PREVALENCE AND IMPACT OF MIGRAINE AMONG UNDERGRADUATE STUDENTS OF THE SCHOOL OF HEALTH SCIENCES AT UNIVERSITI SAINS MALAYSIA (USM)

ROSLINA TASSYA BINTI ROSELI

BACHELOR IN NURSING

SCHOOL OF HEALTH SCIENCES

UNIVERSITI SAINS MALAYSIA

2025

PREVALENCE AND IMPACT OF MIGRAINE AMONG UNDERGRADUATE STUDENTS OF THE SCHOOL OF HEALTH SCIENCES AT UNIVERSITI SAINS MALAYSIA (USM)

by

ROSLINA TASSYA BINTI ROSELI

Dissertation submitted in partial fulfilment of the requirements

for the degree of

Bachelor in Nursing

August 2025

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research and promotional purposes.

……

"Roslina Tassya binti Roseli"

Date: 2nd August 2025

ACKNOWLEDGEMENT

First and foremost, all praise and gratitude to Allah SWT for His endless blessings, strength, and guidance that enabled me to complete this final year project titled *"Prevalence and Impact of Migraine Among Undergraduate Students of the School of Health Sciences at Universiti Sains Malaysia (USM)."* Without His will and mercy, none of this would have been possible.

I would like to express my deepest appreciation to my supervisor, Dr. Salmi binti Ab Aziz, for her continuous guidance, valuable advice, and encouragement throughout the entire research process. Her support has been crucial in helping me complete this project successfully. My sincere thanks also go to Dr. Norhasmah binti Mohd Zain, our course coordinator, for her guidance and dedication in overseeing the smooth progress of the research course.

A special thank you to all my classmates and friends who have been with me through every step of the process-sharing ideas, offering motivation, and supporting me both emotionally and academically. To all the undergraduate students who participated in the study, thank you for your time and honest responses. Your cooperation has been fundamental to the success of this research.

Last but not least, my deepest love and appreciation go to my beloved family for their endless prayers, patience, and encouragement. Your unwavering support and sacrifices have been my greatest strength throughout this journey.

Thank you all.

TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

LIST OF ABBREVIATIONS

ICHD-III	International Classification of Headache Disorders 3rd edition
HBM	Health Belief Model
IHS	International Headache Society
MIDAS	Migraine Disability Assessment Score
YLDs	Years lived with disability

LIST OF APPENDICES

PREVALENCE AND IMPACT OF MIGRAINE AMONG UNDERGRADUATE STUDENTS OF THE SCHOOL OF HEALTH SCIENCES AT UNIVERSITI SAINS MALAYSIA (USM)

ABSTRACT

Migraine is a common but often underrecognized neurological disorder that can significantly disrupt academic performance and daily functioning, particularly among university students. Globally, headache disorders remain among the leading causes of disability, affecting not only individual well-being but also contributing to societal and economic burdens. This study aimed to assess the prevalence and impact of migraine, as well as to explore its association with selected socio-demographic characteristics among undergraduate students in the School of Health Sciences at Universiti Sains Malaysia (USM). A cross-sectional study design was employed involving 254 participants, selected using convenience sampling. Data were collected through a self-administered online questionnaire incorporating the International Classification of Headache Disorders, 3rd edition (ICHD-III) for diagnosis and the Migraine Disability Assessment Score (MIDAS) to evaluate impact. The results revealed that 16.5% of students fulfilled the criteria for migraine. Among those affected, 52.4% experienced little to no disability, and 38.1% had mild disability. Chi-square analysis showed no significant association between gender and migraine prevalence ($p \leq 0.251$). However, significant associations were found between migraine prevalence and both the year of study ($p \leq 0.004$) and family history of migraine ($p < 0.001$). In conclusion, while the prevalence of migraine among students was moderate, its impact on daily life underscores the importance of early recognition and intervention. These findings highlight the need for targeted early screening, stress-

management workshops and tailored support, especially for final-year cohorts. Future research should explore broader student populations and examine migraine management strategies, including the role of stress and lifestyle factors.

PREVALENCE AND IMPACT OF MIGRAINE AMONG UNDERGRADUATE STUDENTS OF THE SCHOOL OF HEALTH SCIENCES AT UNIVERSITI SAINS MALAYSIA (USM)

ABSTRAK

Migrain ialah satu gangguan neurologi yang biasa tetapi sering kali tidak dikenalpasti dengan tepat, yang boleh menjejaskan presttasi akademik dan fungsi harian, terutamanya dalam kalangan pelajar university. Secara global, gangguan sakit kepala kekal sebagai antara penyumbang utama kepada ketidakupayaan, bukan sahaja memberi kesan kepada kesejahteraan individu, tetapi juga menyumbang kepada beban sosial dan ekonomi. Kajian ini dijalankan untuk menilai prevalens dan impak migrain, serta meneroka kaitannya dengan ciri-ciri socio-demografi terpilih dalam kalangan pelajar prasiswazah di Pusat Pengajian Sains Kesihatan, Universiti Sains Malaysia (USM). Kajian ini menggunakan reka bentuk kajian keratan rentas melibatkan 254 orang peserta yang dipilih secara pensampelan mudah. Dara dikumpul melalui soal selidik atas talian yang dijawab sendiri oleh peserta, merangkumi *International Classification of Headache Disorders, 3rd edition* (ICHD-III) bagi diagnosis dan *Migraine Disability Assessment Score* (MIDAS) bagi menilai tahap impak. Hasil kajian menunjukkan bahawa 16.5% pelajar memenuhi kriteria diagnosis migrain. Dalam kalangan mereka yang terlibat, 52.4% mengalami sedikit atau tiada ketidakupayaan, manakala 38.1% mengalami ketidakupayaan ringan. Analisis Chi-kuasa dua menunjukkan tiada hubungan yang signifikan antara jantina dan prevalens migrain ($p \leq 0.251$). Walau bagaimanapun, terdapat hubungan yang signfikan anatara prevalens migrain dengan tahun pengajian ($p \leq 0.004$) dan sejarah keluarga migrain ($p < 0.001$). Kesimpulannya, walaupun kadar

migrain dalam kalangan pelajar adalah sederhana, impaknya terhadap kehidupan harian menekan kepentingan pengesanan awal dan intervensi sewajarnya. Hasil kajian ini menekankan Tindakan pngesahan awal, kempen pengurusan tekanan dan bantuan bimbingan terutamanya bagi pelajar tahun akhir. Kajian masa hadapan wajar melibatkan populasi pelajar yang lebih meluas dan meneroka strategi pengurusan migrain. Termasuk pengaruh tekanan dan gaya hidup.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Migraine is a common neurological disorder characterized by recurrent headaches that can cause significant pain and discomfort. It is defined as a severe, throbbing headache typically felt on one side of the head, often accompanied by symptoms such as nausea, sensitivity to light (photophobia), sensitivity to sound (phonophobia), and vomiting, as described by Khan et al. (2021). The International Headache Society (2023) classifies migraines into two main types: migraine with aura and without aura, which can severely impair daily functioning and overall quality of life. According to the World Health Organization (2024), headache disorders rank third among neurological conditions in terms of global disease burden, following stroke and dementia. These disorders cause considerable pain, reduce quality of life, and lead to financial challenges for both individuals and society.

A study from Khan et al. (2021) highlighted that the global prevalence of migraines ranges from 15% to 18%, making it a significant public health concern that affects millions of people. At the University of Sharjah, Rustom et al. (2022) found a 26.35% migraine prevalence among students, with 25.3% unaware they had the condition, reflecting a considerable gap in awareness and diagnosis. Similar prevalence rates have been reported among university students elsewhere, such as 26.3% among medical students in Saudi Arabia and 27.9% in Kuwait, as reported by Rustom et al. (2022). These studies indicate that migraines are highly prevalent among university students, a

population exposed to stressors like academic workload and examinations that can trigger or worsen symptoms.

A study by Mustahaq et al. (2022) emphasized that migraines are increasingly recognized as a major health issue affecting the daily lives of young adults, particularly students. Recurrent migraine attacks contribute to significant disability, leading to reduced productivity and frequent absenteeism. A study from Osman Ali et al. (2022) reported that 62.7% of students with migraines experience a substantial reduction in functional capacity, often missing classes due to their headaches. Additionally, migraines tend to worsen during exam periods, negatively impacting academic performance and overall student success. To assess this impact, validated tools like the Migraine Disability Assessment (MIDAS) questionnaire are used to measure how migraines disrupt activities such as studying, social life, and family time (Mushtaq et al., 2022).

Numerous factors are known to trigger migraine attacks. Yao et al. (2022) noted that irregular sleeping patterns, high stress, excessive exercise, specific foods, and environmental factors such as noise or strong smells may serve as triggers. Thiagarajan et al. (2022) added that university students as especially vulnerable due to lifestyle factors such as lack of sleep, skipped meals, high caffeine intake, and academic stress. In coping with migraines, students often turn to self-care methods like resting in dark rooms, sleeping, or taking over-the-counter medication for relief (Thiagarajan et al., 2022).

Given the high prevalence and substantial impact of migraines, especially among university students, it is essential to investigate this issue within targeted academic populations. Health Sciences students may be particularly susceptible due to their demanding academic schedules and stress levels. Understanding the prevalence and effects of migraines among this group can help institutions develop appropriate interventions. Therefore, this study aimed to assess the prevalence of migraine, evaluate

its impact on daily life, and examine associations between socio-demographic characteristics such as year of study, gender, and family history, and migraine prevalence among undergraduate students at the School of Health Sciences, Universiti Sains Malaysia (USM). By addressing these aims, the study seeks to inform more effective support systems and health awareness efforts within university environments.

1.2 Problem Statement

Migraines are a significant health issue among university students, yet they often remain underdiagnosed and poorly managed. A study by Rustom et al. (2022) reported that approximately 26.35% of university students experience migraines, with around 25.3% of them unaware of their condition. Globally, migraines are one of the leading causes of years lived with disability (YLDs), affecting over 1.1 billion individuals (Cen et al., 2024). This high prevalence has been consistently observed in countries such as Saudi Arabia, Kuwait, Egypt, and Turkey, where migraine prevalence rates range between 21.9% and 27.9% (Rustom et al., 2022). Despite these concerning statistics, the lack of diagnosis and management leaves many students vulnerable to frequent and debilitating migraine episodes that can significantly impact their academic performance, productivity, and daily lives.

University students are especially susceptible to migraines due to various factors such as academic pressure, irregular sleep schedules, and unhealthy lifestyle habits. In China, Wang et al. (2015) found that nearly 60% of students with migraines were unaware of their condition, resulting in inadequate self-care and reduced academic performance. Fatigue, lack of sleep, and environmental triggers such as bright lights are commonly identified causes among students (Ameera Akour et al., 2018). These factors contribute to absenteeism and reduced engagement in academic and daily activities, focusing on the need for greater awareness and preventive strategies.

Recent Malaysian studies emphasize the urgency of addressing this issue. For example, Selvakumar et al. (2023) reported a migraine prevalence of 35.9% among university students in Peninsular Malaysia during the COVID-19 pandemic, while Thiagarajan et al. (2022) identified a 61.8% prevalence among medical students. However, there is limited data specifically focusing on undergraduate students at Universiti Sains Malaysia (USM), particularly those in the School of Health Sciences. This gap is concerning given the high stress and academic demands these students typically face. Therefore, more recent and targeted research is essential to better understand the current experiences and needs of this student population.

This study is crucial in addressing the lack of local research on migraine prevalence and its impact among university students in Malaysia. By evaluating the prevalence, exploring how migraines affect students' daily lives, and identifying associations with selected socio-demographic factors such as year of study and family history, this research aims to provide valuable insights. Grounded in the Health Belief Model, the study highlights the importance of awareness in promoting effective behaviour change to manage migraines. Ultimately, the findings may support the development of targeted interventions and self-management strategies, helping students achieve better academic outcomes and improved well-being.

1.3 Research Questions

The research questions for this study are as follows:

i. What is the prevalence of migraine among undergraduate students in the School of Health Sciences, USM?

ii. How does migraine impact daily life among undergraduate students in the School of Health Science, USM?

iii. Is there any association between selected socio-demographic characteristics (gender, year of study and family history of migraine) and the prevalence among undergraduate students in the School of Health Sciences, USM?

1.4 Research Objectives

Research objectives are divided into general and specific objectives.

1.4.1 General Objective

The general objective of this study is to assess the prevalence and impact of migraine among undergraduate students in the School of Health Sciences, USM.

1.4.2 Specific Objectives

The specific objectives for this study are as follows:

i. To determine the prevalence of migraine among undergraduate students in the School of Health Sciences, USM.

ii. To determine the impact of migraines on daily life among undergraduate students in the School of Health Sciences, USM.

iii. To identify the association between selected socio-demographic characteristics (gender, year of study and family history of migraine) and the prevalence among undergraduate students in the School of Health Sciences, USM.

1.5 Research Hypothesis

Hypothesis 1 **(H_0):** There is no association between selected socio-demographic characteristics (gender, year of study and family history of migraine) and the prevalence among undergraduate students in the School of Health Sciences, USM.

(H_1): There is an association between selected socio-demographic characteristics (gender, year of study, and family history of migraine) and the prevalence among undergraduate students in the School of Health Sciences, USM.

1.6 Significance of the Study

This study holds significant value as it contributes to understanding the prevalence and impact of migraine among undergraduate students in Malaysia, a topic with limited research. University students are particularly vulnerable to migraines due to factors like academic stress, irregular sleep schedules, and lifestyle choices, which can worsen their symptoms. By identifying how prevalent migraines are within this population, the findings can inform public health strategies aimed at improving migraine management among students, ultimately reducing the impact of these headaches on their academic performance and overall well-being.

Additionally, this research highlights how migraines affect students' daily functioning and well-being, specifically focusing on their daily lives. By evaluating the relationship between specific socio-demographics such as gender, year of study and family migraines and the prevalence of migraines among students, the study will identify groups that may be more vulnerable. These findings will inform targeted interventions and guide universities in implementing support systems that address the challenges faced

by students with migraines. The insights gained from this research can also provide a foundation for future studies on migraine prevalence and its impact, particularly among student populations in Malaysia.

1.7 Conceptual and Operational Definitions

Table 1.1 Conceptual and Operational Definitions

	Conceptual Definition	Operational Definition
Migraine	Migraine is a neurological disorder characterized by recurrent, moderate to severe headaches, often accompanied by nausea, sensitivity to light, and sound. It affects individuals' daily activities and quality of life (Lars et al., 2018).	In this study, migraine is identified by self-reported experiences of recurring headaches that meet the criteria set out by the ICHD-III according to International Headache Society (IHS).
Prevalence of migraine	Prevalence refers to the proportion of individuals in a population who experience a particular condition at a specific time. In this case, it measures how widespread migraines are among the student population (Lars et al., 2018).	The prevalence of migraine in this study is defined as the percentage of undergraduate students at the Health Science School, USM, who meet the diagnostic criteria for migraines based on the International Headache Society (IHS) guidelines.
Impact of daily life	The impact of migraines on daily life refers to how they affect an individual's ability to perform	The impact will be measured using a validated tool, like the Migraine Disability Assessment

	everyday tasks and overall well-being (Thiagarajan et al., 2022).	(MIDAS) questionnaire. Students will provide information on how migraines have affected their ability to engage in daily activities over the past 3 months.
Undergraduate students	Undergraduate students are individuals in higher education, pursuing their first degree, typically a bachelor's degree or professional qualification (Services, 2024).	This study defines undergraduate students as individuals aged 19 years and older currently enrolled in undergraduate program within the School of Health Sciences at USM.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provides a general review of the literature on the prevalence and impact of migraines, with a focus on undergraduate students. It begins with an overview of migraines, covering the nature of the condition, its symptoms, and common triggers. The second section discusses the prevalence of migraines specifically among university students, providing insights into how widespread the condition is in this population. Following this, the impact of migraines on daily life is explored, highlighting how migraines affect academic performance, social interactions, and overall well-being. The subsequent section explores the association between selected socio-demographic characteristics, such as gender, year of study, and family history, and the prevalence of migraines. Finally, the chapter outlines the theoretical and conceptual framework that underpins the study, guiding the exploration of the prevalence and impact of migraines in this particular group.

2.2 Overview of Migraine

According to the World Health Organization (WHO), nearly half to three-quarters of adults aged 18-65 worldwide experience headaches, which include tension-type headaches, migraines, and cluster headaches. Around one-third of these cases are migraines, a neurovascular disorder characterized by recurring, throbbing pain, usually on one side of the head, often accompanied by nausea and vision disturbance (Rustom et al., 2022). Migraines can occur episodically or chronically, and are classified into two main subtypes: with aura and without aura (Flynn et al., 2022). Migraines with aura, commonly known as classical migraines, are typically preceded by sensory disturbances,

such as visual disturbances, which occur 30 minutes before the headache begins. On the other hand, migraines without aura are marked by sudden, bilateral throbbing pain that worsens with movement and can last up to 72 hours if untreated (Zahid et al., 2014).

University students are particularly vulnerable to migraines significantly affect their daily activities and academic performance. Various factors contribute to the high prevalence of migraines among students, ranging from lifestyle habits to psychological stress. Common migraine triggers include sleep deprivation, stress, hunger or skipping meals, loud sounds, and fatigue, as highlighted in a study on students at the University of Sharjah (Rustom et al., 2022). Additionally, sleep disturbances, anxiety, emotional distress, and exam preparation have been reported as significant contributors to migraines (Ragab et al., 2023).

Poor sleep habits are especially prevalent among university students, who often sacrifice sleep due to academic pressures such as assignments, studying, and exams. Additionally, changes in diet, such as irregular eating habits, overeating, or skipping meals, have also been recognized as contributing factors. For instance, Iranian medical students reported these changes as significant triggers for migraines (Kourosh Zarea et al., 2017). Furthermore, school-related stress, including challenges with academic commitments, peer conflicts, and interactions with teachers, plays a crucial role in migraine onset, with such stress being closely linked to increased headache frequency (Raucci et al., 2021).

The International Classification for Headache Disorders, Third Edition (ICHD-III), developed by the International Headache Society (IHS), aids in reducing misdiagnosis and provides a standard for accurate migraine identification (Ali & Hani Humaidan, 2023). Migraines affect more than 10% of the global population, posing significant public health challenges (Serdar Oztora et al., 2011). This burden is particularly concerning for

students, who require sustained focus and academic performance, as migraines can negatively impact their daily lives (Serdar Oztora et al., 2011). Furthermore, research indicates that migraines are the most common type of headache among young adults, with frequency increasing during students' educational years (Birkie et al., 2021).

2.3 Prevalence of Migraine in University Students

The prevalence of migraines among university students is significant, as migraines are a common neurological disorder affecting millions globally. In 2016, nearly three billion people experienced both migraine and tension-type headaches, with migraine ranking as the sixth most prevalent condition worldwide (Lars et al., 2018). Studies have shown that migraines are more common among women than men, with 7.7% of women and 5.1% of men being affected globally (Lars et al., 2018). Among university students, the prevalence of migraine varies widely, ranging from 2.4% to 48.5% across different studies (Birkie et al., 2021). For example, in Sharjah, UAE, the prevalence was reported to be 26.35% (Rustom et al., 2022), while in Bangladesh, 21.4% of university students reported migraines based on self-assessment using the ID Migraine tool (Rafi et al., 2022).

In Malaysia, recent studies have highlighted a concerning prevalence of migraines among university students. During the COVID-19 pandemic, 35.9% of students in Peninsular Malaysia reported suffering from migraines (Selvakumar Kiruthika et al., 2024), while 61.8% of medical students were affected by migraines (Thiagarajan et al., 2022). Despite these findings, there is currently no published research specifically examining the prevalence of migraines among undergraduate students at USM, underscoring a critical gap in the literature. This lack of localized data is particularly concerning given the academic pressures and lifestyle challenges that university students in Malaysia face.

Despite the global burden, research on migraine prevalence among university students remains limited, though the impact of migraines on their academic performance and daily activities is substantial (Birkie et al., 2021). Family history also plays a significant role, increasing the risk of migraines by 3.83 times compared to those without a family history (Birkie et al., 2021). Additionally, inadequate rest and high academic workloads contribute to the increased prevalence, as stress is a known trigger of migraine (Eshetie et al., 2016). Therefore, understanding the prevalence of migraines in university populations is crucial due to their profound effects on students' well-being and future career prospects.

2.4 Impact of Migraine on Daily Life

Migraine has a profound impact on daily life, affecting not only personal routines but also work and school responsibilities. Patients with migraines often experience lifestyle disruptions, with symptoms that lead to reduced social activities and diminished professional engagement, as reported by Jawed et al. (2019). This condition creates a cycle of reduced productivity and frequent absenteeism, contributing to economic strain both in terms of direct healthcare costs and indirect costs, such as lost work time and, in severe cases, unemployment. The economic impact of missed work or reduced productivity often surpasses the direct costs of medical treatment (Jawed et al., 2019). Migraine sufferers also experience a significant amount of work-related disability and absenteeism, but most of them do not seek medical help (Thiagarajan et al., 2022).

Beyond individual impacts, migraines create broader burdens, including reduced household and leisure activities, impaired work or school performance, and financial strain (Flynn et al., 2024). Quantitative research highlights additional consequences for university students, such as college absenteeism, impaired academic performance,

difficulties in social and family interactions, mental health challenges, impaired activities of daily living (ADLs), and reduced participation in exercise (Flynn et al., 2024). Findings from the large-scale American Prevalence and Prevention (AMPP) study further illustrate this, showing that 25.3% of nearly 19,000 episodic migraineurs reported missing at least one day of work or school on the preceding three months due to migraines (Smitherman et al., 2011).

Impairments extend beyond the workplace and academic settings into family domains, with migraineurs reporting reduced productivity in household responsibilities and negative impacts on family relationships (Smitherman et al., 2011). Among university students, those with migraines reported twice as many missed days of school, impaired home functioning, and medical visits compared to their peers (Smitherman et al., 2011). Additionally, approximately 39% of individuals reported that migraines had negatively affected their job or school performance, while 71% indicated an inability to meet work or academic requirements due to migraines (Aud Nome Deuland et al., 2004). Furthermore, migraines prevented 16% of participants from achieving career goals, and 6% reported missed career opportunities due to their condition (Aud Nome Deuland et al., 2004). These findings emphasize the significant burden migraines impose on individuals and underscore the need for effective management strategies to alleviate their impact.

To assess the extent of migraine-related disability, the Migraine Disability Assessment (MIDAS) questionnaire is commonly used. Developed by Stewart and Lipton in 1999, this five-item questionnaire evaluates the impact of migraines over the most recent three months (Peng & Wang, 2012). It measures days lost at work or school, reductions in productivity, and missed family, social, or leisure activities. The MIDAS score aggregates the responses to provide an overall disability score ranging from 0 to

270. Scores are classified into four grades: grade I, little or no disability (0-5), grade II, mild disability (6-10), grade III, moderate disability (11-20), and grade IV, severe disability (≥21) (Peng & Wang, 2012; Rustom et al., 2022).

In this study, the MIDAS questionnaire is applied to determine the impact of migraines within three months, not daily. The scores are derived by summing the results from five questions assessing days lost at work or school, reduced productivity, and missed family or social activities due to migraines. This tool provides a comprehensive measure of the disabling effects of migraines on daily life and underscores the critical need for effective management strategies to mitigate their impact (Buse et al., 2018; Haw et al., 2020).

2.5 Association Between Selected Socio-demographic Characteristics and Prevalence of Migraine

The prevalence of migraines varies significantly across socio-demographic groups, influenced by factors such as age, gender, years of study, and family history. Age-related patterns show a bimodal distribution, with prevalence peaks in late adolescence, early adulthood, and another in middle age, which aligns with the life stages where stress, lifestyle changes, and environmental exposures are prominent (Victor et al., 2010). Additionally, academic demands and familial predispositions further modulate migraine prevalence, underscoring the importance of understanding these socio-demographic influences. A detailed examination of these factors provides insight into how migraines affect different groups and highlights the need for tailored prevention and management strategies.

2.5.1 Gender

Gender plays a crucial role in the prevalence of migraines, with studies consistently showing a higher prevalence among women compared to men (Delussi et al., 2023). This disparity is attributed to genetic, hormonal, and environmental factors that influence migraine susceptibility. Hormonal changes, particularly during menstruation, pregnancy, and menopause, are significant contributors to the development and severity of migraines in women (Victor et al., 2010). Research highlights that migraine prevalence in women peaks during their reproductive years, especially in their 30s, and gradually declines after menopause, emphasizing the role of hormonal fluctuations (Victor et al., 2010). Additionally, menstruation is a commonly reported trigger, with 70% of female migraine sufferers identifying their menstrual cycle as a significant factor in the onset of migraines (Choudry et al., 2022).

In contrast, men experience migraines at lower rates, which may be partly due to differences in hormonal profiles and lifestyle factors. However, this does not diminish the burden of migraines in males, as they still represent a substantial proportion of cases. Despite the lower prevalence, addressing migraines in men remains important to provide effective management and intervention strategies. Understanding the gender-specific variations in migraine prevalence is essential for tailoring healthcare approaches and ensuring equitable access to support for individuals affected by this condition (Delussi et al., 2023; Hu, 2016).

2.5.2 Years of Study

Migraine is one of the most common headache disorders affecting young adults, with a noticeable increase in frequency during their educational years (Mengesha Birkie et al., 2021). This is particularly significant in university students, whose academic demands require sustained concentration and performance (Serdar Oztora et al., 2011). A

study conducted among undergraduate students at Wollo University revealed that most students experiencing migraines were in their third year, followed by fourth- and fifth-year students (Mengesha Birkie et al., 2021). However, lower-grade students, particularly in their first and second years, have also been reported to experience high rates of migraine due to the sudden changes in their learning environment and increased academic pressure (Yang et al., 2022). These students often struggle with the transition from high school to university life, contributing to their susceptibility to migraines. Conversely, higher-grade students tend to have adapted to the university's academic structure and learning pressures, leading to a slightly lower prevalence of migraines (Yang et al., 2022).

Nonetheless, other studies suggest that migraine prevalence may not be strongly associated with the year of study, as academic stress levels fluctuate throughout the semester. For instance, higher incidence of migraines during these periods, regardless of their academic year (Yang et al., 2022). This variability in academic stress across different semester stages complicates identifying a clear correlation between migraine prevalence and the year of study.

2.5.3 Family History

A strong familial link has been established in the prevalence and awareness of migraine. Studies have shown that they tend to have earlier onset and greater awareness of migraine symptoms (Hsu et al., 2020). This is particularly evident in individuals whose first-degree relatives are also migraine sufferers, suggesting a significant role of genetics in migraine awareness (Lateef et al., 2015). Family history, especially in migraineurs without aura, is linked to early onset, particularly in female patients, which may influence how these individuals recognize and manage migraine symptoms (Hsu et al., 2020). Family history also plays a significant role, increasing the risk of migraines by 3.83 times compared to those without a family history (Birkie et al., 2021).

The influence of family history extends beyond just awareness, as research suggests that family members of migraineurs may have an increased risk of witnessing their relatives cope with the condition (Dzoljic et al., 2013). Moreover, the behavioral responses to pain observed within families may lead to earlier recognition of migraine symptoms. Children may be more attuned to their headaches if they have seen how their parents react to migraines, reinforcing a heightened awareness and quicker response to symptoms (Hsu et al., 2020).

The Health Belief Model (HBM) is a widely recognized framework for understanding and predicting health-related behaviors, Social scientists introduced it in the 1950s to explain why individuals were not adopting behaviors aimed at disease prevention or early detection, such as undergoing screening tests. According to the HBM, a person's behavior is influenced by two main factors: 1) the desire to avoid or recover from an illness they perceive themselves to be at risk for, and 2) the belief that taking specific actions will help prevent or alleviate the condition. The likelihood of adopting a healthy behavior depends on the perception that the benefits of the action outweigh any barriers, assuming these barriers are not too significant to block action (Nelson et al., 2021).

2.6 Theoretical and Conceptual Framework

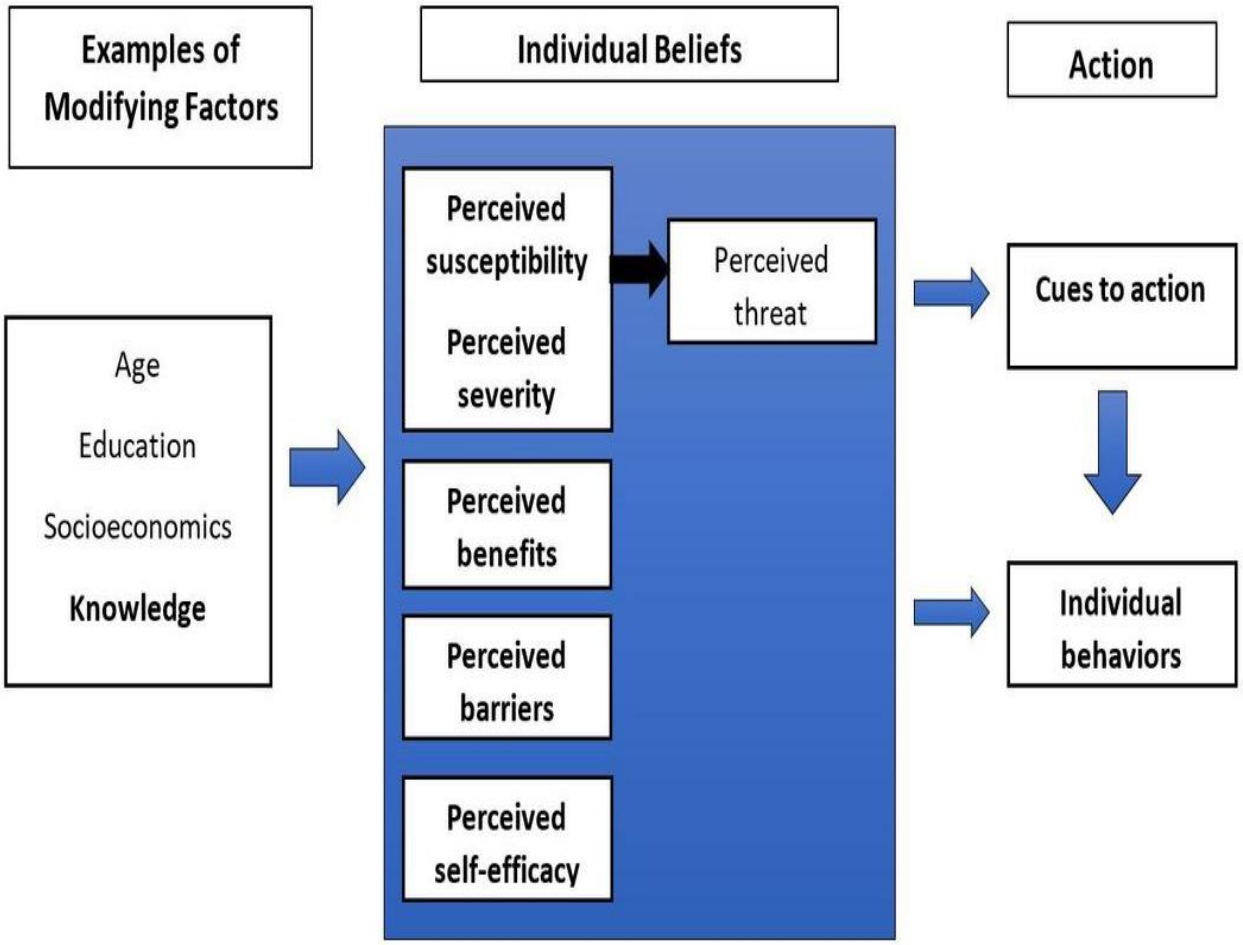

Figure 2.1 Structure of the Health Belief Model (Glanz et al., 2008)

Key elements of the HBM (see Figure 1) include perceived susceptibility and severity related to a health condition, and the benefits and barriers associated with acting. It also includes cues to action, which are triggers that prompt the decision to act, and self-efficacy, defined as an individual's confidence in their ability to perform a behavior that successfully leads to a desired outcome. Furthermore, the model acknowledges that socioeconomic status and educational level can influence perceptions of susceptibility, severity, benefits, and barriers, indirectly affecting health behaviors (Nelson et al., 2021).

The conceptual framework of this study is adapted from the Health Belief Model (HBM), which highlights how individual beliefs, modifying factors, and actions that

influence health behaviors. The modifying factors in this study include selected socio-demographic characteristics such as gender, age, year of study, and family history of migraine. Perceived susceptibility will be assessed through participants' responses from Section B of the questionnaire regarding headache frequency, duration, and symptoms, with those reporting frequent, long-lasting headaches consistent with migraine criteria considered to have higher perceived susceptibility. Perceived benefits focus on participants' understanding of effective migraine management strategies and their potential to improve quality of life. Perceived barriers are explored through responses reflecting challenges such as limited access to healthcare, financial constraints, or insufficient knowledge about migraine management. Cues to action are evaluated by examining participants' personal experiences, their observations of others with migraines, and exposure to relevant health information. Finally, self-efficacy will be measured by assessing students' confidence in managing migraines through treatment adherence and self-care practices. This framework provides a comprehensive structure for analyzing the interplay of beliefs and behaviors influencing migraine prevalence, impact, and management among undergraduate students.

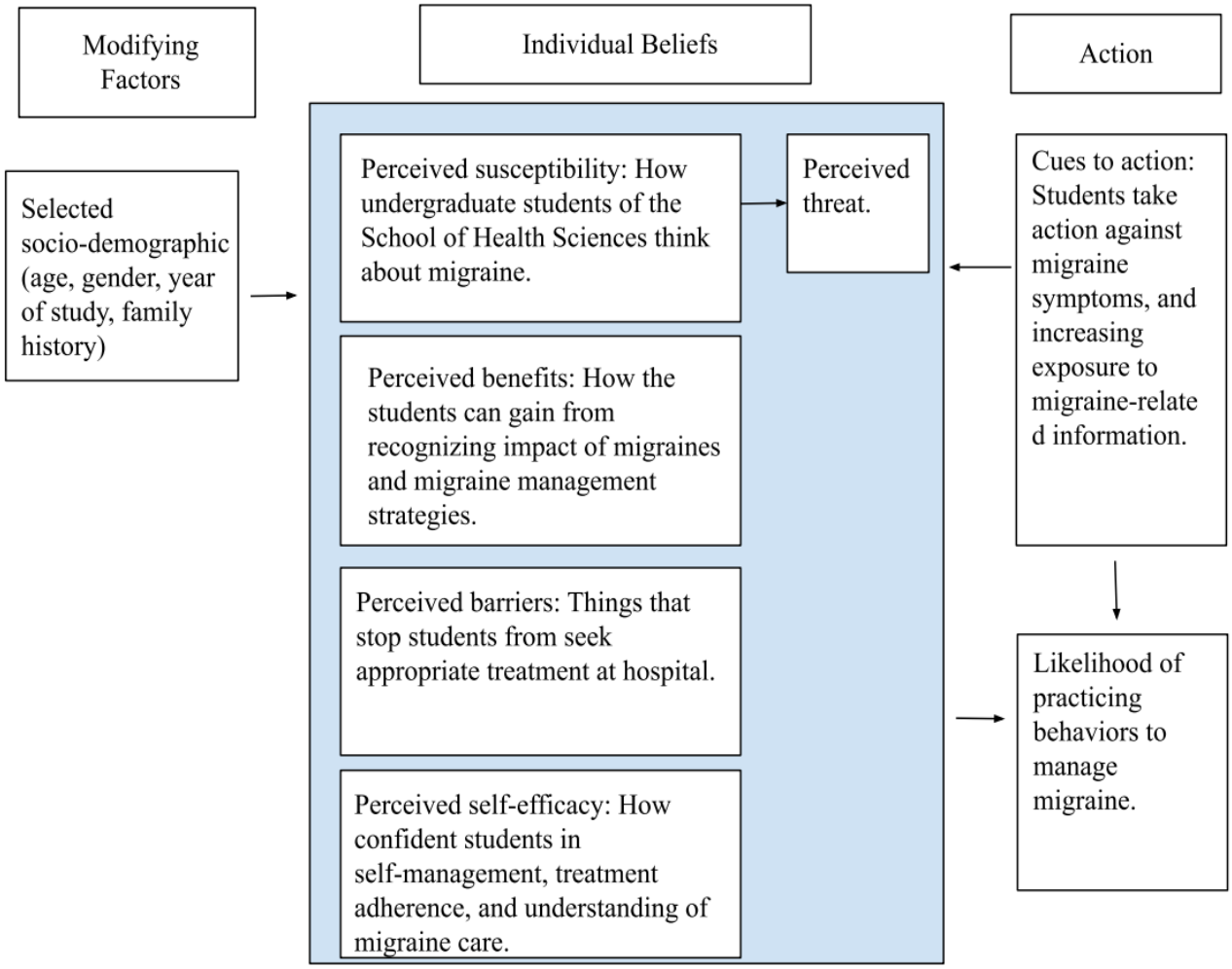

Figure 2.2 The adapted theory of the Health Belief Model HBM adapted from (Glanz et al., 2008)

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

This research utilized a cross-sectional study design to assess the prevalence and impact of migraine among undergraduate students in the School of Health Sciences, USM. Cross-sectional designs are widely used to measure disease prevalence and are especially useful. In health research, for identify patterns across a population at a single point in time. This design is also effective for evaluating associations between variables such as demographic factors and migraine prevalence, Mann. (2003).

3.2 Study Setting and Population

The research was conducted at the School of Health Sciences, located at the Health Campus of Universiti Sains Malaysia in Kubang Kerian, Kelantan. This campus comprises various academic schools, including the School of Health Sciences, which hosts approximately 1,028 undergraduate students enrolled across 10 academic programs. The study population consisted of undergraduate students from this school who met the inclusion and exclusion criteria.

3.3 Sample Criteria

To ensure the relevance and accuracy of the findings, specific criteria were established to determine the eligibility of participants for inclusion in this study. The sample criteria consisted of both inclusion and exclusion conditions, as outlined below:

3.3.1 Inclusion Criteria

The specific eligibility requirements for inclusion in this study required that each participant must be:

- Degree students currently enrolled in the School of Health Sciences at USM.
- Students aged 19 years old and above.

3.3.2 Exclusion Criteria

Subjects are excluded from this study if they:

- Medically diagnosed with any psychiatric illness.
- Students have experienced headaches related to flu, cold, or head injury in the past 12 months (Rustom et al., 2022).

3.4 Sampling Plan

A sampling plan provided a clear framework outlining which measurements were taken, at what times, and by which respondents were chosen to represent the population. This plan was designed to ensure that the results would accurately reflect the target sample and enabled comprehensive answers to all research questions.

Specific criteria were established to guarantee that the data collected from subjects were suitable for research purposes and helped achieve the study's objectives by the end of the research.

3.4.1 Sample Size Estimation

A single proportion formula will be applied for the sample size for the first objective, determining the prevalence of migraine among undergraduate students in the Health Science School at USM.

$$n = \left[\frac{Z}{\Delta}\right]^2 p(1-P)$$

Whereby,

$n =$ Sample size

$z =$ 95% confidence interval (CI) = 1.96

$\Delta =$ Precision = 0.05

$p =$ Anticipated population proportion

Objective 1

The first objective is to determine the prevalence of migraine among undergraduate students in the Health Science School at USM. Based on a previous study the prevalence of migraine among university students is reported to be 9.0% (Wang et al., 2015), thus

$$n = \left[\frac{1.96}{0.05}\right]^2 0.09(1-0.09)$$

$$n = 126$$

After considering the 10% dropout, the sample size calculated is

$$n = 126 + 10\%$$

$$n = 126 + 12.6$$

$$n = 139$$

The minimal sample size was 126, and after considering the 10% dropout, the calculated sample size is 139.