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Knowledge and Practice Related to Breast Self-Examination Among Female Nursing Students In UNIMAS: A Cross-Sectional Study

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This project is submitted

In partial fulfilment of the requirements for the degree of

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DECLARATION

I hereby declared that the Final Year Project 2 research titled **"Knowledge and Practice Related to Breast Self-Examination Among Female Nursing Students in UNIMAS: A Cross-Sectional Study"** was my original work. This study was conducted in the Faculty of Medicine and Health Sciences (FMHS), Universiti Malaysia Sarawak (UNIMAS), under supervision from October 2024 to July 2025. I confirmed that all citations and references were appropriately acknowledged within the text. Furthermore, I certified that this research had not been submitted to any other university or institution previously.

……..

Signature

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ABSTRACT

Breast Self-Examination (BSE) is a simple, cost-effective method for early detection of breast cancer, especially important for young women. This study aimed to assess the level of knowledge and practice related to BSE among female nursing students in Universiti Malaysia Sarawak (UNIMAS) and to examine the relationship between the two variables. A descriptive cross-sectional design was used, and data were collected from 145 female nursing students using a structured, self-administered questionnaire that included sections on knowledge and practice. The findings revealed that 69.0% of the students had a good level of knowledge, while 24.8% had a fair level and only 6.2% had poor knowledge. In terms of practice, 61.4% of the students demonstrated a high level of practice, 5.5% had moderate practice, and 33.1% had poor practice. A significant positive correlation was found between knowledge and practice ($r_s = .413, p < .001$), indicating that higher knowledge was associated with better practice. However, despite the overall good knowledge, many students lacked confidence or proper technique in performing BSE. Some reported emotional barriers such as fear, embarrassment, or the belief that they were not at risk. These results suggest that while theoretical knowledge is relatively strong among nursing students, consistent and correct practice still requires improvement. More practical training, hands-on workshops, and skills-based assessments should be integrated into the nursing curriculum. Empowering students with both knowledge and confidence in performing BSE can enhance their role as future health educators and contribute to early breast cancer detection efforts.

Keywords: Knowledge, Practice, Female Nursing Students, BSE.

Pengetahuan dan Amalan Berkaitan Pemeriksaan Payudara Sendiri (BSE) dalam Kalangan Pelajar Kejururawatan Wanita di UNIMAS: Satu Kajian Keratan Rentas

ABSTRAK

Pemeriksaan Payudara Sendiri (BSE) ialah kaedah yang mudah dan kos efektif untuk mengesan kanser payudara pada peringkat awal, khususnya penting bagi wanita muda. Kajian ini bertujuan untuk menilai tahap pengetahuan dan amalan berkaitan BSE dalam kalangan pelajar kejururawatan wanita di Universiti Malaysia Sarawak (UNIMAS) serta meneliti hubungan antara kedua-dua pembolehubah tersebut. Reka bentuk keratan rentas deskriptif telah digunakan, dan data dikumpul daripada 145 pelajar kejururawatan wanita menggunakan soal selidik berstruktur yang mengandungi bahagian pengetahuan dan amalan. Dapatan menunjukkan bahawa 69.0% pelajar mempunyai tahap pengetahuan yang baik, manakala 24.8% berada pada tahap sederhana, dan hanya 6.2% menunjukkan tahap pengetahuan yang lemah. Dari segi amalan, 61.4% pelajar menunjukkan tahap amalan yang tinggi, 5.5% berada pada tahap sederhana, dan 33.1% mempunyai amalan yang lemah. Terdapat korelasi positif yang signifikan antara pengetahuan dan amalan ($r_s = .413$, $p < .001$), yang menunjukkan bahawa pengetahuan yang lebih tinggi dikaitkan dengan amalan yang lebih baik. Namun begitu, walaupun tahap pengetahuan keseluruhan adalah baik, ramai pelajar masih kurang keyakinan atau tidak menguasai teknik yang betul untuk melakukan BSE. Ada yang melaporkan halangan emosi seperti takut, malu, atau percaya bahawa mereka tidak berisiko. Hasil ini mencadangkan bahawa walaupun pelajar mempunyai pengetahuan teori yang kukuh, amalan yang konsisten dan betul masih perlu dipertingkatkan. Latihan praktikal yang lebih banyak, bengkel secara langsung, dan penilaian berasaskan kemahiran wajar dimasukkan dalam kurikulum kejururawatan. Memberikan pelajar ilmu dan keyakinan dalam melakukan BSE boleh memperkukuh peranan mereka sebagai pendidik kesihatan masa hadapan serta menyumbang kepada usaha pengesanan awal kanser payudara.

Kata Kunci: *Pengetahuan, Amalan, Pelajar Kejururawatan Wanita, BSE.*

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LIST OF ABBREVIATIONS

BSE	Breast Self-Examination
SRS	Simple Random Sampling
UNIMAS	Universiti Malaysia Sarawak
SPSS	Statistical Package for the Social Science
FMHS	Faculty of Medicine and Health Sciences

CHAPTER 1: INTRODUCTION

1.0 Introduction

This chapter present in sectioning the background of the study, problem statement, research question, aim of the study and the specific research objectives. Furthermore, the hypotheses, significance of the study and the operational definition of key terms also will be highlighted in this chapter.

1.1 Background of the study

Breast cancer is among the most prevalent cancers affecting women and remains a significant global public health concern. The World Health Organization (2024) reported that in 2022, 2.3 million women were diagnosed with breast cancer, and the disease caused 670,000 deaths worldwide. It is estimated that by 2040, the number of new breast cancer cases and related deaths will surpass 3 million (Hee et al., 2024). The Malaysian National Cancer Registry reported that between 2012 and 2016, the incidence rate of breast cancer was 34.1 per 100,000 women (Institusi Kanser Negara, 2024). However, from 2017 to 2021, this rate increased to 38.9 per 100,000 women, indicating a rising trend in breast cancer cases during this period (Institusi Kanser Negara, 2024), underscoring the urgent need for effective prevention and early detection strategies. Therefore, various methods for early detection of breast cancer introduced, such as the simplest way of breast self-examination (BSE).

Early detection is crucial for improving treatment outcomes and survival rates in breast cancer patients (Sarker et al., 2022). The other screening method, such as clinical breast examinations and mammography, are essential. However, because of its expensive cost and constrained availability, it is not widely used in developing nations (Alomair et al., 2020) including Malaysia, particularly in rural areas. Breast self-examination (BSE) is an easy, affordable, and harmless method that women can regularly perform to identify any abnormal

changes in their breast tissue (Mohamed 2021). While BSE is not a substitute for professional screening, it empowers individuals to take an active role in their breast health, potentially leading to earlier diagnosis treatment.

Despite the established benefits of BSE, based on numerous studies carried out in various nations revealed that university students have a prudent and good understanding of BSE, but few of them regularly practice it (Abo Al-Sheikh et al., 2021). The knowledge and practice of nursing students towards BSE are particularly important, as they will eventually serve as healthcare providers and educators in their communities. Nursing students, who are often at the forefront of health education, must possess a thorough understanding of breast health BSE, studies reveal varying levels of knowledge and practice regarding BSE among nursing students, influenced by factors such as educational background, training, and personal experiences (Khalip et al., 2021).

Considering the significance of BSE in the early identification of breast cancer, this study seeks to evaluate the knowledge and practices of BSE among female nursing students at UNIMAS. The findings will provide insight into the current state of BSE awareness and practice within this cohort, highlighting areas that require further attention and educational intervention. Exploring the factors that affect nursing students' knowledge and practice of BSE can guide the development of curricula and health promotion initiatives. Ultimately, this research seeks to contribute to the broader goal of enhancing breast health awareness in Malaysia. By equipping nursing students with the knowledge and skills necessary for effective BSE, we can foster a generation of healthcare providers who are well-prepared to educate their patients, promote proactive health management, and improve early detection rates of breast cancer in their communities.

1.2 Problem statement

Breast Self-Examination (BSE) plays a pivotal role in the early detection of breast cancer, which remains one of the leading causes of cancer-related mortality worldwide (Sowtali et al., 2024). Early detection is known to significantly increase the 5-year survival rate, with survival rates for patients in early stages (I and II) improving to 85%, compared to just 10% for those diagnosed at more advanced stages (Muhsin & Yamin, 2022). Despite its importance, BSE remains underutilized, particularly due to a range of factors such as lack of awareness, insufficient education, and deeply ingrained cultural beliefs that influence health behaviours (Sowtali et al., 2024). This is especially concerning among nursing students, a group that not only has the knowledge but is expected to advocate for and practice preventive healthcare measures in their professional roles.

Khalip et al. (2021) has highlighted that nursing students may be aware of BSE and its importance but often fail to regularly practice it. They tend to implement BSE only when prompted, which undermines its effectiveness in early detection. If they do not regularly practice BSE or have misconceptions about its importance, it raises concerns about their ability to advocate for breast health and educate patients effectively.

In the context of UNIMAS, there is a notable gap in empirical research focused on the specific challenges and practices of female nursing students. Without understanding the unique barriers they face regarding BSE, it becomes difficult to design targeted educational interventions that can improve their knowledge and practical engagement with breast health. Cultural attitudes, lack of proper training in self-examination techniques, and personal discomfort or misconceptions about the procedure are potential barriers that may not have been adequately explored.

Therefore, this study aims to fill this gap by assessing the level of knowledge and the practice of BSE among nursing students at UNIMAS. By identifying the barriers that hinder their regular practice of BSE, the study will provide valuable insights to guide the development of more effective educational strategies. Such interventions are critical, as they will not only empower nursing students to take charge of their own breast health but will also prepare them to confidently promote early detection and breast health awareness in their future healthcare careers.

1.3 Research Objective

i. To assess the level of knowledge related to BSE among female nursing students in UNIMAS.
ii. To assess the level of practice related to BSE among female nursing students in UNIMAS.
iii. To examine relationship between knowledge and practice related to BSE among female nursing students in UNIMAS.

1.4 Research Question

i. What is level of knowledge related to BSE among female nursing students in UNIMAS?
ii. What is level of practice related to BSE among female nursing students in UNIMAS?
iii. Is there any relationship between knowledge and practice related to BSE among female nursing students in UNIMAS?

1.5 Hypotheses

Null hypotheses: There is no significant relationship between knowledge of BSE and its practice among female nursing students in UNIMAS.

Alternative hypotheses: There is a significant relationship between knowledge and its practice among nursing female nursing students in UNIMAS.

1.6 Significance of the study

This study is important for several groups involved in healthcare and education. The main aim is to assess the knowledge and practice of breast self-examination (BSE) among female nursing students at UNIMAS. By identifying gaps in their understanding and practice of BSE, the study will provide valuable insights into how well nursing students are prepared to promote early breast cancer detection in their future roles as healthcare professionals.

The findings of this study will also help educators evaluate the effectiveness of the current nursing curriculum in addressing important topics such as breast health. By understanding where students may be lacking in their knowledge or practice, the study could inform future curriculum improvements to ensure nursing students are better equipped to educate and advocate for breast health once they enter the healthcare field.

Although the study does not directly involve interventions, the results can still inform future educational strategies and training programs, contributing to the ongoing improvement of nursing education. This could eventually lead to more effective healthcare professionals who can promote breast health awareness and early detection within their future communities. Finally, this research will add to the existing body of literature on breast cancer awareness and self-examination practices among nursing students, providing a foundation for future research and further studies in this area.

1.7 Definitions of Terms

Table 1.1

Definitions of terms

Terms	Conceptual definition	Operational definition
Breast Self-Examination (BSE)	• Breast self-examination is a straightforward, pain-free, private, and affordable screening method for early detection, breast self-examination doesn't require any specific instruments and equipment (Ahadinezhad et al., 2023).	• In this study, BSE refers to a screening method that the nursing students perform to make an early detection of breast cancer by examining their own breasts for any changes, abnormalities, or unusual lumps.
Knowledge on BSE	• Knowledge on BSE refers to understanding BSE entails being aware of the symptoms of breast cancer, BSE guidelines, and BSE technique (Udoh et al., 2020).	• In this study, knowledge of BSE refers to nursing students' understanding of when and how to perform it, using proper techniques like finger pads, varying pressure, and systematic patterns. • It includes knowing BSE is best done monthly after menstruation and in different positions. • Benefits include early detection, increased self-awareness, and promoting proactive health alongside clinical screenings. • This will be measure by using the questionnaires adapted from Muhsin & Yamin, 2022.

Practice on BSE	• Practice of BSE is the monthly practice of examining one's breasts immediately following a menstrual cycle and being capable to identify any irregularities (Udoh et al., 2020).	• In this study, practice of BSE refers to the frequency, correct technique, and proper starting point of performing BSE by female nursing students in UNIMAS. • It includes performing BSE monthly, ideally 3–5 days after menstruation, or on a consistent day each month for those who do not menstruate. • Proper practice involves inspecting the breasts in front of a mirror with arms in different positions, checking for changes or discharge, and using the pads of the fingers with varying pressure. • To complete BSE correctly, students should examine both breasts thoroughly, include the underarm area, and maintain regularity in performing the procedure. • This will be measure by using the questionnaire adapted from Muhsin & Yamin, 2022.

1.8 Summary

Understanding and applying knowledge, along with implementing best practices, are crucial in promoting breast self-examination (BSE) as an essential method for early breast cancer detection. This study aims to examine the knowledge and practice of BSE among female nursing students at UNIMAS. By identifying gaps in their understanding and practice, the findings will provide valuable insights into how well nursing students are prepared to educate others on breast health in their future roles as healthcare professionals. Additionally, this research will help educators assess the effectiveness of the current nursing curriculum in addressing breast health topics. Identifying areas where students may lack knowledge or proper techniques in BSE can inform curriculum improvements to enhance nursing education. While this study does not involve direct interventions, its results can guide future training programs, ensuring that nursing students are well-equipped to promote breast health awareness.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Breast cancer, which continues to be a major source of illness and death for women worldwide, can be detected early with the practice of breast self-examination, or BSE. As aspiring medical professionals, nursing students are essential in raising awareness and teaching others about BSE. This chapter will present an extensive review of the body of literature currently available on BSE. This research will specifically examine nursing students' BSE-related knowledge and practice. Thus, this review will point out any gaps in the literature and support the knowledge and practice of BSE among female nursing students in UNIMAS.

To search for articles for the literature review, the process began by identifying the key concepts of the study: knowledge, practice, breast self-examination (BSE), and nursing students. Using these keywords and their synonyms, search strings such as "breast self-examination AND knowledge AND nursing students" and "breast self-examination AND practice AND student nurses" were developed and applied in academic databases like PubMed, ResearchGate, ScienceDirect, and Google Scholar to locate relevant studies.

Filters were applied to refine the results, focusing on articles published in the last 5 years, written in English, and specific to nursing students or similar populations. Titles and abstracts were screened to ensure relevance, and full-text articles were evaluated for their objectives, methods, and findings related to BSE knowledge and practice. The selected articles were then organized based on common themes, and citation management tools were used to systematically record the references. This process ensured a comprehensive and focused literature review for the study.

2.1 Knowledge related to breast self-examination

Muhsin & Yamin (2022) conducted a cross-sectional study at a public university in Malaysia involving 205 final-year undergraduate students from various health science programs, including nursing, medical imaging, and occupational therapy. The study revealed that majority of the participants possessed good knowledge about breast self-examination (BSE). This finding underscores the effectiveness of incorporating BSE topics within the health sciences curriculum, which equips students with not only theoretical knowledge but also an understanding of the importance of BSE in promoting breast health. As future healthcare providers, such knowledge is crucial for advocating early detection and improved health outcomes.

Similarly, Khalip et al. (2021) investigated 188 nursing students at a Malaysian public university to assess their knowledge and attitudes toward breast cancer and BSE. The results indicated that most participants had good knowledge about BSE, reflecting the effectiveness of the nursing curriculum in addressing cancer awareness, risk factors, and early detection strategies. This aligns with the findings of Muhsin & Yamin (2022), reinforcing the impact of a well-structured health sciences curriculum in fostering awareness and understanding among students. Moreover, Khalip et al. (2021) emphasize the critical role of nursing students as future educators who will transfer this knowledge to patients and communities, highlighting the broader implications of equipping students with strong foundational knowledge about BSE.

However, contrasting findings emerge from Sowtali et al. (2024), who examined the knowledge, attitude, and practice of BSE among 36 undergraduate students from the International Islamic University Malaysia (IIUM). Majority of the participants possessed moderate knowledge levels about BSE, with notable gaps in understanding its techniques,

importance, and recommended frequency. This contrasts with the findings of Muhsin & Yamin (2022) and Khalip et al. (2021), suggesting that while nursing students may possess theoretical knowledge, their practical understanding and ability to advocate for BSE effectively remain limited. This indicates a need for enhanced, practice-oriented training to complement the theoretical aspects covered in the curriculum.

2.2 Practice related to breast self-examination

A study conducted by Sowtali et al. (2024) among undergraduate students at IIUM Kuantan, Pahang, found that despite a moderate level of knowledge regarding breast cancer and BSE, the prevalence of correct BSE practices was alarmingly low. Only a minority of the nursing students demonstrated the ability to perform BSE correctly. This trend mirrors findings from other research, indicating that increased awareness does not necessarily translate into the adoption of health-promoting behaviors.

Similarly, Muhsin & Yamin. (2022) examined the knowledge, attitudes, and practices of BSE among final-year female health sciences students, including 30 nursing students. Despite the participants possessing good knowledge about BSE, the study revealed that the actual practice of performing BSE was inadequate. Only a small number of students reported conducting BSE monthly. This gap underscores the presence of barriers that may hinder the application of knowledge in real-life contexts, suggesting that awareness alone is insufficient to promote consistent engagement in BSE. These findings highlight the need for targeted interventions to bridge the gap between knowledge and practice, ensuring that nursing students not only understand the importance of BSE but also integrate it into their personal health routines.

Another study conducted by Elsayed et al. (2024) in Saudi Arabia found that more than half of the nursing students had poor BSE practices. The study revealed that the major reason

for not performing BSE was a lack of knowledge about how to do it properly. Many students were unsure about the correct techniques, which contributed to their inconsistent or complete lack of practice. This highlights the need for better education and training to ensure nursing students develop the necessary skills to perform BSE correctly and regularly.

2.3 Relationship between knowledge and practice related to breast self-examination

A study conducted by Muhsin & Yamin (2022) among female Health Sciences students, including nursing students, found a significant positive correlation between BSE knowledge and practice. Their findings indicated that students with greater knowledge of BSE were more likely to perform it. However, despite this correlation, only a small number of students reported performing BSE regularly, suggesting that other barriers may prevent consistent practice. This highlights the need for further investigation into the factors that encourage students to translate knowledge into action.

Similarly, Sowtali et al. (2024) examined the relationship between knowledge and practice among nursing students at IIUM Kuantan, Pahang. Their results reaffirmed the positive correlation between knowledge and BSE practice, but they also noted a critical gap although students exhibited moderate knowledge about BSE, their actual practice remained low. This suggests that while increased awareness can enhance the likelihood of engaging in BSE, it is not sufficient to ensure regular and correct practice. The study emphasizes the importance of practical training and behavioral reinforcement to bridge the gap between knowledge and practice.

Further supporting these findings, Elsayed et al. (2024) found a highly significant positive correlation between student's overall knowledge and their reported BSE practices. This indicates that students with better knowledge were more likely to practice BSE. However, despite this strong relationship, many students still failed to perform BSE correctly due to a

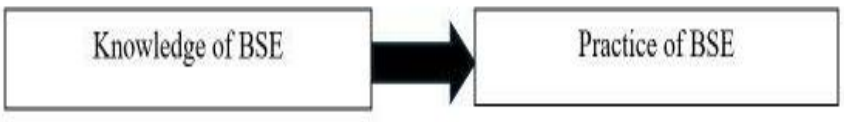
lack of confidence and insufficient knowledge of proper techniques. The study suggests that knowledge alone is not enough practical skills training and confidence-building strategies are necessary to ensure that students can apply their knowledge effectively in real-life scenarios.

2.4 Conceptual Framework

This study is based on the concept that knowledge of breast self-examination (BSE) influences the practice of BSE among female nursing students in UNIMAS. In this framework, knowledge of BSE is the independent variable, which refers to the students' understanding of the correct techniques, timing, and benefits of performing BSE. The practice of BSE is the dependent variable and refers to how often and how correctly the students perform BSE. It is expected that students with higher knowledge levels are more likely to engage in regular and proper BSE practice.

Figure 2.1

Conceptual framework



2.5 Summary

Understanding knowledge and practice related to breast self-examination (BSE) is important for promoting early detection of breast abnormalities among female nursing students. It is necessary to explore the relationship between knowledge and practice of BSE to see if having more knowledge leads to regular self-examinations. From the reviewed studies, most nursing students have a moderate to high level of knowledge about BSE. However, many still do not practice BSE regularly or correctly. This shows the need for better education that not only teaches about BSE but also encourages students to practice it. Breast cancer is a serious health concern, and not performing BSE regularly may delay detection, which can lead to worse health outcomes. To address this, it is important to improve both knowledge and practice through proper education and training. By increasing awareness and promoting regular self-examinations among nursing students, this study aims to support breast cancer awareness and early detection.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter presents the research design and details the research setting, population, and the inclusion and exclusion criteria. It also discusses the sampling method and sample size. Furthermore, the chapter describes the research instrument, along with its validity and reliability, ethical considerations, and the pilot study. Finally, it outlines the procedures for data collection and the methods used for data analysis.

3.1 Research design

This was a quantitative research study that used a cross-sectional design. Quantitative research involved obtaining numerical values from observations to describe and explain the occasions that the data represented (Taherdoost, 2022). Therefore, numerical data was required for analysis. Consequently, the quantitative study design aligned with the objectives of this research. The cross-sectional study was an observational study that examined data from a population at a single point in time and it was used to characterize demographic characteristics, determine factors that contributed to well-being, and quantify the distribution of ailments (Wang & Cheng, 2020). Participants were chosen for this study based on inclusion and exclusion criteria. Predominantly, this study assessed the relationship between knowledge and practice of BSE among female nursing students in UNIMAS. A questionnaire evaluating BSE knowledge and practice was provided to the recruited participants.

3.2 Research setting

This research was conducted at the Faculty of Medicine and Health Sciences (FMHS), Universiti Malaysia Sarawak (UNIMAS), located at Jalan Datuk Mohammad Musa, 94300 Kota Samarahan, Sarawak.

3.3 Population

The target population for this study consisted of undergraduate nursing students who were enrolled in the Faculty of Medicine and Health Sciences (FMHS) at UNIMAS. The total population was 197, consisting of 45 nursing students from Year 1, 50 from Year 2, 52 from Year 3, and 50 from Year 4. After excluding the main researcher of this study, the final total population was 196.

3.4 Inclusion criteria

i. Female nursing students in UNIMAS from year 1 until year 4.

3.5 Exclusion criteria

i. Nursing students who had recruited in the pilot study.
ii. Postgraduate both male and female nursing students in UNIMAS.
iii. Male nursing student in UNIMAS from year 1 until year 4.

3.6 Sampling and Sample Size

3.6.1 Sampling method

This study used the Simple Random Sampling (SRS) method to select participants. SRS is a probability sampling method that gives every student in the target group an equal chance of being chosen (Hossan et al., 2023). This method was chosen to ensure a fair and unbiased selection of female nursing students in UNIMAS. To carry out the sampling process, a full list of eligible female nursing students was prepared. Each student was assigned their matrix number, and the selection was done using Microsoft Excel. A random number was generated for each matrix number, and the list was sorted based on these numbers. The required sample size was then chosen from the top of the sorted list. This ensured that the selection was completely random and free from bias. Using SRS with Excel helped make sure the results

accurately represent the overall knowledge and practice of breast self-examination (BSE) among female nursing students in UNIMAS. This method also improved the reliability of the study by ensuring that every student had an equal chance of being selected.

3.6.2 Sample size

The sample size was calculated using Taro Yamane (1967) formula. The sample size calculations were as the following:

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

n = sample size

N = population size

e = error (0.05) reliability level 95%

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

$$\mathrm{n} = \frac{196}{1 + (196)(0.05)^2}$$

$$\mathrm{n} = 131.54$$

$$\mathrm{n} = 132$$

Therefore, a total of 132 participants will be participated in this study based on the calculated sample size. However, to account for participants' compensation, including those who decline to participate, the researcher needs increase the sample size by 10% (Wang &

Ji, 2020). To compensate for the missing data in the sample, an additional 10% attrition rate was included. The calculation was as the following:

Calculation of sample size with attrition rate:

Final sample size = sample size + (Sample size x 10%)

= 132 + (132 x 10%)

= 132 + 13.2

= 145.2

= 145 participants

Thus, the total number of samples to participate in this study is 145 nursing students.

3.7 Research instrument

This study adapted a previously developed questionnaire from Muhsin and Yamin (2022), with minor modifications made to fit the study context while maintaining its original structure. The reliability of this questionnaire had been tested in a previous study, which reported a Cronbach's alpha of 0.720, indicating an acceptable level of internal consistency.

The questionnaire was divided into three sections. Section A gathered sociodemographic details. Section B assessed nursing students' knowledge of BSE, focusing on their understanding of its procedures, techniques, and benefits. Procedures involved knowing when and how often to perform BSE. This included awareness of using finger pads with proper pressure and patterns, as well as recognising BSE's role in early detection and promoting self-care, such as conducting it monthly after menstruation, and understanding the correct steps, including self-examination in different positions such as standing before a mirror or lying down. Techniques included using the pads of the fingers rather than fingertips, applying varying pressure levels, and following systematic movements like

circular motions, vertical strips, or wedge patterns to ensure complete breast coverage. The benefits of performing BSE were also assessed, including early detection of abnormalities, increased familiarity with breast tissue, and reinforcement of self-care practices alongside clinical screenings. Knowledge was measured using 12 questions on a 3-point dichotomous scale with response options of Yes = 2, No = 1, and Not Sure = 0. Knowledge levels were categorized as poor (<50%), fair (50%–70%), and good (>70%) (Muhsin & Yamin , 2022).

Section C evaluated BSE practices, which referred to how frequently students performed BSE, whether they followed the correct technique, and how they ensured thorough self-examination. The correct method involved choosing a consistent day each month, ideally a few days after menstruation, inspecting both breasts in front of a mirror with arms in different positions, checking for any nipple discharge or changes, and using the proper finger technique. The recommended frequency varied based on menstrual status, where menstruating individuals were advised to perform BSE 3 to 5 days after their period, while non-menstruating individuals were encouraged to select a consistent monthly date. To ensure a complete examination, students were expected to use proper techniques, inspect both breasts fully, and check the underarm area. Practice levels were categorized into Low (<50%), Moderate (50%-70%), and High (>70%) (Muhsin & Yamin, 2022). Additionally, participants who did not perform BSE were asked to provide reasons for their refusal. Practice was measured using 24 questions on a 2-point dichotomous scale, with response options of Yes = 1 and No = 0.

3.8 Validity and Reliability

3.8.1 Validity

In this research, content validity was used to ensure that the questionnaire accurately measured the intended concepts. Content validity refers to how well a test, survey, or measurement tool covers all aspects of what it aims to measure (Hassan, 2024). It is usually determined by experts who check if the questions are relevant and appropriate for the study (Nickerson, 2023). A pilot study was conducted to test the validity and feasibility of the questionnaire before the main study. Feedback from participants helped improve the questionnaire, enhancing its validity and reducing potential errors in the main study (Simkus, 2023). The questionnaire was adapted and modified from Muhsin & Yamin (2022) to fit this research. In addition, a nursing practice specialist, who also the supervisor, confirmed the content validity of the questionnaire. The supervisor reviewed the questionnaire to ensure its effectiveness in measuring the participants' knowledge and practice related to BSE.

3.8.2 Reliability

In research, the reliability refers to a measure of data or findings' consistency (Ahmed & Ishtiaq, 2021). In this study, Cronbach's alpha will be employed to assess the internal consistency of an instrument. Cronbach's alpha values range from 0.0 to 1.0, where scores below 0.5 indicate unacceptable reliability, 0.5–0.6 poor, 0.6–0.7 questionable, 0.7–0.8 acceptable, 0.8–0.9 good, and above 0.9 excellent internal consistency (Glen, 2023). The Cronbach's alpha value for this study was reported as 0.901.

3.9 Ethical Consideration

A letter of ethical approval was obtained prior to the conduct of the study from the Research and Ethics Committee of the Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS) (UNIMAS/NC-21.05/03-03 Jld. 8(139)). Study participants

retained the right to withdraw at any time without any consequences or penalties, and informed consent was obtained prior to their participation. In addition, an official consent email was sent to the author to request permission to use the questionnaire tools. No personal identifying information was revealed. All the collected data was utilized exclusively for research purposes. Access to the data was restricted to the researcher and supervisor. No personal information was included in the questionnaire, and the study was conducted with strict adherence to the principles of confidentiality and anonymity. Labelling participants with numbers rather than their names preserved their confidentiality.

3.10 Data collection procedure

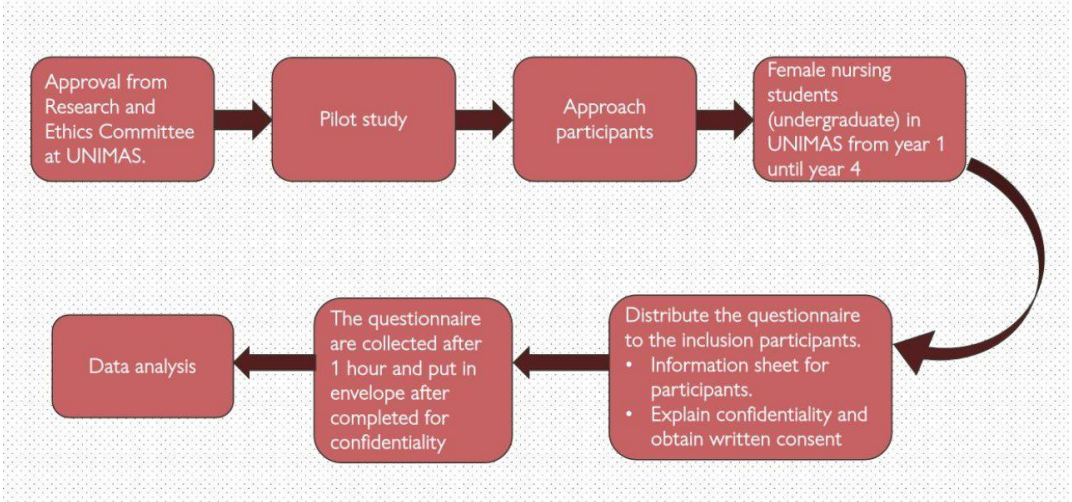
3.10.1 Pilot Study

For the pilot study, a list of first- to fourth-year nursing students' names was collected from the class representatives. 15 students were chosen to be included in this pilot study. After getting approval from the Research and Ethics Committee in UNIMAS, a printed questionnaire in English was prepared. The questionnaire was adapted from Muhsin & Yamin (2022) and adjusted to match the research objectives. Students who were willing to take part and met the inclusion and exclusion criteria were selected. They were given the printed, self-administered questionnaire by main researcher on 07 April 2025 (Monday), which was collected after one hour.

Before starting, each participant was informed about their rights. The consent form included the researcher's phone number so participants could ask any questions about the questionnaire. After the pilot study, the responses were reviewed to find any unclear questions or difficulties in understanding. Changes were made to improve the questionnaire before the main study.

Figure 3.1

Data collection procedure of pilot study

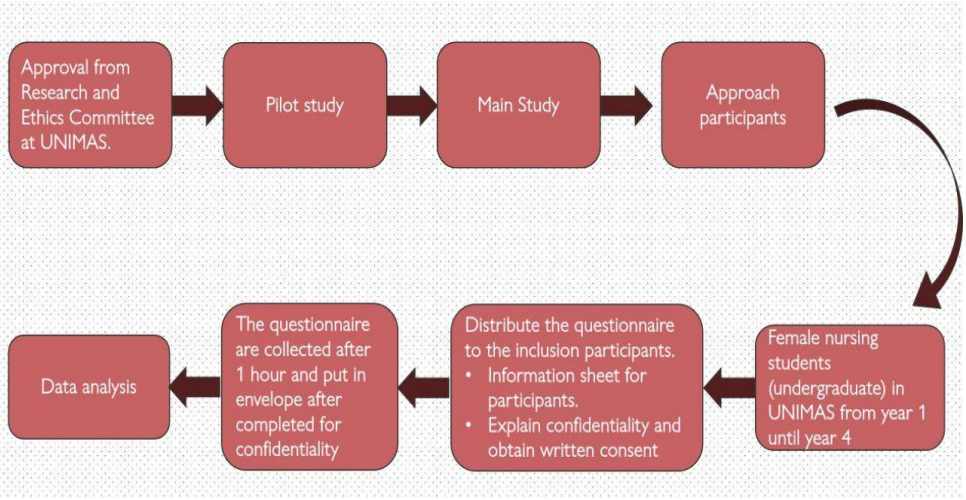


3.10.2 Main Study

After completing the pilot study and making improvements, the main study was carried out. The same steps were followed, starting with collecting a list of students' names and getting ethical approval. The final version of the questionnaire, revised based on the pilot study results, was printed and distributed by main researcher on 10 April 2025 (Thursday). Students who met the criteria and agreed to participate were given the self-administered questionnaire, which was collected after one hour. Before taking part, all students were informed about their rights. The consent form included the researcher's contact details so participants could ask any questions. The data collected in the main study was then analyzed to understand the knowledge and practice of breast self-examination among nursing students at UNIMAS.

Figure 3.2

Data collection procedure of main study



3.11 Data analysis

The data collected in this study were analyzed using statistical software, specifically the Statistical Package for the Social Sciences (SPSS) version 27 IBM. Descriptive and inferential statistics were used to present the characteristics of the sample through frequency, percentage, mean, and standard deviation of the variables for data that normally distributed. Continuous data that were not normally distributed were reported using the median and interquartile range.

Since the data in this study were not normally distributed, the Spearman correlation coefficient was used to assess the relationships between variables, as it is suitable for non-parametric data. According to Leclezio et al., (2014) described that the strength of correlation r_s=0.01-0.19 indicated no/negligible relationship, 0.20-0.29 indicated weak relationship, 0.30-0.39 indicated moderate relationship, 0.40-0.69 indicated strong relationship, >0.70 indicated very strong relationship. The Kolmogorov-Smirnov test was employed to test the normality of the continuous data, as the sample size for this study exceeded 50 participants.

3.12 Summary

In summary, this quantitative cross-sectional study was conducted at the Faculty of Medicine and Health Sciences, UNIMAS, involving female nursing students from Year 1 to Year 4. A sample size of 145 participants was determined using Taro Yamane's (1967) formula and selected through simple random sampling. The study instrument consisted of three sections in a self-administered questionnaire, which was distributed to the participants. Ethical approval was obtained prior to data collection. The collected data were analyzed using IBM SPSS Statistics version 27, employing both descriptive and inferential statistics.

CHAPTER 4: RESULTS

4.0 Introduction

This chapter presents the findings obtained from 145 female nursing students at UNIMAS. The results are organized according to the study's research objectives: to assess the level of knowledge related to breast self-examination (BSE), to evaluate the level of BSE practice, and to examine the relationship between knowledge and practice of BSE among the participants. Section 4.1 outlines the sociodemographic characteristics of the respondents. Section 4.2.1 presents the level of knowledge regarding BSE, while Section 4.2.2 covers the level of BSE practice. Section 4.2.3 discusses the relationship between knowledge and practice. Section 4.2.4 examines the association between the age at which participants began practicing BSE and their knowledge and practice of BSE. Section 4.2.5 explores the association between years of study and knowledge and practice of BSE. Section 4.2.6 analyzes the association between the inclusion of BSE in the curriculum and participants' knowledge and practice. Section 4.2.7 examines the association between a personal history of breast problems and knowledge and practice of BSE. Section 4.2.8 discusses the association between a family history of breast cancer and knowledge and practice of BSE. Finally, Section 4.3 provides a summary of the chapter.

4.1 Sociodemographic characteristics of the study sample

A total of 145 female nursing students from UNIMAS were recruited for this study. The largest proportion of participants (23.40%, n = 34) were 22 years old, while the smallest group (1.40%, n = 2) were 26 years old. The median age of participants (*mdn)* was 22.00 years, with an interquartile range (*IQR*) of 2.00 (refer to Table 4.1). The median age at menarche (*mdn)* was 12.00 years, with an interquartile range (*IQR)* of 2.00. The median age

at which participants began practicing BSE (*mdn)* was 20.00 years, with an interquartile range (*IQR*) of 3.00. No outliers or extreme values were detected in the data.

In terms of ethnicity, most participants were Malay (37.90%, *n* = 55), followed by Bumiputera Sarawak (31.00%, *n* = 45), Bumiputera Sabah (26.90%, *n* = 39), Chinese (3.40%, *n* = 5), and Indian (0.70%, *n* = 1) (refer to Figure 4.1). Most participants were from Year 2 and Year 3 (25.50%, *n* = 37 each), followed by Year 4 (24.80%, *n* = 36) and Year 1 (24.10%, *n* = 35) (refer figure 4.1).

Regarding curriculum coverage, 75.90% (*n* = 110) of participants reported that BSE was included in their curriculum, while 24.10% (*n* = 35) stated it was not (refer table 4.1). Among the participants, 3.00% (*n* = 3) had experienced breast-related health issues 1.40% (*n* = 2) had breast lumps, and 0.70% (*n* = 1) had fibroadenoma, while the remaining 97.90% (*n* = 142) reported no breast problems. Additionally, 8.30% (*n* = 12) had a family history of breast cancer 2.80% (*n* = 4) in their mothers and 5.50% (*n* = 8) in other relatives whereas 91.70% (*n* = 133) reported no such history (refer table 4.1).

Table 4.1

Sociodemographic variables of female nursing students in UNIMAS (*n*=145)

Characteristics of participants	Variable	Frequency (*n*)	Percentage (%)	Median (*Mdn)*	Interquartile Range (*IQR)*
Age	20	31	21.40	22.00	2.00
	21	33	22.80		
	22	34	23.40		
	23	30	20.70		
	24	15	10.30		
	26	2	1.40		
Age of start having menarche (first menstruation)	9	1	0.70	12.00	2.00
	10	17	11.70		
	11	29	20.00		
	12	56	38.60		
	13	25	17.20		
	14	13	9.00		
	15	3	2.10		
	16	1	0.70		
At what age you start practicing BSE	13	5	3.40	20.00	3.00
	14	5	3.40		
	15	12	8.30		
	16	4	2.80		
	17	14	9.70		
	18	16	11.00		
	19	12	8.30		
	20	50	34.50		
	21	18	12.40		
	22	8	5.50		
	23	1	0.70		

Race	Malay	55	37.90
	Chinese	5	3.40
	India	1	0.70
	Bumiputera Sabah	39	26.90
	Bumiputera Sarawak	45	31.00
Year of study	Year 1	35	24.10
	Year 2	37	25.50
	Year 3	37	25.50
	Year 4	36	24.80
BSE is included in the curriculum?	Yes	110	75.90
	No	35	24.10
Do you have any breast problem	No	142	97.90
	Breast lump	2	1.40
	Fibroadenoma	1	0.70
Do you have a family history of breast cancer	No	133	91.70
	Mother	4	2.80
	Other relatives	8	5.50

Figure 4.1

Percentage distribution of participants by race (*n*=145)

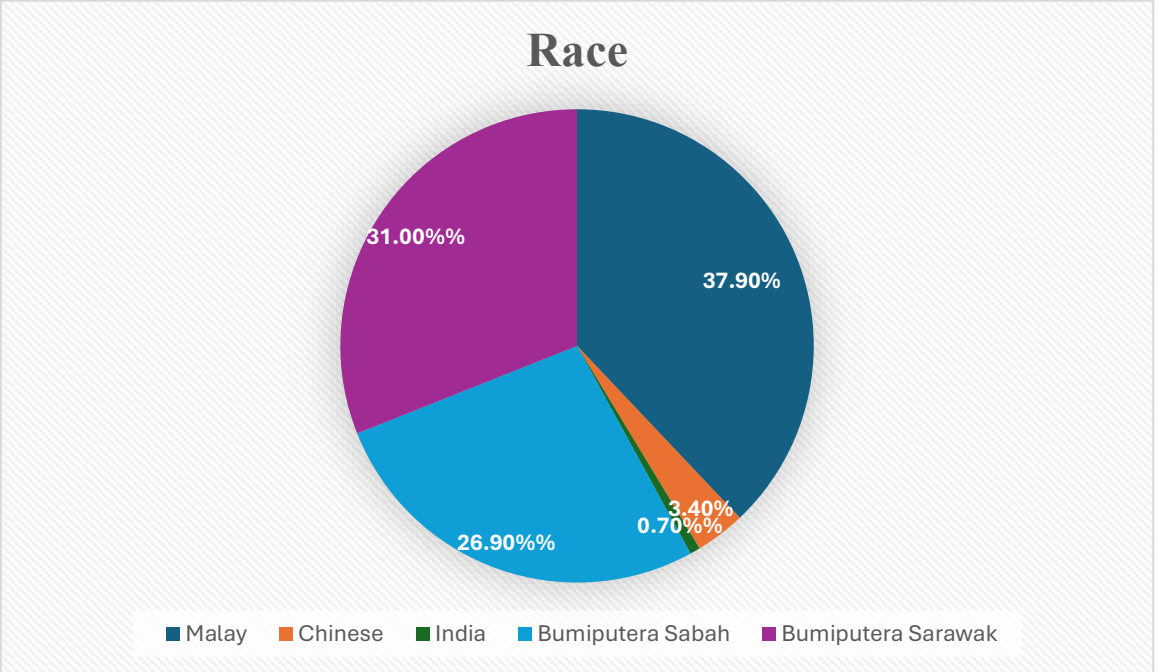
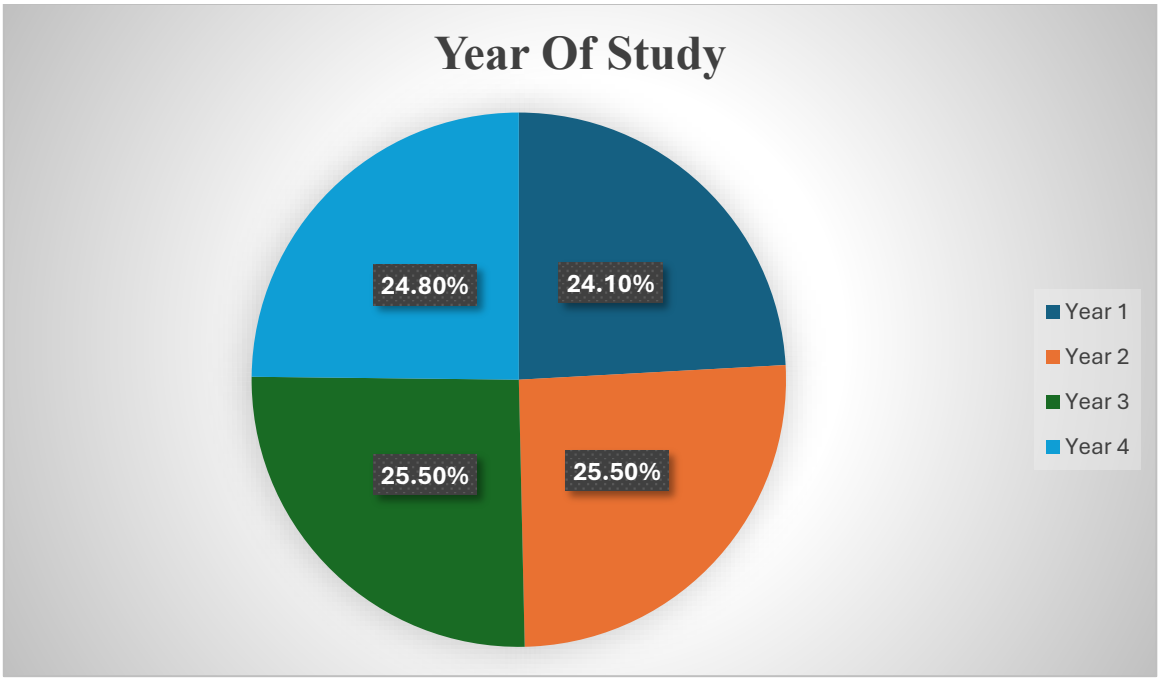


Figure 4.2

Percentage distribution of participants by year of study (*n*=145)



4.2 Present study results

4.2.1 The level of knowledge related to BSE among female nursing students in UNIMAS

This section presents the results on the level of knowledge related to Breast Self-Examination (BSE) among female nursing students at UNIMAS. There is no outliers or extreme values noted from the box plot knowledge score. A Kolmogorov-Smirnov test showed that knowledge score is not normally distributed, D (145) =.19, p<.001 (Refer to Table 4.2). The median score among the participants is 18.00 point (*IQR*=4.00). The maximum score is 21 points while minimum score is 1 point. The range is 20 points. (Refer to Table 4.3).

Recoding knowledge score into level of knowledge was done using the visual binning in SPSS. Overall, 69.00% (*n*=100) of the female nursing students had a good level of knowledge about BSE, while 24.80% (*n*=36) had a fair level of knowledge, and 6.20% (*n*=9) had poor knowledge (refer to Figure 4.3). A total of 91.00% (*n*=132) of the participants had heard about BSE (refer to Table 4.4). Among them, 37.20% (*n*=54) learned about it from a teacher or lecturer, 20.70% (*n*=30) from TV or radio, 7.60% (*n*=11) from newspapers, and 25.50% (*n*=37) from peer groups (refer to Figure 4.2.1.5). Meanwhile, 9.00% (*n*=13) of the participants had not heard about BSE (refer to Table 4.4).

Table 4.2

Kolmogorov Smirnov test for knowledge score among female nursing students in UNIMAS (*n*=145)

Item	Descriptive Statistics	Test of Normality (sig.)	Interpretation
Knowledge Score	Mean: 16.70 5% of Trimmed Mean: 17.07	<.001	Not normally distributed

Table 4.3

Descriptive statistics for knowledge score among female nursing students in UNIMAS (*n*=145).

Descriptive Statistics	Knowledge scores
Median (*Mdn*)	18.00
Interquartile (*IQR*)	4.00
Minimum	1.00
Maximum	21.00
Range	20.00

Figure 4.3

Level of knowledge related to BSE among female nursing students in UNIMAS (*n*=145)

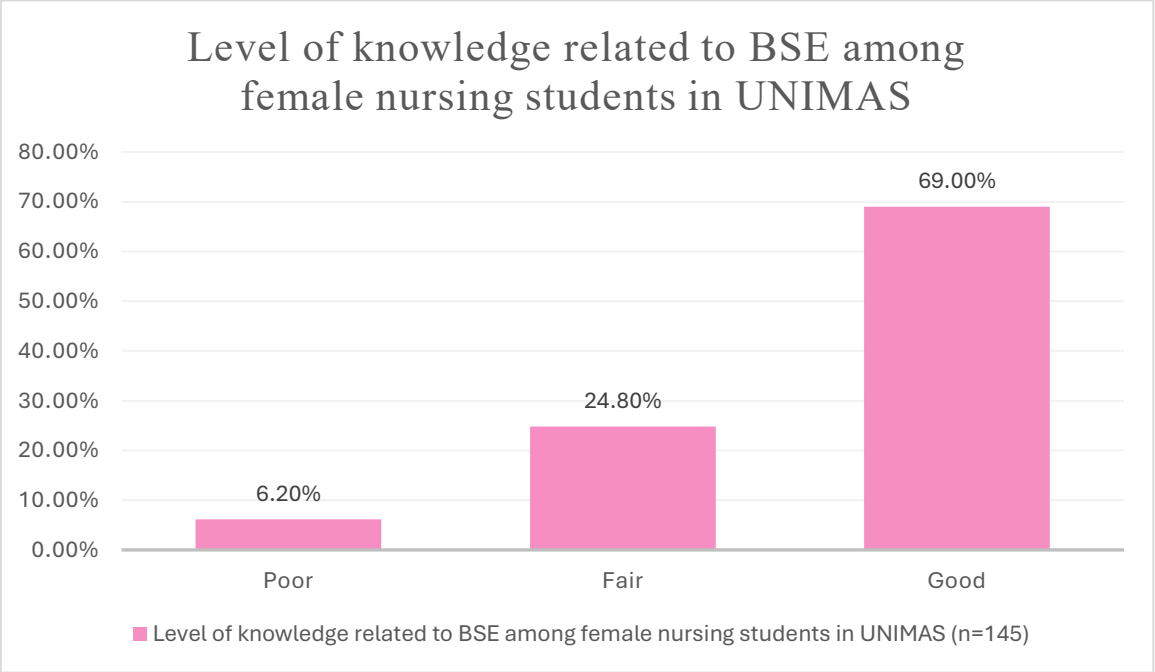


Table 4.4

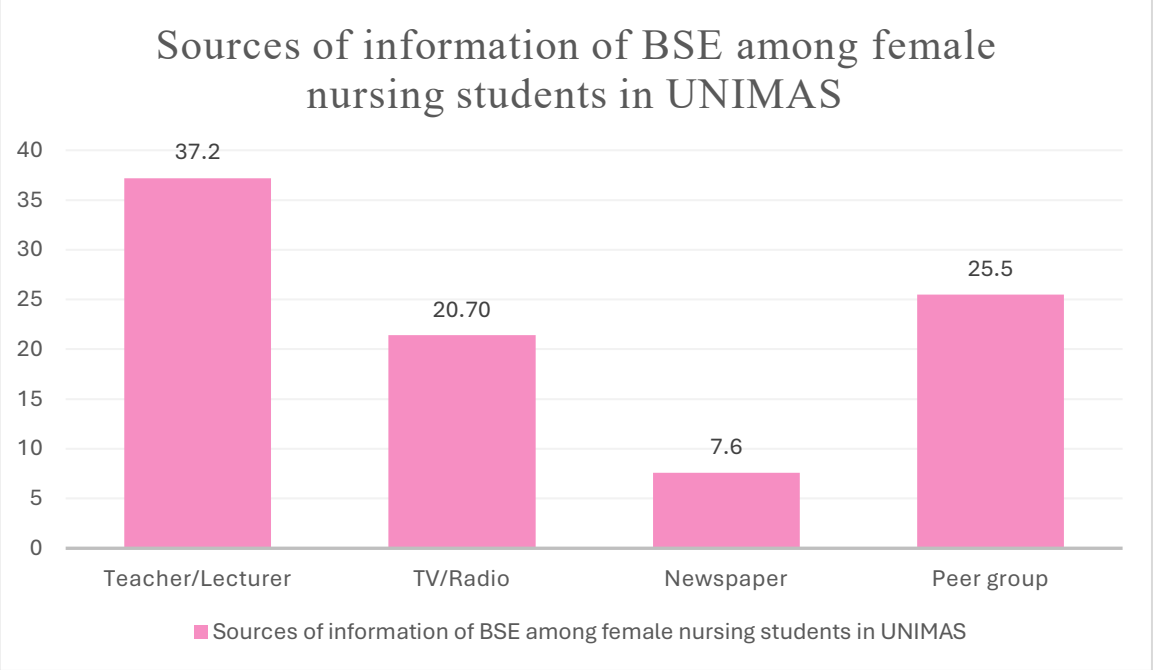
Knowledge related to BSE among female nursing students in UNIMAS (*n*=145)

Characteristics of participants	Variable	*n* (%)		
		Yes	No	Not Sure
Have you ever heard about BSE?		132 (91.00)	13 (9.00)	0(0)
If yes, how do you hear about it?	Teacher / Lecturer		54 (37.20)	
	TV/Radio		30 (20.70)	
	Newspaper		11 (7.60)	
	Peer group		37 (25.50)	
BSE could be done monthly		127 (87.60)	2 (1.40)	16 (11.00)
BSE should be begin at the age of having first menarche		115 (79.30)	4 (2.80)	26 (17.90)
Should BSE be performed in different positions (e.g., lying down, standing in front of a mirror, or during a shower) to ensure thorough examination?		115 (79.30)	8 (5.50)	22 (15.20)
BSE is important in the early detection of breast cancer		137 (94.50)	1 (0.70)	7 (4.80)

BSE should be done between day 7 and day 10 of the menstrual cycle	81 (55.90)	8 (5.50)	56 (38.60)
BSE could be done during menstruation	60 (41.40)	42 (29.00)	43 (29.70)
BSE should not be performed after menopause	22 (15.20)	79 (54.50)	44 (30.30)
During BSE, there is a need to press on the nipple	101 (69.70)	24 (16.60)	20 (13.80)
BSE includes armpit examination	131 (90.30)	4 (2.80)	10 (9.90)
Detection of a lump in the breast may be an early sign of cancer	130 (89.70)	6 (4.10)	9 (6.20)

Figure 4.4

Sources of information of BSE among female nursing students in UNIMAS (*n*=145)



4.2.2 The level of practice related to BSE among female nursing students in UNIMAS

This section presents the results regarding the level of practice related to Breast Self-Examination (BSE) among female nursing students at UNIMAS. There is no outliers or extreme values noted from the box plot practice score. A Kolmogorov-Smirnov test showed that practice score is not normally distributed, D (145) =.26, p<.001 (Refer to Table 4.5). The median score among the participants is 18.00 point (*IQR*=21.00). The maximum score is 22 points while minimum score is 0 point (*IQR*=4.00). The range is 22 points. (Refer to Table 4.6).

Recoding practice score into level of practice was done using visual binning in SPSS. Overall, 89 (61.40%) demonstrated a high level of BSE practice, while 8 (5.50%) had a moderate level, and 48 (33.10%) had a poor level of BSE practice (refer to Figure 4.5). A total of 98 (67.60%) reported practicing BSE, while 47

(32.40%) had not practiced BSE (refer to Table 4.7). Out of 145 participants, 92 (63.40%) had received training or instruction on the correct BSE technique, while 53 (36.60%) had not (refer to Table 4.7). Additionally, 95 (65.50%) of participants were aware of the three patterns used for palpation during BSE 25 (17.20%) identified the wedge pattern, 56 (38.60%) the circular pattern, and 14 (9.70%) the lines pattern (refer to Figure 4.6), while 50 (34.50%) were not aware of these patterns (refer to Table 4.7).

Furthermore, 97 (66.90%) of participants reported having no reasons for refusing to practice BSE, while 48 (33.10%) reported having reasons, which included not knowing the technique (7.60%, *n*=11), feeling shy to touch the breast (6.90%, *n*=10), fear of the outcome (4.10%, *n*=6), feeling too young to practice (0.70%, *n*=1), no symptom of breast cancer (5.50%, *n*=8), lack of recommendation (0.70%, *n*=1), believing it is unnecessary (0.70%, *n*=1), always forgotten to perform it (2.80%, *n*=4), and lack of time (4.10%, *n*=6) (refer to Figure 4.7).

Table 4.5

Kolmogorov-Smirnov test for practice score among female nursing students in UNIMAS (n=145)

Item	Descriptive Statistics	Test of Normality (sig.)	Interpretation
Practice score	Mean: 12.91 5% of Trimmed Mean: 18.00	<.001	Not normally distributed

Table 4.6

Descriptive statistics for practice score among female nursing students in UNIMAS (*n*=145)

Descriptive Statistics	Practice score
Median (*Mdn*)	18.00
Interquartile (*IQR*)	21.00
Minimum	0.00
Maximum	22.00
Range	22.00

Figure 4.5

Level of practice related to BSE among female nursing students in UNIMAS (*n*=145)

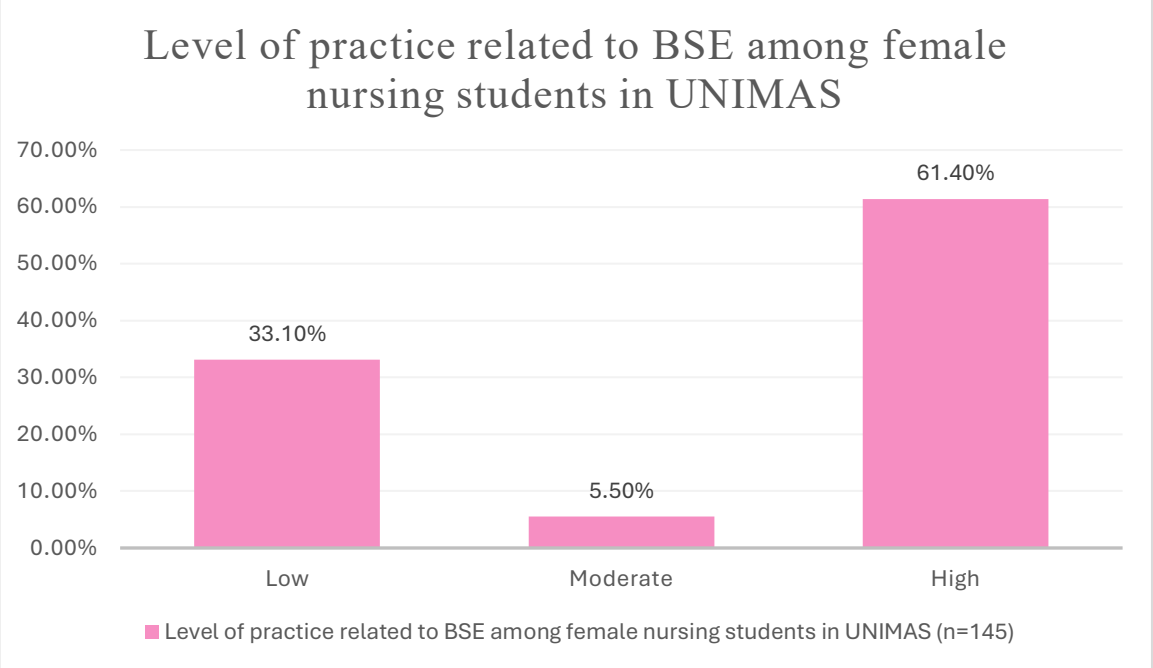


Table 4.7

Practice related to BSE among female nursing students in UNIMAS (*n*=145)**.**

Characteristics of participants	Variable	*n* (%)	
		Yes	No
Do you practice BSE?		98 (67.60)	47 (32.40)
Do you know the recommended frequency for performing BSE?		76 (52.40)	69 (47.60)
Do you perform BSE at the same time each time?		38 (26.20)	107 (73.80)
Have you received training or instruction on the correct technique for BSE?		92 (63.40)	53(36.60)
Do you know the correct method of BSE?		96 (66.20)	49 (33.80)
Do you know the three pattern of perform palpation during BSE?		95 (65.50)	50 (34.50)

If yes, which pattern do you use?	Wedge	25 (17.20)	
	Circle	56 (38.60)	
	Lines	14 (9.70)	
Do you examine both breasts and underarm areas as part of BSE?		96 (66.20)	49 (33.80)
Have you performed BSE within the past three-months?		83 (57.20)	62 (42.80)
Do you examine your breast in front of mirror to check for visual changes such as asymmetry, dimpling, or swelling?		83 (57.20)	62 (42.80)
Do you raise your arms overhead and look for changes in breast shape or size?		88 (60.70)	57 (39.30)
Do you check for visible skin changes, such as redness or puckering,		95 (65.50)	50 (34.50)

during visual inspection?		
Do you use the pads of your fingers to palpate your breasts?	94 (64.80)	51 (35.20)
Do you vary the pressure during palpation to feel both superficial and deep tissues?	88 (60.70)	57 (39.30)
Do you systematically examine the entire breast starting from the outer edge and moving toward the nipple?	94 (64.80)	51 (35.20)
Do you check for lumps or abnormalities in the underarm areas?	94 (64.80)	51 (35.20)
Do you squeeze the nipple to check for any discharge?	90 (62.10)	55 (37.90)
Do you perform BSE while standing or sitting such	90 (62.10)	55 (37.90)

as during or after a shower?			
Do you perform BSE while lying down to ensure even distribution of breast tissue?		67 (46.20)	78 (53.80)
Do you record or keep track of any findings after performing BSE?		56 (38.60)	89 (61.40)
If you notice any unusual findings during BSE, do you seek medical advice?		82 (56.60)	63 (43.40)
Do you encourage friends or family members to perform BSE		80 (55.20)	65 (44.80)
Do you have any reasons for refusing to practice BSE?		48 (33.10)	97 (66.90)
If yes, why?	Do not know the techniques	11 (7.60)	
	Feel shy to touch the breast	10 (6.90)	
	Fear of the outcome	6 (4.10)	

Too young to practice	1 (0.70)
No symptoms of breast cancer	8 (5.50)
No one recommends	1 (0.70)
Don't think it is necessary to perform BSE	1 (0.70)
Always forgotten to perform	4 (2.80)
No time to perform	6 (4.2)

Figure 4.6

Three patterns used for palpation during BSE among female nursing students in UNIMAS (*n*=145)

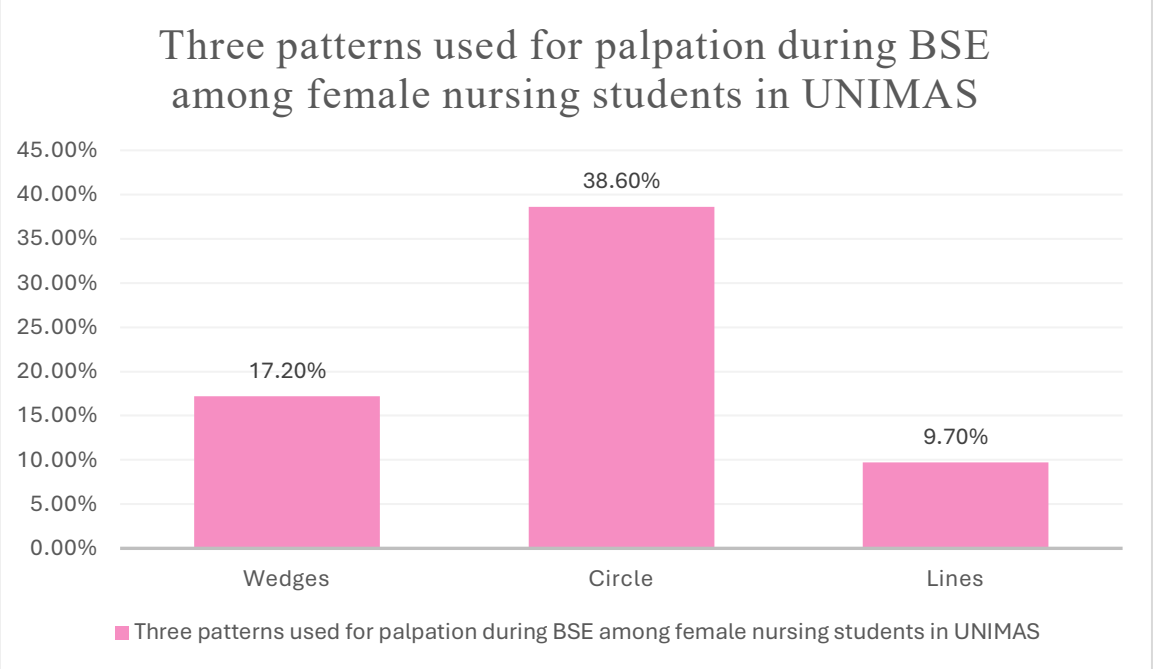
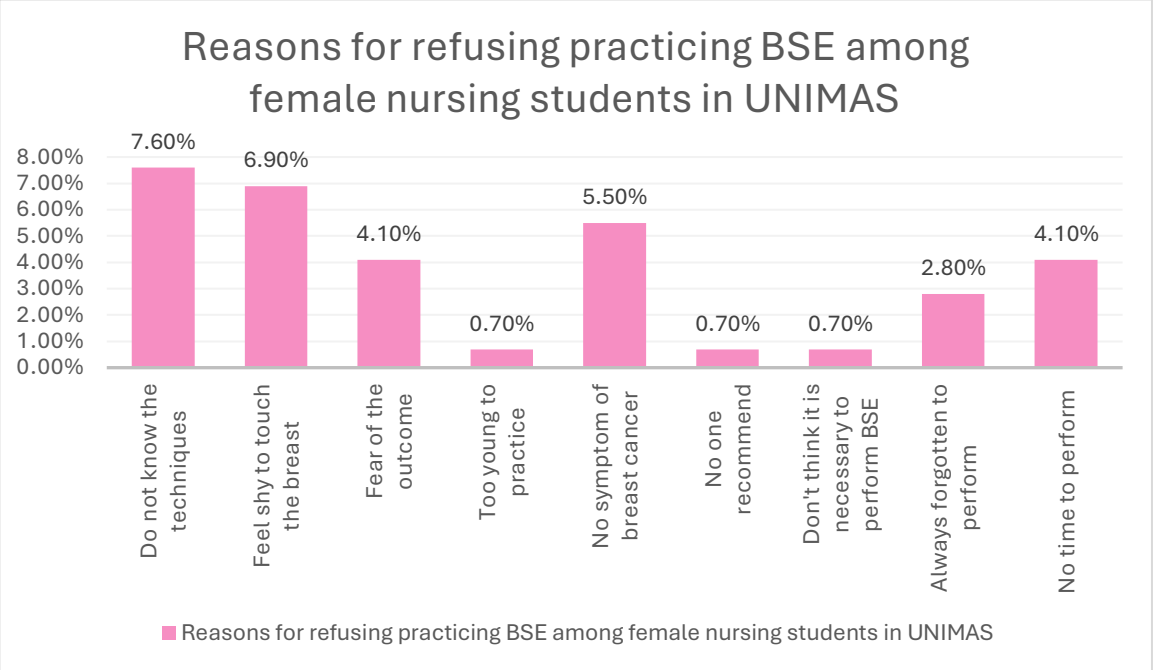


Figure 4.7

Reasons for refusing practicing BSE among female nursing students in UNIMAS (*n*=145)



4.2.3 The relationship between knowledge and practice related to BSE among female nursing students in UNIMAS

The relationship between knowledge score and practice score was investigated using Spearman correlation coefficient. Preliminary analyses were performed and there was a violation of the assumptions of normality for knowledge score, *D* (145) =.19, *p*<.001 (Refer to Table 4.2) and practice score *D* (145) =.26, *p*<.001 (Refer to Table 4.5). No outliers or extreme values were detected from the box plot.

There was a strong positive correlation between two variables r_s (145) =.413, *p*<.001 (refer to Table 4.8), with high level of knowledge (*Mdn*=18.00, *IQR*=4.00) (Refer to Table 4.3) associated with high level of practice (*Mdn*=18.00, *IQR*=21.00) (Refer to Table 4.6).

Table 4.8

The relationship between knowledge and practice related to BSE among female nursing students in UNIMAS (*n*=145*)*

Correlations				
			Knowledge	Practice
Spearman's rho	Knowledge	Correlation Coefficient	1.000	.413**
		Sig (2 tailed)	.	<.001
		N	145	145
	Practice	Correlation Coefficient	.413**	1.000
		Sig (2 tailed)	<.001	.
		N	145	145

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

4.3 Summary

This chapter presented the findings from 145 female nursing students at UNIMAS on their knowledge and practice of Breast Self-Examination (BSE). Most participants were aged 22 and the majority were Malay, followed by Bumiputera Sarawak and Sabah. A large portion reported that BSE was included in their curriculum. The results showed that 69% of participants had good knowledge about BSE, and 61.4% had a high level of practice. However, knowledge and practice scores were not normally distributed. There was a strong positive correlation between knowledge and practice, indicating that higher knowledge is associated with better practice.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter discusses the findings of the study in Section 5.1 and provides a summary of the findings in Section 5.2. Section 5.3 presents the implications, recommendations, and future research while Section 5.4 outlines the limitations of the study. Lastly, Section 5.5 presents the conclusions.

5.1 Discussion of the findings/results

5.1.1 The level of knowledge related to BSE among female nursing student in UNIMAS

The present study found that most female nursing students in UNIMAS (69.00%) had a good level of knowledge related to BSE, with 24.80% showing a fair level and only 6.20% demonstrating poor knowledge. This suggests a strong overall awareness and understanding of BSE among the participants. These findings are consistent with those of Muhsin and Yamin (2022), who conducted a study among health science students at a Malaysian public university. They similarly reported that most participants possessed good knowledge about BSE. The authors attributed this to the integration of BSE topics within the health sciences curriculum, which equips students with both theoretical knowledge and awareness of the importance of BSE for early detection of breast abnormalities. The results from UNIMAS suggest that its nursing curriculum is comparably effective in imparting BSE knowledge.

Similarly, Khalip et al. (2021) also observed a high level of BSE knowledge among nursing students at another Malaysian public university. Their findings highlighted the curriculum's role in raising awareness about cancer prevention and

early detection strategies. This aligns closely with the current study, further reinforcing the view that nursing education in Malaysia generally supports strong knowledge acquisition related to BSE. Khalip et al. (2021) also highlight the importance of preparing nursing students to become future educators, a role for which solid knowledge of BSE is essential.

In contrast, Sowtali et al. (2024) found that most students in their study had only moderate knowledge of BSE, with noticeable gaps in understanding its techniques, frequency, and significance. This contrasts with the higher knowledge levels observed in the current study. The discrepancy may reflect differences in institutional emphasis, curriculum design, or opportunities for practical learning. While students may have been exposed to theoretical content, the lack of comprehensive training could have contributed to the lower knowledge levels reported.

5.1.2 The level of practice related to BSE among female nursing students in UNIMAS

The current study revealed that 61.40% of female nursing students in UNIMAS demonstrated a high level of practice related to Breast Self-Examination (BSE), while 33.10% had poor practice, and only 5.50% exhibited a moderate level of practice. Additionally, 67.60% reported having practiced BSE, and 63.40% had received formal training or instruction on the correct technique. These findings are encouraging, as they suggest that most nursing students in UNIMAS are not only aware of BSE but are also engaging in the behaviour, which contrasts with findings from several earlier studies.

In comparison, Sowtali et al. (2024) found that even among students with moderate knowledge of BSE, correct practice was alarmingly low, indicating a

significant disconnect between awareness and actual behaviour. Their findings reflect a broader trend in the literature where knowledge does not necessarily translate into proper health practices. The higher practice level observed in the current study may be attributed to better educational delivery, more hands-on learning opportunities, or greater emphasis on personal health responsibility among UNIMAS students. However, further investigation is needed to confirm these contributing factors.

Similarly, Muhsin and Yamin (2022) reported that although their participants had good knowledge of BSE, very few performed it regularly, especially monthly as recommended. This gap between knowledge and consistent practice suggests potential barriers such as lack of time, forgetfulness, or discomfort. The present study's results partially reflect this trend although a majority practiced BSE, 32.40% of the participant still reported not practicing it, and 33.10% had poor levels of practice. Among the reasons cited for not practicing BSE were lack of knowledge about the correct technique, emotional factors such as shyness and fear of the outcome, and the perception of absence of symptoms. These findings indicate that emotional, cognitive, and informational barriers continue to hinder the full adoption of BSE among the students.

The findings from Elsayed et al. (2024) also indicated poor BSE practice among more than half of their nursing student participants, primarily due to lack of knowledge on how to perform BSE correctly. This aligns with the 36.60% of students in the current study who had not received training or instruction, and the 34.50% who were not aware of any palpation patterns. These gaps suggest that even within a high-performing group, further training on BSE technique and regular reinforcement of practical skills are necessary.

5.1.3 The relationship between knowledge and practice related to BSE among female nursing student in UNIMAS

The current study found a strong positive correlation between knowledge and practice related to Breast Self-Examination (BSE) among female nursing students at UNIMAS, with $r_s = .413$, $p < .001$. This indicates that students who had higher knowledge scores were more likely to engage in better BSE practices. This finding aligns with previous studies, as both Muhsin & Yamin (2022) and Sowtali et al. (2024) reported a positive correlation between BSE knowledge and practice among Health Sciences students. However, despite moderate to good knowledge levels, actual practice remained low in both studies similar to the present study, where 69.00% had good knowledge and 61.40% demonstrated high practice, yet 33.10% still showed poor BSE practice. These findings indicate that although knowledge is positively associated with BSE practice, it is not the sole determinant. Consistent practice may be influenced by additional factors.

The study by Elsayed et al. (2024) further supports this interpretation, having found a highly significant correlation between knowledge and practice, yet many students still failed to perform BSE correctly due to lack of confidence and insufficient skill. This finding complements the present study's insight that 36.60% of students had not received training on BSE techniques, and 34.50% were unaware of the correct palpation patterns, indicating that training and practical exposure remain critical components for bridging the gap between knowing and doing.

5.2 Summary of the findings of the study

This study aimed to explore the level of knowledge and practice related to Breast Self-Examination (BSE) among female nursing students at UNIMAS and to examine the relationship between these two factors. The findings showed that most of the students (69%) had a good level of knowledge about BSE. About 24.8% had a fair level of knowledge, while 6.2% had poor knowledge. A total of 91% of the participants had heard about BSE, with many learning about it through lecturers, friends, television, or the radio. This shows that BSE information is available through various channels, but formal education remains a key source.

In terms of practice, 61.4% of the students had a high level of BSE practice, 5.5% had a moderate level, and 33.1% had poor practice. Even though 67.6% of the students reported that they had practiced BSE before, 32.4% had never practiced it. About 63.4% received training on the correct BSE technique, but some students were still not aware of the three main patterns used for breast palpation. Among those who did not practice BSE, reasons included not knowing how to do it, feeling shy to touch their breasts, being afraid of the results, believing they were too young, or thinking it was not necessary. This shows that even when knowledge is present, certain personal or emotional barriers can still prevent students from practicing BSE regularly.

The study also found a strong positive correlation between knowledge and practice (r_s = .413, $p < .001$), which means that students who had more knowledge about BSE were also more likely to practice it. This is an important finding, as it supports previous studies and shows that knowledge can influence behaviour. However, the results also suggest that knowledge alone may not be sufficient to ensure consistent BSE practice, as other

influencing factors such as confidence, motivation, and perceived importance may play a significant role.

5.3 Implications, recommendations, future research

5.3.1 Implications

This study has important implications for nursing education and public health. The finding of a strong positive relationship between knowledge and practice of breast self-examination (BSE) shows that when nursing students have better knowledge, they are more likely to perform BSE. This suggests that improving BSE education in the curriculum can help increase student's engagement in preventive health behaviour. However, although most students had good knowledge, a noticeable number still showed poor or fair levels, indicating that current teaching methods may not be effective for all students. In addition, despite many students reporting they had practiced BSE, a considerable proportion demonstrated inadequate practical performance. Psychological and emotional factors such as fear, embarrassment, and the belief that they are too young may prevent students from doing BSE regularly. Since nursing students will become future health educators, their personal habits and confidence in practicing BSE are likely to influence their ability to promote it among patients. Therefore, addressing these gaps is essential for improving both personal health awareness and future patient education.

5.3.2 Recommendations

Based on the findings, several recommendations can be made to enhance knowledge and practice of BSE among nursing students. Firstly, the nursing curriculum should include more practical training. Using breast models and simulations can help students learn the correct technique and gain confidence. Secondly, universities should organize regular workshops, health talks, and BSE awareness campaigns. These events can serve as reminders and encourage students to practice BSE more consistently. Thirdly, peer education programs could be introduced, where trained senior students guide their juniors in practicing BSE. This may help create a more supportive learning environment. Fourthly, emotional barriers should be addressed through open discussions or counselling. Educators can help students overcome their fears by creating a safe space for sharing concerns. Finally, BSE skills could be included in practical assessments or clinical exams to encourage students to treat it as a serious and essential skill. These steps can help ensure that students not only understand the importance of BSE but also feel motivated and confident to perform it.

5.3.3 Future research

Future studies should explore the topic more deeply and broadly. One suggestion is to use qualitative methods such as interviews or focus group discussions to understand students' feelings, experiences, and personal barriers to practicing BSE. This can reveal information that questionnaires may miss. Another suggestion is to involve students from other universities and from different health science programs to compare results across regions and disciplines. Researchers should also consider using a longitudinal design to observe how knowledge and practice change over time,

especially after students receive BSE training. In addition, future research could test the effectiveness of specific educational tools, such as mobile apps, video tutorials, or peer teaching, to see which methods best improve students' knowledge and practice. Finally, studies should look at other possible factors that influence BSE practice, such as confidence level, family history of breast cancer, or beliefs about health. These future studies would provide a more complete understanding and help improve strategies for BSE education among nursing students.

5.4 Limitations of the study

Despite the valuable findings, this study had several limitations. The sample was limited to female nursing students from one public university, UNIMAS, which means the results cannot be generalized to all students in Malaysia or to those studying in other health programs. Secondly, the study relied on self-reported questionnaires, which can lead to inaccurate responses. Students might have given answers they believed were expected or acceptable, rather than what they do. Thirdly, the study used a cross-sectional design, meaning the data was collected only once. This makes it difficult to determine whether increased knowledge truly causes better practice, or whether other factors play a role. Lastly, the study did not explore students' personal reasons or feelings about BSE in detail, since only quantitative data was used. These limitations suggest that more comprehensive methods are needed in future research to understand the full picture.

5.5 Conclusions

This study examined the relationship between knowledge and practice of breast self-examination (BSE) among female nursing students at UNIMAS. The findings revealed that although the students generally demonstrated a high level of knowledge about BSE, there was variability in how consistently and correctly the practice was carried out. A significant

positive correlation was found between knowledge and practice, indicating that students with higher knowledge scores were more likely to practice BSE. However, the presence of strong knowledge did not necessarily translate into regular and proper practice, suggesting the influence of other factors such as confidence, motivation, or technique familiarity.

These findings highlight the importance of not only providing theoretical knowledge but also emphasizing practical training and behavioural reinforcement in the nursing curriculum. Given that nursing students will serve as future health educators and advocates, equipping them with both knowledge and the confidence to practice BSE correctly is essential. Addressing these gaps through educational initiatives, workshops, and skills-based learning can enhance their personal health behaviours and empower them to educate others effectively. In conclusion, while knowledge of BSE among nursing students is promising, there is still room for improvement in practical application. Strengthening the integration of BSE education within nursing programs will contribute to early breast cancer detection efforts and improve health outcomes in the broader community.

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Appendix A: Ethical Approval

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(139)

To : Roszizah Binti Jahirin (81065)
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 and Practices Related to Breast Self-Examination Among Nursing Students at UNIMAS: A Cross-Sectional Study**

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	:	**Roszizah Binti Jahirin**
Student ID	:	**81065**
Programme	:	**Bachelor of Nursing with Honours**
Research Title	:	***Knowledge and Practices Related to Breast Self-Examination Among Nursing Students at UNIMAS: A Cross-Sectional Study***
Supervisor Name	:	**Madam Roziah binti Arabi**
Supervisor H/P	:	**+60 13-394 7728**

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: Cover Letter for Ethical Application

Roszizah Binti Jahirin
Faculty Medicine and Health Sciences,
Universiti Malaysia Sarawak,
94300 Kota Samarahan,
Sarawak.

The Chairman,
Medical Research Ethics Committee,
Faculty Medicine and Health Sciences,
Universiti Malaysia Sarawak,
94300 Kota Samarahan,
Sarawak. 15th December 2024

Professor/Associate Professor/Dr/Sir/Madam,

REQUEST FOR APPROVAL TO CONDUCT RESEARCH PROJECT

I am a final-year student pursuing a Bachelor of Nursing with Honours at the Faculty of Medicine and Health Sciences, UNIMAS. I enrolled in MDJ 4653 Final Year Project I, in which the course is coordinated by Madam Shalin Lee Wan Fei. Please find my details as follows:

Full name: Roszizah Binti Jahirin

Matrix number: 81065

IC No.: 011022-12-1174

I would like to request for the kind approval from the Faculty of Medicine and Health Sciences Medical Research Ethics Committee to conduct the following study:

Research title: Knowledge and Practice Related to Breast Self-Examination (BSE) Among Female Nursing Students In UNIMAS: A Cross-Sectional Study

Supervisor's name: Madam Roziah Binti Arabi

Email address: 81065@siswa.unimas.my

Supervisor's HP number: 0133947728

Please find the required documents as appended for your kind consideration and approval.

Thank you.

Yours sincerely,

(Roszizah Binti Jahirin)

Appendix C: Participants information sheet and informed consent form

PARTICIPANT INFORMATION SHEET/ *MAKLUMAT KAJIAN PESERTA*

1. Title of the study/ *Tajuk kajian*	:	Knowledge and practice related to breast self-examination among female nursing students in UNIMAS: A cross-sectional study
2. Main Researcher/ *Penyelidik utama*	:	**Roszizah Binti Jahirin**
3. Supervisor/ *Penyelia*	:	**a) Course coordinator: Madam Shalin Lee Wan Fei** **b) Main research supervisor: Madam Roziah Binti Arabi**
4. Institution/ *Institut*	:	**Department of Nursing** **Faculty of Medicine & Health Sciences** **Universiti Malaysia Sarawak**
5. Name of sponsor/ *Nama Penaja*	:	**No external funding/ *Tiada penaja luar***

PARTICIPANT INFORMATION SHEET AND INFORMED CONSENT FORM

(for adult subjects)

6. Introduction:

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

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

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

7. What is the purpose of the study?

The purpose of this study is to find out how much female nursing students at UNIMAS know about and practice breast self-examination (BSE). It also looks at how different personal factors, like age or education level, might influence their knowledge and habits related to BSE.

This research will be conducted for a duration of 6 months (25 January 2025 until 30 June 2025). The expected number of participants is 148 individuals.

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

It is important that you answer all the questions asked by the study staff honestly and completely which will take about 30 minutes of your time. The study team will also access your medical records for the following information.

For studies involving questionnaire/survey/interview:

You will be given a survey form to answer. This form contains 3 sections which will enquire about sociodemographic data, knowledge related to breast self-examination, and practice related to breast self-examination.

9. **What are the potential risks and side effects of being in this study?**
Participation in this study will not affect your treatment, and the risk is minimal. You are free to decline to answer any of the questions that you feel uncomfortable with.

10. **What are the benefits of being in this study?**

There may or may not be any benefits to you. However, information obtained from this study will help with the knowledge and practice related to breast self-examination (BSE) among nursing students holds the potential for significant benefits to both personal health awareness and academic development. By focusing on enhancing knowledge and practice related to BSE, the study aims to provide valuable insights into effective strategies for promoting breast health among nursing students. Successful participation and intervention could lead to increased awareness and adoption of regular BSE practices, which may positively impact early detection and overall health outcomes. Furthermore, the study could offer practical guidance for nursing educators and healthcare providers in designing targeted educational programs on BSE. The findings may also contribute to the development of broader health initiatives aimed at improving awareness and practice of self-examination techniques, contributing to better long-term health outcomes in the community. However, it is important to note that feedback on the study findings will not be provided at the end of the study.

11. **Who is funding the research?**

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

12. **Who can participate in this research?**

The inclusion criteria for this research are female nursing students in UNIMAS from year 1 until year 4 and female nursing students in UNIMAS who are willing to participate in this study. While the exclusion criteria for this research are postgraduate nursing students both male and female nursing students in UNIMAS, female nursing students who has recruited in pilot study and lastly female nursing students who are currently on academic leave or study abroad for the semester

13. **Will my medical information be kept private?**

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

14. Who should I call if I have questions?

If you have any questions about the study or if you think you have a study related injury and you want information about this study, please contact the study doctor, Roszizah Binti Jahirin at telephone number 01156411744.

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

INFORMED CONSENT FORM

Title of Study: *Knowledge and Practice related to Breast Self-Examination among Female Nursing Students in UNIMAS: A Cross-Sectional Study.*

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 freely withdraw from 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 currently. 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 study staff, 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 D: Questionnaires

Serial Number: …….

To be filled by researcher

Knowledge and Practice related to BSE among Female female nursing students in UNIMAS.

Name: Roszizah Binti Jahirin
Matrix Number: 81065
Supervisor: Madam Roziah Binti Arabi
Course: MDJ 4653 Final Year Project 1

Title of study: Knowledge and Practice related to BSE among female female nursing students in UNIMAS.

Main researcher: Roszizah Binti Jahirin

Supervisor: Madam Roziah Binti Arabi

Institution address: Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS), 94300 Kota Samarahan, Sarawak, Malaysia.

The nature and purpose of the study:

Objectives:

1. To assess the level of knowledge related to BSE among female nursing students in UNIMAS.
2. To assess the level of practice related to BSE among female nursing students in UNIMAS.
3. To examine relationship between knowledge and practice towards BSE among female nursing students in UNIMAS.
4. To compare level of knowledge and practice of BSE with demographic factor (year of study, age of menarche) among female nursing students in UNIMAS.

Study Description: if you agreed to participate in this study, you will be interviewed based on the questionnaires that has been developed for this study. The questionnaire will be in English, and the session will take approximately 20 to 30 minutes to complete. As participant, you are required to fulfil a few responsibilities, such as truthfulness in answering the questionnaires, you could inform the main researcher immediately, if you are having any difficulties during the session.

Possible benefits of study participation: You will be able to identify your level of knowledge and practice related to BSE.

Voluntarily participation: You understand that participation in this study is voluntary and that if you decide not to participate, you will experience no penalty or loss of benefits to which you would otherwise be entitled outside of this study. If you decide to participate, yo may change your mind about being in the study and may stop any time. You understand legally that you and your legally acceptable representative will be informed in a timely manner of any new information that may affect your willingness to continue participation in this study. You will not receive any compensation for your participation in the study and whatever findings of the research will be used in publications.

Confidentiality: All data obtained from this study are confidential and your personal data will not be identified (In, 2017).

INFORMED CONSENT FORM

Title of Study: *Knowledge and Practice related to Breast Self-Examination among Female Nursing Students in UNIMAS: A Cross-Sectional Study.*

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 freely withdraw from 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 currently. 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 study staff, 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:

Section A: Socio-demographic

Instructions: kindly write your answer in the blank space provided and tick (√) in the box provided for certain questions.

Do you agree to participate in this study	Yes ( )	No ( )
Age:	……Years old	
Age of start having menarche (first menstruation):	……Years old	
At what age you start practicing Breast Self-Examination (BSE)	……Years old	
Race: **(Please tick one)**	Malay	
	Chinese	
	India	
	Bumiputera Sabah	
	Bumiputera Sarawak	
	Others: Please specify	
Year of study: **(Please tick one)**	Year 1	
	Year 2	
	Year 3	
	Year 4	

Please tick one for the questions below		
	Yes	**No**
BSE is included in the curriculum?		
Do you have any breast problem? **If yes please specify:……...**		
Do you have a family history of breast cancer? **If yes; who:……**		

Section B: Knowledge related to BSE among female nursing students in UNIMAS.

Instructions: Please tick (√) at the appropriate space

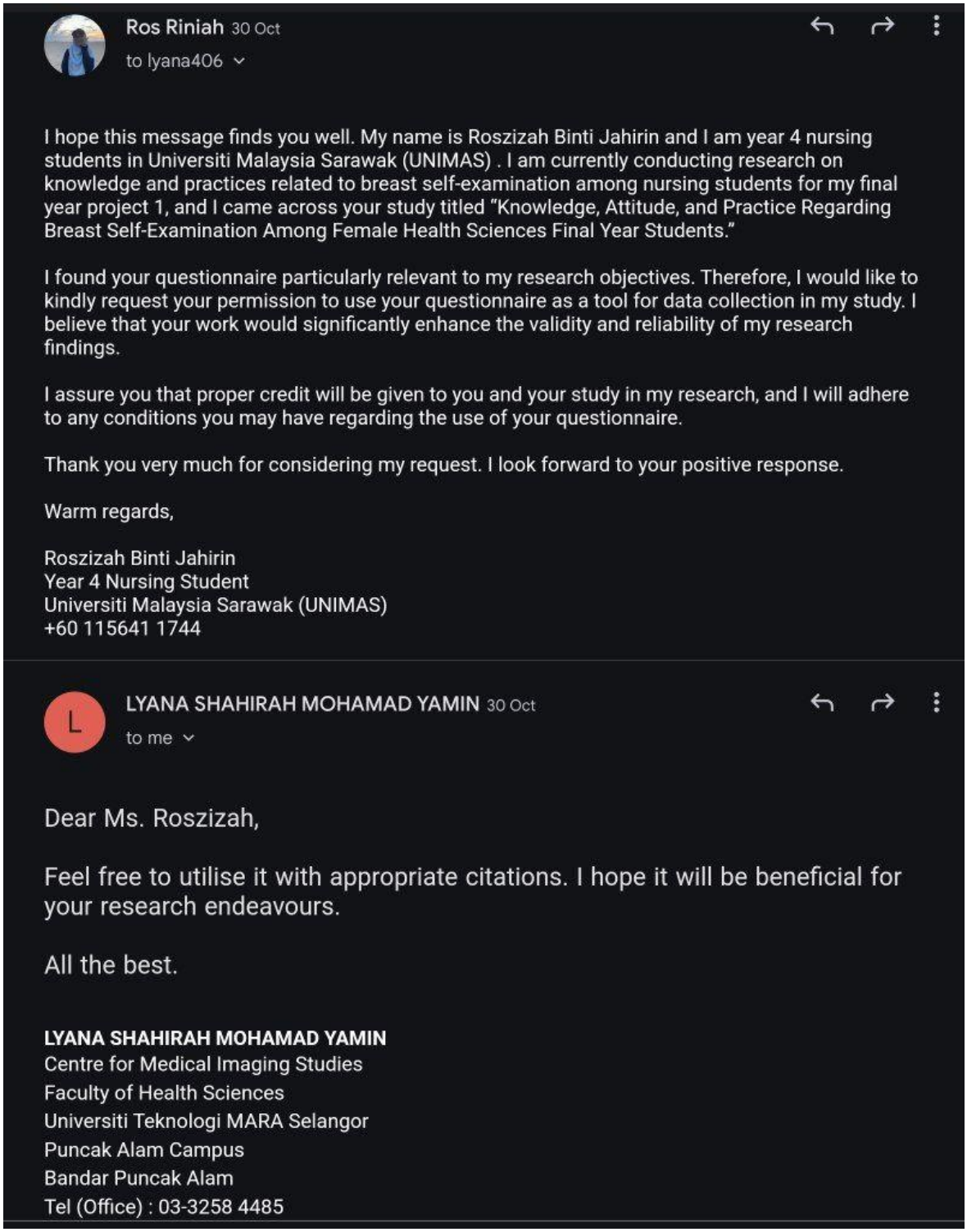
No.	Question regarding knowledge related to BSE	Yes	No	Not Sure
1	Have you ever heard about BSE?			
2	If yes, how do you hear about it? **(If no/not sure, please proceed to question number 3)**			
	Teacher / Lecturer			
	TV / Radio			
	Newspaper			
	Peer group			
3	BSE could be done monthly			
4	BSE should begin at the age of having first menarche			
5	Should BSE be performed in different positions (e.g., lying down, standing in front of a mirror, or during a shower) to ensure thorough examination?			
6	BSE is important in the early detection of breast cancer			
7	BSE should be done between day 7 and day 10 of the menstrual cycle			
8	BSE could be done during menstruation			
9	BSE should not be performed after menopause			
10	During BSE, there is a need to press on the nipple			
11	BSE includes armpit examination			
12	Detection of a lump in the breast may be an early sign of cancer.			

Section C: Practice related to BSE among female nursing students in UNIMAS.

No	Question regarding practice related to BSE	Yes	No
1	Do you practice BSE **(If no, please proceed to question number 14)**		
2	Do you know the recommended frequency for performing BSE		
3	Do you perform BSE at the same time each month		
4	Have you received training or instruction on the correct technique for BSE		
5	Do you know the correct method of BSE		
6	Do you know the three pattern of perform palpation during BSE?		
7	If yes, which pattern do you use? **(If no, please proceed to question number 11)**		
	Wedge 		
	Circles 		
	Lines 		

8	Do you examine both breasts and underarm areas as part of BSE		
9	Have you performed breast self-examination (BSE) within the past three months		
10	Do you examine your breasts in front of a mirror to check for visual changes such as asymmetry, dimpling, or swelling?		
11	Do you raise your arms overhead and look for changes in the breast shape or size?		
12	Do you check for visible skin changes, such as redness or puckering, during the visual inspection?		
13	Do you use the pads of your fingers (not the tips) to palpate your breasts?		
14	Do you vary the pressure during palpation to feel both superficial and deep tissues?		
15	Do you systematically examine the entire breast, starting from the outer edge and moving toward the nipple?		
16	Do you check for lumps or abnormalities in the underarm area?		
17	Do you squeeze the nipple to check for discharge (if any)?		
18	Do you perform BSE while standing or sitting, such as during or after a shower?		
19	Do you perform BSE while lying down to ensure even distribution of breast tissue?		
20	Do you record or keep track of any findings after performing BSE		
21	If you notice any unusual findings during BSE, do you seek medical advice		
22	Do you encourage friends or family members to perform BSE		
23	Do you have any reasons for refusing to practice breast self-examination (BSE)?		
24	**If yes, why?**		
	Do not know the techniques		
	Feel shy to touch the breast		
	Fear of the outcome		
	Too young to practice		
	No symptom of breast cancer		
	No one recommends		
	Don’t think it is necessary to perform BSE		
	Always forgotten to perform		
	No time to perform		
	Others, please specify:……		

Appendix E: Permission obtain from original author to use questionnaire



Ros Riniah 30 Oct
to lyana406

I hope this message finds you well. My name is Roszizah Binti Jahirin and I am year 4 nursing students in Universiti Malaysia Sarawak (UNIMAS) . I am currently conducting research on knowledge and practices related to breast self-examination among nursing students for my final year project 1, and I came across your study titled "Knowledge, Attitude, and Practice Regarding Breast Self-Examination Among Female Health Sciences Final Year Students."

I found your questionnaire particularly relevant to my research objectives. Therefore, I would like to kindly request your permission to use your questionnaire as a tool for data collection in my study. I believe that your work would significantly enhance the validity and reliability of my research findings.

I assure you that proper credit will be given to you and your study in my research, and I will adhere to any conditions you may have regarding the use of your questionnaire.

Thank you very much for considering my request. I look forward to your positive response.

Warm regards,

Roszizah Binti Jahirin
Year 4 Nursing Student
Universiti Malaysia Sarawak (UNIMAS)
+60 115641 1744

L LYANA SHAHIRAH MOHAMAD YAMIN 30 Oct
to me

Dear Ms. Roszizah,

Feel free to utilise it with appropriate citations. I hope it will be beneficial for your research endeavours.

All the best.

LYANA SHAHIRAH MOHAMAD YAMIN
Centre for Medical Imaging Studies
Faculty of Health Sciences
Universiti Teknologi MARA Selangor
Puncak Alam Campus
Bandar Puncak Alam
Tel (Office) : 03-3258 4485

Appendix F: GANTT chart

Activities	Month									
	2024			2025						
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY
Determination of research title										
Literature review										
Meeting with Supervisor										
Submit oral proposal defence slide										
Oral proposal defence										
Submission of 1st draft										
FYP 1: Submission of research										
Data collection										
Data analysis										
Writing up report										
Submit final draft FYP 2										
FYP 2: Submission final report										

Appendix G: Expenditures

Expenditures			
Project title	Knowledge and practice related to BSE among female nursing students in UNIMAS: A cross-sectional study.		
Duration of the project	October 2024 – July 2025		
Items	Unit price (RM)	Quantity	Amount (RM)
Printing slide presentation for proposal defence	0.50/page	19 pages (2 sets)	19
Printing rubric research proposal defence	0.10	3 pages (2 sets)	0.60
Printing poster presentation	40	1 page	40
Printing Final Written Final Year Project 2	0.50/page	97 pages	48.50
Binding Final Written Final Year Project 2	40	1	40
SPSS Software	5	1	5
Internet data	35	10 (months)	350
		Total amount	RM 503.10

Appendix H: Turnitin similarity index report

Final Turnitin FYP 2

ORIGINALITY REPORT

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SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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2	Submitted to Universiti Teknologi MARA Student Paper	1%
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