# KNOWLEDGE & AWARENESS REGARDING PREVENTION OF CARDIOVASCULAR DISEASE AMONG MEDICAL AND NURSING STUDENTS IN UNIVERSITI SAINS MALAYSIA (USM).

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# CERTIFICATE

This is to certify that the dissertation entitled "KNOWLEDGE & AWARENESS REGARDING PREVENTION OF CARDIOVASCULAR DISEASE AMONG MEDICAL AND NURSING STUDENTS IN UNIVERSITI SAINS MALAYSIA" is the bona fide record of research work done by Ms. "Nur Aisyah Binti Mishardy" during the period from October 2021 to July 2022 under my supervision. I have read this dissertation, and in my opinion, it confirms to accept standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the degree of Bachelor of Nursing (Honours).

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# DECLARATION

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

……

Nur Aisyah Binti Mishardy

Date:11/08/2022

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# TABLE OF CONTENT

# LIST OF TABLES

# LIST OF FIGURES

# PENGETAHUAN & KESEDARAN BERKAITAN PENCEGAHAN PENYAKIT KARDIOVASKULAR DALAM KALANGAN PELAJAR PERUBATAN DAN KEJURURAWATAN DI UNIVERSITI SAINS MALAYSIA (USM).


## ABSTRAK

Penyakit Kardiovaskular (CVD) adalah salah satu penyakit serius yang boleh menyebabkan kematian yang tinggi setiap tahun di seluruh dunia (World Health Organization, 2014). Sejak urbanisasi berkembang dari tahun ke tahun, peningkatan CVD di kalangan golongan muda dan faktor risikonya telah menjadi kebimbangan serius di banyak negara termasuk Malaysia. Penyelidikan ini bertujuan untuk mengetahui pengetahuan dan kesedaran tentang pencegahan CVD dalam kalangan pelajar perubatan dan kejururawatan di Universiti Sains Malaysia yang difokuskan pengkaji di antara umur 18 hingga 25 tahun dan mengenal pasti perkaitan antara tahap pengetahuan dan sosiodemografi dalam kalangan perubatan. dan pelajar kejururawatan di Universiti Sains Malaysia. Kajian reka bentuk keratan rentas digunakan dalam kajian ini. Seramai 304 orang pelajar yang mana min keseluruhannya ialah 21.76. Purata umur pelajar perubatan dan kejururawatan yang menyertai kajian ini ialah 21.76 tahun. Jantina majoriti yang mengambil bahagian dalam kajian ini adalah perempuan dengan peratusan 81.3% (n=247) manakala peratusan bagi lelaki ialah 18.8% (n=57). Sejumlah 45.1% pelajar perubatan dan kejururawatan majoriti menyedari bahawa aktiviti fizikal boleh mengurangkan risiko CVD (n=137). Terdapat perkaitan yang signifikan antara tahap pengetahuan CVD dengan jantina (p=0.014) dan sumber maklumat (p=0.000). Jika tidak, faktor sosiodemografi lain tidak mempunyai perkaitan yang signifikan. Kesimpulannya, pendidikan kesihatan keberkesanan yang diberikan kepada pesakit secara perlahan-lahan akan meningkatkan kesedaran mereka dan diterapkan dalam kehidupan seharian.

# KNOWLEDGE & AWARENESS REGARDING PREVENTION OF CARDIOVASCULAR DISEASE AMONG MEDICAL AND NURSING STUDENTS IN UNIVERSITI SAINS MALAYSIA (USM).


## ABSTRACT

The Cardiovascular disease (CVD) is one of serious illness that can cause high mortality every year in worldwide (World Health Organization, 2014). Since the urbanization developed years by years, the increment of CVD among young people and its risk factors had become a serious concern in many countries including Malaysia. The aim of this research is to determine the knowledge and awareness on prevention of CVD among medical and nursing students in Universiti Sains Malaysia which the researcher focused between aged 18 to 25 and to identify the association between the level of knowledge and socio-demographic among medical and nursing students in Universiti Sains Malaysia. Cross-sectional designed research was used in this study. A total of 304 students which overall mean was 21.76. Mean age of medical and nursing students that participated in this study was 21.76 years. The majority gender that participated in this study was female with percentage 81.3% (n=247) while percentage for male was 18.8% (n=57). A total of 45.1% medical and nursing students were majority aware that physical activity can reduce the risk of CVD (n=137). There is significant association between level of knowledge of CVD with gender (p=0.014) and source of information (p=0.000). Otherwise, other factors of sociodemographic have no significant association. In conclusion, an effectiveness health education given towards patients will slowly improve their awareness and applied to daily living.

# CHAPTER 1: INTRODUCTION

## 1.1 Introduction

The purpose of this study was to assess young people awareness and knowledge about cardiovascular disease (CVD) prevention. The study's background, problem statement, research aims, research questions, research hypothesis, importance of the study, and definitions of conceptual and operational terminology are all covered in Chapter 1.

## 1.2 Background of Study

The Cardiovascular diseases (CVD) is one of serious illness that can cause high mortality every year in worldwide (World Health Organization, 2014). CVD is a disorder that affect the heart and blood vessels such as coronary heart disease, cerebrovascular disease, deep vein thrombosis and pulmonary embolism and other heart diseases (World Health Organization, 2014). Based on study written by Kumar (2017), the World Health Organization (WHO) developed a mortality statistic caused by CVD which the deaths involved seventeen million yearly. Not just that, the number of deaths was predicted to increase up to twenty-three million by the end of 2030 (Kumar, 2017). As stated in Centers for Disease Control and Prevention (2019), the most common type of heart disease that killed almost 360,900 people was coronary heart disease (CHD) in 2019. Adult population with aged 20 and above (18.2 million) suffered with coronary artery disease (CAD) (Fryar et al., 2012). Moreover, in the United States, one out of every 19 deaths were due to a stroke which causing 147,810 deaths in 2018 (American Heart Association, 2021). Estimated 3% of males and 2% of females reported being impaired because of a stroke (American Heart Association, 2021). Stroke also known as cerebrovascular disease which caused the deaths of 6.6 million people globally.

Furthermore, it divided by three types followed by the number of deaths such as ischemic stroke (3.3 million deaths), intracerebral hemorrhage (2.9 million deaths) and subarachnoid hemorrhage (0.4 million deaths) (American Heart Association, 2021). The third common heart disease is heart failure (HF). As reported by Emory Healthcare (2019), 5 million Americans citizen lived with congestive heart failure (CHF) and estimated 550,000 cases were detected in United States. Heart failure is responsible for over 287,000 fatalities per year (Emory Healthcare, 2019).

According to the Ankara (2009), chronic disease took the lives approximately 33.4 million of the 57 million people who die each year in the world. In Global Death Causes for 2005, 17.5 million individuals died from cardiovascular illnesses, accounting for 30 percent of all fatalities worldwide (World Health Organization, 2006). The Figure 1.0 showed the Distribution of Global Death Causes.

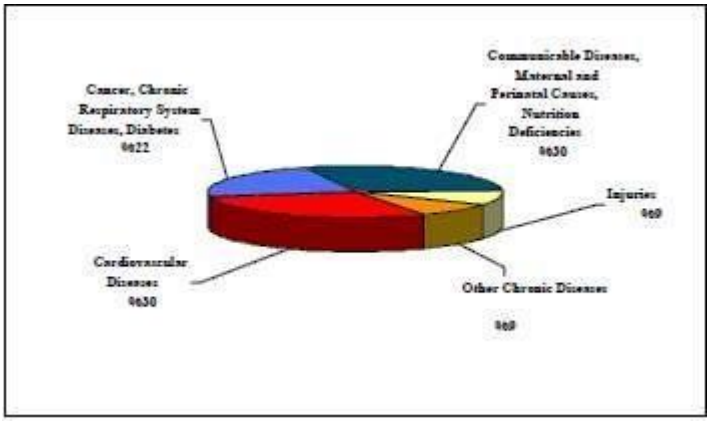



***Figure 1.0:*** *Distribution of Global Death Causes adapted from World Health Organization. (2006). Distribution of Global Death Causes [Picture]. PREVENTION AND CONTROL PROGRAM FOR CARDIOVASCULAR DISEASES. http://whqlibdoc.who.int/publications/2006/9241563214_eng.pdf.*

Based on study conducted by ÜNÜVAR et al, (2006), the number of deaths in 2000 according to the Causes of Diseases, the mortality because of cardiovascular diseases

was 205.457 (47.7%). In Figure 1.1 shows the highest number of deaths which caused by cardiovascular disease in Turkey (ÜNÜVAR et al, 2006).

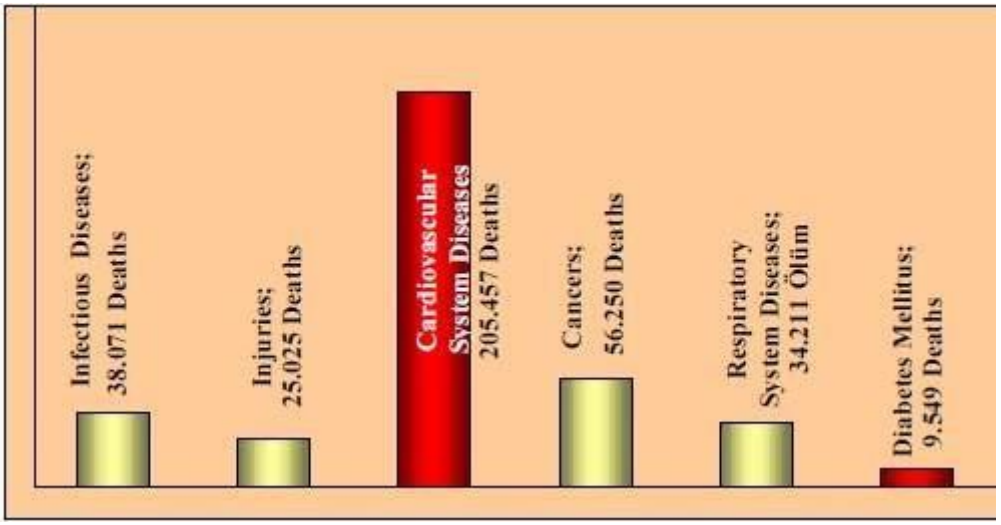



***Figure 1.1:*** *Distribution of Death Numbers for 2000 by the Causes of Deaths adapted from ÜNÜVAR, P. D. N., MOLLAHALİLOĞLU, D. S., YARDIM, U. D. N., BORA BAŞARA, D. B., DİRİMEŞE, U. D. V., ÖZKAN, U. D. E., & VAROL, D. Ö. (2006). [Picture]. Turkey Burden of Disease Study. https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/200704061342050_NBDing.pdfWorld*

A statistic carried out by National Household Research 2003 (2004) regarding distributions of several diagnosis related to cardiovascular diseases by aged 18 years old and above. Angina pectoris or chest discomfort was diagnosed in 5.56 percent which for men was 5.36 percent and women, 5.73 percent (National Household Research 2003, 2004). Hypertension was diagnosed in 13.67 percent (men 7.57 percent, women 18.25 percent), while stroke or paralysis was diagnosed in 1.68 percent (men 1.52 percent, women 1.80 percent) by a physician according to National Household Research 2003 (2004).

In a study, Indrawati (2014) found that the rising number of people suffering from coronary heart disease year after year is attributable to a lack of public awareness about

risk factors for the illness and a lack of efforts to prevent it. Furthermore, it is thought that having enough awareness of CHD through health education is a crucial necessity for maintaining a healthy lifestyle in the prevention of CHD (Bellman et al., 2009; Dona et al., 2004). Knowledge about the disease's aids in a more accurate understanding of the condition and enhances commitment to a healthy lifestyle in the prevention of CHD. As a conclusion, understanding the condition can aid in the prevention of the disease (Mosca et al., 2006).

In a research, Centers for Disease Control and Prevention (2008) stated that chances of surviving a heart attack are entirely dependent on those who are suffering a heart attack recognizing the warning signs and symptoms of a heart attack as soon as possible. Moreover, Fang et al, (2019) had the same thoughts where prevention of mortality caused by heart attack can be developed by enhancing early intervention. The findings of 2005 Behavioral Risk Factor Surveillance System showed that, while awareness of some individual warning signs was as high as 93% for shortness of breath, awareness of all five warning signs was only 31%, emphasizing the need for public health measures to raise public awareness of heart attack warning signs and symptoms.

Meanwhile, CVD also being a main cause of deaths in Malaysia (Khoo, 1997). The mortality rate for male caused by coronary heart disease (CHD) was 19.3% equivalent to 12,412 people (Ibrahim et al., 2015). For women, the mortality rate in 2006 by reason of CVD was 26.1% which there was an increment of mortality rate compared in 2005, 25.4% (Rosediani et al., 2014). According to *Primary & Secondary Prevention of Cardiovascular Disease* (2017), the organization carried out the prevalence study regarding the risk of CVD towards obesity among young people. The proportion of male population (≥ 18) in Kuala Lumpur was 63.6% while in female population (≥ 18) was 64.5%. Besides, the rate of men population who had hypertension was 30.8% while

women population was 29.7%. For prevalence of diabetes mellitus among men and women was 16.7% and 18.3% respectively in Malaysia (*Primary & Secondary Prevention of Cardiovascular Disease,* 2017).

## 1.3 Problem Statement

Since the urbanization developed years by years, the increment of CVD among young people and its risk factors had become a serious concern in many countries including Malaysia (Institute of Medicine, 2010). According to Gaziano et al. (2010), to overcome the increasing numbers of prevalence regarding CVD, it is important to promote the awareness of CVD and its risk factors among young people.

The death among women due to CVD was nearly doubled since 1997 (Mosca et al., 2010). Heart disease and stroke continue to kill American women at a pace unmatched by any other disease (American Heart Association, 2009). Recent research has found a link between knowing that CVD is the greatest cause of death in women and taking recent steps to lower CVD risk (Mosca et al., 2006). The researcher came out with the study which related to awareness of CVD prevention to evaluate the knowledge and develop early prevention among young people (Mosca et al., 2010). Several condition such as hyperlipidemia, hypertension and diabetes in young adults raise the risk of heart disease later in life (Bulcholz et al., 2018). Considering the emphasis on early screening, little is known regarding young adult knowledge of awareness related to the risk factors (Bulcholz et al., 2018). As a result, there was no improvement regarding the awareness on prevention of CVD (Bulcholz et al., 2018). Furthermore, although public awareness initiatives typically focus on stroke symptom detection, people who properly recognize stroke symptoms may not always seek medical assistance right away (Wall et al., 2008; Rasura et al., 2014). These efforts had quite a limited impact in the past (Lecouturier et al., 2010). One explanation might be a lack of understanding of treatment alternatives

and the purpose of an emergency room visit (Faiz et al., 2018).

A significant incidence of cardiovascular disease risk factors had been found among young people (aged 18-45 years) (Andersson & Vasan, 2017). Younger population had a higher incidence of being overweight or obese, smoking activity and poor diet intake which has resulted in a poor cardiovascular risk profile (Andersson & Vasan, 2017). The condition of cardiovascular such as acute myocardial infarction (AMI) and heart attack were increased in 20s and early 30s (Guo et al., 2017; Cardiac Metabolic Institute, n.d.). The aim of this research is to determine the knowledge and awareness on prevention of CVD among medical and nursing students which the researcher focused between aged 18 to 25 and to identify the association between the level of knowledge and socio-demographic among medical and nursing students in Universiti Sains Malaysia. As stated by Güneş et al, (2019), individuals' awareness towards CVD impact not just their reactions to the illnesses, but also the effectiveness of risk-prevention strategies. Moreover, a study conducted by The Lancet (2002) declared that there were three priorities need to be tackled consists of` identifying the risk of CVD, creating the preventive strategies as well as acknowledge and address problems relating to CVD prevention. Likewise, prevention was clarified as an effective management of CVD when the multidisciplinary team such as physicians, nurses participated in CVD risk reduction programs (Fuster & Kelly, 2010; Hill & Mensah, 2011). In addition, a study mentioned that medical students need to improve their awareness on prevention of cardiovascular disease for health education purposes (Maksimović et al., 2017). According to Badir et al. (2014), nursing students had lack of awareness regarding cardiovascular disease in terms of risk factors and prevention.

## 1.4 Research Question

i. What is the level of knowledge regarding cardiovascular disease among medical and nursing students in Universiti Sains Malaysia (USM)?

ii. What is the level of awareness regarding prevention of cardiovascular disease among medical and nursing students in Universiti Sains Malaysia (USM)?

iii. Is there any association between level of knowledge and socio demographic factors (gender, family history, socio-economic status, physical activity, nutritional status and source of information) regarding prevention of cardiovascular disease among medical and nursing students in Universiti Sains Malaysia?

## 1.5 Research Objective

### 1.5.1 General Objective

To determine the level of knowledge and awareness regarding prevention of cardiovascular disease among medical and nursing students in Universiti Sains Malaysia (USM).

### 1.5.2 Specific Objective

i. To identify the level of knowledge regarding cardiovascular disease among medical and nursing students in Universiti Sains Malaysia (USM).

ii. To identify the level of awareness regarding prevention of cardiovascular disease among medical and nursing students in Universiti Sains Malaysia (USM).

iii. To determine the association of level of knowledge and socio demographic factors (gender, family history, socio-economic status, physical activity, nutritional status and source of information) regarding prevention of cardiovascular disease among medical and nursing students in Universiti Sains Malaysia.

## 1.6 Hypothesis

Null Hypothesis: There was no association between level of knowledge and socio demographic factors (gender, family history, socio-economic status, physical activity, nutritional status and source of information) regarding prevention of cardiovascular disease among medical and nursing students in Universiti Sains Malaysia.

Alternative Hypothesis: There was association between level of knowledge and socio demographic factors (gender, family history, socio-economic status, physical activity, nutritional status and source of information) regarding prevention of cardiovascular disease among medical and nursing students in Universiti Sains Malaysia.

## 1.7 Conceptual and Operational Definitions

| Term | Conceptual | Operational |
|---|---|---|
| Cardiovascular Disease (CVD) | Cardiovascular disease was a group of illnesses affecting the heart and blood vessels (veins and arteries). High blood pressure, high cholesterol, diabetes, air pollution, obesity and cigarette use were some of the risk factors. The risk of cardiovascular disease was also influenced by a person's family history, ethnic origin, sex, and age (World Heart Federation, 2021). | In this study, the researcher included the socio-demographic (gender, family history, socio-economic status, physical activity, fat consumption and source of information) through a questionnaire in part A to assess the level of awareness related to CVD. |

| | | |
|---|---|---|
| Knowledge | Knowledge is defined as understanding and abilities acquired via education or experience. Besides, it also a state of knowing about a specified fact or situation (Oxford Learner's Dictionaries, 2022). | In this study, the level of knowledge regarding CVD was assessed among medical and nursing students in Universiti Sains Malaysia. |
| Awareness | Awareness was being aware as an attribute or condition or knowledge and acceptance of the fact that something was occurring or existing (Merriam-Webster, 2021). | In this study, level of awareness towards CVD was assessed among medical and nursing students in Universiti Sains Malaysia. |
| Medical and Nursing students | Medical student was a person pursuing a course of study that will lead to certification as a Doctor of Medicine (Collins Dictionary, 2022).<br><br>Nursing student was a person enrolled in a professional nursing or vocational nursing education programme (Nursing Student Definition, 2022) | In this study, medical and nursing students between aged of 18 to 25 were selected to contribute in a research about the knowledge and awareness regarding prevention of cardiovascular disease in Universiti Sains Malaysia. |

## 1.8 Significance of Study

This research was necessary to assess the awareness on prevention of cardiovascular disease among medical and nursing students. Furthermore, this study was carried out to determine the association of awareness on prevention of cardiovascular disease and socio-demographic factors (gender, family history, socio-economic status, and source of information) among medical and nursing students.

Moreover, this study was developed the alertness among medical and nursing students towards the knowledge on prevention of cardiovascular disease such as sign symptoms, risk

factors as well as prevention. Besides, this research was improved healthy lifestyles to reduce the numbers of patients diagnosed with cardiovascular disease in communities and in country as well. Hence, the mortality rate caused by cardiovascular disease was decreased years by years.

In addition, this research was capable to increase the awareness towards prevention strategies among medical and nursing students in University Science Malaysia (USM) (McFall et al., 2009).

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

This chapter explained the current research on awareness regarding the prevention of CVD, as well as the interaction between the awareness and level of knowledge on prevention of CVD. Furthermore, this chapter would go over through the conceptual framework that was employed in this research.

## 2.2 Knowledge regarding cardiovascular disease

Based on research related to CVD, Bhattarai & Neupane (2018) stated that Nepalese community had poor knowledge regarding the prevention of coronary heart disease (CAD). However, they concluded the communities were supposed aware of the risk factors for coronary artery disease through awareness initiatives (Bhattarai & Neupane, 2018). Greater awareness of CHD risk factors aided individuals in accurately assessed their own risk, inspired them to seek out preventive measures, and had been linked to improved action to reduce risks (Ammouri et al., 2016). In the research conducted by Bhattarai & Neupane (2018), the data stated that nearly a quarter (22.5%) of the respondents had great knowledge, while a third (32.6%) had inadequate knowledge. It explained that the Nepalese community had low level of awareness regarding the prevention of CVD because of there was poor exposure related to

preventive programs. In Finland, the establishment of preventative programmes resulted in a 70% reduction in the incidence of circulatory system disorders. We inferred from this study that preventative initiatives made a significant difference in the treatment of cardiovascular illnesses (Bhattarai & Neupane, 2018).

In research conducted in the Village of Timpang, Tabanan Regency, Bali showed that the rising number of patients with CHD was having an influence mostly on death rates but also on health-care demands (Suarningsih & Suindrayasa, 2020). In this study conducted by Suaningsih & Suindrayasa (2020), a total of 60 respondents from the community of persons who had not been diagnosed with coronary heart disease (CHD) were gathered for this study using Cluster Random Sampling. The researcher described that these populations were dearth of public awareness regarding the risk factors for coronary heart disease, as well as attempted to prevent it. Total score for good awareness and knowledge of CHD risk factors was recorded only 44.7% (127) (Suarningsih & Suindrayasa, 2020). In an overall result, these populations were lack in receiving an education regarding to diet, exercise, and impacts of heart disease. As Mosca et al, (2006) mentioned that knowledge about the illness helped in providing accurate understanding of the condition and enhanced commitment to a healthy lifestyle which led to improvement regarding the prevention of CHD.

## 2.3 Awareness regarding prevention of cardiovascular disease

Prevention described as an aware which characterized by excellent hygiene, sanitation, and vaccinations that helped to avoid diseases (Prevention United, 2020). They also understood that quitting smoking, eating a healthy diet, and exercising frequently can minimized their risk of getting diabetes or suffering a heart attack or stroke (Prevention United, 2020). People helped maintain their blood pressure,

cholesterol, and blood sugar levels normal and minimized their risk of heart disease and heart attack by leading a healthy lifestyle which worked as a preventive strategy (Centers for disease Control and Prevention, 2020).

Prevention was important among medical and nursing students as the good awareness would enhance the young population create interventions to obtain a heart-healthy lifestyle (Natarajan et al., 2020). As stated by Alotaibi et al, (2018), preventive efficiency depends on the medical and nursing students' awareness either high or low, symptoms and risk factors. As reported by Cheong et al, (2017) in a study, health checks enhanced the prevention of CVD. People aged 18 to 22 years old were at risk in cardiovascular disease and should had screening to prevent (The Royal Australian College of General Practitioners, 2021). According to Forster et al, (2016), health checks were a cornerstone of the primary care preventative approach for identifying people at high risk of CVD and initiating early intervention. However, health checkups were still inadequate in Malaysia, with rates ranging from 20% to 40% (Institute for Public Health, 2011).

## 2.4 Sociodemographic factors influence level of knowledge

Socio demographic such as gender, age, family history and educational level were used in identifying the correlation between awareness on prevention regarding the cardiovascular disease and socio-demographic (Pandey & Khadka, 2012). The researcher found that there was difference level of awareness of between male and females. Female population had higher prevalence of awareness compared to male (Abdul-Razak et al., 2016).

Moreover, in Korea and Iran, the knowledge of CVD was higher in females compared to male (Timmer et al., 1985; Potvin & Richard, 2000). In Gombak, Kuala

Lumpur, a study found out that female respondents also had higher knowledge on the risk factors of CVD (Othman et al., 2020). However, a study stated that male population (65.7%) had higher knowledge compared to female population (50.2%) because males typically had greater access to education, interaction, and socialization than females. (Pandey & Khadka, 2012).

### Socio economic status

A total of 306 respondents (75.6%) had a knowledge that daily physical exercise can be considered as relevant heart disease prevention (Pandey & Khadka, 2012). A study conducted in Kuwait stated that 42.5 % respondents (n=45) performed an exercise more than 5 times in a week for 30 minutes while 40.3% respondents (n=241) performed an exercise 0-2 times in a week for 30 minutes (Awad & Al-Nafisi, 2014). It showed that Kuwaiti population had lower knowledge regarding physical activity which can reduce the incidence of heart attack and stroke (Awad & Al-Nafisi, 2014).

### Nutritional Status

In Turkey, a study conducted among university students showed that 40.4% of boys' respondents (n=483) and 44.0% of girls' respondents (n=552) had family history of CVD (Güneş et al., 2019). A study stated that young people who had family history of CVD may have the awareness related to CVD (Vanhecke et al., 2006). As an author of a study stated that family history of CVD can be a baseline for young people related to early prevention of CVD (Hunt et al., 1986).

The study conducted by OHalloran & Slattery (2017) showed the percentage of respondents with sources of knowledge. The patients who are receiving the CVD's information through family was 38%, by surfing internets was 27% while through friends and other health professionals was 15% and 8% respectively (OHalloran & Slattery, 2017). Furthermore, adequate knowledge regarding the awareness on prevention could be received through televisions which act as a source of information.

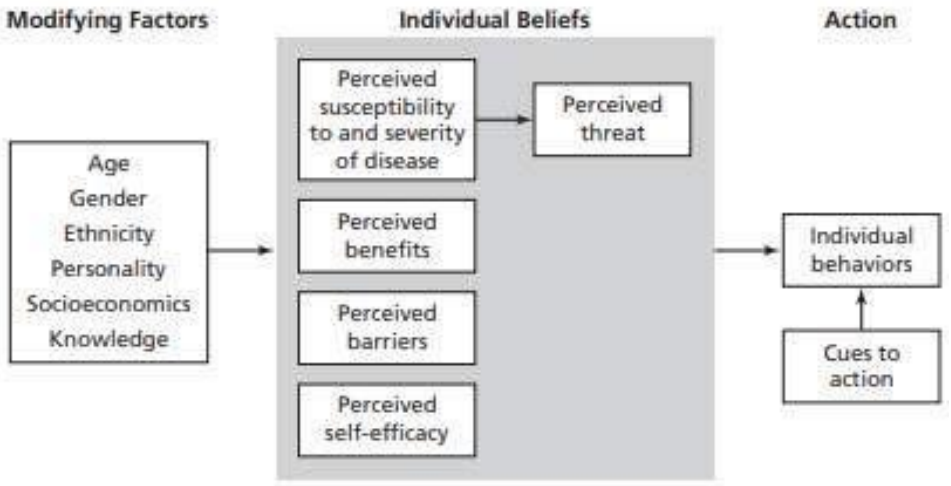
In a study, television had a higher score, 97.5% developing the information related the awareness of CVD (Pandey & Khadka, 2012). It showed the television could be a platform to spread the awareness programme (Philip, 2005).

## 2.5 Conceptual Framework of the study

Disease prevention was defined as targeted, population-based, and individual-based treatments for primary and secondary (early detection) disease prevention with the goal of reducing disease burden and risk factors (World Health Organization, 2021). Health promotion was the process of enabling individuals to take control of their health and its determinants by increasing healthy habits via health literacy initiatives and multi-sectoral action (World Health Organization, 2021).

The Health Belief Model (HBM) was one of the most extensively used conceptual frameworks in health behavior research, served as a guide for health behavior interventions as well as explained change and maintenance of health-related behaviors (Glanz et al., 2008). The Health Belief Model (HBM) was created by social scientists at the US Public Health Service in the early 1950s to better understand why individuals never use disease preventive techniques or screening tools for early illness diagnosis (Boston University School of Public Health, 2019). According to the HBM, a person's belief in a personal risk of illness or disease, as well as their belief in the effectiveness of the suggested health activity or action, predicted whether they would engage in the practice (Boston University School of Public Health, 2019).

The HBM was based on psychological and behavioral theory, with the two components of health-related behavior being 1) the way of avoiding illness or, conversely, the belief that a specific health action would prevent or cure illness; and 2) the assumption that somehow a specific health action would prevent or cure illness




(Boston University School of Public Health, 2019).

Figure 2.1: Health Belief Model Components and Linkages. Adapted from Champion, V, l., & Skinner C, S. (2008) Theory, Research, and Practice. *Health Behavior and Health Education, 4th edition, p-49.*

Based on the Health Belief Model, there were five components in the model created. The first one was perceived susceptibility referred to assumptions about the chances of contracting a sickness or developing a condition. Secondly, perceived severity was evaluations of both medical and clinical consequences (for example, death, disability, and pain) as well as possible social consequences (for example, effects of the conditions on work, family life, and social relations) were included in feelings about the seriousness of contracting an illness or of leaving it untreated. Third component was perceived benefits, explained as even though a person feels personal vulnerability to a significant health condition (perceived danger), the individual's views about the perceived advantages of the many potential activities for lowering the illness threat will determine whether this perception leads to behavior modification. Fourth component is perceived barriers. It described as a potential negative consequence of a health action—perceived barriers— could operate as a deterrent to engaging in recommended behaviors. Finally, perceived self-efficacy was a self-assurance in one's competence to behave. This study showed that the association of HBM, the components and socio-

demographics impacted health perceptions such as modifying factors (Champion & Skinner, 2008).

# CHAPTER 3: METHODOLOGY

## 3.1 Introduction

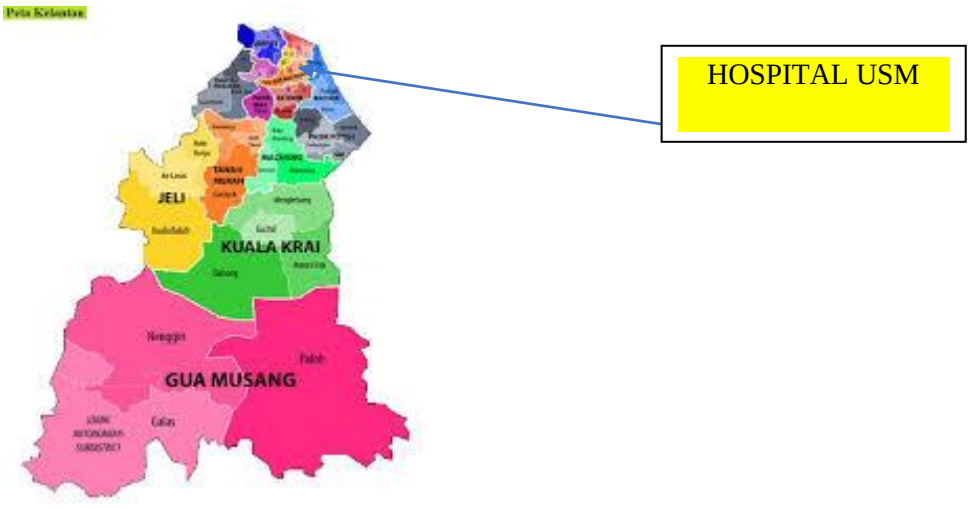
This chapter contained all the information that need to know about the study, including the research design, demographic and setting, sampling method, variables, instrumentation, ethical considerations, and data collection plan. The data analysis strategy also be covered in this chapter.

## 3.2 Research Design

Cross-sectional designed research was used to measure the awareness on prevention of CVD among medical and nursing students. (Fahs et al., 2017) This design was a sort of observational research study. At the same timeframe, the results and findings were measured by using this type of study design. (Setia, 2016) Moreover, cross sectional study design was relevant to be conducted comparatively quicker and inexpensive. (Setia, 2016)

## 3.3 Research Location

This study was conducted in University Science Malaysia (USM) Health Campus which located in Kubang Kerian, Kelantan.



## 3.4 Research Duration

This study was conducted from October 2021 until July 2022

## 3.5 Research Population

This study was conducted among medical and nursing students at University Science Malaysia (USM) in Health Campus.

## 3.6 Criteria

This study was conducted among medical and nursing students in Health Campus that fulfilled the inclusion and not having any exclusion criteria. For inclusion criteria, Medical and Nursing students was included in this study (McFall et al., 2009). The subjects in inclusion criteria were more exposed in providing health-promoting behaviors instead of the subjects in exclusion criteria (Badir et al., 2014).

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| Aged 18 to 25 years old | Dental students (PPSG) |
| Medical and nursing students who are undergraduate students from PPSP and PPSK<br>a. Year 1 until Year 5 for Medical students<br>b. Year 1 until Year 4 for Nursing students | Other PPSK students (Medical radiation, Occupational and environment health, Dietitian, Nutrition, Sport science, Audiology and speech pathology) |

## 3.7 Sampling Data

Data sampling was a statistical analysis technique that involved selecting, manipulating, and analyzing a representative selection of data points in to uncover patterns and trends in a larger data collection (Biscobing, 2018).

### 3.7.1 Sampling method

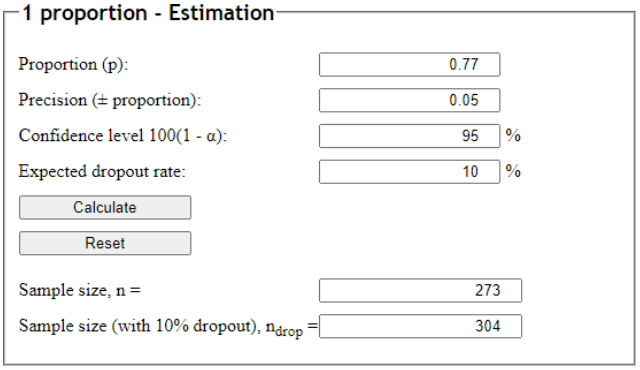
In this study, random sampling method method was used to select medical and nursing students population in Health campus for data collection day. A sampling method assisted the researcher in selecting units from a population that they wanted to examine (Laerd Dissertation, 2012). Medical and nursing students in aged between 18 to 25 years old in USM of Health campus.

### 3.7.2 Sampling size estimation

The accuracy, cost, kind of statistical test, variable properties, and population size were all factors in determining sampling size (Piaw, 2011). Single proportion was used to calculate sample size for **objective 1** and **objective 2** by using Sample Size Calculator (Naing, 2003; Arifin, 2013).

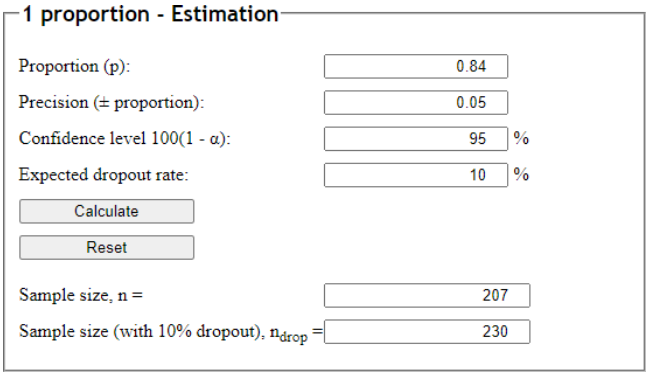
**Objective 1**

The prevalence of good score in awareness and knowledge on prevention of CVD as 44.7% (Suarningsih & Suindrayasa, 2020).



**Objective 2**

The prevalence of likely and very likely were 45% and 38.7% respectively (Cheong et al., 2018).




N was representing the number of medical and nursing students in Health campus at USM. To guarantee the study's validity and reliability, the sample size was determined using a 10% drop-out rate. Thus, the calculation sample size from **objective 1** (304 participants) was used in this study.

## 3.8 Research Information

### 3.8.1 Instrument (Part A B C)

The data for this study was collected using a set of self-administered questionnaires which divided into three sections: Part A, part B and part C. These questionnaires were randomly chosen from several articles (Suarningsih & Suindrayasa, 2020; Ibrahim et al., 2016; Morbidity and Mortality Weekly Report, 2019; Oguoma et al, 2014; Cheong et al, 2018). The reason for the use of these questionnaires was to assess the level of awareness on prevention of CVD and determine the association between the awareness and socio-demographic **(gender, family history, socio-economic status, physical activity, fat consumption and source of information).** Part A consists of socio-demographic among medical and nursing students in Health campus at USM. For part B, the questions were related to knowledge of CVD. In part C, a questionnaire related to awareness on prevention of CVD among medical and

nursing students. This instrument solely used English as its language.

**Part A: Socio demographic data**

Age, gender, ethnicity, marital status, educational level, faculty, year of study, socio-economic status, family history of CVD and source of information were among the socio demographic variables.

**Part B: Level of knowledge regarding cardiovascular diseases**

The level of awareness regarding the CVD issues was assessed in Section B which is Knowledge Regarding the Awareness of Cardiovascular Disease. This section consists of twenty-nine questions that measure the students' level of awareness. The level of awareness was assessed based on 'True', 'False' and 'Not Sure'

**Part C: Level of awareness regarding prevention on cardiovascular diseases**

Awareness on prevention of CVD among medical and nursing students was evaluated in Section C. This section consists of thirteen questions. Likert scale was used to assess the level of awareness on prevention of CVD included 'Strongly Disagree', 'Disagree', 'Agree' and 'Strongly Agree'.

### 3.8.2 Translation of Instrument

The questionnaire that obtained from several authors such as Suarningsih & Suindrayasa (2020), Ibrahim et al., (2016), Morbidity and Mortality Weekly Report (2019), Oguoma et al, (2014) and Cheong et al, (2018) were in original version (English version). The questionnaires would not be translated into

Malay version as the researcher distributed among medical and nursing students who can understand English language.

### 3.8.3 Validity and Reliability

The instrument's validity and reliability were necessary to assure the correctness of the data obtained**.** The validity was the instrument's capacity to measure what it claims to measure. Therefore, reliability was the capacity of an instrument to produce a steady and consistent result was known as dependability (Wood & Ross-Kerr, 2011).

The first procedure was face validity and pilot study which help in ensuring the instrument was comprehensive and understandable by the participants. The questionnaire was modified after pilot study procedure done. This modification was made to improve the quality of the questionnaire. Cronbach's alpha was used to examine the measurement reliability in this study. Cronbach's alpha was a valuable tool for determining the internal consistency of multiple-choice items, such as the Likert scale employed in this study's questionnaire (Taber, 2018). Statistical Package for Social Sciences (SPSS) software was used to calculate Cronbach's alpha coefficient. A Cronbach's alpha coefficient of 0.70 or above was typically considered acceptable (Taber, 2018). The pilot study's respondents were asked for recommendations and suggestions on how to enhance and change the instrument so that the study's overall reliability may be improved.

## 3.9 Variables

### 3.9.1 Variable Type and Measurement

| | |
|---|---|
| **Dependent variable** | The knowledge and awareness on prevention of CVD |
| **Independent variable** | Socio-demographic |

### 3.9.2 Variables Scoring

For Section A, the respondents filled up the socio-demographic based on their background.

Section B was a close-ended questions that determine respondents' level of knowledge on cardiovascular disease and the risk factors. The respondents answered either "True, False or Not sure". Three stages of level such as low, average and high knowledge were divided by calculating a percentile as an indicator.

In a Section C, the awareness on prevention of CVD among participants was measured using a Likert scale ranging from 1 to 4 which represent Strongly Disagree to Strongly Agree. A higher mean score indicated a higher opinion of the importance of CVD health screenings.

## 3.10 Data Collection

The first step of data collection was obtaining an official approval from the Human Research Ethics Committee. After the permission approved, the researcher was constructed the questions in form of google form and will distribute through email or WhatsApp. For the data collection, the respondents were chosen according to inclusion and exclusion criteria. The researcher distributed the informed consent letter to let respondents know about the study which included in google form. Explanation about guidance on how to answer the questionnaire were given briefly and there was no limitation of time for respondents to answer the questionnaire. Then, the respondents submitted their answer directly.

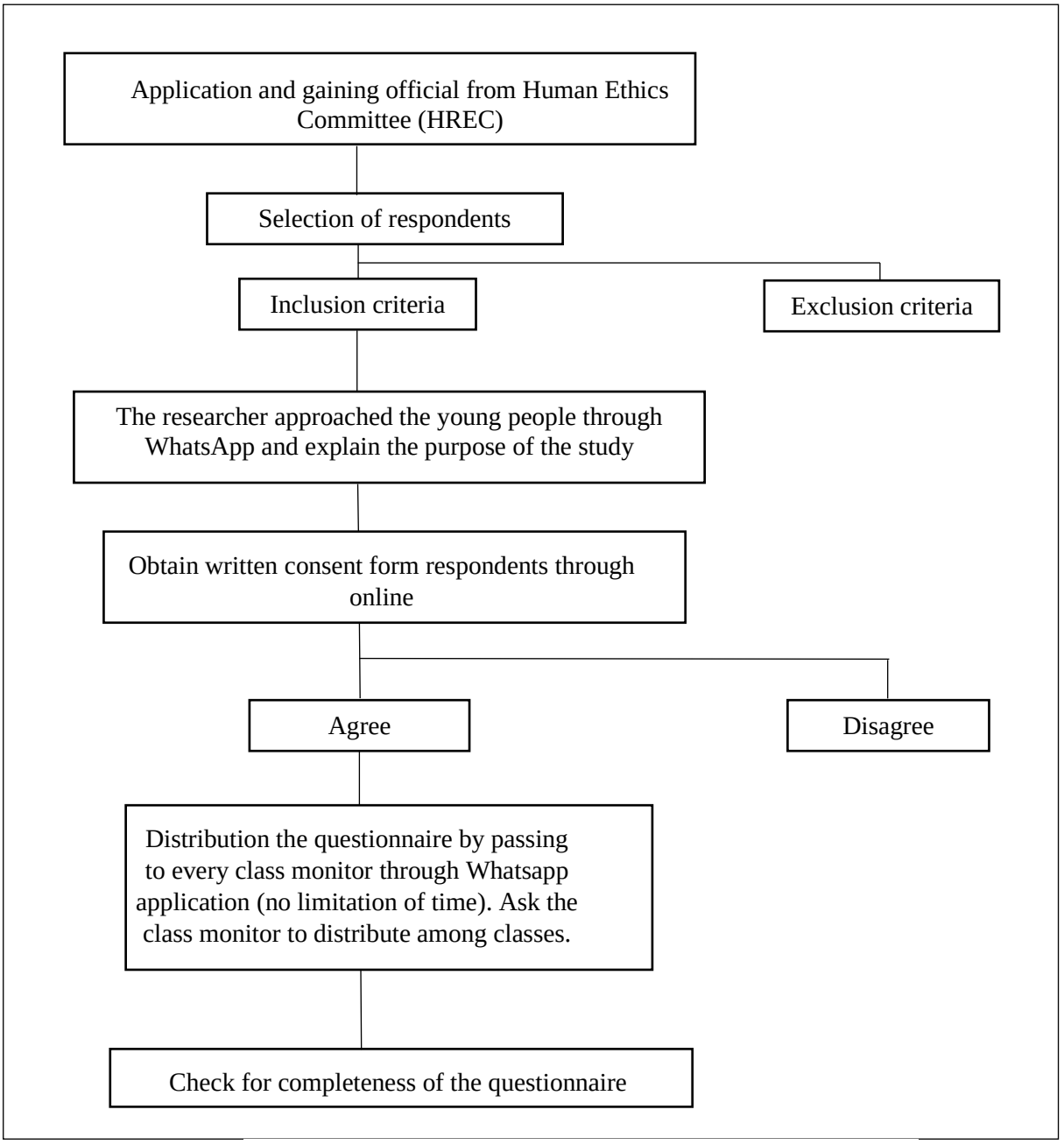



*Figure 3.3: Flow Chart of Data Collection*

### 3.11 Data Analysis

The data collected was analyzed using the Statistical Package for Social Sciences (SPSS) version 26.0. Screening and checking process towards the collected data was done to ensure its accuracy and to recognize for data errors, outliers or inconsistencies of data.

The demographic features of the study participants, their family history of CVD as well as the prevention regarding CVD was summarized using descriptive analysis, which expressed as frequency, percentages and mean. Pearson's Chi-Square test was used to assess the association regarding knowledge of awareness on prevention of CVD and socio-demographic. A level of significance of 5% and 95% of confidence interval was implemented in this study.

## 3.12 Expected Outcome

At the end of this research, the objectives of this research achieved as expected. The researcher was able to determine the awareness on prevention of cardiovascular disease among medical and nursing students in USM of Heath campus. Thus, the association between knowledge of awareness among medical and nursing students regarding the prevention of cardiovascular disease and their socio-demographic in engineering campus was evaluated to assess the readiness of medical and nursing students to prevent from suffering CVD.

## 3.13 Ethical Consideration

### 3.13.1 Permission to Conduct the Study

This research carried out with HREC's approval. To protect the rights of participants, researchers, and institutions, the approval was required in this study. The researcher gave adequate information to the respondents about risks related to the study,