KNOWLEDGE AND ATTITUDE OF PAIN MANAGEMENT AMONG NURSING STUDENTS IN UNIVERSITI SAINS MALAYSIA (USM)

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SCHOOL OF HEALTH SCIENCES

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KNOWLEDGE AND ATTITUDE OF PAIN MANAGEMENT AMONG NURSING STUDENTS IN UNIVERSITI SAINS MALAYSIA (USM)

by

DAYINI ISHAK

Dissertation submitted in partial

fulfillment of the

requirements for the degree

of Bachelor of Nursing (Honours)

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CERTIFICATE

This is to certify that the dissertation entitled "Knowledge and Attitude of Pain Management among Nursing Students in Universiti Sains Malaysia" is the bona fide record of research work done by Ms. Dayini Ishak during the period from October 2020 to June 2021 under my supervision. I have read this dissertation and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the degree of Bachelor of Nursing (Honours).

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DECLARATION

I hereby declare that this dissertation is the result of my 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.

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LIST OF ABBREVIATIONS

KASRP	-	Knowledge and Attitudes Survey Regarding Pain
NSAIDs	-	Non-Steroidal Anti-Inflammatory Drugs
PMP	-	Pain Management Program
SPSS	-	Statistical Package Social Sciences
TPB	-	Theory of Planned Behavior
USM	-	Universiti Sains Malaysia

Pengetahuan dan Sikap Terhadap Pengurusan Sakit di Kalangan Pelajar Kejururawatan di Universiti Sains Malaysia (USM)

ABSTRAK

Pengiktirafan dan penilaian kesakitan adalah aspek penting dalam rawatan pesakit yang jururawat perlu peka untuk memastikan pesakit selesa. Pendidikan mengenai pengurusan kesakitan penting bagi pelajar kejururawatan untuk meningkatkan kualiti hidup pesakit, oleh itu, kajian keratan rentas dilakukan untuk menilai tahap pengetahuan dan sikap pengurusan kesakitan di kalangan pelajar kejururawatan di USM. Data dikumpulkan menggunakan soal selidik yang dikendalikan sendiri. Seramai 86 pelajar kejururawatan dari Pusat Pengajian Sains Kesihatan, USM yang memenuhi kriteria kemasukan terlibat dalam kajian ini. Mereka dipilih melalui kaedah persampelan rawak mudah kebarangkalian. Data yang dikumpulkan dianalisis secara statistik menggunakan perisian Statistical Package Social Sciences (SPSS) versi 25. Kajian ini menunjukkan bahawa 66.3% responden mempunyai tahap pengetahuan dan sikap yang lemah dalam pengurusan kesakitan. Jantina, umur dan tahap kajian semasa didapati mempunyai hubungan yang signifikan dengan tahap pengetahuan dan sikap pengurusan kesakitan ($p < 0.05$). Hasil kajian ini menunjukkan bahawa tidak ada hubungan yang signifikan antara ciri individu dengan tahap pengetahuan dan sikap dalam pengurusan kesakitan di kalangan pelajar kejururawatan di USM ($p > 0.05$). Hasil kajian menunjukkan bahawa pelajar kejururawatan di USM tidak mempunyai pengetahuan dan sikap yang cukup mengenai kesakitan dan pengurusannya dan boleh mendapat manfaat daripada pendidikan dan latihan tambahan mengenai isu tersebut.

Knowledge and Attitude of Pain Management Among Nursing Students in Universiti Sains Malaysia (USM)

ABSTRACT

Recognition and assessment of pain are critical aspects in patient care that nurses need to take seriously to make sure patients are comfortable. Education regarding pain and its management is important for nursing students to enhance the quality of life of patients, hence, a cross-sectional study was carried out to assess the level of knowledge and attitude of pain management among nursing students in USM. Data was collected using a self-administered questionnaire. A total of 86 nursing students from the School of Health Sciences, USM who fulfilled the inclusion criteria were involved in this study. They were selected through a probability simple random sampling method. Data collected were statistically analyzed using the Statistical Package Social Sciences (SPSS) software version of 25. This study shows that 66.3% of respondents have a poor level of knowledge and attitude in pain management. Gender, age and level of the current study were found to have a significant relationship with the level of knowledge and attitude of pain management ($p < 0.05$). The result of this present study revealed that there is no significant relationship between individual characteristics of and level of knowledge and attitude in pain management among nursing students in USM ($p > 0.05$). The study finding demonstrated that nursing students in USM have insufficient knowledge and attitudes regarding pain and its management and could benefit from additional education and training on that issue.

CHAPTER 1: INTRODUCTION

1.1 Background to the study

Pain is a general term that describes a localized or generalized unpleasant sensation in the body that causes mild to severe physical discomfort and emotional distress and usually results from injury or illness (Merriam-Webster, 2020). Based on Collier (2018), pain is the oldest medical problem but has been little known by physicians throughout history. The battle to treat pain in patients effectively and safely has long been an issue in medicine (Collier, 2018). Pain is one of the most common reasons why an individual seeks medical care. Pain has an adverse effect on a person's social life, physical, emotional and quality of life. It also causes longer hospital stays, increased morbidity and increased mortality (Karaman, Vural Doğru, Yıldırım, 2019). Now, pain is considered the fifth vital sign (Karaman et al., 2019). In 2008, the Ministry of Health in Malaysia has launched an initiative called the "Pain as the 5th Vital Sign" to ensure that the patient's pain is effectively treated (Ministry of Health Malaysia, 2018).

Proper pain management involves more than one physician, where doctors work alongside nurses, therapists, and even social workers as part of a larger team (Thompson Jr, 2010). Nurses are often the healthcare professional most involved in ongoing pain assessment, implementing the prescribed pain management plan, evaluating the response to the interventions, and adjusting medication levels based on the individual's response (Oregon State Board of Nursing (OSBN), 2015). Firstly, nurses' role in patient pain

management would be to work towards a goal of patient comfort while understanding that the pain they are experiencing is a symptom of a deeper root cause (Aller, 2020). Pain management interventions are based on the patient's self-report of pain and level of functional impairment. In the absence of the ability to self-report the level of pain, an appropriate non-verbal scale should be used (Oregon State Board of Nursing (OSBN), 2015).

In pain management, nurses must document and manage patient discomfort using pain assessments (Aller, 2020). During pain assessment, it is important to listen and believe what the patient has to say. Numerical rating scales, verbal rating scales, visual analog scales and the faces pain scale-revised are the most widely used instruments for pain assessment in clinical and research settings (Gordon, 2015). Numerical rating scales use numbers to rate pain. Visual analog scales require patients to mark a place on a scale that aligns with their level of pain (Jacques, 2020). Next, the verbal rating scale provides a simple way to rate pain intensity using a verbal or visual descriptor of pain such as 'mild', 'discomforting', 'distressing', 'horrible' and 'excruciating' (Cirino, 2018). The selection of a particular pain assessment tool should be focused on factors such as developmental status, cognition and level of consciousness, educational level and possibly cultural differences. Pain assessment should be seen as a process, rather than a tool (Gordon, 2015).

There are two types of pain management which are pharmacological and non-pharmacological. Pharmacological treatments are treatments where a drug is administered to the patient. The common medication given to patients in pain is simple analgesic such as paracetamol. Non-steroidal anti-inflammatory drugs (NSAIDs) are also administered such as diclofenac, ibuprofen, naproxen and mefenamic acid. Weak opioids such as DF 118 and

Tramadol and strong opioids such as morphine, fentanyl and pethidine are also prescribed (Ministry of Health Malaysia, 2000). Non-pharmacological treatment is a non-drug treatment. Examples of non-drug treatments include relaxation techniques by listening to music, deep breathing techniques, distraction by watching television and give massage to the patient (Ministry of Health Malaysia, 2000).

Untreated pain has a huge effect on the quality of life and can have physical, psychological, social, and economic consequences. Inappropriately managed acute pain can cause immunological and neural changes that can lead to chronic pain if untreated. Common complications of untreated chronic pain are decreased mobility, impaired immunity, decreased concentration, anorexia, and sleep disturbances (King & Fraser, 2013). Patients with chronic pain also experience social isolation, dependency on caregivers, impaired relationships with friends and family, and are four times more likely to experience depression or anxiety than those without pain (King & Fraser, 2013).

Nurses' level of knowledge and attitude towards pain management affects how pain is managed. Nurses must be highly skilled, knowledgeable and have optimistic attitudes towards pain management so that patients receive high-quality pain management to promote optimum patient health outcomes. Negativity and knowledge deficit can be a barrier to effective pain management (Kaur, 2017). Poor pain management in patients is caused by ignorance, inexperience, overwork, traditional fears related to opioids, including fear of addiction and fear of side effects like respiratory depression and failure of patients to seek pain relief (Ministry of Health Malaysia, 2018).

To strengthen the knowledge of pain among nurses, it is necessary to structure the

education based on a firm foundation (Karaman et al., 2019). It is during the nursing educational process that nurses acquire the basic knowledge, attitudes, and skills that are then translated into nursing practice (Hroch et al., 2019). By the time that students graduated, they should have gained comprehensive knowledge on the topic of pain and pain management (Karaman et al., 2019). An understanding of nursing students' knowledge and attitudes about pain and pain management will identify potential gaps and areas that need action during theireducational program (Hroch et al., 2019).

1.2 Problem Statement

Despite many scientific advances in pain management over the years, insufficient knowledge remains a major barrier to achieving effective pain management. Pain is a common symptom experienced by many patients and approximately 79 % of hospitalized patients suffer from it (Alzghoul & Azimah Chew Abdullah, 2016). When patients complain of pain, healthcare providers need to respond and evaluate the results of the interventions done. Nurses are not the only healthcare providers who are responsible for relieving patients' pain but they play a key role in managing patient's pain because the nurses are ina central position between the responsible physicians and their patients (Alzghoul & Azimah Chew Abdullah, 2016).

There are studies on pain management in Malaysia but it was conducted among nurses. For example, a study was carried out in Universiti Utara Malaysia (UUM) in 2015 to determine the ability of the Knowledge, Attitude and Practice (KAP) model to predict nurses'practices to manage the patients' pain (Alzghoul & Azimah Chew Abdullah, 2016). Another study was conducted in one of the largest government referral hospitals in the

Klang Valley to assess pain management knowledge among medical ward nurses (Soh, 2017). Studies on pain management among nursing students are mostly conducted in other countries and are lacking in Malaysia. Based on the study done among Turkish nursing students, it is shown that they have poor knowledge and attitudes concerning pain management (Karaman et al., 2019). A study among Jordanian nursing students was found to have inadequate knowledge and attitudes related to pain and its management (Al-Khawaldeh et al., 2013). Another study investigated Saudi nursing students' knowledge and attitudes towards pain management and found them to be generally inadequate (Shdaifat et al., 2020). Next, the majority of Canadian nursing students did not have adequate knowledge about and positive attitudes toward pain (Hroch et al., 2019).

Education regarding pain and its management is important for nursing students to enhance the quality of life of patients. The level of education could affect students' beliefs and perceptions and increase knowledge and attitudes in pain management. Nursing students will have problems in pain management when they have graduated and work as a registered nurses if the education in pain management is inadequate. This can cause nurses to not able to be efficient nurses that can help the patient to ease their pain.

In the program of Nursing in School of Health Sciences, Universiti Sains Malaysia (USM), pain management was not taught as a whole but separately in different subjects. The nervous system's role in pain sensation was taught in Anatomy and Physiology during the first year, pharmacological approach for pain was taught in Pharmacology during the second year, nurses role in pain management was taught in Nursing Foundation and pain management related to a certain system such as pain related to cancer was taught in Medical-

Surgical I, II, III,IV and V. Pain management has not been explored as a whole by the students and the knowledge and attitudes towards pain management are different based on individuals.

1.3 Research Questions

The research questions for this study are:

i. What is the level of knowledge and attitude on pain management among nursing students in USM?

ii. Is there a relationship between socio-demographic characteristics (gender, age, level of current study, year of study, religion, race, total duration of clinical training) and level of knowledge and attitude on pain management among nursing students in USM?

iii. Is there a relationship between individual experiences of pain (any health problem, regularly use medication, methods of coping with pain, the experience of pain in relatives, read journal article or pain literature on the internet related to pain management) and level of knowledge and attitude on pain management among nursing students in USM?

1.4 Research Objectives

1.4.1 General Objective

The general objective of this study is to determine the level of knowledge and attitude of pain management among nursing students in USM.

1.4.2 Specific Objectives

i. To determine the knowledge and attitude on pain management among nursing students in USM.

ii. To examine the relationship between socio-demographic characteristics (gender, age, level of current study, year of study, religion, race, total duration of clinical training) and level of knowledge and attitude on pain management among nursing students in USM.

iii. To examine the relationship between individual experiences of pain (any health problem, regularly use medication, methods of coping with pain, the experience of pain in relatives, read journal article or pain literature on the internet related to pain management) and level of knowledge and attitude on pain management among nursing students in USM.

1.5 Research Hypothesis

i. Null Hypothesis, H_O: There is no significant relationship between selected socio-demographic characteristics and level of knowledge and attitude of pain management among nursing students in USM.

Alternative hypothesis, H_A: There is a significant relationship between selected socio-demographic characteristics and level of knowledge and attitude of pain management among nursing students in USM.

ii. Null Hypothesis, H_O: There is no significant relationship between individual experiences of pain and level of knowledge and attitude of pain management among nursing students in USM.

Alternative hypothesis, H_A: There is a significant relationship between individual experiences of pain and level of knowledge and attitude of pain management among nursing students in USM.

1.6 Significance of the Study

The findings of this study can be used to evaluate the knowledge and attitude in pain management among nursing students in USM in 2020. With emerging technologies, students should have access to information about many illnesses and pain management at their fingertips. This finding is important to see the efficacy of pain curriculum in the nursing program in USM. Attitudes are indicative of intentions which, in turn, indicative of future behavior. Thus, predictions on the quality of pain management by these future nurses can be made. Therefore, early interventions may be undertaken by nursing lecturers such as re-evaluating the content of pain management in nursing subjects, if the results of this study show that there is a significantly low level of pain knowledge and attitudes among nursing students.

1.7 Conceptual and Operational Definitions

Table 1.1 Conceptual and operational definitions of this study

Terms	Conceptual Definitions	Operational Definitions
Knowledge	Understanding of information about a subject that is obtained by experience or study, either known by one person or by people generally (Cambridge dictionary, 2020).	In this study, knowledge is the information, facts, or familiarity towards pain management acquired by respondents.
Attitude	The way a person feels about something or someone, or a particular feeling or opinion (Cambridge dictionary, 2020).	In this study, attitude is the way a person acts towards patients in pain.
Pain management	The activity of controlling something, or of using or dealing with something in a way that is effective (Cambridge dictionary, 2020).	In this study, management is the activity of controlling pain by using or dealing with pain in an effective way.
Nursing students	A person who is learning at a college or university (Cambridge dictionary, 2020)	In this study, a student is a person who is studying the nursing course at USM.

CHAPTER 2: REVIEW OF LITERATURE

2.1 Introduction

This literature review is to summarize research that has been done on the subject. The aim is to gain an understanding of the level of knowledge and attitude on pain management among nursing students. This literature review will cover the nurse's pain role in pain relief, knowledge and attitude on pain management among registered nurses and nursing students and the factors influencing level of knowledge and attitude of pain management. Finally, the conceptual framework for this study is presented.

2.2 Knowledge and Attitude of Pain Management

2.2.1 Studies Among Registered Nurses

The findings of many studies provide unarguable proof that many nurses caring for patients with pain lack adequate information about pain management. Lack of knowledge among registered nurses about pain and its treatment has been the major barrier in achieving comfort for those in pain.

A study was done by Soh (2017) to measure the level of pain management knowledge among medical ward nurses in Malaysia. 143 out of 238 registered nurses working in nine medical wards at the government hospital took part in this cross-sectional study. The majority of the respondents (n=101, 71%) had pain knowledge scores of 49% and below. Only 29% (n=42) had pain knowledge scores of 50% and above. Then, 41% of nurses reported that they had not previously attended any course on a pain management course, and 59% of nurses reported had exposure to such courses. Although more than 55% of the respondents received in-service training regarding pain management, only 6% of the respondents held certificates

in pain assessment. There was no significant relationship between recent participation in courses related to pain management and knowledge on pain management (Soh, 2017).

Another study was done in Malaysia by Alzghoul & Azimah Chew Abdullah (2016) to assess pain management practices by nurses: an application of the knowledge, attitude, and practices (KAP) model. Based on this study's findings, it shows that the nurses tended to have a moderate level of attitude towards pain management, a moderate score on knowledge of pain management and moderate level of pain management practices. The KAP model suggests that people with a high positive attitude towards behaviour and high knowledge will have an effective practice.

In India, a study by Kaur (2017) aims to assess the knowledge and attitude of registered nurses regarding pain management at Kular Hospital, Bija (Punjab). From this study, the majority of the respondents (66%) had average knowledge related to pain management with a score of 15-20. 20% of respondents had poor knowledge related to pain management with a score of 0-15, and only 14% of respondents had good knowledge related to pain management with a score of 20-25. For attitude related to pain management, 74% had a negative attitude towards pain management and only 26% was having a positive attitude towards pain management. It was also found that there is a significant relationship of knowledge with the attitude of registered nurses towards pain management.

2.2.2 Studies Among Nursing Students

So far, the researcher could not find any study on pain management done in Malaysia.. However, throughout the world, nursing students demonstrated very low pain

knowledge and attitude. A study done by Karaman et al. (2019) identified a deficit in the general knowledge of pain among students at a nursing faculty in western Turkey. The study population consisted of 190 nursing students. A comparison of the knowledge scores with student characteristics revealed that only the status of current employment as a registered nurse demonstrated a significant difference. This shows that nurses' in-service training can increase their pain knowledge. There was no significant difference detected between the knowledge and attitude of pain management and variables such as age and the score of the worst pain they had ever experienced.

In a study to explore the current knowledge and attitudes regarding pain management among Jordanian nursing students, Al-Khawaldeh et al. (2013) found that nursing students had inadequate knowledge and attitudes related to pain and its management. According to the grading criteria (poor <50%, fair 50–<75%, and good ≥75%), 92.5% and 7.5% of the respondents were considered to have a poor and fair knowledge of pain management, respectively. Findings revealed that there were significant differences found in the students' scores related to pain management training and frequency of using pain assessment tools. The most frequently identified barriers were lack of knowledge and training regarding pain management followed by not using pain assessment tools by nursing students who are working in the clinical areas.

In Canada, a study by Hroch et al. (2019) to examine preregistration nursing students' knowledge and attitudes about the assessment and management of pain was done among 336 nursing students. The findings of the study suggested that prior experience caring for someone with pain was independently associated with higher scores. Major gaps

in knowledge included awareness of the magnitude of the risk of respiratory depression after receiving an opioid, understanding how to calculate medication dosages, and knowing about medication administration and pharmacology. Major strengths in knowledge and demonstration of positive attitudes included being aware that patients are the best judge of their pain, knowing that children can reliability self-report pain, and being aware of the symptoms of withdrawal from opioid medications.

Next, from the study by Shdaifat et al. (2020) in Saudi, it is found that the students' mean knowledge of pain management was 42.6%. The items answered correctly most frequently concerning pain medication and administration. Furthermore, the most commonly incorrect items were mainly related to assessment and pharmacological interventions. Regression analysis found that gender was significantly associated with the level of knowledge and attitudes about pain management. However, there is no significant relationship found between knowledge and attitude score and marital status, educational level,and age.

2.3 Factors Influencing Level of Knowledge and Attitude of Pain Management

2.3.1 Socio-demographic

Based on the study conducted by Shdaifat et al. (2020), gender is significantly associated with students' knowledge of pain management, with female students having better knowledge than males. This may be caused by female student nurses are generally more empathetic than their male counterparts and it can be inferred that they may pay more attention to pain management information. Gender was found to be a predictor of knowledge

and attitudes among students.

In another study done by Voshall et al. (2013) among nursing lecturers, a significant positive correlation was found between age and years of practice and between age and years of teaching. Older nursing lecturers reported more years of practice and more years of teaching than younger faculty. Next, a study by Karaman et al. (2019) finds that there is a significant difference detected between the Knowledge and Attitudes Survey Regarding Pain (KASRP) and variables such as age, the score of the worst pain they had ever experienced. Analysis done by Al-Khawaldeh et al. (2013) showed that there were no significant differences found in the students' scores of knowledge and towards pain management concerning age categories and gender.

2.3.2 Personal Experience with Pain

Personal experience with pain may affect the level of knowledge and attitude of pain management. Based on the study done by Al-Khawaldeh et al. (2013), shows that there were no significant differences found in the students' scores of knowledge and attitude towards pain management with respect to reading any journals or books about pain and work experience in hospitals. It may be explained by the students' possibly not receiving the most current information on pain management based on evidence-based practice guidelines. Therefore, nursing schools need to critically review their curricula to determine whether students are being taught in-depth and up-to-date pain management information that incorporates evidence-based research and current standards of care.

In another study done by Hroch et al. (2019) in Canada, having cared for someone with pain was significantly associated with the KASRP in the bivariate analysis. A study by Karaman et al. (2019) examined the relationship between levels of pain knowledge in the students and socio-demographic variables and found a significant correlation only between pain and their status as working as nurses. This suggests that nurses' in-service training can improve their pain knowledge, and in fact, it was seen in other studies that nurses generally had received in-service training on pain.

2.3.3 Education

Nursing education must involve appropriate and adequate pain content so that nursing students have the opportunity to develop appropriate pain assessment and management knowledge and positive attitudes. This knowledge is imperative to the nursing role because nurses educate and care for patients with pain. A study by McNamara et al. (2012) shows that the acute pain educational program intervention improved nurses' knowledge and attitudes towards pain assessment and management. Continuing evidence-based educational programs in pain management can improve nurses' knowledge of pain.

In Dubai, a research was conducted by Salim et al. (2019) to assess the effect of a nursing in-service education program on nurses' knowledge and attitudes concerning pain management. 200 respondents received the pain management program (PMP). It is shown that in-service education PMP proved to be effective. Pain knowledge and attitudes were improved after the educational session. Nurses in the experimental group scored higher in the post-test but still did not reach the passing score of 75%. Moreover, the knowledge scores increased significantly after implementing the PMP.

Another study by Kang et al. (2018) in Ethiopia was done to investigate the influence of an in-service educational program on nurses' knowledge and attitudes regarding pain management. The finding of this study is that the educational program improved nurses' scores for pain management knowledge and attitudes which lead to more effective pain management by nurses. After completion of the educational program, 98.2% of all respondents increased their score on KASRP. This indicates improved knowledge and attitudes regarding pain for the cohort. All respondents increased their performance at post-test except for two respondents whose scores remained the same.

2.4 Theoretical Framework

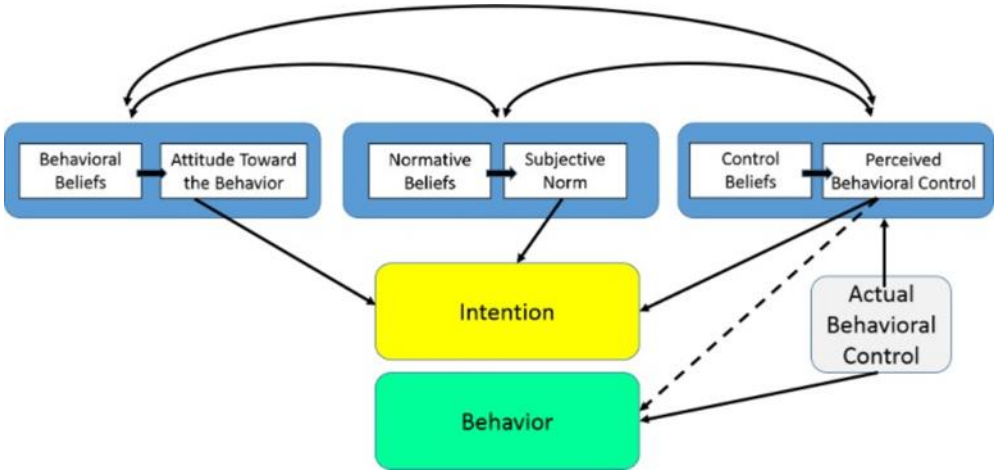

Figure 2.1: Theory of planned behavior adapted from LaMorte (2019)

The knowledge and attitude of pain management among nursing students in USM will be guided by the Theory of Planned Behavior (TPB). It will assist to enlighten the researcher and understand nursing students' behavior that influences their comprehension and realization of pain management among patients.

TPB started as the Theory of Reasoned Action in 1980 to predict an individual's intention to engage in a behavior at a specific time and place. The theory was intended to explain all behaviors over which people can exert self-control. The TPB has been used successfully to predict and explain a wide range of health behaviors and intentions including smoking, drinking, health services utilization, breastfeeding, and substance use, among others. The TPB states that behavioral achievementdepends on both motivation (intention) and ability (behavioral control). It distinguishes between three types of beliefs - behavioral, normative, and control (LaMorte, 2019).

The TPB is comprised of six constructs that collectively represent a person's actual control over the behavior. Firstly, attitudes refer to the degree to which a person has a favorable or unfavorable evaluation of the behavior of interest. Then, behavioral intention refers to the motivational factors that influence a given behavior where the stronger the intention to perform the behavior, the more likely the behavior will be performed. Thirdly, subjective norms are related to a person's beliefs about whether peers and people of importance to the person think he or she should engage in the behavior. Social norms refer to the customary codes of behavior in a group of people or a larger cultural context. Next, perceived power contributes to a person's perceived behavioral control over each of those factors. Lastly, perceived behavioral control refers to a person's perception of the ease or difficulty of performing the behavior of interest (LaMorte, 2019).

In this study, the researcher applied the same theory to determine how knowledge and attitude will influence the intention of pain management among nursing students in USM. Based on this theory, the researcher assumes that all respondents have a positive

attitude towards pain management, but they may have other factors such as inadequate knowledge or other barriers that influence the intention of pain management. The researcher believes that if nursing students have good knowledge and a positive attitude, ineffective pain management can be eliminated and at the same time improve patient care. However, in this study, practices are not assessed.

Conceptual Framework

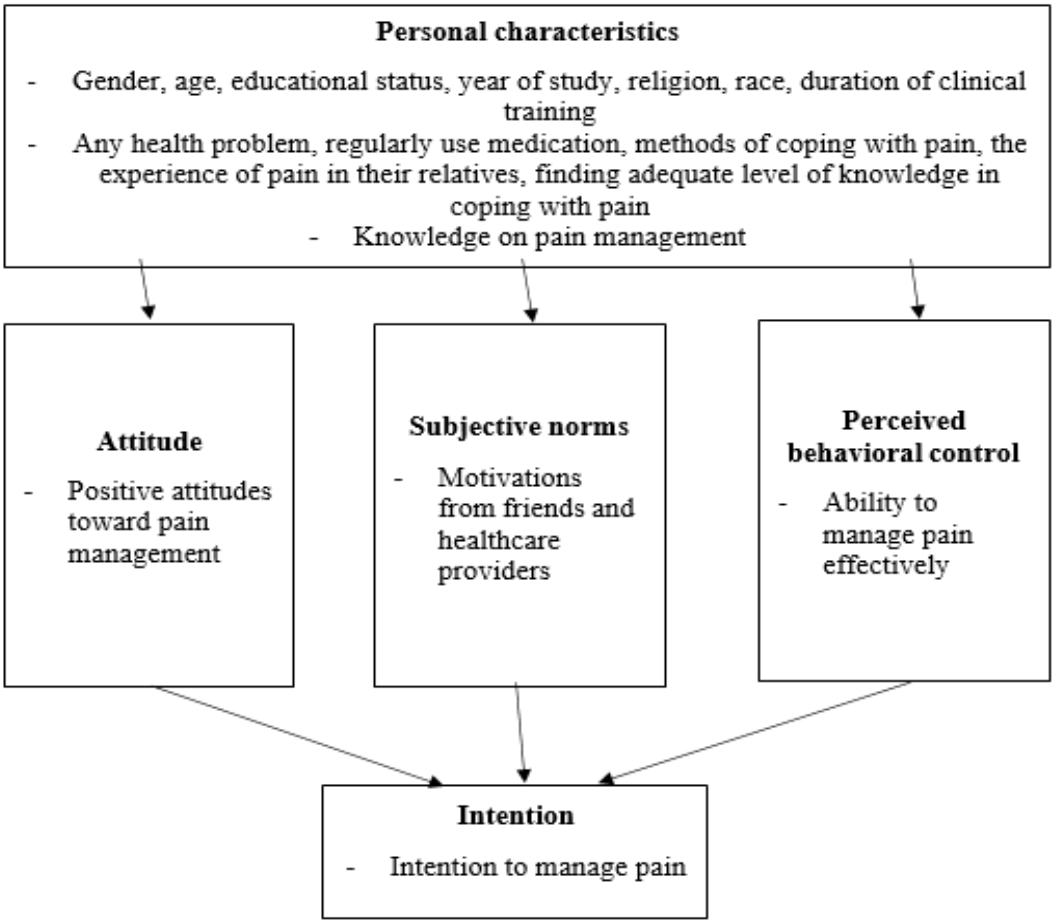

Figure 2.2: Conceptual framework of the study for knowledge and attitude of pain management adapted from LaMorte (2019)

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter explained the approach and rationale used to justify the chosen research methodology. It begins with an explanation of a cross-sectional design and justification for choosing the design. Then it is followed by a description of the study population and setting, inclusion and exclusion criteria, sampling size, sampling design method, instrumentation, including ethical consideration right through data collection methods. The final section explained the data analysis method used with the variables.

3.2 Research Design

The research design selected for this study was a cross-sectional study. A cross-sectional study is used because data are collected on the whole study population at a single point in time (Wang & Cheng, 2020). This study aims to identify the knowledge and attitude of pain management among nursing students in USM.

3.3 Study Setting and Population

This study was conducted in the School of Health Sciences, USM Health Campus, Kubang Kerian, Kelantan. This study was conducted between November 2020 and June 2021. Data collection was from January until February.

The sample population was bachelor and diploma nursing students in the School of Health Sciences, USM that fulfilled the inclusion criteria. For bachelor nursing students, there were 35 students in the first year, 31 students in the second year, 27 students in the third year, and 25 students in the fourth year. For diploma nursing students, there were 53

students in the first year, 69 students in the second year and 45 students in the third year. The total number of nursing students was 285 students as the sampling frame.

3.4 Sampling Plan

3.4.1 Sample Criteria

3.4.1.1 Inclusion Criteria

The specific requirement for inclusion in this study required that each respondent must be:

- Nursing student diploma and bachelor's degree who are currently studying in USM.
- Able to understand English.

3.4.1.2 Exclusion Criteria

The respondents will be excluded from the study if they are:

- Registered nurse.
- Students who have poor internet access.

3.4.2 Sample Size Estimation

The sample size of this study was determined firstly by calculating the sample size for each research objective. The sample size for the first objective was estimated by using single proportion formula taken based on a previous study conducted by Hroch et al. (2019).

$$n = (Z/\Delta)^2 \, p \, (1 - p)$$

Where,

n = required sample size

Z = value representing the desired confidence levelΔ = precision

p = anticipated population proportion

Meanwhile, the sample size for the second and third objectives was estimated by using the two proportions formula. Objective 2 was calculated based on a previous study conducted by Shdaifat et al. (2020) meanwhile, objective 3 was based on a study by Soh (2017).

$$n = \frac{p1 \, (1 - p1) + p2 \, (1 - p2)}{(z\alpha + z\beta)(p1 - p2)^2}$$

Where,

n = sample size

p = anticipated population

proportion α = level of statistical significance

1-β = power of the study

Objective 1:

The prevalence of good knowledge and attitude is 4.5%.

Thus, n = (Z/ Δ)2 p (1 – p)

n = (1.96/ 0.05)2 x 0.045 (1- 0.045)

= 66

After considering 10% dropout, n = 66 + 6.6

= 73

Therefore, the total sample size for objective 1 is 73 samples.

Objective 2:

The prevalence of male gender with good level of knowledge and attitude is 10.9% (p1). The prevalence of female gender with good level of knowledge and attitude is 28.3% (p2). Thus,

$$n = \frac{p1\ (1 - p1) + p2\ (1 - p2)\ (z\alpha + z\beta)}{(p1 - p2)2}$$

$$= \frac{0.109\ (1\text{-}0.109) + 0.283\ (1\text{-}0.283)\ \ (1.96 + 0.84)2}{(0.109 - 0.283)2}$$

= 78

After considering 10% dropout, n = 78 + 7.8

= 86

Therefore, the total sample size for objective 2 is 86 samples.

Objective 3:

The prevalence of respondent who read journal article or pain literature on the internet related to pain management with good level of knowledge and attitude is 28% (p1). The prevalence of respondent who do not read journal article or pain literature on the internet related to pain management with good level of knowledge and attitude is 30% (p2). Thus,

$$n = \frac{p1\ (1 - p1) + p2\ (1 - p2)\ \ (z\alpha + z\beta)}{(p1 - p2)^2}$$

$$= \frac{0.28\ (1\text{-}0.28) + 0.3\ (1\text{-}0.3)\ \ (1.96 + 0.84)^2}{(0.28 - 0.3)^2}$$

= 8067

After considering 10% dropout,n = 8067 + 806.7

= 8874

Therefore, the total sample size for objective 3 is 8874 samples.

The reasonable sample size was from objective 2 which was (n=86) had been taken as the study sample.

3.4.3 Sampling Method

This study used simple random sampling method for the collection of data among nursing students in USM. A list of diploma and bachelor's degree students in the Nursing Program, School of Health Sciences, USM was obtained from the academic office. Following, each member of the larger population group was assigned a number. Next, using a randomizer website, a set of random numbers was obtained based on the website. The list of students' names in alphabetical order was coded. Those coded number match with randomize number from the randomizer was include as a study subject. Then, the online version of informed consent from (refer Appendix C) was taken and obtained to those who agreed to participate in this study. The link to the questionnaire was given to them to answer and if they have difficulties, they can clarify with the researcher through 'WhatsApp' application.

3.5 Instrumentation

3.5.1 Instrument

Data for this study was obtained through a set of self-administered questionnaires using Google Form which is a survey administration software that was sent via 'WhatsApp' application. It consists of three main sections: Part A, Part B, Part C. Questionsfrom Part C is the Knowledge and Attitudes Survey Regarding Pain (KASRP) questionnairewhich was developed by Ferrell and McCaffery in 1987 but revised in 2014. Permission to use the questionnaires has been obtained from the author (Refer Appendix B).

Part A: Socio-demographic data

This section contains seven questions: gender, age, level of the current study, year of study, religion, race, total duration of clinical training to assess the relationship between respondents' socio-demographic and the level of knowledge and attitude in pain management.

Part B: Individual experiences of pain

This section contains five close-ended questions: any health problem, regularly use medication, methods of coping with pain, the experience of pain in their relatives, read journal article or pain literature on the internet related to pain management to assess the relationship between individual experiences of pain and the level of knowledge and attitude in pain management among nursing students in USM.