



UNIVERSITI PUTRA MALAYSIA

***KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS PREVENTION OF
PRESSURE ULCERS AMONG STAFF NURSES IN A PUBLIC HOSPITAL IN
SELANGOR, MALAYSIA***

SHARIFAH FATIMAH BINTI WAN HASHIM

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**BACHELOR OF NURSING
UNIVERSITI PUTRA MALAYSIA**

SEPTEMBER 2022



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BERILMU BERBAKTI

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OF PRESSURE ULCERS AMONG STAFF NURSES IN A PUBLIC
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SHARIFAH FATIMAH BINTI WAN HASHIM

**THESIS SUBMITTED TO THE FACULTY OF MEDICINE
AND HEALTH SCIENCES, UNIVERSITI PUTRA MALAYSIA, AS
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BACHELOR OF NURSING**

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ABSTRACT

KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS PREVENTION OF PRESSURE ULCERS AMONG STAFF NURSES IN A PUBLIC HOSPITAL IN SELANGOR, MALAYSIA

SHARIFAH FATIMAH BINTI WAN HASHIM

Background: Pressure ulcers are defined as a type of skin and soft tissue damage that occurs over a bony prominence or is caused by other medical devices. Pressure ulcers are a major health concern for hospitalized patients that impair their quality of life and are a leading cause of morbidity and mortality and may cause a massive burden to both patients and the caregiver. **Objective:** This study aims to determine the level of knowledge, attitude, and practice of pressure ulcer prevention among the staff nurses in a public hospital in Selangor, Malaysia. **Methods:** It is a cross-sectional survey study that were carried out among staff nurses in Serdang Hospital for three months from May until August. Estimation of 226 staff nurses will be selected using non-probability sampling which is purposive sampling. Participants completed a questionnaire that contain four different parts about socio-demographic, knowledge, attitude and practice of pressure ulcer prevention among staff nurses. **Data analysis:** This study will be analysed by using The Statistical Analysis Package for Social Sciences (SPSS) version 27. This analysis will use frequency and percentage for the measurement of knowledge, attitude and practice of pressure ulcer prevention. Descriptive analysis, one-way independent ANOVA, Pearson Correlation and independent t-test will be used to evaluate the resulting data. **Result:** The total number of respondents of this study is 105. About 38 (36.2%) had good knowledge and 67 (63.8%) had good knowledge on pressure ulcer prevention. Besides, 66 (62.9%) had good attitude and 39 (37.1%) had poor attitude on pressure ulcer prevention. Meanwhile, 50 (47.6%) had good practice and 55 (52.4%) had poor practice. Analysis had done showed that there is a significant correlation between knowledge and practice ($p = 0.010$) but no significant association between attitude and practice. **Conclusion:** The result obtained in this study showed that majority of the respondents had poor knowledge, good attitude and poor practice towards pressure ulcer prevention. A greater knowledge and attitude among healthcare professionals may enhance their practice on pressure ulcer prevention. In this study, only gender and nurses' highest education level has significant difference with practice on pressure ulcer prevention.

Keywords: Knowledge, Attitude, Practice, pressure ulcer, prevention, nurses.

ABSTRAK

PENGETAHUAN, SIKAP DAN AMALAN TERHADAP PENCEGAHAN ULSER TEKANAN DALAM KALANGAN KAKITANGAN JURURAWAT DI HOSPITAL AWAM DI SELANGOR, MALAYSIA

SHARIFAH FATIMAH BINTI WAN HASHIM

Latar belakang: ulser tekanan ditakrifkan sebagai sejenis kerosakan kulit dan tisu lembut yang berlaku di atas penonjolan tulang atau disebabkan oleh peranti perubatan lain. Ulser tekanan adalah kebimbangan kesihatan utama bagi pesakit yang dimasukkan ke hospital yang menjejaskan kualiti hidup mereka dan merupakan punca utama morbiditi dan kematian serta boleh menyebabkan beban besar kepada kedua-dua pesakit dan penjaga. **Objektif:** Kajian ini bertujuan untuk mengetahui tahap pengetahuan, sikap dan amalan pencegahan ulser tekanan dalam kalangan kakitangan jururawat di sebuah hospital awam di Selangor, Malaysia. **Kaedah:** Ia merupakan kajian tinjauan keratan rentas yang akan dijalankan dalam kalangan kakitangan jururawat di Hospital Serdang selama tiga bulan dari Mei hingga Ogos. Anggaran 226 kakitangan jururawat akan dipilih menggunakan pensampelan bukan kebarangkalian iaitu persampelan bertujuan. Para peserta melengkapkan soal selidik yang mengandungi empat bahagian berbeza tentang sosio-demografi, pengetahuan, sikap dan amalan pencegahan ulser tekanan dalam kalangan kakitangan jururawat. **Analisis data:** Kajian ini akan dianalisis dengan menggunakan Statistical Analysis Package for Social Sciences (SPSS) versi 27. Analisis ini akan menggunakan kekerapan dan peratusan untuk pengukuran pengetahuan, sikap dan amalan pencegahan ulser tekanan. Analisis deskriptif, ANOVA bebas sehalu, Korelasi Pearson dan ujian-t bebas akan digunakan untuk menilai data yang terhasil. **Keputusan:** Jumlah keseluruhan responden kajian ini ialah 105. Kira-kira 38 (36.2%) mempunyai pengetahuan yang baik dan 67 (63.8%) mempunyai pengetahuan yang lemah. Selain itu, 66 (62.9%) mempunyai sikap yang baik dan 39 (37.1%) mempunyai sikap yang lemah. Sementara itu, 50 (47.6%) mempunyai amalan yang baik dan 55 (52.4%) mempunyai amalan yang lemah. Analisis yang telah dilakukan menunjukkan terdapat korelasi yang signifikan antara pengetahuan dan amalan ($p = 0.010$) tetapi tiada kaitan yang signifikan antara sikap dan amalan. **Kesimpulan:** Keputusan yang diperolehi dalam kajian ini menunjukkan majoriti responden mempunyai pengetahuan yang lemah, sikap yang baik dan amalan yang lemah terhadap pencegahan ulser tekanan. Pengetahuan dan sikap yang lebih tinggi dalam kalangan profesional penjagaan kesihatan boleh meningkatkan amalan mereka terhadap pencegahan ulser tekanan. Dalam kajian ini, hanya jantungina dan tahap pendidikan tertinggi jururawat mempunyai perbezaan yang signifikan dengan amalan pencegahan ulser tekanan.

Kata kunci: Pengetahuan, Sikap, Amalan, ulser tekanan, pencegahan, jururawat.



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DECLARATION BY STUDENT

I hereby confirm that:

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TABLE OF CONTENTS

| | |
|--|-------------|
| ABSTRACT | ii |
| ABSTRAK | iii |
| ACKNOWLEDGEMENT | v |
| DECLARATION BY STUDENT | vi |
| DECLARATION BY MEMBERS OF SUPERVISORY COMMITTEE | vii |
| TABLE OF CONTENTS | viii |
| LIST OF TABLES | xi |
| LIST OF FIGURES | xii |
| LIST OF APPENDICES | xiii |
| LIST OF ABBREVIATION | xiv |
| CHAPTER | |
| 1 INTRODUCTION | 1 |
| 1.1 Background of the study | 1 |
| 1.2 Problem statement | 3 |
| 1.3 Significant of study | 5 |
| 1.4 Research questions | 5 |
| 1.5 Research objectives | 6 |
| 1.5.1 General objective | 6 |
| 1.5.2 Specific objective | 6 |
| 1.6 Hypothesis | 6 |
| 1.7 Conceptual framework | 7 |
| 1.8 Operational definition | 8 |
| 1.9 Summary | 9 |
| 2 LITERATURE REVIEW | 10 |
| 2.1 Introduction | 10 |
| 2.2 Level of knowledge of pressure ulcer prevention among staff nurses | 10 |
| 2.3 Attitude of pressure ulcer prevention among staff nurses | 11 |
| 2.4 Practice of pressure ulcer prevention among staff nurses | 12 |
| 2.5 The relationship between knowledge, attitude and practice of pressure ulcer prevention among staff nurses. | 13 |
| 2.6 Association between sociodemographic characteristics and the level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses | 14 |
| 3 METHODOLOGY | 16 |
| 3.1 Introduction | 16 |
| 3.2 Study design | 16 |
| 3.3 Study location | 17 |
| 3.3.1 Study population | 17 |
| 3.3.2 Study duration | 17 |
| 3.4 Sample size estimation | 18 |
| 3.5 Sampling method | 20 |
| 3.6 Participants' criteria | 21 |

| | | |
|----------|---|-----------|
| 3.6.1 | Inclusion criteria | 21 |
| 3.6.2 | Exclusion criteria | 21 |
| 3.7 | Study instrument | 21 |
| 3.7.1 | Questionnaire | 21 |
| 3.7.2 | Scoring system | 22 |
| 3.8 | Pre-test | 23 |
| 3.9 | Validity and reliability | 24 |
| 3.10 | Data collection procedure | 24 |
| 3.11 | Study flowchart | 25 |
| 3.12 | Data analysis | 25 |
| 3.13 | Ethical consideration | 28 |
| 4 | RESULT | 30 |
| 4.1 | Introduction | 30 |
| 4.2 | Response rate | 30 |
| 4.3 | Sociodemographic characteristics | 31 |
| 4.4 | Knowledge of pressure ulcer prevention among the respondents | 32 |
| 4.5 | Attitude of pressure ulcer prevention | 35 |
| 4.6 | Practice of pressure ulcer prevention | 37 |
| 4.7 | Relationships between knowledge and attitude towards practice of pressure ulcer prevention | 39 |
| 4.8 | Relationship between socio-demographical and knowledge of pressure ulcer prevention among staff nurses. | 40 |
| 4.9 | Relationship between socio-demographical and attitude of pressure ulcer prevention among staff nurses | 42 |
| 4.10 | Relationship between socio-demographical and practice of pressure ulcer prevention among staff nurses | 43 |
| 5 | DISCUSSION AND CONCLUSION | 45 |
| 5.1 | Introduction | 45 |
| 5.2 | Socio-demographic characteristics | 45 |
| 5.3 | Level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses in a public hospital in Malaysia | 47 |
| 5.3.1 | Level of knowledge about pressure ulcer prevention | 47 |
| 5.3.2 | Level of attitude about pressure ulcer prevention | 49 |
| 5.3.3 | Practice about pressure ulcer prevention | 50 |
| 5.4 | Correlation between the level of knowledge and attitude towards practice of pressure ulcer prevention among staff nurses | 51 |
| 5.5 | Association between sociodemographic characteristics with level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses | 52 |
| 5.5.1 | Association between sociodemographic characteristic with level of knowledge | 52 |
| 5.5.2 | Association between sociodemographic characteristics with attitude | 54 |

| | | |
|----------|---|-----------|
| 5.5.3 | Association between sociodemographic characteristics with practice of pressure ulcer prevention | 55 |
| 5.6 | Conclusion | 56 |
| 6 | LIMITATION AND RECOMMENDATION | 57 |
| 6.1 | Limitation | 57 |
| 6.2 | Implication and recommendation | 58 |
| | REFERENCES | 59 |
| | APPENDICES | 65 |



LIST OF TABLES

| Table | | Page |
|-------|---|------|
| 1.1 | Operational definition | 8 |
| 3.1 | Descriptive data analysis | 25 |
| 3.2 | Inferential data analysis | 26 |
| 4.1 | Socio-demographic characteristic of nurses working in Serdang Hospital, Selangor | 31 |
| 4.2 | Distribution of answers to questions in Knowledge about Pressure Ulcer Prevention among nurses in Serdang Hospital (N=105) | 32 |
| 4.3 | Level of knowledge on pressure ulcer prevention among staff nurses | 34 |
| 4.4 | Distribution of answers to questions in Attitude about Pressure Ulcer Prevention among nurses in Serdang Hospital (N=105) | 35 |
| 4.5 | Level of Attitude on pressure ulcer prevention | 36 |
| 4.6 | Distribution of answers to questions in Practice about Pressure Ulcer Prevention among nurses in Serdang Hospital (N=105) | 37 |
| 4.7 | Level of Practice on pressure ulcer prevention | 38 |
| 4.8 | Pearson Correlation between knowledge and attitude towards practice of pressure ulcer prevention | 39 |
| 4.9 | Distribution of association between socio-demographic characteristics and knowledge about pressure ulcer prevention among staff nurses in a Public Hospital in Selangor, Malaysia (N = 105) | 41 |
| 4.10 | Distribution of association between socio-demographic characteristics and attitude about pressure ulcer prevention among staff nurses in a Public Hospital in Selangor, Malaysia (N = 105) | 42 |
| 4.11 | Distribution of association between socio-demographic characteristics and practice about pressure ulcer prevention among staff nurses in a Public Hospital in Selangor, Malaysia (N = 105) | 43 |

LIST OF FIGURES

| Figure | | Page |
|--------|--|------|
| 1.1 | Conceptual framework on the knowledge, attitude and practice on pressure ulcer prevention | 7 |
| 3.1 | Study flowchart of Knowledge, Attitude, and Practice of Pressure Ulcer Prevention among staff nurses in Selangor, Malaysia | 25 |



LIST OF APPENDICES

| Appendix | Page |
|--|-------------|
| Appendix A Written Permission for Instrument | 65 |
| Appendix B Participant Information Sheet and Informed Consent Form | 66 |
| Appendix C Questionnaire | 74 |
| Appendix D Gantt Chart | 80 |
| Appendix E Budget | 82 |
| Appendix F Approval Letter from the Medical Research and Ethics Committee (MREC) | 83 |
| Appendix G Originality Report | 85 |

LIST OF ABBREVIATION

| | |
|--------|--|
| JKEUPM | Jawatankuasa Etika Untuk Penyelidikan Melibatkan Manusia |
| MREC | Medical Research and Ethics Committee |
| NMRR | National Medical Research Register |
| NPIAP | National Pressure Injury Advisory Panel |
| PU | Pressure ulcer |
| PI | Pressure injury |



CHAPTER 1

INTRODUCTION

1.1 Background of the study

According to the National Pressure Injury Advisory Panel (NPIAP, 2019) , pressure ulcers are defined as a type of skin and soft tissue damage that occurs over a bony prominence or is caused by prolonged pressure on the area for a long time. Pressure ulcers are a major health concern for hospitalized patients that impair their quality of life and are a leading cause of morbidity and mortality and may cause a massive burden to both patients and the caregiver (Mahmoud Awali et al., 2018). Pressure ulcers prove to be a challenge in terms of hospitalized patient care, as they have a major impact on morbidity, mortality and quality of life (Matozinhos et al., 2017). Furthermore, treating these wounds is often time-consuming and costly, and their occurrence is a good indicator of care quality (Matozinhos et al., 2017).

A person's well-being, including social, physical, general health and quality of life, are significantly hampered by pressure ulcers (Werku Etafa et al., 2018). Adults with pressure ulcers have an incidence less than 12 percent in acute care, between 24.3 to 53.4 percent in critical care, and between 1.9 to 59 percent in elderly care (Werku Etafa Ebi et al., 2019; Wynn, 2021). According to a study by Muhammed et al., (2020), although pressure ulcers are largely preventable, their prevalence rate has risen by more than 79% in the last 13 years.

Pressure ulcers clearly indicate poor quality care in nursing homes or in hospitals (Koivunen et al., 2018). The nurses play a very important role to give the

best care to the patients to avoid them having endless suffering (Ebi et al., 2019; Blenman & Marks-Maran, 2017). One of the essential components of nursing practice is pressure ulcer prevention because almost all patients are at risk to develop pressure ulcers (Werku Etafa Ebi et al., 2019; Lyder, 2003). However, the nurses' adherence to the pressure ulcer prevention protocols has been questioned. with one cause being a lack of understanding in this subject (Khojastehfar et al., 2020). They also explained that in order to prevent pressure ulcers, education programmes, effective policies, and a setting that allows for continuous training should be established.

In America, the health system spends almost \$19 billion each year to manage them, with \$129,000 available for people whose entire tissue thickness has been injured by the ulcer (Garrigues et al., 2017). This Pressure ulcer prevention is a sign of a healthcare organization's or facility's quality of care and safety. One of the criteria of nursing care quality is preventing and responding to the formation of pressure ulcers because they are the frontline in taking care of the patient (Khojastehfar et al., 2020).

Knowledge is essential for nurses to understand their patients better and give higher-quality treatment (Sham et al., 2020). Basic knowledge and practical experience are essential for enhancing the quality and safety of nursing care (Khojastehfar et al., 2020). The findings of the previous study revealed that more than half of the nurses had improper and unsatisfied attitudes regarding the prevention of pressure ulcers (Khojastehfar et al., 2020). A study was done by Etafa et al., (2018) revealed that nurses in Addis Ababa have a negative attitude towards pressure ulcer prevention. Nurses have less knowledge of pressure ulcer prevention and poor management of pressure ulcer prevention (Saleh et al., 2019).

According to a study, attitude influences knowledge, behavioural intention, and the amount of affection for or against an object (Werku Etafa et al., 2018; Ajzen & Fishbein., 2005). A person with a positive perspective on an issue is more likely to engage in helpful behaviour on that issue. (Werku Etafa et al., 2018; Ajzen & Fishbein., 2005). For example, nurses with a more positive attitude on pressure ulcer prevention demonstrated better pressure ulcer prevention strategies (Werku Etafa et al., 2018; Maylor & Torrance, 2013). Conversely, nurses' negative attitudes towards pressure ulcer prevention contribute to an increase in the prevalence of pressure ulcers (Ayello, 2003; Werku Etafa et al., 2018).

Nurses' knowledge and practice are seen as extrinsic determinants in the development of pressure ulcers; nurses often play an important role, although the prevention of pressure ulcers is a multidisciplinary role (Ingwu et al., 2019). Some of the reasons for the high rate of pressure ulcers could be linked to nurses' understanding and application of risk assessment and prevention strategies (Ingwu et al., 2019). Nurses' awareness of the problem of pressure ulcers developed as a result of their knowledge, attitude and practice, which provide the foundation for making rational decisions and the framework for implementing competency in providing high-quality nursing care. (Ingwu et al., 2019; Morley, 2010).

1.2 Problem statement

According to the Malaysian Registry of Intensive Care (2019), the rate of pressure ulcers in Malaysia is 4.0 per 1000 ICU days and continue to rise year after year. A study conducted by Khor et al., (2014) in a teaching hospital in Malaysia have found

that at least stage 2 pressure ulcers were present in 15.5 percent of their patients. Their study also found that pressure ulcer patients in the geriatric ward had an increasing 12-week death rate of 66 percent (Khor et al., 2014). A study was done by Sham et al., (2020) in a public hospital in Selangor found that the majority of the staff nurses have enough understanding about pressure ulcer prevention. They also found that the majority of the staff nurses have a good implication of how to prevent pressure ulcers (Sham et al., 2020). Although the nurses proved to have a sufficient level of knowledge and practice regarding the prevention of pressure ulcers, there are still gaps in some areas of pressure ulcers prevention in terms of knowledge and practice (Sham et al., 2020).

Many evidence from various countries highlighted the significance of nurses' participation in caring and preventing pressure ulcers by examining knowledge, behaviours and practices in pressure ulcers prevention among registered nurses around the world. However, based on the researcher knowledge, there is a paucity of study regarding nurses' knowledge and attitude regarding pressure ulcers as well as the practice regarding pressure ulcers prevention in Malaysia. Therefore, the purpose of this study was to analyse nurses' knowledge, attitude and practice to pressure ulcer prevention in public hospitals in Selangor. This study's findings could serve as a turning point and a starting point for nurses and healthcare professionals to use an effective measure to improve pressure ulcer prevention.

Most of the literature is from developed countries, and there is only limited research from developing countries such as Malaysia. This study was designed to fill the research gap and assess the staff nurses' knowledge, attitude and practice towards pressure ulcer prevention in Selangor, Malaysia.

1.3 Significant of study

Considering nursing healthcare service as a tool for preventing pressure ulcers, the researcher decided to do research regarding knowledge, attitude and practice of pressure ulcer prevention and to see if it is sufficient enough in providing quality nursing care for pressure ulcer prevention. This research could guide healthcare practitioners to develop an effective approach in providing information and increasing understanding of pressure ulcers which helps in the prevention and early identification of the pressure ulcer.

The outcomes of this study may contribute to nursing education and practice in Malaysia. Since the healthcare provider is responsible for preventing pressure ulcers, it can help to lower the cost of pressure ulcer treatment in Malaysia besides decreasing the occurrence of pressure ulcer. Indirectly, it helps in establishing potential factors responsible for pressure ulcer incidence from the hospital context.

1.4 Research questions

- i. What is the level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses?
- ii. What is the correlation between the level of knowledge and attitude towards practice of pressure ulcer prevention among staff nurses?
- iii. What is the association between sociodemographic characteristics with level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses.

1.5 Research objectives

1.5.1 General objective

To determine the level of knowledge, attitude, and practice of pressure ulcer prevention among the staff nurses in a public hospital in Selangor, Malaysia.

1.5.2 Specific objective

- I. To determine the level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses.
- II. To examine the correlation between the level of knowledge and attitude towards practice of pressure ulcer prevention among staff nurses.
- III. To examine the association between sociodemographic characteristics with level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses.

1.6 Hypothesis

Null hypothesis

- i. There is no association between the level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses.
- ii. There is no association between the level of knowledge, attitude and practice of pressure ulcer prevention with sociodemographic characteristics among staff nurses.

Alternative hypothesis

- i. There is an association between the level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses.
- iii. There is an association between level of knowledge, attitude and practice of pressure ulcer prevention with sociodemographic characteristics among staff nurses.

1.7 Conceptual framework

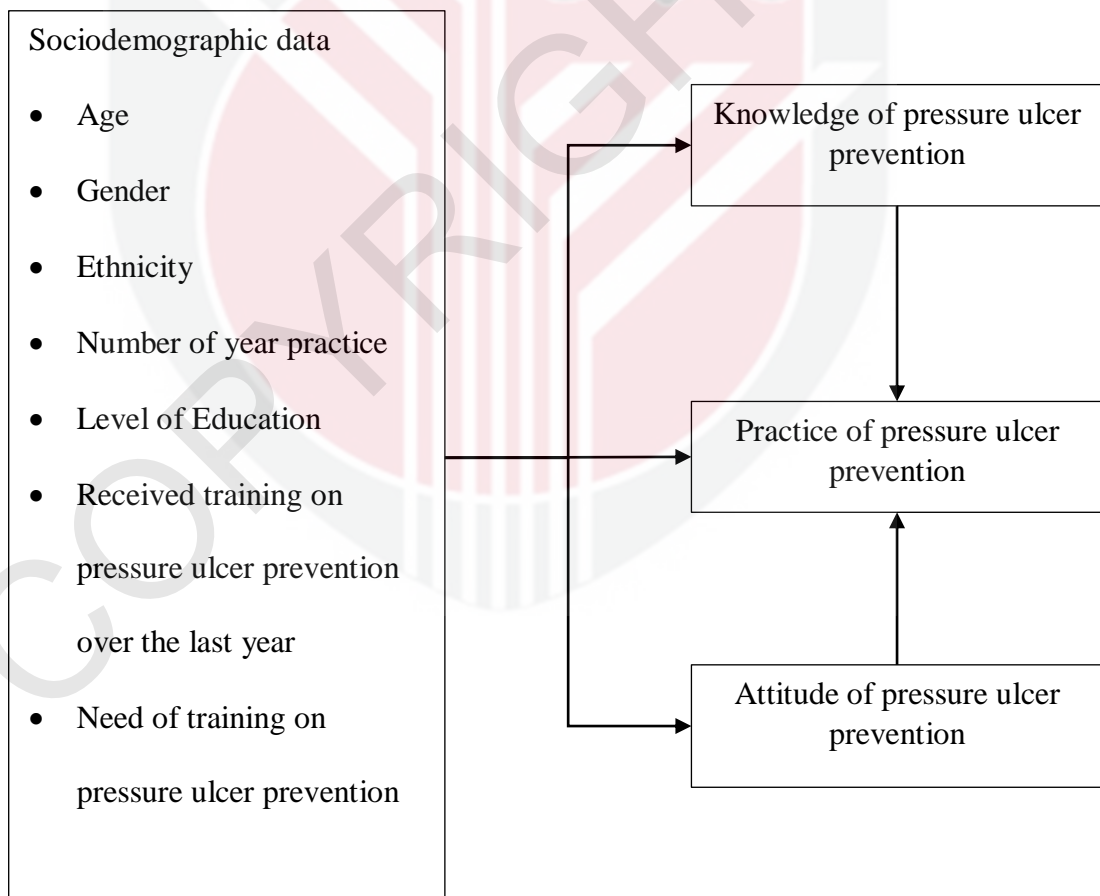


Figure 1.1 Conceptual framework on the knowledge, attitude and practice on pressure ulcer prevention

1.8 Operational definition

Table 1.1 Operational definition

| Terms | Conceptual definition | Operational definition |
|------------------|--|---|
| Pressure ulcer | A pressure ulcer is a localised lesion to the skin or underlying tissue produced by pressure or shear. (Kottner et al., 2020) | Pressure ulcer will be defined as respondents' knowledge, attitude and practice towards pressure ulcer. |
| Prevention | The act of avoiding something from occurring or someone from acting in a particular way (<i>Cambridge Dictionary / English Dictionary, Translations & Thesaurus, 2022</i>) | Prevention will be defined as respondents' knowledge, attitude and practice towards pressure ulcer. |
| Sociodemographic | A characteristic of population from a combination of sociological and demographic (Willekens & van Imhoff, 2015). | The sociodemographic provides information about age, gender, ethnicity, number of years of practice, level of education, received training on pressure ulcer prevention over the last year and need of training on pressure ulcer prevention. The data was gathered to draw comparisons between the research population's various subgroups regarding the knowledge, attitude and practice of pressure ulcer prevention among staff nurses. |
| Knowledge | A condition of knowing something with the familiarity which gained through experience or learning (<i>Dictionary by Merriam-Webster: America's Most-Trusted Online Dictionary, 2022</i>) | Nurses' knowledge of pressure ulcer prevention included basic recall and understanding of the content of pressure ulcers, observation, risk assessment, preventive nutrition, classification and prevention in the special patient group (Memon et al., 2021) |
| Attitude | A feeling or emotion regarding a state or a fact (<i>Dictionary by Merriam-Webster: America's Most-</i> | Their attitudes toward pressure ulcers prevention were defined by their preconceived notions about the nurses own personal |

| | | |
|----------|---|--|
| | <i>Trusted Online Dictionary, 2022)</i> | competence in preventing pressure ulcer, how they prioritised pressure ulcer prevention, awareness of the impact of pressure ulcers and personal responsibility in preventing them, and belief in the effectiveness of pressure ulcer prevention (Hu et al., 2021). |
| Practice | Constant participation in an activity or training in order to develop one's expertise (<i>Cambridge Dictionary / English Dictionary, Translations & Thesaurus, 2022)</i> | Nurses' pressure ulcer prevention techniques included the use of risk-predictive instruments, examination, skincare, and choice of specific surfaces for management of pressure ulcers, posture modification, force and pressure relief, and nutrition (Jiang et al., 2020). |

1.9 Summary

This chapter this chapter discussed the background and problem statement of the study. Moreover, the research objectives and hypothesis have been stated in this chapter. The conceptual framework of the study also has been explained. Further information regarding this study will be discussed in the next chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Pressure ulcers are a serious health problem for hospitalised patients because they reduce their quality of life, are the leading cause of morbidity and mortality, and can place a substantial burden on both the patient and the caregiver (Mahmoud Awali et al., 2018; Matozinhos et al., 2017). Pressure ulcers prove to be a challenge in terms of hospitalized patient care, as they have a high impact on morbidity, mortality and quality of life. Furthermore, Matozinhos et al., (2017) also state that treating these wounds is often time-consuming and costly, and their occurrence is a good indicator of care quality (Matozinhos et al., 2017).

2.2 Level of knowledge of pressure ulcer prevention among staff nurses

Knowledge is essential for nurses to understand their patients better and give higher-quality treatment (Sham et al., 2020). The result of a study done by Sham et al., (2020) found that most of the nurses had enough knowledge about pressure ulcer prevention. A cross-sectional study showed that the nurses had a high percentage of knowledge regarding pressure ulcer prevention (Charalambous et al., 2019). A study done by Kim & Lee (2019), show that majority of the nurses have poor knowledge regarding the prevention of pressure ulcer. The findings of a cross-sectional study in a rehabilitation hospital show that participants' knowledge of pressure ulcers prevention was average (Bayan Kaddourah et al., 2016). A study by Nasreen et al., (2017) shows that most of

the nurses have good knowledge. Some of the nurses have little understanding regarding certain knowledge such as positioning patient every two hours, pressure ulcer's risk factors and the use of the risk assessment scale for pressure ulcers (Nasreen et al., 2017). It is crucial to analyze nurses' understanding of pressure ulcer prevention, classification, and management to increase their knowledge of pressure ulcer prevention (Muhammed et al., 2020). Poor awareness regarding this problem among education programmes, retraining nurses at educational-therapeutic institutions, and in-service training courses may contribute to the poor awareness among nurses towards pressure ulcers (Khojastehfar et al., 2020). In order to prevent pressure ulcers, hospital settings should have education programmes effective policies, and a setting for continuous training should be established (Jung Y. Kim & Lee, 2019).

However, a study by Saleh et al., (2019) state that the nurses have limited knowledge in preventing pressure ulcers. A cross-sectional study in Wollega also found that the nurses had limited knowledge regarding prevention (Saleh et al., 2019). According to the findings of a study, 52.5 percent of nurses have a lower knowledge score regarding pressure ulcer prevention than the overall, which shows that the nurses' knowledge of pressure ulcer prevention is inadequate (Muhammed et al., 2020). A lack of education and training may cause inadequate knowledge levels (Esan et al., 2018).

2.3 Attitude of pressure ulcer prevention among staff nurses

A study conducted by Charalambous et al. (2019) showed that the nurses had a high percentage of philosophy regarding pressure ulcer prevention. According to a study

done by J Y Kim & Lee (2019), 68.4 percent of respondents had positive opinions, mainly regarding PU prevention practices. A positive attitude toward preventing pressure ulcers can cause individuals to exhibit good practices to prevent pressure ulcers (Esan et al., 2018). In addition, the nurses considered that time-consuming was not an issue in caring for pressure ulcer prevention, and 69% believed that continuous assessment of patients would provide an objective approach to identifying patients at risk for pressure ulcers (W Etafa et al., 2018).

However, the findings of a cross-sectional study in a rehabilitation hospital show that the participants in this survey had bad attitudes on pressure ulcers prevention (Bayan Kaddourah et al., 2016). Furthermore, a study done by Khojastehfar et al., (2020) shows that most nurses had unsatisfactory and ineffective attitudes regarding preventing pressure ulcers. They also explained that in order to prevent pressure ulcers, education programmes, effective policies, and a setting that allows for continuous training should be established (Khojastehfar et al., 2020).

2.4 Practice of pressure ulcer prevention among staff nurses

According to the respondents of a study done by J Y Kim & Lee (2019), the practice of a pressure ulcer prevention strategy is a crucial aspect of nursing care. The result of a study done by (Khojastehfar et al., 2020) revealed that the nurses' practices were generally acceptable. A study by Sham et al. (2020) states that most nurses had a very good practice towards pressure ulcer prevention. They state that the method used in the study could be one of the reasons for nurses' relatively desirable practice, regardless of their knowledge and attitude (Khojastehfar et al., 2020). Some of the common

nursing practices are identifying pressure ulcer causative factors, turning patients every two hours, and giving advice to patients (Berihu et al., 2020).

However, a study was done by Nasreen et al., (2017) state that nurses' techniques for preventing pressure ulcers were found to be unreliable because they gave it a low priority due to their lack of knowledge about the severe implications of pressure ulcer complications. Furthermore, a study by Tirgari et al. (2018) also found that most nurses have a very poor practice to prevent pressure ulcer

2.5 The relationship between knowledge, attitude and practice of pressure ulcer prevention among staff nurses.

According to the findings of a study by (Khojastehfar et al., 2020), there was a favourable association between knowledge, attitude, and practice. The incidence of a pressure ulcer is greatly influenced by a lack of skills, awareness, and bad attitudes regarding PUP. Nurses with a thorough knowledge can increase the quality of healthcare service while also limiting the number of days patients' admission in the hospital (Nasreen et al., 2017). Ajen and Fishbein state that a positive attitude is likely to influence an individual's likelihood of demonstrating positive behaviour and practices (Esan et al., 2018; Fishben & Ajzen, 2005). More knowledge and a more positive view on pressure ulcer prevention are correlated with improved pressure ulcer prevention behaviors (Khojastehfar et al., 2020). One of the causes could be that nurses' job routine in conducting procedures is mundane despite having this degree of expertise and attitude. Moreover, nurses' attitudes can be influenced by proper education and practice; nurses attitudes toward pressure injury prevention improved as their knowledge increased (Tirgari et al., 2018).

Having a good understanding of pressure injury prevention measures, as demonstrated by the participants in this study, would lead to the application of techniques to reduce the development of pressure injuries (M Barakat-Johnson et al., 2018). However, what nurses learned about pressure injury prevention may not always reflect practice (Michelle Barakat-Johnson et al., 2018). Most of the nurses have a strong understanding of pressure ulcers, but they have poor implementation to prevent them (Nasreen et al., 2017).

2.6 Association between sociodemographic characteristics and the level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses

The participants who received additional training in pressure ulcers had significantly higher total knowledge scores than those who did not join any extra training (De Meyer et al., 2019). A study done by Tirgari et al., (2018) found that the majority of the nurses who took part in the research were between the ages of 20 and 30, which makes them relative novices to the field of nursing. Nurses who are more educated were less practice to prevent pressure ulcers (Saleh et al., 2019). It is also possible that the nurses' lack of understanding is due to their training experience and educational background (Tirgari et al., 2018). Nurses with 5 to 10 years of experience scored higher than those with 20 years or more, but the difference was not statistically significant (Miller et al., 2017). A study in Hospital Lahore assessing nurses' knowledge and practice of pressure ulcer prevention found a relationship between nurses' job experience and their knowledge and practice of pressure ulcer prevention (Saleh et al., 2019). At Lahore General Hospital, working experience has a highly significant relationship with nurses' practices and knowledge (Saleh et al., 2019). It was discovered that nurses who read

articles about pressure ulcers and received pressure ulcer training had a higher knowledge score than nurses who did not read articles about pressure ulcers and did not attend pressure ulcer training (Werku Etafa Ebi et al., 2019). Participants with bachelor's degrees had more knowledge than those with junior-college certificates (Jiang et al., 2020)

A correlational cross-sectional study in Finland found that nurses who had participated in pressure ulcer training showed greater pressure ulcer prevention knowledge than those who had not (Parisod et al., 2021). However, a cross-sectional study in Wollega revealed no significant difference in nurses' knowledge and their educational level (Werku Etafa Ebi et al., 2019).

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter discusses the research design of the study, setting of the study, the population of the study, Study sampling the sample, inclusion and exclusion criteria of the sample, the sample size, data collection method and its instrument, pilot study, data collection process selection process, the survey instrument, data collection.

This chapter will discuss in detail the research methodology that has been used in the study of the relationship between knowledge, attitude and practice towards pressure ulcer prevention among staff nurses in Hospital Serdang, Selangor. It is cross-sectional research that involves the investigator measures the result and exposures in the study participants at the same time (Setia, 2016).

3.2 Study design

This study was conducted by using the cross-sectional method to determine the knowledge, attitude and practice of pressure ulcer prevention among staff nurses in Selangor, Malaysia. The advantage of this study design is that it does not require long duration follow up, and the finding of this study can be used for further research on this area. Even though it gives a good advantage to the researcher, the design also has its disadvantages. The disadvantage of this design towards the study is it is susceptible to bias due to low response since it is a one-time measurement. A disadvantage of the

cross-sectional design is the possibility of transitory event variables influencing measures and causing common method variance.

3.3 Study location

This study was conducted at any wards except at clinics in Serdang Hospital, Selangor. Serdang Hospital is a government hospital with a multi-speciality location in Mukim Dengkil, District of Sepang, Selangor Darul Ehsan. Besides that, Serdang hospital located borders the South Kajang Valley Expressway (SKVE) on the east and the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia on the west. .. Therefore, Serdang Hospital was chosen as a research location for this study as nurses here were exposed to more patients.

3.3.1 Study population

The population that were involved in this study were the registered nurses who are employed and have at least 1-year working experience in the Serdang Hospital in Selangor, Malaysia.

3.3.2 Study duration

The duration of the study last around 10 months March 2022 to September 2022. While the duration for data collection in between 3 months from June 2022 to August 2022.

3.4 Sample size estimation

We need an ideal sample size for the study to obtain adequate power to estimate the result for the entire population with good precision and statistical significance. It's crucial that the study sample isn't 'too big,' as this can result in statistically detectable but unscientifically meaningful impacts (Suresh & Chandrashekara, 2012). Thus, the researcher needs to determine an adequate sample size to void those problems.

In this study, Cochran's formula will be used to estimate the sample size. In 1977, Cochran's formula was developed, and it is used to calculate the sample size when the population is infinite:

$$n_0 = \frac{Z^2 PQ}{e^2} \quad (3.1)$$

Where,

n_0 = Cochran's sample size recommendation

Z = Z selected critical value of the desired level of confidence

p = estimated proportion of an attribute that represents the population

$q = 1 - p$

e = desired level of precision

Since the degree of variability of this study population is unknown, hence, the recommended sample size will be calculated using a parameter that assumes the maximum variability. The estimated proportion will be 50% ($p = 0.5$), 95% confidence level with 9% precision ($e = 0.09$) and the Z value will be 1.96. In survey research, a standard rule of thumb for acceptable margins of error is 5 to 10% (Suresh &

Chandrashekara, 2012). A study had a broad review and expectation that the margin of error between valuation estimation should not exceed 10%. (H U K W U D et al., 2018) Thus,

Cochran's sample size recommendation,

$$n_0 = \frac{Z^2PQ}{e^2}$$

$$n_0 = \frac{(1.96)^2(0.5)(0.5)}{(0.06)^2}$$

$$n_0 \approx 267$$

Furthermore, the sample size can be decreased slightly as a big population gives proportionally more information compared to the smaller population, especially when the estimated sample size is larger than 5% of the actual population. Hence, he suggested a correction formula to calculate the final sample size for the study.

Final sample size,

$$\text{Final sample size, } n = \frac{n_0}{1 + \frac{n_0 - 1}{N}} \quad (3.2)$$

Where,

n_0 = Cochran's sample size recommendation

N = population size

n = final sample size

the population size, N in 900 which is the estimated total number of nurses working in Serdang Hospital, Selangor that will be recruited in this study. Thus,

Final sample size,

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

$$n = \frac{267}{1 + \frac{118 - 1}{900}}$$

$$n = \frac{267}{1.087}$$

$$n = 206$$

Added with 10% adjusted non-response rate of 20. Therefore, the final sample size needed needed for this study is **226 staff nurses** from Hospital Serdang, Selangor.

3.5 Sampling method

A convenience sampling method was used to recruit participants in this study. It is a type of nonprobability sampling method of gathering samples by getting samples from around a site that are easily located (Edgar & Manz, 2017). It only involves getting participants where both researcher and participants are available which is very easy and convenient. The subject of this study is the nurses who are employed and work in Serdang Hospital which are listed in the inclusion criteria. The advantages of the convenience sampling are the creation of sample is very simple and the researcher can collect data in a short timeframe (Bhardwaj, 2019). The disadvantage of this sampling

method is that there is a high possibility there will be a lot of sampling error (Bhardwaj, 2019).

3.6 Participants' criteria

3.6.1 Inclusion criteria

- Malaysian
- Staff nurses who are employed to work in Serdang Hospital
- Full time staff nurses in Serdang Hospital
- At least 1 year working experience in Serdang Hospital

3.6.2 Exclusion criteria

- Staff nurses who have working experience less than 1 year.
- Staff nurses in the outpatient clinic.
- Staff nurses on medical leave for more than 3 months.

3.7 Study instrument

3.7.1 Questionnaire

The questionnaire that was used in this study was adopted and modified from a study done by Sham et al., (2020) in Malaysia. Written permission was obtained from the corresponding author before conducting this study and it was attached in Appendix A.

The questionnaire is in English language and it consists of three parts which are Part A, Part B, Part C and Part D. Part A is about the demographic characteristic of the respondents. It consists of age, gender, ethnicity, job grade, number of year practice, level of education, received training on pressure ulcer prevention over the last year and need of training on pressure ulcer prevention. In part B, the questionnaire will access the staff nurses' level of knowledge about pressure ulcer prevention. Meanwhile, Part C will access the attitude towards pressure ulcer prevention among staff nurses and Part D will access the staff nurses practice about pressure ulcer prevention.

3.7.2 Scoring system

Part B: Knowledge about pressure ulcer prevention.

Part B of the questionnaire was adopted from a study done by Sham et al., (2020), which was measured using Pieper-Zulkowski, Pressure Ulcer Knowledge Test in 2016. Respondents were required to select "TRUE," "FALSE," or "DON'T KNOW". Each answer received a score of "1" if it was correct and "0" if it was incorrect. The "I don't know" response was deemed incorrect. The cumulative score has been converted to a percentage. Using McDonald's standard of learning outcome criteria, the nurses' level of knowledge was classified as follows: very low (60%), low (60-69), moderate (70-79), high (80-89), and very high (90-100). Thus, a score of 80% or higher is deemed to indicate good knowledge, whereas a score of 80% or lower indicates poor knowledge (Sham et al., 2020).

Part C: Attitude about pressure ulcer prevention

Part C of the questionnaire was adopted from a study done by Dilie & Mengistu, (2015). The responses to each attitude-related question were summed and then grouped into two variables: positive attitude and negative attitude. Respondents who were phrased positively for each attitude-related question were categorised as having a good attitude, whereas those who were worded negatively were defined as having a poor attitude. Finally, the respondents' overall attitude score was determined. Based on the previous study, those nurses who scored above the median were deemed to have a positive attitude, whilst those who scored below the median were seen to have a negative attitude (Dilie & Mengistu, 2015).

Part D: Prevention about pressure ulcer prevention

Last part of the questionnaire was adopted from a study done by Sham et al., (2020). This was tested using a 5-point Likert scale questionnaire with responses ranging from "Strongly Disagree" to "Strongly Agree." Based on the previous study, score above the mean was deemed indicative of good practice, whereas a score below the mean was seen indicative of poor practice (Sham et al., 2020). The question (no. 9) with negative wording was reverse-coded for analysis.

3.8 Pre-test

A pilot study was conducted among 20 staff nurses at the Hospital Serdang. Respondents for pilot study were excluded in analysis data to achieve this study objective. Cronbach's alpha was used to assess the questionnaire's validity, reliability, and internal consistency.

3.9 Validity and reliability

The Cronbach's alpha value in this study were 0.89. The questionnaire were considered reliable and consistent since the Cronbach's alpha value is between 0.70 and 0.90 (Tavakol & Dennick, 2011).

Face to face validity was done among Author's supervisor and co-supervisor to review and check the questionnaire before using it for collecting data. It is important to make sure the questionnaire cover entirely the aspects related to variables for the study.

3.10 Data collection procedure

Data collection procedure was conducted right after the author received the ethical approval of the study. Data was collected online through Google form link and will be shared with nurses who are currently employed and working in the Serdang Hospital, Selangor. The google form link was shared to other eligible nurses to answer as well. The first page of the online survey will provide a detailed Participant Information Sheet to check that the participants meet the study's inclusion and exclusion criteria. After reading the information and meeting all of the criteria, the participants must click the button to indicate their willingness to participate in the study. Thus, when participants click and submit the survey, their consent was immediately obtained. All answers was saved and updated in the author's Google Drive account. The password for the Google Drive account is only available to the researcher and is not accessible by others without the password in order to maintain confidentiality.

3.11 Study flowchart

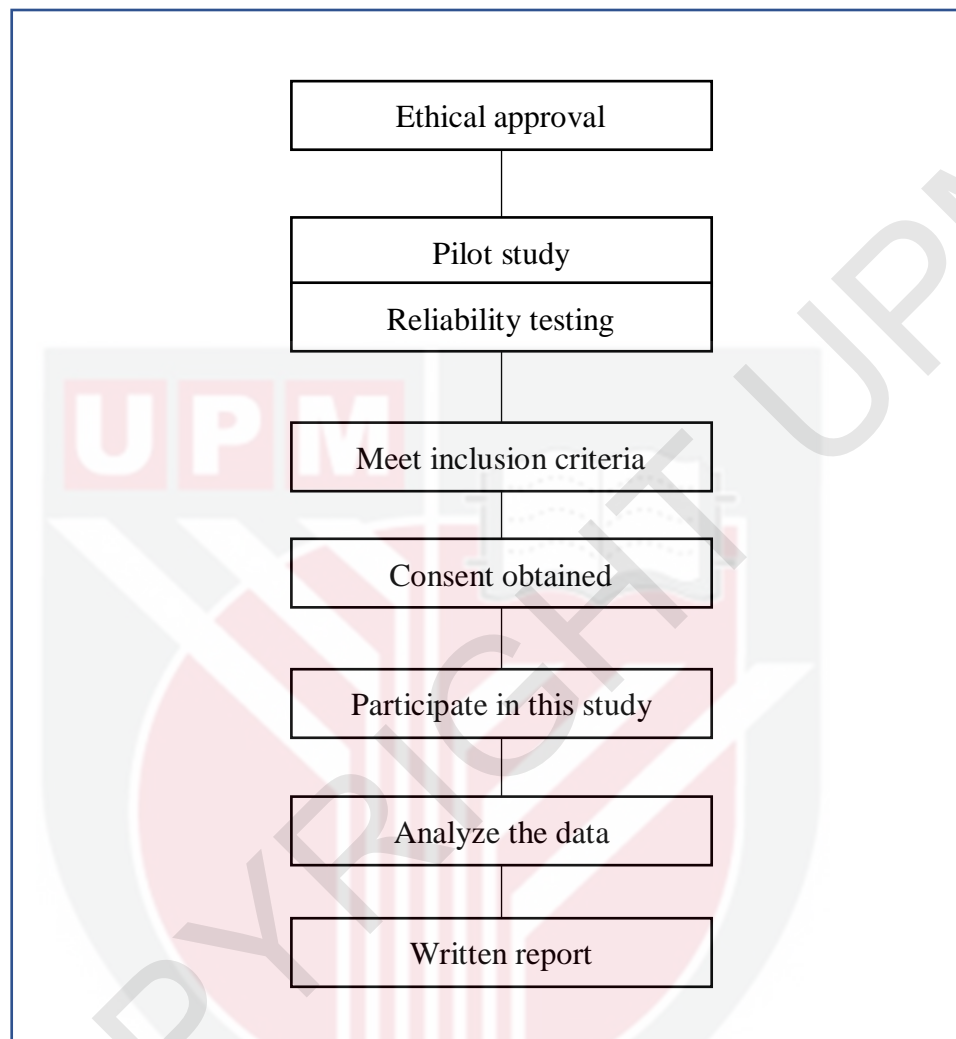


Figure 3.1 Study flowchart of Knowledge, Attitude, and Practice of Pressure Ulcer Prevention among staff nurses in Selangor, Malaysia

3.12 Data analysis

Table 3.1 Descriptive data analysis

| DESCRIPTIVE DATA | | | |
|-------------------------|------------------|--------------------------|--------------------------------|
| Objectives | Variables | Type of variables | Statistical Measurement |
| | | | |

| | | | |
|---|--|-------------|-----------------------------|
| To determine the level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses. | Knowledge of pressure ulcer prevention | Continuous | Mean and standard deviation |
| | | Categorical | Frequency and percentage |
| | Attitude towards pressure ulcer prevention | Continuous | Mean and standard deviation |
| | | Categorical | Frequency and percentage |
| | Practice towards pressure ulcer prevention | Continuous | Mean and standard deviation |
| | | Categorical | Frequency and percentage |

Table 3.2 Inferential data analysis

| INFERENCEAL DATA | | | |
|---|---|---|--------------------------------|
| Objectives | Dependent Variables | Independent Variables | Statistical Measurement |
| To examine the correlation between the level of knowledge and practice of pressure ulcer prevention among staff nurses. | Practice toward pressure ulcer prevention | Knowledge towards pressure ulcer prevention | Pearson correlation |
| To examine the correlation between the attitude and practice of pressure ulcer prevention among staff nurses. | Practice toward pressure ulcer prevention | Attitude towards pressure ulcer prevention | Pearson correlation |
| To examine the association between sociodemographic characteristics and level of knowledge pressure ulcer prevention among staff nurses | Knowledge of pressure ulcer prevention | Age (continuous) | Pearson correlation |
| | | Gender (categorical) | Independent t-test |
| | | Ethnicity (categorical) | One-way anova |
| | | Years of working experience as a nurse (continuous) | Pearson correlation |

| | | | |
|--|--|---|---------------------------|
| | | Educational level (categorical) | One Way Independent ANOVA |
| | | Received training on pressure ulcer prevention over the last year (categorical) | Independent t-test |
| | | Need of training on pressure ulcer prevention (categorical) | Independent t-test |
| To identify the relationship between sociodemographic characteristics and attitude of pressure ulcer prevention among staff nurses | Attitude towards pressure ulcer prevention | Age (continuous) | Pearson correlation |
| | | Gender (categorical) | Independent t-test |
| | | Ethnicity (categorical) | One Way Independent ANOVA |
| | | Years of working experience as a nurse (continuous) | Pearson correlation |
| | | Educational level (categorical) | One Way Independent ANOVA |
| | | Received training on pressure ulcer prevention over the last year (categorical) | Independent t-test |
| | | Need of training on pressure ulcer prevention (categorical) | Independent t-test |
| To identify the relationship between sociodemographic characteristics and the practice of pressure ulcer prevention among staff nurses | Practice toward pressure ulcer prevention | Age (continuous) | Pearson correlation |
| | | Gender (categorical) | Independent t-test |
| | | Ethnicity (categorical) | One Way Independent ANOVA |
| | | Years of working experience as a nurse (continuous) | Pearson correlation |

| | | | |
|--|--|---|---------------------------|
| | | Educational level (categorical) | One Way Independent ANOVA |
| | | Received training on pressure ulcer prevention over the last year (categorical) | Independent t-test |
| | | Need of training on pressure ulcer prevention (categorical) | Independent t-test |

3.13 Ethical consideration

In this study, the approval was initially be obtained from the Medical Research and Ethics Committee (MREC) via online registration. After getting the approval, MREC provided a written ethical approval letter to the researcher. From there, the written ethical approval letter was sent to the Jawatankuasa Etika Untuk Penyelidikan Melibatkan Manusia (JKEUPM). After that, a written permission letter will be submitted to the Clinical Research Centre (CRC) and the director of Serdang Hospital to obtain permission to conduct this study in the respective hospital.

Every participant in this study was given a participation information sheet and informed consent form which are attached to the questionnaire before participating in the study. In the participation information sheet, details regarding this study was explained one by one and participants were requested to read and understand it before participating in this study. Besides that, each participation from the respondent had to be voluntary and they have the right to withdraw themselves from the study anytime without providing any reason. Next, participants were required to click on “I agree” and complete the informed consent form if they agree to participate in the study. The

estimated duration taken to complete the questionnaire is 10 to 15 minutes. Regarding the information obtained, it will be treated as strictly confidential and the questionnaire will be kept in the researcher's Google Drive account after the submission. Besides that, the researcher's Google Drive account is only available to the researcher. Information regarding the participant's identity such as name, identity card number and house address will not be obtained. Then, the data collected will be transferred to the computer to perform statistical analysis, hence, the computer will be protected by password and all data will only be accessed by anyone related to this study which includes researcher, qualified monitors and auditors, the sponsors and its affiliates and governmental or regulatory authorities. Furthermore, the data that the researcher have to key into the computer will be uploaded to Google Drive and protected with a password. These data will be destroyed permanently after five years of storage.

CHAPTER 4

RESULT

4.1 Introduction

This chapter presents the result of this study that aimed to determine the sociodemographic characteristics with knowledge, attitude, and practice of pressure ulcer prevention among the staff nurses. All the data had been analysed using IBM Statistical Package for the Social Science (SPSS) 22.7 with a statistical significance level set at $p < 0.05$. In this study, the independent variables were the level of knowledge, attitude and practice of pressure ulcer prevention, while the dependent variable was the practice of pressure ulcer prevention.

Normality test was conducted and the data found was normally distributed whereby the value of Skewness was 0.715 and Kurtosis 0.656.

4.2 Response rate

A total of 105 individuals responded to the online survey and all responses are valid to be used and analysed in this study. Two hundred and twenty-six respondents were the required sample size, hence the response rate for this study is 46%. The response rates were almost the same with a study done by Hu et al., (2021) (40.56%). The previous researchers were also using online survey in their study.

4.3 Sociodemographic characteristics

Table 4.1 Socio-demographic characteristic of nurses working in Serdang Hospital, Selangor

| Characteristics | n | % | Mean | ±SD |
|---|-----|------|-------|--------|
| Age | 105 | 100 | 33.52 | ±6.903 |
| Gender | | | | |
| Female | 100 | 95.2 | | |
| Male | 5 | 4.8 | | |
| Ethnicity | | | | |
| Malay | 93 | 88.6 | | |
| Chinese | 3 | 2.9 | | |
| Indian | 8 | 7.6 | | |
| Highest education qualification | | | | |
| Skills certificate | 1 | 1.0 | | |
| Diploma | 92 | 87.6 | | |
| Post Basic | 11 | 10.5 | | |
| Bachelor Degree | 1 | 1.0 | | |
| Years of working experience as a nurse | | | 9.43 | ±6.021 |
| Received training on pressure ulcer prevention | | | | |
| Yes | 28 | 26.7 | | |
| No | 77 | 73.3 | | |
| Need of training on pressure ulcer prevention | | | | |
| Yes | 100 | 95.2 | | |
| No | 5 | 4.8 | | |

The details regarding the distribution of respondents' socio-demographic characteristics are reported in Table 4.1. The total number of respondents of this study is 105. The mean age of the respondents is 33.52 ± 6.90 years old. Majority of the respondents were female which consist of 100 (95.2%) and the rest of the respondents 5 (4.8%) were male. Out of the respondents, (88.6%, n=93) represents Malay

respondents, and 8 (7.6%) represented Indian respondents whereas 3 (2.9%) represented Chinese respondents. Most of the respondents' highest educational status were Diploma with 92 (87.6%), 1(1.0%) skills certificate, 1 (1.0%) Bachelor Degree and the rest 11 (10.5%) of the respondents' highest education level were Post Basics.

Majority of the respondents were female which consist of 100 (95.2%) and the rest of the respondents 5 (4.8%) were male. The mean years of working experience as a nurse is 9.43 ± 6.02 . More than half of the respondents have not received training about pressure ulcer prevention over the past years 77 (73.3%) while almost all respondents agree that they need training regarding pressure ulcer prevention 100 (95.2%).

4.4 Knowledge of pressure ulcer prevention among the respondents

Table 4.2 Distribution of answers to questions in Knowledge about Pressure Ulcer Prevention among nurses in Serdang Hospital (N=105)

| Questions | Correct n (%) | Incorrect n (%) |
|--|------------------|--------------------|
| 1. Hot water and soap may dry the skin and increase the risk for pressure injury/ulcers. | 88 (83.8%) | 17 (83.8%) |
| 2. Chair-bound persons should be fitted for a chair cushion. | 88 (83.8%) | 17 (83.8%) |
| 3. A person confined to bed should be repositioned based on the individual's risk factors and the support surface's characteristics. | 98 (93.3%) | 7 (6.7%) |
| 4. A pressure injury/ulcer scar will break down faster than unwounded skin. | 91 (86.7%) | 14 (13.3%) |
| 5. Dragging the patient up in bed increases friction | 90 (85.7%) | 15 (14.3%) |
| 6. Small position changes may need to be used for patients who cannot tolerate major shifts in body positioning. | 99 (94.3%) | 6 (5.7%) |

| | | |
|---|----------------|------------|
| 7. An incontinent patient should have a toileting care plan. | 103 (98.1%) | 2 (1.9%) |
| 8. A pressure redistribution surface manages tissue load and the climate against the skin. | 90 (85.7%) | 15 (14.3%) |
| 9. When possible, high-protein oral nutritional supplements should be used in addition to usual diet for patients at high risk for pressure injury/ulcers | 92 (87.6%) | 13 (12.4%) |
| 10. Donut devices/ring cushions help to prevent pressure injury/ulcers. | 49 (46.7%) | 56 (53.3%) |
| 11. A specialty bed should be used for all patients at high risk for pressure injury/ulcers. | 47 (44.8%) | 58 (55.2%) |
| 12. Persons at risk for pressure injury/ulcers should be nutritionally assessed (i.e., weight, nutrition intake, blood work) | 99 (94.3%) | 6 (6 5.7%) |
| 13. Critical care patients may need slow, gradual turning because of being hemodynamically unstable. | 88 (83.8%) | 17 (16.2%) |
| 14. Staff education alone may reduce the incidence of pressure injury/ulcers. | 64 (61.0%) | 41 (39.0) |
| 15. Massage of bony prominences is essential for quality skin care. | 49 (46.7%) | 56 (53.3%) |
| 16. Poor posture in a wheel chair may be the cause of a pressure injury/ulcer. | 76 (72.4%) | 29 (27.6%) |
| 17. For persons who have incontinence, skin cleaning should occur at the time of soiling and at routine intervals. | 98 (93.3%) | 7 (6.7%) |
| 18. Patients who are spinal cord injured need knowledge about pressure injury/ulcer prevention and self-care. | 101 (96.2%) | 4 (3.8%) |
| 19. Persons, who are immobile and can be taught, should shift their weight every 30 minutes while sitting in a chair. | 25 (23.8%) | 80 (76.2%) |
| 20. Selection of a support surface should only consider the person's level of pressure injury/ulcer risk. | 44 (41.9%) | 61 (58.1%) |
| 21. To help prevent pressure injury/ulcers, the head of the bed should be elevated at a 45-degree angle or higher | 41 (39.0%) | 64 (61.0%) |
| 22. Urinary catheter tubing should be positioned under the leg. | 42 40.0% | 63 (60.0%) |
| 23. Pressure injury/ulcers may be avoided in patients who are obese with use of properly sized equipment | 90 (85.7%) | 15 (14.3%) |
| 24. Pressure injury/ulcers are a lifelong concern for a person who is spinal cord injured. | 100 (95.2%) | 5 (4.8%) |

Table 4.3 Level of knowledge on pressure ulcer prevention among staff nurses

| Variable | Category, n (%) | |
|-----------|-----------------------|-----------------------|
| | Good knowledge (>80%) | Poor knowledge (<80%) |
| Knowledge | 38 (36.2%) | 67 (63.8%) |

The mean score for the Knowledge regarding pressure ulcer prevention among the staff nurses in this study is 17.51 ± 3.172 .

Based on a previous study by using McDonald's standard of learning outcome criteria, the nurses' level of knowledge was classified as follows: very low (60%), low (60-69), moderate (70-79), high (80-89), and very high (90-100) (Sham et al., 2020) . Thus, a score of 80% or higher is deemed to indicate good knowledge, whereas a score of 80% or lower indicates poor knowledge (Sham et al., 2020).

Based on the result in table 4.2, majority of the respondents 80 (76.2%) have poor knowledge that patients who are immobile can be taught and should shift their weight every 30 minutes while sitting in a chair. Next, more than half of the respondents 56 (53.3%) have poor knowledge that the donut-device will not help to prevent pressure ulcer and 56 (53.3%) of the respondents have poor knowledge that massage a bony prominence is actually not essential for quality skin care. 64 (61.0%) have poor knowledge that by elevating head-of-bed to 40- degree angle can help in preventing pressure ulcer and 63 (60.0%) have poor knowledge that urinary catheter should be positioned above the leg to avoid friction which could cause pressure ulcer.

However, most of the respondents have a good knowledge regarding the intervention and the risks of pressure ulcer. The statement that has the highest number

of respondents who answered correctly is “Small position changes may need to be used for patients who cannot tolerate major shifts in body positioning” and “Persons at risk for pressure injury/ulcers should be nutritionally assessed (i.e., weight, nutrition intake, blood work)” 99 (94.3%). Most of the respondents have knowledge that to prevent pressure ulcer, high protein diet should be given to the patients who have higher risk of pressure ulcer 92 (87.6%). Majority of the respondents also have good knowledge that a patient who is bedridden in bed should be moved based on the person’s risk factors 98 (93.3%). Other than that, the respondents also knew that dragging the patient up creates friction 90 (85.7%) which increase the risk of pressure ulcer. Statement “hot water and soap may dry the skin and increase the risk for pressure ulcer” was also answered correctly by majority of the respondents 88 (83.8%).

Table 4.3 showed the frequency of respondents who answer correct and incorrect answers. The total score of knowledge about pressure ulcer prevention were classified into two group which were good and poor knowledge. Majority of the respondents had poor knowledge (63.8%) regarding pressure ulcer prevention and the rest 36.2% has good knowledge regarding pressure ulcer prevention.

4.5 Attitude of pressure ulcer prevention

Table 4.4 Distribution of answers to questions in Attitude about Pressure Ulcer Prevention among nurses in Serdang Hospital (N=105)

| Questions | Correct n (%) | Incorrect n (%) |
|--|------------------|--------------------|
| 1. In your view are all patients at potential risk of developing pressure ulcers (PU)? | 70 (66.7%) | 35 (33.3%) |
| 2. Do you have willingness to care for patients with pressure ulcer? | 85 (81.0%) | 20 (19.0%) |

| | | |
|--|-------------|------------|
| 3. Do you feel that priority of care is given for patients who are at risk of pressure ulcer? | 82 (78.1%) | 23 (21.9%) |
| 4. Do you believe that most pressure ulcer can be prevented? | 100 (95.2%) | 5 (4.8%) |
| 5. Do you think patients who are admitted receive adequate prevention of pressure ulcer while in bed seated? | 80 (76.2%) | 25 (23.8%) |
| 6. Do you think pressure ulcer risk assessment should be regularly carried out on all patients during their stay inhospital? | 103 (98.1%) | 2 (1.9%) |
| 7. Do you perceive that nurses hold major responsibilities when patient are vulnerable to pressure ulcer? | 92 (87.6%) | 13 (12.4%) |
| 8. My clinical judgment is better than any pressure risk assessment tool available to me. | 71 (67.6%) | 34 (32.4%) |

Table 4.5 Level of Attitude on pressure ulcer prevention

| Variable | Category, n (%) | |
|---------------------------------------|------------------------|-----------------------|
| | Good Attitude (>87.5%) | Poor Attitude(<87.5%) |
| Attitude on pressure ulcer prevention | 66 (62.9%) | 39 (37.1%) |

Table 4.4 showed the frequency of respondents who answer correct (yes) and incorrect answers (no, not sure). Respondents who answer positively worded (yes) for each attitude questions were classified as good attitude while respondents who answered negatively worded (no, not sure) were categorized as poor attitude. Based on the analysis done, 103 (98.1%) consider that pressure ulcer risk assessment should be performed routinely on all hospitalised patients.

The mean score for attitude towards pressure ulcer prevention in this study is $6.72 \pm SD1.079$ while the median score is 7.00. Thus, based on a scoring system from a study done by Dilie & Mengistu, (2015), staff nurses who score above the median were considered as having good attitude while those who score below the median were

labelled as having poor attitude . Table 4.5 showed that 75 (71.4%) staff nurses have good attitude while the rest 30 (28.9%) are having poor attitude toward pressure ulcer prevention.

The majority of respondents, 103 (98.1%) have a good belief that pressure ulcer risk assessment should be performed routinely on all hospitalised patients, and 100 (95.2%) believe that the majority of pressure ulcers may be prevented. The majority of responders 92 (87.6%) are aware that nurses have significant responsibilities when a patient is susceptible to pressure ulcers, and 85 (81.0%) are eager to care for pressure ulcer patients.

4.6 Practice of pressure ulcer prevention

Table 4.6 Distribution of answers to questions in Practice about Pressure Ulcer Prevention among nurses in Serdang Hospital (N=105)

| Questions | Strongly agree n (%) | Agree n (%) | Mixed feelings n (%) | Disagree n (%) | Strongly disagree n (%) |
|---|-------------------------|----------------|-------------------------|-------------------|----------------------------|
| 1. I observe how other nurses assess the risk factors | 36 (34.3%) | 63 (60.0%) | 5 (4.8%) | 0 (0%) | 1 (1.0%) |
| 2. I identify common contributing factors | 34 (32.4%) | 69 (65.7%) | 2 (1.9%) | 0 (0%) | 0 (0%) |
| 3. I do a skin assessment | 42 (40.0%) | 56 (53.3%) | 34 (32.4%) | 0 (0%) | 0 (0%) |
| 4. I use risk assessment scale | 33 (31.4%) | 55 (52.4%) | 17 (16.2%) | 0 (0%) | 0 (0%) |
| 5. I document all data | 31 (29.5%) | 66 (62.9%) | 8 (7.6%) | 0 (0%) | 0 (0%) |
| 6. I assess and provide management of pain | 25 (23.8%) | 77 (73.3%) | 3 (29.5%) | 0 (0%) | 0 (0%) |

| | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|
| 7. I perform skin care as a routine work | 23 (21.9%) | 72 (68.6%) | 7 (6.7%) | 3 (2.9%) | 0 (0%) |
| 8. I place the pillow under the patient's leg | 33 (31.4%) | 57 (54.3%) | 12 (11.4%) | 3 (2.9%) | 0 (0%) |
| 9. I use water filled glove under the patient's leg | 1 (1.0%) | 9 (8.6%) | 7 (6.7%) | 56 (53.3%) | 32 (30.5%) |
| 10. I use or advice caregiver to use creams or oils | 21 (20.0%) | 77 (73.3%) | 5 (4.8%) | 2 (1.9%) | 0 (0%) |
| 11. I pay more attention to pressure points | 25 (23.8%) | 70 (66.7%) | 10 (9.5%) | 0 (0%) | 0 (0%) |
| 12. I provide vitamin and food | 18 (17.1%) | 74 (70.5%) | 7 (6.7%) | 6 (5.7%) | 0 (0%) |
| 13. I monitor a protein and calorie diet | 14 (13.3%) | 73 (69.5%) | 13 (12.4%) | 5 (4.8%) | 0 (0%) |
| 14. I avoid dragging | 20 (19.0%) | 75 (71.4%) | 7 (6.7%) | 14 (13.3%) | 0 (0%) |
| 15. I always use a special mattress | 31 (29.5%) | 65 (61.9%) | 5 (4.8%) | 4 (3.8%) | 0 (0%) |
| 16. I avoid massage | 15 (14.3%) | 63 (60.0%) | 15 (14.3%) | 11 (10.5%) | 1 (1.0%) |
| 17. I avoid using donut – shape (ring) cushion | 15 (14.3%) | 59 (56.2%) | 17 (16.2%) | 10 (9.5%) | 4 (3.8%) |
| 18. I turn a patient position every two hours | 28 (26.7%) | 73 (69.5%) | 3 (2.9%) | 1 (1.0%) | 0 (0%) |
| 19. I put pillows under the patient's leg ankle | 25 (23.8%) | 74 (70.5%) | 2 (1.9%) | 4 (3.8%) | 0 (0%) |
| 20. I always attend seminars | 14 (13.3%) | 53 (50.5%) | 22 (21.0%) | 14 (13.3%) | 2 (1.9%) |
| 21. I give advice to the patient or caregiver | 29 (27.6%) | 76 (72.4%) | 0 (0%) | 0 (0%) | 0 (0%) |

Table 4.7 Level of Practice on pressure ulcer prevention

| Variable | Category, n (%) | |
|---------------------------------------|------------------------|-----------------------|
| | Good practice (>83.8%) | Poor practice(<83.8%) |
| Practice on pressure ulcer prevention | 50 (47.6%) | 55 (52.4%) |

Based on the previous study, score above the mean was deemed indicative of good practice, whereas a score below the mean was deemed indicative of poor practice (Sham et al., 2020). Table 4.7 shows that more than half of the respondents 55 (52.4%) had poor practice towards pressure ulcer prevention. While Table 4.6 shows the distribution of answers to the question of practice of pressure ulcer prevention. Most of the respondents 56 (53.3%) had low practice in water filled glove under the patient's leg and 59 (56.2%) agree that they avoid donut device as a tool to prevent pressure ulcer. Majority of the respondents 63 (60.0%) avoid massage to prevent pressure ulcer and 59 (56.2%) avoid donut device as a tool to prevent pressure ulcer. Most of them 73 (69.5%) turn a position every 2 hours and 70 (66.7%) pay more attention to pressure point. 97 (92.4%) had a good practice in document all the data that related to pressure ulcer.

4.7 Relationships between knowledge and attitude towards practice of pressure ulcer prevention

Table 4.8 Pearson Correlation between knowledge and attitude towards practice of pressure ulcer prevention

| Variable | Practice | |
|------------------|-----------------|-----------------|
| | <i>r</i> -value | <i>p</i> -value |
| Knowledge | 0.252 | 0.010 |
| Attitude | 0.175 | 0.074 |

By using Pearson correlation for relationships between continuous and continuous data, table 4.8 were created and show that there is insignificant relationship between attitude and practice of pressure ulcer prevention ($r = 0.175$, $p = 0.074$). However, there is significant relationship between knowledge and practice on pressure

ulcer prevention among the respondents. Pearson product correlation of knowledge and practice was found to be statistically significant ($r = 0.252$, $p = 0.010$)

4.8 Relationship between socio-demographical and knowledge of pressure ulcer prevention among staff nurses.

The normality test had been conducted for knowledge about pressure ulcer prevention among staff nurses and it had found that the total score is normally distributed with Skewness of -0.611 and Kurtosis of -0.039 which is in normal range of -2 to 2 (Ali Khaskheli et al., 2021). Thus, a parametric test had been conducted to rule out the association between socio-demographic characteristics of respondents and knowledge about pressure ulcer prevention. Pearson correlation results had shown that there is significant relationship between socio-demographic characteristics (age and years of working experience as a nurse) with knowledge ($p = 0.007$ and ($p = 0.014$) respectively. Next, independent t-test results showed that there is significant between need training for pressure ulcer prevention with knowledge ($p = 0.049$). However, the independent t-test also showed that there is no significant association between gender and respondents who have received training over last year with knowledge. One-way independent ANOVA showed that there is no significant relationship between socio-demographic characteristics (ethnicity and education level) with knowledge. The detailed analysis regarding the distribution of association between socio-demographic characteristics and knowledge about pressure ulcer prevention among staff nurses in Serdang Hospital is shown in Table 4.9.

Table 4.9 Distribution of association between socio-demographic characteristics and knowledge about pressure ulcer prevention among staff nurses in a Public Hospital in Selangor, Malaysia (N = 105)

| Variable | Knowledge about pressure ulcer prevention | |
|--|---|--------------------|
| | Mean (95% CI) | p-value |
| Age | $r = 0.260$ | 0.007*a |
| Gender | | |
| Male | 16.2 | 0.345 ^b |
| Female | 17.58 | |
| Ethnicity | | |
| Malay | 17.44 | 0.719 ^c |
| Chinese | 19.33 | |
| India | 17.88 | |
| Highest education level | | |
| Bachelor's Degree | 1 | 0.459 ^c |
| Post Basic | 17.62 | |
| Diploma | 16.27 | |
| Skills certificate | 1 | |
| Years of working experience as a nurse | $r = 0.240$ | 0.014*a |
| Received training on pressure ulcer prevention over the last year | | |
| Yes | 18.32 | 0.116 ^b |
| No | 17.22 | |
| Need training on pressure ulcer prevention | | |
| Yes | 17.65 | 0.049*b |
| No | 14.80 | |

* $P \leq 0.05$ considered as statistically significant

a. Pearson correlation

b. Independent t-test

One-way independent ANOVA

4.9 Relationship between socio-demographical and attitude of pressure ulcer prevention among staff nurses

Table 4.10 Distribution of association between socio-demographic characteristics and attitude about pressure ulcer prevention among staff nurses in a Public Hospital in Selangor, Malaysia (N = 105)

| Variable | Attitude about pressure ulcer prevention | |
|--|--|---------------------|
| | Mean (95% CI) | p-value |
| Age | $r = 0.055$ | 0.579 ^a |
| Gender | | |
| Male | 6.00 | 0.382 ^b |
| Female | 6.53 | |
| Ethnicity | | |
| Malay | 6.49 | 0.658 ^c |
| Chinese | 7.33 | |
| India | 6.25 | |
| Highest education level | | |
| Bachelor's Degree | 1 | 0.025* ^c |
| Post Basic | 5.45 | |
| Diploma | 6.62 | |
| Skills certificate | 1 | |
| Years of working experience as a nurse | $r = 0.019$ | 0.851 ^a |
| Received training on pressure ulcer prevention over the last year | | |
| Yes | 6.79 | 0.189 ^b |
| No | 6.40 | |
| Need training on pressure ulcer prevention | | |
| Yes | 6.54 | 0.222 ^b |
| No | 5.80 | |

* $P \leq 0.05$ considered as statistically significant

a. Pearson correlation

b. Independent t-test

One-way independent ANOVA

The detailed analysis regarding the distribution of association between socio-demographic characteristics and attitude about pressure ulcer prevention among staff nurses in Serdang Hospital is shown in Table 4.10.

Pearson correlation results had shown that there is no significant relationship between socio-demographic characteristics (age and years of working experience as a nurse) with. Next, independent t-test results showed that there is also no significant between socio-demographic characteristic (gender, received training over the last year and need training for pressure ulcer prevention with attitude. Furthermore, one-way independent ANOVA showed that there is significant relationship between respondents' highest education level with attitude ($p = 0.025$).

4.10 Relationship between socio-demographical and practice of pressure ulcer prevention among staff nurses

Table 4.11 Distribution of association between socio-demographic characteristics and practice about pressure ulcer prevention among staff nurses in a Public Hospital in Selangor, Malaysia (N = 105)

| Variable | Practice about pressure ulcer prevention | |
|--------------------------------|--|---------------------|
| | Mean (95% CI) | p-value |
| Age | $r = -0.18$ | 0.858 ^a |
| Gender | | |
| Male | 89.4 | 0.040* ^b |
| Female | 83.48 | |
| Ethnicity | | |
| Malay | 83.48 | 0.282 ^c |
| Chinese | 90.00 | |
| India | 85.13 | |
| Highest education level | | |
| Bachelor's Degree | 1 | 0.752 ^c |

| | | |
|--|-------------|--------------------|
| Post Basic | 83.80 | |
| Diploma | 82.82 | |
| Skills certificate | 1 | |
| Years of working experience as a nurse | $r = -0.32$ | 0.746 ^a |
| Received training on pressure ulcer prevention over the last year | | |
| Yes | 82.07 | |
| No | 84.38 | 0.090 ^b |
| Need training on pressure ulcer prevention | | |
| Yes | 84.8 | 0.708 ^b |
| No | 83.71 | |

* $P \leq 0.05$ considered as statistically significant

a. Pearson correlation

b. Independent t-test

One-way independent ANOVA

The detailed analysis regarding the distribution of association between socio-demographic characteristics and practice about pressure ulcer prevention among staff nurses in Serdang Hospital is shown in Table 4.11.

Pearson correlation results had shown that there is no significant relationship between socio-demographic characteristics (age and years of working experience as a nurse) with practice. Next, independent t-test results showed that there is significant between gender with practice ($p=0.040$). However, the independent t-test showed that there is no significant association between socio-demographic (received training over last year and need for pressure ulcer prevention training) with practice. Furthermore, one-way independent ANOVA showed that there is significant relationship between respondents' highest education level with practice ($p = 0.025$) but there is no significant between ethnicity and practice.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

The findings of this study are discussed further in this chapter based on the objective set. The discussion includes all the results of the descriptive findings of the respondents' socio-demographic characteristics. The descriptive results of knowledge, attitude and practice towards pressure ulcer prevention will also be discussed. This study will also investigate the association between socio-demographic characteristics with level of knowledge, attitude and practice towards pressure ulcer prevention will also be explored in this study.

5.2 Socio-demographic characteristics

In this study, the age of the respondent is range from 23 to 55 years old with the mean age of $33.52 \pm SD6.90$ years. The results indicates that the majority of nurses are in their middle age which are similar with researches conducted in Malaysia by Sham et al. (2020) where their mean age was 30. Other than that, the majority of the respondents are female (95.2%, n=100) which are similar to to the studies done by Zhang et al., (2021), Sham et al., (2020), Khojastehfar et al., (2020) and Hu et al., (2021a). On the other hand, the majority of the respondents are Malay (88.6%, n=93) followed by India (7.6%, n=8) and Chinese (2.9%, n=3).

The highest education qualification for most of the respondents in this study is Diploma (87.6%, n=92) followed by Post Basic (10.5, n=11), while only one respondent has skills certificate and bachelor degree. These results are similar to researches done by Sham et al., (2020) in Malaysia. In general, a diploma in nursing is required to work as a staff nurse in Malaysia, particularly in government hospitals (Sham et al., 2020). A study done by Siew et al., 2015 found that most of the staff nurses in Malaysia did not pursue a degree in nursing due to financial commitment and time constraint. Meanwhile researches conducted by Hu et al., (2021a), Khojastehfar et al., (2020), Lotfi et al., (2019), Zhang et al., (2021) in another country showed that most of their respondents achieved in Bachelor's degree.

Furthermore, the working experience of the respondents for this study ranged from 2 to 28 years of working experience as a staff nurse with a mean working experience of 9.43% \pm SD 6.021 years. This result also appeared in studies conducted by Beeckman et al., (2010), Hu et al., 2021a; Lotfi et al., 2019; Malinga & Dlungwane, 2020 and Sham et al., (2020). Next, less than half of the respondents of this study have received training regarding pressure ulcer prevention (26.7%, n =28) which showed that majority of the staff nurses has less exposure to the training pressure ulcer prevention. Due to the high workload among the staff nurses in the Serdang Hospital, the respondents might have no enough time to join the training regarding pressure ulcer prevention. The staff nurses also have less exposure regarding pressure ulcer such as through reading about the guideline of pressure ulcer prevention from NPUAP, campaign and less promotion regarding pressure ulcer prevention. However, this results are opposite with a study done by (Sham et al., 2020) in Malaysia and (Hu et al., (2021a) in China where majority of their respondents have received training and have more exposure towards pressure ulcer prevention about pressure ulcer

prevention. Finally, the majority of the respondents from this study agree that they need training regarding pressure ulcer (95.2%, n=100) which has similar results with a study done by (Hu et al., 2021a).

5.3 Level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses in a public hospital in Malaysia

5.3.1 Level of knowledge about pressure ulcer prevention

The mean score for the Knowledge about Pressure Ulcer Prevention among the staff nurses in this study is 17.51 ± 3.172 . The general knowledge regarding pressure ulcer prevention among staff nurses in this study shows that majority of the staff nurse has poor knowledge regarding pressure ulcer prevention. In this study, the total number of respondents with poor knowledge are 67 (63.8%), whereas the number of respondents with good knowledge are 38 (36.2%). These results are same with a study done by Halász et al., (2021) in Slovenia, where majority of the staff nurses' had low knowledge regarding pressure ulcer prevention. Same goes with a study done in Nigeria by Ingwu et al., (2019), also found that most of the staff nurses had poor knowledge. Other than that, this study results regarding poor level of knowledge same with the previous studies done in Korea and China (Hu et al., 2021a; Jung Y. Kim & Lee, 2019).

However, this result is contradicted with a study done by Sham et al., (2020) in Malaysia. In the current study, poor level of knowledge regarding pressure ulcer prevention may be due to lack of training regarding pressure ulcer prevention as most of the respondents had not attend pressure ulcer training over the last year (26.7%, n =28), while the respondents in a study done by Sham et al., (2020) has more exposure

towards pressure ulcer prevention. A study done by Khojastehfar et al., (2020) also state that lack of training programmes may be associated with poor knowledge regarding pressure ulcer prevention.

Other studies in Ethiopia and Turkey were also contraindicated with the current research result where most of the nurses has good knowledge regarding pressure ulcer (Cebeci & Şenol Çelik, 2021; Ebi et al., 2019). These differences may be due to the different type of questionnaire where the previous researcher used the Pressure Ulcer Knowledge Test (PUKT) while current study used the Pieper-Zulkowski -PUKT, which were revised on 2016.

“Small position changes may need to be used for patients who cannot tolerate major shifts in body positioning” and “Persons at risk for pressure injury/ulcers should be nutritionally assessed (i.e., weight, nutrition intake, blood work)” 99 (94.3%) were the most questions that were answered correctly by majority of the staff nurses. This results showed that staff nurses in Hospital Serdang are knowledgeable regarding the importance of positioning and nutrition support to prevent pressure ulcer. However, majority of the staff nurses have poor knowledge that donut devices need to be avoided as a tool in order to prevent pressure ulcer. This result is constant to the study done by study Sham et al., (2020), where majority of their respondents incorrectly answered the questions regarding the donut-device. According to National Pressure Injury Advisory Panel (NPIAP), (2019), a donut-shape device no longer used to prevent pressure ulcer as it may lead to skin breakdown at other areas of the body due to the high pressure which created by the donut-shape device.

5.3.2 Level of attitude about pressure ulcer prevention

The mean score for attitude towards pressure ulcer prevention in this study is $6.72 \pm SD1.079$ while the median score is 7.00. Thus, staff nurses who score above the median were considered as having good attitude while those who score below the median were labeled as having poor attitude. In this present study, 66 (62.9%) staff nurses have good attitude while the rest 30 (28.9%) are having poor attitude toward pressure ulcer prevention. The result indicate that even though the staff nurses had good attitude regarding pressure ulcer prevention, it does not mean that they may apply good practice to prevent pressure ulcer. The staff nurses may need a good knowledge about pressure ulcer prevention in order to provide a successful care to the patient to prevent pressure ulcer. Studies conducted among nurses from other countries also shows similar results where majority of the respondents have good attitude regarding pressure ulcer prevention (Dalvand et al., 2018; Hu et al., 2021a; Zhang et al., 2021). However, it should be noted that 39 (37.1%) of nurses in this study held poor attitude towards pressure ulcer prevention. The difference might be due to different scoring system of the questionnaire. In comparison to the current research with a study done by (Khojastehfar et al., 2020) where they found that the nurses had poor attitudes towards pressure ulcer prevention, the researcher and her colleague used a scoring system for attitude questionnaire with a 5-point Likert scale while in the current study used a positive and negative choices of answers (yes, no and not sure). Thus, this may affect to the difference result for each study since the total score will be different too.

5.3.3 Practice about pressure ulcer prevention

The mean score for practice on pressure ulcer prevention is $83.76 \pm SD6.318$. 55 (52.4%) respondents in this research had poor practice towards pressure ulcer prevention while the rest 50 (47.6%) had a good practice. This result was consistent with the previous studies done in Nigeria by Ingwu et al., (2019), where the researchers showed that the nurses had adequate practices. The reason of the staff nurses' poor practice may be due to poor knowledge and majority of the respondents have not receive training regarding pressure ulcer prevention over the last year. This statement were supported in a study by Momennasab et al., (2021) where they found that their nurses had poor practice due to lacking in knowledge and receiving minimal training.

However, it should be noted that there was only minimal difference between respondents who have poor practice and good practice in the current study which was only around 3% differences. Therefore, the high cut-off scores chosen by the researcher for data analysis may have resulted in the majority of respondents receiving low percentage for their pressure ulcer prevention practices. This result contradicted with the previous study done by Sham et al., (2020) where majority of the staff nurses in Malaysia had good practice regarding pressure ulcer prevention. A study by Zhang et al., (2021) also found that most their nurses in China had good practice regarding pressure ulcer prevention. The previous study state that their good practice were due to strict quality control in preventing pressure ulcer by using nursing-sensitive indicator in China (Zhang et al., 2021)

In contrast, more than half of the nurses in this study avoided using donut-shaped cushions on patients, demonstrating a good practise. This result was congruent

with the practises of nurses in Nigeria, where the majority avoided using donut-shaped cushions (Ekama Ilesanmi & Morohunfoluwa Oluwatosin, 2016). Donut-shaped devices are no longer utilised to prevent pressure ulcers since they may apply pressure to other places that may result in the development of pressure ulcers (NPIAP, 2019). In addition to paying closer attention to ulcer-prone pressure points and turning the patient every two hours, the nurses had been using the best practice for pressure ulcer prevention. In addition, the nurses documented patient data and advised the patient or caregiver on how to prevent pressure ulcers.

5.4 Correlation between the level of knowledge and attitude towards practice of pressure ulcer prevention among staff nurses

The result obtained in this study shows that there was a significant correlation between the level of knowledge practice as the p-value is 0.010 which was more than 0.05. This result was consistent with a study done by Lotfi et al., (2019) where there were a relationship between knowledge and practice of pressure ulcer prevention ($p = 0.002$). Thus, it indicates that the respondents that had good knowledge on pressure ulcer prevention has good practice to prevent the pressure ulcer.

On the other hand, the finding of this study found that there is no significant correlation between staff nurses' attitude and practice of pressure ulcer prevention. In a study done by Lotfi et al., (2019) in Iran also showed the same result that there were no relationship between attitude and practice among the nurses. A study done by Saifollahi et al., (2016) state that it was not enough for the nurses to have knowledge about pressure ulcer prevention, the nurses need to have aa good attitude and have strong belief in order to give the best care to prevent pressure ulcer.

However, a study done by Hu et al., (2021a) in China found that there was a relationship between attitude and practice. The differences could be due to the study ward placement where the research by Hu et al., (2021a) focus on only ICU while the current research done in any ward except in clinics since the conventional study method were used in this study. Thus, it can be assumed that majority of the staff nurses in ICU can focus on one to one patient, where they can provide a successful care to the patient. However, for the nurses in most of the medical/surgical wards, they have a high workload since the medical/surgical wards in Serdang Hospital has a lot of patients to attend.

5.5 Association between sociodemographic characteristics with level of knowledge, attitude and practice of pressure ulcer prevention among staff nurses

5.5.1 Association between sociodemographic characteristic with level of knowledge

Several inferential analyses had been conducted as shown in Table 4.9 revealed that there is no significant association between gender, ethnicity, highest education level and received training on pressure ulcer prevention over the last year with knowledge about pressure ulcer prevention among staff nurses in a public hospital, Selangor. However, there is a significant association between age ($p = 0.007$), years of working experience as a nurse ($p = 0.014$), need training on pressure ulcer prevention ($p = 0.049$) with knowledge about pressure ulcer prevention among staff nurses in a public hospital, Selangor.

First of all, there is a significant association between age and knowledge about pressure ulcer prevention ($p = 0.007$). This result is similar to studies conducted in

Saudi Arabia by Kaddourah et al., (2016) ($p < 0.001$) and in Iran by Tirgari et al., (2018) ($p < 0.05$) where they found that age was one of the significant factors that affect knowledge about pressure ulcer prevention. Thus, the nurses with higher age might experience more patients with pressure ulcer hence their experience provided them with good knowledge.

Next, there is also association between years of working experience with knowledge of pressure ulcer prevention ($p = 0.014$). This result is consistent with a study done by Khojastehfar et al., (2020) ($p = 0.007$) and a study by Hu et al., (2021a) ($p = 0.004$). However, (Sham et al., 2020) and other studies found that there were no association between knowledge and need to attend training of pressure ulcer prevention.

In the current study, only a few of the respondents (26.7%, $n=28$) had their pressure ulcer training over the last year. This might be because staff nurses in Sedang Hospital are busy with their works to provide successful therapy for their patients hence they did not have time to attend training regarding pressure ulcer prevention frequently.

A study by Hu et al., (2021a) shows that there was a significant association between knowledge and work experience as nurses ($p = 0.004$) which is consistent with the current research. Other studies by Sham et al., (2020) and Galvão et al., (2017) found that there were no association found between knowledge and other socio-demographic characteristics (gender, ethnicity, highest education and received training regarding pressure ulcer prevention).

Concerning the amount of work experience, it has been shown that a longer amount of work experience does not correlate to a better level of expertise among nurses (Sham et al., 2021).

5.5.2 Association between sociodemographic characteristics with attitude

Analysis done had shown that there is a significant association between highest level of education ($p = 0.025$) with attitude towards pressure ulcer prevention. However, there is no significant association between age, gender, ethnicity, years of working experience a nurse, received training on pressure ulcer prevention over the last year and need training on pressure ulcer prevention over the last year. The study done by Werku Etafa et al., (2018) also found that there were no significant relationship between age, educational level and training received regarding pressure ulcer prevention. Moreover, a study by Hu et al., (2021a) found that there was a significant relationship between highest education level with nurses' attitude ($p = 0.03$).

On the other hand, the study by Werku Etafa et al., (2018) found that there was a significant association between knowledge and gender ($p = 0.032$) where male showed more good attitude than female nurses.

A study done by Zhang et al., (2021) also found that there was association with nurses' attitude with their highest education level ($p = 0.003$). They found that the attitude score was higher among nurses who had bachelor degree as their highest level while in the current study, most of the staff nurses had Diploma. In Malaysia, the qualification criteria to be a staff nurses in most of the government hospitals are diploma in nursing. Thus, it may indicate that as the experience of the education getting

higher, the way of the nurses think also may change to a better way of thinking which makes them to have a good attitude and they may have a stronger belief that pressure ulcer can be prevented.

5.5.3 Association between sociodemographic characteristics with practice of pressure ulcer prevention

Several inferential analyses had been conducted as shown in Table 4.11 revealed that there are no significant association between age, ethnicity, highest education level, need training for pressure ulcer prevention and received training on pressure ulcer prevention over the last year with practice of pressure ulcer prevention among staff nurses in a public hospital, Selangor. However, there is a significant association between gender ($p = 0.040$) with practice about pressure ulcer prevention among staff nurses in a public hospital, Selangor. Majority of the respondents in the current study were women and only minority of them were male in any wards in Serdang Hospital. As women dominate the nursing profession almost exclusively, male nurses are more likely to work in the emergency department and operating room which were not included in the current study. Moreover, a study by Karaca & Durna, (2019) state that female devote more attention to care and hygiene of their patients. Thus, this may indicate that the female nurses provide more skin care to the patient such as sponging and moisturize the patient's skin to prevent skin breakdown which may lead to pressure ulcers.

However, the result of this study contradicted with a study by Hu et al., (2021a) where the researchers found that there was a significant relationship between nurses' practice with the highest education level ($p = 0.022$) and work experiences ($p = 0.02$).

Highest education level can contribute to increasing in knowledge regarding the updated practice of pressure ulcer prevention and lead the nurses to have good practice in preventing the pressure ulcers with the right technique (Hu et al., 2021a). Meanwhile, there were no relationship between other socio-demographic characteristics (age, ethnicity, gender, and need of training for pressure ulcer prevention) were found in the previous study Hu et al., (2021a). A study done by (Sham et al., 2020) showed that there were no association between all the socio-demographic characteristics with the nurses' practice.

5.6 Conclusion

All objectives of this study have been achieved. The result obtained in this study showed that majority of the respondents had poor knowledge, good attitude and poor practice towards pressure ulcer prevention. A greater attitude and knowledge among health professionals may enhance their practice about pressure ulcer prevention.

CHAPTER 6

LIMITATION AND RECOMMENDATION

6.1 Limitation

This was a simple cross-sectional study that had been conducted within a short period of time. There were several limitations were found in this study that need to be acknowledged. Firstly, the study did not reach targeted sample size which is 226 respondents where the response rate was only 105 respondents due to limited time collecting data and difficulty to obtain response from respondents. Due to the limited time in collecting data, the scope of study was carried out only in a public hospital which was Serdang Hospital. As a result, the findings may not apply to other states of Malaysia.

Next, since the questionnaire was delivered via an online platform that allows nurses to answer questions anonymously, it is impossible to know if nurses copied the response from their co-workers or obtained it from the internet. As a result, the response supplied by the nurses may not accurately reflect their response. Nurses were also unable to focus when answering the questionnaire due to their high workload. This might lead to response bias, in which the nurses' responses are false and misleading. Instead, additional time was required for data collecting, which resulted in a delay in the study's progress.

Last but not least, there is a shortage of similar or relevant results in research on knowledge, attitude and practice of pressure ulcer prevention among nurses in

Malaysia. Thus, there is some limitation for the current researcher to provide a strong evidence-based in the discussion.

6.2 Implication and recommendation

Although the majority of the respondents are familiar with pressure ulcer, raising awareness about the significance of having appropriate knowledge regarding pressure ulcer prevention is equally important to improve the nursing practice on the prevention of pressure ulcer. Nurses knowledge regarding pressure ulcer prevention also need to be updated regularly as the population of patient with pressure ulcer increasing every year. Knowledge of the necessity of pressure ulcer prevention should be raised to encourage the nurses to adopt a more positive attitude and successful practice about prevention of pressure ulcer.

To improve the study in the future, it should be carried out at several other major hospitals in Malaysia to improve the total sample size and to discuss more broadly on knowledge, attitude and practice about pressure ulcer prevention among staff nurses in Malaysia. Lastly, physical survey should be carried out instead of online survey since the response rate for only survey in this study was less than 50%.

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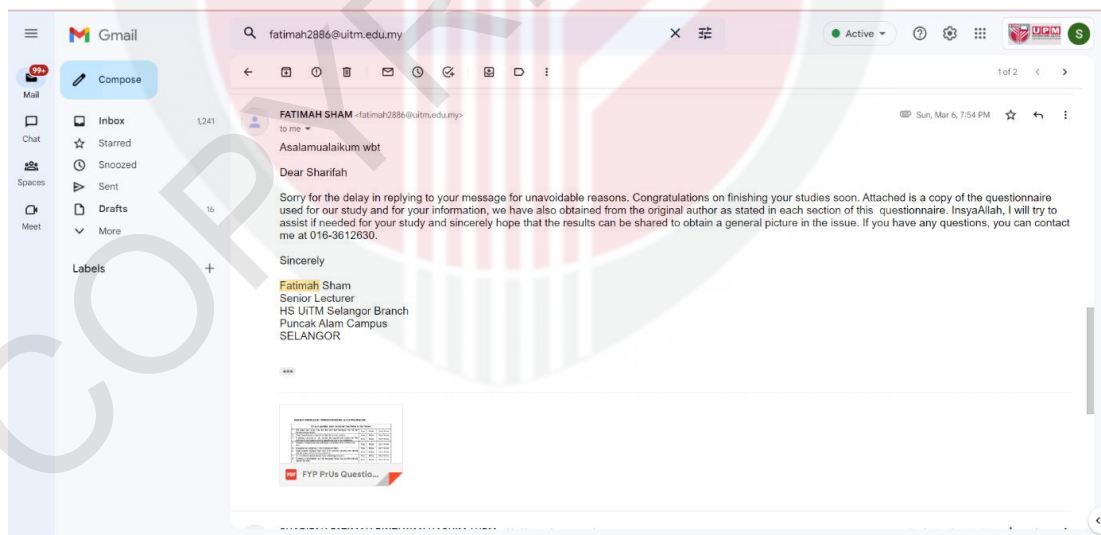
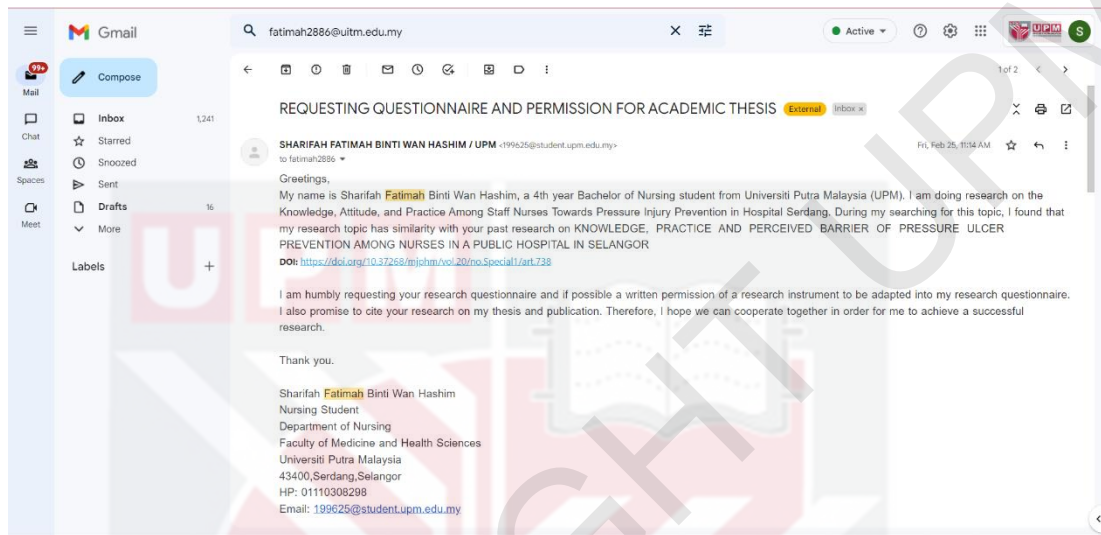
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APPENDICES

Appendix A Written Permission for Instrument



Appendix B Participant Information Sheet and Informed Consent Form

PARTICIPANT INFORMATION SHEET AND INFORMED CONSENT FORM

(for adult subjects)

1. **Title of study:** Knowledge, attitude and practice towards prevention of pressure ulcer among staff nurses in a public hospital in Selangor, Malaysia

2. **Name of investigator and institution:**
 - A) Sharifah Fatimah binti Wan Hashim, Faculty of Medicine and Health Sciences University Putra Malaysia (UPM)
 - B) Paramesevary A/P Subramaniam, Faculty of Medicine and Health Sciences and University Putra Malaysia (UPM)
 - C) Dr. Navin Kumar Daveraj, Faculty of Medicine and Health Sciences and University Putra Malaysia (UPM)

3. **Name of sponsor:**
No external funding

4. **Introduction:**

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

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

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

5. **What is the purpose of the study?**

The purpose of this study is to determine the level of knowledge, attitude, and practice of pressure ulcer prevention among the staff nurses in Hospital Serdang.

This research will be conducted for duration of 10 months The expected number of participants is 226 individuals.

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

It is important that you answer all of the questions asked by the study staff honestly and completely which will take about 10 to 20 minutes of your time. Study team will also access your medical records for the following information.

You must answer all of the questions asked by the researcher honestly and completely. If your condition or circumstances change during the study, you must tell the researcher. As for your safety, you need to follow the instruction given to make sure the process is going well.

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

Participation to this study will not affect your treatment, and the risk is minimal. You are free to decline to answer any of the questions that you feel uncomfortable with.

8. What are the benefits of being in this study?

a. To you as the subject?

The information that you provided regarding your knowledge, attitude and practice toward prevention of pressure ulcer are valuable and much appreciated. It has no direct benefits to the respondent, but it will create awareness about the importance of prevention of pressure ulcer among respondents and improve the quality of pressure ulcer prevention among patients.

There will be no payment given to the respondent as this participation is voluntary. Besides, this study is also conducted by an undergraduate student and it is a self-sponsor.

b. To the investigator?

The information and data obtained from this study will allow the researcher to assess the knowledge, attitude and practice toward prevention of pressure ulcer among staff nurses.

The researcher able to identify the perception and what is currently lacking on the level of knowledge about pressure ulcer prevention among nurses.

Besides, the findings from the study can suggest for any improvement to be done so that the nurses able to know the needs of pressure ulcer patients and improve the quality of prevention of pressure ulcer by poses a positive attitude and practice towards pressure ulcer prevention.

9. Who is funding the research?

This study has no funding as it is a self-sponsor.

10. Will my medical information be kept private?

All your information obtained in this study will be kept and handled in a confidential manner, in accordance with applicable laws and/or regulations. When publishing or presenting the study results, your identity will not be revealed without your expressed consent. Individuals involved in this study, qualified monitors and auditors, and governmental or regulatory authorities may inspect the study data, where appropriate and necessary. Participants will not be informed of the study results. However, if the participants are interested to know the study results, they can email the researcher at shrfh.ftmh99@gmail.com.

11. Who should I call if I have questions?

If you have any problems, please do not hesitate to contact one of the people listed below

- i. Researcher
Sharifah Fatimah binti Wan Hashim
Contact no: +601110308298
Email: shrfh.ftmh99@gmail.com
- ii. Supervisor
Paramesevary A/P L.Subramaniam
Contact number: +603 9769 2429
Email: paramesevary@upm.edu.my
- iii. Co-supervisor
Navin kumar A/L Devaraj
Contact number: +0389472879
Email: knavin@upm.edu.my

If you have any questions about your rights as a participant in this study, please contact: The Secretary, Medical Research & Ethics Committee, Ministry of Health Malaysia, at telephone number 03-3362 8407/8205/8888.

INFORMED CONSENT FORM

Title of Study: Knowledge, attitude and practice towards prevention of pressure ulcer among staff nurses in Selangor, Malaysia

By clicking on I agree below I confirm the following:

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

I agree

I disagree

**RISALAH MAKLUMAT PESERTA DAN BORANG PERSETUJUAN atau
KEIZINAN PESERTA**
(*untuk subjek dewasa*)

1. **Tajuk penyelidikan:** Pengetahuan, sikap dan amalan terhadap pencegahan ulser tekanan dalam kalangan kakitangan jururawat di hospital awam Selangor, Malaysia

2. **Nama Institusi and nama penyelidik:**
 - A) Sharifah Fatimah binti Wan Hashim, Faculty of Medicine and Health Sciences Universiti Putra Malaysia (UPM)
 - B) Paramesevary A/P Subramaniam, Faculty of Medicine and Health Sciences and Universiti Putra Malaysia (UPM)
 - C) Dr. Navin Kumar Daveraj, Faculty of Medicine and Health Sciences and Universiti Putra Malaysia (UPM)

3. **Nama penaja:**
tidak menerima penajaan/dana dari pihak luar

4. **Pengenalan:**

Risalah ini menjelaskan hal-hal berkenaan penyelidikan tersebut dengan lebih mendalam dan terperinci. Amat penting anda memahami mengapa penyelidikan ini dilakukan dan apa yang dilakukan dalam penyelidikan ini. Sila ambil masa yang secukupnya untuk membaca dan mempertimbangkan dengan teliti penerangan yang diberi sebelum anda bersetuju untuk menyertai penyelidikan ini. Jika ada sebarang kemusykilan ataupun maklumat lanjut yang anda ingin tahu, anda boleh bertanya dengan mana-mana kakitangan yang terlibat dalam penyelidikan ini. Setelah anda berpuas hati bahawa anda memahami penyelidikan ini, dan anda berminat untuk turut serta, anda dikehendaki untuk menandatangani Borang Persetujuan atau Keizinan Peserta, pada muka surat akhir risalah ini.

Penyertaan anda dalam penyelidikan ini adalah secara sukarela. Anda tidak perlu menyertai penyelidikan ini jika anda tidak mahu. Anda juga mempunyai hak untuk tidak menjawab mana-mana soalan yang anda tidak mahu jawab. Anda juga boleh menarik diri daripada penyelidikan ini pada bila-bila masa sahaja. Jika anda menarik diri, segala maklumat yang telah diperolehi sebelum anda menarik diri tetap akan digunakan dalam penyelidikan ini. Jika anda tidak mahu menyertai ataupun menarik diri dari penyelidikan ini, tindakan anda tidak akan menjejaskan segala hak dan keistimewaan perubatan kesihatan yang selayaknya anda terima.

Penyelidikan ini telah mendapat kelulusan Jawatankuasa Etika dan Penyelidikan Perubatan, Kementerian Kesihatan Malaysia.

5. Apakah tujuan penyelidikan ini dilakukan?

Tujuan penyelidikan ini dilakukan adalah untuk menentukan tahap pengetahuan, sikap dan amalan pencegahan ulser tekanan dalam kalangan kakitangan jururawat dan pembantu penjagaan kesihatan di Hospital Serdang.

Penyelidikan ini akan berlangsung selama 10 bulan. Dijangka bahawa 226 individu akan mengambil bahagian dalam kajian ini.

6. Apakah tanggungjawab saya sewaktu menyertai penyelidikan ini?

Amat penting anda menjawab kesemua soalan yang dikemukakan oleh kakitangan penyelidikan dengan jujur dan lengkap yang akan mengambil masa selama lima hingga sepuluh minit. Penyelidik juga memerlukan maklumat yang berikut daripada rekod perubatan anda:

Anda akan diberi borang soal selidik yang akan dijawab yang terdiri daripada empat bahagian yang akan bertanya tentang latar belakang sosio-demografi, pengetahuan tentang pencegahan tekanan ulser, sikap terhadap pencegahan tekanan ulser dan amalan terhadap pencegahan tekanan ulser.

7. Apakah manfaatnya saya menyertai kajian ini?

Maklumat dan data yang diperolehi daripada kajian ini akan membolehkan pengkaji untuk menilai pengetahuan, sikap dan amalan ke arah pencegahan ulser tekanan dalam kalangan kakitangan jururawat.

Pengkaji dapat mengenal pasti persepsi dan apa yang kini kurang pada tahap pengetahuan tentang pencegahan ulser tekanan dalam kalangan perawat.

Selain itu, dapatan kajian boleh mencadangkan sebarang penambahbaikan perlu dilakukan supaya perawat dapat mengetahui keperluan pressure ulcer pesakit dan meningkatkan kualiti pencegahan ulser tekanan dengan menunjukkan sikap dan amalan yang positif terhadap pencegahan ulser tekanan.

8. Apakah risiko dan kesan-kesan sampingan menyertai penyelidikan ini?

Risiko untuk penyertaan penyelidikan ini yang adalah minima dan tidak akan menjejaskan rawatan anda. Anda berhak untuk tidak menjawab jika rasa tidak selesa dengan mana-mana soalan kajian.

9. Siapakah yang membiayai penyelidikan ini?

Kajian ini tidak menerima penajaan/dana dari pihak luar. Anda tidak akan dibayar untuk menyertai kajian ini.

10. Adakah maklumat saya akan dirahsiakan ?

Segala maklumat anda yang diperolehi dalam penyelidikan ini akan disimpan dan dikendalikan secara sulit, bersesuaian dengan peraturan-peraturan dan/ atau undang-undang yang berkenaan. Sekiranya hasil penyelidikan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anda tidak akan didedahkan tanpa kebenaran anda terlebih dahulu.

Pihak-pihak tertentu seperti individu yang terlibat dalam penyelidikan ini, juruaudit dan jurupantau yang terlatih, pihak berkuasa kerajaan atau undang-undang, boleh memeriksa maklumat atau data kajian jika diperlukan.

11. Siakah yang perlu saya hubungi sekiranya saya mempunyai sebarang pertanyaan?

- i. Penyelidik
Sharifah Fatimah binti Wan Hashim
Tel no: +601110308298
Email: shrfh.ftmh99@gmail.com

- ii. Supervisor
Paramesevary A/P L.Subramaniam
Contact no: +603 9769 2429
Email: paramesevary@upm.edu.my

- iii. Co-supervisor
Navin kumar A/L Devaraj
Tel no: +0389472879
email: knavin@upm.edu.my

Jika anda mempunyai sebarang pertanyaan berkaitan dengan hak-hak anda sebagai pesakit dalam penyelidikan ini, sila hubungi: Setiausaha, Jawatankuasa Etika & Penyelidikan Perubatan, Kementerian Kesihatan Malaysia, melalui talian telefon 03-3362 8407/8205/8888.

BORANG PERSETUJUAN/ KEIZINAN PESERTA

Tajuk Penyelidikan: Pengetahuan, sikap dan amalan terhadap pencegahan ulser tekanan dalam kalangan kakitangan jururawat di Selangor, Malaysia

Dengan menandatangani di bawah, saya mengesahkan bahawa :

- Saya telah diberi maklumat tentang penyelidikan di atas secara bertulis and saya telah membaca dan memahami segala maklumat yang diberikan dalam risalah ini.
- Saya telah diberikan masa yang secukupnya untuk mempertimbangkan penyertaan saya dalam penyelidikan ini dan telah diberi peluang untuk bertanyakan soalan dan semua persoalan saya telah dijawab dengan sempurna dan memuaskan.
- Saya juga faham bahawa penyertaan saya adalah secara sukarela dan pada bila-bila masa saya bebas menarik diri daripada penyelidikan ini tanpa harus memberi sebarang alasan dan ianya sama sekali tidak akan menjejaskan rawatan perubatan saya pada masa akan datang. Saya tidak mengambil bahagian dalam mana-mana penyelidikan lain pada masa ini. Saya juga memahami tentang risiko dan manfaat penyelidikan ini dan saya secara sukarela memberi persetujuan untuk menyertai penyelidikan ini di bawah syarat-syarat yang telah dinyatakan di atas. Saya faham saya harus mematuhi nasihat dan arahan yang berkaitan dengan penyertaan saya dalam penyelidikan ini daripada doktor penyelidikan (penyelidik) .
- Saya faham bahawa kakitangan penyelidikan, pemantau dan juruaudit terlatih, pihak penaja atau gabungannya, dan pihak berkuasa kerajaan atau undang-undang, mempunyai akses langsung dan boleh menyemak laporan perubatan saya bagi memastikan penyelidikan ini dijalankan dengan betul dan data direkodkan dengan betul. Segala maklumat dan data peribadi akan dianggap sebagai SULIT.
- Saya akan menerima satu salinan 'Risalah Maklumat Pesakit dan Borang Persetujuan atau Keizinan Pesakit' yang telah lengkap dengan tarikh dan tandatangan untuk dibawa pulang ke rumah.
- Saya bersetuju/ tidak bersetuju* untuk doktor yang merawat keluarga saya diberitahu tentang penyertaan saya dalam penyelidikan ini. (*Potong mana yang tidak berkenaan)

Setuju

Tidak setuju

Appendix C Questionnaire



UNIVERSITI PUTRA MALAYSIA
FACULTY OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF NURSING
BACHELOR OF NURSING

RESEARCH TITLE:

**KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS PREVENTION
OF PRESSURE ULCERS AMONG STAFF NURSES IN A PUBLIC
HOSPITAL IN SELANGOR, MALAYSIA**

RESEARCHER : SHARIFAH FATIMAH BINTI WAN HASHIM
(199625)
SUPERVISOR : PARAMESEVARY A/P L. SUBRAMANIAM
CO-SUPERVISOR : DR. NAVIN KUMAR A/L DEVARAJ

INSTRUCTION:

This study is conducted for academic purposes. All information will be kept private and confidential. Thank you for your cooperation in answering this questionnaire.

Data Collection Questionnaires

Part I Demographic data

Instruction:

All the answers given are to complete your background information. Please answer each question appropriately by ticking (✓) or writing down in the box or at the space provided respectively.

1. Age:
2. Gender: Female Male
3. Ethnicity: Malay Chinese India Others
4. Highest education qualification:
 Doctor of Philosophy (PhD)
 Master Degree
 Bachelor Degree
 Post Basic (Please state): _____
 Diploma Skills Certificate
5. Years of working experience as a nurse:
6. Received training on pressure ulcer prevention over the last year: Yes No
7. Need of training on pressure ulcer prevention: Yes No

Part II Nurses' Knowledge of Pressure Injury Prevention Questionnaire **Introduction:**
 This questionnaire investigates your knowledge of pressure injury prevention. The options of each question include "True", "False" and "Don't know". Please tick "√" below the options that best matches your answer.

| For each question, mark the box for True, False, or Don't Know. | | | |
|--|------|-------|------------|
| 1. Hot water and soap may dry the skin and increase the risk for pressure injury/ulcers. | True | False | Don't Know |
| 2. Chair-bound persons should be fitted for a chair cushion. | True | False | Don't Know |
| 3. A person confined to bed should be repositioned based on the individual's risk factors and the support surface's characteristics. | True | False | Don't Know |
| 4. A pressure injury/ulcer scar will break down faster than unwounded skin. | True | False | Don't Know |
| 5. Dragging the patient up in bed increases friction. | True | False | Don't Know |
| 6. Small position changes may need to be used for patients who cannot tolerate major shifts in body positioning. | True | False | Don't Know |
| 7. An incontinent patient should have a toileting care plan. | True | False | Don't Know |
| 8. A pressure redistribution surface manages tissue load and the climate against the skin. | True | False | Don't Know |
| 9. When possible, high-protein oral nutritional supplements should be used in addition to usual diet for patients at high risk for pressure injury/ulcers. | True | False | Don't Know |
| 10. Donut devices/ring cushions help to prevent pressure injury/ulcers. | True | False | Don't Know |
| 11. A specialty bed should be used for all patients at high risk for pressure injury/ulcers. | True | False | Don't Know |
| 12. Persons at risk for pressure injury/ulcers should be nutritionally assessed (i.e., weight, nutrition intake, blood work) | True | False | Don't Know |
| 13. Critical care patients may need slow, gradual turning because of being hemodynamically unstable. | True | False | Don't Know |
| 14. Staff education alone may reduce the incidence of pressure injury/ulcers. | True | False | Don't Know |

| | | | |
|---|------|-------|------------|
| 15. Massage of bony prominences is essential for quality skin care. | True | False | Don't Know |
| 16. Poor posture in a wheel chair may be the cause of a pressure injury/ulcer. | True | False | Don't Know |
| 17. For persons who have incontinence, skin cleaning should occur at the time of soiling and at routine intervals. | True | False | Don't Know |
| 18. Patients who are spinal cord injured need knowledge about pressure injury/ulcer prevention and self-care. | True | False | Don't Know |
| 19. Persons, who are immobile and can be taught, should shift their weight every 30 minutes while sitting in a chair. | True | False | Don't Know |
| 20. Selection of a support surface should only consider the person's level of pressure injury/ulcer risk. | True | False | Don't Know |
| 21. To help prevent pressure injury/ulcers, the head of the bed should be elevated at a 45-degree angle or higher. | True | False | Don't Know |
| 22. Urinary catheter tubing should be positioned under the leg. | True | False | Don't Know |
| 23. Pressure injury/ulcers may be avoided in patients who are obese with use of properly sized equipment. | True | False | Don't Know |
| 24. Pressure injury/ulcers are a lifelong concern for a person who is spinal cord injured. | True | False | Don't Know |

Part III Nurses' Attitudes toward Pressure Injury Prevention Questionnaire
Introduction: This questionnaire aims to investigate your attitude towards pressure injury prevention. The attitude options are divided into "yes", "no", and "not sure". Please tick "√" below the options that best matches your attitude.

| For each question, mark the box for Yes, No, or Not Sure. | | | |
|---|-----|----|----------|
| 1. In your view are all patients at potential risk of developing pressure ulcers (PU)? | Yes | No | Not Sure |
| 2. Do you have willingness to care for patients with pressure ulcer? | Yes | No | Not Sure |
| 3. Do you feel that priority of care is given for patients who are at risk of pressure ulcer? | Yes | No | Not Sure |
| 4. Do you believe that most pressure ulcer can be prevented? | Yes | No | Not Sure |
| 5. Do you think patients who are admitted receive adequate prevention of pressure ulcer while in bed seated? | Yes | No | Not Sure |
| 6. Do you think pressure ulcer risk assessment should be regularly carried out on all patients during their stay in hospital? | Yes | No | Not Sure |
| 7. Do you perceive that nurses hold major responsibilities when patient are vulnerable to pressure ulcer? | Yes | No | Not Sure |
| 8. My clinical judgment is better than any pressure risk assessment tool available to me. | Yes | No | Not Sure |

Part VI Nurses' Practice of Pressure Injury Prevention Questionnaire

| For each question, mark the box for Strongly Agree, Agree, Mixed Feeling, Disagree and Strongly Disagree. | | | | | |
|--|----------------|-------|---------------|----------|-------------------|
| 1. I observe how other nurses assess the risk factors | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 2. I identify common contributing factors | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 3. I do a skin assessment | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 4. I use risk assessment scale | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 5. I document all data | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 6. I assess and provide management of pain | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 7. I perform skin care as a routine work | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 8. I place the pillow under the patient's leg | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 9. I use water filled glove under the patient's leg | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 10. I use or advice caregiver to use creams or oils | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 11. I pay more attention to pressure points | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 12. I provide vitamin and food | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 13. I monitor a protein and calorie diet | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 14. I avoid dragging | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 15. I always use a special mattress | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 16. I avoid massage | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 17. I avoid using donut – shape (ring) cushion | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 18. I turn a patient position every two hours | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 19. I put pillows under the patient's leg ankle | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 20. I always attend seminars | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |
| 21. I give advice to the patient or caregiver | Strongly Agree | Agree | Mixed Feeling | Disagree | Strongly Disagree |

Appendix D Gantt Chart

| Project | 2021 | | 2022 | | | | | | | | | | | | 2023 |
|---|------|-----|------|-----|-----|-------|-----|------|------|-----|------|-----|-----|-----|------|
| | Nov | Dec | Jan | Feb | Mac | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan |
| Identify the research problem | | | | | | | | | | | | | | | |
| Discussion with supervisor regarding the research title | | | | | | | | | | | | | | | |
| Review of the article for literature review | | | | | | | | | | | | | | | |
| Select an appropriate questionnaire | | | | | | | | | | | | | | | |
| Proposal presentation | | | | | | | | | | | | | | | |
| Submit proposal | | | | | | | | | | | | | | | |
| Obtain permission | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| from the relevant party | | | | | | | | | | | | | | |
| Conduct a pilot study | | | | | | | | | | | | | | |
| Conduct the research and data collection | | | | | | | | | | | | | | |
| Data analysis and discussion | | | | | | | | | | | | | | |
| Thesis presentation | | | | | | | | | | | | | | |
| Submit the research report | | | | | | | | | | | | | | |

Appendix E Budget

| No. | Tools | Quantity x RM/unit | Total Cost |
|-----|--|--------------------|------------|
| 1. | Stationaries | | |
| 2. | Printing - Proposal - Softbound - Hardbound | | |
| 3 | Binding | | |
| 4 | Printer cartilage | | |
| | | Total | |

Appendix F Approval Letter from the Medical Research and Ethics Committee (MREC)



JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(Medical Research & Ethics Committee)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Kompleks Institut Kesihatan Negara
Blok A, No 1, Jalan Setia Murni U13/52,
Seksyen U13, Bandar Setia Alam,
40170 Shah Alam, Selangor.



Tel: 03-3362 8888/8205

Ref : 22-00627-OIV (2)

Date: **15-Apr-2022**

SHARIFAH FATIMAH BINTI WAN HASHIM
UNIVERSITI PUTRA MALAYSIA

Dear Sir / Mdm,

ETHICS INITIAL APPROVAL: NMRR ID-22-00627-OIV (IIR)
KNOWLEDGE, ATTITUDE, AND PRACTICE OF PRESSURE ULCERS PREVENTION AMONG
STAFF NURSES IN A PUBLIC HOSPITAL IN SELANGOR, MALAYSIA

This letter is made in reference to the above matter.

2. The Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia (MOH) has provided ethical approval for this study. Please take note that all records and data are to be kept strictly **CONFIDENTIAL** and can only be used for the purpose of this study. All precautions are to be taken to maintain data confidentiality. Permission from the District Health Officer / Hospital Administrator / Hospital Director and all relevant heads of departments / units where the study will be carried out must be obtained prior to the study. You are required to follow and comply with their decision and all other relevant regulations.

3. The investigators and study sites involved in this study are:

HOSPITAL SERDANG

Sharifah Fatimah Binti Wan Hashim (Principal / Coordinating Investigator)
Paramesevary A/P L.Subramaniam
Navin Kumar A/L Devaraj

4. The following study documents have been received and reviewed with reference to the above study:

Documents received and reviewed with reference to the above study:

1. Study Protocol_Version 4, dated 04-Apr-2022
2. Information Sheet & Informed Consent Form_English_Version 3, dated 04-Apr-2022
3. Information Sheet & Informed Consent Form_Malay_Version 3, dated 04-Apr-2022
4. Questionnaire_Version 3, dated 15-Mar-2022
5. Investigator's documents : Declaration of Conflict of Interest (COI), IA-HOD-IA, and CV:
 - a) Sharifah Fatimah Binti Wan Hashim (Principal / Coordinating Investigator)
 - b) Paramesevary A/P L.Subramaniam
 - c) Navin Kumar A/L Devaraj

5. Please note that ethical approval is valid until **14-Apr-2023**. The following are to be reported upon receiving ethical approval. Required forms can be obtained from the National Medical Research Register (NMRR) website.

- i. **Continuing Review Form** has to be submitted to MREC within 2 month (60 days) prior to the expiry of ethical approval.
- ii. **Study Final Report** upon study completion to the MREC.

Appendix G Originality Report

FYP

ORIGINALITY REPORT

| | | | |
|--------------------------------|--------------------------------|----------------------------|------------------------------|
| 23% SIMILARITY INDEX | 16% INTERNET SOURCES | 16% PUBLICATIONS | 11% STUDENT PAPERS |
|--------------------------------|--------------------------------|----------------------------|------------------------------|

PRIMARY SOURCES

| | | |
|----------|--|-----------|
| 1 | www.mjphm.org Internet Source | 4% |
| 2 | www.ncbi.nlm.nih.gov Internet Source | 2% |
| 3 | www.hindawi.com Internet Source | 2% |
| 4 | Submitted to International Islamic University Malaysia Student Paper | 1% |
| 5 | Shahrokh Khojastehfar, Tahereh Najafi Ghezeljeh, Shima Haghani. "Factors related to knowledge, attitude, and practice of nurses in intensive care unit in the area of pressure ulcer prevention: A multicenter study", Journal of Tissue Viability, 2020 Publication | 1% |
| 6 | Submitted to The Maldives National University Student Paper | 1% |
| 7 | Submitted to Universiti Teknologi MARA Student Paper | |