

RESILIENCE AMONG UNIVERSITI SAINS MALAYSIA
NURSING STUDENTS

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RESILIENCE AMONG UNIVERSITI SAINS MALAYSIA
NURSING STUDENTS

by

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the requirements for the degree
of Bachelor in Nursing (Honours)

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CERTIFICATE

This is to certify that the dissertation entitled “Resilience among USM nursing students” is the research work done by Ms. Noorsyafawani Binti Mohamed Ali during the period from October 2022 until June 2023 under my supervision. I have read this dissertation and that in my opinion it conforms to acceptable standards supervision 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). Research work and collection of data belong to Universiti Sains Malaysia.

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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.

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LIST OF ABBREVIATIONS

USM	- Universiti Sains Malaysia
TRC	- Trait Resilience Scale
SRC	- State Resilience Scale

**DAYA TAHAN DALAM KALANGAN PELAJAR KEJURURAWATAN DI
UNIVERSITI SAINS MALAYSIA**

ABSTRAK

Ketahanan ialah istilah yang biasa digunakan untuk menggambarkan kebolehan mengubah kesukaran menjadi peluang dan belajar daripada situasi yang mencabar. Daya tahan telah muncul sebagai satu konsep yang boleh menerangkan dan meramalkan kejayaan akademik dan kesejahteraan pelajar dalam situasi tertekan dan traumatik. Justeru, kajian ini bertujuan untuk mengetahui tahap daya tahan dalam kalangan pelajar kejururawatan USM. Kajian keratan rentas yang digunakan melibatkan 174 pelajar kejururawatan dari kampus Kesihatan USM dalam melengkapkan soal selidik yang ditadbir sendiri menggunakan skala “Trait and State Resilience”. Dapatan daripada kajian ini menunjukkan bahawa 56 (32.2%) pelajar kejururawatan mempunyai tahap daya tahan “trait” yang sangat tinggi, dan hanya 3 (1.7%) mempunyai daya tahan trait rendah. Bagi daya tahan keadaan, 81 (46.6%) pelajar kejururawatan mempunyai tahap daya tahan keadaan yang sangat tinggi dan hanya 1 (0.6%) yang mempunyai daya tahan keadaan yang rendah. Purata skor daya tahan trait ialah 66.07 (SD: 11.7) dan skor purata daya tahan keadaan ialah 59.24 (SD: 9.3). Terdapat korelasi yang signifikan, sederhana dan positif antara skor resiliensi trait dan skor resiliensi keadaan yang diuji menggunakan ujian korelasi Pearson (Pearson's $r = 0.733$, nilai $p < 0.001$). Kesimpulannya, kajian tahap daya tahan menunjukkan tahap daya tahan trait yang tinggi dan daya tahan keadaan yang sangat tinggi dalam kalangan pelajar kejururawatan USM. Walau bagaimanapun, kajian lanjut perlu dijalankan dalam saiz sampel yang besar untuk membandingkan tahap daya tahan dalam kalangan pelajar kejururawatan di universiti dan menyiasat faktor-faktor lain yang

berkemungkinan mempengaruhi daya tahan pelajar kejururawatan termasuk faktor dalaman.

RESILIENCE AMONG UNIVERSITI SAINS MALAYSIA NURSING STUDENTS

ABSTRACT

Resilience is a term commonly used to describe the ability to turn adversity into opportunities and learn from demanding situations. Resilience has emerged as a concept that can explain and predict students' academic success and well-being in stressful and traumatic situations. Thus, this study was aimed to determine the level of resilience among USM nursing students. The cross-sectional study was used were 174 nursing students from USM Health campus involved in completing a self-administered questionnaire adopting from Trait and State Resilience scale. The finding from this study shows that 56 (32.2%) of the nursing students have a very high level of trait resilience, and only 3 (1.7%) have low trait resilience. For state resilience, 81 (46.6%) of the nursing students have a very high level of state resilience and only 1 (0.6%) have low state resilience. The mean trait resilience score was 66.07 (SD: 11.7) and the mean state resilience score was 59.24 (SD: 9.3). There was a significant, moderate and positive correlation between trait resilience scores and state resilience scores which is tested using Pearson correlation test (Pearson's $r = 0.733$, p value < 0.001). In conclusion, the study of the level of resilience shows a high level of trait resilience and very high state resilience among USM nursing students. However, further research should be conducted in a large sample size to compare the level of resilience among nursing students in university and investigate other probable factors that affect the resilience of nursing students including internal factor.

CHAPTER 1: INTRODUCTION

Chapter one gives an idea on the background of the study that the research was conducted. In this chapter, the researcher has explained a problem statement, research objective, research questions and hypothesis details. In addition, researcher has also listed the conceptual and operational definitions, and the significance of the study.

1.2 Background of the Study

Admission to a professional nursing programmed is the first step toward a professional nursing career. Nursing students become staff nurses after completing their programmed. Thus, the quality of their education influences their practice attitudes, career values, and career choice (Devi et al., 2021). Mental health issues, including depression and anxiety, have a considerable effect on those pursuing a nursing education and career. Students with high resilience in a professional nursing programmed had a lower risk of depression and anxiety under stressful conditions. Resilience acts as a stress buffer and aids students in recovering from mental health challenges. Low resilience appears to contribute to mental health breakdown in university life (Devi et al., 2021). Both nurses and students struggle to keep a professional standard which they can recognize due to the constantly changing and becoming specialize in healthcare system, more knowledgeable patients, the conflict between expectations and resources, and more (Nolte et al., 2017).

The term resilience is frequently used to describe the ability to turn difficulty into opportunities and learn from hard situations (Delgado et al., 2017; Richardson., 2002). Despite a wide range of partly different meanings of the term, there appears to be a striking agreement about the adaptive character of resilience, as shown in various definitions as the ability to respond correctly to adversity and recover (Grant & Lecturer, 2013; Greene et al., 2004).

In a literature review Aburn et al. (2016), many studies relate resilience to the capacity to "bounce back." Furthermore, recovering from hardship or trauma to achieve one's prior health or wellbeing is related to "bouncing back." Being a nursing student is commonly described as stressful (Pulido-Martos et al., 2012; J. Thomas et al., 2012; K. Turner & McCarthy, 2017). Based on a series of focus group interviews with final-year nursing students Gibbons et al. (2008) suggest to classify stress into three categories which are clinical, academic, and personal. One of the main sources of stress has been identified as clinical practice, which may be linked to the emotional demands on the students when they begin to take on responsibility for patient care.

Anxiety, worry, and anger were the most common stated feeling during nursing students' most stressful clinical practice (Reeve et al., 2013). Moreover, they also said that stress "impacts the student experiences while they are in school and may later impact their lives and journey as professional nurses," (p. 423). Gibbons et al., (2011) made a direct relation between nursing students' health, professional readiness, and patient safety. This provides an important reminder that nursing students' capacity to put patients' needs first comes into mind when building resilience in them. Thus, resilience is extremely important for nursing students to overcome adversity and prepare them for their professional role after graduation.

1.2 Problem Statement

It is widely acknowledged that nursing education can be a demanding and exhausting experience. University life is generally regarded as a stressful and even traumatic time during which students face new challenges in their academic, social, and personal contexts. However, it is a positive developmental factor because it helps students improve their coping skills and prepare for adulthood. (Onan et al., 2019). Resilience is a critical quality in nursing students that will enable them to face and overcome challenges in their studies and future careers (Chow et al., 2020). Currently, there is a shortage of nurses in many healthcare systems around the globe. Hence, nursing schools are constantly under pressure to provide quality education to nursing students for the future. Nurses and future nurses are under pressure to maintain professional values with increasing specializations in healthcare delivery, more involvement of patients in their healthcare, and tensions between demand and available resources (Amsrud et al., 2019; Nolte et al., 2017). A large number of nursing students all over the world are struggling to complete their nursing education (Amsrud et al., 2019).

University life are particularly challenging for students who face various challenges. At the beginning of university life, students learn how to adapt to an unfamiliar environment. They learn to be more self-sufficient, manage their time, and accept responsibility for themselves. Sometimes they are stressed by expectations for high academic performance, relationship issues and other problems. However, university life can be a great developmental experience for individuals who desire to improve their coping abilities and prepare for their adulthood (Bayram & Bilgel, 2008; Vaez & Laflamme, 2008). Nursing students face the same academic challenges as other college students, including quizzes and final exams, research papers, and other projects

(Evans & Kelly, 2004).

Furthermore, nursing students must finish a clinical component, which is quite stressful. Before their clinical placement, they need a large amount of preparation. In addition, nursing students need to perform procedures that can lead to serious harm to their patients, increasing their fear of making mistakes. Thus, studies indicate that nursing students have a high level of stress than other students (Mahat, 1998). In a nutshell, resilience is built at the end of effective coping and is required for coping with stressful events (Sigalit et al., 2017).

Previous study has shown that resilience influences learning experience, academic performance, course completion, and professional practice in the long (Reeve et al., 2013). Several have also investigated whether resilience affects the academic performance of undergraduates in various disciplines. In the case of hospitality and tourism students, resilience is a significant predictor of academic performance (Kwek et al., 2013). In the aspect of nursing, resilience level of the students differs between countries. Nursing students in Nigeria demonstrated moderate resilience while the Australian and Spanish counterparts reported a high level of resilience (Aloba et al., 2016). More resilient nursing students had better psychological health and less academic burnout (Ríos-Risquez et al., 2016).

There is a growing research interest in determining why some nursing students can cope well while others cannot, despite the fact that they all face similar problems and challenges throughout their programme. This is because, individual nursing students who are resilient will look for positive meanings in negative circumstances to cope with distress effectively. Then, they adopt the knowledge they acquire from the setback as a form of reference to help them cope with similar situations in the future

(Tugade & Fredrickson, 2004). It is important to note that resilience is not merely an indicator of well-being, but is a process that allows a person to stay healthy or to recover quickly after adversity (Rutten et al., 2013).

Little is known about the level of resilience among nursing students in USM Health Campus. Assessing nursing students' resilience can help decision-makers and policymakers improve learning culture, well-being, academic success, and the big change of nursing students into their future professional practice roles. Hence, the study aimed to assess resilience and to identify demographic characteristics among nursing students in USM Health Campus. Later, this study aimed to determine the association between level of resilience and socio-demographic factors among nursing students in USM Health Campus.

1.3 Research Questions

Guiding the research study and to inform the researcher, the following research questions were formulated:

- i. What is the level of resilience among USM nursing students?
- ii. What is the socio-demographic factors influence resilience among USM nursing students?
- iii. Is there any association between the level of resilience and selected socio- demographic factors (age, programme of study, years of study and family financial status) among USM nursing students?

1.4 Research Objectives

The research objective is an architectural framework that enables the researcher to come out with a worthy research project.

1.4.1 General Objective

To determine the level of resilience among USM nursing students.

1.4.2 Specific Objectives

- iv. To identify the level of resilience among USM nursing students.
- v. To determine socio-demographic factors influencing resilience among USM nursing students.
- vi. To determine the association between the level of resilience and selected socio-demographic factors (age, programme of study, years of study and family financial status) among USM nursing students.

1.5 Research Hypothesis

The research of this study was presented as follow:

1.5.1 Null hypothesis, H₀:

There is no association between the level of resilience and selected socio-demographic factors (age, programme of study, years of study and family financial status) among USM nursing students.

1.5.2 Alternative hypothesis, H_A:

There is an association between the level of resilience and selected socio-demographic factors (age, programme of study, years of study and family financial status) among USM nursing students.

1.6 Conceptual and Operational Definitions.

Table 1.1 Conceptual and operational definitions of this study

Resilience	According to the Oxford English Dictionary (2012, online) resilience derives from the Latin word resilia, meaning the “action of rebounding.” (ATKINSON et al., 2009) describe resilience as the “capacity to recover from extremes of trauma, deprivation, threat, or stress” (p. 137). In this study, resilience refers to the ability to turn difficulty into opportunities and learn from hard situations among nursing students in USM Health Campus that was measured by a structured questionnaire survey using trait and state resilience scale.
Nursing student	Nursing student is an individual who is enrolled in a school for professional nurses or a school for licensed practical nurses that meets standards established by the Board of Nursing (Insider, 2015). In this study, the target population are nursing students from degree and diploma programmes from year 1 to year 4.

1.7 Significance of the study

Nursing students are the future caregivers for patient care and the backbone of the nursing workforce. The transition of nursing students into the profession as registered nurses remains a concern today. According to research data by Kreedt et al. (2021) the transition process is very stressful for new graduates and a number of newly graduated nurses continue to be quit from the profession due to the stressful process of change. This loss of potential nurses into the health care profession makes it essential to assist nursing students to not only be able to cope with the challenges of their academic and clinical placements, but also to make them ready for the transition to become registered nurse (Kreedt et al., 2021). Resilience is an important element to build to help them cope with the demands of learning and practicing on clinical placement while also maintaining their well-being (Ching et al., 2020).

Therefore, it is time for observing the level of resilience among nursing students to develop a strong, effective leaders who can survive during pressures of an unpredictable healthcare environment. This study could help nursing students identify their level of resilience and be better prepared to enter into their careers as new graduates with the hope, optimism, and confidence that they will succeed despite difficulties and barriers. The finding of this study can be used as a reference to help nursing student develop their resilience towards workload. Awareness and motivation are important among them to build their resilience. The finding is also key to determining the level of resilience among nursing students to ensure they can keep their work performance excellently. This could help develop specific interventions to improve resilience. Hence, quality of life among nursing students increases.

CHAPTER 2: LITERATURE REVIEW

This chapter generally reviews the current literature on resilience among nursing students in Malaysia. This chapter provides a review and analysis regarding the introduction of resilience, resilience in nursing, level of resilience, resilience and age, resilience and years of study and last but not least resilience and family financial status. The chapter also details the conceptual framework.

2.1 Resilience

Resilience refers to a person, community, or system ability to adapt and learn from challenges, stress, adversity, or trauma positively (Sisto et al., 2019). Resilience is used in biologic, psychology, social, trauma, family environments, and moral or ethical domains, but it is not universally defined or applied (Aburn et al., 2016). In addition, resilience is the capacity of a system, enterprise, or person to maintain its core purpose and integrity in the face of dramatically changed circumstances (Gould, 2021). Resilience, is also defined as an individual's ability to respond to stress healthily, allowing someone to achieve goals at the lowest physical and psychological expenses. It is considered a critical skill among students because of its direct relationship with their mental health, psychological well-being, commitment, achievement, quality of attention, self- efficacy, and creativity (L. J. Thomas & Revell, 2016).

Studying at university provides a unique opportunity for individuals to develop the skills and capabilities. This is predicated on the university creating a positive environment that promotes student learning. While the university experience presents positive opportunities for the student, risk and unknown consequences are also implicitly situated within this experience. Risk cannot be separated from any learning

experience, and students will experience self-doubt, stress, and academic or social inadequacy at some point during their university education (Turner et al., 2016). If stress and adversity are inextricably linked with opportunity, then student success at university is determined in part by their level of resilience. The university playing a key role in addressing the development of resilience. Thus, resilience at university is essential for a successful participatory learning experience, and an individual's collective human and social capital.

Resilience, a set of attitudes and behaviors associated with an individual's ability to bounce back and adapt in the face of risk and stress, has become widely recognized as a vital capability for university students to develop (Dickinson & Dickinson, 2014). Resilience are divided into two categories in this study which are trait and state resilience. A trait resilience is referred to as heritable characteristics, distinctive qualities, strengths, or aspects of personality which are relatively stable over time (Kuldas & Foody, 2022). State resilience refers to human cognitive and affective/motivational potentials (e.g., efficacy, hope, optimism, wisdom, well-being, gratitude, forgiveness, empathy, and courage) that are relatively malleable and open to development (Lock et al., 2020)

2.2 Resilience in Nursing Students

All nursing students are believed to be vulnerable to periods of perceived difficult situations and stress (Stephens, 2013). Nursing students are more stressed than students in other health fields (Edwards et al., 2010). Furthermore, nursing clinical training exposes students to real-life patient or clinical situations and many firsts cases such as death and dying, diverse lifestyles, and communicable disease (Stephens, 2013). Students' experiences in a clinical setting may be stressful as they apply new skills and knowledge. Promoting resilience in students may help them achieve academic success

and prepare for the profession (Stephens, 2013).

Nurse authors have explored resilience in nursing practice and used a variety of definitions of the concept. Thomas & Revell (2016) conclude that a stressor or adversity, personal characteristics, and a coping outcome are understood across definitions. In nursing students, resilience was defined as "an individualized process of development that occurs through the use of personal protective factors to successfully navigate perceived stress and adversities" (Stephens, 2013). Cumulative successes lead to enhanced coping or adaptive abilities and well-being. The support of family, friends, classmates, and faculty positively influences student resilience. Overall, the process of time positively impacts resilience as students learn to cope with the challenges of their education (L. J., Thomas & Revell, 2016).

2.3 Level of Resilience

Resilience has emerged as a concept that could explain and predict students' academic achievement in traumatic and stressful situations (Hiew, 2014). Individuals who have developed resilience typically report higher self-esteem, perceived well-being, and greater flexibility in dealing with difficult situations compared to individuals who have low resilience (Almahmoud & Alkony, 2021). Resilience is a necessary characteristic for both practicing and future nurses. Previous studies found that moderate resilience and high stress levels caused negative psychological health outcomes among nursing students in a recent systematic review of studies (Li & Hasson, 2020). In Hong Kong, the higher resilience scores predicted perceived well-being of nursing students (Chow et al., 2018). Previously, Almahmoud & Alkony, (2021) found that higher resilience predicted academic success and low dropout rates among nursing students. In addition, resilience was shown to contribute to nursing

students' readiness to care for patients (Amsrud et al., 2019). Hence, students with high resilience show that they can cope with any difficulties.

2.4 Resilience and Age

According to Chen et al. (2018) sources of stress and coping strategies vary with age. There appears to be much disparity between previous studies regarding the coping ability of mature and younger undergraduate students. Previously, a study stated that mature students tend to cope better (Urquhart & Pooley, 2007). While study by Taniguchi & Kaufman (2005) found that younger students were more likely to graduate. It has been proposed that resilience rises with age (Feinstein & Hammond, 2004). However, Munro & Pooley (2009) discovered that mature students did not always have higher levels of resilience. The other study found that the students' socio-demographic characteristics influenced their resilience. Resilience can be gained through life experiences (Fletcher & Sarkar, 2013), and the likelihood of a student facing traumatic experiences increases with age as more opportunities for life experiences become available. Age is an individual characteristic that affects psychological resilience and perceived stress level (Ríos-Risquez et al., 2016). Hence, this shows that age can affect the level of resilience among nursing students.

2.5 Resilience and programme of study and years of study

Nursing students have to cope with various stressors in both educational and the clinical environments. A high level of resistance is required to manage the stressor and progress (Alatawi et al., 2021). As the students' amount of education increases, it is expected that the ability to deal with stressful situations will also increase. A study on the psychological well-being and resilience of nursing students discovered that upper class students experienced more psychological well-being than other students (Chow et al., 2018). In USM Health Campus, diploma programmes usually take three years long, and student can enter this programme directly after Sijil Pelajaran Malaysia (SPM). Once they complete a diploma, they can either start working or pursue a degree. While, the degree programmes often takes four years to complete. This degree is ideal for those who want to learn the full professional scope of nursing as a career choice. Both programmes integrate clinical practice into the curriculum with theoretical inputs. Nursing students begin their clinical placement in year one of study and the duration gradually increases from six weeks to 18 weeks in the final year. Another study of Hamadeh Kerbage et al. (2021) reported that perceived overload was significantly lower in fourth-year senior students compared with more junior students attending their first, second or third years. Similarly, personal resilience of more senior students (third and fourth years) was significantly higher compared to the first-year junior students (Chow et al., 2018).

2.6 Resilience and Family Financial Status

No education is ever cheap. However, poverty must not be a finite barrier to education, and academic performance must not suffer from the implications of the no-money-syndrome. In Malaysia, family financial status is categorised into three different income groups: Top 20% (T20), Middle 40% (M40), and Bottom 40% (B40). It is fascinating to know that schooling aims to obtain certificates, whereas education aims to gain industrial skills (Adzido et al., 2016). Students must learn more to improve financially and academically. In this study, resilience refers to the ability of an individual to recover from unpleasant event and flexibly adapt to a changing environment (Werner, 2000). When an individual's level of resilience is low, it indicates that the individual's motivation and ability to cope with difficulties are weaker. As a result, resilience is an important psychological resource for individuals dealing with stressful situations (Hu, 2008). Previous research has been discovered that an adolescent with inadequate family economic conditions has a lower level of resilience (Myers & Taylor, 1998).

A previous study showed that nursing students from high socioeconomic classes reported higher resilience and psychological well-being compared to nursing students of low socioeconomic classes (Smith & Yang, 2017). Some researcher believe that family socioeconomic status affects resilience through the relationship between adolescents and their parents (Mackay & Advisor, 2003). For example, parental trust on adolescent's future may infuse them with high hopes, optimism, and a sense of direction, which further promotes their positive adaptation during stressful situations (Gao et al., 2020). Furthermore, research indicate that parents with low family socioeconomic adopt more overprotective parenting styles (Bradley & Corwyn, 2002).

2.7 Theoretical and Conceptual Framework of the Study

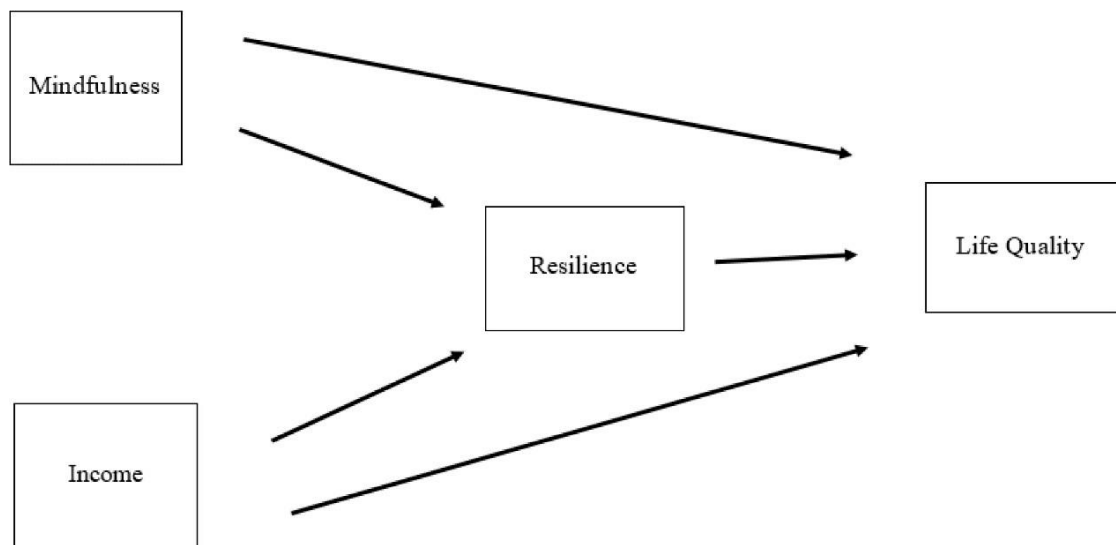


Figure 2.1: Conceptual Framework Model (modified by Cheung et al., 2020)

This study aims to determine the association between the level of resilience and selected socio-demographic factors (age, programme of study, years of study and family financial status) among nursing students in USM Health Campus. The researcher used published framework as a reference (Cheung et al., 2020). Some of the component was replaced according to the present study. For example, mindfulness and income were replace with age, programme of study, years of study and family financial status. Then, the outcome of resilience such as life quality was excluded and not use in this study.

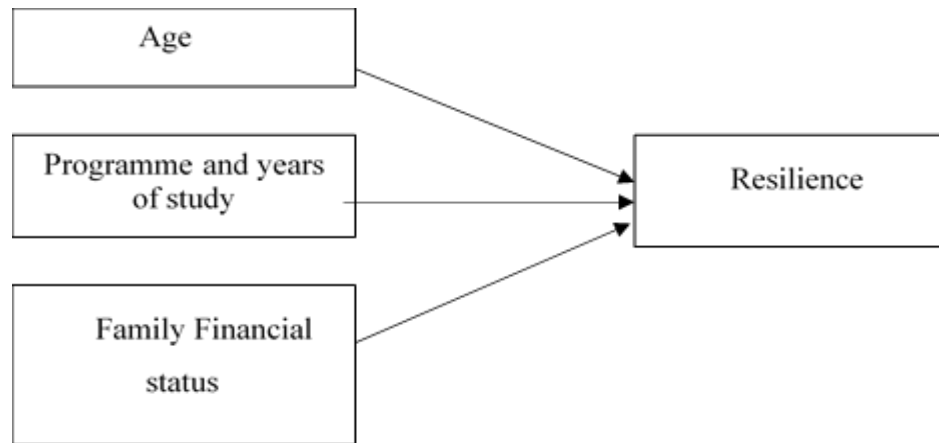


Figure 2.2: Conceptual framework (adapted from Cheung et al., 2020)

Based on figure 2 above, the independent variable consists of age, programme of study, years of study and family financial status as a socio-demographic factors. It is represented a factor that can affect the level of resilience among nursing students in USM Health Campus.

CHAPTER 3: RESEARCH METHODOLOGY

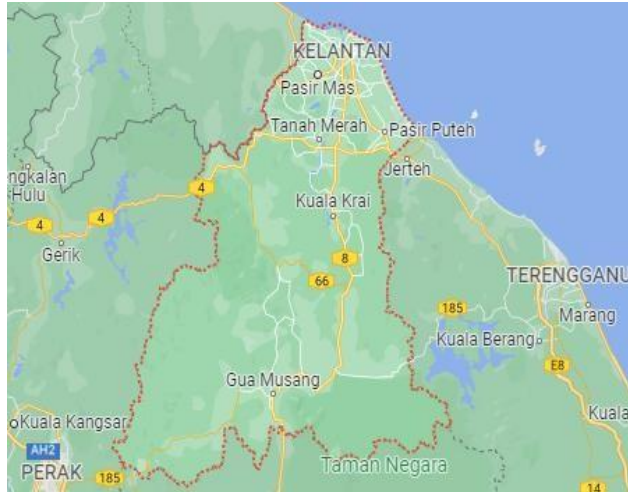
This chapter explained the approach and rationale used to support the chosen research methodology. Determining and understanding a suitable research design is necessary for attaining the purpose of study.

3.1 Research Design

Cross-sectional study design was conducted in this research project. The study involves looking at data from a population at one specific point in time. The justification and its rationale are that in a cross-sectional study design enable the researcher to measure multiple exposures and outcomes simultaneously. The participants were selected based on the inclusion and exclusion criteria set for the study. The investigator follows the study to assess the exposure and the outcomes once the participants have been selected for the study (Setia, 2016). This research aims to identify demographic characteristics, to determine the level of resilience, and the association between resilience and selected socio-demographic factor (age, programme of study, years of study and family financial status) among nursing students in USM Health Campus.

3.2 Research Location

The study was conducted among nursing students in USM Health Campus, Kubang Kerian, Kelantan.



3.3 Research Duration

This study was conducted from October 2022 to August 2023.

3.4 Research Population

The target population of this study was focused on diploma and degree nursing students of Nursing Program, School of Health Sciences, USM.

3.5 Subject Criteria – Inclusion and Exclusion Criteria

3.5.1 Inclusion Criteria

Subject will be selected as participant if they are:

- Undergraduate nursing students of the USM Health Campus who are from Year 1, Year 2, Year 3 and Year 4.

3.5.2 Exclusion Criteria

Subject will be excluded from this study if they are:

- Students from other nursing programmes in USM Health Campus.

3.6 Sampling Size Estimation

One of the essential components of methodology is the calculation of sample size, as it determines how much data is required to make a correct decision for research. The main aim of a sample size calculation is to determine the number of participants (nursing students) needed to detect a level of resilience.

The sample size was calculated for each objectives of the study. The sample size used in this study was determined by the sample size suitable for the available population.

In this study, a single proportion calculation formula was used for the first objective to calculate the sample size.

Single proportion formula:

$$n = \left(\frac{z}{\Delta}\right)^2 p(1 - p)$$

Whereby,

n = Required sample size

z = Value representing the desired confidence level, 95% (Z-Score = 1.96)

Δ = Desired level of precision, $\pm 5\%$

p = Anticipated population proportion

For the first objective (to determine the level of resilience among nursing students in USM Health Campus), the previous study shows that 87.6% (0.876) nursing students with resilience (Almahmoud & Alkony, 2021).

Calculation:

$$n = \left(\frac{1.96}{0.05}\right)^2 0.876(1 - 0.876)$$
$$n = 166.9$$

$$n = 167 \text{ students}$$

The minimal sample size was 167 and after considering a 10% drop out, the calculated sample size was 184 students.

$$n = 167 \times 10\% \text{ drop out}$$

$$n = 184 \text{ students}$$

Double proportion formula:

$$n = \frac{[P_1(1 - P_1) + P_2(1 - P_2)](z_\alpha + z_\beta)^2}{(P_1 - P_2)^2}$$

Whereby,

n = required sample size

p = anticipated population proportion

p1: level of resilience \geq 20 years, 0.624

p2: level of resilience < 20 years, 0.376

Z α = 1.96 (α = 0.05) or 2.58 (α = 0.01)

Z β = Power of study, 80% (Z β = 0.84)

For the third objective which was to determine the association between the level of resilience and selected socio-demographic factors (age, programme of study, years of study and family financial status) among nursing students in USM Health Campus. One variable which is age was selected as sample size. According to previous study, Almahmoud & Alkony, (2021) the prevalence of age <20 years was 37.6% and ≥ 20 was 62.4%.

$$n = \frac{0.624(1 - 0.624) + 0.376(1 - 0.376)}{(0.624 - 0.376)^2} (1.96 + 0.84)^2$$

$$n = 59.8$$

$$n = 60 \text{ students}$$

The minimal sample size was 60 and after considering a 10% drop out, the calculated sample size was 66 students.

$$n = 60 \times 10\% \text{ drop out}$$

$$n = 66 \text{ students}$$

The reasonable sample size was from objective one which was (n=184) had been taken as the study sample.

3.7 Sampling Method

The number of this study was chosen from a probability simple random sampling method. Then, the participants were selected from those filling inclusion and exclusion criteria. The respondent selection was based on a randomizer system using the list name of students. The total number of students was obtained from Dean from School of Health Sciences USM.

3.8 Instrumentation

In this study, data from USM Health Campus nursing students was obtained using a set of self-administered questionnaires.

3.8.1 Research Instrument

The instrument employed in this study to assess level of resilience among USM nursing students was adopted from the Almahmoud & Alkony (2021) with permission in Appendix B. The questionnaire consists of three main sections: Section A, Section B and Section C. The questionnaire was sent to respondent using a google form link through WhatsApp.

Section A: Socio-demographic data

The socio-demographic data from respondents were obtained (age, gender, income characteristics, level of education, programme of study and years of study). This section consisted of four questions, including three closed-ended questions and one question of fill in the blanks to identify the association between the resilience and the respondents' selected socio-demographic factors.