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Knowledge and perception towards polycystic ovarian syndrome (PCOS) among female
undergraduate nursing students in Universiti Malaysia Sarawak (UNIMAS).

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This project is submitted
In partial fulfilment of the requirements for the degree of
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UNIVERSITI MALAYSIA SARAWAK

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DECLARATION

I, hereby declare that this thesis has been conducted in compliance with the regulations of Universiti Malaysia Sarawak. Unless otherwise acknowledged, the work presented is solely my own. This thesis has not been submitted to any degree nor is it under consideration for any other degree program.



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ABSTRACT

Polycystic ovarian syndrome (PCOS) is an endocrine disorder affecting women of reproductive age with a prevalence of 12.6% in Malaysia. Female undergraduate nursing students are particularly relevant to study due to their age and future role as healthcare providers. This study explored the knowledge and perception of PCOS among female nursing students at Universiti Malaysia Sarawak, and examined whether practicum experience or family history influenced these factors. A cross-sectional quantitative study was conducted among 143 students, selected through simple random sampling. Data were collected using a self-administered questionnaire and analyzed using frequencies, percentages, Spearman Correlation, and Chi-Square tests. Results revealed that 37.8% of the students had moderate knowledge and 62.2% had good knowledge of PCOS. Regarding perception, 41.3% demonstrated negative perception, while 58.7% had positive perception. No significant association was found between knowledge and perception ($p=.550$), knowledge and practicum experience ($p=.518$) or family history ($p=1.000$), and between perception and practicum experience ($p=.835$) or family history ($p=.512$). These findings suggest that clinical exposure or personal experience may be insufficient in improving knowledge and perception of PCOS. Therefore, the nursing curriculum should include more focused PCOS education and promote open discussions for better knowledge and perception among nursing students. Future research should involve a larger and more diverse sample, adopt longitudinal and qualitative designs, and explore curriculum-related factors to gain deeper insights into the knowledge and perception of PCOS among students.

Keywords: PCOS, knowledge, perception, nursing students, practicum experience, family history, UNIMAS

Pengetahuan dan persepsi terhadap sindrom ovari polistik (PCOS) dalam kalangan pelajar wanita sarjana muda kejururawatan di Universiti Malaysia Sarawak (UNIMAS).

ABSTRAK

Sindrom Ovari Polisistik (PCOS) adalah gangguan endokrin yang menjejaskan wanita usia reproduktif sebanyak 12.6% di Malaysia. Pelajar wanita sarjana muda kejururawatan sesuai untuk dikaji disebabkan oleh faktor usia dan peranan mereka sebagai petugas kesihatan pada masa hadapan. Kajian ini menilai tahap pengetahuan dan persepsi terhadap PCOS dalam kalangan pelajar wanita kejururawatan di Universiti Malaysia Sarawak, serta mengkaji hubungan dengan faktor demografi seperti pengalaman praktikum dan sejarah keluarga. Kajian kuantitatif keratan rentas telah dijalankan melibatkan 143 pelajar, dipilih melalui pensampelan rawak mudah. Data dikumpul menggunakan borang soal selidik dan dianalisis menggunakan kekerapan, peratusan, ujian Korelasi Spearman dan Chi-Square. Hasil kajian menunjukkan 37.8% pelajar mempunyai pengetahuan sederhana, manakala 62.2% adalah bagus. Selain itu, 41.3% menunjukkan persepsi negatif dan 58.7% mempunyai persepsi positif. Tiada hubungan yang signifikan antara tahap pengetahuan dan persepsi ($p=.550$), pengetahuan dan pengalaman praktikum ($p=.518$) atau sejarah keluarga ($p=1.000$), serta antara persepsi dengan pengalaman praktikum ($p=.835$) atau sejarah keluarga ($p=.512$). Ini menunjukkan bahawa pendedahan klinikal atau pengalaman peribadi sahaja tidak cukup untuk meningkatkan pengetahuan dan persepsi terhadap PCOS. Oleh itu, kurikulum kejururawatan perlu merangkumi pendidikan PCOS yang lebih mendalam dan perbincangan terbuka. Kajian masa hadapan digalakkan

melibatkan sampel yang lebih besar dan pelbagai, menggunakan reka bentuk longitudinal dan kualitatif, serta meneliti aspek kurikulum bagi memahami isu ini dengan lebih mendalam.

Kata kunci: PCOS, pengetahuan, persepsi, pelajar kejururawatan, pengalaman praktikum,
UNIMAS

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LIST OF ABBREVIATIONS

FMHS	Faculty of Medicine and Health Sciences
FSH	Follicle Stimulating Hormone
LH	Luteinizing Hormone
PCOS	Polycystic Ovarian Syndrome
SPSS	Statistical Package for Social Sciences
UNIMAS	Universiti Malaysia Sarawak

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Polycystic ovarian syndrome (PCOS), a prevalent gynecological disorder, is progressively impacting women in their reproductive years, with worldwide prevalence of 6% until 13% (World Health Organization, 2025). Meanwhile, in Malaysia, it is estimated to affect 12.6% of women of reproductive age (Sunway Medical Centre, 2024).

Some vital characteristics of PCOS are excessive production of androgen hormones (the male hormone), which normally found only in smaller amount in women but in abundance in men, and multiple cysts formed in the ovaries contained immature eggs (Minocha, 2020). In addition, women diagnosed with PCOS commonly experience symptoms such as hirsutism, menorrhagia, irregular cycle of menstruation, acne, oily skin, thinning of hair, insulin resistance, and the most devastating effect which is infertility.

The exact cause of PCOS is still unknown, but it likely involves both genetic and environmental factors (Khan et al., 2019). Hormonal imbalance such as elevated Luteinizing Hormone (LH), reduced Follicle Stimulating Hormone (FSH), may contribute to excessive androgen production, which can cause symptoms like facial hair growth and acne (Minocha, 2020). Additionally, insulin resistance exacerbates these hormonal imbalances, further boosting androgen production and impacting ovarian function and fertility (Thomson et al., 2015).

PCOS is a life-long disorder and cannot be cured. However, the symptoms can be controlled by opting lifestyle management strategies which include dietary modification,

weight loss, and stress-free environment (Minocha, 2020). Furthermore, PCOS can also be regulated through medical management such as use of contraceptive hormone pills, antiandrogen and insulin-sensitizing agents.

As young women, UNIMAS female nursing students fall within the high-risk age group for PCOS development. Factors such as stress, irregular lifestyles, and lack of awareness can contribute to the manifestation or worsening of PCOS symptoms, such as menstrual irregularities, acne, excessive hair growth, and weight gain. Also, given their future roles as healthcare providers, nursing students' knowledge and perception of PCOS are especially important. Not only are they personally at risk, but they will also be responsible for educating and supporting patients with similar conditions. Understanding PCOS equips them to recognize symptoms early, seek timely intervention, and reduce stigma or misconceptions surrounding the condition.

1.2 Problem Statement

Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder, with up to 70% of cases remaining undiagnosed globally (World Health Organization, 2025). The condition primarily affects women in their twenties and early thirties, with the highest incidence between ages 20 to 24 (Motlagh Asghari et al., 2022). In both adults and adolescents, prevalence rates have been reported at 20% and 30%, respectively (Yetim et al., 2016), placing university students at increased risk.

Female undergraduate nursing students represent a key demographic in the prevention and management of PCOS, as they are not only at a higher risk due to their age but also poised to become future healthcare providers. However, existing research suggests that their

understanding of PCOS may be limited, potentially affecting the quality of patient education and care they provide in the future. Studies by Eswi et al. (2024), Thabet et al. (2021), and Sunanda and Nayak (2016) have highlighted gaps in understanding of the condition among nursing undergraduates. Additionally, Al Bassam et al. (2018) found that many female university students are hesitant to seek treatment for PCOS symptoms, largely due to stigma and misinformation surrounding the disorder.

Preliminary findings from a survey conducted among female undergraduate nursing students at UNIMAS found that all participants had prior awareness of PCOS primarily from university education and social media, few from family and healthcare professionals. Despite that, most perceived formal education on the topic to be inadequate. They emphasized the need for the university to strengthen efforts in spreading awareness, suggesting strategies such as educational posters, increased health screening initiatives for students, social media campaigns, and interactive workshops conducted by healthcare experts. Additionally, many students believed that PCOS is strongly associated with unhealthy lifestyle habits and highlighted the broader societal neglect and stigma surrounding the condition. Many women with PCOS experience pressure to conceal their symptoms due to prevailing cultural norms. This often leads to avoidance of medical treatment and reluctance to engage in open discussions about the condition.

Although female undergraduate nursing students are a key group for early intervention and awareness regarding PCOS, there is a lack of research examining their knowledge and perceptions, particularly within the Malaysian context. Therefore, this study aims to assess the knowledge and perception of PCOS among female undergraduate nursing students at UNIMAS, aimed at informing targeted educational strategies and interventions.

1.3 Research Questions

- a) What is the knowledge level of PCOS among female undergraduate nursing students in UNIMAS?
- b) What is the perception towards PCOS among female undergraduate nursing students in UNIMAS?
- c) Is there any association between knowledge level and perception towards PCOS among undergraduate nursing students in UNIMAS?
- d) Is there any association between knowledge level and perception towards PCOS and demographic factors (practicum experience and family history of PCOS)?

1.4 Research Objective

1.4.1 General Objective

To determine the knowledge and perception towards PCOS among female undergraduate nursing students in UNIMAS.

1.4.2 Specific Objectives

- a. To assess the knowledge level of PCOS among female undergraduate nursing students in UNIMAS.
- b. To assess the perception towards PCOS among female undergraduate nursing students in UNIMAS.
- c. To examine the association between knowledge level and perception towards PCOS among undergraduate nursing students in UNIMAS.

- d. To examine the association between knowledge level and perception towards PCOS and demographic factors (practicum experience and family history of PCOS).

1.5 Hypotheses

1.5.1 Null Hypothesis

H₀₁: There is no statistical significance association between knowledge level and perception towards PCOS among undergraduate nursing students in UNIMAS.

H₀₂: There is no statistical significance association between knowledge level and perception towards PCOS and demographic factors (practicum experience and family history of PCOS).

1.5.2 Alternative Hypothesis

H_{A1}: There is a statistical significance association between knowledge level and perception towards PCOS among undergraduate nursing students in UNIMAS.

H_{A2}: There is a statistical significance association between knowledge level and perception towards PCOS and demographic factors (practicum experience and family history of PCOS).

1.6 Significance of Study

The findings from this study can be used as a guideline if the nursing education curriculum needs to be revised to incorporate more comprehensive and detailed content on PCOS, particularly in courses related to reproductive and women's health. This could lead

to the integration of case-based learning and simulation exercises to improve students' clinical reasoning and management skills related to PCOS.

These findings may also emphasize the need to strengthen health education efforts. One practical approach would be for the Faculty of Medicine and Health Sciences (FMHS) at UNIMAS to organize dedicated educational programs or integrate relevant content into existing courses like MDJ3312 Obstetrics and Gynaecological Nursing Practicum or MDJ3352 Community and Family Health Nursing Practicum. By doing so, not only would the wider community, especially women, gain important knowledge about conditions like PCOS, but nursing students would also be better prepared to educate others, challenge common misconceptions, and help reduce the stigma often associated with reproductive health issues.

In terms of practice, the findings could support the development of standardized screening protocols that allow nursing students to actively participate as healthcare providers in the early detection of PCOS symptoms during routine health assessments. The screening protocols may also prompt the inclusion of specific training in patient education, equipping nursing students with the necessary communication skills to sensitively and effectively counsel individuals affected by PCOS. Through these screening initiatives, a more supportive care environment can be fostered, encouraging community members to undergo screening and seek timely treatment. This may ultimately help shift negative perceptions and reduce avoidance behavior.

Furthermore, this study will provide a valuable reference for future research, given the limited studies examining university students' knowledge and attitudes toward PCOS, particularly in Malaysia.

1.7 Conceptual and Operational Definition

Table 1.1

Conceptual and operational definitions

Variables	Conceptual Definition	Operational Definition
Polycystic Ovarian Syndrome (PCOS)	Polycystic ovarian syndrome (PCOS) is a hormonal disorder that affects ovaries and ovulation, characterized by multiple cysts in the ovaries, high androgen level (male hormone) and irregular menstrual cycle (Hussin & Abd Kadir, 2020).	
Knowledge level of PCOS	Based on Cambridge Dictionary (2024a), knowledge is defined as the understanding of or information about a subject that an individual obtains through experience or study, understood either individually or collectively by people.	In this study, knowledge is a person's understanding of PCOS in relation to its: (i) signs and symptoms, (ii) health complications, (iii) diagnostic tests and (iv) treatment options. Knowledge is measured through a questionnaire adopted and modified from 'Knowledge of polycystic ovary syndrome' by Aripin et al. (2022).
Perception towards PCOS	Cambridge Dictionary (2024b) defined perception as a belief or opinion, commonly held by many people and often shaped by how things appear.	In this study, perception is a person's feelings or thoughts when he/she or the person they know is diagnosed with PCOS. Perception is measured through questionnaire 'Attitude of polycystic ovary syndrome' by Aripin et al. (2022).
Female undergraduate nursing students in UNIMAS	Cambridge Dictionary (2024c) defined undergraduate as a student pursuing a first degree at tertiary institution.	In this study, female undergraduate is defined as a female student pursuing their first degree in Bachelor of Nursing with Honours at Universiti Malaysia Sarawak (UNIMAS). The students consist of year 1 until year 4 female nursing students.

Variables	Conceptual Definition	Operational Definition
Demographic factors	Cambridge Dictionary (2024d) defined demographic as the characteristics of people living in a certain area or coming from a particular population.	The demographic characteristics studied in this research is: 1. Age is defined as the participants' actual age in years. 2. Year of study is defined by the academic year the participants are enrolled: year 1, year 2, year 3 and year 4. 3. Race is defined in seven groups: (i) Malay (ii) Cina (iii) India (iv) Bumiputera Sarawak (v) Bumiputera Sabah 4. Practicum experience is the number of weeks the participants have gone to clinical attachments. 5. History of PCOS is defined as the participant's history of being medically diagnosed with PCOS prior to the study or having a family member diagnosed with PCOS.

1.8 Summary

Polycystic Ovarian Syndrome (PCOS) has significant reproductive and metabolic implications towards women at reproductive age. Despite its widespread prevalence, many cases remain undiagnosed, particularly among young women, including university students that are at high risk. Even being at high risk, many university students possess lack knowledge of PCOS and display negative perception towards PCOS, which hinders prevention and management of the disorder. Given the limited research on this topic in Malaysia, this study is significant as it provides insight into the knowledge and perception of PCOS among female undergraduate nursing students at UNIMAS. The findings can help inform future health education efforts and serve as a foundation for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter addresses a few themes which include: (1) knowledge level on PCOS among undergraduate students, (2) perception towards PCOS among undergraduate students, (3) association between knowledge and perception towards PCOS, and (4) demographic factors affecting knowledge and perception towards PCOS among undergraduate students. From the themes addressed, it will then be used to identify any gaps in the literature regarding the knowledge and perception towards PCOS among undergraduate students, and the demographic factors' influence on it.

A search strategy was done by using electronic databases such as Google Scholar, ProQuest, ScienceDirect, Pubmed and ResearchGate. The search keywords are 'knowledge', 'perception', 'polycystic ovarian syndrome (PCOS)', 'undergraduate students', 'demographic factors', 'year of study', and 'history of PCOS'. The articles were further filtered by setting publishing year from 2015 to 2024 to acquire the most recent published articles that are relevant for the study.

2.2 Knowledge Level of PCOS Among Undergraduate Students

A descriptive cross-sectional study done by Eswi et al. (2024) to assess PCOS knowledge among undergraduate nursing students revealed that while most students possessed a moderate understanding of PCOS with regard to its definition, signs and symptoms, and available treatments, they lacked knowledge regarding its risk factors and potential complications. Similarly, Sunanda and Nayak (2016), in a quantitative study at Nitte Usha Institute of Nursing Sciences, also reported that the most of nursing students had only an average level of knowledge, particularly about its risk factors. This aligns with the findings of Thabet et al. (2021), where approximately three-quarters of female nursing students demonstrated moderate knowledge, with a minority showing poor understanding. Their study also highlighted that knowledge levels varied depending on age and sources of information.

While many studies pointed to moderate knowledge levels, Maghraby et al. (2022) reported more encouraging results with more than half of the female nursing students at South Valley University exhibited good knowledge and fewer students showing moderate or poor understanding. In addition to that, Hussin and Abd Kadir (2020) found that most university students possessed a high level of knowledge about PCOS. Despite adequate theoretical knowledge, many students still struggled with practical awareness, which is often due to symptom misinterpretation and the limited availability of structured educational interventions, particularly within the Malaysian context.

Collectively, these studies point to a noticeable gap in comprehensive knowledge of PCOS among undergraduate nursing students, with results varying across institutions and regions. This inconsistency may be influenced by differences in educational curricula or academic backgrounds, which the factors were not explicitly addressed in the studies. The

variability in findings underscores the need for standardized educational efforts and more accessible, accurate information on PCOS to support future healthcare professionals in recognizing and managing this condition more effectively.

2.3 Perception Towards PCOS Among Undergraduate Students

Jahangir (2017) revealed notable negative perception among students regarding PCOS in which 38.29% were entirely unaware of it, 14.29% perceived it as fatal, and 10.86% thought it was incurable. Similarly, Mohamed Reda et al. (2022) found that only 47.3% of participants held a positive perception of PCOS, while the remaining 52.7% had a negative perception. The researchers emphasized that this gap in understanding not only perpetuates harmful misconceptions, such as the belief that PCOS is untreatable or life-threatening, but also contributes to fear and hesitation in seeking medical help. This concern is evident in a study by Al Bassam et al. (2018), which found that despite experiencing symptoms, more than half of the students chose not to consult a gynecologist. These patterns of avoidance and misinformation suggest that a lack of awareness about the importance of early detection and proactive management remains a significant barrier to effective care. The collective findings of these studies underscore a notable disparity between knowledge and perception, which ultimately influences health-seeking behaviors in a detrimental way.

In light of this, there is a clear and pressing need for targeted health education initiatives, particularly those aimed at adolescents and young women. Such programs should focus not only on increasing awareness and accurate understanding of PCOS, but also on challenging myths and reinforcing the value of early medical intervention to support better long-term health outcomes.

2.4 The Association Between Knowledge and Perception Towards PCOS

Teh (2023) reported a positive relationship between knowledge and perception of PCOS among female undergraduate students. Similarly, Mohamed Reda et al. (2022) found that nursing students who possessed adequate knowledge about PCOS were more likely to exhibit positive perceptions of the condition, suggesting that informed individuals are better equipped to view the condition with greater understanding and less stigma. Supporting this, a mixed-method study by Hajivandi et al. (2018) showed that educational interventions significantly improved adolescents' knowledge of PCOS, particularly in symptom management, which in turn fostered more positive attitudes towards lifestyle modifications aimed at controlling the condition.

Collectively, these findings point to knowledge as a pivotal factor that shapes how individuals perceive and respond to PCOS. Rather than viewing PCOS through a lens of fear or fatalism, informed individuals are more likely to approach the condition with confidence. This suggests that perception is not static but can be reshaped through learning and exposure. Therefore, educational initiatives are important in transforming attitudes, reducing misconceptions, and empowering individuals to take charge of their reproductive health. In conclusion, integrating PCOS content into nursing education may serve as a strategic intervention point to improve both cognitive understanding and emotional readiness to manage PCOS effectively.

2.5 Demographic Factors Affecting Knowledge and Perception Towards PCOS Among Undergraduate Students.

2.5.1 *Year of Study*

The relationship between knowledge and academic year is evident, with students in higher academic years generally demonstrating better knowledge. However, the inconsistency between studies in which Thabet et al. (2021) reported 4th year female nursing students with the highest knowledge, while Maghraby et al. (2022) stated 3rd year female nursing students have the highest knowledge, suggests that differences in academic curriculums and exposure to maternity courses significantly impact knowledge levels. Not only that, the improvement in knowledge in later academic years is likely tied to the introduction of maternity courses and practicum experience since the practical application of theoretical knowledge may deepen the understanding and retention of information.

The differences in findings between studies also highlight variability in nursing programs and potential gaps in the consistency of PCOS education. This is because some programs may introduce related topics earlier, while others delay them until students are further along in their studies. Besides that, positive perception towards PCOS seems to improve with academic progression, as demonstrated by Mohamed Reda et al. (2022), where 2nd year female nursing students showed better perception than 1st year students. This suggests that academic exposure and engagement with women's health topics can shape perception positively.

Therefore, incorporating PCOS education early, with gradual reinforcement through advanced courses and practicum exposure, could help sustain and deepen both knowledge and perception.

2.5.2 *History of PCOS*

Based on the study by Teh (2023) and Eswi et al. (2024), students with history of PCOS consistently demonstrate better knowledge than those without such experiences. This suggests that exposure to PCOS, either personally or through family experience can enhance awareness and understanding of the condition that may stem from a need to understand the condition, which further drives them to seek reliable information and medical advice.

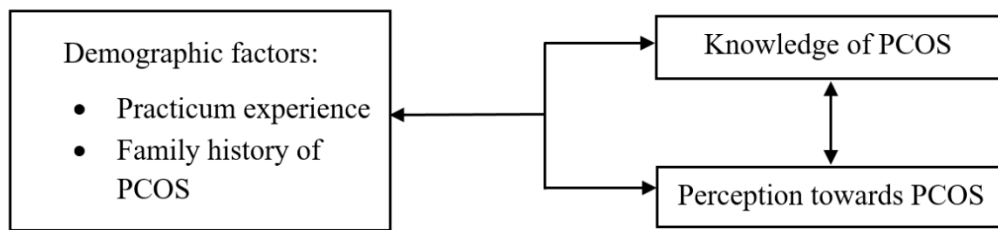
However, interestingly, study by Teh (2023) reported students' perceptions of PCOS remained relatively similar regardless of whether or not they had a personal history of the condition, indicating no significant association between personal experience and perception.

The findings indicate a reliance on personal experience to drive knowledge acquisition, which creates a disparity among students. There is also a critical gap in educational outreach and accessibility to comprehensive health education for all students. Thus, without structured education, those without direct exposure remain at a disadvantage in understanding the condition, which could affect their ability to recognize and address PCOS symptoms in themselves or others.

2.6 Conceptual Framework

Figure 2.1

Conceptual framework of knowledge and perception towards PCOS among female undergraduate nursing students in UNIMAS



The conceptual framework illustrates the relationship between demographic factors (practicum experience and family history of PCOS) and the knowledge and perception of PCOS among female undergraduate nursing students in UNIMAS. These demographic factors are positioned as potential influences on both the level of knowledge and perception of PCOS. Additionally, the framework highlights a reciprocal relationship between knowledge and perception, indicating that an increase in knowledge can positively shape perceptions, while evolving perceptions may also reinforce or expand knowledge.

2.7 Summary

In conclusion, this literature review demonstrated the variability in the findings with regards to the knowledge level and perception towards PCOS among undergraduate students. While most university students displayed moderate knowledge, their perception of PCOS was generally low. A significant relationship was found between knowledge level, perception, and year of study, as well as between knowledge level and history of PCOS; however, perception and history of PCOS did not have statistically significant relationship.

Although extensive research had been conducted on the topic globally, but there remains scarcity of studies in context of undergraduate students, especially in Malaysia and the influence of practicum experience towards knowledge and perception towards PCOS. This review also recognizes certain limitations within its scope and underscores knowledge gaps in previous studies. Thus, present study will focus on assessing the knowledge level and perception towards PCOS among female undergraduate nursing students in Universiti Malaysia Sarawak.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter outlines the methodological approach used in the study, detailing the research design, study setting, sampling methods, as well as the procedures for data collection and analysis.

3.2 Research Design

Cross-sectional design of quantitative research method was employed as the research design for this study as it allows data collection at a given point in time (Kesmodel, 2018). It may be descriptive; provide estimates of a disease's prevalence, or analytical; evaluate the associations between variables, which will be used in this study. Therefore, it was mainly used for this study since it is relatively faster and is inexpensive, while also useful for public health planning, monitoring, and evaluation.

Quantitative research utilizes numerical data gathered from observations to describe and explain phenomena (Taherdoost, 2022). This approach relies on empirical statements, which are descriptive rather than normative, providing objective insights into real-world cases. The collected numerical data is analyzed using mathematical methods to answer questions, determining "how many" or "what percentage". Additionally, non-numerical data such as beliefs and attitudes, can be collected and transformed into numerical data through specially designed instruments (Taherdoost, 2022). Thus, the researcher chose this method to explain research objectives by gathering non-numerical data, converting it into numerical

data through a specific instrument and analyzing it using mathematical method using SPSS software.

3.3 Research Setting

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

3.4 Population

The sampling population was female undergraduate nursing students from 1st year, 2nd year, 3rd year and 4th year in Universiti Malaysia Sarawak. This population was chosen for this research study because it was easily accessible and feasible to collect data from the population. Female students were particularly chosen because they are vulnerable to PCOS. Nursing students were chosen because they are expected to have knowledge in maternity health conditions aligning with their future roles as healthcare providers.

The total population of female undergraduate nursing students from each year is stated as below:

- ❖ 1st year: 44 students.
- ❖ 2nd year: 50 students.
- ❖ 3rd year: 52 students.
- ❖ 4th year: 50 students.
- ❖ Total number of female undergraduate nursing students is 196.

3.5 Inclusion and Exclusion Criteria

3.5.1 Inclusion

- a. Female nursing students from year 1, year 2, year 3, and year 4.

3.5.2 Exclusion

- a. Post-registration students.
- b. Pilot study participants.

3.6 Sampling

Sample is the selection of a relatively smaller number of people from the researcher's population of interest (Sharma, 2017). Sampling is employed because testing every individual in a population is impractical. Therefore, a sample is chosen because it is representative of a population, and it is more cost-effective, time-saving and convenient. A sample of a study can be determined by using a sampling method and calculating the appropriate sample size needed (Chaokromthong & Sintao, 2021).

3.6.1 Sampling Method

A simple random sampling technique, which falls under the category of probability sampling, was utilized in this study as it ensures an equal likelihood of being selected to every individual in the population (Sharma, 2017). The benefits of this sampling method are it reduces the chance of systematic errors and sampling biases, and better generalization to the population. Simple random sampling is performed on a population with a finite number

of elements, which could be listed, and have mutually exclusive traits but share the same kind of characteristics (homogenous) that describe the target population (Alvi, 2016).

There were a few steps involved in the sampling method process. Firstly, a population was defined and all the elements, the female undergraduate nursing students from year 1 until year 4 were listed. Then, each one of the students was numbered accordingly, from one to 196. Next, the researcher ran the online random numbers generator to select 143 participants to become the respondents.

3.6.2 *Sample Size*

Sample size calculation was performed to estimate a minimum number of students sufficient for the study, aiming to achieve a desired level of accuracy in an estimate for a specific population parameter (Bujang, 2021). Sample size calculation was done using a mathematical equation by Krejcie & Morgan (1970):

$$s = \frac{X^2 NP(1 - P)}{d^2(N - 1) + X^2 P(1 - P)} \quad \text{Equation 3.1}$$

Where, s = sample size required

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = population size.

P = the population proportion (assumed to be .50, to provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (.05)

Working steps of sample size calculation:

$$s = \frac{3.841 \times 196 \times 0.50(1 - 0.50)}{0.05^2(196 - 1) + 3.841 \times 0.50(1 - 0.50)}$$

$$s = \frac{3.841 \times 196 \times 0.50(0.50)}{0.0025(195) + 3.841 \times 0.50(0.50)}$$

$$s = \frac{3.841 \times 196 \times 0.25}{0.49 + 3.841 \times 0.25}$$

$$s = \frac{188.2}{1.45}$$

$$s = 129.79$$

$$s = 130$$

Therefore, the required sample size for female undergraduate nursing students in UNIMAS was 130 students ($n = 130$).

Since there is a probability that the participants will drop out of the research, therefore the final sample size with non-response rate of 10% was calculated:

$$n + (n \times 10\%) \quad \text{Equation 3.2}$$

$$130 + (130 \times 10\%) = n$$

$$n = 130 + 13$$

$$n = 143$$

3.7 Research Instrument

The instruments were adapted from Aripin et al. (2022) through the questionnaire ‘Knowledge of polycystic ovary syndrome’ and ‘Attitude of polycystic ovary syndrome’ and modified accordingly to better align with the research objectives and enhance its compatibility. The questionnaire is prepared in English language (refer [Appendix E](#)). The research instrument consists of three main sections:

I. Section A: Demographic Data

This section acquired information about the students’ demographic information. The data required is age, year of study, race, practicum experience, history of PCOS (medical and family history).

II. Section B: Knowledge of Polycystic Ovarian Syndrome (PCOS)

This section aimed to assess the understanding of the students about PCOS. The questionnaire consisted of 20 items. Question 1 to 3 was about general understanding of PCOS, question 4 to 8 was about the symptoms, question 9 to 12 was about health complications, question 13 to 15 was about diagnostic tests and question 16 to 20 was about treatment options.

Dichotomous scale of ‘Yes’ and ‘No’ was used to measure the knowledge level where the students score 1 point when they answer a question correctly. The cut points of the score were as such: Good knowledge level (score of 17 to 20), moderate knowledge level (score of 9 to 15) and poor knowledge level (0 to 8).

III. Section C: Perception of Polycystic Ovarian Syndrome (PCOS)

This section aimed to assess the students' perception towards PCOS when they were- or someone they know was diagnosed with PCOS. Perception was measured through a 10 items questionnaire, using 5-point Likert scale: '1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree'. 40 is the maximum score and 10 is the minimum score. The result was by cumulative score and grouped into: Positive perception (score of 31 to 40) and negative perception (score of 10 to 30).

3.8 Ethical Consideration

Ethical approval for the study was acquired from the Research Ethics Committee of FMHS, UNIMAS prior to commencing the research study, which reference number is UNIMAS/NC-21.05/03-03 Jld.8(117). The participant's information sheet (refer [Appendix C](#)) and informed consent (refer [Appendix D](#)) was distributed along with the questionnaire requiring participants' signatures prior to participating in the study. The consent form provided an explanation of the research's intentions and assured participants that they may withdraw any point of the study. Additionally, all participants were not required to fill in their name, or any identification information in the questionnaire form, to ensure their anonymity be upheld throughout the research process. After the data collection process, all data was kept in a secure file, with passwords that only the researcher had access to. Upon completion of the analysis, all the information was disposed of in the file. A request permission to adopt and modify the instrument has been sent to the original authors via email (refer [Appendix E](#)).

3.9 Pilot Study

Pilot study was conducted after the ethical approval for research had been submitted and approved for the testing of the instruments. The pilot study was carried out on 10% of the sample population from year 1 until year 4 to test the instruments' reliability and validity, employing the same inclusion, exclusion criteria and sampling method for the actual study. Reliability is the test of how consistent and precise the measurement process (Srinivasan et al., 2017). The reliability test was performed on two sections: section B (knowledge of PCOS) and section C (perception towards PCOS). Then, Cronbach alpha was obtained after the completion of pilot study. Based on the analysis, Cronbach alpha for knowledge of PCOS is $KR-20=.809$, and for perception towards PCOS is $\alpha=.733$. For this research, the study instrument used was face validity, where individuals in the legal system or non-experts like test takers determine the relevance of a particular construct's measure (Taherdoost, 2016). It is further explained that the questionnaire is assessed by its feasibility, consistency, readability and the clarity of the language.

3.10 Data Collection Procedure

Simple random sampling to recruit respondents was performed after getting ethical approval from the Research Ethics Committee in FMHS, UNIMAS. Then, the participants' information sheet, consent form and questionnaire were distributed to the respondents through Google Forms via WhatsApp platform through class representative of each cohort. Data collection took place from 24th until 30th March 2025. After consent was obtained, the respondents proceeded to complete the questionnaire. Approximately 5 to 10 minutes was required to complete the questionnaire. The respondents were given 7 days to complete it

before the researcher collected the self-administered questionnaire from the respondents to be exported into excel spreadsheet as a soft copy. At the same time, the researcher kept track of the number of answered questionnaires from the answered consent forms to see if there were any missing respondents, which in case there was, a final reminder was sent to the respective year's WhatsApp group to complete it in 3 days. Then, any missing responses after that were regarded as having withdrawn themselves from the study. All softcopies were protected using a password that is only under the knowledge of the researcher. Then, the data was entered into IBM Statistical Package for Social Sciences (SPSS) software version 27.0 prior to conducting data analysis.

3.11 Data Analysis

The information obtained from the questionnaire was analyzed using SPSS software version 27.0 to examine the knowledge level of PCOS, perception towards PCOS, association between knowledge level and perception, and the association between knowledge level and perception with demographic factors. The analysis utilized two methods, which were descriptive statistics and inferential statistics.

Descriptive statistics were used to provide summaries of the distribution of data, to allow simple interpretation of the demographic factors, the knowledge level and the perception towards PCOS among nursing students in UNIMAS. Continuous data (age) was interpreted using median, interquartile range, and mode since it did not follow a normal distribution. Normality test was performed using Kolmogorov-Smirnov test because the number of participants exceeded 50 participants. Next, categorical data (race, year of study,

practicum experience, and history of PCOS) were interpreted using frequency and percentage.

Inferential statistics were used to identify the association between knowledge level and perception towards PCOS, and the association between knowledge level and perception towards PCOS with demographic factors among female undergraduate nursing students in UNIMAS. The association between knowledge level and perception towards PCOS was determined using Spearman Correlation test. Furthermore, the association between knowledge level and perception towards PCOS with demographics factors like practicum experience and family history of PCOS was determined using Chi-Square Test for Independence. However, for associations that violated the assumptions for Chi-square test, a Fisher's Exact test was employed. Normality test was performed using Kolmogorov-Smirnov test.

3.12 Summary

This chapter outlines the methodology adopted to explore the knowledge and perception of PCOS among female undergraduate nursing students at UNIMAS. A cross-sectional quantitative research design was utilized, and the study took place at the Faculty of Medicine and Health Sciences, UNIMAS. The sample consisted of 143 respondents, with the size calculated using the Krejcie and Morgan (1970) formula and adjusted for a 10% anticipated non-response rate. Data was collected using a self-administered questionnaire delivered through Google Forms. Participants received the questionnaire link, along with participant's information sheet and informed consent form (provided through a separate Google Forms link), via WhatsApp in their respective cohort groups. The survey comprised three main sections and was designed to take approximately five to ten minutes to complete. Prior to the main data collection, a pilot test involving 10% of the intended sample was carried out to evaluate the instrument's reliability and validity. Ethical clearance for the study was obtained from the Research Ethics Committee of the FMHS, UNIMAS. The data were then analyzed using IBM SPSS version 27.0, employing both descriptive and inferential statistical techniques.

CHAPTER 4

RESULT

4.1 Introduction

This chapter presents and explores the findings on the knowledge level and perception of PCOS among female undergraduate nursing students at UNIMAS. Both descriptive and inferential statistical methods were applied to analyze the data and address the research questions outlined in Chapter 1. The data analysis was carried out using IBM SPSS software version 27.0. All findings were described in texts, tables, or figures.

4.2 Demographic Data

The demographic data was tabulated, consisting of age, year of study, race, practicum experience, and history of PCOS. Data was collected from 100% (143) respondents, out of the total 143 number of sample size. The respondents were divided equally between the year of study, using simple random sampling, which yielded a result of a balanced representation across all demographic factors which are practicum experience, medical and family history of PCOS.

Table 4.1*Demographic data of the participants (n=143).*

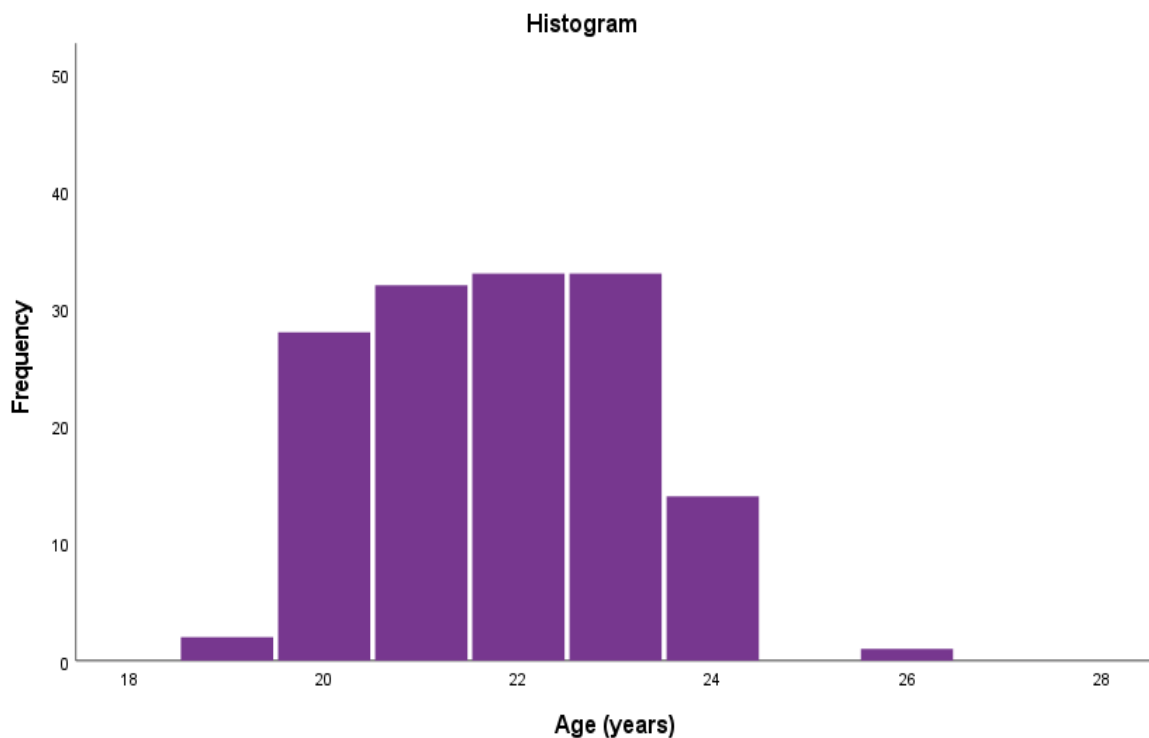
Characteristics	Variables	Frequency (n)	Percentage (%)
Age	< 20	30	21.0%
	21 – 24	112	78.3%
	> 25	1	0.7%
Race	Malay	60	42.0%
	Chinese	6	4.2%
	Indian	1	0.7%
	Bumiputera Sarawak	47	32.9%
	Bumiputera Sabah	29	20.3%
Year of study	Year 1	35	24.5%
	Year 2	36	25.2%
	Year 3	36	25.2%
	Year 4	36	25.2%
Practicum experience	0 weeks	35	24.5%
	8 weeks	36	25.2%
	28 weeks	36	25.2%
	52 weeks	36	25.2%
History of PCOS	None	141	98.6%
	Medical history	0	0%
	Family history	2	1.4%

4.2.1 Age

There are no outliers or extreme values noted from the box-plot for age. A Kolmogorov-Smirnov test showed a significant departure from normality, $D(143) = .155, p = <.001$, therefore do not follow normal distribution. The median age among the participants is 22 years ($IQR = 2$ years). The maximum age is 26 years, while the minimum age is 19 years old. The range is 7 years. The mode age is 22 years.

Figure 4.1

Frequency distribution of participants by age (years).

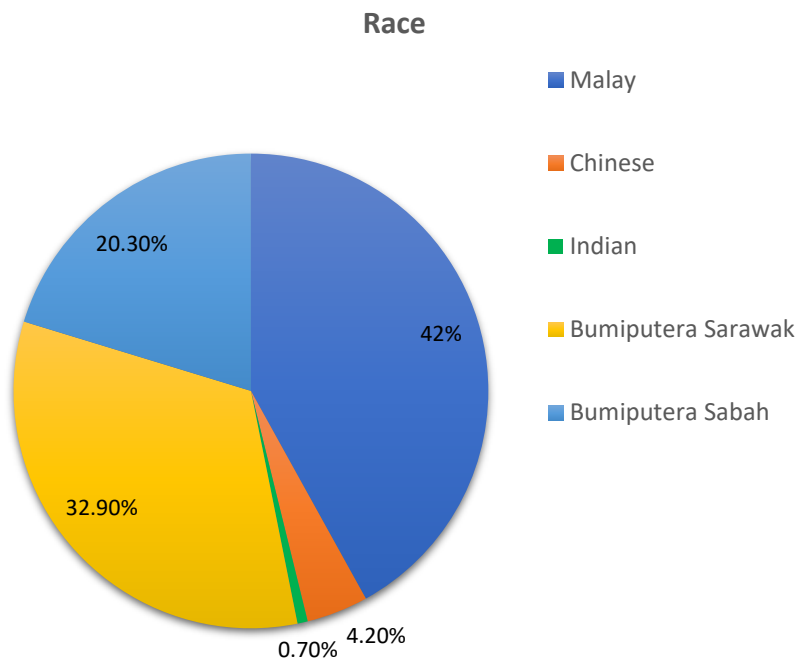


4.2.2 Race

There are no outliers or extreme values noted from the box-plot for race. Out of 143 participants, 60 (42%) of them are Malay, 6 (4.2%) are Chinese, 1 (0.7%) is Indian, 47 (32.9%) are Bumiputera Sarawak, and 29 (20.3%) are Bumiputera Sabah.

Figure 4.2

Frequency distribution of participants by race.

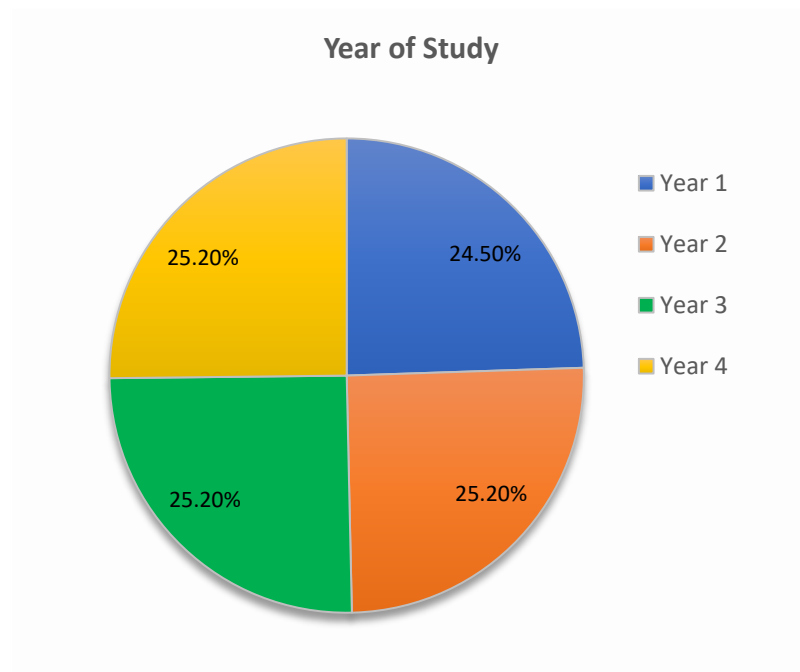


4.2.3 Year of study

There are no outliers or extreme values noted from the box-plot for year of study. Out of 143 participants, 35 (24.5%) are year 1 students, 36 (25.2%) are year 2 students, 36 (25.2%) are year 3 students and 36 (25.2%) are year 4 students.

Figure 4.3

Frequency distribution of participants by year of study.

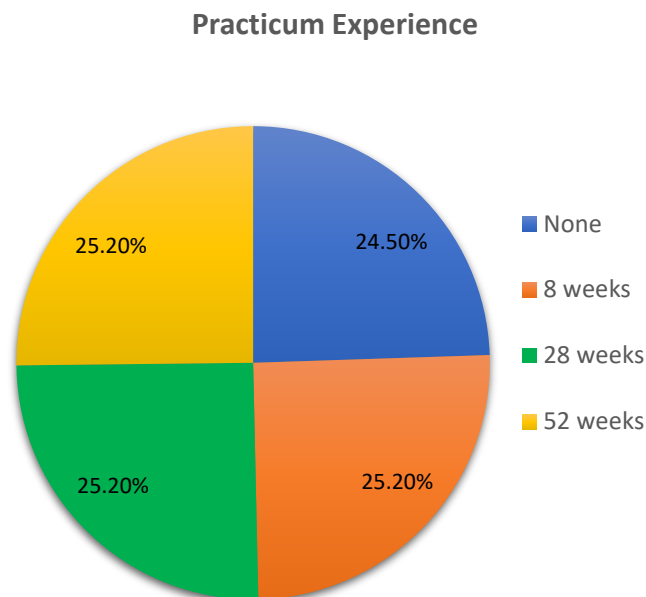


4.2.4 *Practicum experience*

There are no outliers or extreme values noted from the box-plot for practicum experience. Out of 143 participants, 35 (24.5%) of the participants have not gone to clinical. 36 (25.2%) have 8 weeks of practicum experience, 36 (25.2%) have 28 weeks of practicum experience and 36 (25.2%) have 52 weeks of practicum experience.

Figure 4.4

Frequency distribution of participants by practicum experience.

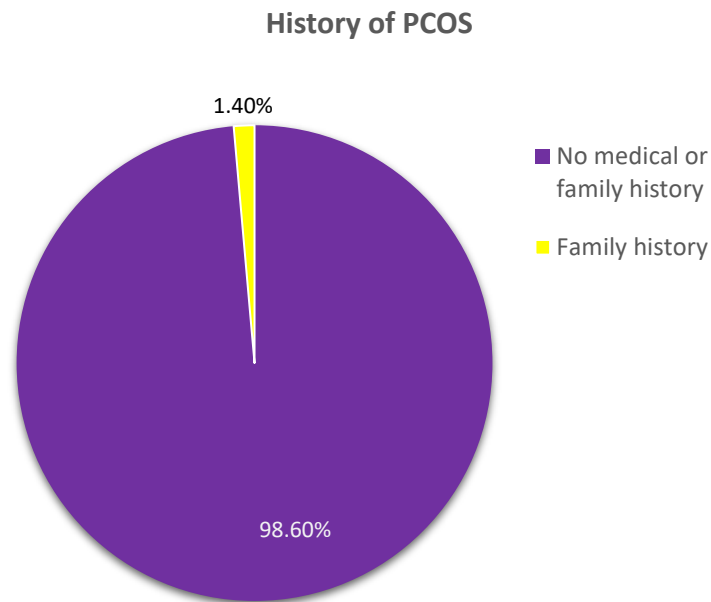


4.2.5 History of PCOS

There are no outliers or extreme values noted from the box-plot for history of PCOS. Out of 143 participants, only 2 (1.4%) of them have family history of PCOS, while the other 141 (98.6%) do not have any medical or family history of PCOS.

Figure 4.5

Frequency distribution of participants by history of PCOS.



4.3 Knowledge Level of PCOS Among Female Undergraduate Nursing Students in UNIMAS

According to the results (Table 4.2), the majority of participants (86.7%) had heard of PCOS, while 117 (81.8%) were aware of the elevated levels of androgen associated with the condition, and 123 (86.0%) recognized that PCOS involves multiple cysts in the ovaries. Regarding knowledge of signs and symptoms, 128 (89.5%) correctly identified that PCOS can cause acne, 142 (99.3%) knew it can cause irregular or absent menstruation, 140 (97.9%) were aware it can cause heavy menstrual bleeding, 120 (83.9%) knew PCOS can cause hair loss and 126 (88.1%) recognized the signs of excessive hair growth on various body areas. Approximately two-thirds of participants, 95 (66.4%), were aware that PCOS increases the risk of cardiovascular diseases. Nearly all participants, 136 (95.1%), knew it raises the risk of endometrial cancer, 94 (65.7%) were aware that PCOS can lead to type-2 diabetes mellitus, and 137 (95.8%) understood that PCOS may cause infertility.

For diagnostic tests, 131 (91.6%) correctly identified that PCOS can be diagnosed using vaginal ultrasound, 98 (68.5%) recognized blood tests as a diagnostic method, and 82 (57.3%) correctly indicated that X-rays cannot be used for diagnosis. Regarding treatment knowledge, only 76 (53.1%) of respondents correctly stated that PCOS cannot be cured but can only be managed. Additionally, 101 (70.6%) knew that oral contraceptives can be used for treatment, 83 (58.0%) were aware of metformin as a treatment option, 126 (88.1%) recognized the effectiveness of physical exercise and dietary changes, and 128 (89.5%) identified anti-androgen medication as a treatment option.

There are no outliers or extreme values noted from the box-plot. Recoding of knowledge of PCOS into categories was done using the visual binning in SPSS and presented in Figure 4.6. The scores were categorized as good knowledge (17 to 20 scores), moderate

knowledge (9 to 16 scores) and poor knowledge (0 to 8 scores). Out of the 143 participants, it was revealed that 54 (37.8%) had moderate knowledge of PCOS and 89 (62.2%) had good knowledge of PCOS.

Table 4.2

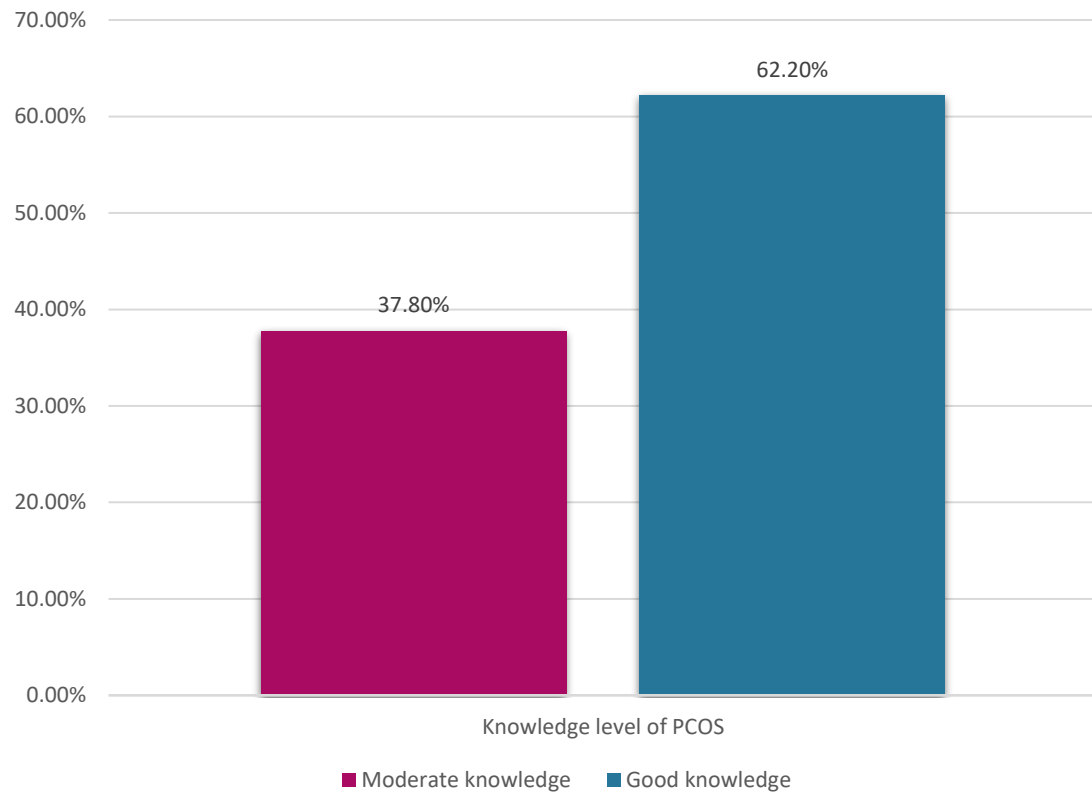
Frequency distribution of participants' answers for knowledge questionnaire (n=143).

Knowledge items	f (%)	
	No	Yes
1. Have you ever heard of polycystic ovarian syndrome (PCOS) before?	19 (13.3%)	124 (86.7%)
2. PCOS is caused by elevated levels of male namely androgen.	26 (18.2%)	117 (81.8%)
3. PCOS is having multiple cysts in the female reproductive organ called ovary.	20 (14.0%)	123 (86.0%)
4. PCOS can cause acne.	15 (10.5%)	128 (89.5%)
5. PCOS can cause irregular absence of menstrual cycle.	1 (0.7%)	142 (99.3%)
6. PCOS can cause heavy menstrual bleeding.	3 (2.1%)	140 (97.9%)
7. PCOS can cause hair loss.	23 (16.1%)	120 (83.9%)
8. PCOS may cause excessive hair growth on body parts.	17 (11.9%)	126 (88.1%)
9. PCOS increases the risk of cardiovascular diseases.	48 (33.6%)	95 (66.4%)
10. PCOS increases the risk for endometrium cancer.	7 (4.9%)	136 (95.1%)
11. PCOS may cause Type-2 diabetes mellitus.	49 (34.3%)	94 (65.7%)
12. PCOS may cause infertility.	6 (4.2%)	137 (95.8%)
13. PCOS can be diagnosed with vaginal ultrasound.	12 (8.4%)	131 (91.6%)
14. PCOS can be diagnosed with blood test.	45 (31.5%)	98 (68.5%)
15. PCOS can be diagnosed with X-ray.	82 (57.3%)	61 (42.7%)
16. PCOS can be cured.	76 (53.1%)	67 (46.9%)
17. PCOS can be treated using oral contraceptives (birth control pills).	42 (29.4%)	101 (70.6%)
18. PCOS can be treated using metformin (diabetes medication).	60 (42.0%)	83 (58.0%)
19. PCOS can be treated by physical exercise and dietary changes.	17 (11.9%)	126 (88.1%)
20. PCOS can be treated using anti-androgen medication.	15 (10.5%)	128 (89.5%)

Note. f: frequency, %: percentage

Figure 4.6

Total score for knowledge of PCOS among female undergraduate nursing students in UNIMAS.



4.4 Perception Towards PCOS Among Female Undergraduate Nursing Students in UNIMAS

A questionnaire comprising 8 items was administered to female undergraduate nursing students at UNIMAS to assess their perceptions toward PCOS using a 5-point Likert scale, as presented in Table 4.3.

For positive statements, 35 participants (24.5%) agreed and 97 (67.8%) strongly agreed that they would consult a doctor if diagnosed with PCOS. Regarding confidence in the curability of PCOS, 51 participants (35.7%) remained neutral, while 49 (34.3%) and 22 (15.4%) agreed and strongly agreed, respectively, that they were confident PCOS could be cured.

For negative statements, 57 participants (39.9%) and 26 (18.2%) agreed and strongly agreed, respectively, that they might be unable to conceive in the future if diagnosed with PCOS. Additionally, 65 participants (45.5%) agreed and 29 (20.3%) strongly agreed that their self-esteem would be negatively impacted. 56 participants (39.2%) and 21 (14.7%) agreed and strongly agreed that managing PCOS would require lifelong treatment. Meanwhile, 59 participants (41.3%) agreed and 20 (14.0%) strongly agreed that they would feel depressed if diagnosed with PCOS. Furthermore, 74 participants (51.7%) agreed and 48 (33.6%) strongly agreed that they would need emotional support if diagnosed with PCOS. Lastly, 56 participants (39.2%) and 32 (22.4%) agreed and strongly agreed, respectively, that their work or study performance would be negatively affected by having PCOS.

There are no outliers or extreme values noted from the box-plot. Recoding of perception towards PCOS into categories was done using the visual binning in SPSS and presented in Figure 4.7. The scores were categorized as positive perception (score of 31 to

40) and negative perception (score of 10 to 30). Out of the 143 participants, it was revealed that 59 (41.3%) of the participants had negative perception toward PCOS, while the other 84 (58.7%) of them had positive perception.

Table 4.3

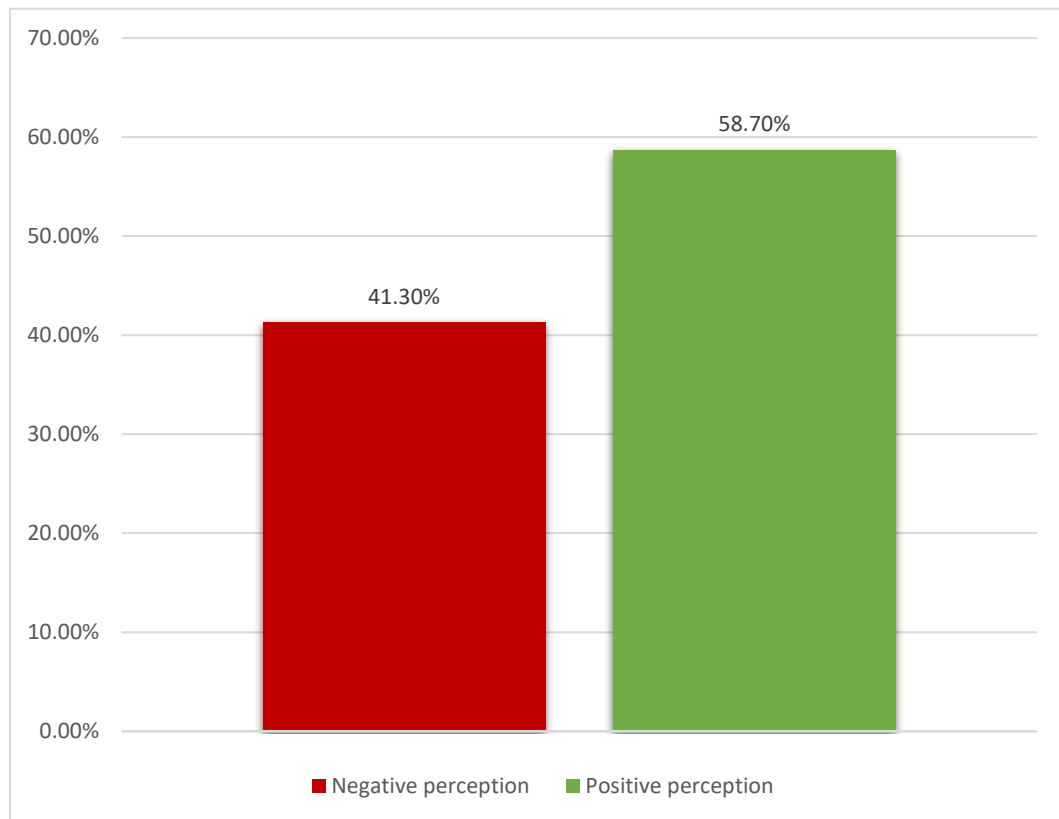
Frequency distribution of participants' answers for perception questionnaire (n=143).

Perception items	f (%)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. If I am diagnosed with PCOS, I would seek medical consultation.	0 (0.0%)	3 (2.1%)	8 (5.6%)	35 (24.5%)	97 (67.8%)
2. If I, or someone I know is diagnosed with PCOS, I would expect the inability to conceive.	4 (2.8%)	9 (6.3%)	47 (32.9%)	57 (39.9%)	26 (18.2%)
3. Being diagnosed with PCOS would lower my self-esteem.	0 (0.0%)	10 (7.0%)	39 (27.3%)	65 (45.5%)	29 (20.3%)
4. I believe PCOS can be cured.	4 (2.8%)	17 (11.9%)	51 (35.7%)	49 (34.3%)	22 (15.4%)
5. Managing PCOS would require lifelong treatment.	1 (0.7%)	7 (4.9%)	58 (40.6%)	56 (39.2%)	21 (14.7%)
6. Being diagnosed with PCOS would cause me to feel depressed.	2 (1.4%)	11 (7.7%)	51 (35.7%)	59 (41.3%)	20 (14.0%)
7. If I am diagnosed with PCOS, I would require emotional support.	1 (0.7%)	4 (2.8%)	16 (11.2%)	74 (51.7%)	48 (33.6%)
8. If I am diagnosed with PCOS, my academic/professional performance would be negatively impacted.	4 (2.8%)	10 (7.0%)	41 (28.7%)	56 (39.2%)	32 (22.4%)

Note. f: frequency, %: percentage

Figure 4.7

Total score for perception towards PCOS among female undergraduate nursing students in UNIMAS.



4.5 The Association Between Knowledge Level and Perception Towards PCOS Among Female Undergraduate Nursing Students in UNIMAS

The relationship between knowledge level of PCOS and perception towards PCOS was investigated using a Spearman correlation coefficient. Preliminary analyses were performed and there was a violation of the assumptions of normality for knowledge level of PCOS, $D(143) = .404$, $p = <.001$ and for perception towards PCOS, $D(143) = .386$, $p = <.001$. There were no outliers or extreme values detected from the box-plot. There was no statistically significant association between the two variables, $r_s(143) = .050$, $p = .550$.

Table 4.4

Analysis of association between knowledge level of PCOS and perception towards PCOS.

Correlations				
			Knowledge level of PCOS	Perception towards PCOS
Spearman's rho	Knowledge level of PCOS	Correlation coefficient	1.000	.050
		Sig. (2-tailed)	.	.550
		N	143	143
	Perception towards PCOS	Correlation coefficient	.050	1.000
		Sig. (2-tailed)	.550	.
		N	143	143

4.6 The Association Between Knowledge Level and Perception Towards PCOS with Demographic Factors (Practicum Experience, Family History of PCOS).

4.6.1 Association Between Knowledge Level of PCOS and Demographic Factors

Data was analyzed using Chi-Square Test for Independence for association between knowledge level of PCOS and practicum experience, as shown in Table 4.5. Based on the findings in the table, students with 28 weeks had good knowledge with a total of 25 (69.4%) compared to 24 (66.7%) students with 8 weeks of experience, 21 (58.3%) students with 52 weeks of experience and 19 students (54.3%) that had no practicum experience at all. A Chi Square Test for Independence revealed that there was no statistically significant association between knowledge level of PCOS and practicum experience, $\chi^2(3, N=143) = 2.271, p = .518$. Therefore, failed to reject null hypothesis.

Table 4.5

Analysis of association between knowledge level of PCOS and practicum experience.

Practicum experience	Knowledge level of PCOS		χ^2	<i>p</i> value
	Frequency (percentage)			
	Moderate	Good		
	f (%)	f (%)		
None	16 (45.7%)	19 (54.3%)	2.271	.518
8 weeks	12 (33.3%)	24 (66.7%)		
28 weeks	11 (30.6%)	25 (69.4%)		
52 weeks	15 (41.7%)	21 (58.3%)		

Note. χ^2 : Pearson Chi-Square value. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.22.

Table 4.6 showed the result of association between knowledge level of PCOS and history of PCOS. Based on the findings, 88 (62.4%) students with no history of PCOS have higher knowledge level than 1 (50%) student with family history of PCOS. The association was analyzed using Chi-Square Test for Independence, but the assumptions were violated. Therefore, a Fisher's Exact Test was used. It was found that A Fisher's Exact Test indicated no statistically significant association between knowledge level of PCOS and history of PCOS, $p = 1.000$. Therefore, failed to reject null hypothesis.

Table 4.6

Analysis of association between knowledge level of PCOS and history of PCOS.

History of PCOS	Knowledge level of PCOS		<i>p</i> value
	Frequency (percentage)		
	Moderate	Good	
	f (%)	f (%)	
No	53 (37.6%)	88 (62.4%)	1.000
Family	1 (50.0%)	1 (50.0%)	

Note. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .76.

Computed only for a 2x2 table.

4.6.2 Association Between Perception Towards PCOS and Demographic Factors

Data was analyzed using Chi-Square Test for Independence for association between perception towards PCOS and practicum experience, as shown in Table 4.7. Based on the findings in the table, 22 (62.9%) students with no practicum experience have the most positive perception towards PCOS, followed by 22 (61.1%) students with 52 weeks, 21 (58.3%) students with 8 weeks and lastly, 19 (52.8%) students with 28 weeks of practicum experience. A Chi Square Test for Independence revealed that there was no statistically significant association between perception towards PCOS and practicum experience, $\chi^2(3, N=143) = .859, p = .835$. Therefore, failed to reject null hypothesis.

Table 4.7

Analysis of association between perception towards PCOS and practicum experience.

Practicum experience	Perception towards PCOS		χ^2	<i>p</i> value
	Frequency (percentage)			
	Negative f (%)	Positive f (%)		
None	13 (37.1%)	22 (62.9%)	.859	.835
8 weeks	15 (41.7%)	21 (58.3%)		
28 weeks	17 (47.2%)	19 (52.8%)		
52 weeks	14 (38.9%)	22 (61.1%)		

Note. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.44.

Table 4.8 showed the result of association between perception towards PCOS and history of PCOS. Based on the findings, 2 (100.0%) students with family history of PCOS have a positive perception than 82 (58.2%) students with no history of PCOS. The association was analyzed using Chi-Square Test for Independence, but the assumptions were violated. Therefore, a Fisher's Exact Test was used which indicated no statistically significant association between perception towards PCOS and history of PCOS, $p = .512$. Therefore, failed to reject null hypothesis.

Table 4.8

Analysis of association between perception towards PCOS and history of PCOS.

History of PCOS	Perception towards PCOS		<i>p</i> value
	Frequency (percentage)		
	Negative f (%)	Positive f (%)	
No	59 (41.8%)	82 (58.2%)	.512
Family	0 (0.0%)	2 (100%)	

Note. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .83.

Computed only for a 2x2 table.

4.7 Summary

A study was conducted among 143 female undergraduate nursing students at UNIMAS to assess their knowledge and perception of PCOS. The knowledge questionnaire included 20 items covering causes, symptoms, complications, diagnostic tests, and treatment. Results showed that 62.2% of participants had good knowledge of PCOS, while 37.8% had moderate knowledge. Perception toward PCOS was assessed using an 5-item Likert scale. Approximately 58.7% of participants had a positive perception, while 41.3% had a negative perception. The study also analyzed the relationship between knowledge level and perception using Spearman's correlation, finding no significant association ($r_s = .050$, $p = .550$). Chi-Square and Fisher's Exact Test analyses indicated no significant associations between knowledge or perception and practicum experience or family history of PCOS.

CHAPTER 5

DISCUSSION

5.1 Introduction

This chapter examines the knowledge level and perception of PCOS among female undergraduate nursing students at Universiti Malaysia Sarawak (UNIMAS), with a focus on how demographic factors like practicum experience and family history may influence these variables. It also reviews existing literature to contextualize the findings, highlighting gaps and inconsistencies regarding the association between knowledge, perception, and demographic factors.

5.2 Knowledge Level of PCOS Among Female Undergraduate Nursing Students in UNIMAS

The present study found that over half of the female undergraduate nursing students at UNIMAS demonstrated good knowledge of PCOS, including its signs and symptoms, health complications, diagnostic tests, and treatment options. This finding aligns with Maghraby et al. (2022), which assessed knowledge levels among female nursing students at South Valley University, revealing that more than half had good knowledge of PCOS, while the remainder had moderate knowledge. Similarly, Sasikala et al. (2021) reported that most nursing students from a tertiary center in South India were well-informed about PCOS complications such as endometrial cancer, diabetes, and coronary artery disease. Additionally, Alessa et al. (2017) found that students had a good understanding of PCOS symptoms, including irregular menstruation, hirsutism, acne, elevated androgen levels, and infertility, as well as therapeutic measures like contraceptive pills, physical exercise, and dietary changes.

Contrasting these findings, Thabet et al. (2021) observed that while many female nursing students were aware of PCOS, their knowledge was insufficient. The study emphasized the need for educational programs to enhance public understanding of PCOS, particularly regarding its pathological effects and lifestyle modifications. Supporting this, Mohamed (2016) reported that before implementing an educational program, over three-quarters (84.4%) of adolescent nursing students at Minia University had poor knowledge of PCOS. However, post-intervention, the majority (92.7%) showed significant improvement. Similarly, Salama and Elbana (2019) found that nursing students at Benha University initially had poor knowledge of PCOS, attributed to limited exposure to reproductive health discussions in families, media, and nursing education. After implementing a self-instruction module, knowledge levels rose significantly from 6.3% to 90.3%.

These findings highlight the importance of integrating comprehensive information about PCOS into nursing curricula to enhance student awareness and underscore the role of clear, consistent educational programs and media in effectively disseminating information about PCOS.

5.3 Perception Towards PCOS Among Female Undergraduate Nursing Students in UNIMAS

The present study found that 58.7% of female undergraduate nursing students at UNIMAS had a positive perception of PCOS, while 41.3% exhibited a negative perception. This aligns with Hussin and Abd Kadir (2020), who reported that most students in higher education institutions in Perak held positive perceptions toward PCOS. These students understood that while the condition cannot be fully cured, managing symptoms responsibly

can lead to improved outcomes. Consequently, these students were proactive in seeking professional assistance.

Besides, Aripin et al. (2022) observed that most women in Jordan had a positive attitude towards seeking help, managing symptoms, and overcoming challenges related to PCOS, which was closely linked to societal support from parents, siblings, friends, and the community. This is consistent with a study by Rajkumar et al. (2022), emphasized that such support mitigates social stigma, fosters physical and emotional well-being, and helps women cope with psychological distress associated with PCOS.

However, despite the overall positive perceptions observed, some students in this study still reported negative perceptions. This is consistent with the findings of Chauhan et al. (2023), who noted that nursing students who did not participate in educational interventions tend to hold more negative views compared to those who were part of the intervention group. According to Rajkumar et al. (2022), negative perceptions stem from misconceptions and societal stigma, where PCOS is considered a ‘taboo’ topic, particularly in the context of marriage, preventing open discussions and emotional expression.

5.4 Association Between Knowledge Level and Perception Towards PCOS Among Undergraduate Nursing Students in UNIMAS

Although previous research has consistently indicated a positive association between knowledge level and perception of PCOS such as in the study by Mohamed Reda et al. (2022) and Hajivandi et al. (2018), where knowledge acquisition was shown to enhance students' perception and openness towards symptom management, this trend was not reflected in the present study. Despite female undergraduate nursing students in UNIMAS

demonstrating varying levels of knowledge, no statistically significant relationship was found between knowledge level and perception.

This discrepancy may suggest that knowledge alone is not sufficient to shape perception in a meaningful way. Moreover, Teh (2023) suggested that curriculum and educational exposure could debunk misconceptions that will ultimately improve perception even if overall knowledge levels remained unchanged. Perception could be influenced by other underlying factors such as personal beliefs, cultural narratives, emotional responses, or exposure to lived experiences, in which these elements may not be fully addressed in formal education. It is also possible that the knowledge assessed was theoretical in nature and did not translate into meaningful internalization or behavioral attitudes. Therefore, this finding highlights the need for more holistic educational approaches that go beyond factual content to include reflective learning, patient-centered discussions, and real-world case engagement, in order to foster both understanding and perceptual change.

5.5 Association Between Knowledge Level and Perception Towards PCOS with Demographic Factors (Practicum Experience and Family History of PCOS)

The present study found no statistically significant association between knowledge and perception of PCOS and practicum experience among female undergraduate nursing students at UNIMAS. This finding aligns with Eswi et al. (2024), who also reported a non-significant correlation between knowledge of PCOS and practicum experience among nursing and midwifery students at Princess Nourah Bint Abdulrahman University, suggesting that practicum exposure alone may not sufficiently enhance understanding of PCOS. Maghraby

et al. (2022) attributed knowledge disparities to variations in academic curriculums, cultural backgrounds, and community contexts.

Conversely, some studies highlight a significant link between knowledge and practicum experience. Rizvi et al. (2023) found that medical students, whose curriculum includes reproductive health, had higher PCOS knowledge. Similarly, Thabet et al. (2021) reported a significant association between PCOS knowledge and practicum experience, suggesting that previous maternity courses and practicum experience contributed to higher knowledge levels. However, the researchers emphasized that despite the positive correlation, knowledge remained moderate, underscoring the need for a dedicated educational content on reproductive health and endocrine disorders, particularly PCOS.

A study by Rizvi et al. (2023) found that there is no significant association between perception towards PCOS and practicum experience. Although medical students had slightly higher knowledge than non—medical students, the perception towards PCOS showed no variation, which emphasized that practicum experience does not have any influence on someone's perception towards PCOS. This could be attributed to limited exposure to PCOS cases during practicum rotations to significantly impact their perceptions. Also, as previously mentioned by Rajkumar et al. (2022), stigma and cultural taboos surrounding reproductive health hinder open discussion and education of PCOS.

Similarly, the current study found no significant association between knowledge level and perception towards PCOS and family history of PCOS among female undergraduate nursing students in UNIMAS. Devi et al. (2017) also reported that family history did not correlate with higher PCOS knowledge levels. However, Rizvi et al. (2023) observed that students with a family history of PCOS exhibited slightly higher knowledge, potentially due to personal exposure and experience with the syndrome. Consequently, this drives them to

acquire knowledge about its nature of disease, signs and symptoms and management. Meanwhile, the occurrence of non-significant relationship between perception and family history is possibly due to cultural factors that shape health-seeking behavior and emotional responses, as suggested by Hadjiconstantinou et al. (2017).

5.6 Implications of the Study

The absence of a significant relationship between knowledge and perception indicates that possessing factual information about PCOS does not necessarily translate to a positive or empathetic perception toward the condition. This suggests that the potential influence of other factors such as cultural beliefs, personal values, or emotional exposure, may play a more dominant role in shaping perceptions than theoretical knowledge alone.

These results highlight a gap in nursing education, where current teaching methods or clinical experiences may not be effectively enhancing students' competence in dealing with reproductive endocrine disorders like PCOS. This calls for nursing curriculum enhancements such as case-based learning, simulation, or reflective practice that go beyond textbook knowledge, in order to foster empathy, communication, and patient-centered thinking.

Clinically, the study underscores the importance of equipping nursing students with adequate knowledge and a positive perception of PCOS to ensure effective symptom recognition, patient education, and support. Improved knowledge and perception toward PCOS can enhance the quality of care and promote early detection and management.

The findings also reinforce the idea that stigma and lack of open dialogue around PCOS still persist, even among future healthcare professionals. This could affect their willingness or ability to advocate for patients, contribute to awareness campaigns, or correct

misconceptions in their communities. Therefore, initiatives like health education may support the efforts to reduce stigma and misinformation surrounding PCOS. As future nurses, these students will play a crucial role in raising public awareness, advocating for women's health, and encouraging timely health-seeking behaviors among affected individuals.

5.7 Recommendations for This Study

Based on the research findings, although the knowledge level is good, targeted workshops or webinars can be conducted to deepen understanding of emerging PCOS management strategies and their implications on women's health. Besides, the nursing curriculum can incorporate more case-based learning focused on PCOS in practicum rotations which may further consolidate the theoretical knowledge and practical skills of nursing students. Lastly, collaborating with healthcare organizations to conduct PCOS awareness campaigns can extend the knowledge beyond the classroom and into the wider community, which can be done through the MDJ3533 Community and Family Health Nursing practicum.

5.8 Recommendations for Future Study

The first recommendation is to conduct a study on larger population, including male students and students from other courses and institutions, to explore their knowledge and perception towards PCOS, and allow better generalization to the whole nation. Besides that, future study can employ longitudinal study instead of cross-sectional, to allow assessment of the retention of knowledge and perception towards PCOS over period of time. Even

though the research is only focused on nursing students, this research design allows the evaluation of practicum exposure on students' knowledge, perception and confidence in managing PCOS cases, especially among nursing students that will or have gone through Obstetrics and Gynaecology course. This way, it will allow the exploration of potential gaps or challenges in the curriculum that may hinder comprehensive understanding of PCOS. Lastly, future study may employ qualitative research design as this approach could provide rich, in-depth insights into the personal, emotional, and cultural factors that shape students' understanding and perception toward PCOS.

5.9 Limitations of the Study

Firstly, the study is only conducted at Universiti Malaysia Sarawak, and only among female undergraduate nursing students. Therefore, it cannot be generalized to the whole state of Sarawak, or generalized to students from other courses and other universities as well. Furthermore, the study employed cross-sectional design, which only capture data at one point in time. Therefore, the researcher was unable to assess the knowledge and perception change over time, which limits the ability to infer cause-and-effect relationships and see how clinical exposure evolves students' understanding. Lastly, the researcher was unable to control response bias during the data collection from the respondents. Since the questionnaire was distributed through GoogleForm platform, the researcher cannot determine the respondents' trustworthiness in answering the questionnaire. Their answers could be influenced by external factors like peer influence, they search for the answers beforehand, resulting in inaccurate data.

5.10 Conclusion

The study reveals that among female undergraduate nursing students at UNIMAS, there is generally good knowledge and a predominantly positive perception toward PCOS, though a significant portion still holds negative views, particularly concerning emotional and fertility-related aspects. The findings indicate no significant association between knowledge levels, perception, practicum experience, or family history of PCOS, suggesting that exposure alone whether through practicum practice or personal background may not be sufficient to improve understanding or attitudes. This underscores the critical need for enhanced, targeted educational interventions within nursing curricula that comprehensively address PCOS, its practicum features, management, and psychosocial impact. Moreover, addressing cultural stigma and promoting open discussion are essential to improving perceptions and encouraging proactive health-seeking behaviors. Integrating flexible, accessible learning methods, such as web-based education, could further support knowledge acquisition and foster more positive attitudes toward PCOS among nursing students.

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APPENDICES

Appendix A

Ethical Approval

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

UNIVERSITI MALAYSIA
SARAWAK
94300 Kota Samarahan

MEMORANDUM

Reference : UNIMAS/NC-21.05/03-03 Jld. 8(117)

To : Harlina Sofea Binti Lupiamir (78019)
Bachelor of Nursing with Honours
Faculty of Medicine and Health Sciences

From : Dean
Faculty of Medicine and Health Sciences

Date : 05 March 2025

Subject : **Final Year Project - Research Approval: Knowledge and perception towards Polycystic Ovarian Syndrome (PCOS) among female undergraduate nursing students in Universiti Malaysia Sarawak (UNIMAS)**

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 : Harlina Sofea Binti Lupiamir

Student ID : 78019

Programme : Bachelor of Nursing with Honours

Research Title : *Knowledge and perception towards Polycystic Ovarian Syndrome (PCOS) among female undergraduate nursing students in Universiti Malaysia Sarawak (UNIMAS)*

Supervisor Name : Madam Roziah binti Arabi

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 I Course Coordinator

Appendix B

Cover Letter for Ethical Application

Harlina Sofea Binti Lupiamir,

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: Harlina Sofea Binti Lupiamir

Matrix number: 78019

IC No.: 021103-10-0956

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

Research title: Knowledge and perception towards polycystic ovarian syndrome (PCOS) among female undergraduate nursing students in Universiti Malaysia Sarawak (UNIMAS)

Supervisor's name: Roziah Binti Arabi

Email address: aroziah@unimas.my

Supervisor's HP number: 013-3947728

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

Thank you.

Yours sincerely,



(HARLINA SOFEA BINTI LUPIAMIR)

Appendix C

Participant Information Sheet



PARTICIPANT INFORMATION SHEET/ *MAKLUMAT KAJIAN PESERTA*

1. Title of the study/ *Tajuk kajian* : Knowledge and perception towards polycystic ovarian syndrome (PCOS) among female undergraduate nursing students in Universiti Malaysia Sarawak (UNIMAS).
2. Main Researcher/ *Penyelidik utama* : Harlina Sofea Binti Lupiamir
3. Supervisor/ *Penyelia* : a) Course coordinator: Shalin Lee Wan Fei
b) Main research supervisor: Roziah Binti Arabi
4. Institution/ *Institut* : Department of Nursing
Faculty of Medicine & Health Sciences Universiti Malaysia Sarawak
5. Name of sponsor/ *Nama Penaja* : No external funding/ *Tiada penaja luar*

PARTICIPANT INFORMATION SHEET AND INFORMED CONSENT FORM

(for adult subjects)

6. Introduction:

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

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

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

7. What is the purpose of the study?

The purpose of this study is to examine the knowledge and perception of female nursing students in Universiti Malaysia Sarawak towards a women reproductive health disorder namely polycystic ovarian syndrome (PCOS). This research is necessary to examine their understanding of the disorder's causes, signs and symptoms, health complications and treatments.

This research will be conducted for duration of 6 month (25/01/2025 till 30/06/2025). The expected number of participants is 144 individuals.

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

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

You will be given a survey form to be answered. This form contains 3 sections which will enquire about sociodemographic information, knowledge of PCOS and perception towards PCOS.

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

Participation to 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 as a guideline or reference for future research, or as guideline for future health education.

11. Who is funding the research?

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

12. 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 and you want information about this study, please contact the research supervisor, Madam Roziah Arabi at telephone number 013-394 7728.

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.

Appendix D

Informed Consent

INFORMED CONSENT FORM

Title of Study: Knowledge and perception towards polycystic ovarian syndrome (PCOS) among female undergraduate nursing students in Universiti Malaysia Sarawak (UNIMAS).

By signing below I confirm the following:

- I have been given oral and written information for the above study and have read and understood the information given.
- I have had sufficient time to consider participation in the study and have had the opportunity to ask questions and all my questions have been answered satisfactorily.
- I understand that my participation is voluntary and I can at anytime free withdraw from the study without giving a reason and this will in no way affect my future treatment. I am not taking part in any other research study at this time. I understand the risks and benefits, and I freely give my informed consent to participate under the conditions stated. I understand that I must follow the study doctor's (investigator's) instructions related to my participation in the study.
- I understand that study staff, qualified monitors and auditors, the sponsor or its affiliates, and governmental or regulatory authorities, have direct access to my medical record in order to make sure that the study is conducted correctly and the data are recorded correctly. All personal details will be treated as STRICTLY CONFIDENTIAL
- I will receive a copy of this subject information/informed consent form signed and dated to bring home.
- I agree/disagree* for my family doctor to be informed of my participation in this study. (**delete which is not applicable*)

Subject:

Signature:

I/C number:

Name:

Date:

Investigator conducting informed consent:

Signature:

I/C number:

Name:

Date:

Impartial witness:

Signature:

I/C number:

Name:

Date:

Appendix E

Questionnaire

SECTION A: DEMOGRAPHIC DATA

Please complete the following information. Kindly fill in the provided space with your answer in written form and tick (/) where applicable.

1. Age (years): _____
2. Year of study: () Year 1 () Year 2 () Year 3 () Year 4
3. Race: () Malay () Cina () India () Bumiputera Sarawak
() Bumiputera Sabah
4. Clinical experience (number of weeks): _____
5. Have you had any history of polycystic ovarian syndrome (PCOS)?
 - a. Medical history: () Yes, state when (is diagnosed): _____
() No
 - b. Family history: () Yes, state who: _____
() No

SECTION B: KNOWLEDGE ON POLYCYSTIC OVARIAN SYNDROME (PCOS)

This section consists of 20 items, to assess your understanding of PCOS, its signs and symptoms, health complications, diagnostic test and treatment options.

Please tick (/) of your answer in the 'Yes' or 'No' space box provided.

You are required to answer all questions.

No.	Items	Yes	No
1.	Have you ever heard of polycystic ovarian syndrome (PCOS) before?		
2.	PCOS is caused by elevated levels of male hormone namely androgen.		
3.	PCOS is having multiple cysts in the female reproductive organ called ovary.		
4.	PCOS can cause acne.		
5.	PCOS can cause irregular or absence of menstrual cycle.		
6.	PCOS can cause heavy menstrual bleeding.		
7.	PCOS can cause hair loss.		
8.	PCOS may cause excessive hair growth on body parts.		
9.	PCOS increases the risk for cardiovascular diseases.		
10.	PCOS increases the risk for endometrium cancer.		
11.	PCOS may cause Type 2 diabetes.		
12.	PCOS may cause infertility.		
13.	PCOS can be diagnosed with vaginal ultrasound.		
14.	PCOS can be diagnosed with blood test.		
15.	PCOS can be diagnosed with X-ray.		
16.	PCOS can be cured.		
17.	PCOS can be treated using oral contraceptives (birth control pills).		
18.	PCOS can be treated using metformin (diabetes medication)		
19.	PCOS can be treated by physical exercise and dietary changes.		
20.	PCOS can be treated using anti-androgen medications.		

SECTION C: PERCEPTION ON POLYCYSTIC OVARIAN SYNDROME (PCOS)

This section consists of 10 items to assess your perception towards PCOS. Please indicate how strongly you agree or disagree with the statements, circle only appropriate number.

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

You are required to answer all questions.

No.	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	If I am diagnosed with PCOS, I would seek medical consultation.	1	2	3	4	5
2.	If I, or someone I know is diagnosed with PCOS, I would expect the inability to conceive.	1	2	3	4	5
3.	Being diagnosed with PCOS would lower my self-esteem.	1	2	3	4	5
4.	I believe PCOS can be cured.	1	2	3	4	5
5.	Managing PCOS would require lifelong treatment.	1	2	3	4	5
6.	Being diagnosed with PCOS would cause me to feel depressed.	1	2	3	4	5
7.	If I am diagnosed with PCOS, I would require emotional support.	1	2	3	4	5
8.	If I am diagnosed with PCOS, my academic/professional performance would be negatively impacted.	1	2	3	4	5

Appendix F

Permission to Use Questionnaire from Original Author

Request Permission to Use of Research Questionnaire Tool



Harlina Sofea Binti Lupiamir <hrlinasofea@gmail.com>
to drjaber_ruba ▾

Wed, 30 Oct 2024, 02:03 ☆ 😊 ↶ ⋮

Dear Professor/Dr,

I am Harlina Sofea Lupiamir, a 4th year student studying Bachelor of Nursing with Honours at University of Malaysia Sarawak, Malaysia. Currently, I am conducting a research study for my final year project titled 'Knowledge level and Perception towards Polycystic Ovarian Syndrome (PCOS) among female undergraduate nursing students in University of Malaysia Sarawak (UNIMAS)'.

I came across your research paper 'Knowledge and Attitudes Towards Polycystic Ovary Syndrome', and I would like to ask your permission to adopt the questionnaire of knowledge and attitude of PCOS, and modify it accordingly. I am also writing this email to request your permission to send me a copy of the questionnaire and your scoring system.

Your consideration of my request is greatly appreciated. Thank you.

Sincerely,
Harlina Sofea

↶ Reply

↷ Forward



Appendix G

Gantt Chart

ACTIVITY	MONTH										
	2024				2025						
	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY
Determination of research title											
Literature review											
Meeting with supervisor											
Submission of first draft											
Submit proposal defense slides											
FYP 1: Submission of research proposal											
Ethical approval											
Data collection											
Data analysis											
Writing up report											
Submission of final draft											

Appendix H

Budget

Items	Unit price (RM)	Quantity	Amount (RM)
Material and supplies			
Binding	1.60/ring	1	1.60
Plastic binding cover	0.40/sheet	2	0.80
Report			
FYP II Report	0.10/page black and white	89	8.90
	1.00/page colour	9	9.00
A1 Poster	39/page	1	39
Others			
Internet data plan	20/month	10	200
SPSS software	6	1	6
Total amount (RM)			265.30

Appendix I

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