KNOWLEDGE AND ATTITUDES TOWARDS ORGAN DONATION AMONG THE PUBLIC IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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KNOWLEDGE AND ATTITUDES TOWARDS ORGAN DONATION AMONG THE PUBLIC IN HOSPITAL UNIVERSITI SAINS MALAYSIA

by

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

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DECLARATION

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

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CERTIFICATE

This is to certify that the dissertation entitled "Knowledge and Attitudes Towards Organ Donation Among The Public in Hospital Universiti Sains Malaysia" is the bona fide record of research work done by Ms Phang Siok Ting (Matric number 129615) during the period from September 2019 until June 2020 under my supervision. I have read this dissertation and that in my opinion it conforms the acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the degree of Bachelor of Nursing (Honours).

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LIST OF ABBREVIATIONS

HBM	-	Health Belief Model
HREC	-	Human Research Ethics Committee
Hospital USM	-	Hospital Universiti Sains Malaysia
SPSS	-	Statistical Package for Social Sciences
USM	-	Universiti Sains Malaysia
WHO	-	World Health Organization

PENGETAHUAN DAN SIKAP TERHADAP PENDERMAAN ORGAN DALAM KALANGAN ORANG AWAM DI HOSPITAL UNIVERSITI SAINS MALAYSIA

ABSTRAK

Pendermaan organ adalah kaedah rawatan terbaik bagi pesakit yang mengalami kegagalan organ peringkat akhir di seluruh dunia. Tujuan kajian keratan rentas ini adalah untuk menentukan tahap pengetahuan dan sikap terhadap pendermaan organ dalam kalangan orang awam di Hospital Universiti Sains Malaysia. Dengan menggunakan persampelan mudah, seramai 162 orang awam telah menyertai kajian ini. Data dikumpul dari Februari 2020 sehingga Mac 2020 dengan menggunakan borang soal selidik. Data dianalisis menggunakan pakej perisian SPSS versi 24.0. Statistik deskriptif telah digunakan untuk menggambarkan sosio demografik dan tahap pengetahuan serta sikap terhadap pendermaan organ. Statistik dengan signifikan pada nilai $p<0.05$. Majoriti peserta dalam kajian ini mempunyai tahap pengetahuan yang rendah (56.8%, n=92) dan sikap yang positif (100%, n=162). Terdapat hubungan yang signifikan antara umur (p=0.001) dan tahap pendidikan (p=0.001) dengan pengetahuan terhadap pendermaan organ. Kajian ini juga menunjukkan etnik (p< 0.001), status perkahwinan (p=0.044), status pekerjaan (p=0.005) dan pendapatan isi rumah bulanan (p=0.025) mempunyai hubungan signifikan terhadap sikap terhadap pendermaan organ. Terdapat satu korelasi yang sederhana (r= 0.336) antara pengetahuan dan sikap terhadap pendermaan organ. Dapatan kajian ini memberikan maklumat awal kepada profesional penjagaan kesihatan mengenai pengetahuan dan sikap terhadap pendermaan organ serta faktor yang mempengaruhinya. Oleh itu, kempen kesedaran awam mengikut budaya tempatan yang berkesan amat diperlukan bagi meningkatkan kesedaran terhadap pendermaan organ dalam kalangan orang awam di Malaysia.

KNOWLEDGE AND ATTITUDE TOWARDS ORGAN DONATION AMONG THE PUBLIC IN HOSPITAL UNIVERSITI SAINS MALAYSIA

ABSTRACT

Organ donation is the best method of treatment for patients with end-stage organ failure in worldwide. This cross-sectional study is to determine the level of knowledge and attitudes towards organ donation among the public in Hospital Universiti Sains Malaysia. Using convenience sampling, a total of 162 public were recruited into this study. Data were collected from February 2020 until March 2020 using a self-administered questionnaire. The data was analyzed using SPSS software package version 24.0. Descriptive statistic was used to describe socio demographic characteristics, level of knowledge and attitude towards organ donation. Statistically significant was considered at p value ≤ 0.05. Majority of participants in this study had low level of knowledge (56.8%, n=92) and positive attitude (100%, n=162). There was a significant association between age (p=0.001) and educational level (p=0.001) towards knowledge on organ donation. The study also showed ethnicity (p< 0.001), marital status (p=0.044), employment status (p=0.005) and monthly household income (p=0.025) had significant association towards attitudes on organ donation. There was a fair correlation (r= 0.336) between knowledge and attitudes level towards organ donation. This study findings provide preliminary information to healthcare professional on knowledge and attitude of organ donation and it associated factor influencing knowledge and attitude. Therefore, an effective public awareness campaign according to local culture are needed to raise awareness about organ donation among the public in Malaysia.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This research aims to assess the level of knowledge and attitudes towards organ donation among the public in Hospital USM. The overall structure of the study takes the form of six chapters. Chapter One, details the introduction of this research, a background of the study, problem statement, research questions, research objectives and research hypothesis, the significance of the study and definitions of the operational term. Chapter Two presents a literature review surrounding organ donation, public's knowledge and attitudes towards organ donation, challenges and barriers in organ donation, the association between socio-demographic with knowledge and attitudes towards organ donation and conceptual framework guiding this study. Chapter Three describes the methodology and methods of the study, validity and reliability procedures, ethical considerations, data collection procedures and data analyses. Chapter Four presents the results of the data analyses according to the study objectives. Chapter Five presents a discussion of the findings arising from this cross-sectional study. Chapter Six describes the conclusion from the whole research and discusses the implications as well as presents recommendations for future nursing practice and education based on the implication of the findings from the data, makes recommendations for future research and ends with concluding statement.

1.2 Background of the Study

Organ donation is considered as the definitive and the most cost-effective treatment for survival and quality of life for patients with end-stage organ failure

worldwide. The field of organ transplantation has witnessed many achievements in the past few decades which lead to saving and dramatically improving hundreds of thousands of lives. The need for organs is constantly growing, and the gap between patients in need and donors is a source of major concern (Agrawal et al., 2017; Tong et al., 2013). The number of patients who need organ transplants is increasing from year to year, but the number of pledgers who want to donate after death is low. In 1999, the Organ Donor Card was launched as an indication of a person's registration as an organ donor. There is no age limit in organ donation, and there is no discrimination between gender, race and religion.

Organ donation is defined as a process of donating organs or tissues of the body for the purpose of transplantation into others in need because of failure or damage to an organ or tissues of the recipient (Khairi, 2014). After transplantation, the recipient can go on and lead a better quality of life. Meanwhile, organ transplantation is the transfer of human cells, tissues or organs from a donor to a recipient with the aim of restoring the functions in the body, (World Health Organization (WHO), 2014)

There are two types of donors, living and cadaveric donors. Living donors are restricted to donating one of their kidneys, part of their liver and bone marrow. Cadaveric donors are deceased (brain dead or clinically dead). Cadaveric donations are encouraged and prioritised in Malaysia. In August 2018, Malaysia's cadaveric organ donation rate was between 0.4 and 0.6 per million population (pmp). This figure paled in comparison with countries such as Turkey, South Korea and Spain with rates of 7pmp, 9.95 pmp and 46.7 pmp respectively (Hadi, 2019).
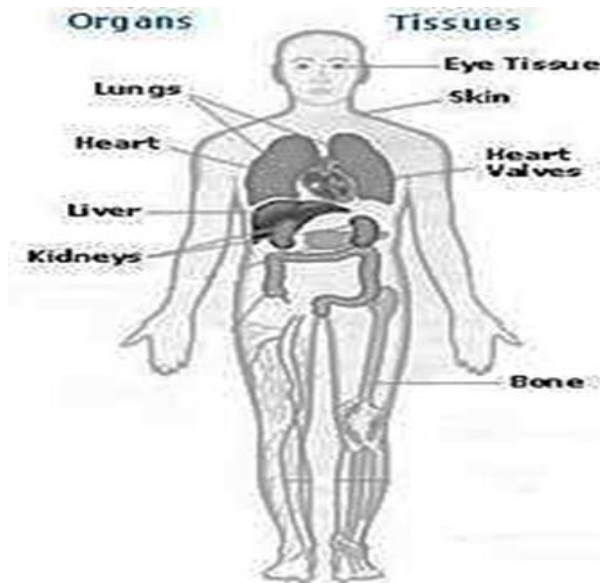
(Source : Khairi, 2014)

Figure 1.1 Organs and Tissue Which Can Be Donated In Malaysia .

Organs and tissues which can be donated in Malaysia are such as heart, lung, liver and kidney while for tissues are heart valves, eyes (cornea), bones and skin, (Khairi, 2014).

In 2018, 25,000 kidney patients in Malaysia were still waiting to undergo kidney transplant procedures although the number of kidneys available for transplants were very small. The National Transplant Resource Centre's Organ and Tissue Procurement chief coordinator Dr Omar Sulaiman said on average, only between 30 and 40 kidneys were available for transplant every year (Hammim, 2018). Figure 1.2 recorded as in database of WHO (2019), as of July 2019, there were more than 113,000 candidates for transplant on the U.S. national waiting list 2 out of every 3 people on the waiting list were over the age of 50 and almost 2,000 children under 18 were on the waiting list. Over 67,000 people (59 percent) on the list are ethnic minorities.

Organs People Are Waiting For (7/2019)

Legend:
- Kidney - 83.7%
- Liver - 11.6%
- Heart - 3.3%
- Lung - 1.2%
- Other - 1.5%
  pancreas, intestines and combinations

Total is more than 100% due to patients included in multiple categories
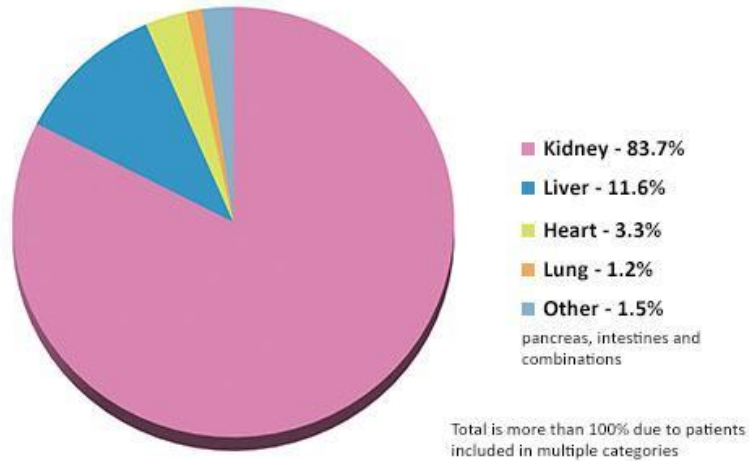
Figure 1.2 Organs People Are Waiting For (July 2019) (Source: WHO, 2019).

On top of that, 36,528 transplants were performed in 2018, a new record high for the sixth consecutive year according to WHO (2018). Each day, about 80 people receive organ transplants. Of these recipients, Figure 1.3 showed the breakdown of ethnic backgrounds includes Caucasian (55.2%), African American (20.6%), Hispanic (16.4%), Asian (5.7%) and other (2.1%) (WHO, 2018). In 2018, about 62% of organ recipients were male; 38% female and more than 85,000 corneal transplants were performed in 2018. Furthermore, more than 1 million tissue transplants were performed each year.

Transplants Recipients by Ethnicity (2018)

Legend:
- Caucasian - 55.2%
- African American - 20.6%
- Hispanic - 16.4%
- Asian - 5.7%
- Other - 2.1%
  American Indian/Alaska Native, Pacific Islander, Multiracial
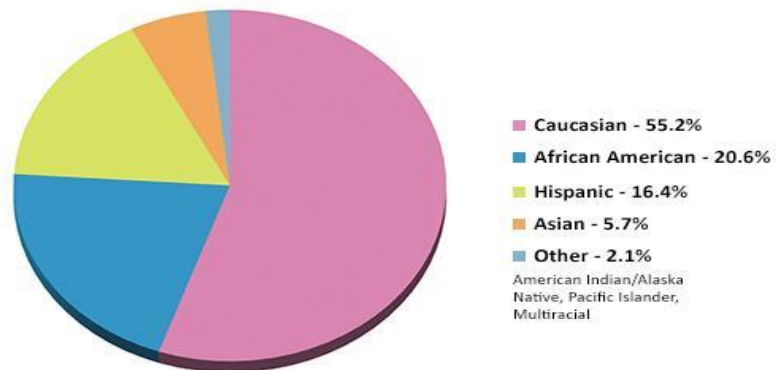
Figure 1.3 Transplants Recipients by Ethnicity (2018) (Source: WHO, 2018).

Organ donation was one of the surviving procedures that with recent advances in technologies and immune system suppression lead to improving the life expectancy of end-stage patients (Lefaucheur & Glotz, 2014). Such a progression and high rate of success caused to increase the request number of organ donation and waiting time for donation. This issue caused that about 10-25% of patients needed donation in waiting list died without receiving the organ (Mascia, Mastromauro, Viberti, Vincenzi, & Zanello, 2009). The reason for this low rate arises from inappropriate beliefs and attitude of individuals to organ donation, their little knowledge, and the socio-economic status. Based on the above-mentioned, knowledge and attitude of the general public have a critical role in increasing the percentages of organ donation.

The past decade has seen the continuous advancement in medical facilities which has made the transplantation facilities available, but the gap between donation and transplantation remains high. Based on the above-mentioned, knowledge and attitude of the general public have a critical role in increasing the per cent of organ donation. Therefore, the present study was evaluating the knowledge and attitude level towards organ donation among the public in Hospital Universiti Sains Malaysia (Hospital USM).

1.3 Problem Statement

A total of 21,778 Malaysian, including those in the final stages of organ failure were currently on the waiting list for organ transplants. As reported by Farhana (2017), although there had been an increase in the number of organ donors at 401, 242 people, it only represents 1.3 per cent of the total Malaysian population. With increasing prevalence of chronic diseases as in the cases of diabetes and hypertension among the general population, the risk of patients reaching end-stage organ disease was increasing

which would lead to more patients needing organ transplantation in the future but with an increasing shortage of donors. In Malaysia, despite receiving information on organ donation, opposing organ donation was profound among 98.5% Malaysian (Riyanti et al., 2014). Religious reasons and lack of information were major causes of opposing organ donation (Mohamed & Guella, 2013). Fear of body mutilation, health complications, lack of proper information, and religious reasons were the most common reasons for a significant proportion of unwillingness for organ donation. In different studies, health concerns were the main causes to oppose donation including fear of living with one kidney, fear of operation, and other medical reasons, in addition to inadequate information on organ donation (Mohamed & Guella, 2013; Al-Ghanim, 2009). Lack of knowledge and understanding about organ donations, religious attitudes, and superstitious beliefs had generated fear and mistrust in the minds of the layman and, especially, the terminally ill patients (Spencer, 2012). Questions had been raised about adopting strategies to maximize the number of donors in Malaysia. The researcher found that there was a dearth of study had been carried out in Malaysia to assess the general public knowledge and attitudes towards organ donation. Therefore, the objective of this study was to determine the knowledge and attitude levels of public towards organ donation in Hospital USM.

1.4 Research Questions

The following research questions were formulated as below:

i.   What is the level of knowledge and attitudes towards organ donation among the public in Hospital USM?

ii.   Is there any association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household

income and sources of information regarding organ donation) and knowledge towards organ donation among the public in Hospital USM?

iii.   Is there any association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household income and sources of information regarding organ donation) and attitude towards organ donation among the public in Hospital USM?

iv.   Is there any correlation between knowledge and attitudes towards organ donation among the public in Hospital USM?

1.5 Research Objectives

Research objectives describe what researchers expect to achieve by a research project (Polit & Beck, 2016).

1.5.1 General Objective

The general objective of this study is to determine the level of knowledge and attitudes towards organ donation among the public in Hospital USM.

1.5.2 Specific Objectives

The following specific objectives of this study are:

i.   To determine the level of knowledge and attitudes towards organ donation among the public in Hospital USM.

ii.   To determine the association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household income and sources of information regarding organ donation) and knowledge towards organ donation among the public in Hospital USM.

iii. To determine the association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household income and sources of information regarding organ donation) and attitudes towards organ donation among the public in Hospital USM.

iv. To determine the correlation between knowledge and attitudes towards organ donation among public in Hospital USM.

1.6 Research Hypotheses

Hypothesis 1 : There is no significant association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household income and sources of information regarding organ donation) and knowledge towards organ donation among the public in Hospital USM. (H_0).

: There is a significant association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household income and sources of information regarding organ donation) and knowledge towards organ donation among the public in Hospital USM. (H_A).

Hypothesis 2 : There is no significant association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household income and sources of information regarding organ donation) and attitudes towards organ donation among the public in Hospital USM. (H_0).

		There is a significant association between socio-demographic characteristics (age, gender, ethnicity, marital status, education level, employment status, monthly household income and sources of information regarding organ donation) and attitudes towards organ donation among the public in Hospital USM. (H_A).
Hypothesis 3	:	There is no correlation between knowledge and attitudes towards organ donation among the public in Hospital USM. (H_0).
	:	There is a correlation between knowledge and attitudes towards organ donation among the public in Hospital USM. (H_A).

1.7 Significance of the Study

The scarcity of suitable organs for transplantation had driven widespread adoption of living-donor transplantation. Although organ donation was one of the surviving procedures which could increase the life expectancy of end-stage patients, donors face the risks of surgical complication, potential physical and psychosocial harms and death. Intrinsic to the process was that healthy individuals must be willing to accept the risks mentioned above (Tong et al., 2013). Furthermore, the inappropriate attitude of the general public to organ donation, their poor knowledge, and the socio-economic level were one of the most important barriers for organ donation (Pouraghaei, Tagizadieh, Tagizadieh, Moharamzadeh, Esfahanian, & Shahsavari Nia, 2015). Therefore, the shortage of organ donations had been a major limiting factor in organ transplant programs. Public views on living donation were not well understood. This study aim to determine the knowledge and attitude level towards organ donation among the public in Hospital USM.

1.8 Definition of Operational Terms

Definitions for the operational terms used in this research proposal are as follows:

Knowledge - Knowledge is defined as facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject (Oxford Dictionaries, 2018). In this study, knowledge refers to the public's understanding regarding organ donation as elicited by the structured questionnaire.

Attitudes - Attitudes are defined as a settled way of thinking or feeling about something (Oxford Dictionaries, 2018). In this study, it refers to the way of public's thinking or feeling towards organ donation.

Organ donation - Organ donation is defined as the act of a person permitting a part of their body to be taken, while they are alive or after they are dead, and put into someone else's body to replace an organ that is not working correctly (Cambridge English Dictionary, 2018). In this study, organ donation is meant by agreeing to donate his or her organ while alive or after death to someone.

Public - The public is defined as people in general, or to all the people in a particular country or community (Collins

English Dictionary, 2018). In this study, public refers

to adult community present at the Hospital USM.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter would present a review of the literature related to knowledge and attitudes towards organ donation among the public. The resulting literature review was organized into six sections covering topics most relevant to answering this study's research questions, meeting its objectives and supporting or disagreeing with its hypotheses. The first section focused on organ donation while the following sections encompassed knowledge and attitudes towards organ donation among the public, the association between socio-demographic characteristics with knowledge and attitudes towards organ donation and challenges and barriers in organ donation. The final section would detail the Health Belief Model (HBM), the study's conceptual framework.

2.2   Organ Donation

Organ donation was defined as an act of giving one or more organs, without compensation, for transplantation to another person (Gruessner, 2014). Although organ donation was a personal issue, the process had medical, legal, ethical, organizational and social implications (Ghods, 2009; Edwards, Essman & Thornton, 2007). Technological advances in the past few decades had enhanced the feasibility of organ transplantation, which had pushed the demand for organs (Badrolhisam & Zukarnain, 2012). Organ transplantation was the most preferred treatment modality for end-stage organ disease and organ failure. It offered a better quality of life with a better survival benefit.

Consequently, the shortage of organs had become a global concern

(Badrolhisam & Zukarnain, 2012). Organ transplantation had progressed tremendously with improvements in surgical methods, organ preservation, and pharmaco-immunologic therapies and had become a critical pathway in the management of severe organ failure worldwide. Despite progress in medical, pharmacologic, and surgical techniques, the shortage of organs was a worldwide problem that needs to be addressed internationally at the highest possible levels (Rafeal, 2011).

2.3   Public's Knowledge and Attitudes Towards Organ Donation

Evidence in the literature indicated that personal experience about organ donation contributed to the knowledge of individuals (Morgan, Stephenson, Harrison, Afifi, & Long, 2008). According to the study by Chakradhar et al. (2016) on young adults in India, there is 91.2 % of the participants had an average level of knowledge and 31.4% of them had low levels of positive attitude towards organ donation.

In India, Vijayalakshmi, Thiyagarajan, Gandhi, Thimmaiah, & Math's (2016) study found that of the 193 participants interviewed, 52.8% of the participants had adequate knowledge, and 67% had a positive attitude towards organ donation. Meanwhile, in Iran, Pouraghaei, Tagizadieh, Tagizadieh, Moharamzadeh, Esfahanian, & Shahsavari Nia's (2015) study showed that of 79 subjects, 24% ones had good knowledge and 62.02% of the studied people had appropriate attitude towards organ donation.

Attitudes are generally influenced by social and cultural factors (Chung et al., 2008). Knowledge, attitude and behaviour were the key factors that influence rates of organ donation (Rithalia, McDaid, Suekarran, Myers, & Sowden, 2009 ; Mekahli et al., 2009).

2.4 Challenges and Barriers in Organ Donation

Organ donation was the best method of treatment for patients with end-stage organ failure (Sui et al., 2011). Organs such as the heart and lungs could only be obtained from brain dead patients. Organ donation procedure as the organs were still fresh from the oxygen supply received through ventilators as the brain-dead patients would still be on the life support machine (Nor Aina, Noor Naemah & Shaik, 2014). The shortage of organs for transplantation was a worldwide problem. Shortage of organ donors was one of the problems faced by many countries, including Malaysia. Malaysia had a low rate of organ donation where the rate of organ donation from deceased donors was among the lowest in the world. A report from the National Transplant Resource Centre showed that there were only 26 actual donors in 2013. One of the causes of the small number of organ donors was the low rate of referral of brain-dead patients. Referrals were made by doctors who treat patients diagnosed with brain death. Mortality due to brain death in intensive care units in some hospitals was high, but when brain death diagnosis was not made, then the patient would not be on record to be brain dead (Interview with Dr Fadhilah Zowyah Lela Yasmin Binti Mansor, Chief National Transplant Procurement Manager & Donor Coordinator - Malaysia).

When there was no diagnosis of brain death, then there would not be any referral. As a result, the number of potential donors would not be as high as it should be. However, it did not mean that if the referral rate was high, then the number of donors was also high. At the end of the day, in Malaysia, whether a brain-dead patient becomed a donor or not depends on the permission given by the next-of-kin (even if the patient was an organ pledger). Nonetheless, a high referral rate would show an effort among doctors, especially in the Intensive Care Unit, to diagnose brain death. Some of these

patients diagnosed may turn out to be potential donors. The bottom line was if the diagnosis of brain death was not made, then the probability of getting a donor is very low

Organ donation involved medical ethics, religion, and social behaviour and beliefs. Some of the critical ethical issues that required aggressive interference were the delicate balance in live donations between the benefit to the recipient and the possible harm to the donor and others. A major issue in organ transplantation was the definition of death and particularly brain death. Another major critical factor was the internal tendency of a specific society to donate organs (Rafael, 2011).

A cross-sectional study by Vijayalakshmi, Thiyagarajan, Gandhi, Thimmaiah, & Math (2016) on 193 randomly selected general population found that nearly half the study participants thought that various religions oppose organ and tissue donation. These findings were similar to the documented literature which showed that religious beliefs were the major barrier for organ donation (Pouraghaei et al., 2015; Sipkin, Sen, Akan, & Malak, 2010; Azkan & Yilmaz, 2009). Culture and religion had also been documented to affect the decision-making process of organ donation (Chung et al., 2008).

2.5 Association between Socio-Demographic Characteristics with Knowledge and Attitudes Towards Organ Donation

A cross-sectional study conducted by Vijayalakshmi, Thiyagarajan, Gandhi, Thimmaiah, & Math (2016) in India found there were significant associations between age, gender, education, economic status and background of the participants with their intention to donate organs. Men (62.5%) were more willing to donate their organs than women (37.5%); and these findings complemented the documented literature

(Annadurai, Mani & Ramasamy, 2013; Gungormüs & Dayapoglu, 2014; Alashek, Ehtuish, Elhabashi, Emberish, & Mishra, 2009).

Vijayalakshmi, Thiyagarajan, Gandhi, Thimmaiah, & Math (2016) advocated for public education programmes to increase awareness among the general population about the legislation related to organ donation. Similar to Vijayalakshmi, Thiyagarajan, Gandhi, Thimmaiah, & Math (2016) study, Azkan & Yilmaz (2009) found that those who were young and higher education had more positive attitudes towards donating organs. Similarly, participants with adequate knowledge were more willing to sign the organ donation card (Morgan, Stephenson, Harrison, Afifi, & Long, 2008; Wakefiel, Reid & Homewood, 2011).

2.6 Conceptual Framework

Examining news coverage related to organ donation provided a context for understanding why people may not become organ donors despite research suggesting people were favourable to organ donation (Gallup Organization, 2005). The Health Belief Model (HBM) offered a useful theoretical lens with which organ donation researchers might explain and predict this behaviour. Using the HBM was an important goal for researchers and practitioners charged with creating successful organ donation campaigns.

The Health Belief Model (HBM) was a value-expectancy theory developed to explain and predict why people participate in efforts to prevent or detect disease (Rosenstock, 1974). It was important to note that of the various health behaviour theories, the HBM was particularly well suited to framing interventions for infrequent behaviours, like organ donation. Six main concepts served as the foundation for the HBM: perceived susceptibility, perceived severity, perceived benefits, perceived

barriers, cues to action, and self-efficacy (Glanz & Bishop, 2010).

First, perceived susceptibility to a health threat, or how likely people felt they were to develop a certain condition, must be assessed. Second, the perceived severity of health threat (i.e., how serious the condition would be) was considered. Few studies examined the perceived severity of the organ shortage. For example, one study suggested that high school students were unaware of the organ shortage (Quick, LaVoie, Scott, Morgan & Bosch, in press).

Third, perceived self-efficacy, which was also described as people's confidence in their ability to successfully perform behaviors to prevent a threat, played an important role in whether or not a person joined an organ donor registry (Anker, Feeley, & Kim, 2010; Siegel, Alvaro, Lac, Crano, & Dominick, 2008). Recent research by Anker and colleagues (2010) suggested that self-efficacy mediated the attitude-behaviour relationship within the context of organ donation.

The fourth key feature of the HBM concerned perceived barriers. Perceived barriers were factors that would prevent a person from taking the preventive action. Morgan and colleagues (Morgan, Miller, Arasaratnam, 2003; Morgan, Stephenson, Harrison, Afifi, & Long, 2008) discovered various barriers preventing individuals from joining an organ donor registry including what they called noncognitive factors, such as medical mistrust, the jinx factor, and the ick factor.

Fifth, the HBM examined the role of perceived benefits of performing a specific task. Benefits referred to the positive consequences of performing healthy behaviours or, conversely, not performing unhealthy acts. Parisi and Katz's (1986) work suggested that individuals often join an organ donation registry because they wanted to be a hero by saving or improving the lives of others (Parisi & Katz, 1986; Quick et al., in press). Finally, cues to action were the strategies that allowed a person to feel that they can act.

Research showed that various media such as newspaper (Feeley & Vincent, 2007), television dramas (Morgan, Harrison, Chewning, DiCorcia, & Davis, 2007) and television news (Quick, Kim, & Meyer, 2009) could serve as integral sources of organ donation information for individuals. These sources might provide consumers with cues to action or with inaccurate information (Figure 2.1).
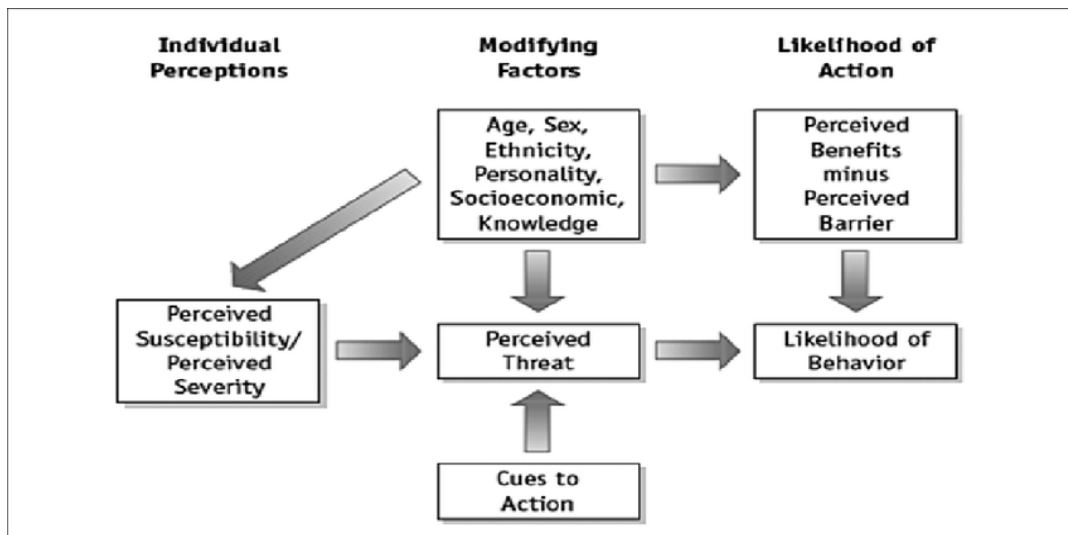
Figure 2.1   The Health Belief Model
                    [Source: Glanz, Rimer, & Lewis (2002)]

The Health Belief Model (HBM) was recognized as the most commonly used theory in health education and health promotion. Using the HBM would allow the researchers to understand attitudes and beliefs as well as coherence in the participants' knowledge, attitudes, beliefs and behavioural intentions and provided data for much of the discussion. As reported by Siminoff, Burant and Younger (2004), the framework developed a measure to help understand public beliefs and attitudes surrounding attitudes to organ procurement and if the members of the public were willing to donate this person's (with the neurological condition) organs (behavioural intentions). The underlying concept of the HBM was that health behaviour was determined by personal beliefs or perceptions (perceived seriousness, perceived susceptibility, perceived benefits, and perceived barriers) (Glanz & Bishop, 2010). Hence, the HBM would be

adopted as a conceptual framework in informing this study.

The current investigation examined the general public's knowledge and attitudes towards organ donation under the guidance of the HBM. Horton and Horton (1990) suggested that it was important for researchers to acknowledge other variables in organ donation studies instead of relying on a "simple assessment of awareness, attitudes, and behaviours" (p. 791). Concerning the current proposal, knowledge and attitudes towards organ donation served as an external cue to prompt the general public to join as a donor. Each of these concepts was important in predicting whether or not an individual was likely to engage in behaviour. In short, the HBM suggested that if a person believed they were at risk, the associated consequences of that risk were substantial, and there was something the individual could do to prevent that negative effect, he/she would act, especially following exposure to an internal or external persuasive cue such as a news story (see Figure 2.2).

Individual perception   **Modifying Factors**   **Likelihood of Action**

Socio-demographic characteristics (age, gender, ethnicity, educational level, employment status, marital status, monthly household income and sources of information regarding organ donation)

Perceived that organ donation is best method of treatment for patients with end-stage organ failure offers a better quality of life with a better survival benefits

Public's knowledge and attitudes toward organ donation

Perceived threat manipulated by perception toward health consequences

Likelihood of Behavior

Cues to Action
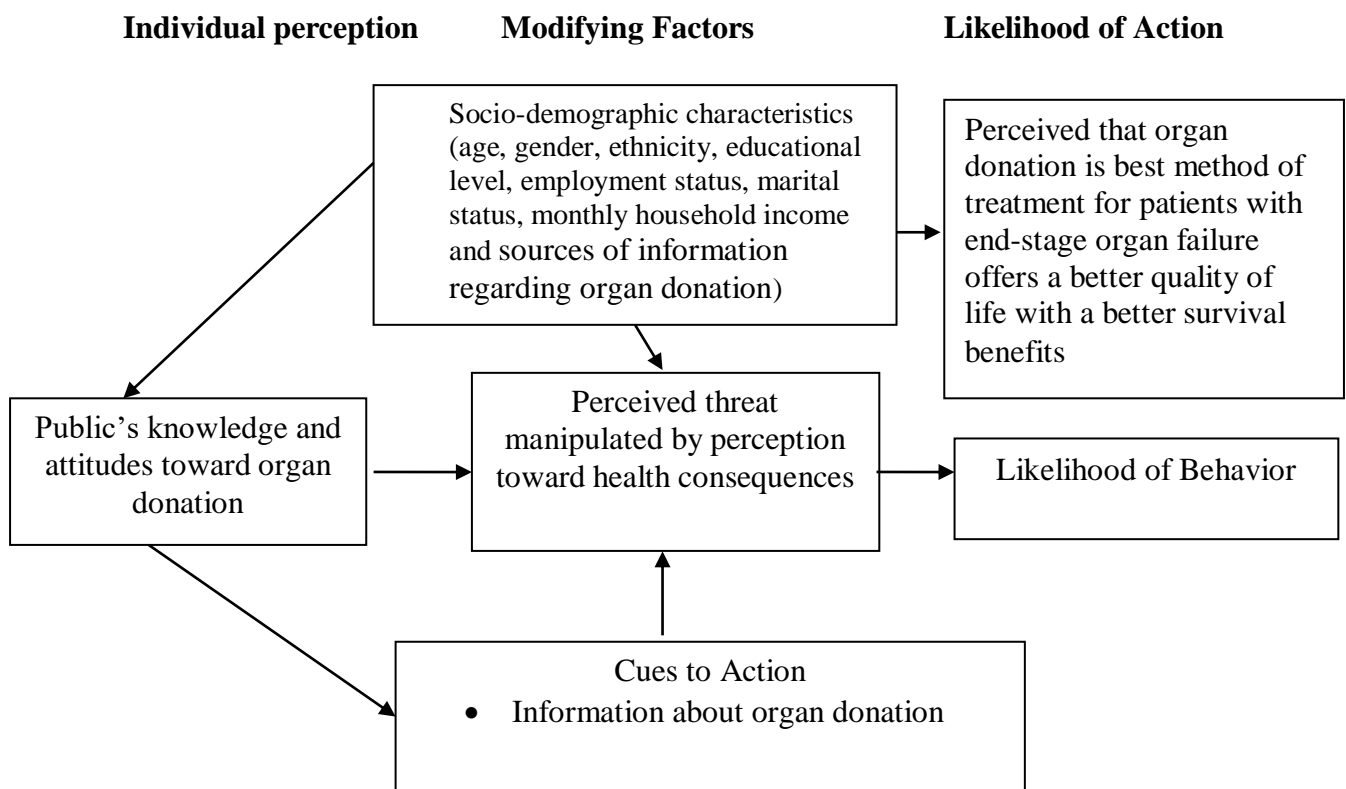- Information about organ donation

Figure 2.2   The Adapted Health Belief Model

CHAPTER 3

METHODOLOGY AND METHODS

3.1 Introduction

This chapter will explain the approach and rationale used to support the chosen research methodology. Determining and understanding an appropriate research design is crucial for achieving the aims of the study. The chapter begins with a description of a cross-sectional design and justification for choosing to use this approach. The following section is a description of the study setting, population, participant selection criteria, sampling plan, sample size determination, and instrumentation, including ethical consideration right through data collection methods. This final section explains the statistical analyses used with this quantitative data.

3.2 Research Design

The cross-sectional study design was utilized in this research. This approach is considered appropriate to give a detailed description of the participants' knowledge and attitudes towards organ donation as well as the interrelationships of selected socio-demographic characteristics with the participants' knowledge and attitudes towards organ donation. The advantages of cross-sectional study include not costly to perform, does not require a lot of time and can be carried out at the one-time point or over a short period (Rebar, & Macnee, 2011).

3.3 Study Setting and Population

For this study, the study settings were the vicinity of the Billing's areas, Coop Mart, Outpatient Clinics and Pharmacy of Hospital USM and the targeted population

are the general public at Hospital USM.

3.3.1 Inclusion Criteria

The specific eligibility requirements for inclusion in this study required that each participant must be:

- Malaysian citizen male or female aged 18 years and above

- Able to understand or communicate in Bahasa Malaysia or English

- The general public attending Hospital USM

3.3.2 Exclusion Criteria

Subjects are excluded from this study if they:

- People with cognitive impairment

- Relatives of patients who needed organs for transplantation

- Healthcare professionals

3.4 Sampling Plan

The sampling plan is the process of selecting individuals or sampling units from the sample frame (Martínez-Mesa, González-Chica, Duquia, Bonamigo, & Bastos, 2016)

3.4.1 Sampling Method

In this study, a non-probability convenience sampling was used. Non-probability convenience sampling is the sampling method used when the population is too large and impossible to include every individual. Thus, the members of the sample are selected based on their convenient accessibility (Study and Exam, 2018). Convenience sampling relies on data collection from population subjects who are the easiest to access. The

researcher can achieve the desired sample size in a relatively fast and cost-saving way (Chua, 2016). However, in this type of sampling, each member of the population does not have an equal chance of being selected in the sample.

3.4.2 Sampling Size Calculation

The number of participants required to meet each objective is as follows. For objective 1, Daniel sample size formula (Daniel, 1999) is applied. The sample size calculation will be estimated using the formula as follow:

$$n = \frac{Z^2 \, p(1-p)}{d^2} \text{ , where}$$

n = estimated sample size

Z = standard value at confidence level at 95% = 1.96

p = estimated proportion of an attribute that is present in the population

  = 91.2% (Knowledge regarding organ donation) (Chakradhar et al., 2016)

d = level of significance set at 5% = 0.05.

Substituting,

$$\therefore \quad n \quad = \frac{1.96^2 \, 0.912(1-0.912)}{0.05^2}$$

= 123.32

= 123 respondents

By considering the dropout rate as 20%, the adjusted n is:

$$n = \frac{n \; calculated}{1 - dropout \; rate}$$

$$= \frac{123}{1 - 0.2}$$

$= 154.16$

Sample size, n = 154 respondents

For objective 2 and 3, which is to determine the association between socio-demographic (age, gender, ethnicity, marital status, education level, employment status and monthly household income and sources of information regarding organ donation) with knowledge and attitude level towards organ donation, the sample size calculation is done by using two proportion formula which is also known as Pocock's formula. This formula is chosen as it can compare prevalence between two groups or identify the associated factors of outcome/disease in cross-sectional study design.

By using two proportion formula,

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

n = sample size

p = anticipated population proportion,

p1 = 0.40   (Expected proportion of Knowledge regarding organ donation among the public based on expert opinion based on Shamina, 2017).

p2 = 0.24   (Knowledge regarding organ donation based on Pouraghaei, Tagizadieh, Tagizadieh, Moharamzadeh, Esfahanian, & Shahsavari Nia's, 2015)

α = level of statistical significance

zα = 1.96 (α = 0.05)

zβ = 0.84 (80% power)

Substituting,