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Faculty of Medicine and Health Sciences

Relationship Between Perception of Simulation-Based Learning and Self-Confidence among UNIMAS Undergraduate Nursing Students

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Bachelor of Nursing with Honours
2025

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Nur Athirah Binti Mustapher

This project is submitted in partial fulfilment of the requirements for the degree of Bachelor of Nursing with Honours

Faculty of Medicine and Health Sciences

UNIVERSITI MALAYSIA SARAWAK

2025

DECLARATION

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

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ABSTRACT

Introduction: Simulation-based learning (SBL) is widely used in nursing education to bridge the gap between theory and practice by enhancing clinical competence and preparedness. While SBL is known to enhance clinical skills and preparedness, many nursing students still feel unconfident and underprepared when transitioning to real clinical settings. This study addresses the lack of local evidence on the effectiveness of SBL in boosting self-confidence, particularly within the Malaysian context. Findings from this research may inform improvements in simulation practices and curriculum design, contributing to the development of confident and competent nursing graduates.

Objective: This study examines the relationship between perception of SBL and self-confidence among UNIMAS undergraduate nursing students.

Methodology: A cross-sectional study was conducted among 140 randomly selected undergraduate nursing students at UNIMAS using a structured questionnaire comprising 20 items from the Simulation Design Scale (SDS) and 8 items from the Self-Confidence in Learning Scale. Data were analysed using descriptive statistics and Pearson correlation in SPSS version 27.0.

Results: The mean score for perception of simulation-based learning was 4.02 (SD = 0.44), with "Support" scoring the highest among SDS domains (Mean = 4.09). The mean self-confidence score was 3.83 (SD = 0.35), with most students categorised as having high self-confidence level (74.3%). A moderate positive correlation was found between perception of simulation-based learning and self-confidence ($r = 0.492$, $p < 0.01$).

Conclusion: These findings suggest that well-designed SBL sessions contribute significantly to enhancing students' confidence. Strengthening the quality of simulation could further support nursing education and better prepare students for real-world practice.

Keywords: Simulation-based learning, self-confidence, nursing students

ABSTRAK

Pengenalan: Pembelajaran berasaskan simulasi (*Simulation-based learning*, SBL) digunakan secara meluas dalam pendidikan kejururawatan bagi merapatkan jurang antara teori dan amali dengan meningkatkan kompetensi klinikal dan tahap kesiapsiagaan pelajar. Walaupun SBL diketahui mampu memperkukuh kemahiran klinikal, ramai pelajar kejururawatan masih berasa kurang yakin dan tidak bersedia sepenuhnya apabila beralih ke persekitaran klinikal sebenar. Kajian ini menangani kekurangan bukti tempatan tentang keberkesanan SBL dalam meningkatkan keyakinan diri pelajar, khususnya dalam konteks Malaysia. Dapatan kajian ini berpotensi menyumbang kepada penambahbaikan amalan simulasi dan reka bentuk kurikulum, sekali gus menyokong pembangunan graduan kejururawatan yang yakin dan kompeten.

Objektif: Kajian ini dijalankan untuk meneliti hubungan antara persepsi pelajar kejururawatan prasiswazah terhadap pembelajaran berasaskan simulasi dan tahap keyakinan diri mereka di Universiti Malaysia Sarawak (UNIMAS).

Metodologi: Satu kajian keratan rentas telah dijalankan dalam kalangan 140 pelajar kejururawatan prasiswazah UNIMAS yang dipilih secara rawak menggunakan soal selidik berstruktur yang mengandungi 20 item daripada *Simulation Design Scale (SDS)* dan 8 item daripada *Self-Confidence in Learning Scale*. Data dianalisis menggunakan statistik deskriptif dan ujian korelasi Pearson melalui perisian SPSS versi 27.0.

Keputusan: Skor min bagi persepsi terhadap pembelajaran berasaskan simulasi ialah 4.02 (SP = 0.44), dengan domain "Sokongan" mencatatkan skor min tertinggi (Min = 4.09). Skor min bagi keyakinan diri ialah 3.83 (SP = 0.35), dengan majoriti pelajar (74.3%) dikategorikan sebagai mempunyai tahap keyakinan diri yang tinggi. Satu korelasi positif sederhana ditemui antara persepsi terhadap pembelajaran berasaskan simulasi dan keyakinan diri ($r = 0.492$, $p < 0.01$).

Kesimpulan: Dapatan kajian menunjukkan bahawa sesi pembelajaran berasaskan simulasi yang direka bentuk dengan baik dapat meningkatkan keyakinan diri pelajar kejururawatan secara signifikan. Penambahbaikan terhadap kualiti dan reka bentuk aktiviti simulasi boleh menyokong pendidikan kejururawatan dengan lebih berkesan serta mempersiapkan pelajar untuk menghadapi situasi klinikal sebenar.

Kata kunci: Pembelajaran berasaskan simulasi, keyakinan diri, pelajar kejururawatan

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LIST OF ABBREVIATIONS

CSC	Clinical Simulation Centre
FMHS	Faculty of Medicine and Health Sciences
NLN	National League for Nursing
SBL	Simulation-based learning
SDS	Simulation Design Scale
SPSS	Statistical Package for Social Science
UNIMAS	Universiti Malaysia Sarawak

CHAPTER 1

INTRODUCTION

1.1 Introduction

The study examines the relationship between perception of simulation-based learning (SBL) and self-confidence among Universiti Malaysia Sarawak (UNIMAS) undergraduate nursing students. The first chapter will describe the detail on the study background, problem statement, research questions, study aim, specific research objectives, study significance, the operational definition of key terms and chapter summary.

1.2 Study Background

In nursing education, clinical placements often inadequately provide opportunities for students to practice specific skills, especially in specialised areas (Negm et al., 2024). Hence, this may limit their preparedness and confidence in facing challenging situations, leading to anxiousness in performing certain procedures. To improve students' readiness for clinical practice, nursing programs are exploring alternative teaching methods, such as simulations (Koukourikos et al., 2021).

Simulations in nursing education is widespread and includes a range of simulated clinical scenarios that replace real patient care experiences to simulations used to illustrate clinical scenarios in the classroom. Every course or level incorporates simulations to enhance psychomotor, cognitive and affective learning domains (Mishra et al., 2023). In 1911, the first manikin known as Mrs. Chase was introduced and used to teach the students some basic procedure in nursing (Munday, 2022). This is when simulation first appeared in nursing, and it continues to grow as nursing education owing to advancements in healthcare field.

SBL is learning method aimed at enhancing nursing students' clinical skills through repeated practice sessions. Salminen-Tuomaala et al. (2020) conducted a study

demonstrating that SBL enhances nursing students' clinical judgement, critical thinking and decision-making abilities. SBL also improves performance evaluations and knowledge retention, which contributes to overall professional development and confidence (Lee et al., 2019). Furthermore, research indicates that SBL can improve nursing students' self-confidence and clinical competence by providing experiential learning opportunities that may be lacking in clinical placements (Svellingen et al., 2021).

Currently, the primary forms of SBL commonly integrated into nursing curricula include unfolding case scenarios, high and low-fidelity manikins, partial-task simulators, role-playing, standardised patients, e-learning, virtual reality and blended approaches (Stenseth et al., 2025). These various types of SBL enhance the high-quality learning method for students and make the students interactively involved in the activity. If SBL is used more often in nursing curricula, nursing students' self-efficacy in terms of clinical aptitudes will be enhanced (Kaldheim et al., 2021). The rationale for this is that through role-play in actual nursing situations, nursing students can practice the components necessary to be successful at becoming a nurse, all without putting the life of a real person at risk.

According to Martins et al. (2018), SBL in nursing education is typically carried out in three main stages include pre-briefing, scenario enactment and debriefing. In the pre-briefing stage, students are provided with details about the simulation's goals, assigned roles and patient history to help them prepare mentally and ease anxiety. Next, the scenario enactment phase offers an opportunity to practice clinical decision-making, communication and hands-on skills in realistic settings. Finally, the debriefing phase involves guided reflection, which supports deeper understanding, enhances self-awareness and addresses any misunderstandings.

SBL has markedly improved nursing students' self-assurance in executing clinical procedures and handling patient care (Elendu et al., 2024). The prevalence of this pedagogical method differs by region, with certain countries significantly investing in high-fidelity simulation centres, while others are incrementally incorporating simulation into their nursing curricula due to resource limitations (Pananganan, 2023). Nonetheless, the implementation of SBL is on the rise, as evidence substantiates its efficacy in enhancing both self-confidence and clinical proficiency, as well as decision-making abilities.

As SBL has become more prevalent over the past two decades, most of the nursing programs globally integrate it into their curricula (Chabrera et al., 2021). The prevalence of SBL in nursing education is propelled by its capacity to connect theory with practice, enabling students to cultivate technical skills and critical thinking in real clinical environments (Morse et al., 2019). Internationally, countries such as the United States of America, United Kingdom, Australia and Canada have widely implemented SBL as core element of nursing schools, investing immensely in simulation facilities and facilitator training (Currie et al., 2023).

In Southeast Asia, even in Malaysia, the application of SBL is slowly increasing to compensate for the limitations of traditional clinical placements and enhance students' practical skills (Kafri et al., 2024). To mitigate the constraints of traditional clinical placements and enhance student readiness for practice environments, numerous nursing schools are incorporating simulation as a fundamental component of their curricula (Aebersold, 2018).

According to Benchadlia et al. (2023), in Malaysia, approximately 65% of nursing courses have incorporated SBL to increase clinical competence and safety of patients. Furthermore, 80% of the nursing instructors reported increased student participation during

simulation training, emphasising pedagogical importance. However, local research is required to determine the specific influence of SBL on the self-confidence of nursing students within Malaysian educational and cultural backgrounds.

SBL has received a great reception in the education of healthcare students at UNIMAS. According to “Centres” (n.d.), the program started in 2014 in the FMHS, and its centre was known as UNIMAS Clinical Simulation Centre (CSC). Their reasons for the centre were to offer simulation education programs for medical and nursing education, to use a simulation-based modality as an opportunity to create a learning environment that is safe, non-threatening and controlled in order to enhance confidence and establish competence in communication, teamwork, leadership and clinical skill, and to enhance safety and effectiveness of patient care via interdisciplinary training to be transported into the clinical areas.

The CSC utilises high-fidelity simulations with advanced computer-controlled manikins that accurately replicate human physiological responses, making them suitable for training in emergency scenarios, including cardiac arrest, trauma management and intensive care procedures. Medium-fidelity task trainers are commonly employed for the practice of specific clinical skills, including intravenous cannulation, airway management and catheterisation. Standardised patient simulation, involving trained actors portraying patients, is employed to improve students' competencies in communication, history-taking and patient-centred care. The CSC at FMHS, UNIMAS plays a crucial role in enhancing nursing students' self-confidence and clinical competence, in accordance with international standards in simulation-based education.

1.3 Problem Statement

SBL is a proven teaching method in nursing education that allows students to practise clinical skills in a realistic and safe setting. SBL affects nursing students' self-confidence beyond skill development. Many nursing students feel unprepared and self-conscious when transitioning from theoretical to clinical practice. Alharbi et al. (2024) note that students often feel unsure about their competencies and express concern about handling high-pressure situations, which undermines their confidence in clinical settings. This lack of self-confidence can hinder performance in real patient care, particularly as confidence is critical for safe and effective clinical skills application (Labrague et al., 2019).

Researchers have long recognised self-confidence as a key determinant of clinical competence, with implications for both students' clinical performance and their readiness for professional roles. Bandura's theory of self-efficacy states that confidence in a person's abilities is vital to behavioural performance and learning outcomes (Bandura et al., 1999). Therefore, educational strategies that promote self-confidence such as simulation are essential in nurturing proficient, resilient and practice-ready nursing graduates.

Despite the global rise of SBL in nursing education, Malaysia has been comparatively slower in its adoption and integration into mainstream nursing curricula (Alsadi et al., 2023). This slower uptake can be attributed to several challenges, including limited research infrastructure and a lack of resources for conducting large-scale studies on educational innovations. Alrashidi et al. (2023) further highlight that inadequate funding for educational research, particularly in Malaysian higher education, hinders progress in this area. Simulation-based education often requires substantial investment in simulation technology, faculty development and infrastructure resources that may not be readily available without institutional support or external funding.

Another barrier to achieving clinical competence is the insufficient opportunity for nursing students to meet clinical learning objectives due to limited hands-on practice in real clinical environments (Alsadi et al., 2023). Constraints in clinical placement availability often restrict students' exposure to patients, making it difficult to develop the required competencies outlined in their academic programs. This disparity between theoretical learning and practical application may lead to uncertainty in clinical performance (Hayden et al., 2014). Furthermore, the lack of experienced mentors or insufficient clinical supervision may further impede students' ability to receive feedback and improve their practice (Alrashidi et al., 2023).

While SBL has been extensively studied in various international contexts, there remains a lack of localised research exploring its effectiveness in Malaysia, particularly within the context of UNIMAS. Although simulation-based education is progressively embedded in the UNIMAS nursing program primarily through structured simulation labs and clinical skills training. There is limited published evidence evaluating its effectiveness in enhancing students' self-confidence. Moreover, it remains unclear whether current simulation practices at UNIMAS fully align with best practice standards, such as incorporating structured pre-briefing, realistic high-fidelity scenarios and reflective debriefing (Miller et al., 2021).

Therefore, this study seeks to examine the relationship between nursing students' perceptions of SBL and their self-confidence, particularly in performing clinical skills and preparing for real-world practice. By addressing this gap, the study aims to provide insights into the specific learning needs of UNIMAS nursing students, contributing to evidence-based enhancements in simulation practices and curriculum development, and ultimately improving the readiness and competence of future healthcare professionals.

1.4 Research Questions

This study is directed by the following research questions:

1. What is undergraduate nursing students' perceptions of SBL at UNIMAS?
2. What is undergraduate nursing students' self-confidence levels following their SBL at UNIMAS?
3. Is there any relationship between perception of SBL and the self-confidence of undergraduate nursing students at UNIMAS?

1.5 Study Aim

The purpose of the study is to explore the relationship between perception of SBL and self-confidence among undergraduate nursing students at UNIMAS.

1.6 Specific Research Objectives

This study's research objectives are:

1. To assess undergraduate nursing students' perceptions of SBL at UNIMAS.
2. To measure undergraduate nursing students' self-confidence levels following their SBL at UNIMAS.
3. To examine the relationship between perception of SBL and the self-confidence of undergraduate nursing students at UNIMAS.

1.7 Hypotheses

i. Null hypothesis (H_o):

There is no significant relationship between perception of SBL and the self-confidence among UNIMAS undergraduate nursing students.

ii. Alternate hypothesis (H_A):

The perception of SBL has a positive relationship with the self-confidence of undergraduate nursing students at UNIMAS.

1.8 Significance of The Study

This study is significant for its potential to contribute meaningfully to the academic field of nursing education and to improve the practical training of future nurses. Self-confidence is a critical factor in nursing, as it influences students' ability to perform clinical tasks competently and make sound clinical judgments. SBL serves as a bridge between theoretical knowledge and practical application, enabling students to transition classroom learning into real-world clinical practice (Mulyadi et al., 2021). By addressing the theory–practice gap, this study seeks to demonstrate how SBL enhances students' preparedness for clinical environments. Increased self-confidence has also been associated with improved patient outcomes, as confident nurses are more likely to act decisively and provide safe, effective care.

Although international literature has highlighted the value of SBL, there remains limited local research on its impact within the Malaysian context, particularly at UNIMAS. This study responds to that gap by providing localised evidence on how SBL influences nursing students' self-confidence. The findings may be applicable not only within UNIMAS, but also in institutions with similar educational and cultural contexts across Malaysia.

Additionally, the results could support the development of international protocols that emphasise the role of simulation in fostering clinical competence and confidence.

This research is particularly relevant to the CSC at UNIMAS, where structured, lab-based simulations form a core component of nursing education. The CSC is equipped with high-fidelity manikins, mock ward setups and task trainers that allow students to engage in hands-on practice of nursing procedures, critical thinking and communication in a safe environment. Simulation sessions at the CSC typically include pre-briefing, scenario enactment and debriefing phases facilitated by trained instructors. By focusing on how this simulation influence students' self-confidence, the study provides data that can guide improvements in simulation design and instructional strategies.

For faculty, the findings may highlight both strengths and areas for development in the current implementation of simulation. For students, enhancements based on these insights could increase their clinical readiness and self-assurance. The study's implications also extend to educational policymakers at UNIMAS and beyond, offering evidence to inform strategies for more effective integration of SBL into the nursing curriculum. This, in turn, can contribute to the training of competent, confident and patient-centred healthcare professionals.

Finally, this research adds to the growing body of nursing knowledge by offering empirical data for future studies. It supports nursing educators in understanding the relationship between students' perceptions of SBL and their confidence, enabling continuous improvements to simulation pedagogy across healthcare disciplines.

1.9 Operational Definition of Key Terms

i. Socio-demographic characteristics

In this study, sociodemographic data refer to the background characteristics of the nursing students participating in the research. These variables will be collected using a self-administered questionnaire and are operationally defined as follows:

- Age: The participant's age in years at the time of data collection. It will be recorded as a continuous variable.
- Gender: The self-identified gender of the participant. It will be categorised as male or female.
- Year of study: The current year/level of nursing education at UNIMAS (Year 2, Year 3, Year 4).

ii. Simulation-based learning

Simulation-based learning is a method of learning in which learners engage in problem-solving through artificial environments that replicate real-life conditions (Lateef, 2010).

In this study, SBL will be measured using a questionnaire adapted from National League for Nursing (NLN), which is the Simulation Design Scale (SDS). The instrument comprises 20 items, with participants providing responses using a five-point Likert scale. The scale ranges from 1, which denotes "Strongly Disagree", to 5, which indicates "Strongly Agree", with 2 representing "Disagree", 3 indicating "Neutral", and 4 standing for "Agree".

iii. Self-confidence

Self-confidence refers to an individual's belief in their ability to effectively carry out tasks (American Psychological Association, 2018).

In this study, self-confidence among UNIMAS undergraduate nursing students participating in SBL will be assessed using a questionnaire adapted from the NLN's Self-Confidence in Learning Scale. The instrument includes eight items, with participants providing responses using a five-point Likert scale. The scale ranges from 1, which denotes "Strongly Disagree", to 5, which indicates "Strongly Agree", with 2 representing "Disagree", 3 indicating "Neutral", and 4 standing for "Agree".

To aid in interpretation, the self-confidence levels will be divided into three categories according to the total scores on the scale:

- Low: Scores ranging from 1-19
- Moderate: Score of 20-29
- High: Scores ranging from 30-40

iv. Undergraduate nursing students

Undergraduate nursing students are defined as those who are currently enrolled in a university's Bachelor of Nursing program, aimed to prepare them for a professional career as a registered nurse (Mellor & Greenhill, 2014).

In this study, it refers to students who pursuing a nursing degree at UNIMAS.

1.10 Summary

This chapter introduces the study, offering an overview of SBL, self-confidence and their relationship. The problem statement highlights nursing students' challenges and the lack of sufficient research exploring the relationship between perception of SBL and self-confidence in Malaysia. Research questions and objectives are derived from the problem statement to guide the study. Additionally, the chapter outlines the study's significance and justifies its necessity, addressing gaps in the literature. Key terms are operationally defined for ensuring clarity and consistency in data collection and interpretation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter outlines the conceptual framework and provides a literature review of a study examining the relationship between the perception of SBL and self-confidence among nursing students. This paper reviews the literature in existing studies related to this research and aims to provide the reader with fundamental knowledge of the key issues discussed.

2.2 Search Strategy

The articles incorporated into this literature review have been sourced from reputable platforms, including Google Scholar, ResearchGate, PubMed, BMC Nursing, BMC Medical Education and other sources. By using these platforms, literature review is comprehensive, up-to-date and inclusive of diverse perspectives, which is essential for producing a robust and credible review. Moreover, to ensure rigorous research, it is essential to evaluate the quality of studies by assessing their methodology, sample size, reliability and validity while prioritising those with robust methods and significant findings. Additionally, to ensure currency, the literature focused on articles published in English and spans the past five years, ranging from 2019 to 2024. The key words used were simulation-based learning, self-confidence and nursing students.

2.3 Conceptual Framework

The conceptual framework of this study depicts how SBL is linked to the development of self-confidence in nursing students. It is guided by theoretical foundations and empirical evidence, providing a structured basis for understanding the variables and their interactions (Adom et al., 2018).

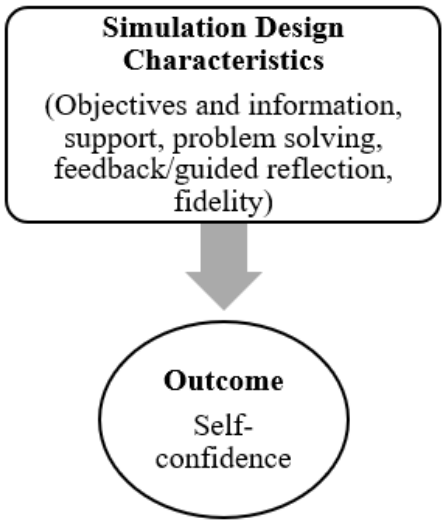
This study is guided by the NLN Jeffries Simulation Framework, which was first introduced by Jeffries in 2005 to evaluate students' experiences with SBL. By 2010, the NLN launched a project to enhance and support this framework, which has since been extensively discussed and validated in the literature (Groom et al., 2014).

In this study, the simulation design characteristics form the independent variables, while self-confidence serves as the dependent variable. The framework posits that well-designed simulations enhance learners' engagement, critical thinking, and reflective practice, ultimately boosting their self-confidence in clinical skills.

The conceptual framework adapted from the NLN Jefferies Simulation Framework is illustrated in Figure 2.3 below. It demonstrates the dynamic relationship between simulation design characteristics and the intended outcome, which is self-confidence. This adaptation is consistent with the research objectives and offers a theoretical basis.

Figure 2.3

Conceptual Framework of Relationship between Perception of SBL and Self-Confidence



2.4 Analysis of The Included Literature

The review of the literature highlighted three key themes: SBL in nursing education, self-confidence among nursing students and the relationship between perception of SBL and self-confidence among nursing students.

2.4.1 Simulation-based learning in nursing education

SBL has become a transformative approach in nursing education globally, greatly improving students' clinical skills and decision-making abilities. It also employs a variety of simulation techniques, such as virtual reality, peer learning and scenario-based simulations, to create immersive educational experiences that connect the gap between theoretical and practical skills.

Lee and Baek (2024) emphasised the influence of advanced virtual simulation, stating that it promotes experiential learning and boosts nursing students' confidence in their performance, as well as their critical thinking and problem-solving skills in various clinical scenarios. Their research highlighted how this immersive method helps students develop crucial practical skills, ultimately enhancing patient safety and the quality of healthcare. Similarly, Saragih et al. (2024) found that scenario-based simulation courses improved nursing students’ knowledge, practical skills and eventually boost self-confidence. Their study underscored the indispensability of SBL in nursing education, advocating for its widespread adoption to better prepare students for actual clinical practice.

Paul et al. (2024) examined simulation-based peer learning interventions and found that they effectively enhanced nursing knowledge and reduced the theory-practice gap. The intervention facilitated significant knowledge acquisition among nursing students, underscoring its effectiveness in addressing disparities between theoretical instruction and practical application in continuing nursing education. Consistent with these findings, White

et al. (2024) demonstrated that SBL enhances clinical competence, confidence and preparedness for practice by providing practical scenarios tailored to real-world situations. For instance, a multicentre trial by Tong et al. (2024) revealed that high-fidelity simulations significantly improve skill acquisition compared to computer-based methods, although both approaches resulted in similar long-term skill retention. These findings reinforce the value of SBL in skill development and immersive clinical training.

Beyond technical skill acquisition, SBL has been shown to improve communication abilities, particularly in sensitive care settings such as palliative care. Skedsmo et al. (2023) reported that SBL supports students in navigating complex interpersonal interactions, addressing anxiety and adapting to varied learning expectations. Their study further emphasised the importance of fostering academic and psychological safety in simulation environments, suggesting that instructors tailor SBL experiences to accommodate diverse learning strategies and individual student needs.

While the benefits of SBL are well-documented, challenges such as resource limitations and the need for specialised instructor training continue to pose significant barriers to its full potential. Addressing these issues is essential for maximising the effectiveness of SBL and ensuring its integration into nursing education globally.

2.4.2 Self-confidence among nursing students

Self-confidence among nursing students is a critical determinant of their readiness for professional practice. High self-confidence helps nursing students make better decisions and provide better patient care by allowing them to use their knowledge and skills in practical situations. Studies have consistently shown that self-confidence significantly increases through the implementation of active learning strategies. For instance, Hallemeyer et al. (2024) reported that such interventions reduce anxiety related to clinical decision-making

while improving students' overall confidence levels. Similarly, research by Moreno-Cámara et al. (2024) and Tabriz et al. (2024) highlighted that clinical simulations substantially enhance students' self-assessment scores, affirming the role of experiential learning in building confidence.

Clinical practicum experiences also play a pivotal role in fostering self-confidence. Park and Cho (2022) found that self-directed clinical practicums improve not only self-confidence but also satisfaction, knowledge acquisition and clinical performance. A supportive and structured clinical environment further contributes to this growth, enabling students to apply theoretical learning into practice. However, clinical placements can also be anxiety-inducing, negatively impacting students' confidence, academic performance and interpersonal interactions (Cornine, 2020). In this context, Fogg et al. (2023) demonstrated that increased use of screen-based simulations can mitigate anxiousness and boost self-confidence in practical decision-making, emphasising the significance of addressing psychological factors in the learning process.

Despite these findings, research indicates that nursing students may sometimes overestimate their clinical competence. For example, Liou et al. (2020) noted a gap between students' perceived confidence and their actual performance, particularly in maintaining the quality of care. This discrepancy underscores the need for strategies that balance self-confidence with skill proficiency, ensuring that students' confidence aligns with their competence.

Conversely, while self-confidence is a vital attribute, studies caution against the risks of overconfidence, which can lead to complacency and compromise the quality of care provided. Achieving a balance between confidence and continuous learning is essential for nursing students' professional development. Effective strategies, such as ongoing self-

assessment and constructive feedback, are critical for nurturing confidence while maintaining a commitment to skill improvement.

2.4.3 Relationship between simulation-based learning and self-confidence

Several studies have demonstrated the positive influence of SBL on nursing students' self-confidence. By engaging in simulations, students can safely practice technical skills, enhance patient communication and develop appropriate responses to emergencies that would be risky in real-life scenarios.

Olaussen et al. (2019) explored the relationship between SBL and self-confidence using a cross-sectional design with a large sample. Their findings revealed a notable correlation between active learning and student satisfaction, indicating that scenario-based simulations effectively boost nursing students' self-confidence and satisfaction. However, the cross-sectional design of the study limits its ability to demonstrate causation and frequent method bias may have affected the results.

Similarly, Trisaningtyas et al. (2024) conducted a cross-sectional descriptive study with 80 third year nursing students, analysing the relationship between simulation and self-confidence using Spearman’s rank correlation. The results showed a strong positive correlation, with students expressing high levels of self-confidence from their SBL experiences. Notably, the study did not report significant limitations, though its relatively small sample size may limit generalisability.

Iram et al. (2023) also investigated the relationship between SBL and nursing students' satisfaction and self-confidence using an analytic cross-sectional approach. Using a Pearson correlation coefficient, the study revealed a strong positive correlation ($r = 0.725$) between satisfaction and self-confidence. However, the study's findings were limited by its

single-site design and non-random sampling method, which reduced the generalisability of the results.

Further supporting the effectiveness of SBL, Toqan et al. (2023) used a quasi-experimental design to examine self-confidence among 150 participants through high-fidelity simulations. An independent t-test revealed that the experimental group had significantly higher self-satisfaction (mean = 22.45) and self-confidence (mean = 35.72) than the control group. Although the study emphasised the advantages of high-fidelity simulations, its use of a convenience sample from one university limits the generalisability of the findings.

Ibrahim et al. (2019) employed a descriptive correlation design and Spearman's rho test, revealing a strong positive correlation ($r = 0.716$) between satisfaction and self-efficacy, with a significant p-value (< 0.01). The results highlight the significance of a supportive learning environment, although the study acknowledged that inadequate clinical training preparation limited the development of competency.

Collectively, these studies affirm the significant role of SBL in boosting nursing students' self-confidence by providing hands-on, practical learning experiences in a controlled environment. SBL enables students to feel more at ease while handling patients, fostering both confidence and competency. Nevertheless, challenges such as resource demands, methodological constraints and differences in students' perceptions emphasise the need for additional research. Future studies should focus on strategies to enhance SBL for various student groups and examine the long-term retention of confidence to ensure ongoing benefits in clinical practice.

2.5 Summary

The reviewed literature demonstrates that SBL is a powerful tool for enhancing nursing students' self-confidence. However, gaps in research, particularly in low-resource settings like Malaysia, highlight the need for localised studies. This study aims to fill these gaps by examining the relationship between perception of SBL and self-confidence of nursing students, particularly at UNIMAS, offering valuable insights for enhancing nursing education in Malaysia.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describes the methodology used to accomplish the goals of the study and ensure the validity and reliability of the results. It details the research design, setting and participant inclusion and exclusion criteria. The chapter also describes the sampling method, sample size determination and the instruments used for data collection. Additionally, it elaborates on the ethical considerations, the data collection procedure and the data analysis methodology.

3.2 Research design

In a study by Jilcha (2019), research design offers a structured approach to guide the study and ensure the research objectives are achieved systematically. This study employed a quantitative, cross-sectional design for addressing the research objectives.

Watson (2015) states that quantitative research is defined by its structured approach to studying phenomena through the gathering and analysis of numerical data. Furthermore, it enables objective measurement and statistical analysis to uncover patterns, relationships, and trends. This design is in line with the study's goal, as numerical data is crucial for examining the relationship between perception of SBL and self-confidence of nursing students.

This study employed a cross-sectional design to enable data collection at a specific point in time, providing a comprehensive overview of the variables of interest (Capili, 2021). This approach is particularly advantageous in addressing time and financial constraints, as data was gathered in a single phase rather than over an extended period (Kesmodel, 2018). Furthermore, a cross-sectional study design effectively identifies relationships between

variables without requiring longitudinal follow-up, making it an appropriate choice for this research (Maier et al., 2023).

As part of this study, the quantitative, cross-sectional design was selected because it suits the characteristics and accessibility of the population at the Faculty of Medicine and Health Sciences (FMHS), UNIMAS. This design enables data collection from a specific group, which is nursing students in year 2 to year 4, at a single point in time, which is efficient and practical given the constraints of time and resources.

The FMHS nursing student population represents a diverse yet manageable group, making it ideal for the cross-sectional approach. This design is particularly suitable for capturing the relationship between perception of SBL and self-confidence within this specific cohort, as it avoids the need for long-term follow-ups and minimises disruption to students' academic schedules.

Additionally, the cross-sectional design is cost-effective and logistically feasible within the FMHS setting, where resources for extended longitudinal studies may be limited. By using this design, the study ensures comprehensive data collection without imposing undue burdens on the participants or the institution.

Overall, this design provides an effective framework for investigating the research objectives while accommodating the practical considerations of the FMHS, UNIMAS context.

3.3 Research setting

The study took place at the FMHS, UNIMAS, situated in Kota Samarahan, Sarawak. FMHS provides a comprehensive nursing program that incorporates innovative teaching methodologies, such as SBL, to prepare students for the demands of clinical practice. FMHS's simulation facilities include high-fidelity manikins and virtual patient scenarios that replicate real-world clinical environments.

Thus, the research setting at FMHS, with its advanced SBL environment and dedicated nursing student population, provided an optimal platform to explore objectives of this study.

3.4 Population

This study's target population included nursing students in Year 2 to Year 4 enrolled in the FMHS at UNIMAS. This population was selected due to their progressive exposure to SBL throughout their academic program.

The population comprising approximately 186 individuals. These students are actively involved in SBL modules, which are integrated into their curriculum to enhance clinical competencies and build self-confidence in patient care. Year 1 students were excluded as they primarily focus on foundational knowledge and have minimal exposure to simulation-based activities.

3.5 Sampling

This study's sampling process included selecting participants from UNIMAS undergraduate nursing students using simple random sampling, calculating the sample size, and applying specific inclusion and exclusion criteria.

3.5.1 Sampling Method

A study by Banerjee & Chaudhury (2010) stated that sample is a subset of a population that shares characteristics with that population. Participants in this study were chosen through a simple random sampling method, which is commonly used in quantitative research. Elfil and Negida (2017) classified simple random sampling as a probability sampling method. It is employed when the entire population is accessible, and the researcher have a complete full list of all individuals within the target group.

Turner (2020) highlighted that simple random sampling provides all element in the population with an equal probability of selection, ensuring that everyone has the same likelihood of selection. Thus, it is useful when researchers look for relationships that apply to the entire population. Simple random sampling aims to reduce the likelihood of research bias (Noor et al., 2022).

The list of population in this study was created by the researcher using a computer program, to generate random numbers and compiling a numerical list covering the entire sample. A name list of nursing students from year 2 to year 4 was obtained from academic office FMHS, UNIMAS. The names on the name list were arranged according to the matric number by using Microsoft Excel. Subsequently, input the formula =RAND() and press the 'Enter' key.

3.5.2 Sample Size

The sample size was calculated utilising the simplified formula established by Taro Yamane (1973), as detailed below:

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

n = sample size

N = population size

e = error (0.05) reliability level 95%

n = $\frac{183}{1+(183)(0.05)^2}$ = 126 participants

The calculated sample size for this study is 126 participants. However, the researcher must consider participant's compensation such as those who refuse to participate, therefore the researcher must add 10% to the sample size (Das et al., 2016). Therefore, to compensate for missing data in the sample, an additional 10% attrition rate was added. After adding in 10%, the study's total sample size was 139 participants. The calculation was as the following:

Calculation of sample size with attrition rate:

126 x 10% =13, therefore 126 + 13 = 139 participants

Pilot study: 139 x 10% = 13.9 which were 14 participants

Actual study: 139 participants out of 172 participants (186 participants from total sample size minus 14 total participants from pilot study)

A total of 139 participants required for this study. However, the final sample size was intentionally adjusted to an even number (140) to facilitate balanced statistical analysis.

3.5.3 Inclusion and Exclusion Criteria

In this study, there are specific features and characteristics of the participants so that only effective data will be collected. Therefore, the participants able to reflect on the responses based on the level of self-confidence. Apart from that, the chosen participants are knowledgeable to understand the phenomenon of interest so the data collected will be useful to the study.

i. Inclusion criteria

Patino & Ferreira (2018) define the inclusion criteria for the study, outlining the requisite characteristics for participant eligibility. Furthermore, these criteria are intended to ensure that the participants are relevant to the research objectives. As for this study, the inclusion criteria include:

a. Undergraduate nursing students from Year 2 to Year 4 at UNIMAS
b. Students who have enrolled in preliminary nursing subjects (The foundational courses that equip nursing students with the requisite knowledge, skills and attitudes for professional practice) such as Fundamental of Nursing, Concepts and Basic Practices of Nursing, and Medical-Surgical Nursing.
c. Students who have expressed their willingness to participate in the study, demonstrated by their signed informed consent.

ii. Exclusion criteria

Patino & Ferreira (2018) state that exclusion criteria delineate the attributes that render individual's ineligible for participation in the study. In addition, these criteria aim to ensure the validity of the results by excluding participants who might introduce bias or variability. The exclusion criteria for this study are:

a. Undergraduate nursing students who took part in the pilot study.
b. Post-registration nursing students (Those who have already obtained their nursing license and are pursuing further education).
c. Undergraduate nursing students who are currently on holiday leave or on extended sick leave during the study period.

3.6 Research instrument

According to Bastos et al. (2014), the study instrument is the tool that used by the researcher to gather necessary data for the research. The questionnaire was presented in English. In this study, a self-administered questionnaire was adapted from NLN. Approval of the questionnaire was obtained through the NLN website (refer Appendix D). The questionnaire divided into three sections which are section A is sociodemographic data, section B is Simulation Design Scale (SDS), and section C is self-confidence in learning (refer Appendix E).

In section A, it gathers information of the participant's sociodemographic which includes the respondent's matric number, age, gender and academic year. In this section, the participants need to tick (✓) their answer in the box provided (refer Appendix E).

Section B included questions on SDS, consisting of 20 items, each assessed on a five-point Likert scale, where responses range from 1 (strongly disagree) to 5 (strongly agree). The participants need to tick (✓) their answer in the box provided. There is no negative statement and reverse coding were done in this section B (refer Appendix E).

Section C focused on self-confidence in learning, consisting of eight items. This section will be assessed on a five-point Likert scale, where response range from 1 (strongly disagree) to 5 (strongly agree). The participants need to tick (✓) their answer in the box provided. All items were positively worded except for one negatively statement in item 8. This item was reverse coded prior to analysis to ensure consistency in scoring, so that higher scores reflect higher levels of self-confidence across all items (refer Appendix E). The scores from all 8 items were summed to produce a total self-confidence score for each participant. Based on the total score, categorisation was performed using visual binning in SPSS to group participants into low (total scores below 19), moderate (total scores between 20 – 29) and high (total scores between 30 – 40) self-confidence levels. This categorisation facilitated descriptive analysis.

3.7 Reliability and Validity

Reliability indicates how consistently an instrument measures a particular concept, minimising the effect of random errors during the data collection process (Ahmed & Ishtiaq, 2021). According to Taber (2017), reliability test is crucial for evaluating the consistency of measurement scales, thus, Cronbach's alpha was employed to measure the internal consistency of the questionnaire. According to Tavakol & Dennick (2011), a value of 0.70 or greater is commonly regarded as acceptable, suggesting that the instrument demonstrates reliability.

The questionnaire used in this study was adapted from NLN, which has been extensively validated in the context of nursing education. The instrument's reliability, evaluated using Cronbach's alpha, was as follows:

- Simulation Design Scale: Reliability score (0.92)
- Self-Confidence in Learning Scale: Reliability score (0.87)

These values reflect a high degree of internal consistency, ensuring the reliability of the instrument for the study.

Table 3.7
Cronbach's alpha for reliability of questionnaire

Questionnaire	**No of items**	**Cronbach's alpha**	
		Past study	Pilot study
Simulation Design Scale (SDS)	20	0.92	0.93
Self-confidence in learning scale	8	0.87	0.64

Validity refers to the extent to which an instrument accurately represents the construct it aims to measure, ensuring that it captures the relevant aspects of the concept under study (Heale & Twycross, 2015). The face validity of the questionnaire was validated through a process of expert review (Johnson, 2021). A specialist in nursing practice, who is also the study supervisor, assessed the questionnaire to ensure that it appropriately captured the research objectives.

The supervisor concurred that the items in the questionnaire were clear, relevant and aligned with the study objectives. This expert validation enhances confidence in the instrument's capability to effectively measure the intended constructs.

Thus, the high Cronbach's alpha values, combined with the confirmation of face validity by a nursing practice expert, highlight the research instrument's reliability and validity. Together, these factors ensure that the data collected are both consistent and meaningful for addressing the research objectives.

3.8 Ethical consideration

This study adhered to ethical guidelines to protect participants' rights, maintain confidentiality and ensure their well-being. Ethical approval for the study was obtained from the Research and Ethics Committee of FMHS, UNIMAS, prior to its initiation (refer Appendix B). Participants were thoroughly briefed on the study's purpose, and those who consented to participate were provided with an informed consent form. The informed consent form stated that participants have the right to withdraw from the study at any time, with no penalties or negative consequences (refer to Appendix C).

Permission to utilise the research instrument for non-commercial purposes was granted by NLN (refer to Appendix D). To uphold confidentiality and anonymity, no personal identifying information, such as names was collected. Participants were assigned

unique serial numbers, which were used for data coding and analysis to ensure that individual identities remained anonymous. Additionally, the questionnaire was designed to exclude any information that could directly or indirectly identify participants.

The data collected throughout the study was kept safe in a digital file protected by a password on the researcher's personal laptop. Moreover, access to the data exclusively restricted to the researcher and the study supervisor. In compliance with data retention guidelines, the data will be retained for five years exclusively for research purposes, after which it will be permanently deleted to safeguard privacy.

In ensuring participant welfare, this study posed no risk to the health or well-being of the participants. The principles of respect, beneficence and justice were upheld at all times, ensuring the dignity and rights of all participants were protected. By complying with these ethical principles, the study preserved the integrity of the research process, and the trust of the participants involved.

3.9 Pilot Study

A pilot study was performed prior to the main data collection to evaluate the feasibility, reliability and clarity of the research instrument, ensuring its suitability for the study (In, 2017). This preliminary study involved 14 participants, representing a subset of the total population, as recommended by Connelly (2008). The same inclusion and exclusion criteria applied to participants selected for the pilot study. Pilot study participants did not participate in the main study to reduce any potential bias.

Furthermore, the pilot study was designed to emulate the full-scale study but on a smaller scale, allowing for the identification and resolution of any potential issues related to the research instrument, data collection procedures or overall study design (In, 2017). This

process is important for enhancing the validity, reliability and overall quality of the main study.

Next, the Statistical Package for the Social Sciences (SPSS) version 27 was used to analyse the pilot study data. The reliability test such as Cronbach's alpha was take place to assess its internal consistency to evaluate the reliability of the questionnaire. Any necessary modifications to the questionnaire or procedures were made according to the findings of the pilot study, ensuring the instrument was appropriately refined for the main study.

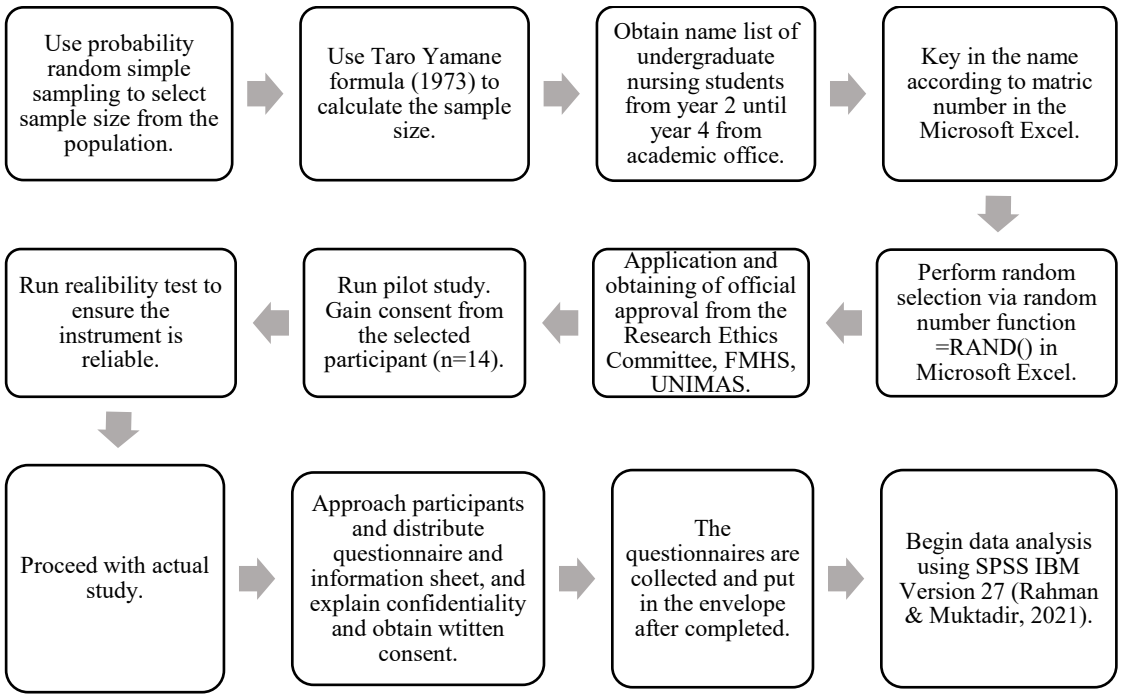
3.10 Data Collection

This study's data collection is methodical to ensure reliability and accuracy (Mazhar, 2021). The chosen participants received a self-administered questionnaire as part of the procedure. Prior to the commencement of data collection, ethical approval was obtained. Participants received a detailed explanation of the study's purpose, and their voluntary participation was confirmed by signing an informed consent form.

The questionnaire was given to 140 undergraduate nursing students, chosen using a simple random sampling method. Data collection take place over a specified period during regular academic sessions to ensure maximum participation. The researcher addressed any queries that participants may have to minimise response bias. Participants received clear instructions for completing the questionnaire.

The completed questionnaires were collected, reviewed for completeness and securely stored in sealed envelope to maintain participant confidentiality. All data were anonymised and labelled with a unique serial number for analysis. The data collection process adheres to ethical guidelines and completed within the stipulated timeline, ensuring high response rates and data quality.

Figure 3.10
Process of Data Collection



3.11 Data analysis

This study's data analysis was conducted to address the research objectives. The data was analysed using the SPSS version 27, which is widely used for quantitative data analysis in academic research, and it ensures robust and efficient data analysis for research (Rahman & Muktadir, 2021). Analysis of the collected data in this study was analysed in both descriptive and inferential statistics.

Prior to further analysis, the data cleaning process was conducted. The collected data was examined for completeness and accuracy, with any incomplete or incorrect responses were identified and excluded from the analysis to maintain the reliability of the results.

Descriptive statistics was employed to summarise the sample characteristics, such as the frequency, percentage, mean and standard deviation of the variables (Mishra et al., 2019).

These measures provide an overview of the sociodemographic profile of the participants and the key study variables.

The Kolmogorov-Smirnov test was applied to evaluate the normality of the continuous data as the sample size exceeded 50 participants (Aslam, 2019). Continuous data adhering to a normal distribution is reported using the mean and standard deviation, whereas data that deviates from normality is presented with the median and interquartile range (Krithikadatta, 2014).

Inferential statistics was used to analyse the third objectives. The Pearson correlation coefficient was utilised for this analysis, given that both the independent and dependent variables were numerical data. The distribution of the continuous variable is normal.

3.12 Summary

This study employs a cross-sectional quantitative design. The research employed a simple random sampling method, encompassing 140 undergraduate nursing students from UNIMAS. Research instruments were divided into three parts of a self-administered questionnaire. Prior to data collection, ethical permission was acquired. Data analysis was done using the SPSS application software and analysed using both descriptive and inferential statistic.

CHAPTER 4

RESULT

4.1 Introduction

This chapter outlines the findings of the study regarding the relationship between the perception of SBL and self-confidence among undergraduate nursing students at UNIMAS. The result for socio-demographic characteristics of the participants, perception of SBL, levels of self-confidence following SBL, and relationship between perception of SBL and self-confidence.

4.2 Socio-demographic profile of respondents

This study involved 140 undergraduate nursing students. The age group with the most participants was 23 years old, with 35.1% (n=49). The lowest participation was from the 1.4% of 25 and 26 years age group (n=2). A Kolmogorov-Smirnov test showed a significant departure from normality, $D(140) = .19$, $p = .00$. The mean age among the participants is 22.44 ($SD = 1.15$). The maximum age is 26 years old while the minimum age is 20 years old. The range is 6 years old. The mode age is 23 years old.

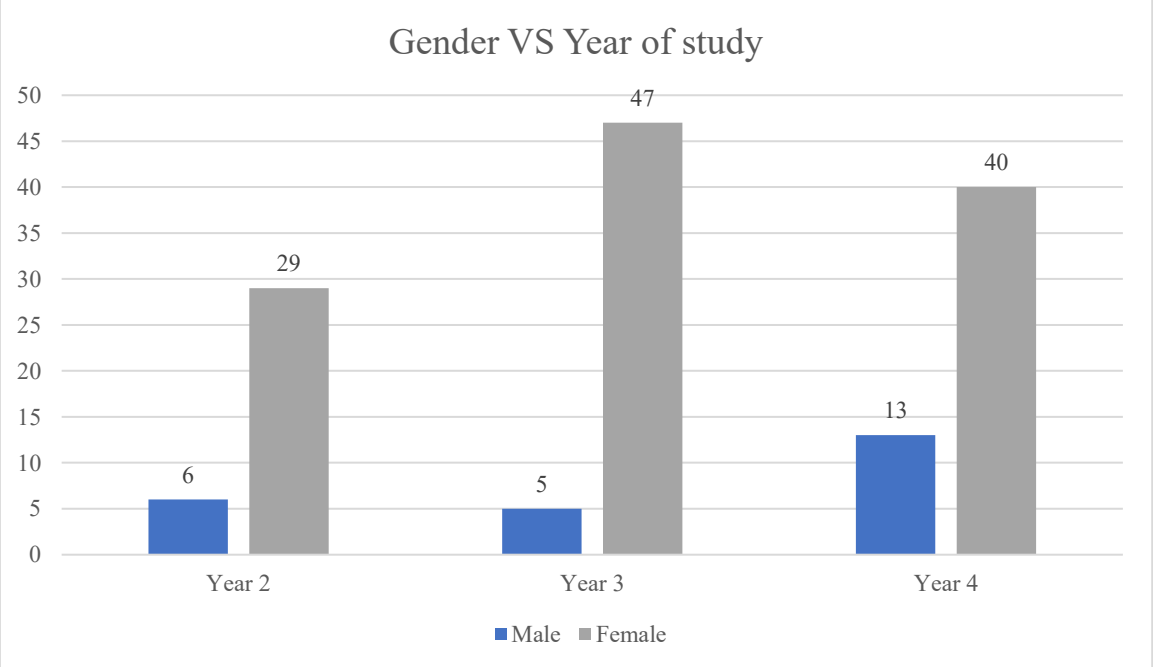
Out of 140 participants, 24 (17.1%) were male, and 116 (82.9%) of them were female. The participants' years of study in nursing, with 35 (25.0%) of them were from Year 2, 52 (37.1%) were from Year 3, and followed by 53 (37.9%) were from Year 4.

Table 4.2
Distribution of respondents by socio-demographic characteristics of UNIMAS undergraduate nursing students (n=140)

Characteristics	Frequency (n)	Percentage (%)	$\bar{x} \pm SD$
Age (years)			22.44 ± 1.15
20	4	2.9	
21	28	20.0	
22	38	27.1	
23	49	35.1	
24	17	12.1	
25	2	1.4	
26	2	1.4	
Gender			1.83 ± 0.38
Male	24	17.1	
Female	116	82.9	
Year of study			3.13 ± 0.79
Year 2	35	25.0	
Year 3	52	37.1	
Year 4	53	37.9	

Note. $\bar{x}$: Mean, SD : Standard Deviation.

Figure 4.2
Total number of respondents in the Nursing program



4.3 Descriptive Analysis of Key Variables

This section provides the descriptive statistics for the key variables assessed in the study. The analysis encompasses students' perceptions of SBL and their levels of self-confidence. These findings provide an overview of the respondents' overall responses and establish the foundation for further inferential analysis.

4.3.1 Perception towards SBL

This section presents the findings, which aimed to assess undergraduate nursing students' perceptions of SBL. The data were collected using the SDS developed by the NLN, which measures key elements of simulation design including objectives and information, support, problem-solving, feedback/guided reflection, and fidelity. Table 4.3.1 presents the frequency and percentage of students' responses for each item of the SDS, and each item was evaluated using a 5-point Likert scale. These distributions help to visualise how strongly students agreed or disagreed with each statement regarding their simulation experience.

Table 4.3.1 shows the frequency distribution for all items in the SDS. Among all the items assessed, Item 6 and 7 recorded the highest agreement levels, with 65.7% of respondents selecting positive responses which is "Agree". Notably, both of these items fall under the 'Support' domain of the SDS, highlighting the students particularly value the supportive aspects of the simulation environment. Despite the overall positive perception, some areas received notably lower agreement. Items 10 and 13, which belong to the Problem Solving domain, along with Item 17 from the Feedback/Guided Reflection domain and Item 19 from the Fidelity domain, each recorded the lowest percentage of agreement at only 0.7%.

The results also revealed that students generally had positive perception of the SBL. Among the five domains, the Support domain recorded the highest mean score ($M = 4.09$, $SD = 0.50$), indicating that students generally felt supported by facilitators during the

simulation experience. This was followed closely by Problem Solving (M = 4.08, SD = 0.51) and Feedback/Guided Reflection (M = 4.06, SD = 0.56), suggesting that students perceived the simulation activities as promoting critical thinking and valued the feedback provided. The Objectives and Information domain had a mean score of M = 4.02 (SD = 0.53), indicating that students generally agreed the simulations had clear objectives and relevant content. The Fidelity domain, which reflects the realism of the simulation environment, had the lowest score (M = 3.84, SD = 0.74), suggesting that some students perceived the simulation as less realistic compared to actual clinical settings.

Overall, the results suggest that students perceived SBL positively because each domain was derived by averaging the Likert scores across items in the respective subscale. Thus, the higher scores indicate more positive perceptions.

Table 4.3.1
Descriptive analysis of perception of SBL among UNIMAS undergraduate nursing students

Items	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
	n (%)	n (%)	n (%)	n (%)	n (%)
Objectives and Information					
1. There was enough information provided at the beginning of the simulation to provide direction and encouragement.	0	0	36 (25.7)	76 (54.3)	28 (20.0)

Table 4.3.1 continued

2. I clearly understood the purpose and objectives of the simulation.	0	0	17 (12.1)	90 (64.3)	33 (23.6)
3. The simulation provided enough information in a clear matter for me to problem-solve the situation.	0	0	24 (17.1)	86 (61.4)	30 (21.4)
4. There was enough information provided to me during the simulation.	0	3 (2.1)	31 (22.1)	78 (55.7)	28 (20.0)
5. The cues were appropriate and geared to promote my understanding.	0	0	22 (15.7)	89 (63.6)	29 (20.7)
$\bar{x}$ ± SD: 4.02 ± 0.53					
Support					
6. Support was offered in a timely manner.	0	2 (1.4)	23 (16.4)	92 (65.7)	23 (16.4)
7. My need for help was recognised.	0	0	24 (17.1)	92 (65.7)	24 (17.1)
8. I felt supported by the clinical instructor's assistance during the simulation.	0	2 (1.4)	11 (7.9)	83 (59.3)	44 (31.4)
9. I was supported in the learning process.	0	0	12 (8.6)	89 (63.6)	39 (27.9)
$\bar{x}$ ± SD: 4.09 ± 0.50					
Problem Solving					
10. Independent problem-solving was facilitated.	0	1 (0.7)	19 (13.6)	88 (62.9)	32 (22.9)

Table 4.3.1 continued

11. I was encouraged to explore all possibilities of the simulation.	0	3 (2.1)	19 (13.6)	83 (59.3)	35 (25.0)
12. The simulation was designed for my specific level of knowledge and skills.	0	2 (1.4)	20 (14.3)	90 (64.3)	28 (20.0)
13. The simulation allowed me the opportunity to prioritise nursing assessments and care.	0	1 (0.7)	14 (10.0)	91 (65.0)	34 (24.3)
14. The simulation provided me an opportunity to goal set for my patient.	0	3 (2.1)	14 (10.0)	91 (65.0)	32 (22.9)
$\bar{x}$ ± SD: 4.08 ± 0.51					
Feedback/Guided Reflection					
15. Feedback provided was constructive.	0	2 (1.4)	23 (16.4)	83 (59.3)	32 (22.9)
16. Feedback was provided in a timely manner.	0	2 (1.4)	23 (16.4)	89 (63.6)	26 (18.6)
17. The simulation allowed me to analyse my own behaviour and actions.	0	1 (0.7)	14 (10.0)	90 (64.3)	35 (25.0)
18. There was an opportunity after the simulation to obtain guidance/feedback from the clinical instructor in order to build knowledge to another level.	0	6 (4.3)	16 (11.4)	82 (58.6)	36 (25.7)
$\bar{x}$ ± SD: 4.06 ± 0.56					

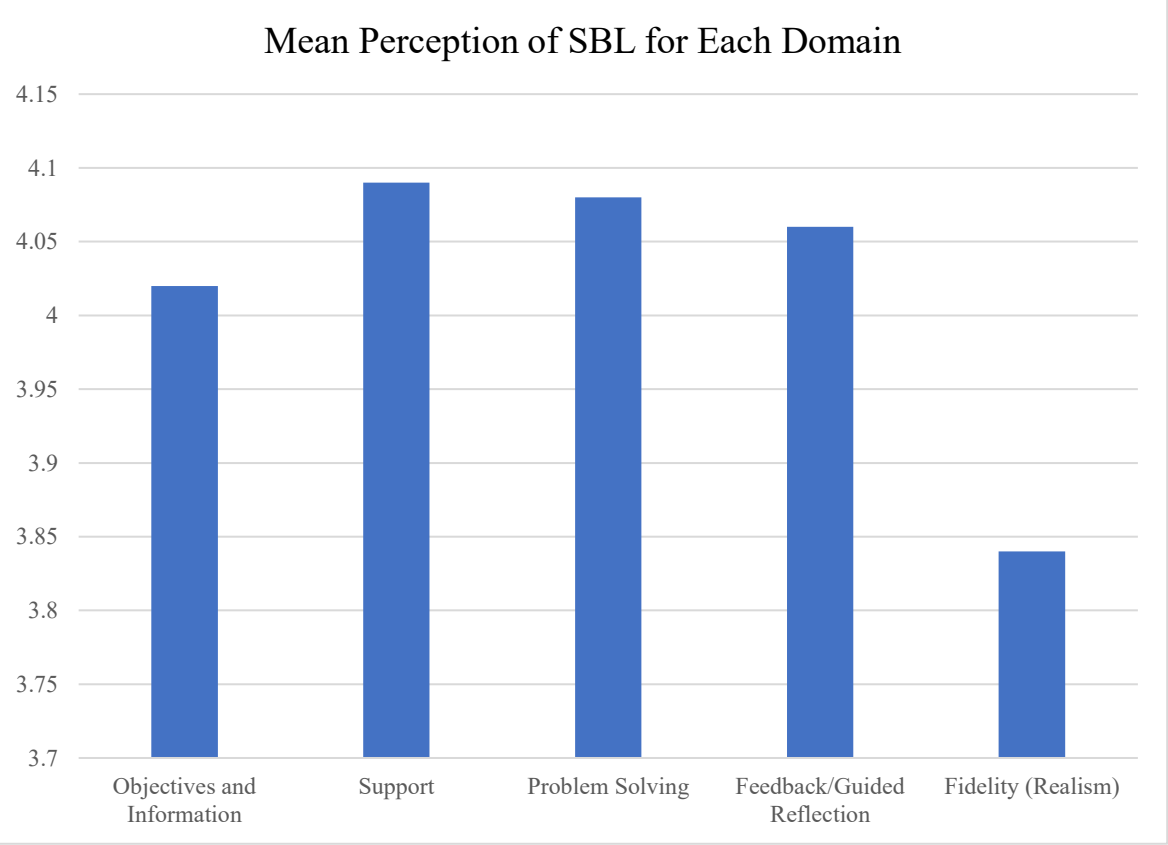
Table 4.3.1 continued

Fidelity (Realism)					
19. The scenario resembled a real-life situation.	1 (0.7)	5 (3.6)	37 (26.4)	73 (52.1)	24 (17.1)
20. Real life factors, situations, and variables were built into the simulation scenario.	0	8 (5.7)	31 (22.1)	74 (52.9)	27 (19.3)
$\bar{x}$ ± SD: 3.84 ± 0.74					
					$\bar{x}$ ± SD: 4.02 ± 0.44

Note. n : Frequency, % : Percentage, $\bar{x}$: Mean, SD : Standard Deviation.

Figure 4.3.1

Mean perception of SBL for each domain



4.3.2 Self-confidence following SBL among UNIMAS undergraduate nursing students

This section presents the findings related to undergraduate nursing students' self-confidence following their SBL. The data were collected using a self-confidence in learning scale and each item was evaluated using a 5-point Likert scale.

Table 4.3.2.1 presents the frequency and percentage of students' responses for each item. These distributions illustrate how students perceived their level of confidence in carrying out clinical skills and critical thinking during simulation-based activities. Among all the items assessed in the Self-Confidence Scale, Item 3 recorded the highest agreement level, with 70.7% of respondents selecting positive responses which is "Agree". This item signifies students' confidence in acquiring the requisite skills and knowledge via simulation to perform fundamental tasks in a clinical environment.

Particularly, the highest rating is for the statement in Item 5 (Mean = 4.40, SD = 0.61). Furthermore, students demonstrated the ability to seek assistance when they encountered difficulties with simulation concepts (Mean = 4.21, SD = 0.68), and that the instructors utilised effective resources to conduct the simulation. (Mean = 4.21, SD = 0.62). The results indicated that following the simulation activities, students were able to apply their acquired knowledge to understand essential aspects of the required skills (Mean = 3.99, SD = 0.64).

Table 4.3.2.1
Descriptive of self-confidence following SBL among UNIMAS undergraduate nursing students

Items	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	$\bar{x}$ ± SD
	n (%)	n (%)	n (%)	n (%)	n (%)	
1. I am confident that I am mastering the content of the simulation activity that my clinical instructors presented to me.	0	5 (3.6)	46 (32.9)	76 (54.3)	13 (9.3)	3.69± 0.69
2. I am confident that this simulation covered critical content necessary for the mastery medical surgical practicum.	0	2 (1.4)	24 (17.1)	98 (70.0)	16 (11.4)	3.91± 0.58
3. I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting.	0	4 (2.9)	13 (9.3)	99 (70.7)	24 (17.1)	4.02± 0.62
4. My clinical instructors used helpful resources to teach the simulation.	1 (0.7)	0	9 (6.4)	89 (63.6)	41 (29.3)	4.21± 0.62
5. It is my responsibility as the student to learn what I need to know from this simulation activity.	1 (0.7)	0	3 (2.1)	74 (52.9)	62 (44.3)	4.40± 0.61
6. I know how to get help when I do not understand the concepts covered in the simulation.	2 (1.4)	0	8 (5.7)	86 (61.4)	44 (31.4)	4.21± 0.68

Table 4.3.2.1 continued

7. I know how to use simulation activities to learn critical aspects of these skills.	1 (0.7)	2 (1.4)	17 (12.1)	97 (69.3)	23 (16.4)	3.99± 0.64
8. It is the clinical instructor's responsibility to tell me what I need to learn of the simulation activity content during class time.	1 (0.7)	9 (6.4)	31 (22.1)	77 (55.0)	22 (15.7)	2.21± 0.81
						$\bar{x}$ ± SD: 3.83±0.35

Note. n : Frequency, % : Percentage, $\bar{x}$: Mean, SD : Standard Deviation.

Visual binning in SPSS was used to recode self-confidence as a level of self-confidence. This study used SPSS to classify each respondent's total score as low, moderate, or high using visual binning. Visual binning is a technique for classifying data values or visualising data distributions (Setlur et al., 2022). It is frequently used to convert continuous data into more manageable discrete categories. Although the NLN self-confidence scale is treated as a continuous variable, scores were divided into three levels (low, moderate, and high) using SPSS's visual binning tool to assess self-confidence levels among UNIMAS undergraduate nursing students.

The total score for each respondent in the categorical analysis varied from a minimum of 8 to a maximum of 40. Then, self-confidence scores were classified into three levels: low, moderate, and high. Cutoff points were determined using visual binning in SPSS based on the total score distribution, as follows:

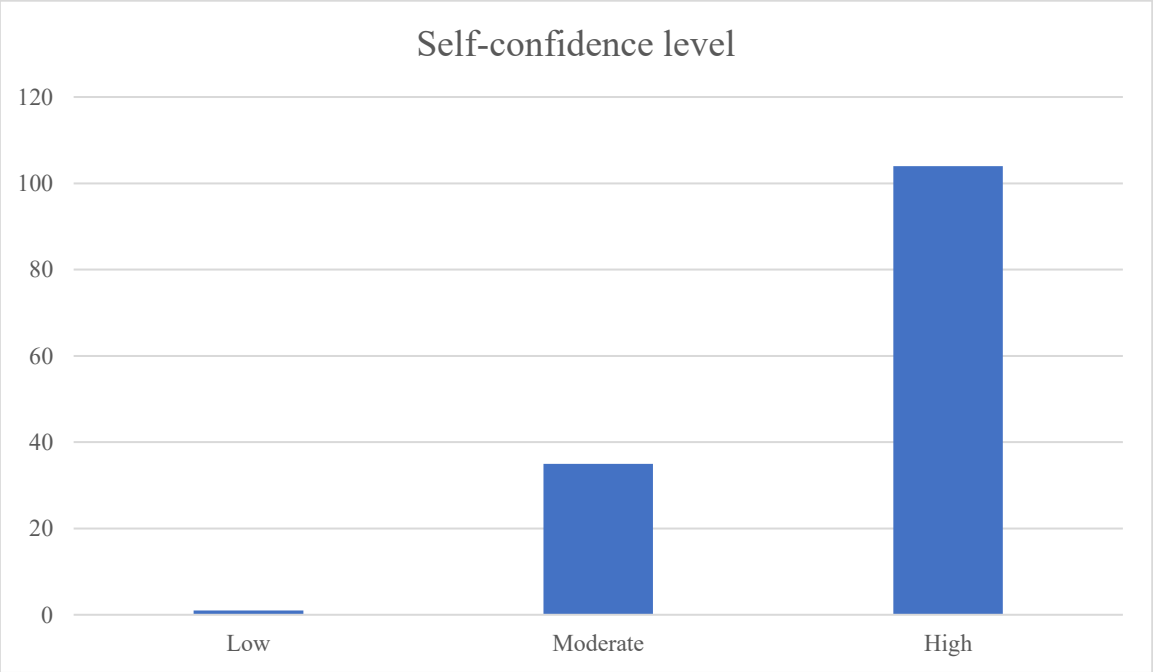
- Low: ≤19
- Moderate: 20 – 29
- High: 30-40

As shown in Tabel 4.3.2.2, the majority of respondents (n = 104, 74.3%) reported high self-confidence, followed by those with moderate (n = 35, 25.0%), and low (n = 1, 0.7%) self-confidence levels.

Table 4.3.2.2
Level of self-confidence following SBL among UNIMAS undergraduate nursing students

	Self-confidence level		
	Low ≤19 n (%)	**Moderate** 20 – 29 n (%)	**High** 30 – 40 n (%)
UNIMAS undergraduate nursing students	1 (0.7)	35 (25.0)	104 (74.3)

Figure 4.3.2
Level of self-confidence among UNIMAS undergraduate nursing students



4.4 Test of Normality

Before conducting inferential statistical analysis, a test of normality was performed to determine whether the data for both variables were normally distributed. The Kolmogorov-Smirnov test was used for larger samples (n > 50), as this study had a sample size 140.

A Kolmogorov-Smirnov test for perception of SBL in Table 4.4.1 showed a significant normal distribution, $D(140) = .15$, $p = .00$. The mean among the participants is 4.02 ($SD = 0.44$) The maximum is 5 while the minimum is 3. The range is 2. The mode is 4.

A Kolmogorov-Smirnov test for self-confidence in Table 4.4.2 showed a significant departure from normality, $D(140) = .15$, $p = .00$. The mean score among the participants is 3.83 ($SD = 0.35$). The maximum is 4.63 while the minimum is 2.25. The range is 2.38. The mode score is 3.75.

The p-values for both variables exceeded 0.05, indicating that the assumption of normality was met. This suggests that the data for both perception of SBL and self-confidence did not significantly deviate from a normal distribution. As a result, parametric test was used in the subsequent analysis.

Table 4.4.1
Test of normality for perception of SBL

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
Perception of SBL	.150	140	.000

Note. df: Degrees of Freedom, Sig.: Significance.

Table 4.4.2
Test of normality for self-confidence

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
Self-confidence	.152	140	.000

Note. df: Degrees of Freedom, Sig.: Significance.

4.5 Inferential Analysis

This section presents the inferential statistical analysis conducted to address the research objective. Inferential analysis was employed to investigate the relationship between the perception of SBL and self-confidence. Following the normality test results, the Pearson correlation coefficient was utilised to assess the presence of statistically significant relationships or differences among the variables.

4.5.1 Relationship between perception of SBL and self-confidence

The relationship between perception of SBL assessed through SDS and self-confidence, evaluated via the self-confidence in learning scale, was investigated using a Pearson correlation coefficient. There was a moderate positive correlation between the two variables, $r(140) = .49$, $p < .001$. This suggests that students who had more positive perceptions of SBL tended to report high self-confidence.

Table 4.5.1
Pearson Correlation between perception of SBL and self-confidence among UNIMAS undergraduate nursing students (n = 140)

	Correlation	Perception of simulation-based learning	Self-confidence
Perception of SBL	Pearson Correlation	1	.492**
	Sig. (2-tailed)		.000
Self-confidence	Pearson Correlation	.492**	1
	Sig. (2-tailed)	.000	

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

CHAPTER 5

DISCUSSION

5.1 Introduction

This chapter presents a detailed interpretation of the study's findings, which aimed to assess undergraduate nursing students' perceptions of SBL and its impact on their self-confidence in clinical practice. The key findings of this study suggest that nursing students perceive SBL as an effective tool for enhancing self-confidence, particularly in performing clinical skills. This chapter will discuss the implications of these findings, compare them with existing research, acknowledge the limitations and provides recommendations for future practice and research.

5.2 Discussion of findings

This section discusses the study's key findings in relation to the research objectives, with a focus on nursing students' perceptions of SBL and self-confidence following SBL. The findings are interpreted using the results presented in Chapter 4 and compared to existing literature to highlight similarities and differences. Each subsection focusses on a specific aspect of the study, such as students' overall perception of SBL, their levels of self-confidence, and the relationship between perception of SBL and self-confidence.

5.2.1 Perception of SBL

This study investigated the perceptions of UNIMAS undergraduate nursing students regarding SBL using the SDS. The SDS evaluates five key design components including Objectives and Information, Support, Problem-Solving, Feedback/Guided Reflection, and Fidelity.

In this study, the Support element in the SDS recorded the highest mean ($M = 4.09$, $SD = 0.50$), suggesting that students felt well-supported by instructors and facilitators during

simulation activities. This includes having guidance throughout scenarios, emotional support and easy access to help when needed. The positive perception of support indicates that supportive interactions are crucial in shaping students' experiences and boosting their learning confidence during high-stakes simulations. This finding is consistent with Tan et al. (2023), who reported a similar mean score (4.11) for the Support domain among final-year nursing students in Singapore. Similarly, Cho & Kim (2023) found a mean of 4.05 in their Korean cohort. These consistent findings across various settings highlight the universal importance of strong facilitator presence, guidance, and emotional support during simulations. Students who feel supported are more likely to engage actively, take risks, and reflect deeply, all of which contribute to better learning outcomes.

The Fidelity element recorded the lowest mean score (M = 3.84, SD = 0.74), suggesting that while the simulation design was generally positive, students felt that the realism or authenticity of the simulation scenarios could be improved. This is consistent with Cho & Kim (2023), who identified Fidelity as one of the lowest-rated domains in their study. They noted that limitations in technology and environmental realism often hindered students' ability to fully immerse themselves in the scenarios. Similarly, Ahmed et al. (2021) reported that outdated mannequins, lack of clinical cues, and environmental interruptions negatively impacted students' engagement.

Regarding the Objectives and Information element (M = 4.02, SD = 0.53), students indicated that the simulations were well-structured, with clear objectives and instructions that guided their learning. This finding aligns with Tan et al. (2023), who reported a mean score of 4.05 in their Singapore cohort. Additionally, Ibrahim et al. (2021) noted that clear objectives play a significant role in achieving positive learning outcomes. While the score is

slightly lower than the Support domain (M = 4.09), it still suggests that students understood the goals of the simulation activities.

The Problem-Solving domain recorded a high mean (M = 4.08, SD = 0.51), reflecting those students felt the simulation activities enhanced their clinical reasoning and decision-making skills. This is consistent with the findings of Tan et al. (2023), who reported a mean score of 4.12 among final-year nursing students in Singapore. Similarly, Mulyadi et al. (2021) reported a mean of 4.15 in Indonesia, indicating consistent trends across Southeast Asia. However, Cho & Kim (2023) found a slightly lower score of 3.94, which could be due to differences in simulation complexity or facilitator expertise across institutions. This variability emphasizes the importance of ensuring that simulations challenge students appropriately while reflecting real-life clinical decision-making processes.

Lastly, the Feedback/Guided Reflection element scored 4.06 (SD = 0.56), suggesting that students found the debriefing sessions effective in providing constructive feedback and opportunities for self-reflection. This result is consistent with Tan et al. (2023), who reported a similar mean of 4.08. Mulyadi et al. (2021) also highlighted the importance of structured reflection and feedback, with a mean of 4.10 in Indonesia. These findings suggest that feedback and reflection are crucial components of the simulation experience, helping students identify their strengths and areas for improvement.

In conclusion, this study indicates that nursing students at UNIMAS generally perceive SBL positively. However, the Fidelity domain scored the lowest, suggesting an area for improvement in the realism of simulation environments. Overall, these findings provide valuable insights that can guide future enhancements in simulation design at UNIMAS, contributing to better preparation for nursing students in real-world clinical scenarios.

5.2.2 Level of self-confidence following SBL

This study aimed to assess the self-confidence of undergraduate nursing students at UNIMAS following SBL. Self-confidence is an essential psychological attribute that influences clinical performance, decision-making and readiness for real-life patient care.

The mean score of self-confidence was 3.83 (SD = 0.35), indicating an overall high level of self-confidence among the students. This finding is consistent with previous research, including Tan et al. (2023), who reported similar high self-confidence scores among final-year nursing students after engaging in structured SBL. Likewise, Mulyadi et al. (2021) discovered that simulation training improved nursing students' confidence in managing clinical tasks and communication with patients, particularly when debriefing and facilitator support were present.

Further descriptive analysis showed that the highest mean score was recorded for Item 5 (Mean = 4.40, SD = 0.61), which suggests that most students recognised the importance of self-directed learning during simulation, taking ownership of their educational experience. Gaspar and Banayat (2024) reported a comparable finding, revealing that the same item achieved the highest mean score in their study (Mean = 4.70, SD = 0.51), thereby reinforcing the idea that simulation fosters accountability and learner autonomy across diverse contexts.

Conversely, the lowest mean score was reported for Item 8 (Mean = 2.21, SD = 0.81). As this is a negatively worded item, the low score indicates that students disagreed with the idea of passively relying on instructors, further supporting the shift toward active, student-centred learning emphasised in SBL. In contrast, the results in a study by Gaspar and Banayat (2024), who reported a much higher mean for the same item (Mean = 4.16, SD = 1.06), indicating greater agreement with instructor-led learning in their cohort. This discrepancy

may reflect cultural or institutional differences in the expectations of instructor-students' roles, or variations in how simulation is facilitated and debriefed across settings.

When categorising self-confidence scores, most students demonstrated high self-confidence (n = 104; 74.3%), while 35 students (25.0%) were in the moderate category and only 1 student (0.7%) reported low self-confidence. The findings indicate that simulation-based education at UNIMAS may enhance students' confidence levels, especially in their preparation for real-world clinical practice.

At UNIMAS, simulation sessions are meant to be interactive and focused on the students. They include things like realistic clinical scenarios, structured pre-briefing, formative feedback and debriefing, which are all well-known in the literature as good ways to boost student confidence (Jeffries, 2020; Cant & Cooper, 2017). Simulation creates a safe learning environment where students can make mistakes without putting patients at risk. This helps them become more clinically competent and mentally prepared (Al-Ghareeb et al., 2019).

Gaspar and Banayat (2024) similarly discovered that most nursing students had increased self-confidence after simulation training, which is in line with these results. Mulyadi et al. (2022) also said that students' ability to use what they have learnt in theory and their confidence in making clinical decisions increase a lot when they do simulation exercises repeatedly.

Thus, the high number of students in the high self-confidence group may show that UNIMAS's SBL is not only effective as a teaching tool, but also well-structured and of high quality. These results support the continued use of simulation in nursing programs to boost students' confidence in the clinic and improve their results.

5.2.3 Relationship between perception of SBL and self-confidence

This study explored how nursing students' perceptions on SBL to their self-confidence. To achieve this, a Pearson correlation coefficient test was conducted, revealing a positive moderate correlation ($r = 0.492$, $p < 0.01$) between the perception of SBL and self-confidence scores. This suggests that students felt more positively about the design and delivery of the simulation activities also tended to report higher levels of self-confidence in their learning.

This finding is significant because it suggests that the quality of the simulation experience directly influences students' beliefs in their own abilities. The more structured and supportive the SBL, the more likely students feel confident in applying what they have learned. This aligns well with the study by Gaspar and Banayat (2024), which also found a positive moderate correlation ($r = 0.32$, $p < 0.01$) between SBL perception and self-confidence. This reinforces the idea that simulation is not just a teaching tool, but it is a powerful way to build students' confidence in real-world clinical scenarios.

The correlation between perception of SBL and self-confidence highlights the crucial role that a well-designed simulation environment plays in nursing education. A simulation environment that incorporates clear objectives, facilitator support, realistic scenarios and reflective feedback contributes to learners' belief in their abilities to understand and perform clinical tasks effectively.

For example, elements like clear objectives and support from instructors were likely factors that contributed to the positive perception of the simulation, and consequently, higher self-confidence. When students feel that they understand the learning goals and have the guidance they need during the exercise, they are more likely to believe in their abilities to perform well in real-life clinical situations.

According to a study by Mulyadi et al. (2021), who also identified a statistically significant positive correlation between SBL and self-confidence among Indonesian nursing students. Similarly, Cho and Kim (2023) reported that students who perceived higher quality simulation design also demonstrated increased self-confidence in their clinical abilities.

The CSC at UNIMAS functions as a central facility for nursing students, facilitating engagement in diverse simulation modalities, including task trainers, high-fidelity manikins, and mock ward settings. Students at UNIMAS engage in simulation activities that include pre-briefing, scenario enactment, and debriefing, under the guidance of trained facilitators. These elements represent established best practices in simulation design and are essential for facilitating experiential learning and reflective thinking (INACSL Standards Committee, 2021).

This study indicates a positive relationship between students' perception of SBL and the students' confidence. This may be attributed to several features of the UNIMAS simulation environment. For example, the implementation of high-fidelity manikins and simulated ward environments at the CSC. This allows students to engage in realistic clinical scenarios, thereby enhancing the authenticity of learning and facilitating the development of clinical reasoning (Labrague et al., 2019). Subsequently, reflective debriefing sessions facilitated by instructors assist students in processing their learning, reinforcing accurate techniques and clarifying mistakes (INACSL Standards Committee, 2021). This feedback loop enhances confidence by facilitating understanding and self-assessment. The UNIMAS simulation model offers students numerous opportunities to engage in clinical procedures, facilitating repetition and refinement, which are critical for enhancing self-confidence.

This study demonstrates that positive perceptions of SBL are associated with increased self-confidence in nursing students. This finding underscores the importance of

investing in structured, high-quality simulation education within the UNIMAS context to enhance student preparedness for clinical practice. Enhancements in simulation fidelity, faculty training, and student engagement may further reinforce this relationship and yield graduates who are more confident and competent.

5.3 Implications of the study

The results of this study have a lot of key implications on nursing education, nursing educators, making policy, and future research. In establishing a positive relationship between students' perception of SBL and their self-confidence, this study emphasises the important role of well-designed simulations to enhance the clinical preparedness of nursing students. The results add to the evidence that simulation works in nursing education while providing information that is useful in the Malaysian education system.

5.3.1 Nursing Education

For institutions like UNIMAS, further expenditures in simulation tools, faculty development, and student feedback systems can yield notable increases in student readiness. Simulation is a strong link between theory and practice, thus institutions should make it a main teaching tool rather than an elective addition.

Moreover, since students' perceptions have a direct influence on confidence, the universities must periodically evaluate their experiences using validated instruments and apply the findings to change simulation exercise. Regular assessment and improvement in simulation centres help to guarantee continuous quality enhancement.

5.3.2 Nursing Educators

Since the study shows a significant positive relationship between students' perceptions of SBL and their self-confidence, this highlights the importance of SBL in

helping nursing students to build self-confidence. Thus, nursing educators play a crucial role in continuing to use systematic, supportive, and high-fidelity simulations in nursing curricula, as this action will lead to better learning outcomes.

At the UNIMAS CSC, these findings underpin the necessity for continuous evaluation and enhancement of the simulation experience to international standards and best practices. The faculty development programmes must be strengthened to ensure facilitators are well equipped to facilitate reflective learning and build confidence through constructive debriefing skills.

5.3.3 Policy Makers

The findings support an imperative need to embed simulation as an essential component of nursing education. Recommendations to policymakers and curricula planners would include reframing time, resources, and assessment tools to be supportive in delivering framework-based, sufficient time allocation for simulation-based education. The possible enhancement in the curriculum and eventual preparation for practice can be achieved through adding self-confidence, clinical judgement, and critical thinking skills as outcomes of simulation.

5.3.4 Nursing Research

This study offers the opportunity for further research into other effects of simulation-based education, including clinical proficiency, critical thinking, and patient safety. It also invites research about diverse populations, institutions, and longitudinal study designs that may improve generalisability and richness of information regarding effects in simulation-based nursing education.

5.4 Limitations of the study

This study has several limitations, even though it provides insightful information about how nursing students view SBL and how it relates to self-confidence. Firstly, the study's cross-sectional design makes it more difficult to show the relationship between self-confidence and SBL perceptions. To investigate how perceptions and confidence change over time with ongoing simulation exposure, more longitudinal research is required.

Second, self-administered questionnaires were used to collect the data, which could have been impacted by response bias, such as social desirability bias. Students may have responded in a way that they perceived as favourable rather than reflecting their true experiences or confidence levels. Additionally, this method relies on self-perception, which may not always accurately reflect actual skill or performance in clinical practice.

The study only took place at one institution, which is another limitation. This gives an in-depth look at one specific school, but it makes it harder to apply the results to other nursing schools with different types of simulations, teaching styles, or student populations.

5.5 Recommendations

Based on the above limitations and findings, several suggestions for future research can be made. First, longitudinal studies should be conducted to assess how SBL influences students' self-confidence over time, especially as they progress through more complex clinical training.

Second, future studies may benefit from using mixed-method approaches, incorporating qualitative data such as focus group interviews or reflective journals to gain deeper insight into students' experiences and the emotional aspects of SBL.

Third, expanding the sample size across multiple institutions would help to increase the generalisability of results and identify whether different simulation environments or curricula yield different outcomes.

Lastly, more research should investigate how other factors, like previous healthcare experience, academic performance, and the frequency or type of simulation exposure, affect the results. This would help better understand the things that affect students' confidence and their perception towards SBL.

5.6 Conclusion

This study adds to the growing body of research that shows how useful SBL is in nursing education. The findings revealed that nursing students at UNIMAS had generally positive perceptions of simulation and reported high levels of self-confidence in their clinical practice. A significant moderate positive relationship was found between students' perceptions of SBL and their self-confidence, supporting both conceptual framework and previous empirical studies. By emphasising the importance of well-designed simulation experiences, this study underscores the need for continued investment in simulation infrastructure and faculty training within nursing programs.

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APPENDICES

Appendix A: Cover Letter for Ethical Application

Nur Athirah Binti Mustapher,
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: Nur Athirah Binti Mustapher

Matrix number: 78370

IC No.: 020819-13-0304

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: Relationship Between Simulation-Based Learning and Self-Confidence among UNIMAS Undergraduate Nursing Students

Supervisor's name: Madam Dayang Zuraina Binti Abang Haji Kashim

Email address: ahkdzuraina@unimas.my

Supervisor's HP number: +6016-867 5575

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

Thank you.

Yours sincerely,

athirah

(Nur Athirah Binti Mustapher)

Appendix B: Ethical Approval Letter

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

UNIVERSITI MALAYSIA
SARAWAK
94300 Kota Samarahan

MEMORANDUM

Reference : UNIMAS/NC-21.05/03-03 Jld. 8(142)

To : Nur Athirah Binti Mustapher (78370)
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: Relationship between Simulation-Based Learning and Self-Confidence among UNIMAS Undergraduate Nursing Students**

The above matter is referred.

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

Student Name	:	**Nur Athirah Binti Mustapher**
Student ID	:	**78370**
Programme	:	**Bachelor of Nursing with Honours**
Research Title	:	***Relationship between Simulation-Based Learning and Self-Confidence among UNIMAS Undergraduate Nursing Students***
Supervisor Name	:	**Mdm Dayang Zuraina binti Abang Haji Kashim**
Supervisor H/P	:	**+60 16-867 5575**

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 C: Participant's Informed Consent Form

V1.29.12.2023

UNIMAS
UNIVERSITI MALAYSIA SARAWAK

PARTICIPANT INFORMATION SHEET/ *MAKLUMAT KAJIAN PESERTA*

1. Title of the study/ *Tajuk kajian*	:	**Relationship Between Perception of Simulation-Based Learning and Self-Confidence among UNIMAS Undergraduate Nursing Students**
2. Main Researcher/ *Penyelidik utama*	:	**Nur Athirah Binti Mustapher**
3. Supervisor/ *Penyelia*	:	**a) Course coordinator: Feryante Rintika Belansai** **b) Main research supervisor: Dayang Zuraina Binti Abang Haji Kashim**
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***

V1.29.12.2023

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 primary aim of this study is to investigate the relationship between perception of simulation-based learning and self-confidence among UNIMAS undergraduate nursing students. By focusing on these key factors, we seek to understand how simulation-based learning will increase self-confidence, which may contribute to better performance among nursing students.

This research will be conducted for a duration of 6 months (25/1/2025 till 30/6/2025). The expected total number of participants will be 140.

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 10-15 minutes of your time. You will be given a survey form to be answered. This form contains 3 sections which will enquire about socio-demographic data, simulation design scale, and self-confidence in learning.

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. Information obtained from this study will help identify whether perception of simulation-based learning will influence self-confidence or not among UNIMAS undergraduate nursing students.

11. Who is funding the research?

This study does not receive any external funding, is fully sponsored by the main study researcher. You will not be paid for participating in this study.

12. 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.

13. 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 staff, Nur Athirah Binti Mustapher at telephone number 013-561 0693.

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.

V1.29.12.2023

INFORMED CONSENT FORM

Title of Study: Relationship Between Perception of Simulation-Based Learning and Self-Confidence among UNIMAS Undergraduate Nursing Students

By signing below, I confirm the following:

- I have been given oral and written information for the above study and have read and understood the information given.
- I have had sufficient time to consider participating in the study and have had the opportunity to ask questions, and all my questions have been answered satisfactorily.
- I understand that my participation is voluntary, and I can at anytime free 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 at this time. I understand the risks and benefits, and I freely give my informed consent to participate under the conditions stated. I understand that I must follow the study doctor's (investigator's) instructions related to my participation in the study.
- I understand that 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:

V1.29.12.2023

UNIMAS
UNIVERSITI MALAYSIA SARAWAK

PARTICIPANT INFORMATION SHEET/ *MAKLUMAT KAJIAN PESERTA*

1. Title of the study/ *Tajuk kajian*	:	**Hubungan Antara Persepsi Pembelajaran Berasaskan Simulasi dan Keyakinan Diri dalam Kalangan Pelajar Sarjana Muda Kejururawatan UNIMAS**
2. Main Researcher/ *Penyelidik utama*	:	**Nur Athirah Binti Mustapher**
3. Supervisor/ *Penyelia*	:	**a) Course coordinator: Feryante Rintika Belansai** **b) Main research supervisor: Dayang Zuraina Binti Abang Haji Kashim**
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***

V1.29.12.2023

RISALAH MAKLUMAT PESERTA DAN
BORANG PERSETUJUAN atau KEIZINAN PESERTA
(untuk subjek dewasa)

1. **Tajuk penyelidikan**: **Hubungan Antara Persepsi Pembelajaran Berasaskan Simulasi dan Keyakinan Diri dalam Kalangan Pelajar Sarjana Muda Kejururawatan UNIMAS**

2. **Nama Institusi dan nama penyelidik: Jabatan Kejururawatan, Fakulti Perubatan dan Sains Kesihatan, Universiti Malaysia Sarawak**

3. **Nama penaja**: **Tidak menerima penajaan dari pihak luar**

4. **Pengenalan:**

   Risalah ini menjelaskan hal-hal berkenaan penyelidikan tersebut dengan lebih mendalam dan terperinci. Amat penting anda memahami mengapa penyelidikan ini dilakukan dan apa yang dilakukan dalam penyelidikan ini. Sila ambil masa yang secukupnya untuk membaca dan mempertimbangkan dengan teliti penerangan yang diberi sebelum anda bersetuju untuk menyertai penyelidikan ini. Jika ada sebarang kemusykilan ataupun maklumat lanjut yang anda ingin tahu, anda boleh bertanya dengan mana-mana kakitangan yang terlibat dalam penyelidikan ini. Setelah anda berpuas hati bahawa anda memahami penyelidikan ini, dan anda berminat untuk turut serta, anda dikehendaki untuk menandatangani Borang Persetujuan atau Keizinan Peserta, pada muka surat akhir risalah ini.

   Penyertaan anda dalam penyelidikan ini adalah secara sukarela. Anda tidak perlu menyertai penyelidikan ini jika anda tidak mahu. Anda juga mempunyai hak untuk tidak menjawab mana-mana soalan yang anda tidak mahu jawab. Anda juga boleh menarik diri daripada penyelidikan ini pada bila-bila masa sahaja. Jika anda menarik diri, segala maklumat yang telah diperolehi sebelum anda menarik diri tetap akan digunakan dalam penyelidikan ini. Jika anda tidak mahu menyertai ataupun menarik diri dari penyelidikan ini, tindakan anda tidak akan menjejaskan segala hak dan keistimewaan perubatan kesihatan yang selayaknya anda terima.

   Penyelidikan ini telah mendapat kelulusan Jawatankuasa Etika dan Penyelidikan Perubatan, Kementerian Kesihatan Malaysia.

5. **Apakah tujuan penyelidikan ini dilakukan?**
   Matlamat utama kajian ini adalah untuk menyiasat hubungan antara persepsi pembelajaran berasaskan simulasi dan keyakinan diri dalam kalangan pelajar kejururawatan sarjana muda UNIMAS. Dengan memberi tumpuan kepada faktor-faktor utama ini, kami berusaha untuk memahami bagaimana pembelajaran berasaskan simulasi akan meningkatkan keyakinan diri, boleh menyumbang kepada prestasi yang lebih baik dalam kalangan pelajar kejururawatan.
   Penyelidikan ini akan berlangsung selama 6 bulan (25/1/2025 sehingga 30/6/2025). Dijangka bahawa 140 individu akan mengambil bahagian dalam kajian ini.

6. Apakah tanggungjawab saya sewaktu menyertai penyelidikan ini?

Amat penting anda menjawab kesemua soalan yang dikemukakan oleh kakitangan penyelidikan dengan jujur dan lengkap yang akan mengambil masa selama 10-15 minit. Anda akan diberi borang soal selidik untuk dijawab. Borang ini mempunyai 3 bahagian, yang meliputi topik data sosio-demografi, skala reka bentuk simulasi, dan keyakinan diri dalam pembelajaran.

7. Apakah manfaatnya saya menyertai kajian ini?

Penyelidikan ini mungkin akan mendatangkan manfaat ataupun langsung tiada memberi apa-apa manfaat kepada anda. Segala maklumat yang diperolehi daripada penyelidikan ini akan dapat membantu dalam mengenal pasti sama ada persepsi pembelajaran berasakan simulasi akan mempengaruhi keyakinan diri atau tidak dalam kalangan pelajar sarjana muda kejururawatan UNIMAS.

8. Apakah risiko dan kesan-kesan sampingan menyertai penyelidikan ini?

Risiko untuk penyertaan penyelidikan ini yang adalah minima dan tidak akan menjejaskan rawatan anda. Anda berhak untuk tidak menjawab jika rasa tidak selesa dengan mana-mana soalan kajian.

9. Siapakah yang membiayai penyelidikan ini?

Kajian ini tidak menerima penajaan dari pihak luar. Anda tidak akan dibayar untuk menyertai kajian ini.

10. Adakah maklumat saya akan dirahsiakan ?

Segala maklumat anda yang diperolehi dalam penyelidikan ini akan disimpan dan dikendalikan secara sulit, bersesuaian dengan peraturan-peraturan dan/ atau undang-undang yang berkenaan. Sekiranya hasil penyelidikan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anda tidak akan didedahkan tanpa kebenaran anda terlebih dahulu.

Pihak-pihak tertentu seperti individu yang terlibat dalam penyelidikan ini, juruaudit dan jurupantau yang terlatih, pihak berkuasa kerajaan atau undang-undang, boleh memeriksa maklumat atau data kajian jika diperlukan.

11. Siapakah yang perlu saya hubungi sekiranya saya mempunyai sebarang pertanyaan?

Anda boleh menghubungi penyelidik kajian, Nur Athirah Binti Mustapher, pada nombor telefon 013-561 0693 sekiranya anda mempunyai sebarang pertanyaan mengenai penyelidikan ini atau jika anda mengesyaki anda mengalami kecederaan yang terhasil daripada penyelidikan ini dan anda mahukan maklumat tentang rawatannya.

Jika anda mempunyai sebarang pertanyaan berkaitan dengan hak-hak anda sebagai pesakit dalam penyelidikan ini, sila hubungi: Setiausaha, Jawatankuasa Etika & Penyelidikan Perubatan, Kementerian Kesihatan Malaysia, melalui talian telefon 03-3362 8407/8205/8888.

V1.29.12.2023

BORANG PERSETUJUAN/ KEIZINAN PESERTA

Tajuk Penyelidikan : Hubungan antara Persepsi Pembelajaran Berasaskan Simulasi dan Keyakinan Diri dalam Kalangan Pelajar Sarjana Muda Kejururawatan UNIMAS

Dengan menandatangani di bawah, saya mengesahkan bahawa:

- Saya telah diberi maklumat tentang penyelidikan di atas secara lisan dan bertulis dan saya telah membaca dan memahami segala maklumat yang diberikan dalam risalah ini.
- Saya telah diberikan masa yang secukupnya untuk mempertimbangkan penyertaan saya dalam penyelidikan ini dan telah diberi peluang untuk bertanyakan soalan dan semua persoalan saya telah dijawab dengan sempurna dan memuaskan.
- Saya juga faham bahawa penyertaan saya adalah secara sukarela dan pada bila-bila masa saya bebas menarik diri daripada penyelidikan ini tanpa harus memberi sebarang alasan dan ianya sama sekali tidak akan menjejaskan rawatan perubatan saya pada masa akan datang. Saya tidak mengambil bahagian dalam mana-mana penyelidikan lain pada masa ini. Saya juga memahami tentang risiko dan manfaat penyelidikan ini dan saya secara sukarela memberi persetujuan untuk menyertai penyelidikan ini di bawah syarat-syarat yang telah dinyatakan di atas. Saya faham saya harus mematuhi nasihat dan arahan yang berkaitan dengan penyertaan saya dalam penyelidikan ini daripada doktor penyelidikan (penyelidik).
- Saya faham bahawa kakitangan penyelidikan, pemantau dan juruaudit terlatih , pihak penaja atau gabungannya, dan pihak berkuasa kerajaan atau undang-undang, mempunyai akses langsung dan boleh menyemak laporan perubatan saya bagi memastikan penyelidikan ini dijalankan dengan betul dan data direkodkan dengan betul. Segala maklumat dan data peribadi akan dianggap sebagai SULIT.
- Saya akan menerima satu salinan 'Risalah Maklumat Pesakit dan Borang Persetujuan atau Keizinan Pesakit' yang telah lengkap dengan tarikh dan tandatangan untuk dibawa pulang ke rumah.
- Saya bersetuju/ tidak bersetuju* untuk doktor yang merawat keluarga saya diberitahu tentang penyertaan saya dalam penyelidikan ini. *(*Potong mana yang tidak berkenaan)*

Subjek :
Tandatangan: Nombor K/P:

Nama: Tarikh :

Penyelidik yang mengendalikan proses menandatangani borang keizinan:

Tandatangan: Nombor K/P:

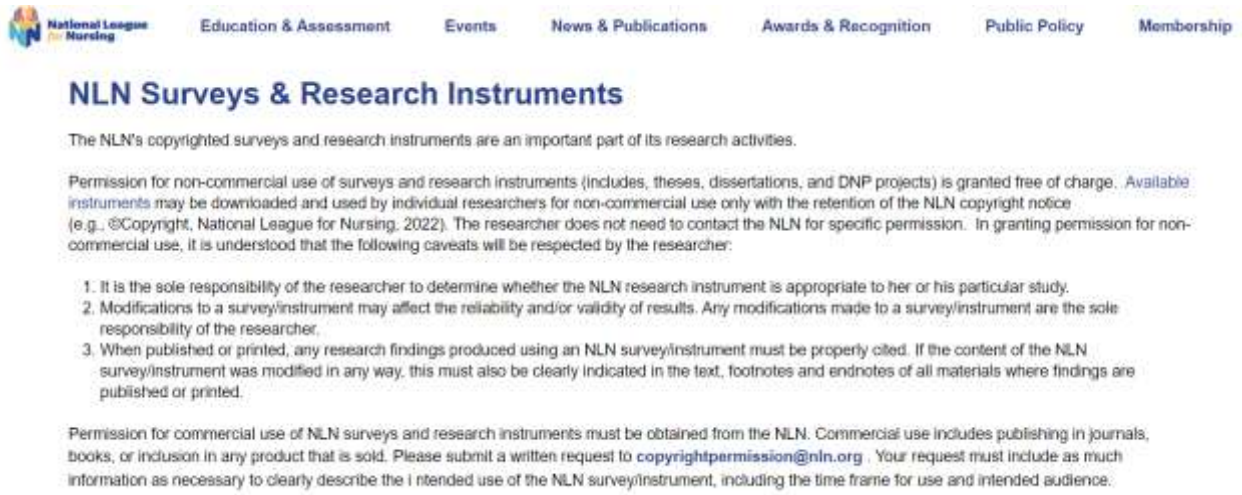
Nama: Tarikh :

Saksi tidak-berpihak/adil:

Tandatangan: Nombor K/P:

Nama: Tarikh :

Appendix D: Permission Obtained from Original Author to Use Questionnaire



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Appendix E: Data Collection Instrument

SECTION A: Socio-demographic data

Please complete the following information.

Fill in the information required. Kindly tick in the box corresponding of the selection.

1. Matric Number:
2. Age:
3. Gender:

   ( ) Male

   ( ) Female
4. Year of study:

   ( ) Year 2

   ( ) Year 3

   ( ) Year 4

SECTION B: Simulation Design Scale

In order to measure if the best simulation design elements were implemented in your simulation, please complete the questions below as you perceive it. There are no right or wrong answers, only your perceived amount of agreement or disagreement. Please use the following code to answer the questions.

Use the following rating system when assessing it:

1 – Strongly Disagree with the statement
2 – Disagree with the statement
3 – Undecided – you neither agree or disagree with the statement
4 – Agree with the statement
5 – Strongly Agree with the statement

Item	1	2	3	4	5
Objectives and Information					
1. There was enough information provided at the beginning of the simulation to provide direction and encouragement.					
2. I clearly understood the purpose and objectives of the simulation.					
3. The simulation provided enough information in a clear matter for me to problem-solve the situation.					
4. There was enough information provided to me during the simulation.					
5. The cues were appropriate and geared to promote my understanding.					
Support					
6. Support was offered in a timely manner.					
7. My need for help was recognized.					
8. I felt supported by the teacher's assistance during the simulation.					
9. I was supported in the learning process.					
Problem Solving					
10. Independent problem-solving was facilitated.					
11. I was encouraged to explore all possibilities of the simulation.					
12. The simulation was designed for my specific level of knowledge and skills.					
13. The simulation allowed me the opportunity to prioritize nursing assessments and care.					
14. The simulation provided me an opportunity to goal set for my patient.					
Feedback/Guided Reflection					
15. Feedback provided was constructive.					
16. Feedback was provided in a timely manner.					
17. The simulation allowed me to analyse my own behaviour and actions.					
18. There was an opportunity after the simulation to obtain guidance/feedback from the clinical instructor in order to build knowledge to another level.					
Fidelity (Realism)					
19. The scenario resembled a real-life situation.					
20. Real life factors, situations, and variables were built into the simulation					

SECTION C: Self-Confidence in Learning

This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your simulation activity. Each items represents a statement about your attitude toward your self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs. Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

Mark:

1 – STRONGLY DISAGREE with the statement
2 – DISAGREE with the statement
3 – UNDECIDED – you neither agree or disagree with the statement
4 – AGREE with the statement
5 – STRONGLY Agree with the statement

Item	SD	D	UN	A	SA
1. I am confident that I am mastering the content of the simulation activity that my clinical instructors presented to me.	1	2	3	4	5
2. I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.	1	2	3	4	5
3. I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting.	1	2	3	4	5
4. My clinical instructors used helpful resources to teach the simulation.	1	2	3	4	5
5. It is my responsibility as the student to learn what I need to know from this simulation activity.	1	2	3	4	5
6. I know how to get help when I do not understand the concepts covered in the simulation.	1	2	3	4	5
7. I know how to use simulation activities to learn critical aspects of these skills.	1	2	3	4	5
8. It is the clinical instructor's responsibility to tell me what I need to learn of the simulation activity content during class time.	1	2	3	4	5

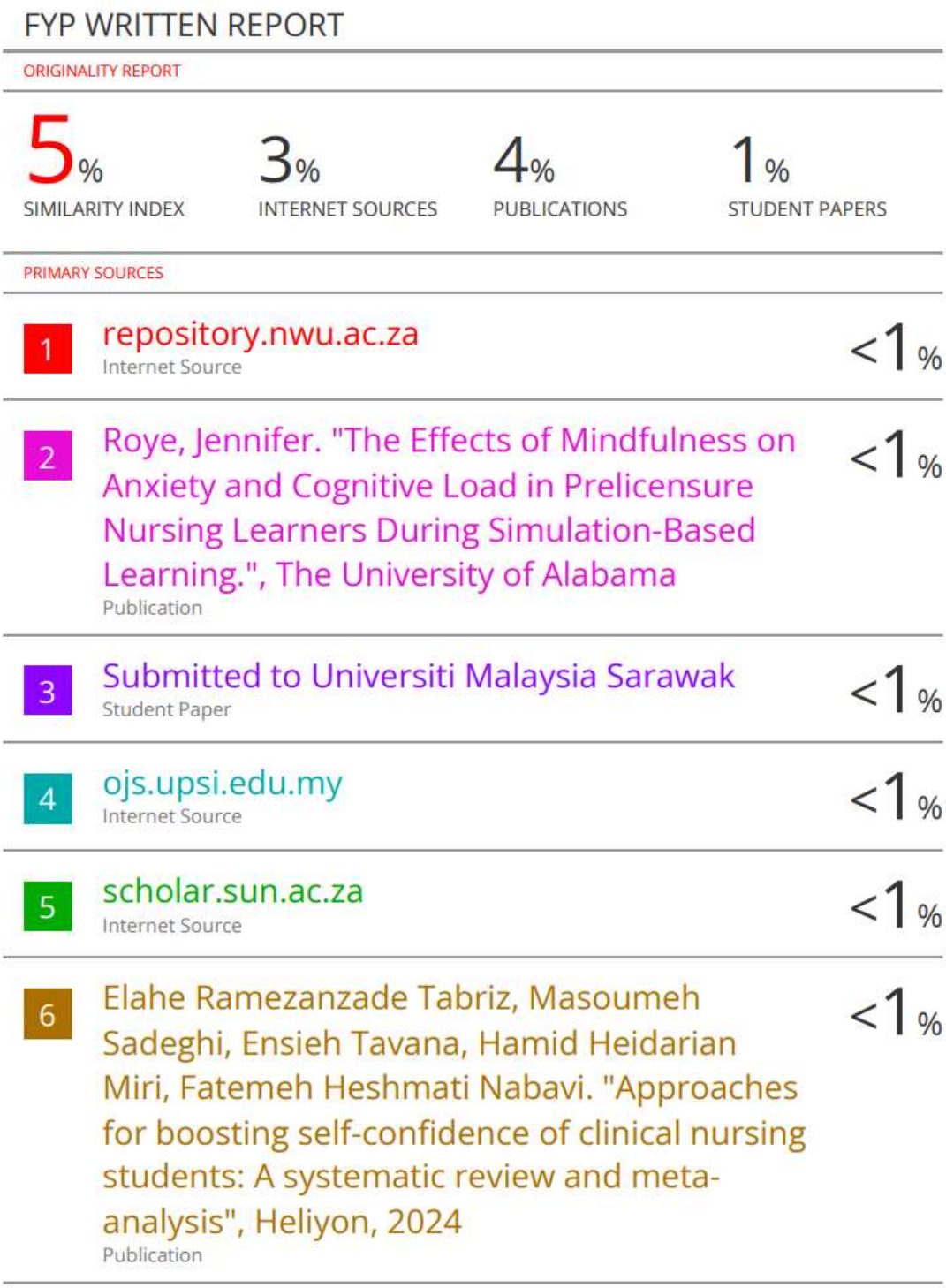
Appendix F: Gantt Chart

Activity	Months									
	2024			2025						
	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July
Determination of research title										
Literature review										
Submit oral defence slides										
Ethical approval										
FYP 1: Submission of written research proposal										
Data collection										
Data analysis										
Writing up report										
Submit final draft										
FYP 2: Submission of final report										

Appendix G: Budget Planning

Budget			
Project Title	Relationship between Perception of Simulation-Based Learning and Self-Confidence among UNIMAS Undergraduate Nursing Students		
Duration of Project	October 2024 – July 2025		
Expenditure	**Unit Price (RM)**	**Quantity**	**Amount (RM)**
Equipment			
SPSS Software	5.00	1	5.00
Material and Supplies			
Binding	2.00/ring	2	4.00
PVC A4 Cover	1.00/pcs	4	4.00
Printing			
Printing of Written Research Report	0.10/page	90	9.00
Printing of poster	40.00/pcs	1	40.00
Travel			
From Rafflesia College to FMHS, UNIMAS			
Pan Borneo Bus	1.00/trip	20	20.00
e-Hailing	10.00/trip	10	100.00
		Grand Total (RM)	182.00

Appendix H: Turnitin Similarity Index Report



FYP WRITTEN REPORT

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