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The Influences of Lifestyle Habits on the Intensity of Dysmenorrhea Among Female
Nursing Students in UNIMAS

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This project submitted

In partial fulfilment of the requirements for the degree of

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DECLARATION

I hereby declare that this Final Year Project research entitled ‘The Influence of Lifestyle Habits on the Intensity of Dysmenorrhea Among Female Nursing Students in UNIMAS’ is my original work and has been carried out in the Faculty of Medicine and Health Sciences (FMHS), Universiti Malaysia Sarawak (UNIMAS) under supervision during the period October 2024 until June 2025. I certify that all citations and references used have been properly acknowledged in the text. I further declare this research study has not been previously submitted to any other university or institution.



.....
Signature

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ABSTRACT

Dysmenorrhea is defined as painful menstruation and pain radiating to the groin, back, and thighs. Dysmenorrhea is particularly common and affecting adolescents and young adults, with a notable impact on daily functioning. Genetic predisposition and lifestyle factors including diet and physical activity are recognised as key contributors to menstrual irregularities (Dhar et al., 2023). Therefore, this study aims to examine the relationship between lifestyle habits and the severity of dysmenorrhea among female nursing students at UMINAS. To determine the level of intensity of dysmenorrhea, to identify the lifestyle habits influencing the presence of dysmenorrhea, and to assess the relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing students in UNIMAS. A descriptive cross-sectional quantitative study was conducted among female nursing students in UNIMAS. A total 145 participants were selected using simple random sampling method. Data collected through a 36-item self-administered questionnaire which divided into 4 parts: sociodemographic, dietary habits, physical activity, and intensity of dysmenorrhea. The data were analysed using IBM SPSS version 27. Spearman correlation coefficient was utilized to assess the relationship between lifestyle habits and intensity of dysmenorrhea among female nursing students in UNIMAS. Majority female nursing students in UNIMAS experienced moderate level of dysmenorrhea with ($n = 78, 53.8\%$). Lifestyle habits which are dietary habits and physical activity no significant to the presence of dysmenorrhea ($U = 713, p = .857$) and ($U = 781, p = .742$) respectively. There was no relationship between dietary habits and physical activity with intensity of dysmenorrhea ($r_s = -.026, p = .758$) and ($r_s = -.045, p = .588$) respectively. The study revealed that dysmenorrhea is common among female nursing students at UNIMAS, with most experiencing moderate pain. Despite this, no

significant association was found between dietary habits or physical activity and the severity of menstrual pain. The findings underscore the need for greater awareness, support, and effective pain management strategies to help students maintain their daily activities.

Keywords: dietary habits, physical activity, intensity of dysmenorrhea, dysmenorrhea, nursing students

ABSTRAK

Dismenorea didefinisikan sebagai kesakitan semasa haid dan kesakitan yang merebak ke bahagian pangkal paha, belakang, dan paha. Dismenorea adalah keadaan yang lazim, terutamanya dalam kalangan remaja dan golongan dewasa muda, serta memberi kesan yang ketara terhadap aktiviti harian. Faktor keturunan dan gaya hidup termasuk pemakanan dan aktiviti fizikal dikenali sebagai penyumbang utama kepada ketidakteraturan haid (Dhar et al., 2023). Oleh itu, kajian ini bertujuan untuk meneliti hubungan antara tabiat gaya hidup dan tahap keterukan dismenorea dalam kalangan pelajar kejururawatan wanita di UNIMAS. Untuk menentukan tahap keterukan dismenorea, mengenal pasti tabiat gaya hidup yang mempengaruhi kehadiran dismenorea, dan menilai hubungan antara tabiat gaya hidup dan tahap keterukan dismenorea dalam kalangan pelajar kejururawatan wanita di UNIMAS. Satu kajian kuantitatif keratan rentas deskriptif telah dijalankan dalam kalangan pelajar kejururawatan wanita di UNIMAS. Seramai 145 orang peserta telah dipilih menggunakan kaedah persampelan rawak mudah. Data dikumpul melalui soal selidik 36 item yang dijawab sendiri oleh responden dan dibahagikan kepada 4 bahagian: sosiodemografi, tabiat pemakanan, aktiviti fizikal, dan tahap keterukan dismenorea. Data dianalisis menggunakan IBM SPSS versi 27. Pekali korelasi Spearman telah digunakan untuk menilai hubungan antara tabiat gaya hidup dan tahap keterukan dismenorea dalam kalangan pelajar kejururawatan wanita di UNIMAS. Majoriti pelajar kejururawatan wanita di UNIMAS mengalami tahap dismenorea yang sederhana iaitu seramai 78 orang (53.8%). Tabiat gaya hidup seperti tabiat pemakanan dan aktiviti fizikal tidak menunjukkan hubungan yang signifikan dengan kehadiran dismenorea, masing-masing dengan ($U = 713, p = .857$) dan ($U = 781, p = .742$). Selain itu, tiada hubungan antara tabiat pemakanan dan aktiviti fizikal dengan tahap keterukan dismenorea, masing-masing ($r_s = -.026, p = .758$) dan

($r_s = -.045$, $p = .588$). Kajian ini mendapati bahawa dismenorea adalah perkara biasa dalam kalangan pelajar kejururawatan wanita di UNIMAS, dengan kebanyakan mereka mengalami kesakitan pada tahap sederhana. Walau bagaimanapun, tiada hubungan yang signifikan ditemui antara tabiat pemakanan atau aktiviti fizikal dengan tahap keterukan kesakitan haid. Dapatan ini menekankan keperluan untuk meningkatkan kesedaran, sokongan, dan strategi pengurusan kesakitan yang berkesan bagi membantu pelajar meneruskan aktiviti harian mereka.

Kata kunci: *tabiat pemakanan, aktiviti fizikal, tahap keterukan dismenorea, dismenorea, pelajar kejururawatan*

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LIST OF ABBREVIATIONS

FMHS	Faculty of Medicine and Health Sciences
IPAQ	International Physical Activity Questionnaire
SPSS	Statistical Package for the Social Sciences
UNIMAS	Universiti Malaysia Sarawak
WaLLID	Working ability, Location, Intensity, Days of pain, Dysmenorrhea
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.0 Introduction

This chapter consists of nine subsections, where the background of the study is discussed in Section 1.1, the problem statement in Section 1.2, the research question in Section 1.3, the general objective in Section 1.4, and the specific research objectives in Section 1.5. Additionally, Sections 1.6, 1.7, 1.8, and 1.9 cover the hypothesis, the significance of the study, the operational and conceptual definitions, and the summary of the chapter, respectively.

1.1 Background of Study

The World Health Organization (WHO) (2024), defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. According to Hennegan et al. (2021), the WHO’s definition of health and the Terminology Action Group’s definition of menstrual health is similar. Menstrual health is crucial for every woman experiencing menstruation which greatly affects their physical, mental, and social well-being (Critchley et al., 2020).

Menstruation is a natural biological process that signifies reproductive health in women, typically occurring from menarche to menopause. On average, woman spends approximately one-fifth of their reproductive life menstruating (Dhar et al., 2023). Despite menstruation being a normal physiological process, but some abnormalities occur in some women such as dysmenorrhea, amenorrhea, and premenstrual syndrome which bring huge physical and emotional symptoms, before and during menstruation. Of these, dysmenorrhea is one of the most common issues experienced by many women from adolescence onwards which can negatively impact their daily lives (Nagy et al. 2023). Generally, dysmenorrhea is

defined as painful menstruation and pain radiating to the groin, back, and thighs (Guzeldere et al., 2024). Several symptoms of dysmenorrhea such as cramping pains in the lower abdomen, nausea, vomiting, headaches, and irritability.

Dysmenorrhea can be categorised into primary and secondary types. According to Nagy et al. (2023), primary dysmenorrhea is defined as pain at lower abdominal during menstruation that is not associated with any underlying problems whereas secondary dysmenorrhea arises from underlying disorders such as endometriosis, fibroids, and adenomyosis. According to Guimarães & Póvoa (2020), the risk factors for dysmenorrhea can be classified as either non-modifiable or behavioral. Non-modifiable risk factors encompass a family history of dysmenorrhea, early menarche, and prolonged menstrual flow while behavioral risk factors comprise of unhealthy body mass index, tobacco use, caffeine intake, and stress.

Lifestyle behaviors are key determinants of disease risk and general health outcomes. A substantial body of evidence indicates that adverse health outcomes are often associated with modifiable behaviors such as physical inactivity, excessive alcohol consumption, and unbalanced diet (Espinosa-Salas & Gonzalez-Arias, 2023). According to Dhar et al. (2023), both genetic predisposition and lifestyle patterns, such as dietary and physical activity, sleeping habits, and environmental exposures highly influenced menstrual abnormalities. According to John et al. (2021), dietary habits also play a critical role. Diets high in anti-inflammatory foods such as fruits, vegetables, and omega-3 fatty acids have been linked to reduced menstrual discomfort, while excessive intake of caffeine, sugar, and trans fats may promote inflammation and uterine contractions, which can worsen the symptoms. Regular physical activity such as yoga or aerobics has been found to potentially reduce menstrual pain (Armour et al., 2019). However, other studies have reported that the evidence

supporting the effectiveness of exercise in alleviating overall menstrual symptoms remains limited and of low quality (Tsai et al., 2024). Therefore, this study aims to assess the lifestyle habits and the intensity of dysmenorrhea among female nursing students in UMINAS.

1.2 Problem Statement

Dysmenorrhea is one of the common menstrual abnormalities that impact an individual's quality of life. The pain often endures for 8 to 72 hours, with maximum intensity occurring on the first and second days of menstruation (Nagy & Khan, 2023). This results from the elevated release of prostaglandins throughout this period. The symptoms can be replicated throughout menstrual cycles and are often linked to migraines, lower back pain, nausea, vomiting, diarrhea, dizziness, exhaustion, and insomnia (Guimarães & Póvoa, 2020). According to McKenna & Fogleman (2021), approximately 50% to 90% of adolescent girls and women of reproductive age suffer from dysmenorrhea, resulting in absenteeism from educational institutions and the workplace. The true prevalence of dysmenorrhea is difficult to determine because only a small number of women with the condition seek medical care. Menstrual pain is often seen as a normal part of life, which leads to underreporting. Additionally, there is no universal definition of dysmenorrhea, and a lack of standardised methods to measure the severity of dysmenorrhea. Most assessments rely on self-reported pain levels, which can vary greatly between individuals (Guimarães & Póvoa, 2020).

A study conducted by Wang et al. (2022) showed that a few factors can contribute to the development of menstrual disorders such as family history, unhealthy food habits, lack of physical activity, poor sleep quality, and heavy current stress. Lifestyle modifications such as healthy food habits, exercising, and getting enough sleep can effectively lower the risk of menstrual disorders as well as lessen the severity of more serious health problems (Dhar et al., 2023).

In Malaysia, although the prevalence of dysmenorrhea is acknowledged, there is a notable lack of comprehensive studies that explore this condition in detail, especially within university populations. At UNIMAS, data regarding the severity, prevalence, and contributing factors of dysmenorrhea among female students remains limited. University students especially those in demanding academic programs such as nursing or medical students often experience stress, poor dietary and physical activity habits which may increase the risk of menstrual pain (Maity et al., 2022). Hence, this study aims to assess the lifestyle habits and the intensity of dysmenorrhea among female nursing students in UMINAS. The findings are expected to contribute to a better understanding of modifiable risk factors and support the development of effective strategies to improve menstrual health and well-being in this population.

1.3 Research Questions

- i. What is the level of intensity of dysmenorrhea among female nursing students in UNIMAS?
- ii. What are the lifestyle habits influencing the presence of dysmenorrhea among female nursing students in UNIMAS?
- iii. Is there any relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing students in UNIMAS?

1.4 General Objectives

This study aims to assess the lifestyle habits and the intensity of dysmenorrhea among female nursing students in UMINAS.

1.5 Specific Research Objectives

- i. To determine the level of intensity of dysmenorrhea among female nursing students in UNIMAS.
- ii. To identify the lifestyle habits influencing the presence of dysmenorrhea among female nursing students in UNIMAS.
- iii. To assess the relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing students in UNIMAS.

1.6 Hypotheses

Null hypothesis: There is no significant relationship between lifestyle habits on the intensity of dysmenorrhea among female nursing students in UMINAS.

Alternative hypothesis: There is a significant relationship between lifestyle habits on the intensity of dysmenorrhea among female nursing students in UMINAS.

1.7 Significance of Study

Dysmenorrhea is one of the most prominent causes of undesirable effects on women's lives and sometimes produces activity restriction. Although it is high prevalence, dysmenorrhea frequently underdiagnosed and most women do not seek medical conditions (Karout et al., 2021). This study is conducted to uncover the relationship between lifestyle habits on the intensity of dysmenorrhea among female nursing students in UMINAS. This study helps to enhance the understanding of dysmenorrhea by elucidating the lifestyle habits on the intensity and experience of menstrual pain. Besides, this may help the students to take precautions towards dysmenorrhea disorder so that they would find a proper way to solve their problem. Additionally, by pinpointing the specific lifestyle factors such as dietary habits, and physical activity that might trigger the symptoms, the study can provide

actionable, evidence-based recommendations and a comprehensive approach for students seeking relief, empowering them to make wise lifestyle choices. Besides, the level of intensity of dysmenorrhea which ranges from mild discomfort to severe cramps that can interfere with daily activities will be determined throughout this research. Lastly, the data gathered from this study will contribute to addressing the issue of dysmenorrhea among female nursing students at UNIMAS, facilitating effective management strategies to reduce pain and improve their quality of life.

1.8 Operational Definitions Key Term

The following terms were defined for this research.

1.8.1 Lifestyle habits

Conceptual definition: Lifestyle refers to the daily habits and activities of people in a particular place and time, including work, leisure, and eating habits (D Farhud, 2024).

Operational definition: Lifestyle habits in this study encompass only the physical activity and dietary practices of female nursing students in UNIMAS. There are 23 items will be evaluated and divided into 2 categories (physical activity and dietary habits). The first components is physical activity which refers to the activities or movements that the student has done as their routine such as exercise. There are 12 items fill in the blanks will be assessed in this section. The total score will be calculated in minutes per week based on guidelines of International Physical Activity Questionnaire (IPAQ) (Total score physical activity = walking + moderate activity + intense activity). The second component is dietary habits which refer to how the nursing student manages their dietary intake. There are 11 items using a five-point Likert scale is used to rate the items: “never”, “once per week”, “2-4 times per week”, “more than 4 times per week” and “daily”.

1.8.2 Intensity dysmenorrhea

Conceptual definition: The intensity of dysmenorrhea denotes the severity of pain, generally categorized as moderate to severe, and negatively affects the quality of life (Carroquino-Garcia et al., 2024).

Operational definition: Refer to the severity of dysmenorrhea among the female nursing students in UNIMAS. WaLIDD (Working ability, Location, Intensity, Days of pain, Dysmenorrhea) scoring system is used to evaluate the severity and impact of menstrual pain on the participants. This measurement tool contains seven questions multiple choice. The total intensity of dysmenorrhea score will be categorised as no dysmenorrhea (0), mild (1-4), moderate (5 - 7), severe (8 - 12).

1.8.3 Dysmenorrhea

Conceptual definition: Dysmenorrhea refers to menstrual pain originating from uterine contractions and is recognized as one of the most common gynecological conditions affecting women of reproductive age (Itani et al., 2022).

Operational definition: In this study, dysmenorrhea refers specifically to the experience of menstrual pain that reported by female nursing students in UNIMAS.

1.8.4 Nursing student

Conceptual definition: An individual who pursuing a Bachelor's in Nursing at the university and participating in a clinical placement as a component of that course (Van Den Dungen, 2021).

Operational definition: This refers to the students from year 1 until year 4, including post-registration students, who enrolled in Bachelor of Nursing with Honours at Universiti Malaysia Sarawak (UNIMAS).

1.9 Summary

In conclusion, understanding the significance of healthy lifestyles is crucial to preventing and minimising the symptoms of dysmenorrhea. This study aims to assess the lifestyle habits and the intensity of dysmenorrhea among female nursing students in UMINAS. This study is vital because it clarifies how lifestyle choices affect the intensity and experience of menstrual pain in female nursing students, which advances our understanding of dysmenorrhea.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter provides an in-depth overview of the latest literature. It comprises four sections that summarise lifestyle habits, the level of intensity of dysmenorrhea, and the relationship between lifestyle habits and the intensity of dysmenorrhea.

2.1 Literature Search

The articles incorporated into this literature review have been sourced from reputable platforms including Google Scholar, ResearchGate, PubMed, and Science Direct. Additionally, the articles are obtained from the most recent five-year period from 2020 to 2025. The utilized keywords encompass lifestyle habits, physical activity, dietary habits, and dysmenorrhea.

2.2 Lifestyle habits

In this section, lifestyle habits explained the dietary habits and physical activity. Dietary habits refer to the types and patterns of food and drink consumption of the individual's daily life while physical activity refers to the activity or movement that the individual has done.

2.2.1 Dietary habits on dysmenorrhea

It is critical to comprehend the contributing factors for dysmenorrhea to stop the problem from worsening and adversely affecting an individual's quality of life. Lifestyle, demographics and obstetric and gynecological factors are some of the risk factors for dysmenorrhea (Wang et al., 2022). Al-Husban et al, (2022) conducted a cross-sectional study on Jordanian women aged 18-25 years old. According to the study's findings, 360 of the

1988 women had severe dysmenorrhea, and 660 of them had primary dysmenorrhea. The study found that severe dysmenorrhea was more common among people who frequently consumed sugar, women with irregular menstrual cycles or heavy bleeding, and those with a family history of the condition. Other than that, the author noted that smoking and high levels of stress are strongly linked to severe dysmenorrhea. A study by Sundari et al. (2020) also showed the correlation between poor diet, such as high consumption of fast food was likely linked to a higher incidence of primary dysmenorrhea. These foods are typically high in saturated fats, refined sugars, and salt while having low in essential nutrients like fiber which may disrupt hormone metabolism during menstruation.

Similarly, study by Negi et al, (2018) conducted on 470 students in the Garhwal region showed that dysmenorrhea is present in more than half of the participants which is 295 students. From the finding of lifestyle patterns, there is only 149 of them consumed a healthy diet whereas most of them had poor dietary habits. The study by Muluneh et al. (2018) identified a correlation between dysmenorrhea and excessive sugar consumption, presumably because sugary foods elevate prostaglandin release. High prostaglandin levels can lead to vasoconstriction of blood vessels. and resulting in uterine cramps (Itani et al., 2022). This study also supports the fact that 70% to 90% of teenage girls suffer from dysmenorrhea. Therefore, it is important to look up dietary habits to maintain good health not only for menstrual health but holistically.

2.2.2 Physical activity on dysmenorrhea

The study by Muluneh et al. (2018) on the prevalence and factors of dysmenorrhea among secondary and preparatory school students indicates that exercise alleviates the symptoms associated with dysmenorrhea. Muluneh et al. (2018) concluded that physical activity serves as a protective factor against dysmenorrhea. This is due to regular physical

activity may mitigate the severity of menstrual pain through physiological mechanisms such as improved blood circulation and the release of endorphins, which enhance pain tolerance. However, a contrasting study conducted in Egypt revealed no significant relationship between physical activity and dysmenorrhea, likely due to differences in how physical activity was measured (Nooh, 2015). In the study, the physical activity was measured by asking the students to self-report whether they engaged in regular, irregular, or no physical activity. A study conducted by Wildayani et al. (2023) at SMP Negeri 16 Padang revealed that students who did not exercise regularly had a higher risk of having dysmenorrhea compared to those who exercised regularly.

Further supporting evidence comes from Triwahyuningsih et al. (2024), who discovered that lower levels of dysmenorrhea are linked to higher levels of physical activity. This is due to the body's production of endorphins during physical activity, which act as natural sedatives by relieving pain, reducing stress, and improving mood (Watson, 2021). Additionally, John et al. (2021) found a similar correlation between physical activity and menstrual disorder. Generally, exercise can help menstruating women with symptoms of premenstrual syndrome and dysmenorrhea by relaxing the muscles and reducing bloating. Despite these benefits, many teenage girls mistakenly believe that exercising during their periods worsens dysmenorrhea. Therefore, promoting regular exercise may be an effective non-pharmacological strategy for managing dysmenorrhea among young females.

2.3 Level of intensity of dysmenorrhea

Pain is an aversive sensory and emotional response triggered by actual or potential injury to tissue (International Association for the Study of Pain, 2020). Pain is profoundly subjective and the patient's self-report constitutes the definitive standard in pain assessment (Ministry of Health Malaysia, 2018). Therefore, the level of intensity of dysmenorrhea is

subjective and it is based on the pain tolerance of the individuals. A study by Tataj-Puzyna et al. (2021), found that 183 out of 192 women experienced pain during menstruation. The study findings indicated that over half of the women rated their menstrual pain as severe, with reported symptoms such as low mood, irritability, and fatigue. Fernández-Martínez et al. (2018) found most of the students have moderate levels of intensity preferred the use of analgesics such as ibuprofen for relief.

Another study by Azagew et al. (2020) conducted among 459 female students in Gondar town found that majority of the students experienced primary dysmenorrhea. The results showed that 83 students, 174 students, and 29 reported having mild, moderate, and severe dysmenorrhea respectively. The participants experienced the symptoms of primary dysmenorrhea including lower abdominal pain, back pain, headache, and fatigue. The study additionally reported that students with dysmenorrhea tend to be absent from school due to effects of menstrual pain and took analgesic drugs to relieve the pain.

Fernandez et al. (2020) highlights that 2375 women reported experiencing menstrual pains. There is less than half of the women rated their level of pain between 7 and 10 out of 10, which is primarily associated with younger women (16-24 years old) which is considered as severe dysmenorrhea. Thus, majority of younger women experience moderate to severe dysmenorrhea, which is distracting to their everyday lives as well as impacting their quality of life.

2.4 Relationship between the lifestyle habits and the intensity of dysmenorrhea

A study by Hernanto et al. (2022) revealed that lifestyle factors particularly dietary habits and physical activity levels, can influence the intensity of dysmenorrhea. Increased consumption of fast food, which is high in trans fats causes higher levels of prostaglandin

production leading to more intense uterine contraction and pain during menstruation. In contrast, physical activity levels do not significantly influence the intensity of dysmenorrhea. Another study by Al-Husban et al. (2022) analyses the gap between females experiencing severe and mild dysmenorrhea. Severe dysmenorrhea was correlated with dietary habits including meat consumption, fruit intake, hydration, and the intake of sugar and caffeine. A strong relationship was identified between non-meat eaters and the occurrence of severe dysmenorrhea. Moreover, excessive intake of sugar and caffeine will lead to severe dysmenorrhea.

A study conducted by Sari et al. (2021) proved that nutritional status plays a crucial role in the experience of dysmenorrhea. Poor nutritional status can lead to weak physical condition and reduce pain resistance, affecting the body's ability to manage the pain. Besides, nutritional status can also affect the prostaglandin levels in the body. Higher body fat levels which are always associated with poor dietary habits, can lead to increased prostaglandin production. However, the researcher revealed that physical activity and the intensity of dysmenorrhea have a weak correlation.

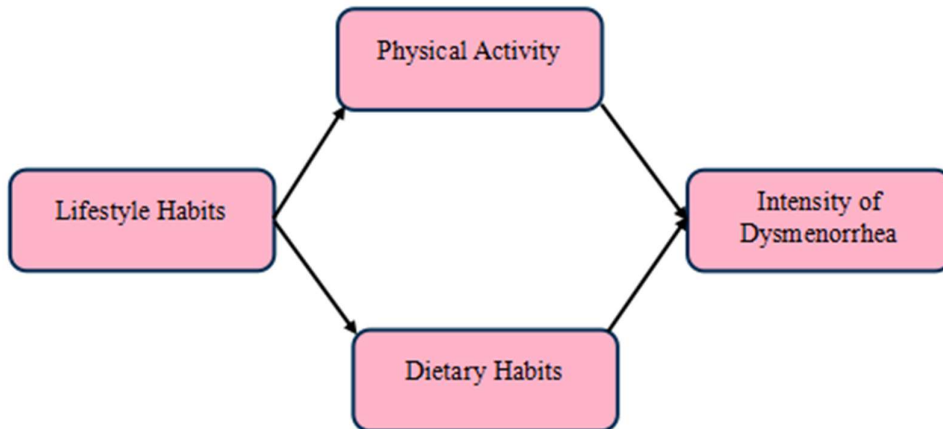
A result obtained from Cholbeigi et al. (2022) showed that high school students with good nutrition intake and regular exercise have less chance of having dysmenorrhea. Poor dietary practices such as skipping meals, or following restrictive diets for weight loss can exacerbate the symptoms of dysmenorrhea. Additionally, the study also indicates that increased physical activity particularly exercise, is correlated to a reduction in the severity of dysmenorrhea. Therefore, exercise and nutrition are consistently two of the most important lifestyle choices affecting the occurrence and intensity of dysmenorrhea (Abadi et al., 2018).

2.5 Conceptual framework

The conceptual framework proposes the influences of lifestyle habits which are physical activity and dietary habits on the intensity of dysmenorrhea among female nursing students in UNIMAS. Physical activity and dietary habits are independent variables while the intensity of the dysmenorrhea is the dependent variable. Therefore, this conceptual framework provides a guide for exploring the relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing students in UNIMAS.

Figure 2.1

Conceptual Framework Map



2.6 Summary

Essentially, research about lifestyle habits specifically dietary habits and physical activity on dysmenorrhea among nursing students is vital to be conducted. Despite extensive research has been conducted globally on the lifestyle associated with dysmenorrhea, which involves various populations such as medical and nursing students, high school students, and communities, there is a scarcity of studies specifically focusing on the dietary habits and physical activity on dysmenorrhea among nursing students in Sarawak, Malaysia particularly in UNIMAS. Therefore, it is imperative to conduct this research to determine the lifestyle habits of dysmenorrhea among nursing students in UNIMAS.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter outlines the research design, setting, and population in Sections 3.2, 3.3, and 3.4, respectively. Section 3.5 details the sampling method, sample size, and inclusion and exclusion criteria. The research instruments are discussed in Section 3.6, while ethical considerations are addressed in Section 3.7. Section 3.8 presents the pilot study, and Section 3.9 describes the data collection procedures. Data analysis method in Section 3.10. Finally, Section 3.11 provides a summary.

3.1 Research Design

This study employed a cross-sectional quantitative research design. Bhandari (2020) states that quantitative research involve the systematic collection and analysis of numerical data to describe, predict, or control the variables of interest. Thus, the variables and the objectives of this study are well aligned with the quantitative research methodology, as the aim of this study is to assess the lifestyle habits and the intensity of dysmenorrhea among female nursing students in UMINAS. A cross-sectional study is suitable for analysing relationships between variables at one specific point in time (Thomas, 2020). This research design facilitates the efficient and cost-effective collection of data from multiple participants, without requiring continuous follow-up over time. It is well-suited for the scope of this research, considering the time and financial limitations.

3.2 Research Setting

This study was conducted at the University of Malaysia Sarawak (UNIMAS) within the Faculty of Medicine and Health Sciences (FMHS) which is located at Jalan Datuk Mohammad Musa, 94300 Kota Samarahan, Sarawak.

3.3 Population

The target population of this study comprises exclusively female nursing students at UNIMAS from Year 1 to Year 4 including post-registration students. Specifically, there were 46 students in Year 1, 50 in Year 2, 54 in Year 3, and 49 in Year 4 bringing the total to 197.

Inclusion criteria:

- Female nursing students in UNIMAS from Year 1 to Year 4.
- Post-registration female nursing students.

Exclusion criteria:

- Female nursing students who had been recruited in the pilot study.

3.4 Sampling

This section presents the sampling method, sample size.

3.4.1 Sampling Method

A sample is a sub-collection of elements drawn from a population. The data for this study were collected by using simple random sampling among the female nursing students in UNIMAS, in which every student has an equal chance of being chosen. Simple random sampling is categorised under probability sampling. This method is used to help prevent research biases, such as selection bias (Thomas, 2020).

The sample was generated using a computer program (Microsoft Excel) to produce random numbers, compile a numerical list, and develop the sample size (Rahi, 2017). A list of nursing students from Years 1 to 4 was obtained from the academic office of the FMHS, UNIMAS. Therefore, female names from the list were organized numerically in Excel, then enter the formula = RAND () and press the 'Enter' key. The list was then sorted based on the generated random numbers, and participants were selected accordingly.

3.4.2 Sample Size

The sample size has been calculated using Taro Yamane's (1973) simplified formula. The sample size calculation was as follows:

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

n = sample size

N = population size

e = error (0.05) reliability level 95%

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

$$n = \frac{197}{1+(197)(0.05)^2}$$

$$= 131.99$$

≈132 participants

Based on this formula, the calculated sample size for this study is 132 participants. Nevertheless, the researcher must consider the participants who decline to participate or withdraw from the study. Thus, the researcher needs to increase the sample size by 10% to

cover the missing data in the sample (Andrade, 2020). After adding 10%, the total sample size is 145 participants. The calculation is as follows:

Calculation of sample size with non-response rate:

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

= 132 + (132 x 10%)

= 145.2

= 145 participants

In conclusion, the total sample size is 145 participants.

3.5 Research Instrument

A printed self-administered questionnaire was used and distributed to the participants. The questionnaire was presented in English. The questionnaire was adapted from the previous studies (Al-Husban et al., 2022), (Abadi et al., 2018) and (Teherán et al., 2018). There were four parts of the questionnaire: Socio-demographic characteristics in Part (A), dietary habits in Part (B), physical activity in Part (C), and in Part (D) is the intensity of dysmenorrhea.

In part (A), information on the participant's socio-demographics, including the participant's age, religion, ethnicity, year of study, family history of dysmenorrhea and age of menarche were gathered. In this part, the participants needed to tick their answers in the box provided, and certain questions needed to be filled in.

Part (B) was adapted from (Al-Husban et al., 2022) and it consists of 11 items to assess the dietary habits of the female nursing students in UNIMAS. This part assessed using a five-point Likert scale with the options never = 0, once per week = 1, 2-4 times per week

= 2, more than 4 times per week = 3, and daily = 4. The participants must tick their answer in the provided box. Question 1 to 5 were negative statements and were reverse coded.

Part (C) was from (Abadi et al., 2018) and it consists of 12 items filled in the blanks which to assess the physical activity of the female nursing students in UNMAS. The participants need to fill in the blanks with their answers about the day and hour of doing the activity. IPAQ was employed to examine the participant's level of physical activity. The results were categorized based on metabolic equivalent tasks (MET) into low activity (<600 MET), moderate activity (600 to <1500 MET), and high activity (1500 – 3000 MET) (Triwahyuningsih et al., 2024).

Part D of the questionnaire was adapted from Teherán et al. (2018) and comprises seven multiple-choice items designed to assess the intensity of dysmenorrhea among female nursing students at UNIMAS. This section utilizes the WaLIDD scoring system to evaluate the severity and impact of menstrual pain on the participants. However, only four questions that will be evaluated to determine the intensity of dysmenorrhea which are days of pain (0 = 0 day, 1 = 1-2 days, 2 = 3-4 days, 3 = more than 5 days), severity of pain (0 = does not hurt, 1 = hurts a little bit, 2 = Hurts a little more, 3 = Hurts a whole lot), location of pain (0 = none, 1 = 1 site, 2 = 2-3 sites, 3 = 4 sites) and working ability (0 = never, 1 = almost never, 2 = almost always, 3 = always). The total intensity of dysmenorrhea score was categorized as no dysmenorrhea (0), mild (1- 4), moderate (5 - 7), severe (8 - 12).

3.6 Ethical Consideration

A letter of ethical approval from the Research and Ethics Committee, FMHS, UNIMAS was obtained before conducting the study with the references UNIMAS/NC - 21.05/03-03 Jld. 8(122). Before the study, the participants received informed consent

indicating their willingness to participate. Besides, the participants were notified in advance of their rights to withdraw from the study without facing any repercussions or penalty. Other than that, a formal email was sent to the authors to request permission and access to the research materials specifically the questionnaire used in this study. All the data obtained are kept confidential and used exclusively for research purposes with access restricted to the researcher and supervisor. Confidentiality and anonymity were upheld throughout the study, as no personal information was included in the questionnaire, instead, coding was used as a reference for the researcher. The confidentiality of the participants was maintained by labeling them using numbering instead of their names. All collected data will be securely stored and retained for a period 5 years.

3.7 Data Collection Procedures

3.7.1 Pilot study

A pilot study was carried out before the main study for participants who meet the inclusion criteria. This process aims to evaluate both the reliability and validity of the questionnaire. Reliability refers to the consistency of the instrument, whereas validity is defined as the accuracy with which a methodology measures the variable it intends to measure (Ahmed & Ishtiaq, 2021). The pilot study, as the initial phase of the research protocol, is essential for refining the technique and enhancing the overall quality of the study (Pearson et al., 2020). According to Menon et al. (2021), the pilot study involved 10% of the total sample size. Cronbach's alpha used to analyse the reliability of the instruments and internal consistency. A range value of Cronbach alpha that is acceptable is must $\alpha \geq 0.7$. Aside from that, the nursing practice specialist who is the senior lecturer and supervisor, concurred on the face and content validity of the questionnaire. Hence, they need to evaluate

the validity of the questionnaire in measuring the influences of lifestyle habits on the intensity of dysmenorrhea of the participants.

Thus, to perform the pilot study, 10% of the total sample size was selected. The sample size of this study was 145 participants, therefore the 10% of sample size were 14.5 \approx 15. In conclusion, 15 of female nursing students were chosen for participation in the pilot study. These participants were excluded from the main study. Furthermore, the data obtained from the pilot study also excluded into the final analysis of the actual study. The Cronbach's Alpha scores for dietary habits, physical activity and intensity of dysmenorrhea were .728, .836 and .758 respectively.

Table 3.1

Cronbach's Alpha Test Results

Reliability statistics		
	Cronbach's Alpha	Number of items
Dietary habits	.728	11
International Physical Activity Questionnaire	.836	12
Intensity of Dysmenorrhea (WaLLID score)	.758	7

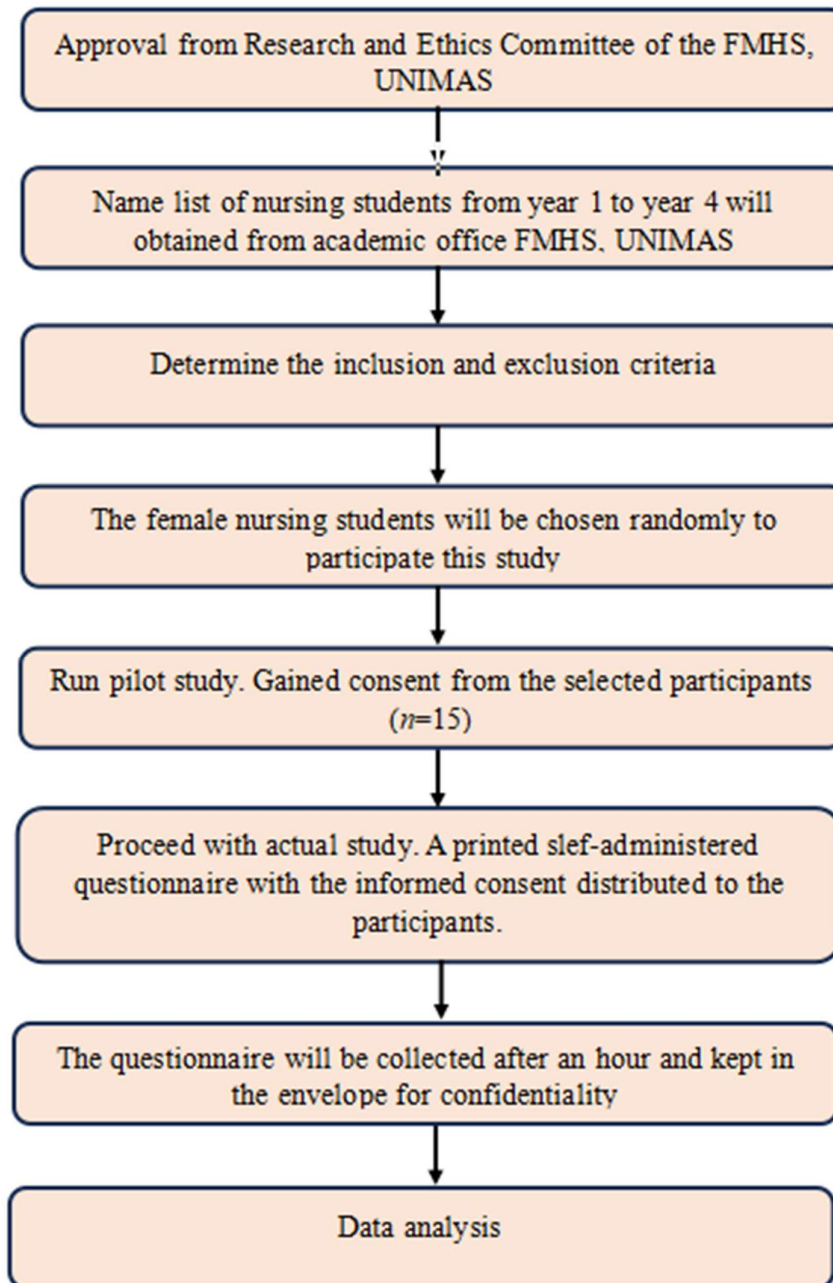
3.7.2 Actual study

This study used a simple random sampling method to select the participants from the targeted population. First and foremost, the inclusion-exclusion criteria were determined to delineate the target population of the study which consisted of female nursing students in UNIMAS. A complete list of nursing students from Year 1 to Year 4 was obtained from the academic office at FMHS, UNIMAS. The sample size of the study was 145 nursing students.

This study utilised a printed self-administered questionnaire developed in English. Female nursing students were randomly selected to participate and were informed of their right to withdraw from the study at any time without consequence. The researcher distributed the questionnaires to the participants and collected after one hour. The completed questionnaires were securely placed in sealed envelopes to maintain confidentiality. Before the commencement of the study, each participant needed to sign informed consent before answering the questionnaire. The contact number of the researcher was provided at the bottom of the consent form allowing the participants to reach out to the researcher if they have any enquiries regarding the questionnaire.

Figure 3.1

Data Collection Procedure



3.8 Data Analysis

The gathered data were analysed using the Statistical Package for the Social Sciences (SPSS), version 27 IBM. Both descriptive and inferential statistical methods were employed for analysis.

Descriptive statistics were employed to analyse socio-demographic characteristics, dietary habits and the level of intensity of dysmenorrhea. In part A, socio-demographic variables such as participant's age, religion, ethnicity, year of study, family history of dysmenorrhea and age of menarche were classified as categorical data. The findings were analysed using statistical measures such as frequencies and percentages and visualised through bar charts.

Inferential statistics were applied to assess the statistical relationship between lifestyle habits, which are dietary habits and physical activity and the level of intensity of dysmenorrhea. Data such as the total score of dietary habits and physical activity were presented as continuous data and reported as standard deviations and means if normally distributed or as interquartile ranges and medians if not. The Kolmogorov-Smirnov test was used to test the normality of continuous data, given that the sample size exceeds 50 participants. The result of the data gives a p-value of less than 0.05, which will indicate that the data are not normally distributed, violating the assumptions of normality, and if it is greater than 0.05, it will indicate normally distributed (Mishra et al., 2019). The study aims to assess the lifestyle habits and the intensity of dysmenorrhea among female nursing students in UNIMAS. Therefore, the relationship between these variables was analysed using Spearman's rho correlation test. According to Purba et al. (2023), the value of correlation coefficient $r_s = 0.01 - 0.19$ indicates no correlation, $r_s = 0.20 - 0.29$ reflects weak

correlation, $r_s = 0.30 - 0.39$ indicates intermediate correlation, $r_s = 0.40 - 0.69$ suggests strong correlation and $r_s = > 0.70$ indicates very strong correlation.

3.9 Summary

In summary, this study was conducted as a cross-sectional qualitatively in the FMHS at UNIMAS. It will involve 197 participants from Year 1 to Year 4 including post-registration nursing students in UNIMAS. Simple random sampling was employed and calculated using the Taro Yamane formula (1973), resulting in 145 participants. The study's instruments consist of four parts and a printed self-administered questionnaires were distributed to the participants. Ethical approval was obtained before any data collection. Lastly, data gathered were analysed using IBM SPSS Statistics version 27, employing both descriptive and inferential statistics.

CHAPTER 4: RESULT

4.0 Introduction

This chapter present the result obtained from 145 female nursing students in UNIMAS. All the result were acquired based on the research objectives of this study were to identify the lifestyle habits that influencing the presence of dysmenorrhea, to determine the level of intensity of dysmenorrhea and to assess the relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing students in UNIMAS. In section 4.1 presents the socio-demographic characteristics of the female nursing students in UNIMAS. Section 4.2 present the dietary habits of the female nursing students in UNIMAS while Section 4.3 presents their physical activity. Section 4.4 present the intensity of dysmenorrhea among female nursing students. Section 4.5 present the level of intensity of dysmenorrhea among female nursing students and Section 4.6 presents the lifestyle habits influence the presence of dysmenorrhea among female nursing students in UNIMAS. Section 4.7 presents the relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing student in UNIMAS and Section 4.8 present the summary of this chapter 4.

4.1 Socio-demographic characteristics of female nursing student in UNIMAS

The socio-demographic data was tabulated which consist of age, religion, ethnicity, year of study, family history of dysmenorrhea and age of menarche. A total of 145 female nursing students in UNIMAS were recruited. The response rate reached 100% which were 145 participants. A Kolmogorov-Smirnov test of age showed a significant departure from normality, $D(145) = .146, p < .001$. The median age among the participants was 22 years old ($IQR = 2$ years old). The maximum age was 34 years old while the minimum age was 19

years old. There were no outliers or extreme values from this data. Most participants were Malay ($n = 61, 42.1\%$) and the Islam is their religion ($n = 86, 59.3\%$). Followed by Christian ($n = 57, 39.3\%$), Buddha and Hindu were each ($n = 1, .7\%$). Bumiputera Sarawak were ($n = 45, 31.0\%$), Bumiputera Sabah ($n = 32, 22.1\%$), Chinese ($n = 6, 4.1\%$), and India ($n = 1, .7\%$). Most of the participants were in year 3 female nursing students ($n = 39, 26.9\%$), followed by year 1 female nursing students ($n = 38, 26.2\%$) and year 2 and year 4 female nursing students were each ($n = 34, 23.4\%$). Out of 145 participants, 89 (61.4%) has no family history of dysmenorrhea and 56 (38.6%) of them has family history of dysmenorrhea. A Kolmogorov- Smirnov test of age of menarche showed a significant departure from normality, $D(145) = .220, p < .001$. The median age of menarche among the participants was 12 years old ($IQR = 2$ years old). The maximum age of menarche was 15 years old while the minimum age of menarche was 10 years old.

Table 4.1

Socio-Demographic Variables of Female Nursing Students in UNIMAS (n=145)

Description	n	%	Mdn	IQR
Age				
19 years old	2	1.4		
20 years old	30	20.7	22	2
21 years old	32	22.1		
22 years old	32	22.1		
23 years old	34	23.4		
24 years old	13	9.0		
26 years old	1	.7		
34 years old	1	.7		
Religion				
Islam	86	59.3		
Christian	57	39.3		
Buddha	1	.7		
Hindu	1	.7		

Ethnicity				
Malay	61	42.1		
Chinese	6	4.1		
India	1	.7		
Bumiputera Sabah	32	22.1		
Bumiputera Sarawak	45	31.0		
Year of study				
Year 1	38	26.2		
Year 2	34	23.4		
Year 3	39	26.9		
Year 4	34	23.4		
Family history of dysmenorrhea				
Yes	56	38.6		
No	89	61.4		
Age of menarche				
10 years old	16	11.0		
11 years old	28	19.3		
12 years old	61	42.1	12	2
13 years old	24	16.6		
14 years old	13	9.0		
15 years old	3	2.1		

Note: n: frequency, %: percentages, Median (Mdn), Interquartile range (IQR)

4.2 Dietary habits of the female nursing students in UNIMAS

Table 4.2 presents the results of the dietary habits of female nursing students in UNIMAS. Overall, the findings indicate that the dietary habits of the participants were poor. More than half of the participants had poor dietary habits which were 86 (59.3%), while only 56 (40.7) had good dietary habits. Only 3 (2.1%) participants reported never consuming fast food, while 142 (97.9%) participants consumed fast food at least once a week, and over 35% ate it more than twice a week. A total of 127 (87.6%) participants reported consuming carbonated beverages, with 31.7% drinking them two or more times per week. A large majority, 109 (75.2%) participants, consumed sugary foods such as cookies two or more

times per week, and 29.7% consumed them more than four times per week or daily. Additionally, most participants had an inadequate intake of vegetables and fruits, with only 44 (30.3%) eating vegetables daily and just 12 (8.3%) eating fruits daily.

Table 4.2

Dietary Habits of the Female Nursing Students in UNIMAS (n=145)

Items	n (%)				
	Never	Once per week	2-4 times per week	More than 4 times per week	Daily
1. How frequently do you consume fast food, such as hamburgers or pizza?	3 (2.1%)	89 (61.4%)	46 (31.7%)	5 (3.4%)	2 (1.4%)
2. How often do you drink carbonated beverages	18 (12.4%)	81 (55.9%)	39 (26.9%)	7 (4.8%)	0 (0%)
3. How regularly do you drink tea?	11 (7.6%)	51 (35.2%)	60 (41.4%)	19 (13.1%)	4 (2.8%)
4. How regularly do you drink coffee?	55 (37.9%)	41 (28.3%)	31 (21.4%)	8 (5.5%)	10 (6.9%)
5. How often do you eat sugary foods such as cookies, pastries, sweets, or candies?	1 (0.7%)	35 (24.1%)	66 (45.5%)	30 (20.7%)	13 (9.0%)
6. How frequently do you include vegetables in your meals?	3 (2.1%)	20 (13.8%)	39 (26.9%)	39 (26.9%)	44 (30.3%)

7.	How often do you consume fish?	12 (8.3%)	71 (49.0%)	47 (32.4%)	10 (6.9%)	5 (3.4%)
8.	How frequently do you eat meat?	3 (2.1%)	23 (15.9%)	55 (37.9%)	27 (18.6%)	37 (25.5%)
9.	How regularly do you eat fruits?	3 (2.1%)	55 (37.9%)	60 (41.4%)	15 (10.3%)	12 (8.3%)
10.	How often do you consume whole-grain cereals	28 (19.3%)	66 (45.5%)	31 (21.4%)	12 (8.3%)	8 (5.5%)
11.	How often do you consume dairy products such as milk, cheese, or yogurt?	9 (6.2%)	55 (37.9%)	52 (35.9%)	17(11.7%)	12 (8.3%)

Note: n: frequency, %: percentages

Table 4.3

Classification of Dietary Habits of the Female Nursing Students in UNIMAS (n=145)

Dietary habits	n	%
Good	59	40.7
Poor	86	59.3

Note: n: frequency, %: percentages

4.3 Physical activity of the female nursing students in UNIMAS.

Table 4.4 presents the results of the physical activity levels among female nursing students at UNIMAS. The classification of physical activity was based on standard criteria outlined in IPAQ. Overall, the findings indicate that the physical activity level among the female nursing students in UNIMAS was high. A total of 93 participants (64.1%) engaged in a high level of physical activity, while 38 participants (26.2%) reported a moderate level, and 14 participants (9.7%) were found to have a low level of physical activity. As the total physical activity scores were not normally distributed, the results will be reported using the median and interquartile range for each item. Most female nursing students frequently traveled by motor vehicles (*Mdn* = 6 days/week) and engaged in walking for at least 10 minutes (*Mdn* = 5 days/week), indicating that these were the most common forms of physical activity. However, cycling and moderate-intensity activities were rarely practiced, with medians of 0 days/week and 0 hours/day, suggesting limited engagement in these forms of exercise. Vigorous activities were also low (*Mdn* = 1 day/week), though some female nursing students reported engage in it, as reflected in the interquartile ranges (IQR). Sitting was a dominant daily behavior (*Mdn* = 7 days/week, 7 hours/day), with low variability (IQR = 2 days, 6 hours), likely due to differing academic schedules and lifestyle habits.

Table 4.4*Physical Activity of the Female Nursing Students in UNMAS (n=145)*

Items	Day/Week		Hour/Day	
	Median	IQR	Median	IQR
1. How many days have you traveled with motor vehicles such as a bus, motorcycle, or car?	6	3	3	2
2. How many days have you cycled for a minimum of 10 minutes to go from place to place?	0	0	0	0
3. How many days did you walk to another place for a minimum 10 minutes to go from place to place?	5	4	2	1
4. How many days did you have intense physical activity such as aerobic exercise, running, fast biking, and playing football in your spare time?	1	2	2	3
5. How many days did you have moderate physical activities such as average-speed biking, medium-speed swimming, volleyball at your leisure?	0	1	0	2
6. How often did you spend sitting in a typical working/lecture day?	7	2	7	6

Note: Mdn: median, IQR: Interquartile range

Table 4.5*Classification of Physical Activity of the Female Nursing Students in UNIMAS (n=145)*

Physical activity	n	%
Low	14	9.7
Moderate	38	26.2
High	93	64.1

*Note: n: frequency, %: percentages***4.4 Intensity of dysmenorrhea among female nursing students in UNIMAS**

Table 4.6 presents the results on the intensity of dysmenorrhea among female nursing students in UNIMAS. Out of 145 participants, 134 (92.4%) reported experiencing pain before or during menstruation, while only 11 (7.6%) did not, indicating that dysmenorrhea is very common among the participants. A total of 94 (64.8%) participants experienced pain in 2–3 sites during menstruation. 25 (17.2%) participants reported that the pain "hurt a whole lot," and 65 (44.8%) reported it "hurt a little more," indicating that more than half of the participants experienced moderate to severe menstrual pain. The most common duration of pain was 1–2 days (n = 110, 75.9%), while 20 (13.8%) experienced pain lasting 3–5 days. Despite the high prevalence and severity, only 19 (13.1%) participants used over-the-counter or prescribed medication, and just 5 (3.4%) reported visiting a doctor for dysmenorrhea. 49 (33.8%) participants reported never having limitations in performing daily activities, while 29 (20.0%) reported almost always experiencing such limitations.

Table 4.6*Intensity of Dysmenorrhea among Female Nursing Students in UNIMAS (n=145)*

	n (%)
Do you experience pain before and /or during menstruation?	
Yes	134 (92.4%)
No	11 (7.6%)
How many sites of pain during menstruation?	
0 site	11 (7.6%)
1 site	38 (26.2%)
2-3 sites	94 (64.8%)
4 sites	2 (1.4%)
Severity of pain?	
Hurt a whole lot	25 (17.2%)
Hurt a little more	65 (44.8%)
Hurt a little bit	44 (30.3%)
Does not hurt	11 (7.6%)
Duration of menstrual pain?	
0	
1-2 days	11 (7.6%)
3-5 days	110 (75.9%)
>5 days	20 (13.8%)
	4 (2.8%)
Do you take any over the counter/prescribed medication for dysmenorrhea?	
Yes	19 (13.1%)
No	126 (86.9%)

Do you have limitations to perform daily activities?	
Never	49 (33.8%)
Almost never	58 (40.0%)
Almost always	29 (20.0%)
Always	9 (6.2%)
Did you ever visit a doctor/hospital for dysmenorrhea?	
Yes	5 (3.4%)
No	140 (96.6%)

Note: n: frequency, %: percentages

4.5 The level of intensity of dysmenorrhea among female nursing students in UNIMAS

Figure 4.1 present the result of the level of intensity of dysmenorrhea among female nursing students in UNIMAS. Most of the participants experienced moderate dysmenorrhea with total number of 78 (53.8%) as compared to 10 (6.9%) participants experiencing no dysmenorrhea during menstruation. While, 38 (26.2%) of participants experienced mild dysmenorrhea and 19 (13.1%) experienced severe dysmenorrhea.

Table 4.7

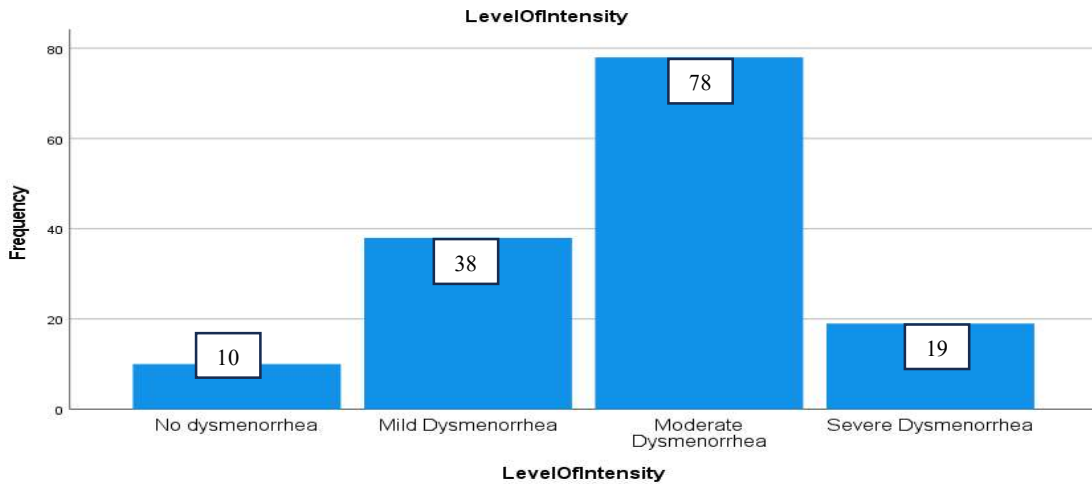
Level of Intensity of Dysmenorrhea of Female Nursing Students in UNIMAS (n=145)

Description	n	%
No dysmenorrhea	10	6.9
Mild Dysmenorrhea	38	26.2
Moderate Dysmenorrhea	78	53.8
Severe Dysmenorrhea	19	13.1

Note: n: frequency, %: percentages

Figure 4.1

Frequency Distribution of Participants by Level of Intensity of Dysmenorrhea (n=145)



4.6 The lifestyle habits influence the presence of dysmenorrhea among female nursing students in UNIMAS

Table 4.8

Normality Test for Total Score Dietary Habits and Physical Activity (n=145)

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
Total score dietary habits	.090	145	.006
Total score physical activity	.080	145	.025

The Kolmogorov- Smirnov test revealed that total score of dietary habits and physical activity was not normally distributed, $D(145) = .090, p = .006$ and $D(145) = .080, p = .025$ respectively. Thus, non-parametric test was used for this test. A Mann-Whitney U test was conducted to compare the total score of dietary habits and physical activity of the

presence of dysmenorrhea. There were no outliers and extreme values detected from the box plot.

A Mann-Whitney U test revealed that no significant difference in total score for dietary habits of no presence of dysmenorrhea ($Mdn = 19$) and presence of dysmenorrhea ($Mdn = 19$), $U(145) = 713.0$, $p = .857$. Other than that, A Mann-Whitney U test also revealed that no significant difference in total score for physical activity of no presence of dysmenorrhea ($Mdn = 2772$) and presence of dysmenorrhea ($Mdn = 2403$), $U(145) = 781.0$, $p = .742$.

Table 4.9

Mann-Whitney U Test of Total Score Dietary Habits on the Presence Of Dysmenorrhea Among Female Nursing Students in UNIMAS (n=145)

Presence of dysmenorrhea	n	%	Median	SD	U	Asymp. Sig (2-tailed)
No	11	7.6	19	5.538	713.0	.857
Yes	134	92.4	19	4.151		

Table 4.10

Mann-Whitney U Test of Total Score Physical Activity on the Presence of Dysmenorrhea among Female Nursing Students in UNIMAS (n=145)

Presence of dysmenorrhea	n	%	Median	SD	U	Asymp. Sig (2-tailed)
No	11	7.6	2772	2006.275	781.0	.742
Yes	134	92.4	2403	1508.369		

4.7 The relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing student in UNIMAS.

The normality test indicated that the total scores for dietary habits and physical activity were not normally distributed. Therefore, a non-parametric test which is the Spearman correlation coefficient was employed to examine the relationship between lifestyle habits and the intensity of dysmenorrhea. Lifestyle habits were analyzed by categorising them into two components: dietary habits and physical activity.

The relationship between total score dietary habits and intensity of dysmenorrhea was investigated using Spearman correlation coefficient. Preliminary analyses were performed and there was a violation of the assumptions of normality, $D(145) = .090$, $p = .006$. No outliers or extreme values were detected from the box plot. The relationship between dietary habits and intensity of dysmenorrhea was investigated using a Spearman correlation coefficient. There was a no relationship between dietary habits and intensity of dysmenorrhea, $r_s(145) = -.026$, $p = .758$ with poor dietary habits ($Mdn = 19$) was not associated with levels of intensity of dysmenorrhea ($Mdn = 19$).

Table 4.8

The Relationship between Dietary Habits and Intensity of Dysmenorrhea among Female Nursing Students in UNIMAS (n=145)

		Correlation		
			Dietary habits	Level of intensity
Spearman's rho	Dietary habits	Correlation Coefficient	1.00	-.026
		Sig (2-tailed)		.758
		N	145	145
	Level of intensity	Correlation Coefficient	-.026	1.00
		Sig (2-tailed)	.758	
		N	145	145

The relationship between total score physical activity and intensity of dysmenorrhea was investigated using Spearman correlation coefficient. Preliminary analyses were performed and there was a violation of the assumptions of normality, $D(145) = .080$, $p = .025$. No outliers or extreme values were detected from the box plot. The relationship between physical activity and intensity of dysmenorrhea was investigated using a Spearman correlation coefficient. There was a no relationship between physical activity and intensity of dysmenorrhea, $r_s(145) = -.045$, $p = .588$ with low level of physical activity ($Mdn = 570$) was not associated with level of intensity of dysmenorrhea ($Mdn = 19$).

Table 4.9

The Relationship between Physical Activity and Intensity of Dysmenorrhea among Female Nursing Students in UNIMAS (n=145)

		Correlation		
			Physical activity	Level of intensity
Spearman's rho	Physical activity	Correlation Coefficient	1.00	-.045
		Sig (2-tailed)		.588
		N	145	145
	Level of intensity	Correlation Coefficient	-.045	1.00
		Sig (2-tailed)	.588	
		N	145	145

4.8 Summary

In summary, the study revealed that most of the female nursing students in UNIMAS experienced moderate level of intensity of dysmenorrhea with more than 50% affected. As the data were not normally distributed, non-parametric tests were employed. Specifically, the Mann-Whitney U test was used to compare the total scores of dietary habits and physical activity in relation to the presence of dysmenorrhea. The results indicated no significant differences in either lifestyle factor with respect to the presence of the condition. Furthermore, the Spearman correlation coefficient was utilised to assess the relationship between lifestyle habits (dietary practices and physical activity) and the intensity of dysmenorrhea. The analysis revealed no significant relationship between these lifestyle factors and the severity of menstrual pain.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter presents the findings on the dietary habits and physical activity that influences the presence of the dysmenorrhea, their level of intensity of dysmenorrhea and the relationship of these lifestyle habits on the intensity of dysmenorrhea among the female nursing students in UNIMAS. In this chapter, a summary of findings or results, implication or recommendation, limitation of this study and conclusion presented.

5.1 Discussion of the findings/results

5.1.1 Level of intensity of dysmenorrhea among female nursing students in UNIMAS

The findings of this study indicate that majority of female nursing students in UNIMAS experienced dysmenorrhea. Specifically, 53.8% reported having moderate dysmenorrhea, highlighting a substantial burden of menstrual pain among university students. The low proportion of students who reported no dysmenorrhea (6.9%) further emphasizes the commonality of menstrual discomfort in this population. Out of 134 female nursing students who experienced dysmenorrhea, only 19 reported using medication such as paracetamol, ibuprofen, naproxen sodium, or mefenamic acid (Ponstan). This indicates a relatively low rate of pharmacological intervention among the female nursing students in UNIMAS.

Comparable findings were observed in the study by Fernández-Martínez et al. (2018), where 58% of students reported moderate dysmenorrhea and 38.3% reported severe pain, highlighting a similar pain intensity distribution. A study by Mansour et al. (2021) also reported that 91% of participants experienced primary dysmenorrhea, with the highest percentage experiencing moderate pain, followed by those with severe pain. These findings

indicate that a significant proportion of young women endure moderate to severe menstrual pain. Additionally, 46% of the participants stated that the pain had impacts on their daily activities, and 40% reported regularly using analgesics to manage their symptoms. This highlights the effect of dysmenorrhea not only on physical comfort but also on daily functioning and quality of life. Likewise, Azagew et al. (2020) also found that a notable proportion of female students experienced moderate dysmenorrhea, followed by severe and mild symptoms. Specifically, 37.9% reported moderate pain. The study also highlighted that most of the students used analgesics such as diclofenac, ibuprofen, and paracetamol to manage their menstrual pain. In contrast, Ullah et al. (2021) presented 65.8% experienced moderate to severe menstrual pain, yet 77% of them did not take any medication for relief. A common reason for this is concerns of the unwanted side effects, as well as the perception that pain relief from medication may be insufficient. Interestingly, Mammo et al. (2022) reported a different pain distribution, with 41% of participants experiencing mild pain, followed by 36.6% with moderate, and 22.4% with severe pain. This deviation in pain intensity patterns across studies may be influenced by individual pain perception, sociocultural differences, and variations in lifestyle.

Overall, majority of studies support the finding that moderate dysmenorrhea is highly prevalent among female students, particularly those in universities and colleges. This suggests that dysmenorrhea is a common health concern within this population, often affecting their daily activities and overall well-being. Although this level of menstrual pain is not typically debilitating, it can still significantly impact students' quality of life by interfering with their daily routines, academic performance, and emotional well-being.

5.1.2 Dietary habits influencing the presence of dysmenorrhea among female nursing students in UNIMAS.

The results of this study indicate that female nursing students in UNIMAS exhibit poor dietary habits, with a total score of 59.3%. Most of the students reported consuming fast food regularly, which is high in unhealthy fats, with only 2.1% indicating that they never consume fast food. Additionally, more than half of the female nursing students reported consuming carbonated beverages, which are high in sugar and provide no nutritional value. The students also demonstrated a low intake of vegetables, fruits, dairy products, and fish, indicating inadequate consumption of essential nutrients. However, there is no significant difference between dietary habits and the presence of dysmenorrhea among female nursing students in UNIMAS. This suggests that, within this population, dietary habits may not directly influence the presence of dysmenorrhea. These results align with the findings of Monday et al. (2019), which reported no statistically significant correlation between diet and dysmenorrhea. Similarly, a study by Bajalan et al. (2019) found no association between dietary habits, the consumption of various nutritional groups, and the intensity of dysmenorrhea.

In contrast, these results contradict with previous studies that reported a significant relationship between poor dietary habits and dysmenorrhea. For instance, Al-Husban et al. (2022) found that women experiencing severe dysmenorrhea frequently consumed high-sugar foods, indicating a possible dietary influence on pain severity. Similarly, Sundari et al. (2020) observed an association between diet and the presence of dysmenorrhea among female adolescents, noting that frequent fast food consumption was linked to a higher prevalence of primary dysmenorrhea. Furthermore, Negi et al. (2018) also reported a high prevalence of menstrual pain among students with poor dietary habits including frequently

skipping breakfast and consuming junk food. Another study by Kartal and Akyuz (2018) revealed that students commonly consumed foods that may contribute to primary dysmenorrhea, such as coffee, and foods high in fat and sugar. Aktas et al. (2023) supported these findings, identifying a relationship between nutritional habits and primary dysmenorrhea.

The contradiction in findings across studies suggests that the impact of dietary habits on dysmenorrhea may vary depending on specific factors such as characteristics of the population being studied. These characteristics include demographic elements such as age, which can influence hormonal profiles and dietary needs, as well as genetic predispositions that may affect an individual's sensitivity to certain foods or nutrients. Cultural dietary patterns also play a significant role, as people from different regions may consume vastly different types of foods, preparation methods, and nutrient combinations. Although this study found no significant difference between dietary habits and the presence of dysmenorrhea among female nursing students in UNIMAS, the broader body of literature suggests that dietary habits may still be a factor in the experience and intensity of dysmenorrhea, particularly when unhealthy eating behaviors are prevalent.

5.1.3 Physical activity influencing the presence of dysmenorrhea among female nursing students in UNIMAS

The study's outcomes revealed that majority of female nursing students in UNIMAS engaged in a high level of physical activity, with 64.1% reporting high activity levels. Meanwhile, 26.2% and 9.7% of the participants reported moderate and mild levels of physical activity respectively. However, the study found not statistically significant between physical activity and the presence of dysmenorrhea. This suggests that, within this specific population, the levels of physical activity did not appear to influence whether students

experienced dysmenorrhea. Consistent results were observed in the studies by Helwa et al. (2018) and Al-Matouq et al. (2019), which also reported no association between physical activity and the presence or severity of dysmenorrhea. This is due to the difficulty in measuring students' physical activity, as different measurement tools are used, which can lead to non-differential misclassification. Helwa et al. (2018) also emphasized the need for further research to explain the relationship between physical activity and dysmenorrhea.

However, contrasting results have been reported in other studies. For instance, Muluneh et al. (2018) found that physical activity alleviated dysmenorrhea symptoms, likely due to physiological mechanisms such as improved blood circulation and the release of endorphins, which act as natural painkillers. Other than that, Wildayani et al. (2023) reported that students who exercised infrequently were more likely to experience dysmenorrhea than those who exercised regularly (30–60 minutes, 3–5 times a week). A study by Ning et al. (2020) reported a moderate negative correlation between physical activity and the intensity of dysmenorrhea, indicating that higher engagement in physical activity corresponded with decreased menstrual discomfort. Moreover, a study conducted by Wiratni et al. (2024) found that there is a significant relationship ($p < 0.05$) between a sedentary lifestyle and the intensity of primary dysmenorrhea in high school adolescents. Another study by John et al. (2021) found that exercise also helps manage menstrual disorders broadly, including PMS and dysmenorrhea, by relaxing muscles and reducing bloating.

In summary, this study showed that physical activity was not significantly related to dysmenorrhea among female nursing students in UNIMAS. One factors of this study did not find a significant may due to a measurement limitation which the physical levels were self-reported and not accurately reflect the participants of actual activity patterns.

5.1.4 The relationship between lifestyle habits and the intensity of dysmenorrhea among female nursing students in UNIMAS

The results of this study showed that 92.4% of female nursing students in UNIMAS experienced dysmenorrhea with varying levels of intensity. Their lifestyle habits, particularly dietary habits, and physical activity, were examined. The relationship between these lifestyle habits and the intensity of dysmenorrhea showed no significant relationship. Specifically, dietary habits ($r_s = .776$) and physical activity ($r_s = .588$) had correlation coefficients of less than 0.1 with the intensity of dysmenorrhea, indicating no significant relationship between these variables. This reflects that, the variations in dietary habits or activity levels did not correspond with changes in the severity of menstrual pain.

In contrast, Hernanto et al. (2022) found that diet, particularly fast-food high in trans fats, significantly influenced the severity of dysmenorrhea, while physical activity showed no significant impact. Similarly, Syamsudi et al. (2024) reported no association between physical activity and dysmenorrhea, however, dietary intake, especially vitamin B12, was significantly associated with dysmenorrhea severity. Bolkar et al. (2023) further highlighted the role of vitamins specifically B1, B2, B5, B6, D, and E as major contributors to pain modulation in dysmenorrhea.

Conversely, Cholbeigi et al. (2022) found that both nutrition and exercise were significantly associated with a reduction in dysmenorrhea severity. Supporting this, Maharani and Khumairoh (2024) identified lifestyle factors such as exercise, stress, consumption of fast food, and overall diet as contributors to the occurrence of dysmenorrhea among female students. Likewise, Mansour et al. (2021) reported a statistically significant relationship between primary dysmenorrhea and factors such as skipping breakfast, food type, fast food consumption, water intake, caffeine consumption, and regular exercise.

There are several possible reasons why no significant relationship was observed in this study. Using self-reported data, especially for dietary intake and physical activity, may have introduced response bias which can affect the accuracy of the results. As noted by Scott and Balthrop (2021), even without the intention to mislead, self-reported information can still be incomplete or inaccurate. This type of bias may lead to data that do not truly reflect the participants' actual behaviors or lifestyle habits. Other than that, the use of general lifestyle assessments rather than detailed dietary and activity tracking tools may have limited the sensitivity of the measurements that can reduced accuracy of the data. Additionally, other unmeasured factors such as stress level, genetic predisposition, and hormonal fluctuations could have played a more prominent role in the experience of menstrual pain.

Overall, both dietary habits and physical activity are recognized as key modifiable lifestyle factors. When both are practiced in a healthy and balanced manner, the risk and severity of dysmenorrhea tend to decrease. Although physical activity alone may not consistently show a strong correlation with dysmenorrhea, the combined effect of a nutritious diet and regular exercise appears to be associated with reduced severity and incidence.

5.2 Summary of the findings/results

In summary, most of the female nursing students in UNIMAS experienced dysmenorrhea, with the majority reporting a moderate level (n = 78, 53.8%) followed by mild (n = 38, 26.2%) and severe (n = 19, 13.1%) levels. Only 10 students (6.9%) reported no experience of dysmenorrhea. The study found no significant relationship between dietary habits and physical activity with the presence of dysmenorrhea. Furthermore, there was no significant relationship between these lifestyle factors and the intensity of dysmenorrhea.

5.3 Implication, recommendations, and future research of the study

5.3.1 Implication

The findings of this study carry several important implications for both healthcare education and student well-being. The results revealed that majority of female nursing students in UNIMAS experience dysmenorrhea, highlighting that menstrual pain is a prevalent and significant health concern within this population. The high prevalence of dysmenorrhea underscores its widespread impact among young women, particularly those in university settings. Despite its common occurrence, dysmenorrhea is frequently underreported, inadequately managed, or dismissed as a normal aspect of the menstrual cycle. This normalization may lead to neglect in seeking appropriate treatment, ultimately affecting students' academic performance, clinical responsibilities, and overall quality of life.

The absence of a statistically significant relationship between dietary habits, physical activity, and the intensity of dysmenorrhea among female nursing students in UNIMAS suggests that these lifestyle factors may not independently contribute to the severity of menstrual pain within this population. These findings reinforce the multifactorial nature of dysmenorrhea, indicating that its intensity is likely influenced by a genetic, hormonal, psychological, and environmental factors rather than lifestyle behaviors alone. Consequently, this underscores the importance of adopting a more holistic and multidimensional approach in the assessment and management of menstrual health.

5.3.2 Recommendation

Based on the findings of this study, it is recommended to enhance awareness of dysmenorrhea among female nursing students in UNIMAS. Awareness initiatives may

include the development and dissemination of educational materials, such as posters and infographics, strategically placed throughout the faculty. These materials should focus on early symptoms of dysmenorrhea, evidence-based pain management strategies, and preventive measures. Such interventions have the potential to improve students' knowledge and attitudes toward menstrual health.

Furthermore, webinars and interactive sessions can be organized in collaboration with healthcare professionals, including nurses and gynecologists, to facilitate discussions on dysmenorrhea and emphasize the importance of maintaining healthy lifestyle habits for overall well-being. In addition, the faculty could consider providing free or subsidized menstrual health kits, which may include heating patches, educational pamphlets, and samples of over-the-counter pain relief medications. These efforts aim to empower students with the necessary knowledge and resources to manage dysmenorrhea effectively and to foster a supportive environment within the academic setting.

5.3.3 Future Research

Further investigations are needed to examine the influence of lifestyle habits on the intensity of dysmenorrhea, as there is a lack of studies on this topic and existing findings are inconsistent. Additionally, future research should consider expanding the study population to include students from other faculties at UNIMAS. This would allow for comparisons between groups and help increase the generalizability of the findings. It would also be beneficial to explore how different academic schedules and demands may affect students' lifestyle habits and, in turn, the severity of dysmenorrhea. Other than that, further studies should examine other contributing factors to dysmenorrhea, such as stress level, genetic predisposition, and hormonal fluctuations. Overall, this study can serve as a valuable

reference for future research on the impact of lifestyle habits on dysmenorrhea among female nursing students in Malaysia and other countries.

5.4 Limitation of the study

This study faced several limitations including limitation on time. The researcher faced time constraints in conducting this study due to demanding schedule and additional responsibilities within the nursing programme. Furthermore, the data collection for this study only focused on female nursing students in FMHS, UNIMAS. Thus, the results have limited generalizability and were not represents other female nursing students in other institutions.

5.5 Conclusion

This study found that dysmenorrhea is common among female nursing students at UNIMAS, with most experiencing moderate pain. However, no significant link was observed between dietary habits or physical activity and the severity of menstrual pain, contrary to previous research. This may be due to sample similarities, measurement limitations, or unmeasured factors like stress or hormones. Despite the lack of associations, the high prevalence of dysmenorrhea highlights the need for further research using a more comprehensive approach that includes psychological, physiological, and lifestyle factors.

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APPENDICES

Appendix A: Ethical Approval Application Letter

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

UNIVERSITI MALAYSIA
SARAWAK
94300 Kota Samarahan

MEMORANDUM

Reference : UNIMAS/NC-21.05/03-03 Jld. 8(122)

To : Selvianie Saning (81111)
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: The Influences of Lifestyle Habit on the Intensity of Dysmenorrhea Among Female Nursing Students in 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 : Selvianie Saning

Student ID : 81111

Programme : Bachelor of Nursing with Honours

Research Title : *The Influences of Lifestyle Habit on the Intensity of Dysmenorrhea Among Female Nursing Students in UNIMAS*

Supervisor Name : Madam Roziah binti Arabi

Supervisor H/P : +60 13-394 7728

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

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

Thank you with regards and well wishes.

Yours sincerely,



Professor Dr. Asri bin Said
Dean

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

Appendix B: Cover Letter for Ethical Application

Selvianie Binti Saning,

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.

16th 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: Selvianie Binti Saning

Matrix number: 81111

IC No.: 010302-120526

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: The Influences of Lifestyle Habits on the Intensity of Dysmenorrhea Among Female Nursing Students in UNIMAS.

Supervisor's name: Madam 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,

Sel

(Selvianie Binti Saning)

Appendix C: Participant Information Sheet (PIS)



PARTICIPANT INFORMATION SHEET/ MAKLUMAT KAJIAN PESERTA

1. Title of the study/ *Tajuk kajian* : The Influences of Lifestyle Habits on The Intensity of Dysmenorrhea Among Female Nursing Students in UNIMAS.
2. Main Researcher/ *Penyelidik utama* : Selvianie binti Saning
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 assess the lifestyle habits and the intensity of dysmenorrhea among female nursing students in UMINAS.

This research will be conducted for 6 months (25/1/2025 till 30/6/2025). The expected number of participants is 197 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 15 minutes of your time. Study team will also access your medical records for the following information.

This form contains four sections, which will ask about socio-demographic, physical activity, dietary habits, and the intensity of dysmenorrhea.

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 direct benefits to you. However, your involvement will help advance understanding of how lifestyle habits influence the intensity of dysmenorrhea among female nursing

students. However, it is important to note that feedback on study findings will not be provided at the end of the study.

11. Who is funding the research?

This study does not receive any external funding and is fully sponsored by the main researcher. You will not be paid to participate in this study.

12. Who can participate in this research?

The inclusion criteria for this research are female nursing students in UNIMAS from Year 1 to Year 4, post-registration female nursing students, and female nursing students in UNIMAS who are willing to participate in this study. The exclusion criteria are female nursing students who were recruited in the pilot study and female nursing students who decline to give consent to participate.

13. Will my medical information be kept private?

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

14. Who should I call if I have questions?

If you have any questions about the study or if you think you have a study related injury and you want information about this study, please contact the study doctor, Selvanie Binti Saning at telephone number 016-8042604.

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 Form

INFORMED CONSENT FORM

Title of Study: The Influences of Lifestyle Habits on The Intensity of Dysmenorrhea Among Female Nursing Students in 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 any time freely withdraw from the study without giving a reason and this will in no way affect my future treatment. 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 main researcher's (Selvianie Binti Saning) instructions related to my participation in the study.
- 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.

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

PART A: SOCIO-DEMOGRAPHIC

Kindly write your answer in the blank space provided and tick (✓) in the box provided for a certain question.

- 1) Age (_____years old)
- 2) Religion
 - Islam
 - Christian
 - Buddha
 - Hindu
 - Others _____
- 3) Ethnicity
 - Melayu
 - Chinese
 - India
 - Bumiputera Sabah
 - Bumiputera Sarawak
- 4) Year of study
 - Year 1
 - Year 2
 - Year 3
 - Year 4
- 5) Family history of dysmenorrhea
 - Yes
 - No
- 6) Age of menarche (_____years old)

PART B: DIETARY HABITS (LIKERT SCALE)

Please tick (✓) to the appropriate space.

	Items	Never	Once per week	2-4 times per week	More than 4 times per week	Daily
1.	How frequently do you consume fast food, such as hamburgers or pizza?					
2.	How often do you drink carbonated beverages?					
3.	How regularly do you drink tea?					
4.	How regularly do you drink coffee?					
5.	How often do you eat sugary foods such as cookies, pastries, sweets, or candies?					
6.	How frequently do you include vegetables in your meals?					
7.	How often do you consume fish?					
8.	How often do you eat meat?					
9.	How regularly do you eat fruits?					
10.	How frequently do you consume whole-grain cereals?					
11.	How often do you consume dairy products such as milk, cheese, or yogurt?					

PART C: PHYSICAL ACTIVITY

The questions will be about the times that you have been active in the past 7 days. Severe activities are said to be activities that require high levels of physical activity and make you breathe more quickly than normal. Moderate activity refers to activities that require moderate physical strength and make you feel a bit quicker than normal. Take on physical activity for at least 10 minutes continuously.

Kindly write your answer in the blank space

1. During the last 7 days, how many days have you traveled with motor vehicles such as a bus, motorcycle or car?

..... days a week

2. How often do you spend a time on such days traveling by bus, motorcycle, car or other motor vehicles?

..... hours per day

3. During the last 7 days, how many days have you cycled for a minimum of 10 minutes to go from place to place?

..... days a week

4. How often do you spend a time cycling to go from place to place?

..... hours per day

5. During the last 7 days, how many days did you walk to another place for a minimum of 10 minutes to go from place to place?

..... days a week

6. How often do you spend time walking from one place to another on such days?

..... hours per day

7. During the last 7 days, how many days did you have intense physical activity such as aerobic exercise, running, fast biking, fast swimming, and playing football in your spare time?

..... days a week

8. How often do you spend a time on such days for intense physical activity in your spare time?

..... hours per day

9. During the last 7 days, how many days did you have moderate physical activities such as average-speed biking, medium-speed swimming, two-person tennis (group), and volleyball at your leisure?

..... days a week

10. How often do you spend a time on such days for doing moderate physical activity in your leisure time?

..... hours per day

11. During the last 7 days, how often did you spend sitting in a typical working/lecture day?

..... hours per day

12. During the last 7 days, how often did you spend sitting on a weekend?

..... hours per day

PART D: INTENSITY OF DYSMENORRHEA

Kindly write your answer in the blank space provided and tick (✓) in the box provided for a certain question.

- 1) Do you experience pain before and/or during menstruation?
 Yes
 No

- 2) What types of pain do you experience? (You can choose more than one option)
 No pain
 Abdominal pain
 Back pain
 Lower limb pain
 Other, specify _____

- 3) Severity of pain
 Hurt a whole lot
 Hurt a little more
 Hurt a little bit
 Does not hurt

- 4) Do you take any over-the-counter/prescribed medication for dysmenorrhea?
 Yes, Specify _____
 No

- 5) Duration of menstrual pain?
 0
 1-2 days
 3-5 days
 >5 days

- 6) Do you have limitations to perform daily activities?
 Never
 Almost Never
 Almost Always
 Always

- 7) Did you ever visit a doctor/hospital for dysmenorrhea?
 Yes
 No

Appendix F: Permission Obtained from Original Author to Use Questionnaire

Permission to Use the Research Materials, Questionnaire



Selvianie saning

To: N.Alhusban@ju.edu.jo

Cc: madamojieje@gmail.com

← ↶ ↷ ...
Wed 11/27/2024 4:12 PM

Dear Dr,

I hope you are doing well. My name is Selvianie Saning, and I am an undergraduate nursing student from the University of Malaysia Sarawak. I'm currently doing my final year project, and I'm interested in one of your studies, " The Influence of Lifestyle Variables on Primary Dysmenorrhea: A Cross-Sectional Study" published in 2022.

I'm writing this email to request permission to use your research material, specifically the questionnaire. I would be happy to provide any additional information or assistance that may be needed to facilitate my request.

I want to thank you in advance for your time and consideration. I have CC this email to my supervisor, Madam Roziah Binti Arabi.

Thank you and regards.

sincerely,
Selvianie Saning

Request Permission to Use Questionnaire



Selvianie saning

To: maria-mejia@juanncorpas.edu.co

Cc: madamojieje@gmail.com

← ↶ ↷ ...
Wed 11/27/2024 2:52 PM

Dear author,

I hope you are doing well. My name is Selvianie Saning, and I am an undergraduate nursing student from the University of Malaysia Sarawak. I'm currently doing my final year project, and I'm interested in one of your studies "WaLIDD score, a new tool to diagnose dysmenorrhea and predict medical leave in university students" published in 2018.

I'm writing this email to request permission and access to use your research materials, specifically the questionnaire. I would be happy to provide any additional information or assistance that may be needed to facilitate my request.

I want to thank you in advance for your time and consideration. I have CC this email to my supervisor, Madam Roziah Arabi.

Thank you and regards,
Selvianie Saning

Request Permission to Use Questionnaire



Selvianie saning

To: mhdolatian@gmail.com

Cc: madamojjeje@gmail.com



Wed 11/27/2024 3:22 PM

Dear Mahrokh Dolatian,

I hope you are doing well. My name is Selvianie Saning, and I am an undergraduate nursing student from the University of Malaysia Sarawak. I'm currently doing my final year project, and I'm interested in one of your studies, 'A comparison of physical activity and nutrition in young women with and without primary dysmenorrhea' which was published in 2018.

I'm writing this email to request permission to use your research materials, specifically the questionnaire. I would be happy to provide any additional information or assistance that may be needed to facilitate my request.

Thank you in advance for your time and consideration. I have CC this email to my supervisor, Madam Roziah Binti Arabi.

Thank you and regards.

Sincerely,
Selvianie Saning

Appendix G: GANTT Chart

ACTIVITIES	YEAR									
	2024					2025				
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
Determination of research title	█									
Literature review		█	█	█						
Meeting with supervisor		█	█	█	█	█	█	█	█	█
Submit oral defense slide				█						
Ethical approval				█						
Submission of first draft					█					
FYP 1: Submission of research					█					
Pilot study						█				
Data collection						█	█			
Data analysis							█	█		
Writing up report		█	█	█	█	█	█	█	█	█
Submit final draft									█	█
FYP 2: Submission of final report										█

Appendix H: Budget Planning

ITEMS	QUANTITY	PRICE PER UNIT	PRICE
SPSS software	1	RM 5	RM 5
Printing and binding the final year project report	100 pages	Printing: RM 0.50 Binding: RM 10	RM 60
Photocopy questionnaire booklet	6 pages x 145	RM 0.10	RM 87
Internet data plan	9 months	RM 50	RM450
Envelopes	4	RM 1.20	RM 4.80
TOTAL			RM 606.80

Appendix I: Turnitin Similarity Index Report

FYP II_81111			
ORIGINALITY REPORT			
14%	10%	9%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
PRIMARY SOURCES			
1	www.dovepress.com Internet Source	1%	
2	Temitope, Ojelade. "Physical Activity and Health Status Among Undergraduate Students of the School of Therapeutic Science at University of the Witwatersrand", University of the Witwatersrand, Johannesburg (South Africa), 2025 Publication	1%	
3	Fawziya Alghamdi. "Associated Factors and Outcomes of Dysmenorrhea Among Female Nursing Students at King Abdulaziz University", American Journal of Nursing Science, 2019 Publication	1%	
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