UNIVERSITY OF GHANA

SOCIAL MARKETING ON REGULAR VOLUNTARY BLOOD DONATION IN GHANA

BY

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DECLARATION

I do hereby declare that this work is the result of my own research and has not been presented by anyone for any academic award in this or any other university. All references used in the work have been fully acknowledged. I bear sole responsibility for any shortcomings.

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CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University of Ghana, Legon.

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DEDICATION

I dedicate this thesis to my parents (Mr. & Mrs. Forson) and my supportive Wife (Mrs. Mariam Dobbin).

THANK YOU FOR BEING MY INSPIRATION

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I am extremely thankful to God Almighty for his grace, guidance and continued blessings. Again, I am equally indebted to my supervisor, Dr. E. Y. Tweneboah-Koduah and co-supervisor, Dr. Kobby Mensah for their intensive supervision.

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LIST OF ABBREVIATIONS

ABC	Area Blood Center
ARC	American Red Cross
CHPS	Community Based Health Planning Services
DBC	District Blood Service
DHMT	District Health Management Team
EFA	Exploratory Factor Analysis
GHS	Ghana Health Service
GRCS	Ghana Red Crosses Society
GSS	Ghana Statistical Service
HBM	Health Belief Model
HBB	Hospital Blood Banks
IFRC	International Federation of Red Cross and Red Crescent Societies
KMO	Kaiser-Meyer- Olkin
MoH	Ministry of Health
NBSG	Nation Blood Service of Ghana
NRSC	National Road Safety Commission
WBBD	World Blood Donor Day
WHO	World Health Organisation
WHA	World Health Assembly Resolution

ABSTRACT

Donating blood regularly and voluntarily is the World Health Organisations remedy to the Worlds perennial blood shortage. Globally, there has been a surge in interventions aimed at encouraging individuals to adopt this behaviour (donating blood regularly and voluntarily). This current study seeks to apply Social Marketing using perceived attributes of innovation (a diffusion of innovation concept) to understand the factors influencing the diffusion and adoption of regular voluntary blood donation as a behaviour. Stratified sampling was used for the survey. A structured questionnaire was administered to 272 undergraduate students from University of Ghana, and the data was analysed using multiple regression. The results of the study reveal that perceived attributes of innovation elements predict 56.7% of variance in behaviour change towards regular voluntary blood donation. However, among the constructs of perceived attributes of innovation, compatibility ($\beta = 0.420$, $t= 7.587$, $p=0.000$, < 0.05) was the strongest predictor of behaviour change towards regular voluntary blood donation followed by perceived advantage ($\beta = 0.198$, $t= 3.773$, $p=0.000$, < 0.05), Complexity ($\beta = -0.152$, $t= -2.628$, $p=0.009$, < 0.05) and Perceived risk ($\beta = -0.140$, $t= -2.723$, $p=0.007$, < 0.05). The study therefore recommends that in carrying out blood donation interventions based on the perceived attributes of innovation in Ghana; social marketers should focus on addressing compatibility issues associated with blood donation. Also, social marketers should highlight the advantages of blood donation, liaise with policy makers to reduce blood donation complexities and focus on minimizing perceived blood donation risk. However, the study focused on undergraduate students from the University of Ghana; hence its findings cannot be generalised to the entire Ghanaian population. Future Research should focus on other segments of the Ghanaian society. Finally, qualitative research may be useful in exploring other factors that affect the adoption of regular voluntary blood donation as a behaviour.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

A scan through available blood donation statistics depicts a Global shortage in blood supply. The annual blood donation on average per blood centre in high- income countries is 30,000 versus 3,700 in low income countries (WHO, 2012). Although, this depicts a relatively high blood donation rate in developed and high income countries, there is generally a low blood donation rate globally. According to the World Health Organisation there are 92 million blood donations per year globally, most of which by voluntary, unpaid donors. But of these voluntary donors, 30 million give blood just once (WHO, 2012). Again, a small percentage of eligible blood donors donate blood frequently and a good number of eligible donors are deferred momentarily or permanently as a result of firm deferral criteria aimed at ensuring blood safety (Ferguson, 1996, Custer et al., 2004; Riley et al., 2007).

Worldwide, the chronic shortage of blood has taken a center stage and has assumed much prominence. According to the International Federation of Red Cross and Red Crescent Societies (IFRC), "there are chronic shortage of safe blood and blood products in many countries, so blood transfusion is not available for a substantial proportion of the world's population" (IFRC, 2O12). In the United States for example, although an estimated 38% of the population is eligible to donate blood, less than 10% actually donate blood each year (ARC, 2015). China's blood donation statistics is not different. With a national population of 1.33 billion, China has a donor rate of 8.4 per 1000 population, which is far below the WHO recommendation (Shi et al., 2014).

Adequate units of blood is required each day for various uses such as for accident victims, surgeries, transplants, cancer treatments and for people with diseases such as sickle cell anemia (Cant, 2006; WHO, 2010). The WHO and IFRC reveal vital facts and statistics in its most recent action plan aimed at increasing voluntary blood donation titled " towards 100% voluntary blood donation, A Global framework for action" :

> Surgery, trauma and cancers, for all of which there is a high probability of the need for blood transfusion, are replacing communicable diseases as leading causes of death. About 234 million major operations are performed worldwide every year, with 63 million people undergoing surgery for traumatic injuries, 31 million more for treating cancers and another 10 million for pregnancy-related complications (WHO, 2010, p.9)

These statistics reflects the indispensability of blood transfusion and the current surge in the need for blood. The report further asserts that the alarming statistics on road accident has also increased the need for blood now than ever before. Road traffic accidents kill 1.2 million people and injure or disable between 20 million and 50million more a year. It can take up to 50 units of blood to save a single car crash victim (Canadian Blood Services, 2013). Blood transfusion is required mostly during the early stages of treatment of road accident victims. As a result of the aforementioned conditions, it is fair to say that the demand for blood has increased generally but there are a limited number of blood donors to pace with the demand, hence the shortages (Robbins et al., 2015).

In sub-Saharan Africa, the situations necessitating regular supply of blood is more prevalent. Regardless of the pressing need for blood in sub-Saharan Africa, according to a WHO survey report, 40 African countries collect less than 10 blood donations per 1000 population per year; of

these, 25 countries collect less than half the blood that they need to meet transfusion requirements (WHO, 2015). In these countries 50-80% of blood transfusions are used to treat anemia caused by malaria in children mostly in the first two days of admission (Allian et al., 2004). More to this, about two- thirds (62%) of the worlds estimated yearly 528,000 maternal deaths occur in sub Saharan Africa (Bates, Chapotera, McKew, & Van Den Broek, 2008) of which severe bleeding accounts for nearly 24.5% maternal deaths in the sub region (NBSG, 2014). Bates et al., (2008) posits that 26% of maternal deaths are as a direct result of a lack of blood units available for emergency blood transfusions. The shortage of blood in Sub- Saharan African countries requires urgent attention. Zarocostas (2004) estimates the shortfall in blood supply for developing countries to be 40 million units per year. The situation in most Sub-Saharan African countries is that about 80% of patients in these countries only depend on family members for blood transfusion (Bates et al.,2008; Harrington 2013).

Similarly, Ghana has critical conditions that necessitate regular blood supply. In 2001, Ghana was the second highest road accident nation among six West African countries with 73 deaths per 1000 accidents (Akongbota, 2011; Haadi, 2012). Though recent statistics released by the Road Safety Commission shows a decline in road accidents from 13,133 in 2014 to 10,852 in 2015, road accident remains a major canker in Ghana (NRSC, 2015)

Table 1.1 below summarises road accident statistics in Ghana in 2015. It is significant to note that adequate blood supply is vital in the treatment of accident victims (Canadian Blood Services, 2013; Kleinman, 2008).

Table 1.1: Provisional Road Traffic crash & casualty statistics, 2015

Region	fatal	Serious	Minor	Total	Pedestrian knock downs
Accra	284	1221	2808	4313	883
Tema	44	176	838	1058	180
Eastern	200	396	633	1229	271
Central	109	200	420	729	141
Western	123	187	337	647	121
Ashanti	134	368	593	1113	198
Volta	94	262	154	510	128
Northern	82	86	91	259	54
Upper West	51	67	39	157	17
Upper East	55	57	80	192	21
Brong Ahafo	197	187	261	645	107
Total	**1373**	**3225**	**6254**	**10852**	**2121**

Source: NRSC, 2015

As depicted by the table, Ghana's statistics on road accident clashes is very alarming. It is safe to deduce that in the absence of adequate blood supply death is the only option for a bleeding accident victim.

Again, the story of maternal mortality in the sub region does not preclude Ghana. In 2008 the government of Ghana declared maternal mortality a national emergency. Between 2007 and 2012 Ghana recorded a maternal mortality ratio of 450 deaths per 100,000 live births (Common Wealth Health online, 2015). Though the exact percentage of maternal mortality caused by lack of blood in Ghana is unknown, Bates et al., (2008) asserts that in sub-Saharan countries lack of blood during emergencies accounts for 26% of maternal deaths.

In an attempt to increase supply of blood and reverse this worrying trend, the government of Ghana in line with the World Health Assembly resolution (WHA63.12) established a National blood service (NBSG) unit based on voluntary unpaid blood donations in February 2006. The primary goal of the unit as derived from the WHA 63.12 was to ensure self sufficiency of blood through voluntary unpaid blood donation. However, In the face of Ghana's compelling conditions for regular blood supply, it is heartbreaking that Ghana's National Blood Service are collecting just under 50% of the blood needed in Ghana. Recent statistics released by 'Mamaye' (a non- governmental organisation funded by the UK Department for International Development) puts Ghana's voluntary unpaid donors at 33% which is far below the WHOs 100% recommendation (Mamaye, 2014). The report further posits that out of the 250,000 units of blood needed in Ghana only 112,943 units were obtained in 2013.

Table 1.2 below summarises the prevailing blood donation situation in Ghana.

Table 1.2: Blood donation statistics in Ghana, 2013

Description	Quantity	Description
Percentage of donations collected by NBSG from voluntary unpaid donors	33%	Far below the WHO 100% recommendation
Family replacement donors	67%	Not recommended by WHO
Estimated blood needed	250,000 units	10 units/1000 population
Blood units collected by NBS	112,943 units	5 units/1000 population

SOURCE: Mamaye, 2013

As depicted by table 1.2 the highest chunk of blood donation in Ghana (67%) are from family replacement donors. This situation corroborates the work of Allain et al (2004) that majority of donors in poorer countries are family replacement donor's not volunteer donors. However, the WHO recommends sufficient supply of blood through a 'stable base of regular, voluntary, unpaid blood donors' (WHO, 2015). Evidence from Table 1.2 above and the ensuing analysis clearly shows that government's intervention through the establishment of the National blood service has not achieved much result.

Apart from this, various governmental and nongovernmental organisations like the National blood service, safe blood Ghana foundation, National Health insurance Authority and Mamaye periodically embark on Social Marketing interventions on radio, television, community broadcast and social media all in an attempt to increase voluntary Blood donation. However, evidence in Table 1.2 above suggests that these interventions have yielded minimal results.

In light of the above, there is an undisputable need for a behavioural change catalyst aimed at understanding the various blood donation intentions of potential target audience and fashioning out Social Marketing programmes to better target them. Social Marketing is the application of marketing principles and techniques to create, communicate, and deliver value in order to influence target audience behaviour that benefits society (public health, safety, the environment and communities) as well as the target audience (Kotler and Lee 2008). French and Blair-Stevens (2010) define social marketing as the systematic application of marketing alongside other concepts and techniques to achieve specific behavioural goals, for a social good. Hence, social marketing can play a very essential role in remedying social problems (Helmig & Thaler,2010) like increasing voluntary blood donation. This can be done effectively with the use of a behavioural change theory (Andreasen, 2002; Maibach, Rothschild, Novelli, 2002; Thackeray& Neiger 2000; Fraze,Rivera-Trudeau, McElroy, 2007) to successfully plan social marketing programmes.

1.1 Statement of the Problem

There is a high need for blood in Sub- Saharan Africa as a result of the huge cases of obstetric hemorrhage, malnutrition, and malaria (Kouao et al, 2012). Regardless of the pressing need for blood in sub- Saharan Africa, blood supply remains significantly low (Bates 2008). In Ghana the situation is not different. Interventions by government like the establishment of the National Blood Service and efforts by several stakeholders like the Ministry of Health and Ghana Health service (Ghana News Agency, 2015), the Ghana Red Cross Society (Red Cross Ghana,2013) to mention a few, has yielded minimal results. The National Blood Service of Ghana is currently collecting just under 50% of the blood needed in Ghana (Zaney, 2015) out of which only 33% is

from voluntarily unpaid donors. By inference, interventions by Government and other stakeholders to increase blood supply has yielded minimal results. In the face of these revelations, there is the need to employ a behavioural change theory in a Social Marketing intervention programme to change blood donation behaviour in Ghana. Glanz & Bishop (2010) assert that interventions based on theory are more effective than those without a theoretical support.

Evidence from literature portrays a vast usage of behavioural change models to social marketing in the developed world (Deshpande, Basil & Basil, 2009; Evers, Jones, Caputi & Iverson, 2011; Hanson & Benedict, 2002; Lennon, Rentfro, & O'Leary 2010; Lefebvre, 2013; Luca & Suggs, 2013; Thackeray & Neiger, 2000; Worum, 2014).

In Ghana, the limited research on the application of behavioural change models to social marketing has focused primarily on HIV testing and condom usage intentions. (Tweneboah-Koduah, 2014a; Tweneboah-Koduah, & Owusu-Frimpong, 2013; Tweneboah-Koduah, 2014b). More to this, the available research on blood donation in Ghana has solely centered on an enquiry into various infectious diseases associated with blood transfusion and an assessment of the impact of various blood donation campaigns (Adjei et al.,2009; Adjei et al.,2003; Adjei, Armah & Narter-Olaga 2006; Ampofo et al.,2002; Allain et al.,2003; Dongdem et al.,2012; Owusu-Ofori, Asenso-Mensah, Boateng, Sarkodie & Allain, 2010; Van Hulst et al., 2008; Wansbrough-Jones et al., 1998).

In view of the critical need for blood supplies, it is startling that so little empirical research has been conducted on the application of a behavioural change theory to increase regular voluntary

blood donation in Ghana. To fill this gap, this research seeks to employ Social Marketing using a diffusion of innovation concept (Perceived attributes of innovation) to influence behaviour change towards regular voluntary blood donation in Ghana.

1.2 Research Objectives

1. To examine the impact of perceived advantage and perceived compatibility on behaviour change towards donating blood regularly and voluntarily.
2. To ascertain the effect of perceived complexity and perceived risk on behaviour change towards regular and voluntary blood donation.
3. To determine the impact of Observabilty and Trailability on behaviour change towards regular voluntary blood donation.

1.3 Significance of the study

The current surge in the need for blood owing to various health complications (maternal mortality, surgery, traumas and cancers) has increased the need for regular voluntary blood transfusion globally. This research is apt because of the underlisted reasons

1. It seeks to provide deeper insight into the behavioural intentions of Ghanaians towards donating blood regularly and voluntarily.
2. The study will also contribute to literature on blood donation in Ghana by applying a behavioural change theory to understand the various blood donation intentions of Ghanaians.
3. The study will provide guidelines to policy makers to formulate policies that will focus on changing blood donation behaviour.

1.4 Scope of the study

The study was conducted among Undergraduate students between 18 - 25 years from the University of Ghana. The choice of University of Ghana for this study was based on a simple random sampling procedure carried out by the researcher. The seven notable public Universities (University of Ghana, Kwame Nkrumah University of Science and Technology, University of Cape Coast, University of Education, University for Development Studies, University of Professional Studies and University of Mines and Technology) were assigned numbers on pieces of papers and mixed up in a basket in such a way that each of the universities had an equal chance of being selected. In the end, the University of Ghana was picked for the study.

Sabu et al., (2011) contends that a 'healthy, active and receptive huge student population represents a huge potential to meet adequate and safe blood supplies. Again, young people are good candidates for becoming regular blood donors (Letin, 2010). This is evidenced by the fact that people under the age of 25 contribute 38% of reported voluntary blood donations worldwide (WHO 2010).

1.5 Organisation of the Study

The study is divided into six chapters. The details of the arrangement are as follows:

Chapter One introduces the study. It provides a brief background to the study, problem statement of the study, the objectives of the study, the research questions, the significance of the study, the scope of the study and its associated limitations. The organisations of the various chapters are also outlined in the study.

Chapter Two provides the contextual background information of the study. It reviews the Ghana Health Sector, key stakeholders in Ghana's Blood service, interventions to increase blood supply in Ghana and concludes with a review of the organisational structure of the National Blood Service of Ghana.

Chapter Three focuses on the review of literature. The chapter reviews relevant and pertinent literature relating to the central problem of the study. It discusses the origin of social marketing, benchmarks for identifying a genuine social marketing programme me, the Traditional marketing Mix, Social Marketing Mix and analysis of the various models that have been applied in other Social Marketing interventions.

Chapter four deals with the methodology of the study. It commences with a discussion of the research philosophy of the study. It also addresses the research strategy, the population of the study, sampling techniques, data collection instrument and method, data processing and analysis.

Chapter five presents the major findings of this research. SPSS (20) was the tool used for the analysis. Further discussions on the findings are equally captured in this chapter.

Chapter six The final chapter of the study presents the findings of the study. It contains a summary of all the major findings in the research. Additionally, the chapter also contains conclusions based on the research outcome and recommendations to help increase blood donation. Finally, the chapter also provides various limitations of the study and suggestions for future research.

CHAPTER TWO

CONTEXT OF THE STUDY

2.0 Introduction

The previous chapter provides a general overview to this study. It explains the problem that necessitated this research, the general objectives of the study, the significance of this Study, the Scope of the Study, the Limitations of this Research and lastly describes how this study has been structured. This chapter provides the contextual information of the study. It commences with a brief description of Ghana, reviews the Ghana Health Sector, key stakeholders in Ghana's Blood service, interventions to increase blood supply in Ghana and concludes with a review of the organisational structure of the National Blood Service of Ghana.

2.1 Brief description of Ghana

Ghana is situated on the West Coast of Africa, about 750 Km north of the equator on the Gulf of Guinea between the latitudes of 4 - 11.5 north. Ghana covers 227,533 square kilometers of land and 11,000 square kilometers of water, making it the 82nd largest nation in the world with a total area of 238,533 square kilometers (World Atlas, 2016). Ghana shares boundary with three francophone countries - Togo to the east, la Cote d'Ivoire to the west and Burkina Faso to the north. The Gulf of Guinea covers the entire southern border of Ghana. The country is divided into ten (10) administrative regions (Greater Accra, Ashanti, Brong Ahafo, Upper East, Upper West, Western, Central, Volta, Eastern and Northern).

The country is divided by the biggest artificial lake on the planet (Lake Volta), about 50% of Ghana lies less than 499 ft (152 meters) above sea level. The Volta Lake does not only provide

transportation and generates electricity for Ghana but it also support and sustains an important fishing industry in Ghana. The country's highest point, Mount Afadjato, rises 2,887 ft (880 m); its lowest point is the Gulf of Guinea at 0 m. The country has a tropical climate with two different rainy seasons in the south: May-June and August-September. However, the North has a merged rainy season.

Ghana has a total population of 24,658,823 which includes 12,024,845 (48.8%) males, and 12,633,978 (51.2%) females (Ghana Statistical Service, 2010). The regional distribution of this statistics is summarised in the table below

Table 2.1: Distribution of Ghana's population by region and gender

Region	**Total**	**Male**	**Female**
Western	2,376,021	1,187,774	1,188,247
Central	2,201,863	1,050,112	1,151,751
Greater Accra	4,010,054	1,938,225	2,071,829
Volta	2,118,252	1,019,398	1,098,854
Eastern	2,633,154	1,290,539	1,342,615
Ashanti	4,780,380	2,316,052	2,464,328
Brong Ahafo	2,310,983	1,145,271	1,165,712
Northern	2,479,461	1,229,887	1,249,574
Upper East	1,046,545	506,405	540,140
Upper West	702,110	341,182	360,928
Ghana	**24,658,823**	**12,024,845**	**12,633,978**

Source: Ghana Statistical Service, 2011 (2010 Population and Housing Census).

2.2 Overview of the Ghana Health Sector

This section begins with a review of the Organogram of the Ghana Health Sector. It further discusses the various health facilities in Ghana. The section concludes with a review of the Human Resource base of the Ghana Health Sector with emphasis on two critical employees of the Ghana Health Sector (Doctors and Nurses)

2.2.1 Organogram of the Ghana Health Service

Ghana's Health Sector is administratively organised at three levels: national, regional and district levels. The national level administration comprises the Ghana Health Service Council, Office of the Director General and Deputy Director General and Eight National Divisional Directors. At the Regional level, each region is headed by a Regional Director who is supported by a regional health management team and a regional committee. Again, the various districts are headed by a District Director of Health who is supported by a District Management Team, District Health Committee and a Sub District Health Management Team. All the administrative levels are organised as Budget and Management Centres or Cost centers for purposes of administering Government of Ghana and Developmental Partner Funds. (GHS, 2015)

The Health sector however functions under five broad units: National Level, Regional Level, District Level, Sub-district Level, and the Community Level. The regional hospitals see to Curative services at the regional level. Public Health services are managed by the District Health Management Team (DHMT) and the Public Health division of the regional hospitals. Again, supervision and management of the various districts and sub-districts within the regions are carried out by the Regional Health Administration or Directorate (GHS, 2015)

Curative services at the district level are provided by the district hospitals. Public health services are provided by the DHMT and the Public Health unit of the district hospitals Supervision and management support to the various sub districts is done by the District Health Administration (DHA). Both preventive and curative services at the sub district level are taken care of by the health centers and other community outreach programme mes. Lastly, the introduction of the Community-based Health Planning and Services (CHPS) enhances the treatment of minor ailments at the community and household level. (GHS, 2015)

The entire health system is governed by a twelve member council. The council is mainly responsible for the following:

- Sees to it that the Functions services are implemented
- Prepares and hands over recommendations, policies and programme mes for the improvement of the Health sector.
- Promote collaboration between the Ministry of Health, Teaching Hospitals and the Service
- Advise the Minister on posts in the Service and other matters that the Minister may request (GHS,2015)

Lastly the Ghana Health service has various staff members. These staff members as described by Act 525 are

- All Health personnel employed by the Ministry of Health immediately before the coming into force of ACT 525
- All who will be employed by Ghana Health Service or seconded to it after the coming into force of GHS (GHS,2015)

2.2.2 Health Facilities

Ghana has broad health service delivery systems which includes Community-based Health Planning and Services (CHPS) , sub district health centers and clinics; district general hospitals; regional general hospitals; and tertiary hospitals (Saleh,2012). Regarding health facilities, the public sector has the highest hospital beds, and health providers. However, the non- public sector (for-profit and not-for-profit) is equally an important health provider in Ghana (Saleh, 2012).

Below is a summary of the number of hospitals in the ten regions of Ghana. Table 2.2 indicates the public hospitals whiles table 2.3 indicates the number of private facilities in Ghana.

It is significant to note that with an annual population growth rate of 2.4 per annum (GSS, 2010) the health facilities in Ghana are inadequate.

Table 2.2: The distribution of public health facilities in Ghana by regions

Region	Hospitals	Health centers	Clinics	CHPS	Teaching Hospitals
western	29	59	114	182	0
central	27	61	54	168	0
Greater	84	21	238	73	1
Eastern	33	82	117	400	0
Volta	29	146	71	157	0
Ashanti	89	141	151	67	1
Brong Ahafo	30	84	114	168	0
Northern	15	83	0	146	1
Upper east	7	40	48	178	0
Upper west	9	65	11	166	0
National	352	785	918	1710	3

Source: Ministry of Health, 2014

Below is the list of accredited private health facilities in Ghana by 12th May 2014. This list is as provided by the Health Facility Regulatory Agency in 2014 (an agency of the MOH responsible for accrediting and maintaining records of private sector hospitals and clinics)

Table 2.3: Distribution of Private Health Facilities by Regions

Region	Clinic	Hospital
Greater	194	37
Volta	11	5
Eastern	31	7
Central	26	5
Western	55	12
Ashanti	87	42
Brong Ahafo	28	7
Northern	15	2
Upper East	22	2
Upper West	5	0
Total	**474**	**119**

Source: Ghana Private Hospital and Maternity Home Boards of the MoH, 2014

To conclude, the National Blood Service of Ghana aims at decentralising its mandate to ensure that the various health facilities have what it takes to collect safe blood (Ministry of Health, 2006). Building more health facilities is therefore cardinal to the realisation of this dream.

2.2.3 Human Resource issues in the Health Sector of Ghana.

Ghana's Health Sector has witnessed significant increase in staffing over the last years. This is as a result of the Ministry of Health's initiative to improve staffing distribution and to replace retired personnel (MoH, 2012).

The table below presents distribution of doctors in the ten regions of Ghana. It also displays the doctor population ration in Ghana in 2012.

Table 2.4: Distribution of Doctors by Region, 2009-2012.

Number Of Doctors	Ashanti	Western	Northern	Brong ahafo	Central	Volta	Upper east	Upper west	Eastern	Greater Accra	Ghana
2009	600	80	50	140	87	78	34	17	157	8,39	2,082
2010	562	91	72	141	88	80	29	14	155	876	2,108
2011	630	91	117	145	106	91	27	18	165	1,085	2,475
2012	519	89	137	154	104	90	27	18	139	1,204	2,481
Pop/1 doc.2012	**9,715**	27,775	**19,163**	15,705	**22,505**	24,728	**39,697**	40,50	**219,748**	3,540	**10,452**

Source: (MoH, 2014)

In the quest to increase blood supply, the role of health professionals (Doctors) cannot be underestimated. However, evidence from table 2.4 above indicates a high doctor to population ratio in the western, upper east, upper west and eastern region of Ghana. This situation needs attention especially when the National Blood Service of Ghana prioritises decentralisation of its mandate (National Blood Policy for the Health Sector, 2006)

Again, nurses play an important role in quality health delivery. According to the MoH Ghana's health sector has seen an increase in nurses over the years. Table 2.5 depicts the distribution of

nurses in Ghana by region. It also portrays nurse to population ratio of 2012 as shown in the factsheet of the Ghana health Sector, 2014.

Table 2.5: Distribution of Nurses by Region, 2009-2012

Number Of nurses	Ashanti	Western	Northern	Brong Ahafo	Central	Volta	Upper east	Upper west	Eastern	Greater Accra	Ghana
2009	2,325	1,422	1,191	1,214	1,373	1,533	892	586	1,994	3,698	16,228
2010	2,397	1,376	1,194	1,207	1,370	1,477	904	583	1,914	3,846	16,268
2011	3,096	1,712	1,645	1,562	1,655	1,733	1,142	725	2,259	4,502	20,031
2012	3,253	1,739	1,640	1,645	1,873	1,789	1,152	775	2,219	4,649	20,734
Pop/1 Nurse 2012	1,550	1,422	1,601	1,470	1,250	1,244	930	941	1,237	917	1,251

Source: MoH, 2014

It is evident in table 2.5 above that there has been a steady increase in the number of nurses in the various regions of Ghana over the years. Regardless of these increases it has been established that a lot of nurses leave the country in search of better opportunities (Nurses and Midwife's Council Register, 2002). This can impact negatively on blood donation interventions.

2.3 Profile of Key Stakeholders in Ghana's Blood Service Sector.

This section evaluates three key stakeholders who play an integral role in ensuring adequate blood supply in Ghana. The section commences with details of the activities of the National

Blood service of Ghana, the agency with the mandate for blood collection, processing, storage and distribution in Ghana (MOH, 2006). It further delves into the role of other two key institutions whose activities are vital to the collection and transfusion of safe blood in Ghana: The Ministry of Health and the Ghana Health Service.

2.3.1 National Blood Service

The National Blood Service (NBS) is a specialised, statutory, autonomous, non-profit making organisation under the Ministry of Health established by the National blood policy of 2006 (MoH, 2006). The agency is responsible for ensuring a coordinated national approach to the provision of safe, adequate and efficient blood and blood products; making it timely, accessible and affordable to all patients requiring blood transfusion therapy in both public and private health care institutions across the country (MoH, 2006). The NBS is the sole organisation responsible for blood collection, processing, storage and distribution in Ghana. However, the NBS at times contracts some of its functions to other non-profit organisations (MoH, 2006).

2.3.2 Ministry of Health

Until the enactment of Act 525, Ghana's Ministry of Health was directly in charge of the provision of public health services in Ghana. Additionally, it provided promotive, preventive, curative and rehabilitative care, to Ghanaians (MOH, 2012). However, with the enactment of Act 525, these functions have been transferred to the Ghana Health Service (MoH, 2012). Regardless of the aforementioned modifications, the Ministry of Health plays an integral role towards increasing blood donation in Ghana. Based on a Research carried out by the Ministry of health to evaluate the status of the blood service in Ghana, the Ministry published a policy

document in February 2006 to serve as the policy framework to ensure adequate blood supplies in Ghana (MoH, 2006). The document titled "National Blood Policy for the Health Sector" covers the organisational structure and status of the National Blood Service (NBS), blood donor recruitment, selection and retention, blood collection, laboratory testing, component preparation, storage and distribution. The policy document also spells out issues relating to quality assurance, clinical transfusion practice, code of ethics, the financing of the National Blood Service and the roles of all organisations involved in these processes. (MoH, 2006).

Table 2.6 summarises the situational report that warranted the introduction of the National Blood Policy.

Table 2.6: Situational report that necessitated the introduction of the National Blood Policy by the Health Ministry in 2006.

i. Accommodation for the area blood centres and hospital blood banks were inadequate.
ii. Equipment in all the sites were generally inadequate.
iii. Supplies were sourced from the open market by each institution and only in few instances were blood bags supplied from the Central Medical Stores.
iv. The safety of virtually all the sites which collected and screened blood could not be guaranteed.
v. The Area Blood Centres (ABCs) were not functioning as intended and depended on replacement donors and did very little for mobile blood collection sessions.
vi. Accounts for the area centres were merged with those of the hospitals making access to funds difficult with the resultant shortage of essential logistics.
vii. Command structure of the ABC team was not clearly defined with the resultant conflicts between staff.

Source: Ministry of Health, National Blood Policy Document of 2006

2.3.3 Ghana Health Service

As a requirement of the 1992 constitution, the Ghana Health Service was established as a Public service entity under Act 525 of 1996. The Ghana Health service is an independent Executive Agency solely in charge of the implementation of state policies under the direction of the Ministry for Health. (GHS, 2015). The autonomy of the GHS is designed primarily to ensure that staffs have a greater degree of managerial flexibility to carry out their responsibilities, than would be possible if they remained wholly within the civil service (GHS, 2015). Teaching Hospitals, Private and Mission Hospitals in Ghana do not fall within the purview of the Ghana

health service. The primary mandate of the Ghana Health Service is to provide and prudently manage comprehensive and accessible health service with special emphasis on primary health care at regional, district and sub-district levels in accordance with approved national policies. (GHS, 2015). Aside these mandates, the GHS also performs the underlisted functions as established by Act 525 of 1996:

- Develop appropriate strategies and set technical guidelines to achieve national policy goals/objectives
- Undertake management and administration of the overall health resources within the service
- Promote healthy mode of living and good health habits by people
- Establish effective mechanism for disease surveillance, prevention and control
- Provide in-service training and continuing education
- Perform any other functions relevant to the promotion, protection and restoration of
- Health Determine charges for health services with the approval of the Minister of Health (GHS, 2015)

2.4 Organisational Structure of the National Blood Service, Ghana

2.4.1 Introduction

This section profiles the organisational structure of the Ghana National Blood Service. This structure is as spelt out in the National Blood Policy for the Health Sector of Ghana. The organisational structure of the Ghana National Blood Service is as follows:

2.4.2 The Minister of Health

The National Blood policy document of 2006 gives the Minister of Health ultimate responsibility over the National Blood Service and the supply of blood products in Ghana. Additionally the Minister of health has the responsibility of ensuring provision of adequate resources for the procurement of blood from only voluntary non-remunerated blood donors from the low risk populations (MoH, 2006). The Minister also bears the responsibility of seeing to the availability of safe, adequate and affordable blood and blood products to all patients in the country's hospitals that may require blood. (MoH, 2006). Aside these functions the Minister of health also perform the underlisted functions:

- Ensuring that adequate human and financial resources are available to maintain the highest possible standards of transfusion practice and quality management throughout the country.
- Responsible for securing Government commitment and support for the National Blood Service, to ensure a safe and adequate supply of blood nationwide, and that nobody needing blood is deprived.
- Advocating for the education of the populace, particularly the young on the need for community support of the blood programme me (MoH, 2006).

2.4.3 National Blood Committee (NBC)

The NBC is directly answerable to the Minister of Health. The NBC has a four year mandate with membership comprising a chairman appointed by the Minister, One nominee of the minister preferably a female media practitioner, from the print and electronic media, the Director-General, Ghana Health Service or his representative, two representatives from the Teaching

Hospitals, a representative of the Attorney General's Department, a nominee of the Security Health Services, a Hematologist nominated in rotation by the Deans of the Medical Schools, a nominee of the Voluntary Blood Donors Associations, the Director, National Blood Service (NBS), a nominee, Ghana Red Cross Society and any other relevant associations that the Minister may deem necessary from time to time (MoH, 2006).

The NBC performs the underlisted functions:

- The NBC advises the Minister on various issues including: the implementation of the blood policy, management of the NBS, and the level of fees to be paid by patients for services. Summarily, the NBC functions as follows:
- The NBC sees to it that safe blood and adequate blood products are always available, affordable, and easily accessible (MoH, 2006).

2.4.4 National Blood Service

The NBS has the exclusive mandate for the collection, processing, storage and distribution of blood in Ghana. It however, contracts other non-profit organisations to assist with this function under the supervision of its National Director (MoH, 2006). The main functions of the NBS include:

- The NBS is responsible for the establishment and supervision of Area Blood Centers (ABCs) as and when necessary.
- The NBS also plan, collates and presents its budget including an accountability and financial report to the Minister of Health through the National Blood Committee.
- The NBS is also responsible for auditing the usage of all blood and blood products in all hospitals in Ghana.

- The NBS also plan and arrange training programme for the various personnel's.
- In compliance with international standards, The NBS plans research work on blood and blood products for the improvement of blood transfusion (MoH, 2006).

2.4.5 Area Blood Centre Committee

The main responsibility of the ABCC is to see to the implementation of the blood policy within its vicinity. The ABCC monitors the performance of the Area Centre (MoH, 2006).

2.4.6 Area Blood Centre's

The main responsibility of the ABCs is to see to the education and recruitment of blood donors, collection, screening, testing, processing, storage and distribution of blood and blood products, and auditing their usage in all hospitals in their catchment area. Additionally the ABCs perform the following functions:

- The ABCs are responsible for the preparation of budget, revenue and expenditure returns for the internally generated and other funds to be used to improve services at centres.
- It prepares both recurrent and capital budget for submission as part of the NBS budget (MoH, 2006).

2.4.7 Regional Blood Service Directorate

The Regional Blood Service Directorate is headed by a Regional Blood Service Director. The regional blood service director (RBSD) is responsible for the creation of Regional Blood Committees and nomination of its chairman and membership in consultation with the NBC. Again, the RBSD ensures that the RBC, DBCs and Hospital Blood Transfusion Committees (HTBC) in his/her region are functional (MoH, 2006).

2.4.8 Regional Blood Committee

The RBC is responsible for implementation of the Blood Policy at the Regional and District level. The RBC also advises the NBC on any proposal that may advance blood transfusion practices. It also receives studies and analyzes relevant statistics of blood transfusion in the region (MoH, 2006).

2.4.9 District Blood Committee

The DBC ensures the implementation of the blood policy at the district level. The DBC also sees to it that a viable Blood Donors Association is in place. The DBC ultimately ensures that the blood needs of the district are met. The DBC reports to the RBC (MoH, 2006).

2.4.10 Hospital Blood Banks

The HBBs receive processed blood and blood products from the Area Blood Centers and issue out readily available blood and blood products of appropriate quality in sufficient amounts to patients (MoH, 2006). Again, there is a Hospital blood committee set up by the Medical Directors of the various hospitals in conformity with the National Blood Policy to encourage appropriate blood utilization in their hospitals. The HBC comprises senior representatives of all major Clinical Specialties that prescribe blood in the hospital, a matron/Senior Nursing Officer, the Medical Administrator/Finance Officer, the Blood Bank Technical Officer, and other important groups determined from time to time (MoH, 2006).

2.5 Interventions to increase blood donation in Ghana

This section highlights the various interventions that have been implemented by various stakeholders to help increase blood donation in Ghana.

In line with the recommendation of WHO the country's Ministry of Health published a national blood policy document in February 2006 that established the National Blood Service. (MoH, 2006). The National Blood Service has the exclusive mandate for the provision of safe, adequate and efficient blood and blood products (MOH, 2006). Each year (14 June) WHO through the organisation of World Blood Donor Day (WBBD) events puts up a theme which becomes the focus of blood donation interventions worldwide (WHO, 2012). Since its establishment, the National Blood service of Ghana has embarked on numerous blood donation interventions in line with WBDD themes. The essence of blood donation interventions is basically to raise awareness of the need for safe blood and blood products, and thanking blood donors for their voluntary, life-saving gifts of blood (WHO, 2012)

Table 2.7 summarises the various blood donation interventions carried out by the National Blood Service of Ghana.

Table 2.7: various blood donation interventions carried out by the National Blood service of Ghana in line with WHO directives, 2007 - 2015

Year of intervention	Theme	Objective
2007	Safe Blood for Safe Motherhood	Emphasizing the role of safe blood transfusion in maternal and prenatal care
2008	Giving Blood Regularly	Aimed at encouraging people to donate blood regularly, voluntarily and over a long-term.

2009	achieving 100 per cent non-remunerated donation of blood and blood components	Emphasizing the need to improve the safety and sufficiency of blood
2010	New blood for the world"	Motivating young people to donate blood
2011	More blood. More life	Reinforcing the need for more people to become life-savers by volunteering to donate blood regularly.
2012	Every blood donor is a hero	Encouraging more people to become Heroes by donating blood
2013	Give the gift of life: donate blood"	Emphasizing the value of donating blood to the patient and to help people to live longer and more productive lives.
2014	Safe blood for saving mothers	Increasing awareness about why timely access to safe blood and blood products is essential for preventing maternal deaths.
2015	Thank you for saving my life	Thanking blood donors and encouraging more people to donate blood voluntarily and regularly

Source: Researchers own construction based on available WHO literature on World Blood Donation Day and blood donation interventions 2007 - 2015.

Apart from the aforementioned interventions a host of organisations periodically embark on other forms of interventions to create awareness and to help change behaviour towards increasing blood donation in Ghana. Notable among these agencies are: Ghana Red Cross Society (GRCS), 'Mamaye', MTN Ghana, Ecobank Ghana, to mention a few. For example, MTN Ghana Foundation in partnership with Ecobank Ghana organised a blood donation intervention dubbed 'save a Life campaign' in 2015 to raise 700 pints of blood to be distributed

to the National Blood Bank at Korle Bu Teaching Hospital, Ridge Hospital, Komfo Anokye Teaching Hospital, Effia Nkwanta and Tamale Teaching Hospitals (www.graphic.com, 2015).

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

This chapter reviews literature relevant to the central problem of the study. The chapter commences with a discussion of the origin of social marketing. Other relevant literatures reviewed in this section are: benchmarks for identifying a genuine social marketing programme , and the Social Marketing Mix. The chapter also looks at the various models that have been applied in other Social Marketing interventions. The chapter concludes with a discussion of the Diffusion of Innovation Model and the various constructs of perceived attributes of innovations which the researcher adapts as the conceptual framework for the study

3.1 Origin of Social Marketing

Evidence from literature shows that as far back in the 1960s marketing scholars researched on topics which fit into the domain of contemporary Social Marketing (Andreasen, 1994). Regardless of this, marketing before 1969, was seen by many scholars as a commercial investment basically for profit maximization (Honeymoon, 2008). However, Kotler and Levy (1969) contend that apart from being a commercial activity, marketing is equally a societal activity that goes beyond selling and for that matter maximizing returns on investments. Critics of this view were quick to point to the fact that broadening the scope of marketing meant taking the marketing discipline beyond its purview. Luck (1969) a critic of the 'broadening movement', assert that marketing was a buying and selling activity hence any attempt to broaden the field would divert its focus and interfere with other disciplines. Essentially the true essence of marketing was split among two schools of thought: the proponents of the commercialisation

theory and the proponents of the broadening theory, which saw marketing as a technology (Honeymoon, 2008). Kotler and Zaltman (1971), following Kotlers view of marketing, sort to apply technology to social issues and proposed, it could be called "social marketing". In a nutshell, the term social marketing is traceable to the publication of Kotler and Zaltman's in 1971 titled: "Social Marketing: An Approach to Planned Social Change" (Kotler and Zaltman 1971).

Though the introduction of social marketing suffered lot of criticisms, over the last decade it has played a pivotal role in several health improvement campaigns worldwide (Tweneboah-Koduah, 2013)

3.2 Benchmark for Identifying a Genuine Social Marketing Programme

Stead, Gordon, Angus & McDermott (2007) argue that one fundamental problem in social marketing is the lack of an acceptable definition for what constitute a Social Marketing intervention. They further contend that the remedy to this problem is to ascertain the type of ingredient present in a Social Marketing intervention.

According to Andreason (2002) a genuine social marketing programme should have six important ingredients. Gracia-Marco, Moreno & Vicente-Rodríguez (2012) explain that the principal objective of the social marketing benchmark is to confirm the consistency of an intervention with Social Marketing.

The various benchmarks for identifying a genuine social marketing programme proposed by Andreason (2002) is presented and analysed below

Table 3.1: Social Marketing Benchmark proposed by Andreason (2002)

Benchmark	Explanation Based on Andreason (2002)
Behaviour change	Behaviour change is the standard used to design and assess a given intervention.
Audience research	Thorough Research should be carried out to obtain better insight of the target market and to further get full grips of their needs. The materials for the campaign should also be pre-tested with the target audience and also ongoing interventions should be monitored.
Segmentation of target audience	Different segments are identified and grouped based on audience research. The various segments are served differently to ensure judicious use of scarce resources
Creating exchanges	At the heart of every social marketing intervention is creating attractive and motivational exchanges.
Traditional marketing mix	The intervention should employ all the traditional marketing mix elements (product, place, price, promotion)
Competition	Careful attention is paid to the competition faced by the desired behaviour

Source: Andreasen (2002)

3.2.1 Behaviour Change

Andreason (2002) explains that social marketing interventions should be premised on behaviour change. More specifically, the social marketers primary focus is to influence a target market to accept a new behaviour, reject a potential undesirable behaviour, modify a current behaviour or abandon an old undesirable one (Kotler and Lee 2008).

3.2.2 Audience Reseach / Customer Insight

According to Andreason (2002) the essence of conducting audience research prior to a social marketing intervention is to understand the target audience before the commencement of the intervention, to test the various elements of the intervention before they are executed and lastly to assist in the monitoring of the intervention programme me.

3.2.3 Segmentation Principles

Kotler and Lee (2008) suggest that segmenting for social marketing is different from commercial marketing. They explain that whereas commercial marketing is focused on selecting target market segments that provides the greatest volume of profit, social marketing segments focuses on factors such as prevalence of the social problem, and ability to reach the audience.

3.2.4 Creating Exchange

Andreason (2002) posits that creating an attractive and a motivational exchange with the target population is key to ensuring the effectiveness of a social marketing campaign.

3.2.5 Traditional Marketing Mix

Social marketing is basically about the 'application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programmes designed to influence the voluntary

behaviour of target audiences in order to improve their personal welfare and that of their society" (Andreasen 2006).

3.2.6 Competition

Lee & Kotler (2011) state that competition in social marketing constitutes three things: firstly, the behaviour the target population chooses over the social marketers prescribed behaviour. Secondly, behaviours they are addicted to or behaviour they are fond of. The last competition for the social marketer is the various messages from organisations and individuals that contradict the behaviour change message of the social marketer.

3.3 Social Marketing Mix

Andreasen (2006) notes that social marketing basically applies commercial marketing technologies to influence the behaviour of its target audience. By inference, Social marketing borrows the four Ps of the traditional marketing mix: Product, Price, Place, and Promotion towards changing the behaviour of a target group. Glassman & Braun (2010) also noted that the main feature of a social marketing intervention is the blend of the four Ps to achieve a desired objective. Unlike the traditional marketing mix discussed above, in social marketing the product is actually the intended behaviour the social marketer wants the target audience to adopt and the benefits that accompany it (Glassman & Braun, 2010). In this context the behaviour the study wants the target audience (Students between 18-25 years) to adopt is the habit of donating blood regularly (every four months) and voluntarily.

Glassman and Braun (2010) further posits that price in social marketing refers to the costs that the intended target audience incur in other to adopt the new behaviour. This also includes the

barriers they must overcome in other to adopt the intended behaviour. Wood (2008) explains that the cost associated with a behaviour al change 'product' includes Perceived time, effort, change of lifestyle, and negative impact on social relations. In the context of this study, the cost can be the distress associated with abandoning ones comfort zone to undergo blood donation screening.

Again, place is where the target audience will carry out the desired behaviour (donate blood), obtain any related information or support that will enable them to perform the desired behaviour effectively (Kotler et al., 2002). Promotion in social marketing is the means by which the new behaviour is communicated to the target audience. Wood (2008) recommends that adequate focus should be given to the growth in interactive, electronic media and communications channels that are becoming famous in commercial marketing.

Apart from the above four P's Social Marketing also adds additional Four P's (Publics, Partnership, Policy and Purse Strings). "Publics" as used in Social Marketing are the external and internal groups involved in a Social Marketing intervention programme (Weinreich, 2006). External publics in an intervention programme may include the target audience and other secondary audience like friends, family members and policymakers. Similarly, the internal publics may also include staff and supervisors of the programme. Again, "Partnership" in Social marketing refers to a situation where the social marketer teams up with organisations of similar goals to execute a social marketing campaign (Weinreich, 2006).

Further, "Policy" as used in the Social Marketing mix refers to an intent to influence policy that seeks to encourage behaviour change (Weinreich, 2006). Finally, "purse strings" relates to funding for the social marketing intervention programme (Weinreich, 2006). Weinreich (2006)

further notes that funds for social marketing programmes are usually from donations, foundations and government grants.

3.5 Behavioural Change Theories in Social Marketing

Edberg (2007) defines a theory as a "propositions that have meaning, validity, and truth (or falsity) within a specific context, such as a historical context, a social context, or a cultural context". Glanz & Bishop (2010) indicate that a theory is a set of interrelated concepts, definitions, and propositions that explain or predict events or situations by specifying relations among variables. A more recent definition by Handley (2015) views a theory as "a set of inter-related concepts, definitions, and propositions that explain or predict events or situations". According to Buchanan (2004) theories enable the researcher to better understand social phenomenon in order to predict and control human behaviour. It can be deduced therefore that theories are essential in the design of interventions towards understanding, predicting and controlling human behaviour. Glanz & Bishop (2010) asserts that interventions based on theory are more effective than those without a theoretical support.

Owing to the aforementioned relevance of theory in social marketing interventions, the next section is devoted to a review of some behavioural change theories in Social Marketing

3.5.1 Stages of Change Model

The stages of change model also called the transtheoretical model propounded by Prochaska & DiClemente (1983) was the outcome of a study on smoking cessation. Prochaska & DiClemente indicate that behaviour change undergoes series of stages. These stages include pre-contemplation, contemplation, preparation, action, maintenance, termination, and relapse (Prochaska, DiClemente & Norcross (1992). These stages are explained below:

3.5.1.1 Precontemplation

At the precontemplation stage the individual does not consider his or her behaviour a problem. This group is usually oblivious of the consequences of their behaviour and as a result harbours no intention of changing the behaviour within the next 6 month. According to Norcross and Prochaska (2002), these individuals are "uninformed". For example the individual might not be aware of the consequences of not donating blood or how blood shortage affects human lives.

3.5.1.2 Contemplation stage.

This is the stage where the individual now identifies the behaviour as a problem and as a result develops the conviction to change his behaviour within the next six months. Singer (2009) also refers to this group as 'fence sitters' because according to him individuals within this category usually find themselves in a dilemma as part of them want to change but another part of them wants them to remain the same.

3.5.1.3 The preparation stage

This is the stage where the individual has decided to change his/her behaviour within a month. People in this stage have taken little steps towards changing their behaviour. This may include making changes to ones environment to enhance a change in behaviour.

3.5.1.4 Action stage.

At this stage the Individual has changed his behaviour as recent as between a day and 6 months. Essentially the individual has utilised the plans developed in the preparation stage. For example if the target audience actually donates blood within 1 and 6months they are deemed to have taken action.

3.5.1.5 The maintenance stage

This is the stage where the individual makes the behaviour change part and parcel of him and becomes more committed to maintaining the behaviour. The issue with blood donation is that many people donate blood once and do not return again. However, individuals categorised under the maintenance stage are those who donate blood once and makes cultivates the habit of donating blood over time.

3.5.1.6 The termination

This is the stage where the individual has completely given away the bad behaviour and will not return to it again.

3.5.2 Social Cognitive Theory

The social cognitive theory as it is widely known today is a modified version of what was called observational learning theory, which sought to elaborate how people learn through observation (Bandura, 1977b). The name was changed following further studies by Bandura to employ cognitive psychology concepts to understand the increasing complexities of human functioning (Bandura 1986). Fundamentally, the social cognitive theory was developed on three pillars that affect an individual's learning: cognitive, behavioural, and environmental factors (Bandura, 1991). Bandura (2001) further posits that human beings are ultimately in control of their own behaviour. This principle underlines Bandura's core learning concepts explained below: human agency, perceived self efficacy, and self regulation.

3.5.2.1 Perceived self efficacy

This explains an individual's belief in their ability to successfully carry out actions at a particular time (Banduara 1997). For example individuals with high self efficacy belief in their ability to donate blood voluntarily and regularly than individuals with lower self efficacy. Wood & Banduara (1989) indicate that self efficacy is primarily derived from the individuals feeling that they have the required cognitive abilities, motivation, and resources to carry out an activity.

3.5.2.2. Self regulation

Self-regulation reflects an individual's ability to change a particular behaviour (Baumeister & Vohs, 2007). They posit that self regulation provides flexibility which enables people to adjust to situational demands

3.5.2.3 Human Agency

Bandura (2001) indicates that the concept of human Agency involves leaners deliberate decision to devote time to learning which influences the individual's behaviour. Being an agent means individuals ultimately decide what they do with their life's. They are not mere spectators of their behaviour (Bandura, 2006).

3.5.3 Health Belief Model

The health belief model is the most extensively used theory in health related interventions (Glanz, Rimer & Lewis 2002). The model was established in the 1950s following a failed tuberculosis screening programme by the U.S Public Health Services (Hochbaum, 1958). Hochbaum further posits that Health behaviour is primarily determined by the individual's beliefs and perception about the disease.

The constructs of the HBM by Hochbaum (1958) are explained below

3.5.3.1 **Perceived Susceptibility** refers to the individuals beliefs about the possibility of their behaviour leading to a harmful health condition. For example refusal to donate blood leads to shortage of blood in blood banks which eventually results in the death of those who are in need of blood. If an individual does not feel that he is at risk, there would be no intention to donate blood.

3.5.3.2 **Perceived Severity**. This addresses the feeling of how serious the disease associated with the person's behaviour can be. The degree of the perceived seriousness of the susceptible disease determines the degree at which one will be willing to change a particular negative behaviour. For example one who has not formed the habit of donating blood may not know how dreadful it is if there is no blood for a patient who needs immediate blood transfusion.

3.5.3.3 **Perceived Benefit**. This refers to the person's belief that the new behaviour will result in offsetting the dangers associated with the person's negative behaviour. Consequently, the ultimate determinant of behaviour change is ones belief regarding perceived benefits of the various actions available for reducing the threat (Champion and Skinner, 2008).

3.5.3.4 **Perceived Barrier**. This refers to the individual's evaluation of the difficulties associated with adopting or changing ones behaviour. An individual is unlikely to take steps to prevent the negative behaviour if the individual perceives that the barriers associated with changing the behaviour outweigh the benefit (Rosenstock, 1966). In their review of possible barriers to behaviour change, Julianawati, Cawley, Domegan, Brenner & Rowan (2013) identified that embarrassment, fear of pain, knowledge and awareness, attitude, accessibility, lack of support, time and cost are barriers that usually affect behaviour change.

3.5.3.5 **Cues to Action**. Cues to action are usually events, people or things that enhance a change in behaviour (Orji, Vassileva & Mandryk, 2012). Cues to action may include external behaviour change motivators (eg. mass media or social influence) or internal cues such as a negative change in an individual's body state (Rosenstock, 1966).

3.5.3.6 **Self-Efficacy**. This is the latest addition to the HBM suggested by Rosenstock, Strecher and Becker in 1998 to address efficacy expectations. Self efficacy is defined as the level of confidence one has in his or her ability to successfully perform specific behaviours (Bandura 1977a). Orji et al., (2012) explain that adopting a new behaviour is largely dependent on people's belief that they can adopt the behaviour. Consequently, if one belief that donating blood is useful but think they can not adopt the habit of donating blood, chances are that the individual will not adopt the habit of blood donation.

3.5.4 Theory of Reasoned Action

Theory of Reasoned Action (TRA) was propounded in 1967 in an attempt to explain the relationship between behaviour and attitude (Fishbein, 1967). Fishbein & Ajzen (1975) proposed two main concepts of TRA: "principles of compatibility" and the concept of "behavioural intention". The Principle of compatibility stipulates that to predict a specific behaviour, specific attitudes that corresponds to the specific target, time and context should be evaluated. Behavioural intention on the other hand specifies that an individual's motivation to partake in behaviour is defined by the attitudes that influence the behaviour (Fishbein & Ajzen 1975). More specifically, Behaviour intention is influenced by two constructs: attitudes and subjective norms (Ajzen 1988; Fishbein & Ajzen 1975). Attitude is defined as an optimistic or pessimistic reaction of people, substance, occurrence, behaviour, thoughts, or anything within the surroundings (Fritz

2008). A subjective norm also refers to the individual's subjective judgment regarding others' preference and support for a behaviour (Werner 2004).

TRA has been used extensively by numerous researchers. However, Trafimow (2009) contends that the fact that TRA has been extensively used and influential does not mean that it is a good theory. TRA has suffered many criticisms. Prominent among these criticisms is its concentration on behaviours that are under volitional control (Andreasen, 2002) thereby neglecting influences of the environment surrounding the individual (Grandon & Mykytyn 2004; Werner 2004).

Again, Aiken (2002) suggests that the TRA model contradicts various research findings that past behaviour is the best predictor of future behaviour. As a solution to these problems Ajzen (1991) propounded an extension of the TRA called the Theory of planned behaviour.

3.5.5 Theory of Planned Behaviour

The theory of planned behaviour propounded by Ajzen's (1991) uses attitudes, subjective norms and perceived behaviour al control to predict behavioural intention. Essentially the TPB theory adds 'perceived behavioural control' to the original TRA model in an attempt to help predict behaviour with high precision (Ajzen, 1991). Ajzen (2006) defines the constructs of the TPB model as follows: Perceived behavioural control refers to people's perceptions of their ability to perform a given behaviour. Again, Ajzen defines subjective norm as the perceived social pressure to partake or not to engage in behaviour. Ajzen further posits that behavioural intention is an indication of a person's readiness to perform a given behaviour or action. Attitude towards the act is the degree to which performance of the behaviour is positively or negatively valued by an individual.

3.5.6 Diffusion of Innovations Model

The diffusion of innovation model describes the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers 1983). Rogers (2010) defines an innovation as an idea, practice, or object that is perceived as new by an individual or other unit of adoption.

The primary importance of innovation is to inform and by so doing effect a behaviour change of an individual, organisation or community (Higgins, 1995). An innovation does not necessary involve new knowledge or information. This is because there is the possibility for an individual or a target population to know about an innovation and yet refuse to develop a positive or negative attitude towards it (Higgins, 1995; Rogers 2010).

Roggers (2003) categorised potential adopters based on their level of innovativeness. Rogers (2003) defines categories of adopters as "the classifications of members of a social system on the basis of innovativeness". These categories are innovators, early adopters, early majority, late majority and laggards. They are described below.

3.5.6.1 Innovators

Innovators are adventurous individuals who are fixated about trying new ideas (Rogers 2010). Rogers further posits that due to the venturesome nature of innovators they usually leave their comfort zones to establish cosmopolite social relationships in line with their search for new ideas. Robinson (2009) indicates that apart from the fact that innovators frequently lavish enormous time, energy and creativity on developing new ideas and gadgets they also love to make noise about their new discoveries. Innovators are potentially individuals with adequate

financial resources to enable them offset possible losses associated with adopting unprofitable innovation and individuals with the potential to grasp and apply complexities (Rogers 2010).

3.5.6.2 Early Adopters

According to Rogers (2010) early adopters unlike innovators get very well incorporated into their local circles. He further indicates that other individuals look up to early adopters due to the fact that they are usually not far from the average individual as far as innovation is concerned. Again, early adopters command a greater amount of respect among their peers and they usually maintain this position by making thoughtful decisions regarding innovation (Rogers, 2010). Essentially early adopters minimise uncertainties regarding a new innovation by first adopting it, assessing it and communicating their experience back to their peers. Robinson (2009) contends that early adopters are receptive to innovative ideas and are easy to deal with because they are always in search of anything that gives them social or economic edge.

3.5.6.3 Early Majority

This category of innovators adopts new ideas earlier than the average individual. They function as interconnectors because they are positioned between the category of innovators that are early adopters and those who are relatively late adopters. Early innovators take a relatively long time to make innovation decision because they deliberate for some time before making decisions on innovation (Rogers, 2010)

3.5.6.4 Late Majority

This category of innovators follows the average individual in the adoption of an innovation. This is to say that the average individual precedes the late majority in the adoption of an

innovation. This group usually possesses relatively scarce resources. Hence, they adopt innovation with greater care, skepticism and caution (Rogers, 2003; 2010). Adoption may be propelled either by pressure from peers or due to an economic need (Rogers, 1995)

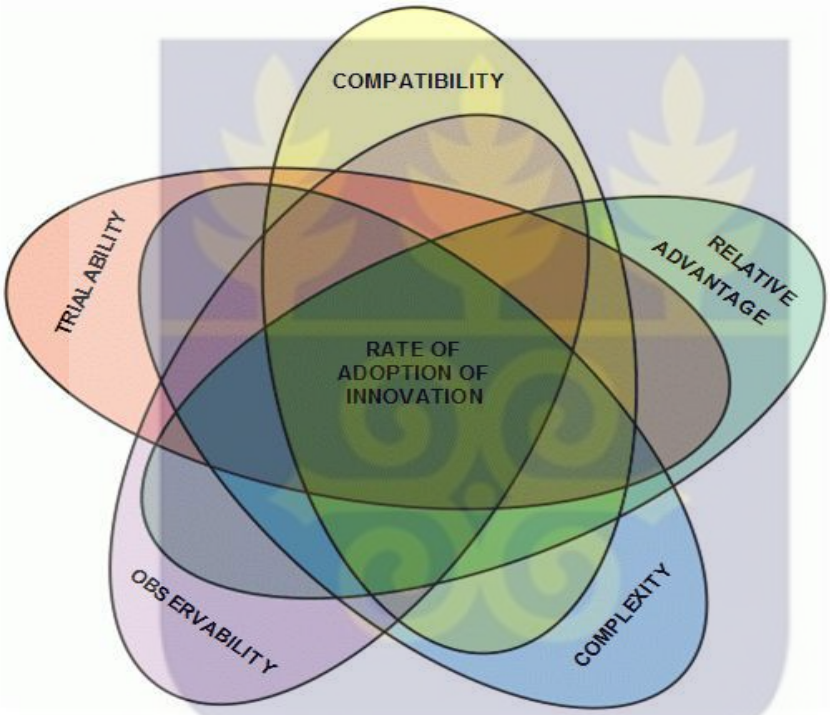
3.5.6.5 Laggards

This group is the last to adopt an innovation. Laggards live in the past and make decisions by conferring with individuals who have equal traditional principles (Rogers 2003; 2010). Laggards have relatively limited resources and this informs their decision to be double sure about the viability of a particular innovation before they adopt it. Laggards tend to adopt an innovation when it has long been displaced by a recent innovation already being used by innovators (Rogers 2003; 2010).

The rate at which a given innovation is diffused in a social system is largely influenced by the perceived attributes of the innovation (Rogers 1995; 2003; 2010; Bates, Manuel & Oppenheim 2007; Worum, 2014). Rogers (2010) defines rate of adoption as the relative speed with which an innovation is adopted by members of a social system. The perceived attributes of an innovation also refers to the characteristics of the innovation that affects its rate of adoption (Worum, 2014). Rogers (2010) likens an innovation to beauty and emphasises that Individuals have varying perceptions about a given innovation and these perceptions largely determines whether or not they will adopt it. Summarily, potential adopters to a larger extent rely on innovation attributes when making innovation adoption decisions (Rogers 1995; 2003; 2010; Bates, Manuel & Oppenheim, C. 2007; Worum, 2014).

Rogers (1995; 2003; 2010) points out five main attributes that largely influences the acceptance of an innovation by potential adopters: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability.

Figure 3.1: A diagrammatic view of the perceived attributes of innovation



Source: Based on Perceived Attributes of innovation by Roggers (1995; 2003; 2010) in Stachewicz, (2011)

However, extent literature suggests that various researchers of innovation have often modified these constructs in line with the context of their respective studies (Davis, 1986; Moore & Benbazat, 1991, Damanpour and Schneider, 2008; Dupagne & Driscoll, 2010)

Moore and Benbasat (1991) modified Roggers (1995; 2003; 2010) innovation attributes by

replacing observability with demonstrability and visibility. In the same study, complexity was also replaced with ease of use, image and voluntariness. Similarly**,** Dupagne and Driscoll (2005) modified Rogers traditional five attributes by adding perceived risk and perceived resources in their study of an adoption of consumer communication technologies. Davis (1986) also replaced complexity with ease of use in his studies on acceptance of information technology due to its clear meaning. Finally, Damanpour and Schneider (2008) added cost and impact in their studies because in their estimation cost was too important to be added to relative advantage. Impact though an essential part of relative advantage was also treated as a separate construct.

The categorisation of adopters on the basis of their innovativeness discussed earlier (innovators, early adopters, late majority, early majority, laggards) is not the focus of this research. This research views the whole idea of donating blood 'voluntarily' and 'regularly' as an innovation and uses the various constructs of Perceived attributes of innovation to understand the diffusion and adoption of regular voluntary blood donation as a behaviour.

3.6 Theoretical Framework and Development of Hypothesis

Based on the above literature review on Diffusion innovation (with particular reference to the various innovation attributes) a conceptual model tailored to the context of this study has been developed with appropriate hypothesis. The model is presented and analysed below:

Figure 3.2 Perceived attributes of innovation

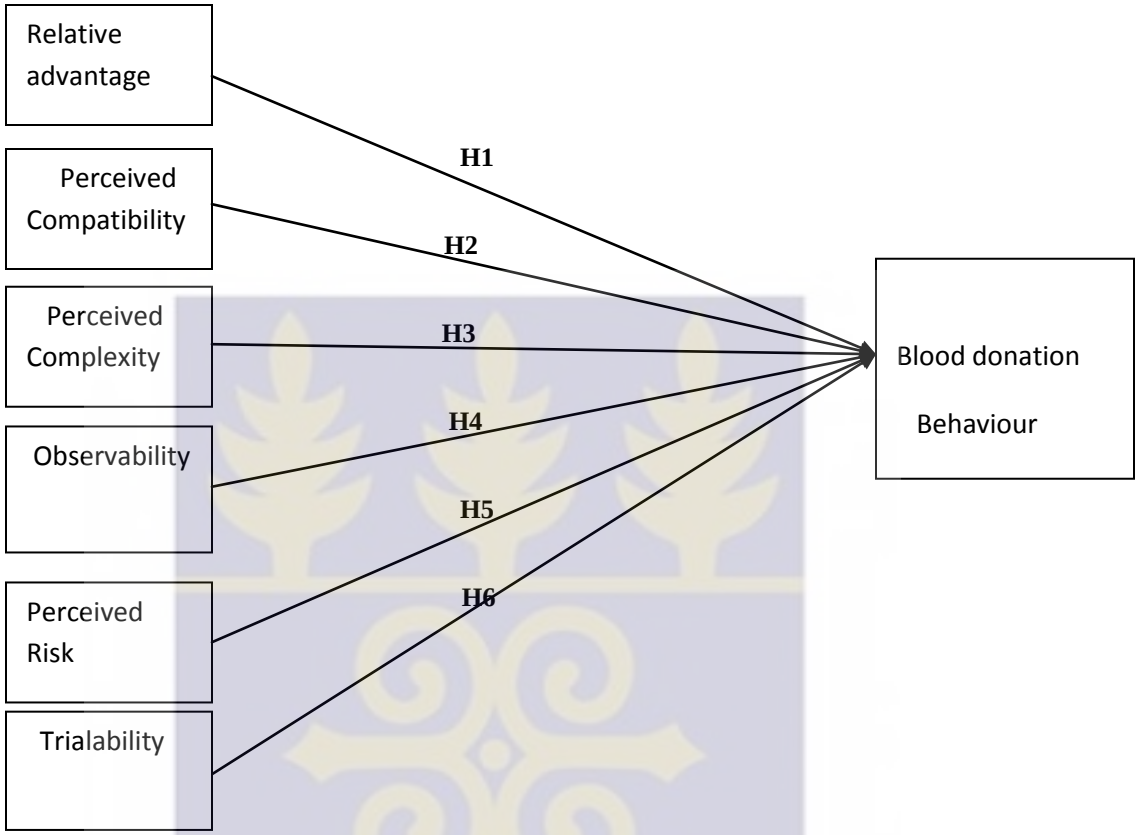


Figure 3: adapted from Roggers (1995; 2003; 2010) innovation attributes

This study maintains all the five innovation attributes proposed by Rogers (1995; 2003; 2010) and adopts one more attribute "perceived risk" from Dupagne and Driscoll (2005). The addition of "Perceived risk" to the construct is as a result of the recent global focus on safe blood transfusion (WHO, 2009) aimed at guarding against diseases contracted through blood transfusion and other risks associated with blood transfusion.

3.6.1 Relative Advantage

Relative advantage is the extent to which an innovation is perceived as being more advantageous than the idea it seeks to replace (Rogers 2010). Rogers further posits that the process by which a new idea is diffused is an uncertainty reduction process. Essentially, Potential adopters are more interested in the extent to which a new idea is better than an existing practice or behaviour. Logically, if an individual perceives the benefit they derive from adopting a particular behaviour as higher than the benefit they derive from their existing behaviour there will be a higher tendency to change their behaviour. Frank & Swedmark, (2004) corroborate this by emphasizing that individuals usually take action if they perceive that the benefit associated with the new behaviour is greater than their existing behaviour. By deduction, if an individual perceives that donating blood regularly and voluntarily is beneficial than refusing to donate blood, the individual will adopt the behaviour. Similarly, if the individual perceives the behaviour of voluntary and regularly blood donation as unbeneficial (or if the benefit of not donating blood regularly and voluntarily outweighs frequent voluntary blood donation) the individual will make no effort to change his or her behaviour.

H1: *the greater the perceived advantage of donating blood voluntarily and regularly, the greater the likelihood that the individual will adopt the behaviour.*

3.6.2 Compatibility

Rogers (2010) defines compatibility as the "degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters". The extent to which individuals embrace an innovation is largely influenced by whether or not the innovation is consistent with the individual's lifestyle, cultural/ethnic beliefs and practices, self-

image (Oldenburg, Hardcastle & Kok, 1997). Stachewicz (2011) indicates that an idea that is more compatible is less uncertain to the potential adopter, and fits more closely with the individual's life situation. In the case of donating blood regularly and voluntarily, if the individual's beliefs or practices is against blood donation the individual will not adopt the behaviour. On the other hand if the individual's lifestyle, culture or life practices are consistent with blood donation, the individual will adopt the behaviour.

H2: The greater the perceived compatibility of donating blood regularly and voluntarily, the greater the likelihood of adopting the behaviour

3.6.3 Complexity

This refers to the ease with which the 'new' behaviour can be understood. According to Roger (2010) some innovations are clear in their meaning to the target audience whiles others are not. In other words, the behaviour or the communications around the behaviour should be simple and not shrouded in ambiguity and complexity. In the context of regular and voluntary blood donation, the target audience or the individual will take action if the individual understands in clear terms the essence of donating blood and the procedures one must go through to donate blood safely. On the other hand given a situation where the target audience or the individual finds the whole concept of regular and voluntary blood donation complex and ambiguous, the individual will not take action to donate blood. This discussion leads to the following hypothesis.

H3: greater complexities regarding blood donation as perceived by a target audience, will affect negatively their desire to donate blood.

3.6.4 Perceived risk

Dupagne and Driscoll (2005) define Perceived risk as the extent to which the innovation or new idea (intended behaviour) is associated with risk. Featherman and Pavlou (2003) indicate that perceived risk is the possible loss that accompanies pursing ones preferred results. The question that arises here is whether or not the behaviour can be adopted with minimal risk (Dupagne and Driscoll 2005) and uncertainty (Rogers 2010). In the context of blood donation, the target audience is more likely to embrace the behaviour if they perceive that there is no risk associated with donating blood. This risk may range from the possibility of contracting a disease through blood transfusion (Seidl & Kühnl1987; Pealer et al 2003) and whether or not one can sustain an injury in the process of donating blood. The target audience will largely ignore the behaviour if they perceive that the 'new' behaviour is associated with risk.

> ***H4:*** *the greater* the perceived risk associated with blood donation the less likely it would be for the target audience to adopt the behaviour

3.6.5 Observability

Rogers (2010) defines observability as the 'degree to which the results of an innovation is visible to others'. Rogers further indicates that the result of adopting certain behaviours or ideas is at times easy to be observed and communicated whereas that of others is at times difficult to be observed and communicated to others. In the context of regular voluntary blood donation, if the benefit of donating blood is visible to the target audience they will be more inclined to donate blood. On the other hand, given a situation where the target population finds it difficult to observe the impact of donating blood there will be a negative attitude towards blood donation.

For example, if the target audience have examples of individuals whose lives have been saved through blood supply there is the likelihood that the individual will adopt the behaviour and donate blood regularly and voluntary.

H5: *The ease with which an individual can observe the impact of donating blood is positively related to the adoption of regular voluntary blood donation as a behaviour .*

3.6.6 Trialability

According to Rogers (2010) trialability is the extent to which a new idea can be experimented with on limited basis. Rogers further explains that a new idea that offers trial opportunities contributes to reducing the uncertainty associated with it. In the context of this study, trialability aimed to explore the preparedness of the target audience to try the behaviour (donating blood regularly and voluntarily) and how this could affect their intention of adopting regular voluntary blood donation as behaviour. The reason for the departure from Rogers' suggested operationalisation is that it was important to adapt this attribute so that it could be able to address the preparedness or willingness to try the behaviour and potential aftermath decisions.

H6: *The perceived trialability of regular voluntary blood donation as a behaviour is positively related to its rate of adoption.*

CHAPTER FOUR

RESEARCH METHODOLOGY

4.0 Introduction

This chapter discusses the detailed methodology of the study. It covers the research philosophy adopted for this study, research approach, research design, sources of data, sampling design which includes the study population, sampling size and sampling technique. The chapter also explains the data collection instruments.

4.1 Research Paradigm

A paradigm is "a set of beliefs, values and techniques which is shared by members of a scientific community, and which acts as a guide or map, dictating the kinds of problems scientists should address and the types of explanations that are acceptable to them" (Kuhn, 1970). In conducting research, a clear philosophy or research paradigm allows the researcher to think thoroughly about the enhancement of knowledge (Saunders et al. 2011). The major research paradigms identified in literature are Positivism, post-positivism, interpretivism and pragmatism (Creswell, 2013; Krauss, 2005).

The positivist paradigm employs quantitative methodology to investigate, confirm and predict behavioural patterns (Taylor & Medina, 2013). Creswell (2008) emphasizes it focuses mainly on the objectivity of the research process. Post-positivism exhibits similar characteristics but allows more interaction between the researcher and the subjects (Willis, Jost & Nilakanta, 2007). The interpretive paradigm is the philosophy that unpins qualitative research. It focuses primarily on identifying and reporting the meaning of human experiences and actions (Fossey,

Harvey, McDermott, Davidson, 2002). It equally allows for broad and open ended questions to enable participants to create their own meanings of the situation mainly through interactions (Creswell, 2013). The pragmatic paradigm is viewed as the framework that underpins mixed methods research (Tashakkori & Teddlie, 2003; Wahyuni, 2012). It focuses primarily on the research problem and employs all approaches to understanding the problem (Creswell, 2003).

In view of the discussions above, the researcher deems it suitable to follow the positivist approach, which holds the view that there is a single, objective and tangible reality (Boateng, 2014). Thus, Positivists seek to explain experiences or test theories "through observation and measurement in order to predict and control forces that surround us" (O'Leary, 2004). Additionally, Positivists focus mainly on deductive reasoning (quantitative research) where research questions and hypotheses are formulated and then tested empirically under controlled circumstances (Boateng, 2014). They also believe that there is only one truth and no matter the perception of people, that truth is an objective reality that exists (Sale, Lohfeld & Brazil, 2002).

Following the positivist approach, the study adopts a quantitative research approach and formulates hypotheses based on the constructs of perceived attributes of innovation. These constructs are tested on blood donation behaviour through the administering of structured questionnaires.

4.2 Research Approach

Basically there are two approaches to research: Quantitative and qualitative (Johnson & Onwuegbuzie ,2004; Vanderstoep and Johnson, 2008). Creswell (2013) explains that Quantitative research involves 'explaining phenomena by collecting numerical data that are

analysed using mathematically based methods'. He further posits that quantitative research has to do with quantifying relationships between variables employing statistical tools like regression, correlation coefficient, and mean difference. Unlike qualitative research, in quantitative research emphasies is on testing theories deductively, building in protection against bias, controlling for alternative explanations and being able to generalise and replicate the findings (Creswell, 2008). In contrast, qualitative research seeks to explore and recognise the meaning individuals or groups assign to a social or human problem (Creswell, 2007). Essentially, the nature of qualitative research is interpretive and its purpose is to understand a particular phenomenon, not to generalise to a population (Farzanfar, 2005).

Owing to the purpose and objective of this research (Coll & Chapman, 2000), a quantitative data collection method was employed to analyse the impact of the various constructs of perceived innovation attributes on behaviour change towards regular voluntary blood donation.

According to Hopkins (2008) quantitative studies enables researchers to ascertain the relationship between one variable (independent variable) and its outcome (dependent variable). Essentially, the selection of the quantitative approach for this study is to enable the researcher ascertain the relationship between the independent variables (perceived advantage, perceived risk, perceived compatibility, perceived complexity and observability) and the dependent variable (voluntary blood donation behaviour).

4.3 Research Design

A Research design is basically a framework for collection, measurement, and analysis of data (Copper & Schindler, 2001). Ankrah (2014) explains that a research design is the overall plan for

collecting data in order to answer research Questions (Ankrah, 2014). Strategies that can be adopted in conducting research include case study, experiments and surveys. This study adopted the survey methodology because it requires a relatively minimal financial outlay (Ankrah,2014) and allows data to be collected on a large population within a short period of time (Leedy, 2001).

This study employed the cross-sectional survey to determine the impact of relative advantage, perceived compability, perceived risk, trailability, observability and perceived complexity on behaviour change towards regular and voluntary blood donation of the study population at one point in time. Cross-sectional survey provides quick, inexpensive efficient and accurate means of collecting information about a population (Zikmund & Babin, 2010).

4.4 Source of Data and Method of Data Collection

Sources used for data collection can be categorized into two main forms: primary and secondary. Primary data are data collected for the precise research problem at hand using procedures that best fit the research problem (Hox & Boeije, 2005). On the other hand, secondary data are data that have already been collected for the purposes other than the problem at hand (Malhotra, 2007). Data for this study is primary data. The reason was to acquire data at first hand and to obtain an objective response from the target population. The primary data was collected through a design of structured questionnaires.

4.5 Sampling Design

This section discusses three important elements of the study: study population, sampling size and sampling technique

4.5.1 Study Population

Kumekpor (2002) defines population as the total number of all units of the phenomenon to be investigated that exists in the area of investigation. Bell & Bryman (2007) also explain that the study population is the world of units from which the sample size is to be selected for the research. The Target population for this study comprises undergraduate students between 18-25 years in the various Ghanaian universities. However, due to the difficulty in sampling the entire target population, this study focused on a more narrowly defined population: Undergraduate students between 18-25 years in the University of Ghana. As mentioned earlier, the choice of University of Ghana was based on a simple random sampling procedure carried out by the researcher. The seven notable public Universities (University of Ghana, Kwame Nkrumah University of Science and Technology, University of Cape Coast, University of Education, University for Development Studies, University of Professional Studies and University of Mines and Technology) were assigned numbers on pieces of papers and mixed up in a basket in such a way that each of the universities had an equal chance of being selected. In the end, the University of Ghana was picked for the study.

Fraenkel,Wallen &Hyun (1993) assert that a more narrowly defined population known as sampling unit saves the researcher time, effort and even money. The University of Ghana has about 27,938 undergraduate students (University of Ghana, 2016)

Education remains one of the cardinal factors in blood donation (Letin 2010) hence the student community is very important for voluntary blood donation campaigns (Sabu et al.2011). Sabu et al., (2011) further contend that a 'healthy, active and receptive huge student population represents a huge potential to meet adequate and safe blood supplies. According to Dr Neelam Dhingra, Coordinator of Blood Transfusion Safety at WHO, "Young people are the hope and

future of a safe blood supply in the world,"(Dhingra 2010). Again, young people are good candidates for becoming regular blood donors (Letin 2010). This is evidenced by the fact that people under the age of 25 contribute 38% of reported voluntary blood donations worlwide (WHO 2010). However, individuals below 17 years cannot donate blood because their bodies lack enough iron used for haemoglobin (NBSG, 2011).

The analysis above informed the choice of respondents between 18-25 for the study.

4.5.2 Sample Size Determination

According to Kumar (2005) sampling is the process of selecting a few (a sample) from a larger group (the sampling population) to form the basis of predicting a situation in the larger group. For this study, a sample size of 300 was used. Kent (2007) argues that a sample size of 100 respondents and above is acceptable in a quantitative study. Similarly, a study by Giles, Mcclenahan, Cairns, & Mallet, (2004) on the importance of self efficacy on blood donation used 100 undergraduate students at the University of Ulster, Coleraine. Another Study by Juwaheer, Vencatachellum, Pudaruth, & Saib, (2012) on Social Marketing efforts to boost blood donor rate in developing countries used 125 respondents. Harrington (2013) also used a sample size of 50 respondents, in a similar blood donation study to ascertain the Social Barriers Preventing Volunteer Blood Donations.

4.5.3 Sampling technique

This section explains the specific type of sampling procedure used in enumerating respondents for the study. There are two types of sampling technique: Probability and non probability sampling technique.

4.5.3.1 Probability sampling

Bryman and Bell (2007) posits that, with probability sampling each unit in the population has an equal chance of being selected. Bryman and Bell (2003) further explain that probability sampling ensures that the sampling error is reduced. The main types of probability sampling techniques identified in literature are: Simple Random, Stratified, Systematic and Cluster sampling.

Simple random sampling is a sampling procedure where each member of the population has an equal chance of being selected (Latham, 2007). Lotham (2007) further explains that a random sample is often selected by giving each member in the population a number and using a random table to select the members of the sample. Systematic random sampling on the other hand, involves choosing a random starting point and then picking every kth element in succession from the sampling frame (Burns and Bush, 2010).

The stratified sampling approach involves dividing the population into subgroups and using random sampling to select from each subgroup (Latham, 2007). Similarly, cluster sampling involves a sampling procedure where population is divided into subgroups (clusters) each of which could represent the entire population (Bums and Bush, 2010). Latham (2007) contends that cluster sampling is very similar to systematic sampling because both techniques involve dividing the survey unique groups. However, Henry (1990) explains that the difference between stratified and cluster sampling is that whereas stratified sample has to do with choosing few members from each stratum, cluster sampling involves the selection of a few groups and collecting data from each member of the Groups selected.

4.5.3.2 Non- probability sampling

Non -probability sampling refers to a type of sampling procedure which basically involves human judgment in the selection process of a sample (Bryman and Bell 2007). The main types of

non probability sampling identified in literature are: Snowball sampling, purposive sampling, convenience sampling and Quota sampling.

Snowball sampling is a sampling procedure used in situations where the population of interest cannot be identified. The researcher relies on someone who can identify individuals who have the requisite characteristics to be included in the survey (Struthers, 2002). Again, Purposive sampling involves a sampling technique where the researcher selects the elements to be included in the sample based on his or her believe that they exhibit characteristics suitable for the study (Malhotra, 2007).

Convenience sampling basically involves selecting respondents or participants who are readily available and agree to participate in a study (Frey, Botan, & Kreps 2000). Finally, Quota sampling involves dividing the population into mutually exclusive subgroups and using ones judgment to select subjects from each group on a specified proportion (Singh & Masuku, 2014).

Stratified sampling which is a probability sampling technique was used to select respondents for this study. Probability sampling is the principal method used to select large, representative samples for social research (Babbie, 2007). The choice of stratified sampling was to ensure that each population element was represented.

This study divided the population into five strata with emphasies on undergraduate students resident in traditional halls. (Legon Hall, Akuafo Hall, Commonwealth Hall, Mensah Sarbah Hall and Volta Hall). Further, each Traditional Hall was stratified into four (level 100,200,300,400) to reflect the various academic levels of the respondents. Finally, each level (100,200,300 and 400) was stratified into male and female with the exception of Commonwealth

and Volta Hall (Common wealth and Volta hall are occupied are single sex Halls). This was to ensure appropriate representation of the various groups.

4.6 Data Collection Instrument

In line with survey research methodology, this study used the questionnaire instrument to collect primary data. The survey questionnaire used had three sections:

The first section comprised the background information or the demographic data of respondents. The second part consisted of general blood donation questions with particular emphasies on the level of knowledge of the respondents about blood donation. Questions seeking to ascertain the knowledge of the respondents about blood donation had only one correct answer. The third section comprised questions related to the various constructs of attributes of diffusion innovation. These questions were taken from the 'concept of diffusion of innovation' and consisted of 23 items formed from 6 constructs of the Model. The third section of the questionnaire was based on a five-point Likert-scale. From strongly agree (scores 1 points) to strongly disagree (5points). This was to reduce the statistical problem of extreme skewness (Champion, 1987). Response time for the questionnaire was about 5-10 minutes. The questionnaires were double checked to ensure the responses were completed.

In all, 272 questionnaires were received out of the total questionnaires of 300.

4.7 Pretesting of questionnaire

Creswell (2003) explains that testing is important to establish the face validity of an instrument and to improve questions, format and the scale. As a result, the researcher pilot-tested the questionnaire with 50 undergraduate students randomly selected from two non - traditional halls of the university of Ghana (residents of non -traditional halls were not considered in the original

study. In the final analysis, the pre-testing helped to recognize and remove ambiguous questions and duplications.

4.8 Ethical Consideration

Rogelberg, (2004) explains that Research Ethics are norms of conduct that differentiate between acceptable and unacceptable behaviour. In the process of carrying out research, ‘‘sensitive and personal data will be collected, analysed and findings reported’’ it beholves on the research to ensure that no participant is adversely affected (Saunders, & Lewis, & Thornhill, 2009). This study was guided by the three ethical principles of Denscombe, (2009)

(a) Participants' interests were protected; this study took adequate measures to protect the interest of the respondents. An introductory letter was sent to the Hall Masters of the halls under consideration. A sample of the questionnaire was sent to the Various Hall Executives ahead of time. Participants were also assured that, findings would be used for academic purposes only.

(b) The researchers avoided deception or misrepresentation. Adequate steps were taken to inform all participants about the purpose of the research. Again, utmost care was taken during the analysis stage to ensure that the data was not distorted.

(c) Participant’s provided their informed consent. Participants were not forced to participate or complete the questionnaires. All respondents were briefed about the essence of the research and all participants answered voluntarily.

4.9 Data Analysis

Raw data obtained from a research is not useful until it has been transformed into information to enhance decision making (Emery & Cooper 2003). 272 questionnaires were received out of the total questionnaires of 300. The 272 questionnaires were entered into SPSS (20) for analysis. Data were coded and screened for outliers or any other variation in the data set. Data entered into the SPSS was used to generate frequencies for the demographic profile. The demographic information of the consumers were equally examined using descriptive statistics such as frequency, percentage, mean and standard deviation. Multiple Regression was used for testing the relationships as hypothesised by the research model. Prior to the multiple regression the variables were factor analysed to take out variables that best answers each construct of the perceived attribute of innovation. Again, the extracted variables were then tested for reliability.

CHAPTER FIVE

DATA ANALYSIS AND DISCUSSION OF FINDINGS

5.0 Introduction

This chapter presents the analysis of the data. The chapter discusses the demographic profile of respondents, reliability of the various scale items and the descriptive statistics of the study. Finally, a multiple regression is performed to examine the various hypotheses proposed in the study.

5.1 Demographic Profile of Respondents

Respondents from the survey have been profiled according to their gender, age groups, religion and marital status. A total of three Hundred (300) questionnaires were distributed out of which two hundred and seventy two (272) representing 90.7% were returned. The table below summaries the details of the demographic statistics obtained from the study.

Table 5.1: Demographic profile of respondents

PROFILE	MEASUREMENT	FREQUENCY	PERCENTAGE
Gender	Male	147	54
	Female	125	46
	Total	**272**	**100**
Age	18-25	272	100
	26- 30	0	0
	31- 45	0	0
	Total	**272**	**100**

religion	Christianity	263	96.7
	Islam	8	2.9
	Traditional	1	0.4
	Total	272	100.0
Marital status	Single	271	99.6
	Married	1	0.4
	Total	272	100.0

Source: Field work, 2016

The result from the sampled respondents show that there were 147 males representing 54% males and 125 females translating into 46% females. With regards to age, the research in line with its objective was limited to undergraduate students whose ages were between 18-25 years. Again, data on the marital status and religion of the respondents were taken. The data on religion depicted a Christian population of 263 representing 96.7%, 8 Muslims representing 2.9% and 1 traditionalist representing 0.4 percent. There were 271 unmarried respondents (99.6%) and 1 married respondent (0 .4%). The dominance of unmarried respondents could be explained by the educational level of the respondents (undergraduate students)

5.2 Knowledge of respondents on blood donation

This explains the items captured in the questionnaire in an attempt to investigate the level of knowledge respondents had about blood donation. The results reveled that 42 respondents out of the 272 respondents felt they had adequate knowledge regarding blood donation in Ghana. 230 of the respondent's representing 84.6% of the respondents felt they did not have adequate knowledge regarding blood donation in Ghana. Again, 151 (55.5%) of the total sampled

population knew about their eligibility to donate blood. On the contrary, 121(44.5%) of the sampled population had no idea about their eligibility to donate blood. A question regarding whether or not blood could be manufactured artificially was asked. 29 (10.7%) respondents were of the view that blood could be manufactured artificially whiles 243 (89.3%) felt blood could not be manufactured artificially. On whether or not respondents had donated blood ever before, only 47 out of the total sampled respondents had donated blood before. The remaining 225(82.7%) had never donated blood before. There was a question that sought to probe the motivation for donating blood amongst the 47 respondents. The results indicated that 16 respondents donated blood because they felt it was the right thing to do. I0 respondents donated blood because a friend or a relative needed blood, 8 respondents donated blood to get Milo, drinks or other food items after the transfusion and finally 5 respondents donated blood upon hearing the appeal for the blood in the news/radio. These results are summarised in table 5.2 below.

Table 5.2: Knowledge of respondents on Blood donation

Item questions	Measurement	frequency	Percentage
Do you feel you have adequate knowledge regarding regular and voluntary blood donation in Ghana	Yes No Total	42 230 272	15.4 84.6
Do you know if you are eligible to donate blood	Yes No Total	151 121	55.5 44.5
Can blood be manufactured artificially	Yes No Total	29 243	10.7 89.3
Have you donated blood in the past?	Yes No Total	47 225	17.3 82.7

What is the main reason why you donated blood?	1. Friend/relative needed blood	10	3.7
	2. Encouraged by friend or accompanied friend to donate blood	8	2.9
	3. To get Milo, drinks or other food items after the transfusion	8	2.9
	4. Because it's the right thing to do	16	5.9
	5. Heard appeal for blood in the news/radio	5	1.8
	Total	47	17.3

Source: Field Work, 2016

5.3 Blood donation behaviour (dependent variable analysis)

This section is a measure of the blood donation behaviour which is the dependent variable in this research. Respondents were asked how many times they had donated blood in the past twelve months. This was to ascertain whether or not they had donated blood in the past one year and the frequency of their donation. The results revealed that 242 respondents representing 89.3% had never donated blood in the past twelve months. 25 respondents representing 9.2% had donated once in the past twelve months and only 4 (1.5%) respondents donated blood twice in the past 12 months. These results are summarised below:

Table 5.3: Blood donated in the past twelve months

How many times have you donated blood in the last 12 months?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	243	89.3	89.3	89.3
	once	25	9.2	9.2	98.5
	twice	4	1.5	1.5	100.0
	Total	272	100.0	100.0	

5.4 Descriptive Statistics

Fisher & Marshall, (2009) explains that Descriptive statistics are the numerical and graphical techniques used to organise, present and analyse data. Descriptive statistics basically summarises data through the application of the various measures of central tendency (mean, median and mode), normality and measures of variability (deviations and variance) (Pallant, 2013).

Table 5.3 depicts the results for the descriptive statistics illustrating the means and the standard deviations for the independent variables. Generally, this portrays how the 272 respondents agreed or disagreed with the statements in the questionnaire. As stated previously in the methodology, the questions were scaled from 1 (strongly disagree) to 5 (strongly agree). The mean results of the variables shows how each statement performed from the sampled 272 respondents.

Table 5.4: Descriptive Statistics of scale items

	N	Mean	Std. Deviation	Variance
Perceived advantage				
I can help reduce maternal mortality by donating blood voluntarily and regularly	272	4.10	.844	.713
I can save the life of a bleeding accident victim through blood donation	272	4.16	.736	.542
Sufficient blood supply is needed to guarantee the success of a medical surgery	272	4.24	.759	.576
I can benefit from a free health check-up by volunteering to donate blood	272	4.19	.800	.640
Donating blood can help reduce excess iron in my body	272	3.24	.848	.719
Perceived compatibility	272	3.20	1.193	1.424
Donating blood fits into my personal values and principles	272	3.46	1.145	1.312
I deem blood shortage a human threat and consider donating blood a personal need and responsibility	272	4.32	1.078	1.163
Donating blood fits into my religious values	272	3.98	1.143	1.306
Performing an act that can save lives is desirable to me	272	3.58	1.144	1.308
Perceived complexity	272	3.47	1.048	1.099
Messages on blood donation are confusing to me	272	3.56	1.112	1.237
I believe donating blood takes too much time				
I lack knowledge about the location of blood donation sites				

Observability				
I know people whose lives have been saved by blood supply	272	3.50	1.178	1.387
Materials I have read convinces me of the benefits of blood donation	272	3.49	1.045	1.092
I would have no difficulty telling others about the impact of blood donation	272	3.64	1.056	1.116
The overall impact of donating blood is apparent to me	272	3.38	.987	.975
Perceived Risk				
I can easily contract a disease through blood donation	272	2.69	1.340	1.795
I can easily be harmed by a medical needle (syringe) through blood donation	272	2.58	1.348	1.816
Blood donation can easily make me feel dizzy, weak or faint	272	2.96	1.329	1.766
I can be subjected to severe pain through blood donation	272	2.81	1.279	1.636
Trialability				
In forming the habit of donating blood for the first time, I have no difficulty in donating once to serve as a trial	272	3.28	1.164	1.355
I will be more inclined to donate blood frequently based on how I feel after a first attempt	272	3.53	1.103	1.217
It is important to thoroughly ask questions before donating blood	272	4.40	.904	.817
Valid N (listwise)	272			

The highest mean was (It is important to thoroughly ask questions before donating blood) with a numerical value of 4.40. This is an indication that the majority of the respondents perceive trial before adoption of blood donation behaviour very important. However, (I can easily be harmed by a medical needle through blood donation) had the lowest mean of 2.58. This implies that a greater portion of respondents perceive that there is minimal risk associated with the usage of needles during blood donation.

5.5 Exploratory Factor Analysis

Factor analysis is mainly conducted to reduce large variables to smaller numbers that best defines a module through a summary of the underlying patterns of correlation (Pallant, 2013). This study employed the principal component method of data reduction to find the linear combination of variables that accounts for as much variation in the original variables. Essentially, exploratory factor analysis was employed to study all the pair wise relationships between the individual variables and to remove unobserved factors from the measured variables (Osborne & Fitzpatick, 2012).

The twenty three variables measuring the constructs of perceived attributes of innovation employed in this study were factor analysed. Prior to the extraction of factors, the Bartlett test of Sphericity (Approx. Chi-square= 1402.384, df. 190, sig. 0.000) and the KMO measure of sampling adequacy (Value of.722) proved that there was significant correlation among the variables to merit the application of exploratory factor analysis. Variables whose Eigen values were equal or greater than 1 were selected (Malhotra and Birks, 2007). To check the reliability, this study used Cronbach's alpha of 0.6 and above (Nunally & Bernstein, 1994).

5.5.1 Varimax Rotation and Reliability of the Exploratory Factor Analysis (EFA)

All the variables (23) were subjected to a rotation using Vorimax rotation as the extraction method. The outcome was that twenty variables loaded onto six factors. Three (3) of the variables did not meet the underlying rotation criteria. However, of the remaining 20 variables, factor one had 4 variables all relating to Perceived Risk; factor two had 4 variables all relating to Perceived Advantage, factor three had 3 variables all relating to Trialability; factor four had 3 variables all relating to complexity, factor five had 3 variables all relating to Observability and factor six also had three variables relating to Compatibility. The results of the Varimax rotation are displayed in table 5.5 below.

Table 5.5: Rotated Component Matrix

	1	2	3	4	5	6
I can easily contract a disease through blood donation	.637					
I can easily be harmed by a medical needle through blood donation	.825					
Blood donation can easily make me feel dizzy, weak or faint	.758					
I can be subjected to severe pain through blood donation	.804					
I can help reduce maternal mortality by donating blood voluntarily and regularly		.761				
I can save the life of a bleeding accident victim through blood donation		.797				
Sufficient blood supply is needed to guarantee the success of a medical surgery		.678				
I can benefit from a free health check-up by volunteering to donate blood		.676				
In forming the habit of donating blood, I have no difficulty in donating once to serve as a trial			.783			
I will be more inclined to donate blood frequently based on how I feel after a first attempt			.849			
It is important to thoroughly ask questions before donating blood			.614			
Messages on blood donation are confusing to me				.620		
I believe donating blood takes too much time				.641		

I lack knowledge about the location of blood donation sites	.722		
Materials I have read convinces me of the benefits of blood donation		.515	
I would have no difficulty telling others about the impact of blood donation		.784	
The overall impact of donating blood is apparent to me		.802	
Donating blood fits into my personal values and principles			.618
I deem blood shortage a human threat and consider donating blood a personal need and responsibility			.675
Performing an act that can save lives is desirable to me			.720

Source: Field work, 2015; Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization. A Rotation converged in 6 iteration

5.5.2 Reliability of the Exploratory Factor Analysis (EFA) and Re-specification of Factors

Reliability of a scale item basically seeks to determine the absence of measurement error (Pallant, 2013). To this extent, it is essential to find out scales that are reliable in other to minimise measurement error (Norman & Streiner, 2008). Pallant (2010) posits that reliability test is a measure of the degree to which a test is consistent and reliable in measuring the same underlying factor. Prior to the re-specification of the factors the variables which had perfect loadings were subjected to reliability test to check for internal consistency.

This study employed the Cronbachs alpha coefficient to determine the internal reliability of the constructs (DeVellis, 2012). Various studies have prescribed various cronbach alpha limits to test internal consistency. However, this study employed the prescription of Nunnally and Bernstein (1994). They posit that a minimum Cronbach alpha of 0.6 is acceptable. In effect, the internal reliability of the six factors employed in this study were all above the minimum value of 0.6 as

postulated by Nunnally and Bernstein (1994). Again, 0.5 was used as the yardstick to test the value of the variables that loaded onto the factors (Parasuraman, Zeithaml & Berry, 1994). Table 5.5 displays the results for the re-specified variables under the 6 factors.

Table 5.6: Internal consistency and EFA

	Loadings	No of Items	Cronbach Alpha
Factor 1 - Perceived advantage		**4**	**.630**
I can help reduce maternal mortality by donating blood voluntarily and regularly	**.761**		
I can save the life of a bleeding accident victim through blood donation	**.797**		
Sufficient blood supply is needed to guarantee the success of a medical surgery	**.678**		
I can benefit from a free health check-up by volunteering to donate blood	**.676**		
Factor 2 - Perceived compatibility		**3**	**.652**
Donating blood fits into my personal values and principles	**.618**		
I deem blood shortage a human threat and consider donating blood a personal need and responsibility	**.675**		
Performing an act that can save lives is desirable to me	**.720**		
Factor 3 - Perceived complexity		**3**	**.605**
Messages on blood donation are confusing to me	**.620**		
I believe donating blood takes too much time	**.641**		
I lack knowledge about the location of blood donation sites	**.722**		
Factor 4 - Observability		**3**	**.638**
Materials I have read convinces me of the benefits of blood donation	**.515**		
I would have no difficulty telling others about the impact of blood donation	**.784**		

The overall impact of donating blood is apparent to me	**.802**		
Factor 5 -Perceived risk		**4**	**.793**
I can easily contract a disease through blood donation	**.637**		
I can easily be harmed by a medical needle through blood donation	**.825**		
Blood donation can easily make me feel dizzy, weak or faint	**.758**		
I can be subjected to severe pain through blood donation	**.804**		
Factor 6 - TRIALABILITY		**3**	**.673**
In forming the habit of donating blood, I have no difficulty in donating once to serve as a trial	**.783**		
I will be more inclined to donate blood frequently based on how I feel after a first attempt	**.849**		
It is important to thoroughly ask questions before donating blood	**.614**		

Source: Field Work, 2016

5.6 Multiple Regression Analysis

Multiple regression analysis was employed to determine the significance of each independent variable in the model. In sum, the regression analysis employed in this study basically addresses three essential issues. The first addresses the significance of the various constructs of perceived attributes of innovation towards regular voluntary blood donation. The second focuses on the objectives of the research by providing answers to the research questions. The third section addresses the hypothesis of the study.

Table 5.7: Multiple Regression Analysis

Multiple Regression Analysis

	S.E	β	t	P-value
(Constant)	0.152		9.095	0.000
Perceived advantage	0.023	0.198	3.773	0.000
Perceived compatibility	0.025	0.420	7.587	0.000
Perceived complexity	0.027	-0.152	-2.628	0.009
Observability	0.019	0.027	0.638	0.524
Perceived risk	0.024	-0.140	-2.723	0.007
Trialability	0.018	-0.043	-1.05	0.295
R	0.759		Std. Error of the Estimate	0.448
R-square	0.577		F-statistics	60.169
Adj. R-square	0.567		Prob. (F-statistics)	0.000

From table 5.4, the adjusted R square of (56.7%) signifies that the six characteristics (perceived attributes of innovation) considered in the model account for 56.7 % of variance in behaviour change towards regular voluntary blood donation. This to a larger extent indicates the predictive relevance of the perceived attributes of innovation constructs. This current finding corroborates the assertion of Rogers (2010) who indicates that 49 to 87 percent of variance in the rate of adoption is explained by the constructs of perceived attribute of innovation.

According to Field (2005), a sig< .05 signifies statistical significance of a model. By inference, Perceived advantage (0.00< .05), perceived compatibility (0.00< .05), perceived complexity (0.009< .05) and perceived risk (0.007< .05) were statistically significant whereas observability (0.524>.05) and trailability (0.295>.05) were not statistically significant.

Among the significant variables, compatibility (β = 0.420, t= 7.587, p=0.000, < 0.05) was the strongest predictor of behaviour change towards regular voluntary blood donation followed by

perceived advantage (β = 0.198, t= 3.773, p=0.000, < 0.05), Complexity (β = -0.152, t= -2.628, p=0.009, < 0.05) and Perceived risk (β = -0.140, t= -2.723, p=0.007, < 0.05). In sum, apart from Trailability and Observability the other variables (Compatibility, Perceived advantage, Complexity and Perceived risk) were good predictors of behaviour change towards regular voluntary blood donation.

5.7 Hypothesis Testing

H1: The greater the perceived advantage of donating blood voluntarily and regularly, the greater the likelihood that the individual will adopt the behaviour.

H2: The greater the perceived compatibility of donating blood regularly and voluntarily, the greater the likelihood of adopting the behaviour

H3: Greater complexities regarding blood donation as perceived by a target audience, will affect negatively their desire to donate blood.

H4: The greater the perceived risk associated with blood donation the less likely it would be for the target audience to adopt the behaviour

H5: The ease with which an individual can observe the impact of donating blood is positively related to the adoption of regular voluntary blood donation as a behaviour .

H6: The perceived trialability of regular voluntary blood donation as a behaviour is positively related to its rate of adoption.

5.7.1 The Outcome of Hypothesis Testing

The result from this current finding does not support (H5 and H6). These findings are partially consistent with the findings of White, (2007) who discovered that trialability was not significant in the adoption of rainwater harvesting in south east Queensland. However, this current findings contradicts previous studies that found observability and trailability to be significant in the adoption of various health initiatives (Yep et al..,2014; Nikolopoulos, Farmer, Berry, McCargar, & Mager, 2015)

The current study however fails to reject (H1, H2, H3 and H4). This study based on its findings concludes that perceived advantage, compatibility have a positive relationship with behaviour change towards regular voluntary blood donation. The study also concludes that perceived complexity and perceived risk have an inverse relationship with behaviour change towards regular voluntary blood donation. Again, the findings in this current study are partially consistent with the findings of Pankratz et al.., (2002) who also found perceived advantage, compatibility and complexity as good predictors in the diffusion of a federal drug prevention policy.

Objective 1: To examine the impact of perceived advantage and perceived compatibility on behaviour change towards regular voluntarily blood donation.

From the analysis, Perceived advantage is a good predictor of behaviour change towards regular voluntary blood donation. This is consistent with studies that suggest that Perceived advantage usually has a strong relationship with adoption (Emani et al.., 2012; Pankratz et al.., 2002). Similarly, perceived compatibility has a positive relationship with behaviour change towards regular voluntary blood donation. The implication is that greater compatibility with a behaviour increases its likelihood of adoption. It is equally worth mentioning that perceived compatibility was found as the greatest predictor of blood donation behaviour. This supports the work of Limthongchai & Speece, (2003) where perceived compatibility was found to be the greatest predictor of adoption of e-commerce by SME's in Thaiand. Similarly, another study by Pankratz et al.., (2002) also found that compatibility and perceived advantage were good predictors in a study to ascertain the diffusion of a federal drug policy.

Objectives 2: To ascertain the effect of perceived complexity and perceived risk on behaviour change towards regular voluntary blood donation.

Based on the analysis, Perceived complexity and perceived risk have an inverse relationship with behaviour change towards regular voluntary blood donation. The implication is that a high perceived risk and complexity associated with donating blood regularly and voluntarily will limit the individual's intention to adopt the behaviour. On the other hand a low perceived risk and complexity associated with blood donation will encourage the individual to adopt the behaviour of donating blood. Some of the perceived complexities identified in this research include: lack of time to donate, lack of knowledge about blood donation sites and confusing messages on blood donation. Again, some of the perceived risks identified in this research include fear of pain, needles, fainting, contracting diseases, and dizziness. In similar studies, perceived risk was found to be among the reasons why people did not donate blood. (Fernandez Montoya, de Dois Luna del Castillo, Lopez Berrio & Rodriguez Fernandez, 1996; Hosain, Anisuzzaman, & Begum,1997; Wiwanitkit, 2000; Boulware et al., 2002; Glynnet al., 2003).

Objective 3: To determine the impact of observabilty and trialability on behaviour change towards regular voluntary blood donation

From the analysis it was found that Observability and Trialability had no significant effect on behaviour change towards regular volunatary blood donation. Pankratz et al.., (2002) asserts that Observability and Trialability are not significantly related with adoption in health education research. They explain that Trialability is often a difficult to construct to measure. In effect the extent to which the impact of blood donation can be observed has no significant impact on behaviour change towards regular voluntary blood donation. Again, this contradicts similar

health related studies where observation was found to be significant. (Pankratz et al., 2002; Goldman, 1994).

Again, the extent to which the habit of donating blood can be tried with minimal cost or no substantial harm to the individual is not significantly related to the adoption of regular voluntary blood donation as a behaviour. This supports the findings of Pankratz et al., (2002) where trialability was not a significant determinant in the diffusion of a federal drug prevention policy.

5.8 Discussion of findings

The various constructs of the perceived attributes of innovation exhibited varied predictive values to determine their strength in influencing behaviour change towards regular voluntary blood donation. From the analysis it was observed that the following variables (compatibility, perceived advantage, complexity and perceived risk) exhibited high predictive capacity in influencing behaviour change towards regular voluntary blood donation. However, (Observability and Trialability) assumed weak predictive capacity in influencing blood donation behaviour.

The implications are that observability (ease with which the results/outcome of donating blood is visible/observable to the population) does not have the ability to predict behaviour change towards regular voluntary blood donation. This current finding contradicts previous studies that found observabilty to be significant in the adoption of various health initiatives (Yap et al.., 2014; Nikolopoulos, Farmer, Berry, McCargar, & Mager, 2015). For instance, Yap et al., found observability to be a significant variable in the adoption of cueing Innovation for Pressure Ulcer Prevention. The situation in this current study could be due to the fact that with blood donation

an individual or their family must need a blood transfusion before they can personally attest to the impact of blood transfusion. On the other hand, where the individual has not had prior experience with blood donation they would not be in the position to attest to the visible impact blood donation has on human lives. It is likely that only a small fraction of undergraduate students have had prior experiences with blood transfusions.

Furthermore, from this current study, perceived trialability (the degree with which a new idea may be experimented with on a limited basis) exhibited a weak predictive capacity towards the adoption of regular voluntary blood donation as a behaviour. Similarly, this contradicts previous studies that found trialability to be significant in various health initiatives (Yap et al.., 2014; Nikolopoulos, Farmer, Berry, McCargar, & Mager, 2015). This could be due to the fact that because blood donation involves direct human contact (drawing blood from ones veins) the cost of giving the habit a trial is highly substantial. This supports the assertion of Pankratz, Hallfors, & Cho (2002) that trialability elements are not often pronounced in the results of health education research mainly because it is a difficult element to measure.

Again, as noted earlier, compatibility was the strongest predictor of behaviour change towards regular voluntary blood donation. This outcome is in line with previous research conducted among Jordanian blood donors which found that 61.2% of respondents actually donated blood because of their firm culture of sustaining social relationships with others and being generous to help anytime anywhere (Abderrahman & Saleh, 2014). This current study equally supports the fact that compatibility of blood donation with the individual's lifestyle, cultural/ethnic beliefs and practices, self-image, past experiences and needs (perceived compatibility) are strong predictors of behaviour change towards regular voluntary blood donation. These findings are also consistent with the work of Pankratz et al.., (2002) who found perceived

advantage and compatibility as good predictors in a study to ascertain the diffusion of a federal drug policy.

Furthermore, the findings of this study reveal that perceived advantage is a good predictor of behaviour change towards regular voluntary blood donation. Again, this is consistent with a study at Lagos state university teaching hospital to ascertain blood donation intentions of which 92.9% reported personal gain as the most important motivational factor for donating blood (Olaiya, Alakija, Ajala, & Olatunji, 2004). Again, a similar study in American portrayed that incentives like blood investigations (serum cholesterol, prostatic specific antigen and complete blood count), souvenirs and/or lottery tickets directly resulted in an increase in the number of blood donors (Glynn et al., 2003). Perceived advantage has been a good predictor of behaviour adoption in various health education initiatives such as pediatric asthma management control (Mesters & Meertens, 1999), tobacco curricula (Brink et al...1995) and a campaign to improve prenatal care (Goldman, 1994).

Perceived risk equally has an effect on the adoption of regular voluntary blood donation as a behaviour . This findings supports various studies that identified perceived risk exhibited in forms like; fear of complications and fear of hospitals as significant reasons for not donating blood (Fernandez Montoya, de Dois Luna del Castillo, Lopez Berrio & Rodriguez Fernandez, 1996; Hosain, Anisuzzaman, & Begum,1997; Wiwanitkit, 2000; Boulware et al., 2002; Glynn et al., 2003). Similarly, a study amongst Dhaka University students in Bangladesh portrayed that physical harm and fear were the common reasons for not donating blood (Hosain et al., 1997).Again in Granada it was discovered that 32.3% did not donate blood owing to fear (Fernandez et al., 1996). In a similar study to predict blood donation intentions among undergraduate students in a Chinese university it was discovered that 62.4% of the study

population did not donate blood owing to Heath issues e.g., cold, flu, underweight, anemia, hepatitis B (Lu, 2010).

Perceived complexity was equally a good predictive capacity towards regular voluntary blood donation. This finding corroborates Goldman's (1994) study where she found perceived complexity to be a good predictor of adoption in a nationwide campaign to improve prenatal care. Some of the perceived complexities associated with donating blood identified in this study were lack of time to donate, confusing blood donation messages and general inconveniences associated with blood donation. In a similar study among Chinese undergraduate students it was established that time constraint and unawareness of donation sites accounted for 23% of the reasons why individuals did not donate blood (Lu, 2010).

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATION

6.0 Introduction

This chapter summarises the major findings in this study. Additionally, it presents conclusions and recommendations based on the findings of the study. The last part of the chapter focuses on various directions for future research and limitations of the research.

6.1 Summary of findings

Although several studies have researched into various measures aimed at increasing blood donation, this study has for the first time applied diffusion of innovation concept to understand the various factors that influences the adoption of regular voluntary blood donation as a behaviour. (The WHO prescribes regular voluntary blood donation as the panacea to the world's perennial blood shortage). The underlisted are the summaries of the findings based on the objectives of the survey.

The results of the study found the perceived attributes of innovation variables to be effective in predicting 56.7% percent of total variance in the adoption of regular voluntary blood donation as a behaviour. By inference, these attributes could be used by social marketers to design a Social Marketing intervention aimed at increasing voluntary blood donation in Ghana. Again, the results of the study found that perceived advantage and compatibility had positive and significant relationship on behaviour change towards regular voluntary blood donation. This indicates that higher perceived advantage and compatibility will increase the desire to adopt regular voluntary blood donation as a behaviour.

The study also found that perceived complexity and perceived risk had inverse and significant relationship on behaviour change towards regular voluntary blood donation. This means that when perceived complexities are low the target audience will take steps to form the habit of donating blood regularly and voluntarily. Similarly, when perceived risk is low the target audience will equally take steps to donate blood.

Based on the third objective, perceived trialability and observability had no effect on decision to donate blood regulary and voluntarily. This is Contrary to previous findings (Yep et al.., 2014; Nikolopoulos, et al., 2015).

6.2 Conclusions

The findings of this current study amply attests to the applicability of the perceived attributes of innovations towards predicting Ghanaian student's perception of the diffusion of regular voluntary blood donation as a behaviour . Perceived advantage, complexity, compatibility and perceived risk have a significant influence on the adoption of regular voluntary blood donation as a behaviour. On the other hand Observability and Trailability are not significant towards the adoption of regular voluntary blood donation as a behaviour. The present findings partially corroborates findings of previous studies that used the perceived attributes of innovations to predict the adoption of various health initiatives (Pankratz et al., 2002; Yep et al.,2014; Nikolopoulos,2015).

In the current study perceived compatibility was found to be the most significant in the prediction of regular voluntary blood donation behaviour, followed by perceived advantage, Perceived risk and complexity. The study reported complexities such as lack of time to donate,

lack of awareness of donation sites as part of the perceived complexities of blood donation. Again, fear of needles, pain, fainting, contracting diseases, dizziness and weight loss were among the perceived risk reported in the study.

In view of the aforementioned, the study concludes that Social marketing interventions aimed at regular voluntary blood supply should address compatibility, perceived risk, complexity and Perceived advantage. This study has achieved its objectives by identifying the various constructs among the perceived attributes of innovation constructs that have the higher predictive capacity to influence behaviour change towards regular voluntary blood donation in Ghana.

6.3 Recommendations

This section proposes various recommendations to Social Markets and Policy Makers aimed at helping to increase regular voluntary blood donation in Ghana.

6.3.1 Recommendations to Social Marketers

Deducing from the current findings, the application of the perceived attributes of innovation suggests that social marketers should focus on enhancing the perceived advantages of blood donation, reduce complexities associated with donating blood, address issues relating to compatibility and perceived blood donation risk.

Again, the study recommends that owing to the different segments identified in the study, (Segments who consider blood donation to be risky, segments who perceive blood donation to be non-beneficial and incompatible with their beliefs and segments who find the idea and process of donating blood complex) social marketers should endeavor to divide the population

into reasonably homogeneous segments and then choose target groups to approach with intervention programmes than having one intervention programme for the entire population (Hastings, 2007). Bate (2010) explains that segmentation consists of categorizing audience members into pertinent subgroups based on shared behaviours, lifestyles, desires, and beliefs. Social marketers in Ghana could focus on tailoring intervention programmes to address the needs of the various segments identified in the study. (Segments who consider blood donation to be risky, segments who perceive blood donation to be non-beneficial and incompatible with their beliefs and segments who find the idea and process of donating blood complex).

Furthermore, this study recommends that social marketers should design interventions that primarily address the benefits of donating blood. Glassman & Braun (2010) explains that the benefit the target audience expects upon engaging in the desired behaviour refers to product in social marketing. In the current study free medical check -ups, reduction in maternal mortality and the potential of blood transfusion to save the lives of bleeding accident victims were seen as the main benefits associated with voluntary blood donation behaviour. A social marketing intervention that focuses on the benefits of donating blood is more likely to appeal to the target audience.

The current study identified several complexities, risk and compatibility issues as barriers militating against the adoption of regular voluntary blood donation as a behaviour. This relates to price in social marketing. Glassman & Braun, (2010) notes that the price in Social Marketing refers to the barriers the target audience must overcome to enable them adopt the behaviour Though certain compatibility issues like beliefs may be difficult to address, social marketers can successfully address blood donation barriers like lack of time to donate, unawareness of

donation sites, perceived long waiting time, fear of needles and perceived risk of contracting diseases associated with blood donation. In this regard, Social marketers in Ghana should rely on upstream measures to collaborate with policy makers to sensitize Ghanaians about blood donation sites and also to establish blood donation centers at the various hospitals. Again, such upstream interventions should include influencing policy makers to train more health professionals on the rudiments of blood transfusion and providing blood donation equipments to reduce waiting time. Similarly, Social marketers could embark on an intervention aimed at positioning a message like "time wasted on blood donation is worth it". Again, as part of upstream intervention programmes, social marketers should push for measures aimed at guaranteeing safe blood transfusion and also intensify publicity on those measures. This to a larger extent will help minimize perceived blood donation risk.

The study further recommends that social marketers should embark on promotional campaigns that address compatibility, blood donation benefits, perceived risk and complexity issues. Findings from the study also indicate that 84.6% of students felt they had little or no knowledge about blood donation in Ghana. As a result Social markets should intensify campaigns aimed at informing target audience about blood donation. In summary, Promotional campaigns should clearly address various blood donation complexities, risk compatibility issues and benefits. Furthermore, young people are the hope and future of a safe blood supply (Dhingra 2010) and the student community is essential for voluntary blood donations (Sabu et al.2011). As a result Social Marketers in Ghana should target 'healthy, active and receptive student population since they represent a huge potential to meet adequate and safe blood supplies" (Sabu et al.2011).

Lastly, the study recommends that social marketers should make efforts aimed at addressing "place" issues in blood donation interventions. Place in social marketing is where the target audience will carry out the desired behaviour (donate blood), obtain any related information or support that will enable them to perform the desired behaviour effectively (Kotler et al., 2002). Social Marketers should liaise with policy makers to make blood donation sites readily available and accessible since lack of knowledge of blood donation sites was identified among the complexities associated with blood donation in this study.

6.3.2 Recommendations to Policy makers

Policy makers have several roles to play to ensure regular supply of blood. The study makes the underlisted recommendations to policy makers in line with the findings of the study.

Policy makers should institute a 'National Blood Donation Day'. This has the tendency of increasing voluntary donations, encourage repeat donations and generally conscientize Ghanaians about the benefits of blood donation and the general effect of blood shortage. Again, policy makers should institute interventions that will encourage more nurses to be trained on blood transfusion, provide adequate blood transfusion equipments and also establish more blood donation sites at accessible places. Lastly, policy makers should institute policies that will see to the provision of incentives to blood donors in the form of honours and awards. For instance names of regular and voluntary blood donors could be published weekly in State owned print media.

6.4 Limitations of the Study and Future Research Directions

Findings from the study cannot be generalised to the entire population of Ghana because the study focused on undergraduate students from University of Ghana ignoring the views of other young individuals in important segments of the Ghanaian Society. It is therefore, recommended that future researchers should consider conducting similar research in other Universities to allow for generalisation of the findings.

Furthermore, this study employed the attributes of diffusion innovation constructs (Perceived advantage, complexity, compatibility, trialability, Perceived risk and observability) to predict and understand factors that influence the diffusion and adoption of regular voluntary blood donation as a behaviour. Future research should focus on the application of other behavioural change models to understand the adoption of regular voluntary blood donation as a behaviour.

Finally, this study employed quantitative research approach to measure the impact of Perceived advantage, perceived complexity, perceived risk, compatibility, Observabilty and Trailability on behaviour change towards regular voluntary blood donation. Qualitative research is needed to reveal other factors that may influence the adoption of regular voluntary blood donation as behaviour.

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APPENDIX 1

UNIVERSITY OF GHANA BUSINESS SCHOOL

DEPARTMENT OF MARKETING & CUSTOMER MANAGEMENT

MASTER OF PHILOSOPHY IN MARKETING

QUESTIONNAIRE

The researcher is an MPhil Marketing student of the University of Ghana Business School. This survey seeks to elicit response on the topic *"Social Marketing on regular voluntary blood donation in Ghana"* Information provided for the purposes of this research will be treated confidentially and used for academic purposes only. Please take a few minutes to fill out this questionnaire by ticking (√) where appropriate. Thank you.

SECTION A: Background/ Demographic data of respondents

1. What is your gender?

1. Male ( )

2. Female ( )

2. What age group do you fall into?

1.18 - 25 years ( )

2. 26 -30 ( )

3.31-45 ( )

3. What is your religion?

1. Christianity ( )
2. Islamic ( )
3. Traditional ( )
4. other specify…….

4. What is your marital Status:

1. Single ( )
2. Married ( )
3. Divorce ( )
4. others specify……...

SECTION B: Knowledge about regular voluntary blood donation

5. Do you feel you have adequate knowledge regarding blood donation in Ghana.1.Yes ( ) 2.No ( )

6. Do you know if you are eligible to donate blood 1. Yes ( ) 2. No ( )

7. Can blood be artificially manufactured? 1. Yes ( ) 2. No ( )

8. Have you donated blood in the past? 1. Yes ( ) 2. No ( )

9. How many times have you donated blood in the last 12 months?

1. None ( )
2. Once ( )
3. Two ( )
4. Three times ( )

10. What is the main reason why you donated blood?

1. Friend/relative needed blood ( )

2. Encouraged by friend or accompanied friend to donate blood ( )

3. To get Milo, drinks or other food items after the transfusion ( )

4. Because it's the right thing to do ( )

5. Heard appeal for blood in the news/radio ( )

6. Other (specify).....

SECTION C: Measuring Instrument for perceived attributes of innovation

On a scale of 1-5, please Tick [√] the response that reflect your level of agreement or otherwise in each of the under listed statements.

1= Strongly Disagree (SD) 2 =Disagree (D) 3= Neutral (N) 4=Agree (A) 5=Strongly Agree (SA)

No	STATEMENTS	SD	D	N	A	SA
	PERCEIVED ADVANTAGE					
1.	I can help reduce maternal mortality by donating blood voluntarily and regularly					
2.	I can save the life of a bleeding accident victim through blood donation					
3.	Sufficient blood supply is needed to guarantee the success of a medical surgery					
4.	I can benefit from a free health check-up by volunteering to donate blood					
5.	Donating blood can help reduce excess iron in my body					
	PERCEIVED COMPATIBILITY					
6	Donating blood fits into my personal values and principles					
7.	I deem blood shortage a human threat and consider donating blood a personal need and responsibility					
8.	Donating blood fits into my religious values					
9.	Performing an act that can save lives is desirable to me					
	PERCEIVED COMPLEXITY					

10	Messages on blood donation are confusing to me					
11	I believe donating blood takes too much time					
12	I lack knowledge about the location of blood donation sites					
	OBSERVABILITY					
13	I know people whose lives have been saved by blood supply					
14	Materials I have read convinces me of the benefits of blood donation					
15	I would have no difficulty telling others about the impact of blood donation					
16	The overall impact of donating blood is apparent to me					
	PERCEIVED RISK					
17	I can easily contract a disease through blood donation					
18	I can easily be harmed by a medical needle through blood donation					
19	Blood donation can easily make me feel dizzy, weak or faint					
20	I can be subjected to severe pain through blood donation					
	TRIALABILITY					
21	In forming the habit of donating blood for the first time, I have no difficulty in donating once to serve as a trial					
22	I will be more inclined to donate blood frequently based on how I feel after a first attempt					
23	It is important to thoroughly ask questions before donating blood					