



UNIVERSITI PUTRA MALAYSIA

***KNOWLEDGE AND AWARENESS REGARDING HYPERTENSION AMONG
NURSES IN SERDANG HOSPITAL, SELANGOR***

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**BACHELOR OF NURSING
UNIVERSITI PUTRA MALAYSIA**

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By

NADHIRAH BINTI MOHAMAD AZHAR

**Thesis submitted to the School of graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirements for the Degree of Bachelor of Nursing**

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ABSTRACT

Knowledge and Awareness Regarding Hypertension among Nurses in Serdang Hospital, Selangor, Malaysia: A Cross Sectional Study.

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Khaza'ai

Background of the Study: Hypertension is a blood related problem where blood pressure is higher than normal which is 140 mm Hg or above for systolic blood pressure and 90 mm Hg and above for diastolic. Most cases of hypertension are aged from 40 years old and above, but hypertension also can occur in younger people aged below 40 years old. **Objective:** This study aims to to determine the knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia. **Methodology:** This study is a cross sectional study where 100 nurses from the Serdang Hospital, Selangor, Malaysia were participated in this study which an adapted questionnaire were given to the prospective participants. The questionnaire comprises three parts which is socio-demographic data, knowledge regarding hypertension, and awareness regarding hypertension. Convenient sampling method was used in this study. **Data Analysis:** SPSS version 26.0 was used for data entry and analysis. Descriptive analysis, frequency and percentage, independent t test, and Pearson Chi-Square was used to evaluate the resulting data. **Result:** The mean age of the respondents was 28.96 (SD=5.130), 28% (N=28) were male, 72% (N=72) were female, Malay 58% (N=58), Chinese 12% (N=12), Indian 14 (N=14), and others 16

(N=16). About 60% of the respondent are proficient in knowledge regarding hypertension, while another 40% were not proficient in knowledge regarding hypertension. Besides, 87% of the respondents have high awareness, and 13% have medium awareness regarding hypertension, while none of the respondents have low awareness regarding hypertension. The results shows there is no significant association between knowledge and awareness regarding hypertension ($p=0.763$). Besides, the results shows that there is no association between sociodemographic, knowledge, and awareness regarding hypertension ($p>0.05$). Meanwhile, the results shows there is association between level of education and knowledge regarding hypertension ($p=0.00$). **Conclusion:** There is no significant relationship between the knowledge of hypertension and the awareness of hypertension. The results obtained in this study showed that the respondents were proficient in knowledge and had high awareness regarding hypertension.

Keywords: Hypertension, knowledge, awareness, nurses, blood pressure.

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LIST OF ABBREVIATION

CDC	Centers for Disease Control and prevention
HPT	Hypertension
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.0 INTRODUCTION

This chapter will discuss the background of study, problem statement, significance of the study, research question, objective, hypothesis, conceptual and operational definition.

1.1 Background Study

According to the Department of Statistics Malaysia (2020), 15% of deaths in 2019 are caused by ischaemic heart disease followed by pneumonia (12.2%) and cerebrovascular disease (8.0%). One of the causes for ischaemic heart disease is people with high blood pressure or known as hypertension (HPT). According to the CDC (2021), hypertension is a blood related problem where blood pressure is higher than normal which is 140 mm Hg or above for systolic blood pressure and 90 mm Hg and above for diastolic. Hypertension can cause the heart to get inadequate blood and become weaker, causing heart damage and leading to heart disease. Most cases of hypertension are aged from 40 years old and above, but hypertension also can occur in younger people aged below 40 years old. People at risk of getting hypertension are people who have diabetes, unhealthy diet, physical inactivity, obesity, consumption of alcohol, tobacco use, and increasing age (CDC, 2020).

Other than heart disease, uncontrolled high blood pressure also can cause aneurysm, kidney disease, eye problem, and dementia (Mayo Clinic, 2020). The symptoms of hypertension are morning headaches, irregular heart rhythms, buzzing in ears, nosebleeds, and vision changes, while more severe symptoms are fatigue, nausea, vomiting, confusion, anxiety, chest pain, and muscle tremors might occur (WHO, 2021). Hypertension is also known as a “silent killer” because most people are unaware of the problem because there may be no warning signs or symptoms (International Journal of Hypertension, 2021). According to the Preventive Cardiovascular Nurses Association (2012), one in six adults die from hypertension.

Hypertension has 2 types of risk factors, modified risk factors and non-modified risk factors. World Health Organization (2021), stated that modified risk factors of hypertension is unhealthy diets (excessive salt consumption, a diet high in saturated fat and trans fats, low intake of fruits and vegetables), physical inactivity, consumption of alcohol and tobacco, and being overweight or obese. While non-communicable risk factors are family history that have hypertension, age over 65 years and have underlying disease such as diabetes or kidney disease.

The only way to detect hypertension is to have blood pressure measured. Individuals can measure their own blood pressure using an automated device called a sphygmomanometer as the blood pressure measured is painless and quick, but evaluation by a health professional is important for assessment of risk and associated

conditions. Health screening on hypertension is a need as a starting button to detect if the person has a risk of getting hypertension and prevent from getting other complications.

1.2 Problem Statement

Hypertension is one of the major health issues in Malaysia. Uncontrolled high blood pressure can cause a variety of chronic diseases which can lead to death. There are many campaigns and programs introduced by the government such as World Hypertension Day and May Measurement Month (MMM) coordinated by the International Society of Hypertension. However, there are still many people that die from hypertension as Malaysia reached 0.43% of total deaths due to hypertension (World Health Organization, 2018). According to the National Health and Morbidity Survey (2019), 6.4 million people in Malaysia had hypertension, which blood pressure will elevate with age. Only half are aware that they have hypertension and 90% of them are on medication but only 40% of them are able to control their blood pressure.

As stated by NHMS (2019), half of 6.4 million people in Malaysia are unaware that they have hypertension due to infrequent health screening. This is because most of them do not have symptoms for hypertension and do not have any other underlying disease. According to the U.S. Preventive Services Task Force (2016), adults that reach the age of 40 years and persons who are at risk of getting hypertension need to be screened annually, while adults aged 18 to 39 years old and persons who have normal blood pressure or do not have risk factors need to be screened for every 3 to 5 years.

Furthermore, a study found that the prevalence of hypertension among senior staff nurses in Tertiary Medical Hospital, Sylhet was about 33% (Akter & Hadi Suhag, 2020). Besides, 26875 nurses were diagnosed with hypertension in 2017 compared with the previous threshold on 2010 Chinese guideline which is 20551 cases (Zhao et al., 2019). There are also limited and no large studies conducted to assess the knowledge and awareness regarding hypertension among nurses in Malaysia.

1.3 Significance of the study

This study will be able to assess the knowledge of hypertension among nurses and their awareness regarding hypertension. This allows nurses to know more about the importance of hypertension despite actively engaged with work. Thus, the nurses also can be more observant to the patient's blood pressure level and nursing care for hypertensive patients will be improved. Beside, by having the knowledge and awareness regarding hypertension, prevention can be taken earlier by the nurses to reduce the risk of getting hypertension and reduce the risk of getting cardiac disease. Therefore, the quality of life can be improved among nurses. Furthermore, this research can promote the nurses to provide the information and health teaching to the patient and community regarding hypertension to reduce further complications. There is also limited and no large study conducted to assess the knowledge and awareness regarding hypertension among nurses in Malaysia. Therefore, this study will be conducted to fill the research gap and can acknowledge the level of understanding about hypertension among nurses.

1.4 Research Question

- I. What is the association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia?
- II. What is the association between socio-demographic data and knowledge regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia?
- III. What is the association between socio-demographic data and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia?

1.5 Research Objective

1.5.1 General Objective

To determine the knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

1.5.2 Specific Objective

1. To determine the knowledge regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
2. To determine the awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
3. To determine the association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
4. To determine the association between socio-demographic data and knowledge regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
5. To determine the association between socio-demographic data and the awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia

1.6 Hypothesis

1.6.1 Null Hypothesis

- Ho1: There is no significant association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
- Ho2: There is no significant association between knowledge and socio-demographic data regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
- Ho3: There is no significant association between knowledge and socio-demographic data regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

1.6.2 Alternative Hypothesis

- Ho1: There is significant association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
- Ho2: There is significant association between knowledge and socio-demographic data regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.
- Ho3: There is significant association between knowledge and socio-demographic data regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

1.7 Conceptual and Operational Definition

No	Variable	Conceptual Definition	Operational Definition
1.	Sociodemographic data	Social demographics reflect demographic and social roles and individual / individual achievement in the population (Abdullahi, 2020)	The socio-demographic includes age, gender, ethnic, level of education, department and year of working experience as a nurse
2.	Knowledge	Knowledge is a collection of experience, and skilled insight, which offers a structure for estimating and integrating new experience and information (Mohajan, 2016).	The online questionnaire, which is modified Hypertension Evaluation Lifestyle Management questionnaire by Gyamfi et al. (2017), will be used to measure the level of knowledge of hypertension among nurses in the Serdang Hospital
3.	Awareness	Awareness is realization, perception and cognitive reaction to a condition or	The online questionnaire in a research titled “A Study on Knowledge,

		event (Abdul Gafoor, 2012)	Awareness, and Medication Adherence in Patients with Hypertension from a Tertiary Care Centre from Northern Sri Lanka”, by Pirasath et al. (2017), will be used to measure the awareness of hypertension among nurses in the Serdang Hospital
4.	Nurses	A person who has completed a program of basic, generalized nursing education and is authorized by the appropriate regulatory authority to practice nursing in his/her country (ICN, n.d)	The nurse who work at the Serdang Hospital, Selangor, Malaysia.

Table 1: Conceptual and Operational Definition

CHAPTER 2: LITERATURE REVIEW

2.1 Hypertension

Hypertension (HPT) is the most common risk factor for cardiovascular disease. According to C. Y. Wu et al. (2015), approximately 47% of coronary heart disease and 54% of strokes are worldwide attributable to high blood pressure. Heart attacks and strokes are usually caused by blockage that prevents blood from flowing to the heart or brain or by bleeding from a blood vessel in the brain from blood clots (World Health Organization, 2021).

Hypertension is a non communicable disease that attacks in 'silence' that makes people unaware of their current health status only until they have done their health screening. A research by Gerald Bloom (2019), only 39% of adults with hypertension had been diagnosed by a medical practitioner, 35.7% on treatment, but only 9.6% of adults have controlled blood pressure. Besides, the previous screening program in China was evaluated where 24.7% from 94.9% of participants were diagnosed with hypertension (Song, C. et al., 2021).

According to Ministry of Health Malaysia (2013), the optimal blood pressure is systolic less than 120 mmHg and diastolic less than 80 mm Hg, prehypertension (systolic 120-139, diastolic 80-89 mm Hg), while hypertension are classified into several stages where stage 1 (systolic 140-159 mm Hg, diastolic 90-99 mm Hg), stage

2 (systolic 160-179 mm Hg, diastolic 100-109), and stage 3 (180 and more, diastolic 110 and more)

2.2 Socio-demographic data of hypertension

Age

According to a study by Seow et al (2015), 74.1% out of 2488 respondents of elderly population had hypertension. Another study also shows that risk of hypertension was increased with increase of age where 2.3 to 3.2 and 5.5 to 7.9 times higher in 35 to 59 years old (A. Laxmaiah et al, 2015). Besides, it was also supported by Abdalla et al (2019) where their finding also figured that hypertensive participants of age group 25 to 64 years of age and above were significantly high. The health screening in public clinics may explain why diagnostic coverage of hypertension is higher among adults aged 60 years and above because they are more likely to attend for minor ailments services. A research by Gerald Bloom (2019) also found that $\frac{1}{3}$ of adults in malaysia had hypertension where the prevalence of hypertension increased with age among those aged 20 to 40 years old (17.9%), among aged 40 to 60 years (46.4%), and aged 60 and above (71.7%). Besides, there were studies that show that many nurses who had poor blood pressure control were often aged 45-54 years (Gallagher et al., 2018).

Gender

A finding from Liew et al (2019), males were more likely to have hypertension compared to women (AOR=1.65, 95% CI=1.47 to 1.85). However, a study from Abdalla et al (2019) also shows that more females were significantly having hypertension 155 (72%) than male 61 (28%). The health screening in public clinics may explain why diagnostic coverage of hypertension is higher among females because they are more likely to attend for Mother and Child Health (MCH) services (Gerald bloom, 2019). A study also found that the control rate of hypertension among female nurses was 16.10%, while male nursing staff was only 6.31% (Zhao et al., 2019).

Ethnicity

The prevalence of hypertension varied with ethnicity, where Malay were the highest (33.1%), followed by Chinese (31.5%), and Indian (28.5%) (Liew et al, 2019). A study by Gerald Bloom (2019) found that the prevalence of hypertension was the highest among Malays, followed by Indian and Chinese respectively. However, according to Abdalla et al (2019), hypertension prevalence was estimated to be 31.1% from 10215 participants where 47.2% were Chinese, 26.0% Malay and 26.8% Indian.

Level of education

Individuals with a graduate degree had significantly higher level of knowledge than high school degree-holders (Sun, 2022; Liu et al.,2011).

2.3 Knowledge regarding hypertension

There was a significant difference in the proportion of nurses who obtained satisfactory answers on the knowledge pre-post interventions test after the educative interventions (Katende et al., 2014). There are over 72.3% nurses that treated hypertensive patients indicated that they learnt about the hypertensive guideline (Myanganbayar et al., 2019). The knowledge of hypertension epidemiology among health practitioners was low where the overall management score was only 53.1% who had the correct answer (Myanganbayar et al., 2018). A study also found that 6.66% of health practitioners told all three types of hypertension while another 93.33% only told about primary and secondary hypertension and had knowledge about essential hypertension only (Akter & Hadi Suhag, 2020). According to Mohammed et al. (2019), their study found that the level of knowledge was significantly associated with gender, age, ethnicity, and education level.

2.4 Awareness regarding hypertension

41% of respondents from primary health care professional nurses in Eastern cape, South Africa were unaware of their hypertension status (Monakali et al., 2018). Besides, a study by Zhao et al. (2019) also found that the awareness of hypertension in 2017 is (13.50%) 3.25 times lower than 2010 (57.37%). According to Mohammed et al. (2019), the level of awareness was found to be significantly associated with ethnicity and educational level.

2.5 Association between knowledge and awareness regarding hypertension

There is a significant relationship between awareness and knowledge of hypertension (Sadeq & Lafta, 2017; Mohammed et al., 2019).

2.6 Conceptual framework

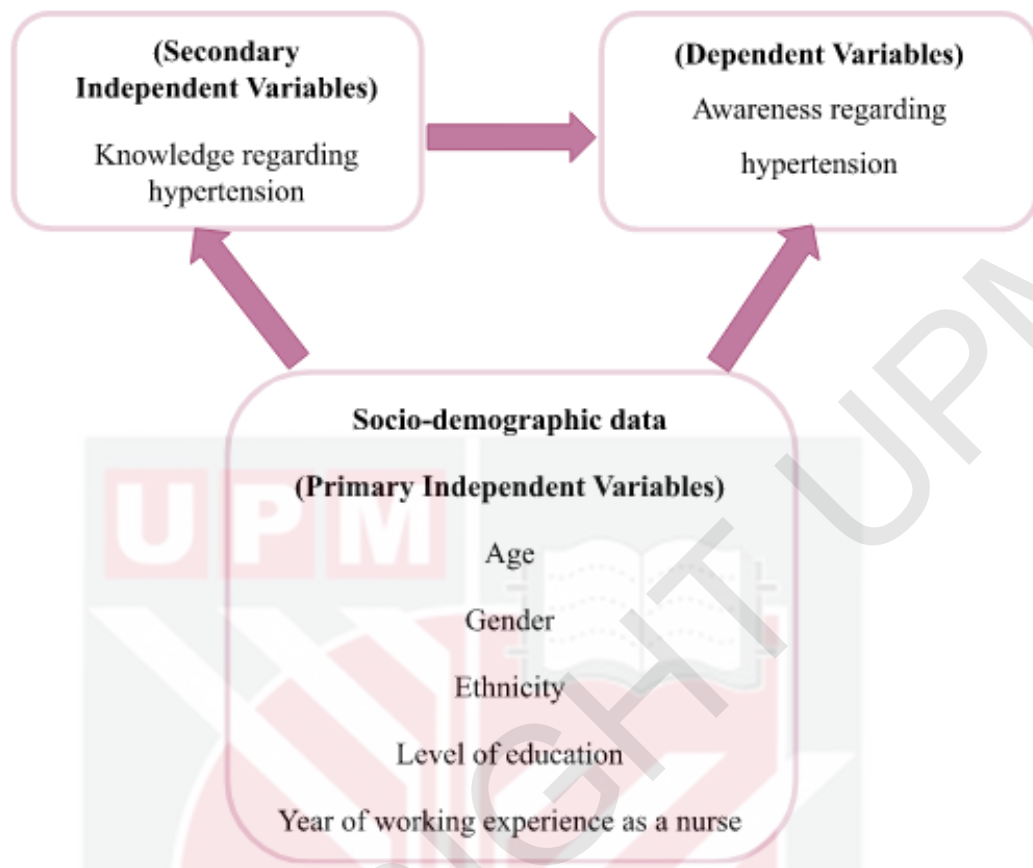


Figure 1

Figure 1 shows all the variables that will be included in this study. The population that will be studied is nurses in Serdang Hospital, Selangor, Malaysia. Based on Figure 1, the figure shows that the knowledge regarding hypertension and socio-demographic characteristics are the independent variables. Socio-demographic data that include age, gender, ethnicity, level of education, department and year of working experience as a nurse is the primary independent variable, while the knowledge regarding hypertension are the secondary independent variables. Then, awareness regarding hypertension is the dependent variable as it will be the outcome of this study. Results, the conceptual framework concludes this study is to study the contributing factor based on independent variables that influence the dependent variable.

CHAPTER 3: METHODOLOGY

3.1 Research Design

The research design for this study is quantitative research. The study design chosen for this study is a cross-sectional study. An adapted questionnaire by Gyamfi et al. (2017) was used to determine the knowledge regarding hypertension, while questionnaire by Pirasath et al. (2017) was used to determine the awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

3.2 Study location

This study was conducted at one of the public hospitals located in Serdang, Selangor. It involved the nurses in the Serdang Hospital via the online platform. The data collection were done within three months (June, July, and August 2022) and the whole process of this study will take approximately three months to complete.

3.3 Study population

The participants for this study involved the nurses from the Serdang Hospital, Selangor, Malaysia. The researcher used the simple random sampling method in this study. The questionnaires were distributed via the Google Form to the participants that are available at that time from the Serdang Hospital, Selangor, Malaysia until the sample size is reached. The inclusion criteria have been listed in the Google Form and it needs the participants to tick “I agree” or “I disagree” before answering the

questionnaire. Then, the participants who are willing to participate and fulfill the inclusion criteria were recruited in this study.

3.4 Subject Criteria

There are several inclusion and exclusion criteria in this study which is:

Inclusion Criteria	Exclusion Criteria
• Registered staff nurses • Nurses that work in Serdang hospital • Nurses who have at least one year working experience as a nurse	• Nurses who is on leave (maternity leave, study leave) • Retired but had not logged out of the registration system • Nurses who work at outpatient clinic and emergency department. • Nurses that refuse to participate. • Ward manager and matron

Table 2: Inclusion and Exclusion Criteria

3.5 Sample Size Estimation (to consider non-response or attrition rate)

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:

Cochran's sample size recommendation = $n_0 = \frac{Z^2 pq}{e^2}$	
Where:	
n_0	Cochran's sample size recommendation
Z	Z selected critical value of desired level of confidence
p	estimated proportion of an attribute that represent the population
q	1 – p
e	desired level of precision

Table 3: Cochran's sample size recommendation

Since the degree of variability of this study population is unknown, hence, the recommended sample size will be calculated using a parameter which assumes the maximum variability. The estimated proportion will be 50% ($p = 0.5$), 95% confidence level with 5% precision ($e = 0.05$) and the Z value will be 1.96. Thus,

$$\text{Cochran's sample size recommendation, } n_0 = \frac{Z^2 pq}{e^2}$$

$$n_0 = \frac{(1.96^2)(0.5)(0.5)}{(0.05^2)}$$

$$n_0 = 384.16$$

$$n_0 \approx 384$$

Furthermore, if the population size is limited, the sample size can be decreased slightly as the 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. So, a correction formula to calculate the final sample size for the study was suggested by Cochran.

$\text{Final sample size, } n = \frac{n_0}{1 + (\frac{n_0 - 1}{N})}$	
Where,	
n_0	Cochran's sample size recommendation
N	Population size
n	Final sample size

Table 4: Final sample size, n

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

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

$$n = \frac{384}{1 + (\frac{384 - 1}{900})} n = \frac{384}{1.4256}$$

$$n = 269.36$$

$$n \approx 270$$

Therefore, the number of minimum participants needed for this study is 269 nurses from the Serdang Hospital, Selangor, Malaysia who meet the eligibility criteria. For the non-respondent rate, the sample size will be increased to 10% which is $269 + 27 = 296$ respondents.

3.6 Sampling Method and Subject Recruitment

The participants for this study involved the nurses from the Serdang Hospital, Selangor, Malaysia. The researcher used the convenience method in this study. The questionnaire is distributed via the Google Form to the participants that are available at that time from the Serdang Hospital, Selangor, Malaysia until the sample size is reached. The inclusion criteria have been listed in the Google Form and it needs the participants to tick it before answering the questionnaire. Then, the participants who are willing to participate and fulfill the inclusion criteria will be recruited in this study.

3.7 Research tools or Instruments

The self-administered and adapted questionnaires were used to collect the data of this study. Before conducting this study, the questionnaires were checked by the supervisor to determine its validity. Then, a pilot study conducted among nurses in Serdang Hospital, Selangor, Malaysia before proceeding with a proper study to evaluate whether the questions are clear and easy to understand. The content validity conducted to ensure the matching between the test questions with the items in the questionnaire which is supposed to be measured. Cronbach alpha will be done involving 10% of the sample size to validate the questionnaire for this study. These questionnaires used to determine the knowledge and awareness regarding hypertension among nurses in

Serdang Hospital, Selangor, Malaysia. The questionnaires are only in the English version. There are three sections of the questionnaire as follow:

Section A: Socio-demographic Data

This section consists of 6 items that may include the ID/Code where it had been filled by the researcher itself and each participant having their ID to distinguish each participant of this study. Then, it is followed by age, gender, ethnicity, level of education, and year of working experience as a nurse.

Section B: Knowledge regarding Hypertension

In this section, the questionnaire was focused on the knowledge of Hypertension. The total questions for this section contain 13 questions. 1 point will be given for the true answer and 0 point will be given for the false or 'Do not know' answer where the hypertension knowledge assessment was coded as 0 = not proficient and 1 = proficient. Proficiency was determined by an 80% score and above on the hypertension knowledge assessment. This section has been adapted from a study conducted by Gyamfi et al. (2017) with the title of the study being "Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed-methods study".

Section C: Awareness regarding Hypertension

In this section, the questionnaire was focused on the awareness regarding hypertension. The total questions for this section contain 8 questions. 1 point will be given for every “YES” answer, and 0 point will be given for every “NO” answer. This section has been adapted from a study conducted by Pirasath et al. (2017) with the title of the study being “A Study on Knowledge, Awareness, and Medication Adherence in Patients with Hypertension from a Tertiary Care Centre from Northern Sri Lanka”. This study will be scored using the Morisky scale that consists of 8-point questions. Scores for the scale range within low adherence (<2), medium adherence (3 to 4), and high adherence (5 to 6).

3.8 Pilot test

A pilot study conducted among 27 nurses in Cardiac Care Unit ward.

3.9 Validity and Reliability

The questionnaire will be considered as reliable and consistent if the Cronbach’s alpha value is in between 0.70 and 0.91. The Cronbach’s alpha of the questionnaire is 0.89 (Gyamfi et al., 2017). For the content validity index (CVI), a panel of experts was asked to rate each item on the scale in terms of relevance to the underlying design. Proficiency was determined by an 80% score on the hypertension knowledge assessment and was coded as 0 = not proficient and 1 = proficient (Gyamfi et al., 2017).

3.10 Data collection

Data collection was conducted right after the researcher received the ethical approval of the study. Data was collected online through Google form. The Google form link shared to the Sister of the ward, then they will shared the link with nurses who are currently employed and working in the Serdang Hospital, Selangor. Then, they shared the link to other eligible nurses to answer as well. The questionnaire was shared through social media such as WhatsApp. The participant will not be required to sign in to an account in order to fill in the survey. The first page of the online survey was denoted to provide a complete Participant Information Sheet to ensure that the participants meet the inclusion and exclusion criteria of the study. Besides that, the participants have to click on the button “I agree” or “I disagree” after they read through the information and meet all the criteria to provide their willingness to participate in the study. Hence, the consent will be automatically obtained when the participants click and submit the survey. Next, all answers will be saved and updated in the researcher’s Google Drive account. To maintain confidentiality, the password of the Google Drive account is only available for the researcher only and is not accessible by others without the password.

3.11 Study Flowchart

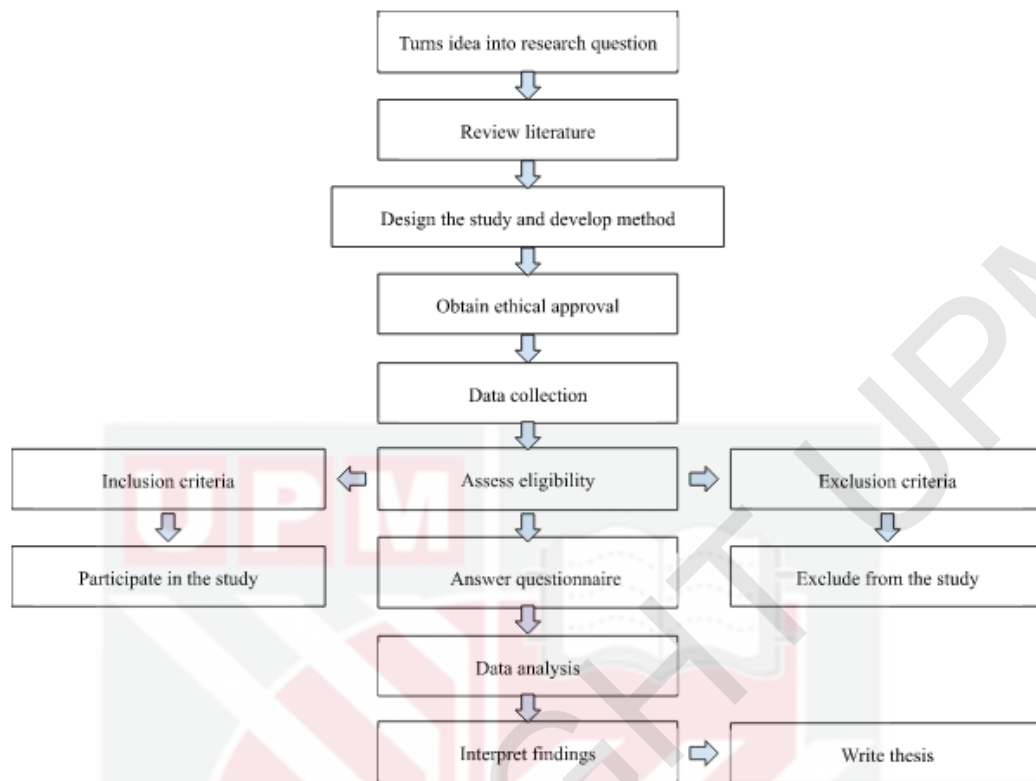


Figure 2: Data Collection Procedures

The data collection was conducted as soon as possible after obtaining ethical approval from NMRR. The data collection process conducted within three months. The participants that fulfill the inclusion criteria of this study will be approached to participate as participants in the study. Then, the participants who volunteer to participate in this study will be recruited as the participants of this study. Next, the researcher explains the objective of this study to the participant individually. The consent will be obtained from the participants before answering the questionnaire. The participants are allowed to withdraw from this study at any time and all the data collected for this study will be kept confidentially and secured in Google Account where only the researcher can access the data. Any withdrawal participants or incomplete questionnaires will not be included in the data collection. The

questionnaire will be distributed to the participants in Google Form. The time allocated for the participants to answer the questionnaire is about 10 to 15 minutes. After the participants submit the questionnaire completely, the data was collected for further analysis. The researcher analyzed the data using Statistical Package for the Social Sciences (SPSS) Version 26.0 for Windows and write the final report of the study

3.12 Data Analysis

The data that has been collected will be analyzed by using the statistical computer software (Statistical package service and solution-SPSS version 26) in accordance with objectives of this study. Table below shows the summary of statistical analysis with respective objectives in this study.

3.12.1 Exploration of Data

Table 1: Summary of statistical analysis with respective objectives in this study.

Objective	Dependent	Independent Variable	Statistical Measurement
To determine the knowledge regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.		Knowledge (Categorical)	Descriptive statistic (frequency and percentage)
To determine the awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia	Awareness (Categorical)		Descriptive statistic (frequency and percentage)
To determine the association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.	Awareness (Categorical)	Knowledge (Categorical)	Pearson Chi-Square
	Awareness (Categorical)	Knowledge (Categorical)	

To determine the association between socio-demographic data and knowledge regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.		Age (Categorical)	Pearson Chi-Square
		Gender (Categorical)	Independent t-test
		Ethnicity (Categorical)	Pearson Chi-Square
		Level of education (Categorical)	
		Year of working experience as a nurse (Categorical)	
To determine the association between socio-demographic data and the awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia	Awareness (Categorical)	Age (Categorical)	Pearson Chi-Square
		Gender (Categorical)	Independent t-test
		Ethnicity (Categorical)	Pearson Chi-Square
		Level of	Pearson Chi-

		education (Categorical)	Square
		Year of working experience as a nurse (Categorical)	Pearson Chi- Square



3.13 Ethical Consideration

Researcher adhered to the principles of the Declaration of Helsinki and the Malaysian Good Clinical Practice Guidelines. The approval initially obtained from the Medical Research and Ethics Committee (MREC) via online registration and application through the National Medical Research Register (NMRR). After getting the approval, MREC provides a written ethical approval letter to the researcher. After that, a written permission letter submitted to the Clinical Research Centre (CRC) and the director of Serdang Hospital to obtain permission to conduct this study in the respective hospital.

All participants was provided with a participant information sheet for their willingness to participate in this study. After the informed consent is obtained, they will directly go to the next page that contains the questionnaire for this study. The participants can ask any questions or clarification about the study through the contact information of researchers that are provided in the survey.

If the participants are not interested in the study, they are allowed to withdraw themselves and any incomplete questionnaire will not be included in data collection. Informed consent is necessary to be taken from the participants. It is to ensure that the participants are understood about the study clearly before giving their consent to participate in the study. Lastly, participants can submit their response at this link: <https://docs.google.com/forms/d/1hFBVRhQttdUFmc4cJgIttoNCmkZsZQMooJHuyBfezejw/edit>

3.14 Informed Consent/Assent Process

The data collection for this study was collected within three months through the online platform and social media to easily reach out to the nurses in Serdang Hospital, Selangor, Malaysia. The questionnaire was made into an online format using Google form. The researcher explained the purposes of the study to the participants. The Participant Information Sheet added on the first page of the questionnaire to make sure that the participants read and understand all the terms allocated. The participants that volunteered to participate and consent was automatically obtained once the participants tick the button and submit the questionnaire. All data is kept in Google Drive to ensure privacy and confidentiality.

3.15 Privacy and Confidentiality

Participant confidential information will be kept and cannot be traceable by other individuals since it is secured in a Google account that only can be accessed by the researchers. The download data will be kept in a password protected computer (Google Drive). The period of data collection was ongoing for 3 months from the date the link was distributed to the hospital. After 12 months, the link will be disabled and no other personnel except the researchers will be able to access it. The data collected will be recorded in another separate offline document after being retrieved from Google Form and all data in the Google Form and offline document will be destroyed after 12 months.

3.16 Conflict of Interest

The investigators declare they have conflict of interest

3.17 Publication Policy

All information obtained from this study will be kept and handled confidentially per applicable laws and/or regulations. Permission from the Director General of Health, Malaysia was obtained prior to publication. Participants' identity will not be revealed without their permission throughout the activities in this study including presentation and publication.

However, anyone who is related to this study includes research staff, qualified monitors and auditors, the sponsors and its affiliates and governmental or regulatory authorities has the right to inspect and photocopy their related record when necessary.

3.18 Termination of Study

The researcher can terminate this study and participation anytime if participants do not fulfill the inclusion criteria of participants. If this study ends early, participants will be informed immediately.

CHAPTER 4: RESULT

4.0 Introduction

This chapter presents the results of this study that aimed to determine the associations between sociodemographic characteristics, knowledge regarding hypertension and awareness regarding hypertension among nurses in Serdang Hospital, Selangor. The normality test had been conducted for knowledge regarding hypertension and it had found that the total score is normally distributed with Skewness of -0.491 and Kurtosis of 0.389 which is within the normal range of -1 to 1 (George & Mallery, 2010). The normality test was also conducted for awareness regarding hypertension and it found that the total score is normally distributed with skewness of -0.820 and Kurtosis -0.601 which is also within the normal range of -1 to 1. Thus, a parametric test had been used to analyzed all the data. All the data had been analyzed using IBM SPSS Statistics 26 with a statistical significance level set at $p < 0.05$.

4.1 Response Rate

A total of 100 individuals responded to the online survey and all responses are valid to be used and analysed in this study. Two hundred and sixty-nine respondents were the required sample size, hence the response rate for this study is 37.17%.

4.2 Socio-demographic Characteristics

The total number of respondents of this study is 100. The highest frequency and percentages of the respondents were aged 26-30 years old (38.00%, n=38), followed by 23-25 years old (33.00%, n=33), 31-40 years old (24%, n=24) and 41 years old and above (5%, n=5). The skewness and kurtosis of age is 1.157 and 0.813 respectively with mean age is 28.96 (SD=5.130). Out of 100 respondents, the majority of the respondents were female (78.00%, n=78), Malay (58.0%, n=58). The highest education level among respondents is diploma (90.0%, n=90). Most of the respondents have experience of working for 1-3 years of experience (42.0%, n=42). The skewness and kurtosis of experience of working is 1.048 and 0.406 respectively with mean experience is 6 (SD=4.828). The details regarding the distribution of respondents' socio-demographic characteristics are reported in Table 4.1.

Sociodemographic	n	%	Mean (SD)
Age			28.96(5.130)
23-25 years old	33	33%	
26-30 years old	38	38%	
31-40 years old	24	24%	
41 years old and above	5	5%	
Gender			
Male	28	28%	
Female	72	72%	
Ethnicity			
Malay	58	58%	
Chinese	12	12%	
Indian	14	14%	
Other	16	16%	
Education level			
Diploma	90	90%	
Degree	10	10%	
Years of working experience			6.14(4.828)
1-3 years	42	42%	
4-10 years	37	37%	
11-15 years	16	16%	
Above 16 years	5	5%	

Table 4.1 Socio-demographic Characteristics

4.3 Knowledge regarding Hypertension

It showed that more than half of the respondents in this study are proficient in knowledge regarding hypertension (60%, n=60) while another respondent were not proficient (40%, n=40) where mean of knowledge is 1.60(SD=0.492).

Knowledge	n	%	Mean (SD)
Not proficient	40	40%	1.60(0.492)
Proficient	60	60%	

Table 4.2 Knowledge regarding Hypertension

4.4 Awareness regarding Hypertension

Based on Table 4.3, 87% of respondents have high awareness regarding hypertension and 13% of respondents have medium awareness regarding hypertension. None of the respondents have low adherence regarding hypertension. The mean and SD is 2.87(0.338).

Knowledge	n	%	Mean (SD)
Low adherence	0	0%	2.87(0.338)
Medium adherence	13	13%	
High adherence	87	87%	

Table 4.3 Awareness regarding Hypertension

4.5 Association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor.

Pearson Chi-square test analysis had shown that there is no significant association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor. Hence, the null hypothesis “There is no significant association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.” is accepted. The detailed analysis of the association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor is shown in Table 4.4

Chi-Square Tests				
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.236 ^a	1	.627	
Continuity Correction ^b	.033	1	.856	
Likelihood Ratio	.233	1	.629	
Fisher's Exact Test				.763
Linear-by-Linear Association	.233	1	.629	
N of Valid Cases	100			

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.20.

b. Computed only for a 2x2 table

Table 4.4 Association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor.

4.6 Association between knowledge regarding hypertension and sociodemographic characteristics among nurses in Serdang Hospital, Selangor.

Age

From the table, 21 out of 33 respondents in age groups 23-25 years old have the highest number for proficient in knowledge. 19 out of 38 respondents aged 26-30 years old scored the highest number for not proficient in knowledge. Based on chi square result for association between knowledge regarding hypertension and age, there was no significant association ($p=0.401$) where the p value is more than 0.05.

Gender

From the table, female respondents have the highest number for proficient knowledge compared to male respondents (1.57 ± 0.476 , $t=0.995$, $p=0.25$). Based on the independent t test result for association between knowledge regarding hypertension and gender, there was no significant association where the p value is more than 0.05.

Gender	N	%	Mean	SD	t	p
Male	28	28%	1.68	0.476	0.995	0.25
Female	72	72%	1.57	0.499		

Table 4.5

Ethnicity

From the table, Malay respondents have the highest number for proficient knowledge. Based on chi square test result for association between knowledge regarding hypertension and ethnicity, there was no significant association ($p=0.548$) where the p value is more than 0.05.

Education level

From the table, Diploma respondents have the highest number for proficient knowledge compared to Degree respondents. Based on chi square test result for association between knowledge regarding hypertension and educational level, there was a significant association ($p=0.00$) where the p value is less than 0.05.

Experience

From the table, respondents that have 1-3 year experience have the highest number for proficient knowledge. Based on the chi square test result for association between knowledge regarding hypertension and educational level, there was no significant association ($p=0.562$) where the p value is more than 0.05.

Sociodemographic data		Knowledge regarding Hypertension		
		Not Proficient	Proficient	Total
Age				
	23-25 years old	12	21	33
	26-30 years old	19	19	38
	31-40 years old	7	17	24
	41 years old and above	2	3	5
Gender				
	Male	9	19	28
	Female	31	41	72
Ethnicity				
	Malay	21	37	58
	Chinese	7	5	12
	Indian	6	8	14
	Other	6	10	16
Education level				
	Diploma	36	54	90
	Degree	4	6	10
Years of working experience				
	1-3 years	17	25	42
	4-10 years	17	20	37
	11-15 years	4	12	16
	Above 16 years	2	3	5

Table 4.6 Association between knowledge regarding hypertension and sociodemographic characteristics among nurses in Serdang Hospital, Selangor.

4.7 Association between awareness regarding hypertension and sociodemographic characteristics among nurses in Serdang Hospital, Selangor.

Age

From the table, age groups 26-30 years old have the highest number for adherence in awareness compared to other age groups while respondents aged 26-30 years old score the highest number for not proficient in knowledge. Based on the chi square result for association between awareness regarding hypertension and age, there was no significant association ($p=0.087$) where the p value is more than 0.05.

Gender

From the table, female respondents have the highest number for high adherence awareness compared to male respondents (1.57 ± 0.348 , $t=0.420$, $p=0.675$) Based on an independent t test for association between knowledge regarding hypertension and gender, there was no significant association where the p value is more than 0.05.

Gender	N	%	Mean	SD	t	p
Male	28	28%	1.68	0.315	0.420	0.675
Female	72	72%	1.57	0.348		

Table 4.7

Ethnic

From the table, Malay respondents have the highest number for high adherence awareness compared to other ethnic respondents. Based on the chi square test result for association between knowledge regarding hypertension and ethnic, there was no significant association ($p=0.803$) where the p value is more than 0.05.

Education level

From the table, Diploma respondents have the highest number for high adherence awareness compared to Degree respondents. Based on the chi square test result for association between knowledge regarding hypertension and ethnic, there was no significant association ($p=0.766$) where the p value is more than 0.05.

Years of experience

From the table, Malay respondents have the highest number for high adherence awareness compared to other ethnic respondents. Based on the chi square test result for association between knowledge regarding hypertension and ethnic, there was no significant association ($p=0.212$) where the p value is more than 0.05.

Sociodemographic data	Awareness regarding Hypertension			Total
	Low adherence	Medium adherence	High adherence	
Age				
23-25 years old	0	12	21	33
26-30 years old	0	19	19	38
31-40 years old	0	7	17	24
41 years old and above	0	2	3	5
Gender				
Male	0	9	19	28
Female	0	31	41	72
Ethnicity				
Malay	0	21	37	58
Chinese	0	7	5	12
Indian	0	6	8	14
Other	0	6	10	16
Education level				
Diploma	0	36	54	90
Degree	0	4	6	10
Years of working experience				
1-3 years	0	17	25	42
4-10 years	0	17	20	37
11-15 years	0	4	12	16
Above 16 years	0	2	3	5

Table 4.8 Association between awareness regarding hypertension and sociodemographic characteristics among nurses in Serdang Hospital, Selangor.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

The main objective of this study is to determine the knowledge and awareness regarding hypertension among nurses in Serdang hospital, Selangor. In this chapter, results from the analyzed data will be discussed according to the specific adjective of this study.

5.1 Knowledge regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

Based on the results, from the total 100 respondents, 60% (N=60) of the respondents were proficient in knowledge while 40% (40%) of the respondents were not proficient in knowledge. According to a study by Begum et al. (2019), 74.8% (N=122) of the nurses were proficient in knowledge regarding hypertension 20.45 (± 0.670).

5.2 Awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

Based on the results, from the total of 100 respondents, 87% (N=87) of the respondents have high awareness, while 13% (N=13) have medium awareness, and none of the respondents have low level in awareness regarding hypertension. According to a study by Rahman et al. (2016), most of the respondents have high awareness regarding hypertension (91%, N=119) with mean and standard deviation 18.20 (± 0.860).

5.3 Association between knowledge and awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

Based on the results, there was no association between knowledge and awareness regarding hypertension ($p>0.05$). A study by Verulava & Mikiashvili, (2021), found that 82% of the respondents have high knowledge, however only 40% of respondents have high awareness regarding hypertension. This result was supported by a study conducted by Samal et al. (2017), where they found that there is no association between knowledge and awareness of hypertension ($p=0.13$).

5.4 Association between socio-demographic data and knowledge regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia.

Age

Based on the results, there was no significant association between knowledge regarding hypertension and age. Based on the Table 4.7, respondents aged 23-25 years old showed the highest percentage (35%, $N=21$) in knowledge regarding hypertension, followed by respondents aged 26-30 years old (31.7%, $N=19$) and respondents aged 31-40 years old (28.3%, $N=17$), while respondents aged 41 years old have the lowest percentage (5%, $N=3$) in knowledge regarding hypertension. A study by Myanganbayar et al., (2019) showed that there were no significant association ($P>0.1$) in those who were different in age categories. Another study also found that there were no association between age and knowledge regarding hypertension (Akter & Hadi Suhag, 2020).

Gender

Based on the results, there was a significant association between knowledge regarding hypertension and gender. Based on Table 4.7, female respondents showed the highest percentage (68.3%, N=42) in proficient of knowledge while male (31.7%, N=19). A study by Eshah & Al-daken, (2016) found a significant association between gender and knowledge regarding hypertension where the female participants ($\mu = 61.98$; SD, 40.45) was significantly higher ($t = -2.22$, $P = .027$) than male participants ($\mu = 50.52$; SD, 41.35).

Ethnicity

Based on the results, there was no significant association between knowledge regarding hypertension and ethnic. Based on Table 4.7, Malay respondents have the highest knowledge (61.7%, N=37), followed by other respondents (16.7%, N=10), Indian respondents (13.3%, N=8) and Chinese respondents (8.3%, N=5). A study by Mohammed et al. (2019), found that there was no significant associated with gender and knowledge regarding hypertension as p value more than 0.05.

Education

Based on the results, there was an association between knowledge regarding hypertension and education level. Based on Table 4.7, 90% (N=54) of respondents were Diploma and other respondents were Degree (10%, N=6). A study by

Mohammed et al. (2019), found that there was a significant associated with education level and knowledge regarding hypertension as p value less than 0.05.

Experience

Based on the results, there was no significant association between knowledge regarding hypertension and years of experience. Based on Table 4.7, respondents in category 1-3 years of experience have the highest proficiency (41.7%, N=25), followed by 4-10 years (33.3%, N=20), and 11-15 years (20%, N=12). Surprisingly, respondents who have 16 years and above experience have the lowest score in proficient (5%, N=3). However, according to a study by Myanganbayar et al. (2019), there is no association between knowledge regarding hypertension and years of experience.

5.5 Association between socio-demographic data and the awareness regarding hypertension among nurses in Serdang Hospital, Selangor, Malaysia

Age

Based on the results, there was no association between awareness regarding hypertension and age. Based on Table 4.8, respondents aged 26-30 years old showed the highest percentage (36.8%, N=32) in awareness regarding hypertension, followed by respondents aged 23-25 years old (29.9%, N=26) and respondents aged 31-40 years old (27.6%, N=24), while respondents aged 41 years old have the lowest percentage (5.7%, N=5) in knowledge regarding hypertension. A study by Mohammed et al.

(2019) also found that there is no significant association between age and awareness in hypertension ($p>0.05$).

Gender

Based on the results, there was no association between awareness regarding hypertension and gender. Based on Table 4.8, female respondents showed the highest percentage (68.3%, N=41) in awareness while male (31.7%, N=19). A study by Mohammad et al. (2019) found that there was no significant association between awareness regarding hypertension and gender ($t = 2.41$, $P = 0.102$)

Ethnic

Based on the results, there was no association between awareness regarding hypertension and ethnic. Based on Table 4.8, 59.8% (N=52) Malay respondents have the highest adherence in awareness regarding hypertension, followed by others (14.9%, N=13), Indian respondents (13.8%, N=12), and Chinese respondents (11.5%, N=10). A study by Myanganbayar et al. (2019) found that there was no association between ethnic and awareness regarding hypertension where $p=0.37$.

Level of education

Based on the results, there was no significant association between level of education and awareness regarding hypertension. Based on table 4.8, 89.7% respondents who

had a diploma in nursing (N=78) have higher adherence in awareness than 10.3% respondents who had a degree in nursing (N=9). However, a study by Verulava & Mikiashvili, (2021), found that 74% of the respondents who have higher education have higher awareness regarding hypertension.

Years of experience

Based on the results, there was no significant association between years of experience and awareness regarding hypertension. Based on Table 4.8, respondents who have 1-3 years experience have the highest score in awareness (39.1%, N=34), followed by 4-10 years experience (35.8%, N=32), 11-15 years of experience (18.4%, N=16), and above 16 years of experience (5.7%, N=5). A study by Samal et al. (2017) also found that there was no significant association between years of experience and awareness regarding hypertension.

CHAPTER 6: LIMITATION AND RECOMMENDATION

6.0 Introduction

This study is a cross-sectional study that had been conducted within a short period by using the convenience sampling method for data collection. Thus, there are several limitations identified during the research period that will be discussed in this chapter.

6.1 Limitation

To begin with, my results and data collection are only drawn in one hospital. The data might be differ from other hospitals. Besides, nurses were 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. Lastly, the researcher has limited time to conduct the data collection, results researcher only available to collect and analyze only 100 respondents over 269 respondents.

6.2 Recommendations

There are a few recommendations in this study. This study conducted using convenience sampling where any of the nurses who are eligible can answer the questionnaire lead to response bias. In further study, it is advised to use simple random sampling to give fair opportunities to all the nurses.

Besides, the findings of this study only found that only 60% of the nurses were proficient in knowledge of hypertension. It is necessary for ongoing education about the importance of managing hypertension especially in the area of intervention. The finding might suggest to the upper organizational management to provide opportunities for professional development, training nurses to recognise signs and symptoms of hypertension.

Furthermore, there was limited study for knowledge and awareness regarding hypertension among nurses. More studies should be done for knowledge and awareness regarding hypertension among nurses to fill the research.

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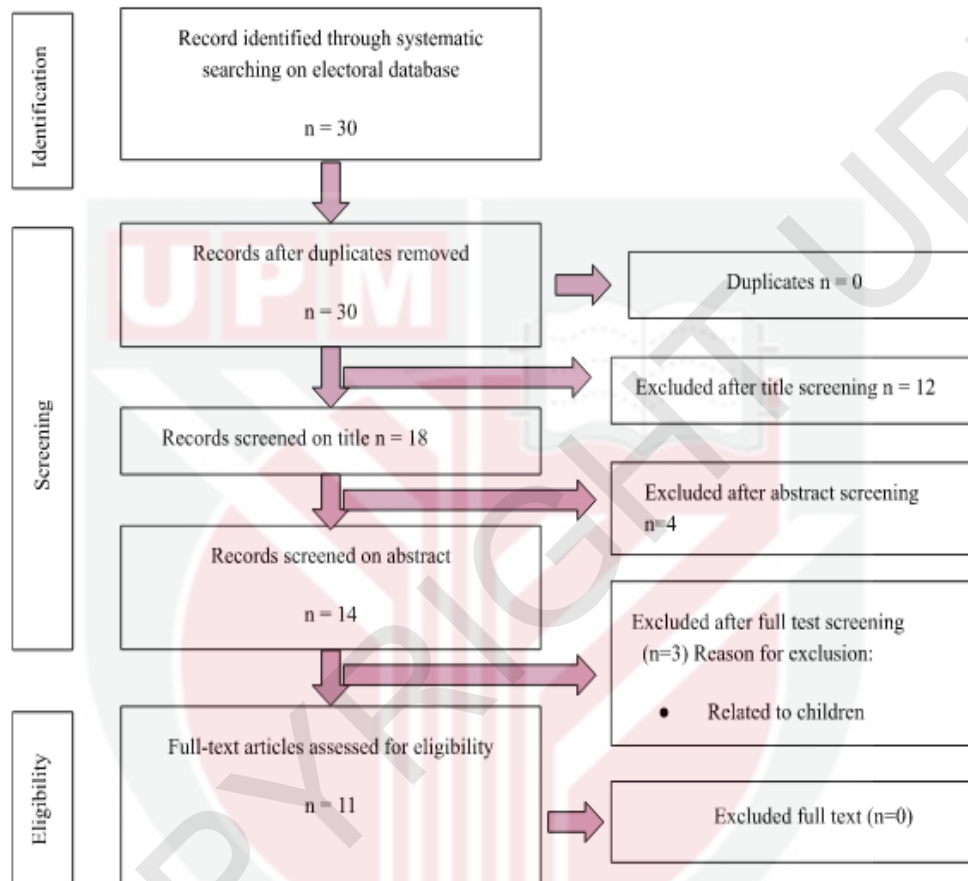
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APPENDIX

Appendix A: Title screening process



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Search Sources Lists SciVal



305 document results

(TITLE-ABS-KEY (knowledge) AND TITLE-ABS-KEY (awareness) AND TITLE-ABS-KEY (hypertension OR "blood pressure" OR diastolic OR systolic) AND TITLE-ABS-KEY (nurses OR "medical worker" OR "medical staff" OR "health professional" OR "health worker" OR doctor))

Edit Save Set alert

Search within results...

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Analyze search results Show all abstracts Sort on: Date (newest)

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Refine results Limit to Exclude Open Access

Appendix B: Written permission for the instrument

Request for Permission to use Questionnaire

[Report message](#) · [Block us](#)

**Nadhirah Mohamad Azhar**17 days ago

Dear Mrs Joyce,

I am an undergraduate student at Universiti Putra Malaysia and I would like to use the instrument "Hypertension Evaluation of Lifestyle and Management" used in your thesis "Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed-methods study".

My thesis is on "Knowledge and Awareness of Hypertension among Nurses in Serdang Hospital".

Thank you for cooperation.
Kind regards,

Nadhirah binti Mohamad Azhar
Nursing student
University Putra Malaysia

**Joyce Gyamfi to you**16 days ago

Hi,

Sure you can use the survey provided that you provide appropriate citation. I look forward to the outcome of your thesis. All the best! Dr. Joyce Gyamfi

Appendix C: Gantt Chart

Project	2021		2022								
	NOV	DEC	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT
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 D: Participant Information Sheet and Informed Consent Form

PARTICIPATION INFORMATION SHEET

1. Title of study:

Knowledge and Awareness regarding Hypertension among Nurses in Serdang Hospital, Selangor, Malaysia.

2. Name of Investigator and Institution:

- a) Nadhirah Binti Mohamad Azhar, Faculty of Medicine and Health Sciences
Universiti Putra Malaysia (UPM).
- b) Professor Dr. Soh Kim Lam (Supervisor), Faculty of Medicine and Health
Sciences Universiti Putra Malaysia (UPM).
- c) Dr Huzwah Khaza'ai (Co-supervisor), Faculty of Medicine and Health
Sciences, Universiti Putra Malaysia (UPM).

3. Name of sponsor: Self-sponsor

4. Introduction

The rate of cardiovascular disease remains higher despite advances in treatment and technology. Thus, hypertension becomes a hot topic to be discussed. The increase in cases also increased the prevalence of mortality and morbidity which is a big challenge for the healthcare workers. However, healthcare workers also are one of the contributors to the cases of hypertension. Therefore, this study aims to assess the knowledge and awareness regarding hypertension among nurses.

You are invited to participate in a research study because you have criteria for this study that requires your understanding of hypertension. The details of the research trial are described in this document. 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 researcher if anything is unclear or if you 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. To participate in this study, you may be required to provide your researcher with information on your health history, you may harm yourself if you are not truthful with the information provided.

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. Your refusal to participate or withdrawal will not affect any medical or health benefits to which you are otherwise entitled. If you decide to withdraw from the study midway, you could exit the site freely and no measures will be used to preserve the data you have filled in, thus all data will be destroyed. You will not be required to sign in to an account in order to fill in the survey.

5. What is the purpose of the study?

This study is conducted to study the knowledge and awareness regarding hypertension among nurses.

A total of 297 respondents like you will be participating in this study. The whole study will last about 10 months which is from November 2021 until September 2022. The data collection will last about 3 months which is from July 2022 until September 2022 and your participation will be about 10-15 minutes only.

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

You must answer all 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 instructions given to make sure the process is going well.

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

There is minimal risk from this study since this study only involve questionnaire. You may decline to answer any of the questions that you are uncomfortable with.

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

a. To you as the subject?

The information that you provided in this study is valuable and much appreciated. It has no direct benefits to the respondent, but the respondents will know their current level of knowledge and it will create awareness about the importance of hypertension screening among respondents. 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 and awareness of hypertension among nurses. The researcher is able to identify how much the knowledge will affect the awareness of hypertension and identify what is currently lacking in the awareness about hypertension among nurses. Besides, the findings from the study can suggest for any improvement to be done so that the nurses are able to gain the knowledge regarding hypertension and improve the quality of life by posing a positive practice toward the risk factor of hypertension.

9. Who is funding this research?

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

10. Can the research or my participation be terminated early?

The researcher can terminate this study and your participation anytime if not fulfill the inclusion criteria of participants. If this study ends early, you will be informed immediately.

11. Will my information be kept private?

Yes. All information obtained from this study will be kept and handled confidentially per applicable laws and/or regulations. Your identity will not be revealed without your

permission throughout the activities in this study include presentation and publication. Individuals involved in this study and in the subjects' medical care, qualified monitors and auditors, governmental or regulatory authorities may inspect the study data, where appropriate and necessary. The period of data collection will be ongoing for 3 months from the date the link is distributed to the hospital. After 12 months, the link will be disabled and no other personnel except the researchers will be able to access it.

12. 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

Nadhirah Binti Mohamad Azhar

Contact no.: +60134363710

Email: 197539@student.upm.edu.my

ii. Supervisor

Professor Dr. Soh Kim Lam

Contact no.: +603 9769 2429/2430

Email: sklam@upm.edu.my

iii. Co-Supervisor

Dr. Huzwah Khaza'ai

Contact no.: +603 9769 2436

Email: huzwah@upm.edu.my

13. If you have any questions about your rights as a participant in this study, please contact:

JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN

(MEDICAL RESEARCH & ETHICS COMMITTEE)

KEMENTERIAN KESIHATAN MALAYSIA

Kompleks Institut Kesihatan Negara (NIH),

No.1, Jalan Setia Murni U13/52,

Seksyen U13 Bandar Setia Alam,

40170 Shah Alam, Selangor.

No.Tel: 03-33628407/ 33628205/ 33628888

INFORMED CONSENT FORM

Title of Study:

Knowledge and Awareness regarding Hypertension among Nurses in Serdang
Hospital, Selangor, Malaysia.

By signing below, I confirm the following:

- I have been given oral and written information for the above study and have read and understood the information given.
- I have had sufficient time to consider participation in the study and have had the opportunity to ask questions and all my questions have been answered satisfactorily.
- I understand that my participation is voluntary, and I can at any time freely withdraw from the study without giving a reason and this will in no way affect my future treatment. I am not taking part in any other research study currently. I understand the risks and benefits, and I am free to give my informed consent to participate in the conditions stated. I understand that I must follow the study investigator's instructions related to my participation in the study.
- I understand that research staff, qualified monitors and auditors, the sponsor or its affiliates, and governmental or regulatory authorities, have direct access to my medical record 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 participation in this study.

☐ I am staff nurse who working for more than 12 months at Serdang Hospital and I agree

☐ I disagree

☐ I am on leave

☐ Retired but had not logged out of the registration system

Appendix E: Questionnaire



UNIVERSITI PUTRA MALAYSIA FACULTY OF MEDICINE AND HEALTH
SCIENCES

DEPARTMENT OF NURSING BACHELOR OF NURSING

RESEARCH TITLE:

KNOWLEDGE AND AWARENESS REGARDING HYPERTENSION AMONG
NURSES IN SERDANG HOSPITAL, SELANGOR, MALAYSIA.

A CROSS SECTIONAL STUDY

QUESTIONNAIRE

RESEARCHER: NADHIRAH BINTI MOHAMAD AZHAR (197539)

SUPERVISOR: PROFESSOR DR. SOH KIM LAM

CO-SUPERVISOR: DR. HUZWAH KHAZA'AI

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.

Part A: Socio-demographic information

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:

Male ☐

Female ☐

3. Ethnicity:

Malay ☐

Chinese ☐

Indian ☐

Others:.....

4. Level of education

Diploma ☐

Degree ☐

Master ☐

5. Year of working experience as a nurse

Part B: Knowledge regarding hypertension

Instruction:

This questionnaire is designed to assess your knowledge regarding hypertension.

Please choose the most appropriate answer and answer by circle in the column provided.

No	Questions	Response			
1.	If someone's blood pressure is 115/75, it is...	High	Low	Normal	Do not know
2.	If someone's blood pressure is 160/100, it is...	High	Low	Normal	Do not know
3.	Once someone has high blood pressure, it usually lasts for...	A few years	5-10 years	The rest of their life	Do not know
4.	People with high blood pressure should take their medicine	Everyday	At least a few times a week	Only when they feel sick	Do not know
5.	Losing weight usually makes blood pressure...	Go up	Go down	Stay the same	Do not know
6	Eating less salt usually makes blood pressure	Go up	Go down	Stay the same	Do not know
7.	High blood pressure can cause cancer	Yes	No	Do not know	
8.	High blood pressure can cause kidney problems	Yes	No	Do not know	
9.	High blood pressure can cause diabetes	Yes	No	Do not know	
10.	Moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure	Yes	No	Do not know	
11	Smoking a pack of cigarettes per day will not affect a person's risk of hypertension	Yes	No	Do not know	
12	High blood pressure cannot be	Yes	No	Do not	

	cured			know	
13.	A hypertensive individual should strive for a normal blood pressure of 120/80	Yes	No	Do not know	

Part C: Awareness regarding hypertension

Instruction:

This questionnaire is designed to assess your awareness regarding hypertension. Please choose the most appropriate answer and answer by tick (✓) in the column provided.

No.	Questions	Yes	No
1.	Knowing about having hypertension		
2.	Knowing blood pressure values in diagnosing as hypertension		
3.	Knowing the values of target personal blood pressure		
4.	Knowing that hypertension can be controlled		
5.	Knowing values of recent blood pressure		
6.	Aware that hypertension is incurable disease		

THE END

Thank you for your cooperation.

Appendix F: MREC Approval (Bahasa Melayu)



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, Dandar Setia Alam,
40170 Shah Alam, Selangor.



Tel: 03-3362 888/8205

Ruj.kami: 22-01195-5HX (1)
Tarikh : 29-Julai-2022

NADHIRAH BINTI MOHAMAD AZHAR
UNIVERSITI PUTRA MALAYSIA

Dato'/ Tuan/ Puan,

SURAT KELULUSAN ETIKA: NMRR ID-22-01195-5HX (IIR)
Knowledge and Awareness Regarding Hypertension among Nurses in
Serdang Hospital, Selangor, Malaysia.

Dengan hormatnya perkara di atas adalah dirujuk.

2. Bersama dengan surat ini dilampirkan surat kelulusan saintifik dan etika bagi projek ini. Segala rekod dan data subjek adalah SULIT dan hanya digunakan untuk tujuan kajian dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi. Kebenaran daripada Pengarah Hospital / Institusi di mana kajian akan dijalankan mesti diperolehi terlebih dahulu sebelum kajian dijalankan. Dato' / Tuan / Puan perlu akur dan mematuhi keputusan tersebut dan undang-undang lain yang berkaitan.
3. Penyelidik- penyelidik dan lokasi kajian yang terlibat ialah:

HOSPITAL SERDANG
Nadhirah Binti Mohamad
Azhar (Penyelidik Utama) Prof.
Dr. Soh Kim Lam
Dr. Huzwah Khaza'ai

Adalah dimaklumkan bahawa kelulusan ini adalah sah sehingga **28-Julai-2023**. Tuan/Puan perlu menghantar dokumen-dokumen seperti berikut selepas mendapat kelulusan etika. Borang-borang berkaitan boleh dimuat turun daripada laman web *National Medical Research Registry (NMRR)*.

- I. **Continuing Review Form** selewat-lewatnya dalam tempoh 2 bulan (60 hari) sebelum tamat tempoh kelulusan ini bagi memperbaharui kelulusan etika.
- II. **Study Final Report** pada penghujung kajian.
- III. Mendapat kelulusan etika sekiranya terdapat pindaan ke atas sebarang dokumen kajian / lokasi kajian / penyelidik. Pihak JEPP mempunyai hak untuk menarik

balik kelulusan etika sekiranya terdapat perubahan dokumen kajian yang tidak diisytiharkan.

4. Kajian tersebut hanya melibatkan pengumpulan data melalui:

I. Soal selidik dalam talian

5. Sila ambil maklum bahawa sebarang urusan surat-menyurat berkaitan dengan penyelidikan ini haruslah dinyatakan **nombor rujukan surat** ini untuk melicinkan urusan yang berkaitan.

Sekian terima kasih.

Komen (Jika ada): **NIL**



Appendix G: MREC Approval (English)



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, Dandar Setia Alam,
40170 Shah Alam, Selangor.



Tel: 03-3362 888/8205

Ruj.kami: 22-01195-5HX (1)

Tarikh : 29-Julai-2022

**NADHIRAH BINTI MOHAMAD AZHAR
UNIVERSITI PUTRA MALAYSIA**

Dear Sir/ Mdm,

ETHICS INITIAL APPROVAL: NMRR ID-22-01195-5HX (IIR)

**Knowledge and Awareness Regarding Hypertension among Nurses in
Serdang Hospital, 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

Nadhirah Binti Mohamad Azhar
(Principal Investigator) Prof. Dr. Soh
Kim Lam
Dr. Huzwah Khaza'ai

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 05, dated 29-Jun-2022
2. Patient Information Sheet & Informed Consent Form (Eng)_Version 03, dated 25-Jun-2022
3. Questionnaire_Version 02, dated 23-Jun-2022
4. Investigator's documents : Declaration of Conflict of Interest (COI), IA-HOD-IA, and CV:
 - a) Nadhirah Binti Mohamad Azhar (Principal Investigator)
 - b) Prof. Dr. Soh Kim Lam

5. Please note that ethical approval is valid until **28-July-2023**. The following are to be reported upon receiving ethical approval. Required forms can be obtained from the National Medical Research Registry (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 I: Approval from Matron Serdang Hospital



FAKULTI PERUBATAN DAN SAINS KESIHATAN FACULTY OF MEDICINE AND HEALTH SCIENCES

Rujukan kami:
UPM/FPSK.JNUR/4/12/2

Tarikh : 04 OGOS 2022

MATRON NOR LIDA BINTI MOHD DAUD

Ketua Jabatan
Unit Kejururawatan
Hospital Serdang.

PERMOHONAN KEBENARAN MELIBATKAN JURURAWAT HOSPITAL SERDANG DALAM PENYELIDIKAN

Dengan hormatnya saya merujuk kepada perkara tersebut di atas.

2. Saya perlu melibatkan jururawat Hospital Serdang untuk aktiviti penyelidikan yang bertajuk, **NMRR-ID-22-01195-5HX, Knowledge and Awareness Regarding Hypertension among Nurses in Serdang Hospital, Selangor, Malaysia.** Penyelidikan ini telah diluluskan oleh Jawatankuasa Etika Penyelidikan Perubatan JEPP (*Medical Research Ethics Committee MREC*). Bersama- sama ini disertakan surat kebenaran MREC dan CRC (Lampiran 1) dan kertas kajian (*research protocol*) / makluman ringkas projek (Lampiran 2).
3. Aktiviti penyelidikan yang akan dijalankan adalah seperti berikut:
 - a. Mengumpul data untuk penyelidikan dalam kalangan jururawat yang memenuhi syarat penyelidikan dengan menggunakan borang kaji selidik .
 - b. Borang kaji selidik yang lengkap akan diberikan kepada responden melalui *Google form* dan proses ini akan mengambil masa selama 10 hingga 15 minit.

Kerjasama, pertimbangan dan kelulusan Matron amatlah dihargai. Sekian, terima kasih.

Saya yang menurut perintah,

.....
(Nadhirah Binti Mohamad Azhar)
Pelajar Tahun Akhir Bachelo
Kejururawatan, Jabatan
Kejururawatan,
Universiti Putra
MalaysiaKejururawatan,
No. Tel: 0134362710
Email: [:nadhrhhh99@gmail.com](mailto:nadhrhhh99@gmail.com)



s.k.

Ketua Jabatan Kejururawatan, UPM

Ketua Jabatan Anaesthesia dan Rawatan Rapi, Hospital Serdang

Ketua Jabatan Anaestologi Kardiotorasik & Perfusi, Hospital Serdang

Ketua Jabatan Bedah Mulut dan Maksilofasial, Hospital Serdang

Ketua Jabatan Kardiologi, Hospital Serdang

Ketua Jabatan kardiotorasik, Hospital Serdang

Ketua Jabatan Nefrologi, Hospital Serdang

Ketua Jabatan Obstetrik & Ginekologi, Hospital Serdang

Ketua Jabatan Oftalmologi, Hospital Serdang

Ketua Jabatan Ortopedik, Hospital Serdang

Ketua Jabatan Otorinolaringologi, Hospital Serdang

Ketua Jabatan Pembedahan Am, Hospital Serdang

Ketua Jabatan Perubatan Am, Hospital Serdang

Ketua Jabatan Perubatan Rehabilitasi, Hospital Serdang

Protokol (*full protocol*)

Ringkasan Projek Penyelidikan

Tajuk Penyelidikan:

Knowledge and Awareness Regarding Hypertension among Nurses in Serdang Hospital, Selangor, Malaysia.

Nama dan Jabatan Ketua Penyelidik:

Nadhirah Binti Mohamad Azhar, Pelajar Bacelor Kejururawatan, Jabatan Kejururawatan,
Fakulti Perubatan dan Sains Kesihatan, Universiti Putra Malaysia.

Nombor pendaftaran NMRR: NMRR ID-22-01195-5HX (IIR)

Rujukan kelulusan MREC: 22-01195-5HX

Tarikh mula penyelidikan: 3 Ogos 2022

Tarikh tamat penyelidikan: 30 Jun 2023

Objektif penyelidikan:

Tujuan penyelidikan ini dilakukan adalah untuk mengetahui pengetahuan dan kesedaran mengenai Hipertensi dalam kalangan jururawat di Hospital Awam, Selangor.

Ringkasan metodologi penyelidikan:

Kajian ini adalah kajian berbentuk kajian rentas silang. Oleh itu, setiap peserta akan menerima satu set soal selidik melalui Google Form yang terdiri daripada tiga

bahagian iaitu bahagian maklumat sosio-demografik, maklumat pengetahuan mengenai hipertensi dan maklumat kesedaran mengenai hipertensi. Semua peserta dikehendaki untuk menjawab semua soalan yang terdapat dalam setiap bahagian. Ia akan mengambil masa selama 10 hingga 15 minit. Penyertaan peserta dalam kaji selidik ini adalah secara sukarela dan mereka berhak untuk menarik diri daripada kajian ini pada bila-bila masa.



LAMPIRAN 3

Jabatan	Fasiliti
Jabatan Anaesthesia dan Rawatan Rapi	Unit Rawatan Rapi (ICU), Dewan Bedah, Unit Rawatan Harian
Jabatan Anaestologi Kardiotorasik & Perfusi	Unit Rawatan Intensif Kardiotorasik (CICU)
Jabatan bedah mulut dan maksilofasial	Wad 6A, Klinik Pembedahan mulut
Jabatan Kardiologi	Wad 6E, Klinik Kardiologi, Unit Rawatan Jantung (CCU), Cardiology High Dependency Ward (CHDW)
Jabatan Kardiostatik	Wad 6F, Klinik Kardiostatik
Jabatan Kecemasan & Trauma	Jabatan Kecemasan & Trauma
Jabatan Nefrologi	Wad 7A, Klinik Nefrologi & Urologi, Unit Hemodialisis
Jabatan Obstetrik & Ginekologi	Wad 5E, Wad 5F, Dewan Bersalin, klinik Obstetrik & Ginekologi
Jabatan Oftalmologi	Wad 6A, klinik Oftalmologi
Jabatan Ortopedik	Wad 7E, Wad 7F, Klinik Ortopedik
Jabatan Otorinolaringologi	Wad 6A, Klinik Otorinolaringologi
Jabatan Pembedahan Am	Wad 6B, Wad 6C, Klinik Pembedahan
Jabatan Perubatan Am	Wad 7B, Wad 7C, Wad 7D, Wad 8B, Wad 8C, klinik Perubatan, klinik Dermatologi
Jabatan Perubatan Rehabilitasi	Jabatan Rehabilitasi

**MAKLUMBALAS PERMOHONAN KEBENARAN PENGGUNAAN HOSPITAL
SERDANG UNTUK MENJALANKAN PENYELIDIKAN**

Tajuk Penyelidikan :

**Knowledge and Awareness Regarding Hypertension among Nurses in
Serdang Hospital, Selangor, Malaysia.**

Nama dan Jabatan Ketua Penyelidik :

**Nadhirah Binti Mohamad Azhar, Pelajar Bacelor Kejururawatan, Jabatan
Kejururawatan, Fakulti Perubatan dan Sains Kesihatan, Universiti Putra
Malaysia.**

Pihak hospital/institusi dengan ini membuat keputusan seperti berikut : -

☐

Membenarkan projek penyelidikan dijalankan

☐

Tidak membenarkan projek penyelidikan dijalankan

“BERKHIDMAT UNTUK NEGARA”

Saya yang menurut perintah

.....
(Matron Nor Lida Binti Mohd Daud)
Ketua Jabatan Unit Kejururawatan
Hospital Serdang,
Selangor.

.....
(Y. BRS. DR. MD. FIKRI BIN ABU BAKAR)
Pengarah,
Hospital Serdang,
Selangor.

Appendix J: Turnitin

197539_Nadhirah

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