UNIVERSITI SAINS MALAYSIA

A STUDY TO ASSESS BARRIERS TOWARDS BLOOD DONATION AMONG UNDERGRADUATE STUDENTS OF SCHOOL OF HEALTH SCIENCES, UNIVERSITI SAINS MALAYSIA

by

KONG SIIK FUNG

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LIST OF ABBREVIATIONS

f	Frequency
n	Numbers
HUSM	Hospital Universiti Sains Malaysia
SPSS	Statistical Package Social Science
TPB	Theory of Planned Behavior
WHO	World Health Organization

A STUDY TO ASSESS BARRIERS TOWARDS BLOOD DONATION AMONG UNDERGRADUATE STUDENTS OF SCHOOL OF HEALTH SCIENCES, UNIVERSITI SAINS MALAYSIA

ABSTRACT

This research is to assess the potential barriers that mainly influence the intention of donors to donate blood among undergraduate students of School of Health Sciences, Universiti Sains Malaysia. In order to maintain a safe and adequate blood supplies it needs proper recruitment, retention and renewal of active voluntary donor to support the increasing demands of blood. This research was conducted using a blood donation study questionnaire from Laval University, Canada which comprise of 5-Likert Scale questions. Ninety-two undergraduate students from 4 different years of studying were recruited as respondents for this research. Statistical analysis was carried out using SPSS program version 18.0 and data was analyzed with descriptive statistics and Pearson Chi-Square correlation. Among ninety-two respondents (79.3% female and 19.6% male students) only thirty-five respondents (39.1%) ever donated before, with 14.3% shows low intention to return for next donation and 85.7% has high intention. From the donors' point of view, factors or barriers that decreases their intention to donate blood was location as the major cause (97.1%), not knowing how their blood is utilized (65.7%), afraid of faint or syncopal attack (51.4%), rewards upon donating (48.6%), afraid of needles (34.3%), health or medical problems (31.4%) and accompany from friend (22.9%). This study shows that the lowest barriers which does not influence intention to donate is not being informed regarding low blood supplies (17.1%). The low score achieved by the respondents, it shows the barriers stated above does has high influence on the intention to donate blood. This suggests urgent attention to improve the condition. This study

concludes that information on the strategies to solve the barrier is via providing education on blood donation and its process accompanied by spreading knowledge regarding donor recruitment. The results had shown that to improve the number of blood donors, understanding of donors experience and providing support is important.

KAJIAN UNTUK MENILAI PENGHALANG KE ARAH PENDERMAAN DARAH DI KALANGAN PELAJAR IJAZAH SARJANA MUDA, PUSAT PENGAJIAN SAINS KESIHATAN, UNIVERSITI SAINS MALAYSIA.

ABSTRAK

Kajian ini bertujuan untuk menilai penghalang yang berpotensi dalam mempengaruhi keinginan untuk menderma darah di kalangan pelajar ijazah sarjana muda Pusat Pengajian Sains Kesihatan. Dalam memastikan bekalan darah darah yang diterima selamat dan sentiasa mencukupi memerlukan pengambilan, pemilihan dan pembaharuan penderma sukarela yang aktif untuk menampung kapasiti and keperluan darah. Kajian ini dilaksanakan dengan menggunakan Borang Soal-Selidik Kajian Derma Darah daripada Universiti Laval, Canda dengan menggunakan 5 poin Likert. Sembilan puluh dua pelajar terlibat dengan kajian ini terdiri dari kalangan pelajar tahun 1 hingga 4 tahun pengajian dari bidang yang berbeza. Untuk analisis statistik, SPSS versi 18.0 digunakan dan data dianalisis menggunakan korelasi Pearson Chi-Square dan statistik deskriptif. Di antara sembilan puluh dua responden (79.3% perempuan dan 19.6% lelaki), hanya tiga puluh lima (39.1%) pernah terlibat dengan derma darah sebelum ini dan 14.3% kurang mempunyai keinginan untuk kembali menderma darah, manakala 85.7% bersetuju untuk menderma lagi. Daripada persepsi penderma sendiri, faktor atau penghalang yang mengurangkan keinginan mereka untuk menderma darah adalah lokasi bank darah yang jauh (97.1%), tidak mengetahui bagaimana darah mereka akan digunakan (65.7%), takut akan pengsan atau pitam (31.4%), tiadanya ganjaran (48.6%), fobia dengan jarum (34.3%), masalah kesihatan (31.4%) dan perlukan peneman atau galakan daripada kawan (22.9%). Kajian ini menunjukkan bahawa penghalang yang kurang signifikan ialah tidak mengetahui tentang keperluan darah (17.1%). Skor yang rendah yang dicapai oleh responden menunjukkan penghalang seperti yang tercatat di

atas mempunyai inpak yang tinggi dalam mempengaruhi keputusan untuk menderma darah. Ini memerlukan penyelesaian segera untuk memulihkan keadaan ini. Kajian ini menyimpulkan bahawa perlu adanya informasi sebagai strategi dengan memberikan pendidikan kesihatan yang kitu berkenaan derma darah, prosedur yang terlibat dan pemilihan sebelum layak menjadi penderma. Keputusan kajian ini menunjukkan bahwa bagi meningkatkan lagi penderma darah kefahaman berkenaan pengalaman penderma dan memberi sokongan adalah penting.

CHAPTER 1 INTRODUCTION

1.1 Background of study

Recent demand for blood supply and declining blood donation rates accompanied by new deferral criteria has brought concerns for the national blood supply (Schreiber et al., 2004). In the United States, 15 million people donated but one third of them shows single or more post transfusion adverse reactions (Newman et al., 2003). According to WHO's (2010) statistics, individual below the age of 25 provide 38% of voluntary blood donations. For 2010, WHO has selected the slogan "New blood for the world" to set the awareness of young people. There are 3 types of donation which are the voluntary and unpaid, family/replacement and unpaid donations. 14th June has been selected as World's Blood Donor day in order to recognize people who save lives by donating blood in 2004. Their commitment in obtaining trust from existing voluntary unpaid blood donors to continue donating regularly were accompanied by the best quality of care in every stage of transfusion. Seventy-nine out of 80 countries with low rates of blood supply are of developing nations (WHO International 2010).

As for developed countries such as the United States, the number of blood donations collected per annually is approximately 16 million in 2006 and share of US populations who is eligible to give blood is less than 38%. Every two seconds someone in the US needs blood and 38000 blood donations occur daily. The number of patients who received transfusion only 5 million are type O negative blood and AB positive blood highly in demand.

For a developing country like Malaysia, an average of 565,575 units of blood was donated to the National Blood Centre with 349,947 unit (62%) of them are from

repeated donors and 215,628 units from first time donor in 2007 (Pusat Tabung Darah Malaysia, 2010).

1.2 Problem statement.

Although with the advancements of research, it is difficult to produce the substitute for blood and its partitions. Hence, only human blood donation is the source (Majeed et al., 2004). Despite the slowly increasing numbers of blood donation from year to year, it only constitutes merely 2% of the total population. Therefore they targeted to have at least 5% of the population to donate to fulfill the daily requirement of blood demands.

In Hospital Universiti Sains Malaysia blood bank, they were facing critical needs for blood supply and there are only 14,571 donors received including repeat donors and first-timers. With approximately 1241 donors per month, is insufficient to meet the weekly demands of approximately 300 bags. This number also include the mobile patrol done once after receiving request from outsiders or small blood donation station in Oren Mall (Table 1.1). For donors who have O negative blood which is compatible for everyone, they are not encouraged to donate unless there is an emergency to ensure that they themselves are fit.

Balance between the donor and supply needed remains low due to the exponential demand of RBC and increasing aging populations which lead to cancellation of elective surgery to several days due to lack of blood supplies (Glynn et al., 2004).

However, volunteering blood donation itself causes fear and anxiety which inhibits the act. The barriers can either be of physical risks, psychological, time, social or lack of knowledge (Martin & Beerli., 2004). With the presence of rare blood disorder such as sickle cell anemia affecting more than 80,000 people in the US,

98% of who are African-American may require life-long blood transfusions. Hence, adequate blood supply is crucial.

Some of the factors said to be influencing the allogeneic blood donation are divided into two, the positive motivators which are altruism (Oswalt et al., 2000) and incentives while the negative motivators are fear and anxiety, short term donor deferral, permanent deferral and medical reactions and lack of awareness (Gilllespie & Hillyer 2002).

TOTAL NUMBER OF DONORS FOR YEAR 2009 (INCLUDING IN AND OUT ACTIVITY)

Month	In	Out	Total
January	372	107	479
February	328	121	449
March	478	657	1135
April	437	829	1266
May	299	964	1263
June	427	454	881
July	436	842	1278
August	331	788	1119
September	429	767	1215
October	363	893	1256
November	317	740	1057
December	480	680	1160
GRAND TOTAL	-	-	**12558**

(Table 1.1 Source: Blood Transfusion Unit, Hospital Universiti Sains Malaysia (HUSM)

COMPARISON BETWEEN YEAR 2009 AND 2010 (INCLUDING WALK-IN, MOBILE)

YEAR	JAN	FEB	MAR	APRIL	MAY	JUN	TOTAL
2009	378	328	478	437	299	427	2341
2010	402	260	372	377	410	309	2130

Table 1.2 Comparison between uear 2009 and 2010 numbers of dnors who came for walk-in in Orange Mall, HUSM (Source: Blood Transfusion Unit, HUSM)

OUTDOORS MOBILE 2010 (JANUARY TO JUNE 2010)

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
2009	1070	1212	651	829	964	454	5180
2010	701	1078	504	826	696	720	4525

Table 1.3 Numbers of donors who came for outdoor mobile from January 2010 to June 2010. (Source: Blood Transfusion Unit, HUSM)

1.2.1 Theoretical framework

For this study, the Theory of Planned Behavior (extended from the Theory of Reasoned Action by Azjen and Fishbein, 2004) is used for the behavior that influenced one's decision to donate blood.

1.3 Objective of study

The general objective of this research is to determine the barriers towards blood donation among School of Health Sciences, USM undergraduate students and how it actually affects the blood supply especially in HUSM.

1.3.1 Specific Objectives

a. To identify the score of barriers towards blood donation among undergraduate students of PPSK.
b. To identify factors associated with barriers of blood donation among PPSK students.

1.4 Research question

a. What is the score of barriers towards blood donation among undergraduate students?
b. What are the associated factors contribute towards barriers for blood donation.

1.5 Hypothesis

Null Hypothesis 1:

- There is no relationship between scores of barriers towards blood donation among undergraduate students with the tendency to donate (α=0.05)

Alternate Hypothesis 1:

- There is a relationship between scores of barriers towards blood donation among undergraduate students with the tendency to donate (α=0.05)

Null Hypothesis 2:

- There is no relationship between the scores of barriers of blood donation towards blood donation (α=0.05)

Alternate Hypothesis 2:

- There is a relationship between the factors associated with barriers towards blood donation (α=0.05)

Independent variable: Intention to donate

Dependent variable: Scores of barriers

1.5.1 Measurement of the variables

To measure the variables, the Blood Donation study questionnaire will be used for this study.

1.6 Definition of terms:

1.6.1 Barriers

- Barriers are defined as any condition or situation that stops someone from preceding the progress of any process to achieve an objective or anything serving to maintain separation by obstructing vision or access to it, such as far from location, not knowing how blood is utilised, prefer friend company, not receiving rewards upon donating, fear of needles, faint and not informed regarding low blood supplies and health problems. (Newman, 2004)

1.6.2 Blood donation

- Blood donation is a condition whereby a healthy individual voluntarily has their blood drawn from the body and used for transfusions purposes.

1.6.3 Undergraduate students

- Undergraduate student of School of Health Sciences are students of any course offered in the school which includes Biomedicine, Forensic Sciences, Audiology, Speech Pathology, Medical Radiation, Nursing, Dietetics, Nutrition, Environmental and Occupational Health, Exercise and Sport Sciences. In this study context, the school is called Pusat Pengajian Sains Kesihatan (PPSK) in the Malay version and the abbreviation PPSK is used throughout the following chapters.

1.7 Significance of the study

The major significance of this study is to reveal the relationship between the barriers towards blood donation as HUSM has always been facing the problem of lack in blood supply despite the high demand prior to emergency and elective surgery. Because the majority of the community is undergraduate students of USM,

it may help to raise the awareness of how important blood donation can be in helping those who are in need. The reasons why so many donors failed to continue donating needs to be discovered. In order for an individual to be a donor they need to pass through certain criteria to donate to avoid blood-borne disease that will later affect the receiver. The lack of publicity and support can be reason toward blood donation.

Other factors can be the services offered which are not of satisfactory especially the nurses involved and the fear of trauma after donation that causes hematoma or bruises. The drive to donate has always been the main subject for research for their importance in adoption of desired social behavior. Certain actions has been done to enhanced the interest to donate blood to cover the shortage in blood bank but doubts surfaced as ethics, costs and security involved (Sojka B, Sojka P, 2003)

Promotional strategies may deviate the focus to eliminate the barriers to action as well as the development of a higher perception of control. To increase blood donations, it is therefore important to understand barriers to return especially the minority besides the repeated donors and first timers. The idea of one might suffer ill-health effects from blood loss even for a glorious cause was deeply embedded in the cultural system of reciprocity (Yang, 1994; Anagnost, 1997; Greenhalgh, 2008)

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

Blood, was the first human tissue to be successfully transferred from a person to a person during the World War 2 (Starr, 2001). Blood donation is a prosocial act which imposes a cost to the individual but benefits others, stated to be "perhaps the purest example of altruism and prosocial behavior". According to Richard Titmuss from the 1970's, "blood donation remains proof against the 'philistine resurrection of economic man". There are two sources of utility which may encourage an individual to behave prosocially or and contribute wellness to the society. First, individuals care about the provision of the public pure altruism. Second, individuals may also gain utility from contributing.

Those efforts continue to establish in maintaining sufficient numbers of donors around the world for adequate blood supply. It has been a global concern with being able to meet the demands as there are only a small number of populations who is eligible to donate on regular basis while some were deferred temporarily or permanently due to strict screening procedures (Custer et al, 2004; Riley et al., 2007). Volunteer donors are generally associated with safer blood supplies in terms of transfusion-transmitted disease (Maniatis et al., 1994, Liu et al., 1998, Marantidou et al., 2007). As human life expectancy and presence of new and aggressive procedures, demands for blood and its products also increased (Marantidou et al., 2007). Fragile balance between blood supply and demand forces blood banks to constantly search for more efficient ways to recruit blood donors (Ferguson, 1996).

Volunteering blood donation itself causes fear and anxiety which inhibits the act. The barriers can either be of physical risks, psychological, time, social or lack of knowledge (Martin Santana & Beerli-Palacio, 2008). With the presence of rare blood disorder such as sickle cell anemia affects more than 80,000 people in the US, 98%

of whom are African-American that may require lifelong blood transfusions. Hence, adequate blood supply is crucial.

There are certain barriers which contribute to the failure in maintaining the adequate blood supply for usage. However, when the threshold of donating is crossed, a person will donate blood.

2.2 Classification of blood

There are 4 types of blood group, which are A type, B type, O type and AB type with either positive Rhesus or the uncommon negative Rhesus with O negative being the universal red cell donor and AB positive as the universal receiver (Grindon 2004) (Table 2.1) For Asians, the majority has the O positive type, while the less blood type found in Asian is AB negative type.

	Caucasians	African American	Hispanic	Asian
O +	37%	47%	53%	39%
O -	8%	4%	4%	1%
A +	33%	24%	29%	27%
A -	7%	2%	2%	0.5%
B +	9%	18%	9%	25%
B -	2%	1%	1%	0.4%
AB +	3%	4%	2%	7%
AB -	1%	0.3%	0.2%	0.1%

(Table 2.1 The blood type statistics for Caucasians, African-American, Hispanic and Asian.) (American Red Cross, 2010)

2.2.1 Whole blood

Whole blood is the blood which is withdrawn from the body of donor thorough process called phlebotomy. It usually lasts for 21-35 days, to be

stored in refrigerator and used for purposes such as trauma cases and surgery.

2.2.2 Red blood cells

This component of whole blood is red in color, with shelf life up to 42 days and refrigerated. Red blood cells are generally used for trauma cases, anemia, severe blood loss cases, blood disorders such as sickle cell anemia and thalassemia.

2.2.3 Platelets

Platelets are colorless and considered the most expensive blood component to be processed with the shortest shelf life of 5 days. It is stored in room temperature with constant agitation to prevent clumping. Patient with cancer treatments, organ transplant and surgery requires this component.

2.2.4 Plasma

Plasmas are yellowish in color, unlike platelet. It can be stored for 1 year and frozen to maintain the quality. The key uses for this component are burn patients, shock or bleeding disorders such as hemophilia.

2.2.5 Cryoprecipitated Anti-Hemophilic Factor (AHF)

It is white in color, with shelf life of 1 year in frozen form and rich in fibrinogen. Cryoprecipitate is commonly used for hemophilia patient and Von Williebrand disease which is the most common hereditary coagulation abnormality.

2.3 Blood compatibility (Group Cross Match)

Group O blood type are known for their universal status donors and individuals with this blood type can donate red blood cells to anybody whether A, B or AB. As for Group A, they can donate red blood cells to A's and AB's. while B type can donate to B's and AB's. For group AB, they are universal receivers and eligible to use any other blood type for transfusion but can only donate to AB's type blood group. (American Red Cross, 2011)

2.4 Blood donation

Standards allow blood to be withdrawn to a maximum of 10.5l/kg proportional to weight to avoid severe reactions. A whole blood bag is processed into 3 major components which can be used for different purposes which are packed red blood cells, plasma (fresh plasma, fresh frozen plasma, platelet rich plasma, platelet poor plasma, and platelet (cryoprecipitate, cryosupernant). These resources can only shelf for certain period of time. Hence it is important to refresh the supply every month (Grindon, 2004). As stated by Misje et al (2005), a transfusion service should rely on voluntary, non-renumerated repeat donors with recommendations from WHO.

Whole blood donations are obtained through aseptic technique with a 16G needle to ensure adequate speed and prevent blood clotting. The American Association of Blood Banks Standard sets limitation on volume collection to ensure compliance for the lowest weight which is 118lb (50kg) and hemoglobin standard of 13.3 to 17. 2g/dL for men, and 11.6 to 15.7 g/dL (Newman, 2004).

Whole blood collected are usually divided into red cells and plasma for transfusion, or red cells, platelets, and "recovered plasma" at 2 components per unit collected. 1.7% are terminated due to abnormal screening test results and remainder of blood loses occurs due to outdating.

Donor screening is a compulsory procedure before any donation starts by referring to previously rejected donors, proper health history, donors who has not donated within the past 8 weeks, and no positive results on transfusion-transmitted disease. This screening is to ensure that the donor is fit enough to donate for safe transfusion. For consent, the donation process, complications and confidentiality are explained as the donors bear their own risk.

2.4.1 Hemoglobin determination

Blood samples from finger prick are used to determine hemoglobin level. A level of 12.5g/dL or hematocrit 38% indicates a normal level. This method is used as it is inexpensive, portable yet sufficient to protect the donor. Hemoglobin levels are returned to normal within 3-4 weeks post donation and minimum 8 weeks of post donation is compulsory to allow dietary iron absorption.

2.5 Effects of blood donation

Despite the benefits given in order to help others, blood donation does have its own side effects. Bruises or hematoma may develop at puncture site or vasovagal reaction which occurs during or after donation. It begins with simple faint, pallor, lightheadedness, weakness, nausea, diaphoresis and hypotension. This is mostly associated with amount of blood removed from the body causing hypovolemia with large pressure (Barbieri et al., 2004; Zollei et al., 2004). Sore arm, fatigue, severe iron depletion, upper extremities deep vein thrombosis, post donation stroke and myocardial infarction are the less common symptoms occurring after that (Newman, 2004).

2.6 Benefits from blood donation

To minimize the risk of blood borne disease to person who receives blood transfusion, it is crucial for every blood bank to perform screening by comparison to a registry of previously deferred donors, a focused health history including the drugs donors are currently taking and their level of immunizations and vaccinations, hemoglobin determination and a limited physical examination (Grindon, 2004).

2.7 Barriers

Medical reasons (declared Hepatits B, HIV, malaria etc.), lack of time, fear (of needles, sight of blood, physical reaction (Newman, 2004) pain and risk for blood borne disease, negligence from the blood bank itself, lack of information, no particular reason, lack of solicitation, religion restrictions (Gillum & Masters., 2010) lack of opportunity and prior deferral were said to be part of the challenge towards successful blood donation (Glynn et al., 2006; Schreiber et al., 2006).

2.7.1 Medical reasons

Decrease in return of volunteer donors due to temporary deferral, including low hematocrit, sore throat, intake of disallowed medication fever within established period before the donation. Short term deferrals can have acutely negative impact on first-time donors. (Godin et al., 2005)

2.7.2 Fear

Various fears have been reported by donors and non-donors as the interrupters to donate blood, which are fear of needles, sight of blood, pain or discomfort and being informed they are not fit to donate blood. Whether this is legitimate or only for rationalization to avoid donation is still unclear. General fears about donation have been eluded as primary source of negative motivators for at least one quarter of non-donors (Gillespie & Hillyer, 2002).

It is convincing to detect that fear is considerably more often stated by those who have never donated before than experienced blood donors, who are probably aware of the real risks of donating blood (Duboz & Cuneo, 2010).

2.7.3 Religion

Ortherberg et al., (2001) study shown the possibility of religious values and beliefs may be the relevant variables in the prediction of blood donation.

2.7.4 Lack of awareness

Ignorant or being unaware of the need for blood or other aspects of the blood consistently identified as negative factor in potential donor decision making. The lack of being asked to give blood is the main reason provided. In United Kingdom for example, 27% of current or lapsed donors were initiated by awareness for the need of blood together with the understanding that they themselves may need it in the future (Godin et al., 005)

2.7.5 Lack of solicitation

In a research conducted by the Institute of Louis Harris on 2002, lack of solicitation is a factor linking to donor status that indicates an increase to 36% compared to 2001. Lapsed donors tend to point this factor for not donating and it is possible that individuals who have donated before wants to be feel appreciated for their effort in saving lives (Duboz & Cuneo, 2010).

2.8 Theoretical Framework

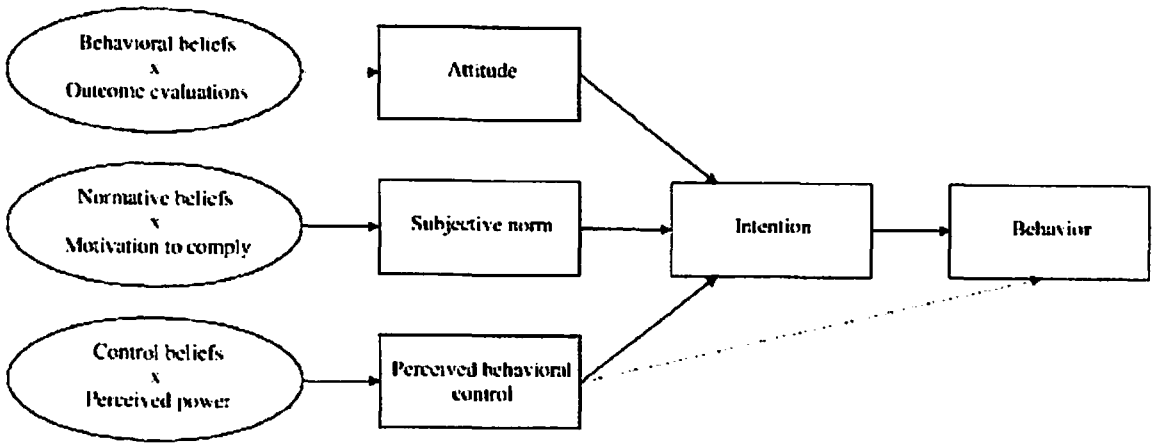


Figure 2.8 The component of Theory of Planned Behavior (Ajzen and Fishbein, 2004)

2.8.1 Theory of Planned Behavior (TPB)

This theory has provided the theoretical structure for many studies of donor intention and in some cases initial donation (Armitage & Conner, 2001; Giles & Cairns, 1995). Intention to donate are in turn the strongest predictors for donation (Ferguson & Chandler, 2005; Ferguson et al., 2007).

TBP (Figure 2.8) operates on the premise that best way to predict a behavior is to measure behavioral intention, a function with 3 variables: attitude, subjective norms and perceived behavioral control.

Attitude, is an individual positive or negative evaluation of a behavior, reflect beliefs about consequences of performing a behavior. Whilst for subjective norms, it is considered as an individual's perception of their social pressure, hence reflects beliefs about normative expectations of others. Perceived behavioral control shows accumulation of situation in which people may lack of volitional control, considered as perceived ease or difficulty in doing a behavior.

CHAPTER 3 METHODOLOGY

3.1 Research Design

This was a cross-sectional study conducted among the undergraduate students of School of Health Sciences students.

3.2 Population and setting

The population for this study was PPSK undergraduate students from 11 different progamme (Table 3.1)

3.3 Sample

The sample was obtained from PPSK's administration office. Undergraduate students from different courses were the major respondents to this study. (Refer to figure 3.1) Sample size determined by Krejcie and Morgan (1970) cited in Chua (2006). The numbers of PPSK students were 1136 excluding 1 student from Biomedicine, 2 students from Nursing and 2 students from Speech Pathology. (exceed 25 years old)

Courses	Number of Students:
Audiology	53
Biomedicine	109
Dietetics	91
Diploma Nursing	284
Nursing	136
Environmental and Occupational Health	74
Nutrition	73
Speech Pathology	43

Forensic Science	116
Medical Radiation	100
Sport Science	57
Grand Total:	1136

Table 3.1 Numbers of undergraduate students in PPSK (Source: Academic Office, School of Health Sciences, USM)

3.3.1 Sample size

With the confidence level of 95%, population size of 1136 students excluding the 5 other students exceeding age 25, the sample size needed are 278 student.

Sample size: 278+20% drop out probability (55)

= 298 students

3.3.2 Sampling design

Stratified random sampling was used as it is possible to maintain same numbers of respondents for different sub-samples. It is chosen as the numbers of students for different courses were different (Chua, 2006).

3.3.3 Inclusion and exclusion criteria

Inclusion criterias:

a. Undergraduate students of PPSK
b. Age between 19 to 25 years old.
c. Students who are willing to show participation in this study.

Exclusion criterias:

a. Undergraduate students from other schools.
b. Age more than 25 years old.

c. Respondents who are unwilling to participate in this study.

3.4 Instrumentation

Blood donor questionnaire from the Hema Quebec Laval University, Canada was the instrument to be used in this study.

3.4.1 Instrument

The English Blood Donation study questionnaire by Laval University (Hema Quebec) was used in this study. It is a questionnaire developed to determine the major barriers from donating blood. To assess the relative importance of variety in eliciting donation, donors were asked to rate on a Likert scale of 1 (very unlikely) to 5 (very likely). This survey also inquires on whether donors had been asked to donate by the blood centers, workplace, family or friends, or of religious or civil or social organization. This instrument has Cronbach alpha of 0.93 and with test-retest reliability of 0.89. Psychosocial variables involves in this questionnaire includes behavioral beliefs (6 items), normative beliefs (3 items), self efficacy (4 items) and facilitating factors (6 items).

3.4.2 Translation of instrument

The questionnaire was translated into Bahasa Malaysia version by two language teachers in *Pusat Bahasa* of Universiti Sains Malaysia. Piloting the questionnaire was conducted with 5 final year undergraduate nursing students, PPSK to make sure the respondents able to understand the questions given.

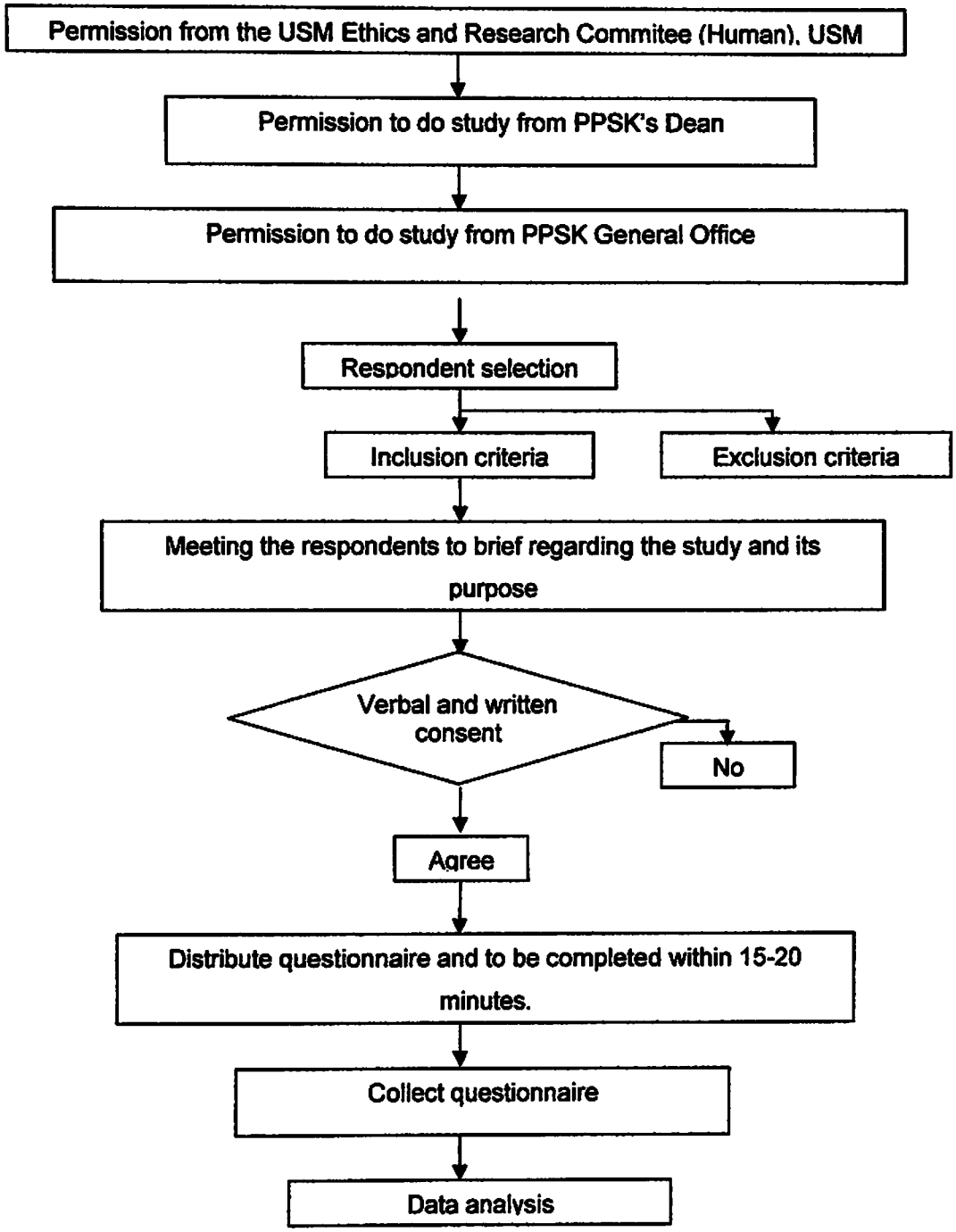
3.5 Ethical considerations

To conduct this study, approval from the Ethics and Research Commitees (Human) of Universiti Sains Malaysia were obtained. All respondents were provided with consent prior to conduct with the study. They have the right to accept or refuse depending on their own choice. Every data collected were kept private and confidential.

3.6 Data collection methods

The self-survey questionnaire was distributed to the respondents. 15-20 minutes were given to complete the questionnaire without any influence. The completed questionnaire was collected on the same day after they completed it.

3.6.1 Flow of the data collection



3.7 Data analysis

The data analysis section comprised of two parts, the descriptive statistics and inferential statistics using Statistical Package Social Sciences (SPSS) version 18.0. Descriptive statistics were used to describe the demographic data of the

respondents (undergraduate students) and the barriers. Inferential statistics were used for hypothesis testing.

Presentation of the demographic data is in the form of tabulation and graphical. In hypothesis testing, regression and correlation were used to measure the score collected from the questionnaire.

CHAPTER 4 RESULT

4.1 Sociodemographic Data

Ninety-two students from School of Health Sciences under various courses agreed and consented to participate in this study. All questionnaires were distributed and response rate is 100%.

Table 4.1 show the sociodemographic data of PPSK students. The youngest being 19 years old and the eldest is 24 years old and the mean age were 21.6. (SD = 1.328). Equal numbers of twenty-three students for each course is obtained, consisting of 79.3% (f=73) female students and 19.6% (f= 18) are males. 57.6% (f=53) are of Malay race, 39.1% (f=36) Chinese students, 2.2% (f+2) Indian and 1.1% (f=1) is Caucasian. All of the respondents have a high level of education in Degree.

As for religion, 57.6% (f=53) are Muslim, 26.1% (f= 24) are Buddhists, 14.1% (f=13) are Christian and another two are of Bahai and Hinduism. 26.1% (f = 24) of the respondents has A positive blood, 1.1% (f =1) A negative, 22.8% (f = 21) B positive, 1.1% (f =1) B negative, 3.3 % (f = 3) AB positive, 29.3 % (f = 27) O positive, 1.1 % (f =1) O negative and unfortunately 15.2 % (f = 14) does not know their own blood type.

Among this respondents, 60.9% (f = 56) students has never donated blood before, whilst 39.1% (f = 36) has donated their blood before.

Table 4.1: Subject's distribution of sociodemographic characteristics (n = 92)

Variables		Frequency (%)
Age		
	19	2 (2.2)
	20	19 (20.7)
	21	25 (27.2)
	22	15 (16.3)
	23	24 (26.1)
	24	7 (7.6)
Sex		
	Male	18 (19.6)
	Female	73 (79.3)
Race		
	Malay	53 (57.6)
	Chinese	36 (39.1)
	Indian	2 (2.2)
	Others (Serani)	1 (1.1)
Religion		
	Muslim	53 (57.6)
	Buddhist	24 (26.1)
	Christian	13 (14.1)
	Others	2 (2.2)

4.2 Frequency of donors and non-donors

Table 4.2.1 shows the frequency of students who donated and who never donated before. 39.1% (f = 35) person has donated before while another 60.9% (f = 56) has never had the intention to donate. With the number of people who have donated before which are thirty-five person, 14.3% (f = 5) scored less than 3 for three main items (intention to give blood during the next 6 months) that is lower intention to redonate. As for another 85.7% (f = 30), they scored more than 3 which means higher intention to re-donate in the future.

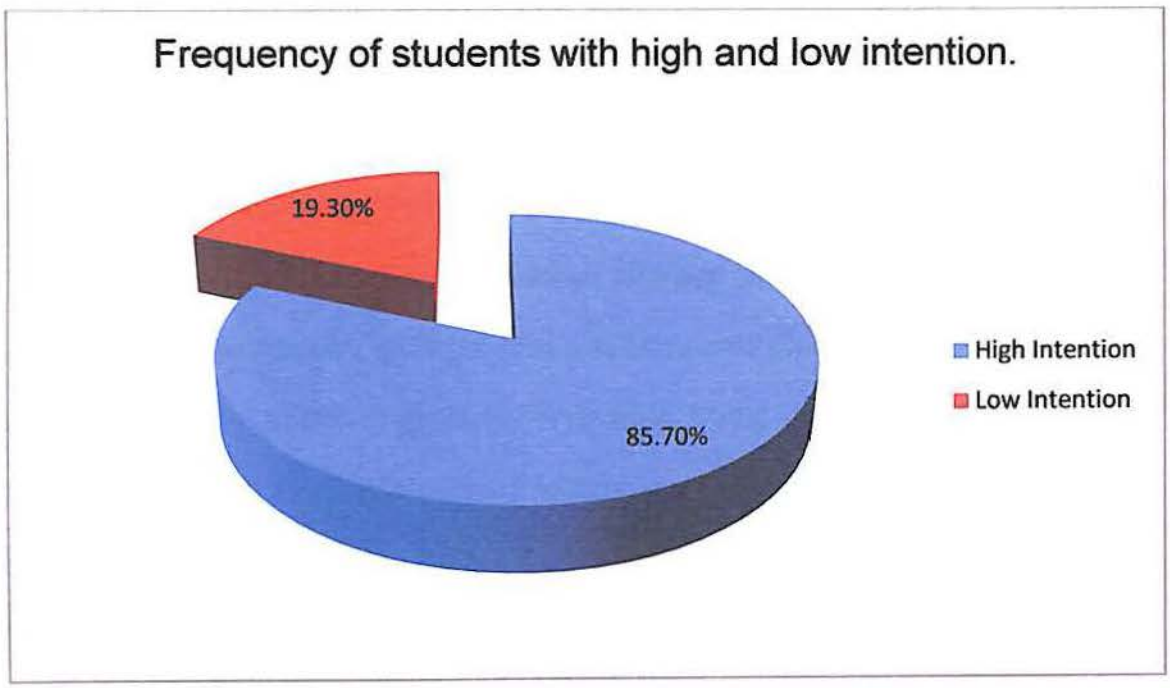


Figure 4.2.1 The high intention and low intention of students who have donated before in frequency.

4.3 Relationship between barriers and intention to donate

The relationship between the types of barriers with the intention of donors to return for donation was stated in Table 4.3, by taking sociodemgraphical data as the variables which are age (p = o.74), years of studying (p = 0.136), sex (p = 0.541) , race (p = 0.503), blood type (p = 0.339), and religion (p = 0.611).