	.286**	1.000
		Sig. (2-tailed)	.000	.001	.
		N	140	140	140

5.0 Summary

To sum up, this chapter reports the findings of the study. It has been showed that most UNIMAS nursing students had moderate knowledge on patient safety, where the mean score was 25.74 (SD= 3.725) while nearly half of the respondents n=57 (40.7%) showed good knowledge pertaining to patient safety. However, there are some of the participants who have showed poor knowledge n = 6 (4.3%) as they have scored below than score of 20 which was equivalent to less than 60% of the maximum score (Figure 4.1) Besides that, although majority of the participant showed a moderate level of awareness on patient safety, n= 106 (75.7%), there are quite a number also have been portrayed by some of the participants whereby n= 34 (24.3%) showed poor awareness on patient safety and none of them showed a good awareness on patient safety (Figure 4.2) While the overall mean score for awareness on patient safety was 18.61 with the standard deviation of 1.648. Other than that, most of them showed a neutral attitude 100

(71.4%) towards patient safety and 40 (28.6%) of the respondents scored a positive attitude towards patient safety (Figure 4.3) The overall mean score for attitude towards patient safety was 72 with the standard deviation of 5.741. Spearman Rank Order Correlation has been used to assess the relationship between the variables, and it has been determined that there was a weak positive correlation between the level of awareness and attitude towards patient safety [r= .286, n= 140, p=.001] (Table 4.6).

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter discusses the study's results, which are presented in different sections based on the research objectives. In this chapter, the level of knowledge on patient safety, level of awareness on patient safety, attitude towards patient safety and their relationship will be discussed further in detail. Furthermore, the main result will be summarized accordingly, and future recommendations will be discussed based on the implications of this study. Lastly, the encountered limitation throughout this study and conclusion will be discussed at the end of this chapter. The aim of this study was to examine the relationship between the level of knowledge, awareness and attitude towards patient safety, which are the significant variable in identifying the knowledge gaps pertaining the patient safety among nursing students.

5.2 Discussion of the Results

5.2.1 Level of Knowledge on Patient Safety among UNIMAS Undergraduate Nursing Students

This study revealed that just over half of the UNIMAS undergraduate nursing students, 55% of them demonstrated a moderate level of knowledge about key patient safety concepts. This suggests that while many students understand the basics of patient safety, such as preventing errors and creating a safe environment, there is still room for growth in their overall understanding (Skaria et al., 2019; Ayyad et al., 2024).

An examination of comparable studies reveals a consistent and recurring pattern. For example, Ayyad et al. (2024) also found that most nursing students had moderate knowledge, especially around fundamental safety concepts. On the other hand, a study in the UAE by Alandajani et al. (2022) reported that 67% of nursing students had good knowledge, which is likely due to earlier and more integrated patient safety education in their curriculum. This comparison highlights how curriculum design and clinical exposure can greatly influence how well students grasp patient safety principles.

Having a moderate level of knowledge means students are familiar with the basics but might not fully understand more complex areas, such as how to report errors effectively, manage risks, or build a culture of safety within healthcare teams (Ayyad et al., 2024). This is understandable because patient safety is a complex topic that requires both solid theoretical knowledge and hands-on experience to master (Baek & Shin, 2025).

Several factors could explain why many students only reach a moderate level of knowledge. Patient safety topics may be spread thinly across various courses rather than being taught as a focused subject, which can make it difficult for students to see the bigger picture (Skaria et al., 2019). Additionally, clinical placements where students apply what they've learned might not consistently emphasize patient safety. Traditional lecture formats may also fall short in engaging students or encouraging them to think critically about real-world safety challenges (Ayyad et al., 2024; Baek & Shin, 2025).

These insights point to important opportunities for improving nursing education at UNIMAS. To better prepare students for the realities of healthcare, patient safety education should be more intentionally woven into the curriculum. This could mean creating dedicated patient safety modules, using interactive teaching methods like simulations and case discussions, and ensuring clinical supervisors actively mentor students on safe practices (Baek & Shin, 2025). By doing so, students can move beyond just moderate knowledge to become confident, safety-conscious nurses who make a real difference in patient care.

In summary, while the moderate knowledge level among UNIMAS nursing students shows they have a solid foundation, it also highlights a clear need for improvement. Strengthening patient safety education through targeted curriculum changes and practical experiences will help develop a future nursing workforce equipped to provide safer, higher-quality care (Ayyad et al., 2024; Baek & Shin, 2025)

5.2.2 Level of Awareness on Patient Safety among UNIMAS Undergraduate Nursing Students

This study found that the majority of UNIMAS undergraduate nursing students, 75.7% demonstrated a moderate level of awareness regarding patient safety. Notably, none of the students reached what would be classified as a "good" level of awareness. This suggests that while students generally recognize the importance of patient safety, their overall awareness is not yet at a level that fully supports safe clinical practice.

Having moderate awareness means that students likely understand patient safety in broad terms but may lack deeper insight into how these principles are applied in real-world healthcare settings. They may be familiar with common safety issues but feel less confident or knowledgeable about specific practices such as error reporting, risk assessment, or fostering a culture of safety within healthcare teams. This finding aligns with Galleryzki et al. (2023), who observed that nursing students understood the importance of safety but were less familiar with concrete strategies like risk assessment and error reporting.

A comparison of these results with findings from other studies reveals a recognizable and consistent pattern. For example, research among nursing students at a private Malaysian college showed a higher proportion of students with positive attitudes and better awareness of patient safety (Zulkifli et al., 2021). Similarly, Lin et al. (2020) found that Taiwanese final-year nursing students demonstrated higher awareness, which was linked to their active involvement in hospital safety initiatives such as audits and incident reporting systems. These contrasts suggest that curriculum design, clinical exposure, and opportunities for active participation in safety practices play crucial roles in shaping students' awareness.

Several factors may contribute to the moderate awareness observed in this study. Patient safety topics might be scattered across various courses rather than taught as a focused, dedicated module, making it harder for students to fully grasp and retain key concepts (Galleryzki et al., 2023). Additionally, clinical placements which is the critical environment where theory meets practice may not consistently provide students with opportunities to observe or engage in patient safety practices, limiting their experiential learning (Zulkifli et al., 2021). Traditional teaching methods that rely heavily on lectures may also fall short in engaging students or encouraging critical thinking about the safety challenges they will face in clinical settings.

This moderate level of awareness is not unique to UNIMAS. For instance, nursing students in Egypt showed a reasonable understanding of patient safety concepts but lower confidence and awareness when it came to specific safety practices and error reporting (Khider et al., 2024). This highlights a universal challenge in nursing education by bridging the gap between knowing about patient safety and truly internalizing and applying it in everyday clinical work.

In summary, the moderate awareness level among UNIMAS nursing students indicates a solid foundation but also a clear need to deepen their understanding and engagement with patient safety. Strengthening patient safety education through focused curriculum development, enhanced clinical experiences, and active involvement in safety initiatives will be essential to preparing future nurses who not only value safety but actively contribute to creating safer healthcare environments.

5.2.3 Level of Attitude on Patient Safety among UNIMAS Undergraduate Nursing Students.

Attitude is a fundamental factor that shapes how nursing students approach patient care, influencing their behaviours, decision-making, and ultimately, the quality of care they provide. In this study, it was found that the majority of UNIMAS undergraduate nursing students (n = 100, 71.4%) exhibited a neutral attitude toward patient care, while only 40 students (28.6%) demonstrated a positive attitude. This predominance of neutral attitudes may be influenced by several factors, such as limited opportunities for meaningful patient interaction, insufficient role modelling by clinical instructors, and a curriculum that may prioritize technical skills over the relational and empathetic aspects of care. These barriers can hinder students from fully embracing and internalizing the values essential for a positive and patient-centered attitude.

The predominance of a neutral attitude suggests that many students neither strongly embrace nor reject the principles and values associated with patient-centered care. This could reflect a stage of professional development where students are still forming and refining their perspectives on the nurse-patient relationship (Burrell et al., 2020). It may also indicate uncertainty or ambivalence about their roles and responsibilities toward safety advocacy.

On the other hand, the nearly one-third of students who showed a positive attitude indicate that a significant portion of the cohort values and internalizes the importance of patient-centered care. These students likely recognize the critical role of empathy, respect, and patient advocacy in nursing practice and are motivated to incorporate these values into their daily interactions with patients (Lateef & Mhlongo, 2022).

When compared with findings from other studies, this distribution is insightful. Nursing students often start their education with varying attitudes shaped by personal experiences, cultural background, and initial perceptions of nursing. Over time, through education and clinical exposure, attitudes tend to become more positive as students witness the impact of compassionate care and develop confidence in their professional roles (Burrell et al., 2020; Lateef & Mhlongo, 2022). For example, Wang et al. (2024) reported predominantly positive attitudes among Chinese nursing students, attributing this to structured mentorship and reflective practice. This contrast highlights how supportive learning environments and effective guidance can significantly influence students' attitudes toward patient safety and care.

The large proportion of students with neutral attitudes may also reflect challenges within the educational environment, such as limited opportunities for meaningful patient interaction, insufficient role modelling by clinical instructors, or a curriculum that emphasizes technical skills over relational aspects of care (Smith et al., n.d.). These factors can contribute to a cautious or reserved stance toward patient care attitudes.

Importantly, attitudes are not fixed and can be influenced by targeted educational strategies. Encouraging reflective practice, fostering empathy through simulation and patient narratives, and providing supportive mentorship during clinical placements can help shift students' attitudes from neutral to positive (Shin & Baek, 2023). Positive attitudes towards patient care are essential, as they underpin nurses' commitment to patient safety, ethical practice, and holistic care (Lateef & Mhlongo, 2022).

In summary, while the majority of UNIMAS nursing students currently hold a neutral attitude toward patient care, there is a meaningful minority with positive attitudes that can serve

as a foundation for further growth. By nurturing and reinforcing positive attitudes through education and clinical experiences, UNIMAS can better prepare its nursing students to deliver compassionate, patient-centered care that meets the complex needs of today's healthcare environment.

5.2.4 Relationship between Knowledge, Awareness and Attitude on Patient Safety among UNIMAS Undergraduate Nursing Students

Understanding how knowledge, awareness, and attitude toward patient safety interrelate is crucial because these factors collectively influence how future nurses deliver safe and effective care. The analysis revealed significant positive correlations between knowledge and attitude ($r = .448$), knowledge and awareness ($r = .262$), and awareness and attitude ($r = .286$). This means that students with higher knowledge and awareness of patient safety tended to have more positive attitudes toward it. Specifically, the positive correlation between awareness and attitude suggests that as students become more aware of patient safety concepts, their attitudes toward these principles also improve, albeit the relationship is modest.

These findings align with previous research whereby Alsulami et al. (2025) reported a similar positive correlation between knowledge and attitude, while Galleryzki et al. (2023) found a comparable link between awareness and attitude. However, Baek and Shin (2023) found no significant correlation between awareness and attitude, highlighting that awareness alone may not be enough to foster positive attitudes without adequate clinical exposure.

This complexity is understandable. While awareness of patient safety principles is necessary, it does not automatically translate into positive attitudes or behaviours in practice (Shin & Baek, 2023). Other factors such as clinical experience, mentorship, and the learning

environment play vital roles in shaping students' attitudes. For instance, some students may understand patient safety concepts but still feel uncertain or neutral in their attitudes if they lack opportunities to apply this knowledge in real-world settings or to observe positive role models (Burrell et al., 2020; Shin & Baek, 2023).

In summary, the significant but varying strengths of correlations found in this study emphasize that raising knowledge and awareness is important but not sufficient on its own. Nursing education must also provide meaningful clinical experiences and supportive teaching strategies to truly foster positive attitudes toward patient safety. By doing so, educators can better prepare students to become committed, safety-conscious professionals who prioritize patient well-being (Shin & Baek, 2023).

5.3 Summary of findings of the study

Overall, the majority of UNIMAS undergraduate nursing students had moderate knowledge on patient safety 77 (55.0%), followed by 57 (40.7%) having good knowledge and 6 (4.3%) with a poor level of knowledge. Most of the nursing students 106 (75.7%) scored moderate level of awareness and 34 (24.3%) scored poor awareness level of in-patient safety. It was also shown that most of the respondents scored neutral attitudes, 100 (71.4%) towards patient safety and 40 (28.6%) scored a positive attitude. Spearman's rho correlation analysis revealed significant positive relationships between all three variables: knowledge and awareness ($r = .262$, $p = .002$), knowledge and attitude ($r = .448$, $p < .001$), and awareness and attitude ($r = .286$, $p = .001$) toward patient safety among UNIMAS undergraduate nursing students. The strongest correlation was between knowledge and attitude ($r = .448$), suggesting that as students' knowledge about patient safety increases, their attitudes toward it become more positive. All

correlations were statistically significant ($p < .05$), indicating that these relationships are unlikely to have occurred by chance in the sample of 140 nursing students.

5.4 Implications

The findings from this study provide an important lens into the current state of patient safety education among UNIMAS undergraduate nursing students. With most students demonstrating only moderate knowledge and awareness, and the majority holding neutral attitudes, it is clear that there is still much work to be done to cultivate a truly robust culture of patient safety. The significant, though mostly weak to moderate, positive correlations between knowledge, awareness, and attitude further reinforce the idea that these elements are interconnected, but improving one does not automatically guarantee improvement in the others.

These results imply that nursing education at UNIMAS-and likely at similar institutions-needs to move beyond simply imparting knowledge about patient safety. To truly make a difference, patient safety must be woven into the fabric of the curriculum, not just as isolated lectures or modules, but as a consistent theme across all years of study. Practical teaching methods, such as simulation exercises, real-life case discussions, and hands-on clinical experiences, can help bridge the gap between theory and practice, making safety concepts more tangible and relevant for students (Shin & Baek, 2023).

Mentorship also emerges as a crucial factor. When students are guided by experienced nurses who model positive attitudes and safe practices, they are more likely to internalize these values and carry them forward into their own professional lives (Lateef & Mhlongo, 2022).

Creating a supportive environment where students feel comfortable discussing mistakes and learning from them-rather than fearing blame-can further nurture a culture of safety and openness.

Based on these insights, nursing schools may invest in strengthening their patient safety curriculum, ensuring it is comprehensive and experiential. Clinical placements should be intentionally designed to expose students to best practices in patient safety, and opportunities for reflective practice and open dialogue should be encouraged. Faculty development is also important, so that educators themselves are well-equipped to mentor and inspire students in this critical area (Galleryzki et al., 2023).

Looking ahead, future research could explore the deeper factors that shape students' attitudes toward patient safety, such as the impact of personal experiences, teaching styles, or institutional culture. Longitudinal studies would be valuable to track how knowledge, awareness, and attitudes evolve as nursing students progress through their education and into practice. It would also be beneficial to test specific interventions such as simulation-based learning or structured mentorship programs to identify what works best in fostering not just knowledge, but genuine commitment to patient safety. Expanding research to include other institutions or regions could help determine whether these patterns are unique to UNIMAS or reflect broader trends in nursing education.

In summary, these findings underscore the importance of a holistic, integrated approach to patient safety education-one that empowers students with knowledge, fosters awareness, and, most importantly, inspires the positive attitudes that are the foundation of safe, high-quality nursing care.

5.5 Limitations of the study

Like many research projects, this study faced several challenges that should be acknowledged. One of the main difficulties was the limited availability of previous research focusing specifically on nursing students in this area, which made it harder to compare findings or build on established knowledge. Time constraints also played a significant role, as the study had to be completed within a relatively short period. This prevented the use of a longitudinal design, which would have allowed for a more in-depth exploration of how knowledge, awareness, and attitudes toward patient safety might change over time.

Financial limitations were another hurdle, as the research was entirely self-funded. This meant that resources for activities such as printing and distributing the self-administered questionnaires were restricted, potentially affecting the study's reach and efficiency. Finally, because the research was conducted solely with UNIMAS nursing students, the results may not fully reflect the experiences or perspectives of nursing students at other institutions. As a result, caution should be exercised when attempting to generalize these findings to a broader population.

5.6 Conclusions

The study revealed a moderate level of knowledge about patient safety elements among UNIMAS undergraduate nursing students. This suggests a potential gap in the current nursing curriculum, necessitating a review of training modules to ensure students fully understand the importance and practical applications of patient safety principles. The moderate awareness of

patient safety issues further indicates that while students recognize basic concepts, they may not fully grasp their significance in real-world healthcare settings.

The prevalence of neutral attitudes towards patient safety may indicate a normalization or lack of personal connection to its implications. This neutrality suggests that students haven't yet internalized patient safety as a core professional value, possibly due to limited exposure to real-life scenarios or insufficient emphasis within their educational environment. As our correlation analysis showed, knowledge has a moderate relationship with attitude ($r = .448$, $p < .001$), suggesting that enhancing knowledge alone isn't sufficient to foster positive attitudes.

These findings align with our implications and recommendations for a more holistic approach to nursing education-one that integrates patient safety throughout the curriculum and provides hands-on experiences through simulation-based learning and reflective practice sessions. By strengthening mentorship opportunities and creating supportive clinical environments where students can observe positive role models, we can help shift attitudes from neutral to positive.

Addressing these gaps through curriculum enhancement, ethical training, and practical experiences is essential to equip future nursing professionals with the necessary skills to make informed, compassionate, and safety-conscious decisions. As suggested in our recommendations for future research, exploring specific factors that influence attitudes and testing educational interventions could provide valuable insights for improving patient safety education, ultimately enhancing care quality and patient outcomes.

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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(114)
To	:	Fiorentina Anak Saban (73462) 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: Knowledge, Awareness And Attitude On Patient Safety Among Unimas Undergraduate Nursing Students**

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	:	**Fiorentina Anak Saban**
Student ID	:	**73462**
Programme	:	**Bachelor of Nursing with Honours**
Research Title	:	***Knowledge, Awareness And Attitude On Patient Safety Among Unimas Undergraduate Nursing Students***
Supervisor Name	:	**Ms Feryante Rintika Anak Belansai**
Supervisor H/P	:	**+60 19-889 4780**

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: Informed consent

INFORMATION SHEET OF THIS STUDY

TITLE OF STUDY: Knowledge, Awareness and Attitude on Patient Safety among UNIMAS Undergraduate Nursing Students

MAIN RESEARCHER: Fiorentina anak Saban (73462)

SUPERVISOR: Feryante Rintika anak Belansai

INSTITUTION: Universiti Malaysia Sarawak (UNIMAS)

INSTITUTION ADDRESS: Department of Nursing, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, 94300 Kota Samarahan Sarawak, Malaysia

THE NATURE AND PURPOSE OF THE STUDY

Objectives:

1. To assess the level of knowledge regarding patient safety among UNIMAS undergraduate nursing students
2. To evaluate the awareness of patient safety among UNIMAS undergraduate nursing students.
3. To examine the attitudes of UNIMAS undergraduate nursing students towards patient safety
4. To determine the relationship between knowledge, awareness and attitudes towards patient safety among UNIMAS undergraduate nursing students.

RISKS OF STUDY PARTICIPANTS

There is no risk of study participation identified

STUDY DESCRIPTION

The data will be collected using self-administered questionnaire, which consists of four parts. Participants will be asked to answer on their socio-demographics, knowledge regarding patient

safety, awareness on patient safety and attitude towards patient safety. The approximate time required to complete the questionnaire is 10-15 minutes.

As participant, you are required to fulfil a few responsibilities, including truthfulness in answering the questionnaire, you could contact the researcher immediately if you have any difficulties during the session.

POSSIBLE BENEFITS OF STUDY PARTICIPANTS

You will be able to assess your knowledge, awareness and attitude on patient safety.

VOLUNTARY PARTICIPATION

You understand that participation in this study is voluntary and if you decide to withdraw from the study, you will experience no penalty or loss of benefits to which you would otherwise be entitled outside of this study. If you decided to participate, you may change your decision about being in this study and may stop at any time. You understand that such decision will not influence the availability of future medical care or other benefits to which you are entitled outside of this study.

CONFIDENTIALITY

All data obtained from this study are confidential and your personal data will not be identified.

TO OBTAIN FURTHER INFORMATION

Any enquiries can be referred to Fiorentina anak Saban via WhatsApp at 014-6836882 or e-mail to 73462@siswa.unimas.my

INFORMED CONSENT TO PARTICIPATE IN THIS STUDY

Title of Study: *Knowledge, Awareness and Attitude on Patient Safety among UNIMAS Undergraduate Nursing Students*

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 doctor's (investigator's) instructions related to my participation in the study.
- I understand that researcher, qualified monitors and auditors, the sponsor or its affiliates, and governmental or regulatory authorities, have direct access to my medical record in order to make sure that the study is conducted correctly and the data are recorded correctly. All personal details will be treated as STRICTLY CONFIDENTIAL

- I will receive a copy of this subject information/informed consent form signed and dated to bring home.
- I agree/disagree* for my family doctor to be informed of my participation in this study. *(*delete which is not applicable)*

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: Socio-demographic data

Complete the information and respond appropriately to the questions below. Please mark (✓) the provided boxes or enter the relevant information in the blanks.

1. Age:

2. Sex:

☐ Male

☐ Female

3. Year of study

☐ Year 2

☐ Year 3

☐ Year 4

6. Practicum experience

☐ Less than 6 months

☐ More than 6 months

Section B: Knowledge on patient safety

How would you rate your level of knowledge regarding the following topics?

(Rate on a scale from 1 = very low, 2 = low, 3 = medium, 4 = high, and 5 = very high)

Circle your answer accordingly.

	Very Low	**Low**	**Medium**	**High**	**Very High**
I know various types of human error	**1**	**2**	**3**	**4**	**5**
I know various factors that contribute to human error	**1**	**2**	**3**	**4**	**5**
I understand the elements that impact patient safety	**1**	**2**	**3**	**4**	**5**
I understand the approaches to addressing errors through communication	**1**	**2**	**3**	**4**	**5**
I know actions that should follow after an error occurs	**1**	**2**	**3**	**4**	**5**
I know the procedures for reporting errors	**1**	**2**	**3**	**4**	**5**
I understand the responsibilities of healthcare organizations (e.g., hospitals, clinics) in error reporting	**1**	**2**	**3**	**4**	**5**

Section C: Awareness on patient safety

Please select the number that best reflects your level of agreement with each statement.

(1: Strongly disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly agree)

Circle your answer accordingly.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
There is a safe system of healthcare for patients in my country.	**1**	**2**	**3**	**4**	**5**
Medical errors occur frequently.	**1**	**2**	**3**	**4**	**5**
It is rare for patients to receive the wrong medication.	**1**	**2**	**3**	**4**	**5**
Healthcare workers are trained in patient safety practices.	**1**	**2**	**3**	**4**	**5**
Approximately one in ten hospitalized patients worldwide will face an adverse event.	**1**	**2**	**3**	**4**	**5**

Section D: Attitude on patient safety

Please indicate your level of agreement with the following statements.

(1: Strongly disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly agree)

Circle your answer accordingly.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
I would find it easy to share details about an error I made.	**1**	**2**	**3**	**4**	**5**
It is simpler to assign blame than to focus on understanding the causes of errors.	**1**	**2**	**3**	**4**	**5**
I feel confident addressing someone who is neglecting patient safety.	**1**	**2**	**3**	**4**	**5**
I am comfortable discussing errors made by others.	**1**	**2**	**3**	**4**	**5**
I consistently ensure that patient safety remains uncompromised.	**1**	**2**	**3**	**4**	**5**
I believe completing error reporting forms contributes to improving patient safety.	**1**	**2**	**3**	**4**	**5**
I am open to discussing my own mistakes and focusing on their causes to enhance safety.	**1**	**2**	**3**	**4**	**5**

Learning from my mistakes can help me prevent future incidents.	**1**	**2**	**3**	**4**	**5**
Acknowledging and addressing my mistakes will be a critical part of my professional role.	**1**	**2**	**3**	**4**	**5**
It is essential for me to learn effective ways to acknowledge and address my errors by the end of medical school.	**1**	**2**	**3**	**4**	**5**
Nurses will be dedicated to identifying and addressing patient safety risks.	**1**	**2**	**3**	**4**	**5**
Nurses will not criticize me for making mistakes.	**1**	**2**	**3**	**4**	**5**
Doctors will be committed to identifying and addressing patient safety risks.	**1**	**2**	**3**	**4**	**5**
Doctors will not criticize me for making mistakes	**1**	**2**	**3**	**4**	**5**
Managers in the healthcare system will facilitate error reporting.	**1**	**2**	**3**	**4**	**5**
Managers in the healthcare system will prioritize meeting performance targets over patient safety	**1**	**2**	**3**	**4**	**5**
Managers in the healthcare system will expect us to prioritize patient safety.	**1**	**2**	**3**	**4**	**5**

Being transparent and honest about my mistakes will be acceptable in my workplace.	**1**	**2**	**3**	**4**	**5**
Admitting to an error I made would result in fair and just treatment by management.	**1**	**2**	**3**	**4**	**5**

APPENDIX D: Gantt Chart

TASKS	Month											
	2024						2025					
	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
Determination of research title and methodology												
Literature review												
Meeting with supervisor												
Drafting of research proposal												
Oral proposal defense												
Ethical approval												
Submission of research proposal draft												
FYP 1: Submission of final research proposal												

Data collection												
Data analysis												
Drafting of research report												
Submission of final research draft												
FYP II: Submission of Final Year Project												

APPENDIX E: Budget

Items	**Cost**	**Quantity**	**Estimated Cost**
Internet data plan	RM 39/months	6	RM 234
Printing and binding	Printing: RM 0.40/page Binding: RM 5/page	Printing 87 pages	RM39.80
SPSS software	RM 5	1	RM 5
Transportation	RM 3	3	RM 9
		Total	RM 287.80

APPENDIX F: Turnitin Similarity Report

FYP II_73462

ORIGINALITY REPORT

12%	9%	7%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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