

**SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA, LEGON**



**ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PERCEPTION OF
BLOOD DONATION AMONG FIRST YEAR STUDENTS: UNIVERSITY OF
GHANA**

BY

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AWARD OF MASTER OF PUBLIC HEALTH DEGREE.**

OCTOBER, 2017.

DECLARATION

I, Yoon Kwon James Cha, declare that, I achieved this work independently under the supervision of Dr. Augustine Adomah-Afari.

I declare that, this dissertation and the work presented in it are my own and have been generated by me as a result of my own original research.

However, any reference to literature has been acknowledged accordingly.

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(Supervisor)

.....
Date

.....
Date

DEDICATION

I would like to dedicate this work to my fiancée and family. In addition, to all my colleagues for supporting me with time and other resources, so that I may excel on my studies.

I am very grateful to be in class of 2016/2017 (MPH).



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I thank my father God, who gave me everything; the dream, the will, the strength, the knowledge, the solution and the resources to start and finish this work and course. To God be the Glory!!

I would also like to thank the experts: all lecturers of School of Public Health, College of Health Science, University of Ghana, who were involved in making this work to have such a quality. Without their passionate teaching, participation and input, the work could not have been successfully conducted.

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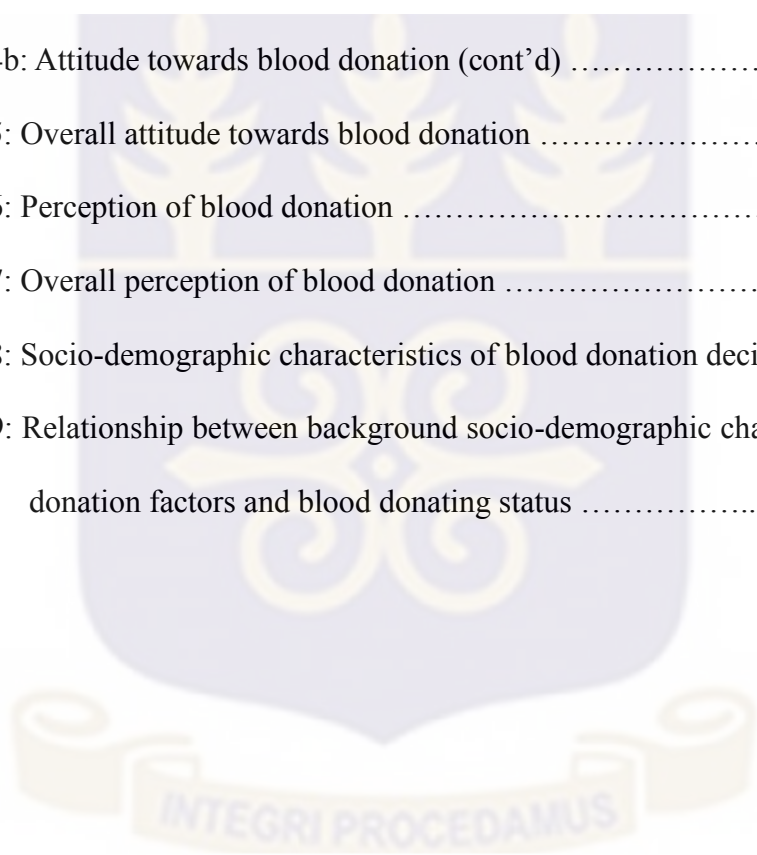
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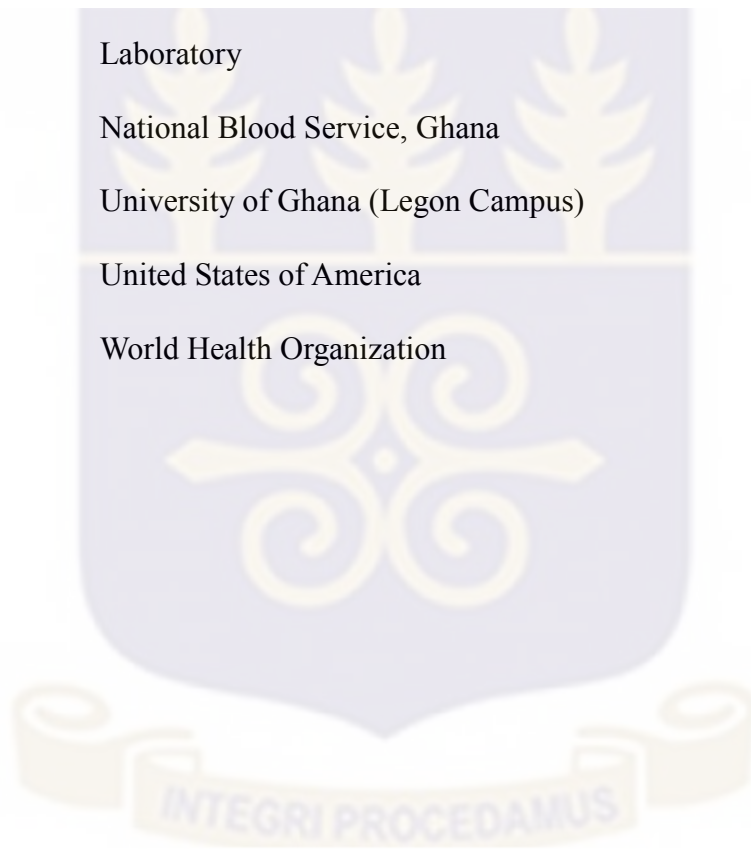
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LIST OF ABBREVIATIONS / ACRONYMS

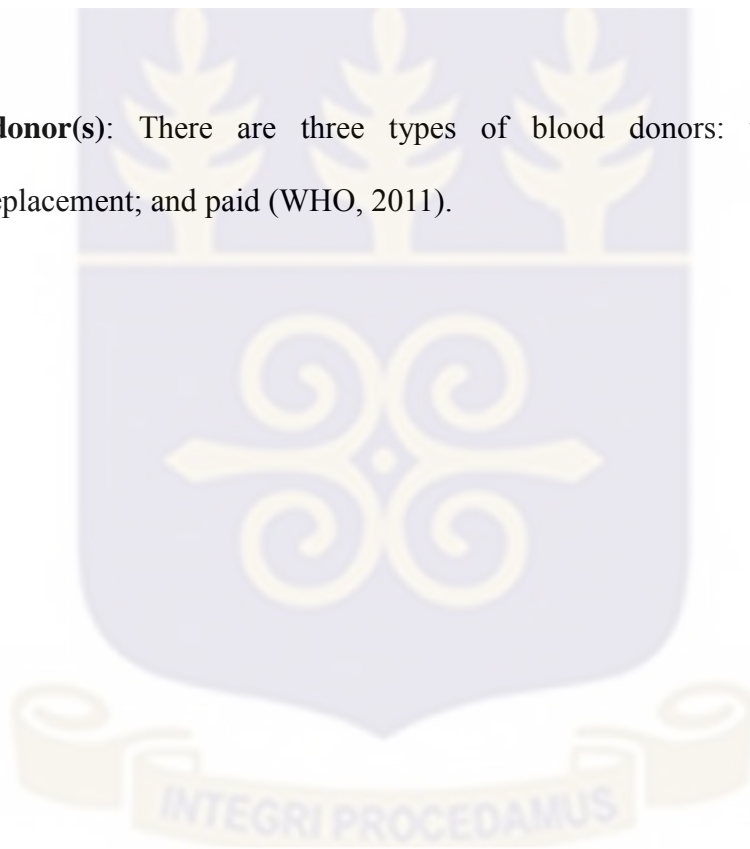
AIDS	Acquired Immune Deficiency Syndrome
BD	Blood Donation(s)
BTS	Blood Transfusion Service(s)
CHS	College of Health Science
HIV	Human Immunodeficiency Virus (HIV)
KAP	Knowledge, Attitude and Perception
Lab.	Laboratory
NBS	National Blood Service, Ghana
UG	University of Ghana (Legon Campus)
USA	United States of America
WHO	World Health Organization



DEFINITION OF TERMS

Blood center(s): A facility that carries out all or part of the activities for donor recruitment, blood collection (whole blood and, in some cases, apheresis), testing for transfusion of transmissible infections and blood groups, processing into blood components, storage, distribution to hospital blood banks within a defined region, and liaison with clinical services. Blood centers may be stand alone or hospital-based (WHO, 2014).

Blood donor(s): There are three types of blood donors: voluntary unpaid; family/replacement; and paid (WHO, 2011).



ABSTRACT

Background: People have been and always will be the source of blood, and although they know the necessity of blood donation, there is low participation of blood donation and thus, shortage of blood is always the situation. Potential donors in the age range of 18 to 25 years are very scarce, which means it is important to sensitize this group of population for regular blood donation. So far, no such study was found in Ghana, which aimed at young individual's knowledge of, attitude towards and perception of blood donation.

Objective(s): The general objective of this study was to assess the influence of knowledge, attitude, perception and other socio-demographic factors on blood donation among first year students of College of Health Sciences, University of Ghana.

Methods: The research design was descriptive and involved quantitative methods. The simple random sampling technique was applied to recruit participants. The study units were the first year students who were enrolled in different schools within the College of Health Sciences, University of Ghana. Thus, the sample size of 267 students was categorized into students majoring in health science related courses. Self-administered questionnaires were used as a primary data collection technique. The data was managed by coding, editing, analysis, and report writing. And data was analyzed with Stata version 14. Chi square test was used to determine the levels of significance of the relationships.

Findings: The study found that, the students had appreciable knowledge of blood donation (86.3%). A fair attitude was shown (51.9%). They also had a good perception of donating blood and towards National Blood Service, Ghana (80.9%). Majority (60.3%) of respondents indicated that, they would be future donors without remuneration incentives. About 81.2% of participant's had an opinion that, blood donation is important and necessary. There were no significant relationships between socio-demographic characteristics and blood donation. However, 70% of the students would be positively influenced by their religious practice or convictions to donate blood.

Conclusions / Recommendations: The study concluded that, although blood donation was perceived by many of the participants to be good, such positive attitude or even high level of knowledge may not lead to actual participation in blood donation. There is the need for policy makers to work together with National Blood Service, and come up with a national campaign strategy that could link positive knowledge, attitude and perception directly with blood donation practice. Simultaneously, it is necessary for policy makers to increase exposure to blood donation drives in the Universities, and make attempts to include blood donation drives in their volunteering activities. Additionally, national blood service should liaise with religious organizations to come up with means to encouraging their members on the importance of donating blood, connecting it with their religious principles.

CHAPTER ONE

INTRODUCTION

1.0. Background to the study

The World Health Organization (WHO) estimated that, globally, of the 112.5 million blood donations (BD) collected, approximately half of these are collected in the high-income countries, home to 19% of the world's population (WHO, 2011). Furthermore, in low-income countries, up to 65% of blood transfusions are given to children under 5 years of age; whereas in high-income countries, the most frequently transfused patient group is over 65 years of age, accounting for up to 76% of all transfusions. Moreover, the BD rate in high-income countries is 33.1 donations per 1000 people; 11.7 donations in middle-income countries and 4.6 donations in low-income countries (WHO, 2011).

Studies have shown that an increase of 10.7 million BD from voluntary unpaid donors have been reported from 2008 to 2013 (WHO, 2011). In total, 74 countries collected over 90% of their blood supply from voluntary unpaid blood donors; however, 72 countries collect more than 50% of their blood supply from family/replacement or paid donors (WHO, 2011).

Current blood supply of Ghana, meets only 50% of the demand (Mamaye, 2014). Hence, the magnitude of the problem is that since the current blood supply of Ghana, meets only 50% of the demand, it means that to provide sufficient and safe blood supply, there is the need for more participation of potential donors. It is noted that

'adequate blood supply' situation of a population is expected to have a balanced ratio between the number of BD and the demand for blood transfusion (Greinacher, Fendrich, & Hoffmann, 2010).

Greinacher *et al.* (2010), explain that one of the main reasons accounting for low blood supply may be the low participation of donor population. These researchers explain that, mainly, donor population is referred to as the healthy and young individuals. The consequences of the problem are huge if not addressed. This means that because blood transfusion is an important factor in modern healthcare, such shortages could lead to many preventable deaths (Appiah, 2013).

1.1. Problem statement

Indeed, inadequate BD is a major public health problem in Sub-Saharan Africa (Appiah, 2013). There is shortage of blood supply to meet domestic demand, due to low participation of potential blood donors (Mamaye, 2014). According to the National Blood Service, Ghana (NBS), the organization is collecting approximately 50% of the domestic demand. About 26% of inpatient deaths due to maternal hemorrhage in Sub-Saharan Africa is simply from non-availability of blood when in need (Mamaye, 2014). Additionally, Mihalko (2009), says that, statistics regarding blood safety show that, 80% of world population has access to only 20% of safe blood supply, and Sub-Saharan Africa ranges between 3~25% of prevalence of HBV chronic state through BD (Lee & Allain, 2004).

Lack of knowledge of the importance of BD or where to donate blood is a simple but

prevalent issue (Appiah, 2013). For example, it was found that 79 (30%) out of 267 students in India, thought that they could contract a disease while donating blood (Devi, Laishram, Shantibala, & Elangbam, 2012). In Nepal, it was observed that, 17/31 was the mean score of Nepalese medical student's knowledge test on BD (Amatya, Prajapati, & Yadav, 2012). Knowledge accounts for BD, and especially the knowledge of blood safety and donation was significantly associated with BD status (Devi *et al.*, 2012).

Poor attitude towards BD among people also has effect on BD. A study showed that the effect of attitude was more strongly correlated with the cases of prior donations than cognition (Gillespie & Hillyer, 2002). A study in Tanzania, shows that majority of people have positive attitude toward BD when there's monetary incentives (Jacobs & Berege, 1995). However, the WHO does not encourage such practices based on the findings of these studies, and has shown that those who donate blood for monetary compensation are not safe (Gneezy, 2000).

Misperceptions of donating blood have been discovered in studies conducted in Africa (Lownik, Riley, Konstenius, Riley, & McCullough, 2012). Invariably, misperception of the public toward donating blood is also a factor that could be easily changed, but neglected. A study found that one of the typical misunderstandings about BD was that the blood donor had a high chance of getting infected by unsterile equipment (Burzynski, 2016). Other blood donors also complained of experiencing weakening of the body, through the process of donating blood (Wake & Cutting, 1998).

Some studies show that socio-demographic characteristics affect BD decision making (Allerson, 2012). Allerson (2012), reported that women in the United States of America (U.S.A.) have more positive attitude in association with BD. Moreover, religion can serve as both a motivator and demotivating factor in BD. It has been revealed that when religious leaders participated in blood drive, that itself led to increase of voluntary BD (Appiah, 2013).

1.2. Justification of the study

According to other studies, knowledge, attitude, perception (KAP) and socio-demographic characteristics are considered to be important factors that can influence participation in BD (Hada, 2008). Thus, there are quite a number of studies that have examined the relationship between BD and KAP and socio-demographic characteristics (Gillespie *et al.*, 2002; Allerson, 2012; Devi *et al.*, 2012; Lownik *et al.*, 2012). However, the studies were mostly conducted in a Sub-Saharan Africa and other contexts in general (Appiah, 2013).

Only one study was found to be precisely dealing with the issue in Ghana, but had a cultural approach, rather than researching on the knowledge, attitude, perception and socio-demographic characteristics (Appiah, 2013). Furthermore, studies that were conducted in other continents such as Asia or middle East, had some articles focused on their college students as study population (Hada, 2008; Salaudeen & Odeh, 2011; Amatya *et al.*, 2012; Devi *et al.*, 2012), but such a trend could not be found in the Ghanaian context.

Subsequently, very little is known of the influence of Ghanaian students' KAP and socio-demographic characteristics on BD. The results of the study will be an indicator for knowing current Ghanaian students' familiarity with BD. Furthermore, the findings of the study will enlighten on how best to approach potential blood donors to voluntarily donate blood. In addition, through the study, suggestions will be made regarding how the outcome can be reflected in healthcare policy formulation as well as contribute to existing literature on the topic under study.

1.3. General objective

The general objective of the study was to assess the KAP of BD among first year students of the College of Health Sciences (CHS), University of Ghana (UG).

1.3.1. Specific objectives

The specific objectives of the study were:

1. To determine the knowledge of BD among first year students of CHS.
2. To examine the attitude of first year students of CHS towards BD.
3. To evaluate the perception of BD among first year students of CHS.
4. To analyze how socio-demographic characteristics BD decision making among first year students of CHS.

1.3.2. Research questions

The following questions helped to find answers to respond to the study objectives:

1. What is the knowledge of BD among first year students of CHS?
2. What is the attitude of first year students of CHS towards BD?

3. What is the perception of BD among first year students of CHS?
4. How do socio-demographic characteristics affect BD decision making among first year students of CHS?

1.4. Outline of dissertation

The dissertation is presented according to six chapters. Chapter one presents the introduction of the study where the background to the study, problem statement, justification, objectives and research questions are presented. Chapter two presents the literature review of existing studies on the subject under discussion and conceptual framework. Chapter three is where the methods applied to collect empirical data for subsequent analysis are presented. Chapter four also presents the results analyzed from the responses to the questions administered to the students of CHS. Chapter five is where the discussions of the study findings and their relationship to existing literature are presented. The summary, conclusions and recommendations of the study are presented in chapter six.



CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.0. Introduction

This chapter, which presents the literature review of studies relating to the topic, is divided into four sections. Section one is participation in BD. Section two presents the conceptual framework where the key elements forming the basis of the study are reviewed in relation to literature. These include; knowledge of the importance of BD or where to donate blood; poor attitude towards BD among people; perception/misperception of the public towards donating blood; and the socio-demographic characteristics affecting BD decision making. Section three presents the gaps in the literature, which provided the motivation for the current study. Section four presents the summary of the chapter where the main ideas in the study are summed up.

2.1. Participation in blood donation

There is constant demand for BD from healthy donors to meet the deficiency (Kulkarni & Kulkarni, 2014). Kulkarni and Kulkarni (2014), note that, for example, India requires 8 million units of blood per year, but total collection reaches up to 4 million units only. Breakdown of it is 2 million units by voluntary blood donors, and the rest by relative and exchange donors. Reasons for such shortages are, lack of voluntary blood donors and myths regarding the BD.

Appiah (2013), argues that, BD is a public health concern for healthcare systems

throughout the world. However, in Sub-Saharan Africa, the concern is even greater than elsewhere. Thus, inadequate BD in Ghana is a major public health concern as well. This leads to deaths that are preventable, because supply does not meet demand even at 50% (Appiah, 2013).

It is a global goal to recruit new donors and at the same time retain existing donors (Marantidou *et al.*, 2007). Marantidou *et al.* (2007), explain that this requires that constant efforts to achieve balance in supply and demand, and to secure blood supplies that can be managed efficiently and effectively are needed. This will ensure that no blood is wasted.

There is also the need to focus on recruiting and retaining more donors who will volunteer to donate blood. In order to achieve all these, it is important that the KAP as well as socio-demographic factors of potential donors are well considered towards increasing participation (Marantidou *et al.*, 2007).

KAP studies on BD were conducted in seventeen developing countries, and although there was significant differences in the structure, population surveyed and conduct of the KAP studies, common themes were found: misinformation regarding BD, fear in BD, willing to donate for family and friends, concern about blood being sold and failure to transfer positive attitudes into actual BD (Lownik *et al.*, 2012). The study assessed these factors using the elements in the conceptual framework below.

2.2. Conceptual framework

The conceptual framework shown in figure 2.1, demonstrates how KAP and socio-demographic characteristics influence participation in BD and vice versa. Additionally, through the study, the researcher will be making suggestions regarding how the outcome could be reflected in policy.

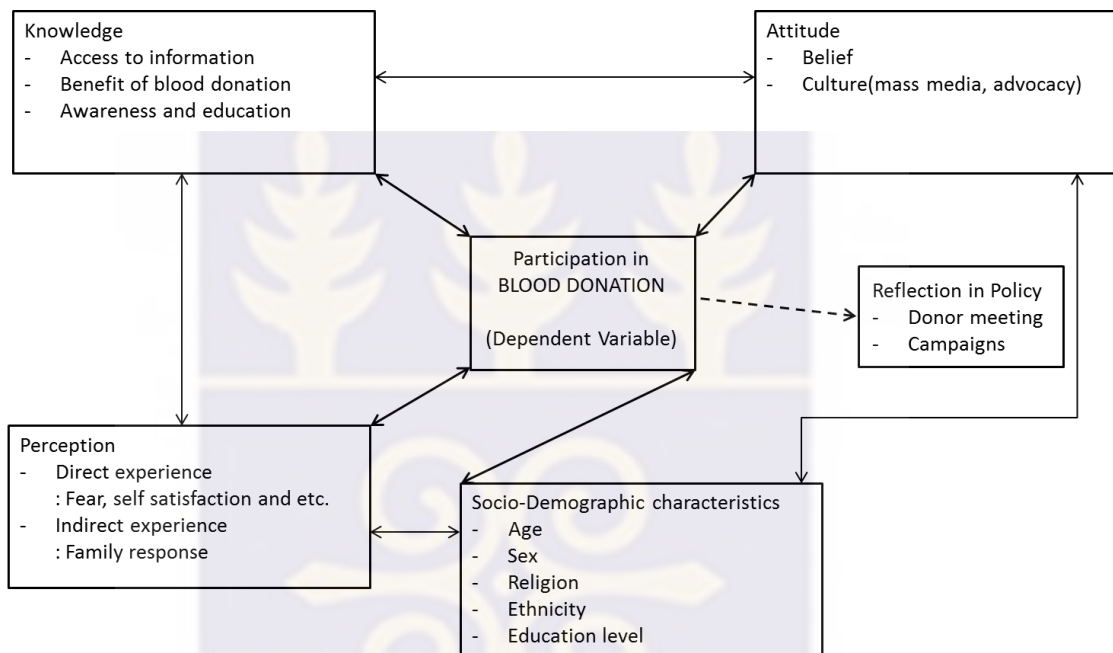


Figure 2.1: Conceptual framework of factors influencing participation in blood donation.

2.2.1. Knowledge of the importance of blood donation

The study provides an insight and opportunity to evaluate CHS students' knowledge of BD. Devi *et al.* (2012), found that 30% of students in their study in India, thought that they could contract a disease while donating blood. In a related study, Amatya *et al.* (2012), observed that, 17/31 was the mean score of Nepalese medical students'

knowledge test on BD. In both cases, lack of knowledge affected negatively the BD rate. Amartya *et al.* (2012), reported that majority of young and healthy potential donors are not donating, due to lack of awareness or information of blood collection services, which is a pitiful reason for setback to the national health issue.

2.2.2. Attitude towards blood donation among people

Attitude of the public regarding BD needs improvement in order for them to voluntarily donate blood (Kulkarni & Kulkarni, 2014). A study observed that many culture related factors influence BD, which include religious beliefs and influence of family members (Appiah, 2013). For example, Appiah (2013), argues that in African culture, blood is considered to be unique to families, which means that donating one's blood to someone you are unfamiliar has often shown resistance in African context.

There are common myths associated with BD (Olaiya, Alakija, Ajala, & Olatunji, 2004; Salaudeen *et al.*, 2011). Some of these include the idea that there is not enough blood in the body to share with others (Burzynski *et al.*, 2016), the blood donor may get an infectious disease, especially HIV (Salaudeen *et al.*, 2011), and BD causes decrease in libido for men (Olaiya *et al.*, 2004).

2.2.3. Perception/misperception of the people towards donating blood

In Ghana, misperceptions of BD such as wrong belief that hospital authorities use donated blood for rituals, or perception that the hospital sells blood to patients were mentioned as barriers to voluntary BD (Appiah, 2013). Appiah (2013), argues that such negative perceptions of blood and BD are usually passed on from generation to

generation. Moreover, the misperception and false beliefs are mostly found in non-donor groups, which were group of people who had never given blood at any time in the past, and these people will contribute continuously to limit the increase of voluntary donor population if properly not addressed (Dubey *et al.*, 2014).

2.2.4. Socio-demographic characteristics affect blood donation decision making

Studies show that socio-demographic characteristics, such as religion and sex also have certain influences on BD (Hada, 2008; Hamid, Basiruddin, & Hassan, 2013; Heineck, 2014). Hada (2008), notes that volunteering behavior occurs at different rates in different religions. The study was to show how this might be influencing BD in CHS. The question as to whether religion enhances individual's trend toward BD is a complex issue. Due to this, some religious groups, such as Jehovah's Witnesses, are opposed to blood transfusions and for Islam, debate is ongoing among Islamic denominations (Heineck, 2014).

Regardless of these notions, religion is an important factor to consider, but there are only few studies that have examined and neglected the influence of religion on BD (Heineck, 2014). Allerson (2012), says that, women in the U.S.A. have more positive attitude in association with BD, so it is necessary to observe participation in BD by sex.

2.3. Gaps in the literature

Studies have been executed in order to engender motivation for BD (Olaiya *et al.*, 2004). However, research does not study how effective current motivation tools are

influencing potential donors and their KAP positively. There is a lack of scientific evidence on how BD related policy or information sharing methods are effective. Analyzing the situation of BD among health science students in the largest university in Ghana, could help find the connections between the potential donor's KAP and current empowering methods of NBS and related organizations. The display of these connections is crucial to improve and achieve better outcome of BD rate in Ghana (Skarbalienė & Bikulčienė, 2016).

A case of India shows that, among medical students (mean age of the respondents being 21.1 years) of Regional Institute of Medical Sciences, Imphal, the proportion of students having adequate knowledge was 33.1%, and 89.8% intended to donate blood in future, but only 13.9% had ever donated blood; and such a study leads to adequate policies or helps providing guidance to proper marketing attempts (Devi *et al.*, 2012), but there are no studies found for Ghana.

College students constitute a large and important group of blood donor population. Studies report that students do not donate as much as they can, and such findings of low BD rate goes just about the same with medical students compared to non-medical students (Amatya *et al.*, 2012). Despite the importance of this age group, previous research suggested that the donation behavior of adolescents in the U.S.A. was decreasing at a shocking rate compared to the older population, and it is essential to see the trend for Ghana for preventive aspect (Allerson, 2012).

2.4. Summary of the chapter

The chapter has presented a review of studies conducted on the topic under discussion. The gaps identified have shown that, there are no specific studies examining the KAP of university students in Ghana. This provided the motivation for the conduct of this study. The next chapter presents the methods used to collect data for analysis.



CHAPTER THREE

METHODOLOGY

3.0. Introduction

This chapter presents the methods applied to collect data for the study. It consists of ten sections. Section one presents the study design. Section two presents the selection of study area. Section three presents the study variable. Section four presents the study population. Section five presents the sampling strategy used to select the study participants. Section six presents data collection techniques used. Section seven presents the data analysis tools employed. Section eight also presents pretesting of the study tool before the main study. Section nine presents the ethical consideration. Section ten presents the summary of the chapter where the main ideas in the chapter are summed up.

3.1. Study design

The study applied a descriptive cross-sectional study using quantitative research methods. Cross-sectional study is simply a snapshot of the outcome situation at a point in time (Alexander, Lopes, Ricchetti-masterson, & Yeatts, 2015). It is also a type of observational study, in which associations between a factor of interest and a particular disease or outcome are investigated. And because the researcher will collect information only on prevalence of a condition, it is categorized as descriptive study (Alexander *et al.*, 2015). Quantitative research method is used to produce generalizable results. Conclusions made from the analysis of quantitative data will help the researcher to know the effects of factors, and where the bull's eye of impact is, and what the key variables are (Choy, 2014).

3.2. Study area

The study was conducted at Legon Campus of UG, which is the largest university in Ghana, founded in August, 1948 (University of Ghana, 2016). The student population was over 38,000 made up of students enrolled on various programs and international students come from over 70 countries (University of Ghana, 2016).

The CHS is an amalgamation of various institutions within the UG that train health professionals. The College is currently made up of the following six institutions: UG, School of Public Health, School of Nursing, School of Pharmacy, School of Medicine & Dentistry, School of Biomedical & Allied Health Sciences, and Noguchi Memorial Institute of Medical Research (University of Ghana, 2016).

3.3. Study variables

The study measured both dependent and independent variables as explained below.

3.3.1. Dependent variable

Participation in BD.

3.3.2. Independent variables

The independent variables are:

1. Socio-demographics characteristics (Age, sex, religion, ethnicity, education level).
2. Knowledge of BD (Access to information, benefit of BD, awareness and education).

3. Attitude towards BD (Beliefs, culture: mass media, advocacy).
4. Perception of BD (Direct experience: fear, self-satisfaction / indirect experience: family response).

3.3.3. Hypotheses of the study

The study tested following hypotheses in an attempt to access the KAP factor's influence on the intention to donate blood:

H₁: Knowledge of BD can enhance participation amongst first year students of CHS.

H₂: Positive attitude can encourage participation in BD among first year students of CHS.

H₃: Perception of BD can increase participation among first year students of CHS.

H₄: Socio-demographic characteristics of students can influence their participation in BD decision making among first year students of CHS.

3.4. Study population

The population of the study was drawn from the UG CHS first year students on Legon Campus. They included students of the School of Public Health, School of Nursing, School of Pharmacy, and among others, who are the future workforce in Ghana's health system. The reason for selecting first year students was that, once knowing these potential donors' KAP, other studies could take part for adequate culture

implementation, training and advocacy to improve their KAP before graduation.

3.4.1. Inclusion criteria

The study considered those students who were in their first year of School of Public Health, School of Nursing, School of Pharmacy, School of Medicine & Dentistry, and School of Biomedical & Allied Health Sciences.

3.4.2. Exclusion criteria

The study excluded first year students that were a visiting student or an exchange student that were from non-African country, and having been in Ghana for less than a year.

3.5. Sampling

The quantitative cross-sectional study method used questionnaires as tools for the randomly selected first year students of CHS, UG. The sampling ratio of the sample size of each school's total population divided by the total sample population was calculated. That is, from the total sampling population of CHS, students were randomly selected by proportion from each school's population. Hence, the total sample size for this study was 267 students, with Medicine Surgery students the most and Occupational Therapy students the least.

3.6. Sample size

The sample was brought from the population of registered students in the CHS during the 2016/2017 academic year. Sample size was calculated based on the following

conditions; Confidence level/interval was fixed as (1- α) to be 95%, and a p -value of <0.05 to be significant. Krejcie and Morgan's (1970), formula:

$$S = [X^2NP(1-p)] / [d^2(N-1) + X^2P(1-p)]$$

Where,

'S' is the required sample size,

'X' is the Z value, selected critical value of desired confidence level which is 1.96 (95%).

'N' is the population size.

But, since there is no local research done on KAP and BD, Bantayehu's (2015), logic is used, thus, 'P' was set at 50%.

'd' is the degree of accuracy, or margin of error to be tolerated (0.05) and 10% non-response rate is considered.

Therefore, $n = 242$, plus 10% for non-response rate = 267.

The breakdown of the sample size based on the number of students from the various schools within the College of Health Sciences is shown in table 3.1.

Table 3.1: Details of sample population (CHS)

No.	Program / School		Number Registered	Sample Size
1.	Medicine	Medicine Surgery	151	66
2.	& Dentistry	Dental Surgery	23	10
3.	Pharmacy		67	29
4.	Public Health		33	14
5.	Nursing		130	57
6.	Biomedical &	Dietetics	20	9
7.	Allied Health	Diagnostic Radiography	49	21
8.	Sciences	Medical Lab. Science	75	33
9.		Dental Lab. Science	17	7
10.		Occupational Therapy	9	4
11.		Physiotherapy	38	17
Total			612	267

3.7. Data collection and management

The quantitative research method was applied to collect data for analysis. The procedures used have been explained below.

3.7.1. Questionnaire design and administration

A structured questionnaire was administered to assess the independent variables to a

randomly selected first year students of CHS, UG. Thus, the data was collected by administering a structured questionnaire to the research participants. The questionnaire was divided into five sections. Section one sought information on participant's socio-demographic characteristics (age, sex, religion, and ethnicity). Section two sought information on participants' knowledge of BD (access to information, benefit of BD, awareness and education). Section three sought information on participants' attitude towards BD (beliefs and culture: mass media, and advocacy). Section four sought information on participants' perception of BD (direct experience: fear and self-satisfaction / indirect experience: family response). Section five sought socio-demographic characteristics of BD decision making. The questionnaires were interviewer-administered, and each lasted between 10 and 15 minutes. The tool is depicted in table 3.2 below.

3.7.2. Tools and technique

Variables were measured with Likert scale (1932) and Bloom's cut off points (Glass, 1978) were used for overall knowledge scores in two levels. For question 26, under 'attitude towards BD' the section was measured with Likert scale method.

Table 3.1: Tools and techniques to be used for respective objectives

S.N.	Objectives	Tools	Technique(s)
1	To assess the knowledge of blood donation	Questionnaire	Self-administered questionnaire
2	To examine the attitude of blood donation	Questionnaire	Self-administered questionnaire
3	To evaluate the perception of blood donation	Questionnaire	Self-administered questionnaire
4	To analyze the influence of socio-demographic characteristics on blood donation	Questionnaire	Self-administered questionnaire

3.7.3. Pretesting

Pre-testing of data collection tools was done at UG School of Public Health prior to data collection to confirm feasibility of the survey tools. Study materials were explained thoroughly to the participants, prior to data collection. A research assistant was trained to carry out accurate survey. Survey questions were checked by the principal researcher.

3.8. Data analysis

Descriptive statistics were used to assess the level of KAP of BD. Data was processed and analyzed using STATA version 13. Statistical techniques applied included Chi square test of significance. This test was applied to examine the association between

KAP and participation in BD. A p -value of <0.05 was taken as statistically significant.

Data collection was done by the researcher from April 24 to May 10. All questionnaires that were collected back were checked for mistakes and completeness. Questionnaires with vague responses or which had missing information that could not be clarified was excluded. The data was entered in an MS Excel spreadsheet platform and exported into STATA 13 (StataCorp LP, College Station, TX, USA). Double data entry and cleaning was done to reduce data entry errors and validated authenticity.

3.9. Ethical consideration

Ethical consideration is an important part of the research study, which is to protect both, the research participants and the researcher. Consequently, approval to conduct this study was sought from the Local Ethics Review Committee of the Ministry of Health / Ghana Health Service. Approval to conduct the study at each target schools was also sought from the deans of the respective schools. All data are confidential and were saved on the personal computer under password applied document and a backup stored on an external hard drive and kept in a safe place under lock. Other actions taken to secure participants' information and assure them of the confidentiality are explained below. The name and identity of the respondent was not needed for the study. The information provided was only identified by a code number and was treated strictly confidential. Respondents' name did not appear nor was it mentioned in any part of the report of this study.

3.9.1. Reward

There was no money or reward of any kind attributed to the survey. Whosoever was involved could withdraw at any time and the data collected before a student's withdrawal from the survey, remained confidential, and used for the purpose of the survey.

3.9.2. Potential risks/benefits

The study did not pose any harm to the participants, but rather, the results of the study would help strengthen the public health education and improve policy planning in Ghana. The respondents' involvement in this study was only through questionnaires and therefore, was not exposed to any form of risks.

3.9.3. Voluntary consent

Participation in the study was solely voluntary and participants were free to opt out from any part of the study, without any penalty in opting out.

3.9.4. Privacy/confidentiality

All data obtained with the hard copy of the questionnaire would be destroyed by incineration after a period of one year. And the soft copies would be deleted with no trace on the personal computer and external drive.

3.9.5. Compensation

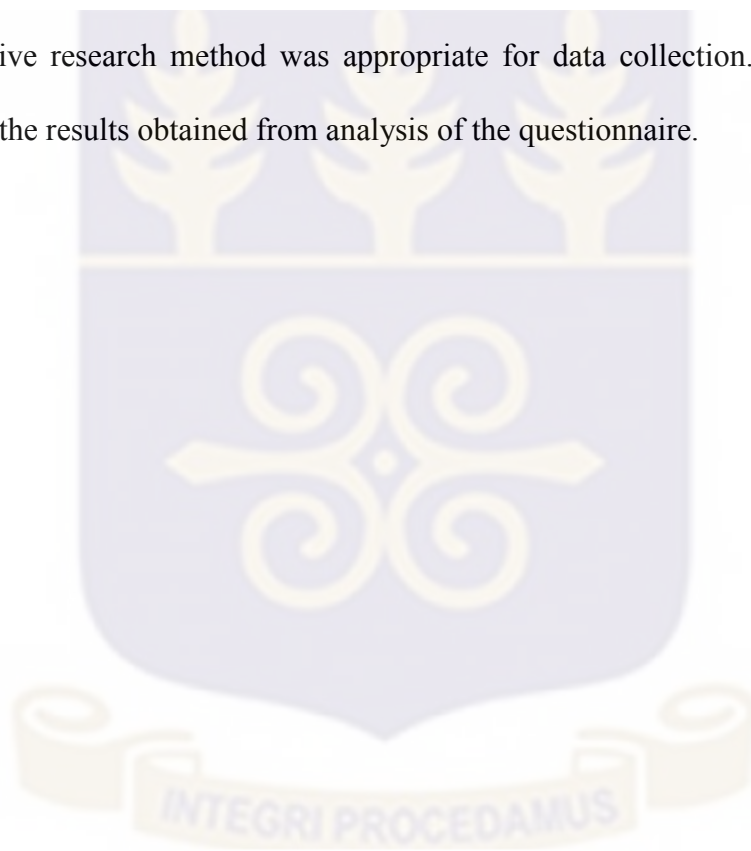
There were neither financial benefits nor other materialistic benefits to participants after administration of questionnaire.

3.9.6. Conflict of interest

There is no conflict of interest whatsoever related to the study. The study is solely for academic work and responses to the questionnaires would be for the intended, mentioned goal only.

3.10. Summary of the chapter

The chapter presented the quantitative methods that were adopted to conduct data for subsequent analysis in the study. It has shown that using a cross-sectional within the quantitative research method was appropriate for data collection. The next chapter presents the results obtained from analysis of the questionnaire.



CHAPTER FOUR

PRESENTATION OF THE STUDY RESULTS

4.0. Introduction

This chapter presents the results of the study on the KAP toward BD among UG CHS first year students on Legon Campus. The chapter is divided into seven sections. Section one presents the socio-demographic characteristics of the respondents. Section two presents results of the knowledge of BD. That is, the reasons for donating blood and not donating blood, and students' credibility on NBS. Section three presents results of the attitude of students towards BD. Section four presents the results regarding the perception of BD. Section five presents the results of the socio-demographic characteristics of BD decision making. Section six presents the results of the relationship between background characteristics and BD status. That is, the section covers the associations between respondents' background characteristics and blood donating status. Section seven presents the summary of the chapter where the key ideas of the chapter are summed up.

4.1. Socio-demographic characteristics of the respondents

The study recruited 267 students; and the response rate of 125.5% was recorded. Table 4.1 shows the personal information of the respondents. A high proportion of the students were aged 16-20 years, with an average age of 19.7 years ($SD = \pm 3.6$) and more than half (188) of the students were females (56.1%). Almost all the students were Ghanaians (97.6%) and many of them come from the Eastern region of Ghana (21.5%). About 290 (87%) of them were Christians and mostly unmarried (94.6%). Majority of the students were of blood grouping type O, Rh+ (32.8%), but had mostly

never donated blood before (85.4%). Among those who were blood donors, about 36 (75%) of them had only donated once and an average of 1.3 donations among them. Looking at the schools, School of Nursing had the most participants, contributing 26.3% of the responses. School of Biomedical & Allied Health Sciences (24.2%) and School of Medicine & Dentistry (22.9%) follow, with more than 20% contribution. School of Public Health had the least participants (8.1%).

Table 4.1: Socio-demographic characteristics of the respondents

Characteristics	Frequency	Percent(%)
Age		
16-20	280	83.6
21-25	27	8.1
26-30	18	5.4
31 and above	10	3.0
Gender		
Male	147	43.9
Female	188	56.1
Nationality		
Ghanaian	327	97.6
Other West Africa Countries	5	1.5
Other Africa Countries	3	0.9
Others		
Affiliate School		
Nursing	88	26.3
Pharmacy	62	18.5
Public Health	27	8.1
Medicine & Dentistry	77	22.9
Biomedical & Allied Health Sciences	81	24.2
Religion		
Christianity	290	86.6
Catholic	28	8.3
Islam	14	4.2
None	2	0.6
Others	1	0.3
Marital status		
Unmarried	317	94.6
Married	18	5.4
Blood type		
A, Rh+	35	10.4
A, Rh-	12	3.6
B, Rh+	39	11.6

B, Rh-	8	2.4
AB, Rh+	12	3.6
AB, Rh-	7	2.1
O, Rh+	110	32.8
O, Rh-	27	8.1
Not sure	85	25.4
Region		
Ashanti	56	16.7
Brong Ahafo	18	5.4
Central	52	15.5
Eastern	72	21.5
Greater Accra	38	11.3
Northern	5	1.5
Upper East	17	5.1
Upper West	10	3.0
Volta	52	15.5
Western	7	2.1
Others	8	2.4
Donation status		
Yes	49	14.6
No	286	85.4
Number of times		
1	36	73.5
2	11	22.5
Above 2	2	4.0

Source: Field Study, 2017

4.2. Knowledge of blood donation

The results showed that students had fair general knowledge of BD. Table 4.2 presents information on the students' knowledge of BD. A high proportion of the students correctly indicated that those aged between 17 and 60 years can donate blood, 311 (92.8%), can safely donate blood at four monthly intervals, 254 (75.8%) and that, donating blood does not make one unhealthy or ill, 282 (84.2%). Furthermore, majority of the students knew that, weighing more than 50kg qualifies one to be accepted to donate blood, 249 (74.3%), donated blood are stored for 35 days in designated blood bank fridges, 237 (70.8%), and the blood collection sets (needles) used are sterile and disposable, 319 (95.2%). However, most of the students did not

know the amount of blood one can donate in a single time, 174 (51.9%), and also incorrectly indicated that BD process takes only 5 minutes, 225 (67.2%).

Table 4.2: Knowledge of blood donation

Statements	Yes, n (%)	No, n (%)
You can donate if you are between the ages of 17 and 60 years	311 (92.8)	24 (7.2)
You can safely donate blood at four monthly intervals	254 (75.8)	81 (24.2)
The amount of blood a person can donate in a single time is 700ml.	174 (51.9)	161 (48.1)
Donating blood makes one unhealthy or ill	53 (15.8)	282 (84.2)
If you weigh 50kg. and more, you can be accepted for donation	249 (74.3)	86 (25.7)
Blood is stored for 35 days in designated blood bank fridges	237 (70.8)	98 (29.2)
Donation process takes 5 minutes	225 (67.2)	110 (32.8)
The blood collection sets (needles) used are sterile and disposable	319 (95.2)	16 (4.8)

Source: Field Study, 2017

4.2.1. Overall knowledge level of blood donation

The overall knowledge of BD was measured on 8 questions. The correct response for each question was assigned '1' mark and an incorrect response was assigned '0' mark. The scores were added up to give the total marks scored by respondents on knowledge of BD. Respondents who scored 5 and above were classified as having good/adequate knowledge and those with scores less than 5 were classified as having a poor/inadequate knowledge. Thus, 86.3% of the study respondents had good/adequate knowledge while 13.7% of the respondents had poor/inadequate knowledge of BD.

The results are shown in table 4.3.

Table 4.3: Overall knowledge level of blood donation

Knowledge level	Frequency	Percent (%)
High/adequate	289	86.3
Low/inadequate	46	13.7

Source: Field Study, 2017

4.3. Attitude of students towards blood donation

The attitude of students towards BD, as shown in tables 4.3a and 4.3b reveals that, students mostly indicated they would donate blood if it is needed for someone they knew, 189 (56.4%) and about 106 (31.6%) of them said they would do so out of moral satisfaction. However, being medically unfit to donate, 168 (50.1%) and not being requested to donate blood, 73 (21.8%) were mostly cited as reasons for not donating blood. More than half of the students, 202 (60.3%) who were not donors expressed their intentions to be donors whereas, 38 (11.3%) of them who were permanent donors had the intention of staying as donors. Most of the students, 244 (72.8%) couldn't express their feelings after BD as they had never donated before. However, about 39 (11.6%) of them indicated that, one feels as normal, routine or necessary exercise after donating blood. A high proportion of the students were of the opinion that BD is important and necessary, 272 (81.2%). The results are shown in table 4a.

Table 4.4a: Attitude towards blood donation

Statement	Frequency	Percent(%)
Reasons for donating blood*		
Moral satisfaction	106	31.6
Blood needed for someone you know	189	56.4
As an experience	40	11.9
Other reasons	91	27.1
Reasons for NOT donating blood*		
Medically unfit to donate	168	50.1
No request to donate	73	21.8
No time to donate	50	14.9
Have no information about where, when, how to donate	42	12.5
Parents do not allow	26	7.8
Fear of weakness after blood donation	80	23.9
Fear related to venipuncture	45	13.4
Fear of contracting disease	45	13.4
Fear of adverse effects	63	18.8
Other reasons	35	10.4
Intentions toward blood donation		
A permanent donor and will stay so	38	11.3
A permanent donor but will not stay so	11	3.3
Not a donor but I intend to be	202	60.3
Not a donor and I do not intend to be	84	25.1
Feeling after blood donation		
A sense of joy as born again	13	3.9
Normal, Routine, or necessary you know	39	11.6
No specific feeling	34	10.2
Unhappy, irritated, bad experience	5	1.5
Never done it before	244	72.8
Blood donation and remuneration		
I do not like donation and will not do so if money is offered	27	8.1
I do not like donation but will accept if money is offered	3	0.9
I like donation but will not accept money if offered	68	20.3
I like donation and will accept money if offered	28	8.3
Never done it before	209	62.4
Personal opinion on blood donation		
Important and necessary	272	81.2
Not important	16	4.8
Desirable	47	14.0

*multiple responses allowed

Source: Field Study, 2017

Student respondents who would not hesitate to donate blood when an acquaintance needed blood urgently, was 285 (85.1%). Most of the students, 144 (43.0%) indicated that, donating blood in the next 8 weeks would be useful and about 223 (66.6%) of them believed BD is extremely safe. The results are displayed in table 4b.

Table 4.4b: Attitude towards blood donation (cont'd)

Statement	Frequency	Percent(%)
Donate when your acquaintance needs blood urgently		
Yes, with no hesitation	285	85.1
Yes, but I'll be forced to do so	18	5.3
Not at all	15	4.5
Rather look for others to offer such help	17	5.1
Donating blood within the next 8 weeks would be*		
Useless	33	9.9
Useful	144	43.0
Pointless	19	5.7
Worthwhile	143	42.7
The wrong thing to do	32	9.6
The right thing to do	130	38.8
Unpleasant	32	9.6
Pleasant	103	30.7
Unenjoyable	40	11.9
Enjoyable	46	13.7
Frightening	51	15.2
Not frightening	61	18.2
Blood donation is extremely safe		
Yes	223	66.6
No	112	33.4

*multiple responses allowed

Source: Field Study, 2017

4.3.1. Overall attitude towards blood donation

The overall attitude towards BD was measured on 9 questions. The positive response for each question was assigned '1' mark and a negative response was assigned '0' mark. The scores were added up to give the total marks scored by respondents on attitude towards donating blood. Respondents who scored 4 and above were classified as

having positive attitude and those with scores less than 4 were classified as having a negative attitude. Thus, 51.9% of the study respondents had positive attitude while 48.1% of the respondents had negative attitude toward BD. The results are detailed in table 4.5.

Table 4.5: Overall attitude towards blood donation

Attitude level	Frequency	Percent(%)
Positive	174	51.9
Negative	161	48.1

Source: Field Study, 2017

4.4. Perception of blood donation

Perceptions of BD were examined mostly based on students' experience with NBS' facility or services rendered. Table 4.6 shows the detail perception of students of BD. Overall, most of the students held good perception of BD. The majority of the students had trust in the blood bank's distribution facility and sterilization of equipment, 201 (60.0%), had no fear that blood banks would take too much blood, 237 (70.7%) and did not believe the NBS' donation process is long and boring, 217 (64.8%). More than half of the students, 191 (57.0%) indicated that no one ever asked for donation and never thought to donate, and about 308 (92.0%) of them believe that, donating blood saves lives. Almost 307 (91.6%) of the students further dispelled the notion that their blood is "dirty" and may harm the recipient. However, more than half of the students, 172 (51.3%) were afraid of the needle prick.

Table 4.6: Perception of blood donation

Statements	Yes, n(%)	No, n(%)
Do you trust the blood bank's distribution facility and sterilization of equipment	201 (60.0)	134 (40.0)
Do you fear that blood banks would take too much blood	98 (29.3)	237 (70.7)
Blood bank's donation process is long and boring	118 (35.2)	217 (64.8)
I fear the needle prick	172 (51.3)	163 (48.7)
No one ever asked for donation and never thought to donate	144 (43.0)	191 (57.0)
My blood is "dirty" and may harm the recipient	28 (3.4)	307 (91.6)
I think donating blood saves lives	308 (91.9)	27 (8.1)

Source: Field Study, 2017

4.4.1. Overall perception of blood donation

The overall perception of BD was measured on 7 questions. The positive response for each question was assigned '1' mark and a negative response was assigned '0' mark.

The scores were added up to give the total marks scored by respondents on perception of BD. Respondents who scored 4 and above were classified as having good perception and those with scores less than 4 were classified as having poor perception.

Thus, 80.9% of the study respondents had good perception while 19.1% of the respondents had poor perception of BD. The results are indicated in table 4.7.

Table 4.7: Overall perception of blood donation

Perception	Frequency	Percent(%)
Good	271	80.9
Poor	64	19.1

Source: Field Study, 2017

4.5. Socio-demographic characteristics of blood donation decision making

The results of socio-demographic characteristics of BD decision making were analyzed, and are displayed in table 4.8. Most of the students, 193 (57.6%) indicated that, one should most actively donate blood regardless of the status and following expectations indicate that young male group should take the lead in donating blood (36.4%). Students are mostly motivated to donate blood because of their concerns for others, 250 (74.6%). The main reasons for low BD rate in Ghana according to the students, were incorrect knowledge of donation, 190 (56.7%), and lack of concern for others, 70 (20.9%). About 233 (70%) of the students indicated that, their religious practice or convictions had encouraged them to donate blood, whilst about a third of them said that, their family, friends, and teachers do really support the idea of BD, 253 (75.5%). The students were mostly of the view that, BD is 'my civic duty', or a 'way to help out the community', 274 (81.8%).

Table 4.8: Socio-demographic characteristics of blood donation decision making

Statements	Frequency	Percent(%)
Group of people should donate most actively		
Young Male	122	36.4
Young Female	16	4.8
High Income	2	0.6
Old Male	1	0.3
Old Female	1	0.3
Regardless	193	57.6
Motivation for donating blood		
Concern for others	250	74.6
Group blood donation	22	6.6
Receiving acknowledgement	5	1.5
Curiosity	5	1.5
Health check-up	36	10.8
Other reason	17	5.0

The main reason for low blood donation rate in Ghana

Lack of concern for others	70	20.9
Incorrect knowledge of donation	190	56.7
Lack of promotion	19	5.7
Lack of governmental support	9	2.7
Lack of opportunities in donation	6	1.8
Religious factor	33	9.9
Cultural factor	8	2.3

Family, friends, and teachers do not really support the idea of blood donation

Yes	82	24.5
No	253	75.5

Religious practice or convictions have encouraged me to donate blood

Yes	233	69.6
No	102	30.4

Blood donation is my civic duty, or it's a way to help out the community

Yes	274	81.8
No	61	18.2

Source: Field Study, 2017

4.6. Relationship between socio-demographic characteristics, blood donation factors and blood donating status

This section explains factors associated with BD among the students. A simple logistic regression (univariate) analysis revealed no statistically significant association between background characteristics and BD. Having a high/adequate knowledge and good perception of BD were also found not to be associated with BD among the students. Nevertheless, students who were not sure of their blood group (OR=0.34; 95% CI=0.12-0.95), and those who had positive attitude towards BD (OR=18.93; 95% CI=5.75-62.27) were found to be associated with BD.

In multivariate analysis using significant variables at the univariate analysis as candidates, the results showed that students who were of O, Rh- blood group

(OR=0.16; 95% CI=0.03-0.89), and those who were not sure of their blood group (OR=0.30; 95% CI=0.10-0.94) were at reduced odds of BD when compared with students with A, Rh- blood group. Furthermore, students who had positive attitude towards BD (OR=20.07; 95% CI=6.04-66.71) were more likely to donate blood than those who had negative attitudes. The results are summarized in table 4.9.

Table 4.9: Relationship between background socio-demographic characteristics, blood donation factors and blood donating status

Factors	Donation status		Unadjusted OR(95% CI)	Adjusted OR(95% CI)
	Yes, n(%)	No, n(%)		
Age				
16-20	41 (14.6)	239 (85.4)	1	
21-25	2 (18.5)	22 (81.5)	1.32(0.47-3.70)	
26-30	1 (5.6)	17 (94.4)	0.34(0.04-2.65)	-
31 and above	2 (20.0)	8 (80.0)	1.46(0.30-7.11)	
Gender				
Male	26 (17.7)	121 (82.3)	1	
Female	23 (12.2)	165 (87.8)	0.65(0.35-1.19)	-
Nationality				
Ghanaian	48 (14.7)	279 (85.3)	1	
Other countries	1 (12.5)	7 (87.5)	0.83(0.10-6.90)	-
Affiliate School				
Nursing	9 (10.2)	79 (89.8)	1	
Pharmacy	6 (9.7)	56 (90.3)	0.86(0.20-3.71)	
Public Health	3 (11.1)	24 (88.9)	1.82(0.48-6.84)	-
Medicine & Dentistry	16 (20.8)	61 (79.2)	2.10(0.56-7.86)	
Biomedical & Allied Health Sciences	15 (18.5)	66 (81.5)	0.91(0.23-3.64)	
Religion				
Christianity	43 (14.8)	247 (85.2)	1	
Catholic	4 (14.3)	24 (85.7)	0.96(0.32-2.90)	
Islam	1 (7.1)	13 (92.9)	0.44(0.06-3.47)	-
None	1 (33.3)	2 (66.7)	2.87(0.25-32.37)	
Marital status				
Unmarried	46 (14.5)	271 (85.5)	1	
Married	3 (16.7)	15 (83.3)	1.18(0.33-4.23)	-
Blood type				

A, Rh+	9 (25.7)	26 (74.3)	1	1
A, Rh-	1 (8.3)	11 (91.7)	0.26(0.03-2.33)	0.26(0.03-2.69)
B, Rh+	5 (12.8)	34 (87.2)	0.42(0.13-1.42)	0.43(0.11-1.64)
B, Rh-	0 (0.0)	8 (100.0)	-	-
AB, Rh+	2 (16.7)	10 (83.3)	0.58(0.11-3.15)	0.53(0.08-3.39)
AB, Rh-	0 (0.0)	7 (100.0)	-	-
O, Rh+	21 (19.1)	89 (80.9)	0.68(0.28-1.67)	0.54(0.20-1.48)
O, Rh-	2 (7.4)	25 (92.6)	0.23(0.05-1.18)	0.16(0.03-0.89)*
Not sure	9 (10.6)	76 (89.4)	0.34(0.12-0.95)*	0.30(0.10-0.94)*
Region				
Ashanti	9 (16.1)	47 (83.9)	1	
Brong-Ahafo	1 (5.6)	17 (94.4)	0.31(0.04-2.61)	
Central	10 (19.2)	42 (80.8)	1.24(0.46-3.35)	-
Eastern	10 (13.9)	62 (86.1)	0.84(0.32-2.24)	
Greater Accra	3 (7.9)	35 (92.1)	0.45(0.11-1.78)	
Northern	0 (0.0)	5 (100.0)	-	
Upper East	4 (23.5)	13 (76.5)	1.61(0.43-6.07)	
Upper West	3 (30.0)	7 (70.0)	2.24(0.49-10.33)	
Volta	7 (13.5)	45 (86.5)	0.81(0.28-2.37)	-
Western	1 (14.3)	6 (85.7)	0.87(0.09-8.13)	
Others	1 (12.5)	7 (87.5)	0.75(0.08-6.82)	
Knowledge level				
Low/inadequate	4 (8.7)	42 (91.3)	1	
High/adequate	45 (15.6)	244 (84.4)	1.94(0.66-5.67)	-
Perception level				
Poor	6 (9.4)	58 (90.6)	1	
Good	43 (15.9)	228 (84.1)	1.82(0.74-4.49)	-
Attitude				
Negative	3 (1.9)	158 (98.1)	1	1
Positive	46 (26.4)	128 (73.6)	18.93(5.75-62.27)*	20.07(6.04-66.71)*

*p<0.05; OR=odds ratio; CI=confidence interval

Source: Field Study, 2017

4.7. Summary of the chapter

The chapter has presented results obtained from the analysis of the responses to the questionnaire by the students. It showed among other things that, there was no significant relationship between socio-demographic characteristics and BD. Nonetheless, it also showed that, students who had positive attitude towards BD were more likely to donate blood than those who had negative attitudes. The next chapter presents the discussion of the results in relation to literature.



CHAPTER FIVE

DISCUSSION OF THE STUDY RESULTS

5.0. Introduction

This cross sectional study was conducted to assess the KAP of BD among students. The study involved first year students in UG, with the average age of 19.7 years old who were enrolled in CHS. This chapter discusses the outcome of the research, along with its objectives and hypothesis developed for the study and also how the results correspond with other literature. There are five sections in this chapter. Section one discusses the students' knowledge of BD. Section two discusses the students' attitude towards BD. Section three discusses the perception of BD among students. Section four discusses the socio-demographic characteristics of the students. Finally, section five presents the summary of the chapter where the key findings of the chapter are summed up.

5.1. Knowledge of blood donation

This section presents the discussion of findings relating to the knowledge of BD amongst UG CHS students and discussed in relation to existing literature. In this study, a significant proportion of participants (86.3%) had good/adequate knowledge of BD. A study by Amatya *et al.* (2012), recorded a similar response (83.8%) in Nepal. However, the regression analysis did not show any significant relationship. Thus, the first hypothesis that, 'knowledge of BD can enhance participation amongst first year students of CHS' is nullified. This finding indicates that, good/adequate knowledge alone may not increase the youth's participation in BD in Ghana.

Study found that, most of the students did not know the amount of blood one could donate in a single time (51.9%), and also 67.2% of the students incorrectly indicated that, BD process takes only 5 minutes. On the other hand, a study in Imphal, India observed a lower knowledge regarding amount of blood a person could donate in a single time - only 28.9% of the students correctly answered the question (Devi *et al.*, 2012). Majority of respondents (92.8%) were aware of the age requirement, which shows better knowledge than the university students in Bangladesh (17.5%) (Lownik *et al.*, 2012).

Additionally, this study found that, more than half (75.8%) of the respondents had knowledge of the intervals or how often an individual could safely donate blood in Ghana. As lack of knowledge of BD interval is not just among ordinary people, but also among health professionals - this result was rather surprising compared with earlier findings (Nwogoh, Aigberadion, & Nwannadi, 2013). Other surprising result was that, 74.3% of the participants correctly knew the weight requirements, while a study of college students of Kathmandu, Nepal only had 19.8% answering correctly (Amatya *et al.*, 2012).

With regards to participants' knowledge of whether BD makes one unhealthy or ill, 84.2% said 'no', meaning that majority of the participants had correct knowledge of long-term risks BD could pose to donors. However, college students of Kathmandu, Nepal, had incorrect knowledge of it, having average incorrect answer rate of 76.18% related to the questions regarding 'knowledge of long-term risks to donor' (Amatya *et al.*, 2012). This study also found that, 95.2% of the respondents knew that blood

collection sets (needles) used were sterile and disposable. This could be as a result of the intensive campaigns, emphasizing the safety of BD, which have been going on in Ghana through NBS continuously - such events are also shared on the NBS website (National Blood Service Ghana, 2017).

5.2. Attitude towards blood donation

This section presents the findings and how they relate to literature in respect of the CHS students' attitude towards BD. The study revealed that, students mostly would donate blood if it was needed for someone they knew, 56.4% and following, about 31.6% of them said they would do so out of moral satisfaction. While moral satisfaction or humanity was the commonest reason for donation for medical students in Nepal (Amatya *et al.*, 2012), it was moral satisfaction (27.2%) that was most dominant reason for donating blood in this study.

Regarding reasons for not donating blood, most frequent reason was being medically unfit to donate (50.1%). Not being approached for donation was the next highest reason for not donating blood (21.8%). Generally, Ghanaians are sympathetic in nature (Myjoyonline, 2013), and so with adequate marketing approach and increasing exposures of BD drives, and most importantly, checking precisely whether the person is eligible to donate blood, people and most especially, the youths' BD rate can increase.

Attitude related to BD and remuneration was studied as well. This was worth studying because altruism is an important motivation for voluntary BD. Besides, blood donor

system in Ghana heavily depends on a mix of voluntary non-remunerated and replacement donors with majority of donors recruited as family replacement donors (Tanye, 2015). Excluding the participants indicated themselves as they had 'never done it before', the results for relationship between monetary incentives and BD among the participants showed that, money is not a strong motivation for young students.

This phenomenon was also the case in the findings of Mellström (2008), which demonstrated that, in Gothenburg, Sweden, 43% of the study group volunteered to donate blood when there was no monetary compensation, while it decreased to 33% when payment was given. In contrast, 89.9% of the participants in Lithuania were paid donors, which dropped to 28.4% when no remuneration was offered (Buciuniene, 2006). Studies conducted in the USA showed that, incentives such as blood credits, cholesterol screening, and prostate-specific antigen screening motivated 61% of the participants, showing the potential motivation factor to be non-monetary mode (Glynn *et al.*, 2003).

Nonetheless, answers showed that, whether participants like to donate blood or not, money is not the motivation, as only 9.2% indicated that, they would accept money, if offered. As 'The Melbourne Declaration' on 100% voluntary non-remunerated donation of blood and blood components insist that from 2020, in all countries, the blood components are to be prepared only by the blood donated by voluntary, non-remunerated donors' (WHO, 2009), this tendency is very hopeful.

A positive attitude towards BD was also detected in majority of the respondents since almost all of them agreed that BD was important and necessary (81.2%), and positive intentions to be a donor was shown (60.3%). However, it is important to note that, for overall response, only a little over half (51.9%) of the study respondents showed positive attitude towards BD and this didn't increase the BD rate. Further to this, the regression analysis did not show any significant relationship. Hence, the second hypothesis that 'positive attitude can encourage participation in BD among first year students of CHS' is also nullified in this study. This finding is aligned with the results shown in Nwogoh *et al.*'s (2013), work in which 81.6% of respondents had positive attitude toward BD, but only 22.1% had donated blood previously.

5.3. Perception of blood donation

This section presents the discussion of findings on the perception of BD of participants based on the experience with NBS, and in relation to prevailing literature. The study mainly found good perceptions (80.9%). More than half (60.0%) of the students had trust in the blood bank's distribution facility and sterilization of equipment, with 'having no fear that blood banks would take too much blood' recording (70.7%). Additionally, they 'did not believe the NBS' donation process was long and boring' (64.8%). Looking at the fact that, donation facility's services such as opening hours, friendliness of staff, and long process are considered as potential deterrents to BD for students in the USA (Yuan, 2011), it could be assumed that, NBS is constantly improving to render fair and safe services and thus, students are in favor of their performance in Ghana (Ghana News Agency, 11 November, 2017).

Another factor that participants thought could discourage them from donating blood was fear of the needle prick (51.3%). A study in Canada, which investigated individual and contextual determinants of multiple donations, concluded that, fear of needles, along with uncertainty about the blood system or lost time were top factors, which influenced potential donors to hesitate in donating blood for the first time (Cimaroli *et al.*, 2011).

When study participants were asked whether BD saves lives, an overwhelming number said it does (91.9%), which evidently proves that, they have good perception. However, these overall positive perceptions did not lead to increase in BD. Consequently, there was no significant relationship between this factor and blood donating status when the regression analysis was conducted. Thus, the third hypothesis that 'perception of BD can increase participation among first year students of CHS' should be rejected accordingly. In contrast, a study of citizens in King Abdulaziz Medical city showed that, an increase in blood donors' pool was possible when negative perception of BD was decreased (Alfouzan, 2014).

5.4 Socio-demographic characteristics

This section presents discussion of findings and their relationship to extant literature on the influence of socio-demographic characteristics on BD. A simple logistic regression analysis revealed no statistically significant association between background characteristics and BD. This would have been a different outcome if we had a non-student group as participants and had examined their literacy level, as Umeora (2015), studied among rural Nigerians. Boulware *et al.* (2002), concluded

that, female sex, black race, and had fear of hospitals are the three major factors that had negative association with BD experience in Maryland, USA.

Nevertheless, students who were not sure of their blood group had positive attitude towards BD and students who were of O, Rh- blood group and those who were not sure of their blood group were at reduced odds of BD when compared with students with A, Rh- blood group. Although there is literature showing that, Rh- and Rh+ status, Rh- status (43%) have higher return rate than Rh+ status people with more than 6% gap (Gillespie *et al.*, 2002), there is no literature regarding the connection between blood type (ABO and Rhesus blood group system) and KAP of BD, and therefore, further research is needed.

Furthermore, students who had positive attitude towards BD were more likely to donate blood than those who had negative attitudes, which is a very obvious phenomenon. The findings showed 69.6% of the participants noting that, personal values, such as religious practice or convictions could encourage one to donate blood, and thus it could be noted that, religiosity correlates strongly with participating in charitable actions, such as BD. Gillum and Masters (2010), also concluded that, religions instruct people to be associated with prosocial activities.

Unlike countries such as China and Nigeria, where rate of prohibition of BD due to religious reason is over 20% (Lownik *et al.*, 2012), the current study in Ghana showed positive religious signs toward BD. This shows that, marketing and encouraging BD through local religious organizations and institution may empower BD rate among

various groups of people involved in the religious events. This method is evident, as a study found a clear influence of religion's role in the mental health care aspect in Ghana (Osafo, 2016). Such a holistic approach is also assumed to be helpful to increasing BD participation.

Among the study participants, 25.4% of them did not know their blood type, which is at a similar level with the study of healthcare workers at the University of Benin Teaching Hospital, which showed 21.5% (Nwogoh *et al.*, 2013), and much lower illiteracy level compared to Jordanian's knowledge of blood groups where 49.6% of the participants did not know their blood types (Abderrahman & Salehb, 2014). This high record of knowledge of the common blood types could be attributed to the fact that, this particular study was conducted among students who were studying health sciences.

In conclusion, there was no significant correlation between this factor and blood donating status when the analysis was conducted. Thus, the forth hypothesis that 'socio-demographic characteristics of students can influence their participation in BD decision making among first year students of CHS' should be rejected accordingly. A study of undergraduate medical students in Karachi, Pakistan, similarly showed no significant difference/relationship between socio-demographic characters and BD. However, an exception was found that, male gender was more associated with willingness to participate in BD as compared to female students (Ahmed *et al.*, 2014).

5.5. Summary of the chapter

The chapter has discussed the findings of the study by themes, and showed their relationship to existing literature. The next chapter is a presentation of the summary, conclusions and recommendations of the study.



CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.0. Introduction

This chapter presents the summary, conclusions and recommendations based on the study's findings and their relationship with existing literature. Section one is a summary of the study in relation to the objectives and hypothesis and conclusions based on the findings. Section two presents the conclusions of the study, explaining in detail the KAP and socio-demographic characteristics in four parts. Section three is where the researcher has made some recommendations upon the outcomes. Section four presents the limitations to the study. Finally, section five presents options for future research.

6.1. Summary of the study

This study was undertaken to examine the KAP of BD of CHS first year students, while discovering their thoughts on NBS and ways to increase participation. The findings were achieved by using a quantitative research methodology to elicit data from first year students that were enrolled in CHS of UG in 2016. In total, 335 students participated in answering the survey questions. The surveys were analyzed using STATA 13 software application. The study found fairly high knowledge, and positive attitude and perception of BD and NBS, among UG CHS students. In addition, the study found that majority (85.4%) of the students had yet to experience donating blood. Socio-demographic characteristics were found not to be associated with blood donating status; also, not much difference were found between affiliated schools under CHS. The findings support the conclusions and recommendations,

which are presented below.

6.2. Conclusions

Overall, the research objectives and the key research questions were covered. The key conclusions of the study are presented below.

6.2.1. Knowledge of blood donation

The study concludes that, first year students of CHS, UG clearly have fair knowledge of BD. In fact, the results showed that, students knew well most of the requirements/standards of being eligible to donate blood. This contrasts with the findings that, 'never donors' did not see BD as an important volunteer activity on par with others like volunteering at hospitals, schools, and support groups - fear and inconvenience were major barriers to donating (Mathew *et al.*, 2007). As greater knowledge of BD is not in direct proportion to increase in BD, creative channels are needed to actually convert the knowledge into actual voluntary donation as documented (Wiwanitkit, 2002).

The conclusion made on the basis of the regression analysis was that, knowledge of participants had no significant relationship with participation in BD. This study argues for the need to intensify educational activities to enhance knowledge of students. This will encourage their participation in BD. It was against this perspective that, Mathew *et al.* (2007), suggested that, better education campaigns to allay fears about donating and workplace drives should be considered as important motivators, since participants were unaware of the need for blood. One strategy is that, media messages that

combine safety of the process along with who it benefits could be considered as the most effective. For instance, messages that target the specific needs of minority communities could be considered as good motivators for recruitment.

6.2.2. Attitude towards blood donation

Regarding attitude, the study concludes that, students generally had good attitude towards BD. The strongest motivating factor in donating blood turned out to be donation when acquaintance is in need, and the most answered reason for not donating blood was due to physical unfitness. Similarly, 47.8% of Health Science students at a university in South India said they 'think of themselves medically unfit to donate' (Sabu, Remya, Binu, & Vivek, 2011). This is also similar to the conclusions made by Buciuniene *et al.* (2006), that, most respondents admitted having donated blood for the following reasons: willingness to help the ill or monetary compensation. Indeed, majority said that, they would consent to free BD only in case of emergency or as a family replacement, which led the researchers to a conclusion that, 'provided monetary remuneration is completely terminated part of the currently active paid donors would withdraw from this activity, which might seriously affect the national supply of blood and its products'.

However, the regression analysis revealed no significant association between attitude and participation in BD. Perhaps, this fact could be explained by the reasons suggested in earlier studies where it was reported that, among students, determinants of the intention to become a blood donor included self-efficacy, attitude, personal moral norm regarding BD, and subjective norm (perceived social support) (Lemmens

et al., 2005).

Lemmens *et al.* (2005), found that, just over 7% of participants were registered blood donors but most (61.7%) had never seriously considered becoming donors. They concluded that self-efficacy (confidence in performing the behavior), attitude (the overall evaluation of the behavior), and personal moral norm (the perceived personal responsibility to perform the behavior) regarding BD were the most important correlates of the intention to become a blood donor. In view of this conclusion and in an attempt to resolve the discrepancies, a study noted that, blood collection agencies should increase awareness that BD is a worthwhile and important volunteer activity (Mathew *et al.*, 2007).

6.2.3. Perception of blood donation

The study concludes and argues that, majority of first year students in CHS, UG, with exception of few cases, demonstrated good perception of BD. It was interesting to know that trust and respect toward NBS was high and an overwhelming rate of 91.9% said 'donating blood saves lives' and yet only 49 out of 335 students had donated blood before. Similarly, such low participation as 12.7% was found in a group of participants in Sikkim, India, but with only 46% of the respondents having positive perception of BD (Shenga, 2008). In contrast, a study among medical students of Nnamdi Azikiwe University, Nigeria, showed that, 87.6% of the students possessed positive perception and 78.2% of them actually had experience in donating blood (Nwabueze *et al.*, 2014). Thus, very high positive perception to show an inverse proportion to the BD practice was a rare case.

Nevertheless, there was no significant relationship between students' perception of BD and participation in BD when the regression analysis was conducted. This is contrary to Lemmens *et al.*'s (2005), conclusion that, personal moral norm (the perceived personal responsibility to perform the behavior) regarding BD was an important correlate of the intention to become a blood donor. In view of the findings of the current study, it is necessary to consider the suggestion that, another strategy would be to capitalize on the existing perception that donating blood is like donating money or used clothing, by focusing on the concept of giving something tangible (Mathew *et al.*, 2007).

6.2.4. Socio-demographic characteristics

The study observed that, students were encouraged by religion and their personal convictions to donate blood. It is not a surprise, because a previous study reported the same trend; where although a case in Iran, a Muslim state, beliefs were the most frequent motivating factor that led Iranians to donate blood (Abohghasemi, Divkalayi, & Seighali, 2011). It was also stimulating that more than 80% of the young students thought of BD as their civic duty or as an option to help the community.

However, there was no significant correlation between socio-demographic characteristics of students and its influence on the participation in BD decision making among first year students of CHS. In contrast, logistic regression analysis of an earlier study indicated that, for experienced donors, the predictors were intention, perceived control, anticipated regret, moral norm, age, and frequency of BD in the past; whilst for new donors, intention and age were the only determinants of behavior

(Godin *et al.*, 2007). Godin *et al.* (2007), also noted important differences in the determinants of intention between experienced and new donors.

Contribution to Knowledge

The contribution of the study to existing knowledge is vast as presented under the following themes: policy and practice, and methodology.

Contribution to policy and practice

The study makes contribution to policy, practice and management of campaigns toward raising awareness about the need to donate blood in the context of Ghana and other environments with similar challenges. It would be recalled that the government of Ghana through the National Blood Service and related agencies, has provided guidelines on blood donation, to ensure availability and constant supply of blood when needed (Appiah, 2013). The evidence from this study may help to suggest some of the reasons accounting for the low patronage in the exercise by the youth of this country.

It would be assumed that road traffic accidents are becoming rampant on the roads, and thus, it is overbearing that policy makers, the National Blood Service and related institutions should make efforts to organise regular campaigns for students in tertiary institutions who are mostly among the youthful population; on the need to donate blood on regular basis. Additionally, educational programmes could be organised for students in second cycle institutions as well. This may require a formulation of a special policy geared specifically towards the youth in second cycle and tertiary

institutions. This policy will have to take account of all the ethical issues involved in the act of donating blood such that misconceptions and imminent challenges could be averted.

Contribution to methodology

Different research methods have been applied to collect data for analysis in regards to people's decision to participate in blood donation (Devi *et al.*, 2012; Appiah, 2013). The application of a quantitative research method was suitable to the university context. The researcher was able to quantify the responses provided by the participants in this study. This would not have been the case if a qualitative study had been applied. Hence, it will be appropriate to generalise from the findings of this study to the population of tertiary students.

6.3. Recommendations of the study

Based on the findings of the study, the following recommendations are made for consideration by policy makers, healthcare practitioners and NBS.

1. Policy makers together with NBS should come up with a national campaign strategy that can link positive KAP directly with BD practice. Additionally, there is a need for policy makers to increase exposure to BD drives in the Universities, and make attempts to include BD drives in their volunteering activities.
2. It is important for NBS to liaise with religious organizations to establish a channel and platform to encourage their members on the importance of donating

blood, connecting it with their religious principles. This could challenge their members to practice love and selflessness.

6.4. Limitations to the study

The following limitations impeded the success of the study. The participants turned out to be having very low BD experience. The researcher could not know the details of participants' reasons in the paradoxical relationship with fair KAP and low BD participation. For abundant information, there is a need to apply qualitative research method to extend the study to acquire more precise data. Only 335 samples were collected in this study, due to lack of resources, such as time and money. It is suggested that further studies should be conducted with larger number of student population, involving various departments, which will enable the researcher(s) to generate more credible outcome.

6.5. Future Research

Although this study made an attempt to understand the first year students' KAP towards BD, the topic still requires more attention and study. Employing qualitative research (interviews) using a phenomenological designing for knowing participants' perception and attitude would have been better. For example, Appiah (2013) explored barriers of BD among participants through phenomenological approach. The following are suggested for future research attempts to rectify the limitations of this study and to solve the current problem in Ghana. It is necessary for constant interdisciplinary research to gain comprehensive solutions for the shortcomings and challenges encountered in Ghana regarding low participation in BD. A study topic,

such as, 'correlation with blood type and KAP of BD' could be considered as one of the next research topics.



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APPENDICES

APPENDIX A: Participant's Consent Form

Title: Assessment of the knowledge, attitude and perception of blood donation among first year students: University of Ghana

Name of principal investigator: Yoon Kwon James Cha

Address: School of Public Health, College of Health Sciences, University Of Ghana,

P.O Box LG 43, Legon.

Thanks for showing interest in participating in this study. My name is Yoon Kwon James Cha (student I.D.: 10600819), a Master of Public Health student of the School of Public Health, University of Ghana, Legon.

I am undertaking this study to examine the association between knowledge, attitude and perception level and participation in blood donation among first year students of College of Health Science.

I can be contacted on this phone number 054-599-7061 or by email, ykcha@st.ug.edu.gh.

Participation in this study is absolutely voluntary. Whatever information you provide is totally confidential, limited to the purpose of this study and will not be disclosed to anyone. You have the right to change your mind at any time. The answers you give will not be used against you in any facility or organization. I would thus be very

grateful if you give answers which show a true reflection of your knowledge, attitude and perception level for blood donation.

If you agree to take to part in this study please append your signature or thumbprint to indicate your consent.

.....
Name of participant Signature / Thumbprint

Date

.....

Name of researcher: Yoon Kwon James Cha

Signature:

Date: Nov. 11. 2016.

Address: C-3105 Alex Kwapong Hall, UG (Legon Campus)

Contact No: 054-599-7061

In case of any concern, you can contact the Ethics Administrator, Ms. Hannah Frimpong, GHS/ERC on 024-323-5225 / 050-704-1223.

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APPENDIX B: QUESTIONNAIRE

< Student Survey on Blood Donation >

Dear Health student,

Hello, my name is Yoon Kwon James Cha.

This survey is carried out to acquire first year students' knowledge, attitude, and perception about blood donation, basically to contribute in promoting a domestic blood donation program. Your survey answers will only be used for the mentioned purpose and all data will be processed anonymously to protect your privacy, so I promise that there will be no disadvantage whatsoever to the participants. Thank you so much for participating in this survey.

Apr. 24. 2017., UG SPH MPH student: Yoon Kwon James Cha

- Directions: Please answer each question below, by ticking or circling the appropriate option.

(Cf. 'Donation', 'Donate', and 'Donor' refers to, whole blood donation/donor)

Section I: Personal Information / Socio-demographic characteristics

Question	Choices
1. What is your age?	age_____
2. What is your Gender?	① Male ② Female
3. What is your nationality	① Ghanaian ② Other countries of West Africa ③ Other countries of Africa ④ Others_____
4. Which school are you in?	School of... ① Nursing ② Pharmacy ③ Public Health ④ Medicine and Dentistry ⑤ Biomedical & Allied Health Sciences
5. Which academic program are you doing?	_____
6. What is your religion?	① Christianity ② Catholic ③ Islam ④ None ⑤ Others_____
7. What is your marital status?	① Unmarried ② Married ③ Divorced ④ Cohabiting ⑤ Widowed
8. What is your blood type? (ABO, Rh±)	① A, Rh+ ② A, Rh- ③ B, Rh+ ④ B, Rh- ⑤ AB, Rh+ ⑥ AB, Rh- ⑦ O, Rh+ ⑧ O, Rh- ⑨ Not sure

9. Which region are you from?	① Ashanti ② Brong Ahafo ③ Central ④ Eastern ⑤ Greater Accra ⑥ Northern ⑦ Upper East ⑧ Upper West ⑨ Volta ⑩ Western
10. Have you donated before?	① Yes. If so, how many times? _____ times ② No

Section II: Knowledge of blood donation

Question	Yes	No
11. You can donate if you are between the ages of 17 and 60 years (Y)		
12. You can safely donate blood at four monthly intervals (Y)		
13. The amount of blood a person can donate in a single time is 700ml (N)		
14. You become unhealthy or ill when you donate (N)		
15. If you weigh 50kg. and more, you can be accepted for donation (Y)		
16. Blood is stored for 35 days in designated blood bank fridges (Y)		
17. The donation process itself takes 5 minutes (N)		

18. The blood collection sets used are sterile and disposable. Once used the needle is discarded (Y)		
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Section III: Attitude towards blood donation

Question	Choices
19. What are the reasons for donating blood? (multiple responses allowed)	① Moral satisfaction ② Blood needed for someone you know ③ As an experience ④ Other reasons
20. What are the reasons for NOT donating blood? (multiple responses allowed)	① Medically unfit to donate ② No request to donate ③ No time to donate ④ Have no information about where, when, how to donate ⑤ Parents do not allow ⑥ Fear of weakness after blood donation ⑦ Fear related to venipuncture ⑧ Fear of contracting disease ⑨ Fear of adverse effects ⑩ Other reasons
21. What are your intentions toward blood donation?	① A permanent donor and will stay so ② A permanent donor but will not stay so ③ Not a donor but I am intend to be ④ Not a donor and I am not intend to be
22. How do you feel after blood donation?	① A sense of joy as born again ② Normal, Routine, or necessary you know ③ No specific feeling ④ Unhappy, irritated, bad experience ⑤ Never done it before

23. Blood Donation and remuneration	① I do not like donation and will not do so if money is offered ② I do not like donation but will accept if money is offered ③ I like donation but will not accept money if offered ④ I like donation and will accept money if offered ⑤ Never done it before
24. What is your personal opinion on blood donation?	① Important and necessary ② Not important ③ Desirable
25. Would you donate when your acquaintance needs blood urgently?	① Yes, with no hesitation ② Yes, but I'll be forced to do so ③ Not at all ④ Rather look for others to offer such help
26. For me, donating blood within the next 8 weeks would be...(Intention Scale)	a. Useless ① ② ③ ④ ⑤ Useful b. Pointless ① ② ③ ④ ⑤ Worthwhile c. The wrong thing to do ① ② ③ ④ ⑤ The right thing to do d. Unpleasant ① ② ③ ④ ⑤ Pleasant e. Unenjoyable ① ② ③ ④ ⑤ Enjoyable f. Frightening ① ② ③ ④ ⑤ Not Frightening
27. Blood donation is extremely safe.	① Yes ② No

Section IV: Perception of blood donation

Question	Yes	No
28. Do you trust the blood bank's distribution facility and sterilization of equipment?		
29. Do you fear that blood banks would take too much blood?		
30. Blood bank's donation process is long and boring.		
31. I fear the needle prick.		
32. No one ever asked for donation and never thought to donate.		
33. My blood is "dirty" and may harm the recipient.		
34. I think donating blood saves lives.		

Section V: Socio-demographic Characteristics of blood donation decision making

Question	Choices
35. Which group of people should donate most actively?	① Young Male ② Young Female ③ High Income ④ Low income ⑤ Old Male ⑥ Old Female ⑦ Regardless

36. What motivates you the most in donation?	① Concern for others ② Group blood donation ③ Blood drive ④ Receiving acknowledgement ⑤ Curiosity ⑥ Health check-up ⑦ Other
37. What do you think is the main reason for low blood donation rate in Ghana be?	① Lack of concern for others ② Incorrect knowledge in donation ③ Lack of promotion ④ Lack of governmental support ⑤ Lack of opportunities in donation ⑥ Religious factor ⑦ Cultural factor
38. My family, friends, and teachers are not really supporting the idea of blood donation.	① Yes ② No
39. My religious practice or convictions have encouraged me to donate blood.	① Yes ② No
40. Blood donation is my civic duty, or it's a way to help out the community	① Yes ② No

