PRACTICE AND FACTORS INFLUENCING BLOOD DONATION AMONG RESIDENTS IN IBADAN NORTH WEST LOCAL GOVERNMENT AREA, OYO STATE, IBADAN, NIGERIA

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DEDICATION

This work is dedicated to God Almighty and the benefit of mankind.

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ABSTRACT

Blood products play an important role in modern medical procedures that can both save and extend life. But the problem regarding a permanent shortage of blood is observed in blood services all over the world. In spite of the continuous advocacy to recruit more donors to save life, there is still a great deal of blood shortage owing to the fact that people do not donate blood. As a result of this, many lives that could have been saved are lost day-in-day-out. This study was therefore designed to investigate the practice and also factors influencing blood donation among Residents in Ibadan North-west Local Government Area of Oyo State, Ibadan, Nigeria.

This cross-sectional study involved 400 randomly selected, consenting residents within Ibadan North-west Local Government Area. A semi-structured interviewer-administered questionnaire was used to elicit information on the socio-demographic characteristics, knowledge of blood donation, practice of blood donation, attitude of residents towards blood donation, perceived benefits and factors influencing blood donation among residents. Knowledge, practice and attitude towards blood donation were measured on 37-point, 5-point and 16 points respectively. Knowledge scores of 0-13, 14-25 and 26-37 were rated poor, fair and good respectively. Practice scores of 0-2 and >2-5 were rated poor and good respectively and attitude scores of 0-8 and >8-16 were rated negative and positive respectively. The data was analysed using descriptive statistics; Pearson's Chi-square test at p-value ≤0.05 level of significance.

Age of respondents was 33.1±11.9 years, 56.0% were males, 52.8% were married, and then 39.0% were single. Only 19.8% of the respondents had donated blood before, out of which 58.2% were males, also, 51.9% were between the ages of 26-45 years, 95.0% had at least secondary education and 64.6% were married. Among the total respondents, only 4.0% had good knowledge of blood donation and 18.3% had good practice of blood donation. However, 83.0% had positive attitude towards blood donation. The major barriers to blood donation were that 59.0% potential donors were afraid of knowing their infection status, 54.0% were afraid of death due to blood donation and 52.5% were not enlightened on blood donation. The major reason why donors donated their blood was the critical need to save the life of a family member or loved one through replacement donation and only a few (5.5%) of these blood donors were voluntary non-remunerated donors. There was a significant

relationship between educational status of respondents and knowledge of blood donation, as well as respondents' knowledge of blood donation and practice of blood donation.

Majority of the respondents had positive attitude towards blood donation, but only a few of them practise it. This is because there is poor knowledge of blood donation process; even though they seem to have some awareness. This accounts for the poor practice of blood donation. Therefore, proper and effective public enlightenment and advocacy is recommended.

Keywords: Blood donation, Knowledge of blood donation, Attitude towards blood donation, Voluntary blood donation.

Word count: 482

CERTIFICATION

I hereby certify that this study was carried out by OLOTU, Esther Mayowa in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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Operational Definition of Key Terms

Allogenic: Genetically dissimilar within the species.

Apheresis: Removal of one component (red blood cells, plasma or platelets) of blood and the return of the remaining components to the donor.

Blood: Blood intended for transfusion purposes, including the components thereof, but excluding blood specimens intended for pathological testing.

Blood component: Any constituent of human blood separated from whole blood donations, which includes red cells, white cells, platelets and plasma.

Blood product: Any therapeutic derivative of human blood through physical and/or chemical means.

Blood donation: Blood is a highly specialized circulating tissue consisting of several types of cells suspended in a fluid medium known as plasma (which transports food and essential nutrients). The cellular constituents are: Red blood cells which carry respiratory gases and give the red colour; white blood cells which fight diseases and platelets which play important part in the clotting of blood.

A blood transfusion: is the transfer of blood products from one person (donor) into another person's (recipient) bloodstream.Usually done as a lifesaving maneuver to replace blood cells or blood products lost through severe bleeding, during surgery when blood loss occurs or to increase the blood count in an anemic patient.

Cytapheresis: The removal of the cellular components of blood and the return of the remaining components to the donor without causing anaemia or hypovolaemia.

Haematocrit: The proportion of red blood cells in the blood.

Haemoglobin: The constituent of red blood cells responsible for the oxygen-carrying capacity of the blood.

Voluntary blood donor is an individual between the age of 18 and 60 years, tested and found to be medically fit who voluntarily makes up his or her mind to donate blood without demanding money in return.

CHAPTER ONE

1.0 Introduction to Background

Blood products play an important role in modern medical procedures that can both save and extend life. The requirement for blood and blood products in a country depends on the population, health care structure, prevalence of conditions requiring regular transfusions, such as haemophilia and thalassaemia etc. as such, blood is one cogent product that can save life (Manikandan, Srikumar, Ruvanthika, 2013). But the problem regarding a permanent shortage of blood is observed in blood services all over the world (Sojka, 2003; Manikandan et al., 2013). It is therefore critical for any health system to ensure that the volume of blood supply is sufficient to satisfy the demand.

The reality, however, is that donor participation tends to be limited due to concerns for health effects and a general lack of education on the part of the public regarding the importance and lack of risk involved in donating blood. Ensuring safe and adequate blood supply for the health system will require information on blood donation practices among different ethnic and socio-cultural diversity of the nation (Salaudeen, Musa, Awoyemi, Bolarinwa, Adegboye, Samuel, 2011). The transfusion of blood, its components and its products is a widely used form of supportive therapy, which has expanded greatly due to the development of more sophisticated medical procedures requiring the transfusion of blood (Lafta and Majeed, 2008).

To effectively achieve a reliable supply of blood, an initial large enrolment of first time donors and their subsequent retention as repeat donors are needed. The key to attracting new donors (and subsequently repeat donors) requires a number of actions, which include: 1. Developing economically efficient and effective marketing campaigns; 2. Finding ways of increasing the convenience of donating, by optimizing operation hours, locations, etc.; and 3. Educating the public about the importance, ease, and lack of risks of giving blood. In order to be efficient and effective, recruitment plans aimed at increasing donor levels must be targeted at untapped populations, or those that are most likely to donate in each part of the country (Saberton, Paez, Newbold and Heddle, 2009). Recruitment of voluntary, non-remunerated blood donors poses major challenges to transfusion services throughout the world (Misje, Bosnes and Heier, 2010).

There are a number of reasons why variations in donation patterns could arise, including varying economic, social, cultural, demographic, and historical factors of a given region, which may affect the motivating forces towards whether or not to donate. More generally, there is a noticeable amount of heterogeneity with respect to patterns of volunteering interprovincial, as well as between varying sized cities. This suggests that residents in different areas may display, in addition to varying demographic attributes, different incentives and outlooks on volunteering and health. Therefore, there is a need to better understand the correlates of blood donation (Saberton et al., 2009). There is shortage of active blood donors to meet the increased demands of blood (Gillespie, Hillyer, 2002; Benedict, Usimenahon, Alexander and Isi, 2012). In addition to limited supply, the safety especially with regard to the risk of transfusion transmissible infection is also an issue of utmost concern especially in the developing countries. Donor blood procurement from voluntary, non-remunerated donor has been adjudged the safest source of blood (Gillespie, Hillyer, 2002; Benedict et al., 2012).

Internationally, regular voluntary non-remunerated blood donors, who donate blood out of altruism, are considered safe blood donors. In many countries, continuous efforts are needed to achieve 100% VBD (Voluntary Blood Donation). Even though for example, Indian law forbid collection of blood from paid donors, many times health care facilities are forced to accept blood from paid donors as there are scarcity of voluntary blood donors (Sojka, 2003; Benedict et al, 2012). Worldwide, there is a shortage of active blood donors, and the problem of attracting and retaining sufficient donors to meet demand for blood and blood products is a serious one. Also, accurately predicting who is most likely to donate blood remains problematic (Misje and Heier, 2005).

According to WHO, an estimated 38% of reported VBDs are contributed by people under the age of 25 years. WHO also insists that countries should focus on young people to achieve 100%regular voluntary non-numerated blood donation (WHO, 2008). A study indicates that majority of the participants (89.25%) never donated blood and observed positive attitude (63.58%). The reasons for non-donations were no one has ever asked to donate blood; lack of information on blood donation and its importance and don't know where to donate blood and negative attitude (36.42%) like blood donation makes the person weak, reduce immunity and leads to anemia (Zaller,

2005; Manikandan, Srikumar and Ruvanthika, 2013). The purpose of this study therefore, is to investigate the blood donor characteristics and factors influencing blood donation among residents in Ibadan North-West Local Government Area of Oyo State.

1.1 Statement of the Problem

Demand for blood is ever-increasing as continuous improvements in medicine have ensured that people live longer, and thus will cumulatively receive more (blood-consuming) medical treatment. There is no adequate synthetic or bio-engineered alternative for blood. That is, no pharmaceuticals which might replace lost oxygen carrying capacity or primary hemostasis, have been developed. In contrast to most other pharmaceuticals, therefore, blood comes from a very poorly controlled source; volunteer donors. In an increasingly risk-averse society such as ours, new exclusion criteria are defined, while existing ones are rarely challenged. However, it is becoming difficult to satisfy the increasing need for blood in an aging population where the younger generation is notoriously hard to motivate to donate blood (Bönig, Schmidt, Hourfar, Schüttrumpf, and Seifried, 2012).

A host of data suggests that in the very near future with our current strategies we may not be able to satisfy the need for blood, in significant part because we are failing to recruit new blood donors from the vast majority of people who choose not to donate blood even though they would be eligible by current standards. At the same time, though, it may adversely affect the public's perception of blood safety. Only if we can motivate new volunteers to become donors can we avert the impending public loss of faith in blood products, and meet the ever-increasing need for these blood products (Saberton et al., 2009).

Although blood banks are charged with preparing adequate and safe blood supplies, they have to contend with a permanent shortage of blood. Despite the increasing demands for blood due to advanced surgery, cancer treatment, seasonal shortages and ageing of the donor population, the number of blood donors is declining. This decline is due to strictly enforced screening guidelines and improved screening for transfusion-transmitted diseases. The number of eligible donors is restricted to make sure that donated blood will not harm the donors or recipients. Blood collection should therefore, be prioritised for blood banks. Understanding the factors that

motivate donors to give blood would also facilitate improvements in recruitment programmes (Kasraian and Maghsudlu, 2012). This study thus seeks to investigate the Characteristics and Factors Influencing Blood Donation among Residents in Ibadan North West Local Government Area, Oyo State, Nigeria.

1.2 Justification of the Study

This study is important for three reasons. The first is that it would be useful in investigating the practice of blood donation among residents in Ibadan and determining the factors influencing blood donation among them; using Ibadan North West Local Government Area of Oyo State as a case study. This would serve as a baseline information for the design and implementation of relevant health promoting programmes like sensitization, as well as orientation and reorientation of the general public on the dangers of shortage of blood in the society, the need for continuous availability of safe blood and the health benefits of providing safe blood to both the blood donors and the blood recipients.

Secondly, the study will provide useful information on more effective strategies that are needed to promote the continuous availability of safe blood.In order to reduce the morbidity rate, reduce the mortality rate and ultimately save lives that are potentially useful for the economic growth of the nation.

Thirdly, these findings could be useful in guiding the formulation of evidence-based policies towards health promotion, using the health promotion prerequisites which are: Advocacy for behavioural and biological factors that can favour health, enabling individuals to make healthy choices and Mediating by coordinating the activity of all sectors. As well as using the five Action areas which are: developing personal skills, creating supportive environment, strengthening community action, building healthy public policy and re-orientating health services.

The residents in the communities under Ibadan North West Local Government Area are a part of the total population of the residents in Ibadan, Oyo State. They comprise of both blood donors and non-donors; who could be potential blood donors in the nearest future. This justifies their being used as the target population; using their: characterization, level of knowledge, attitude, practise, perceived benefits and influencing factors to blood donation as inference to other residents in Ibadan and Oyo State.

Answers to the following questions were provided.

1. What is the level of knowledge of blood donation among residents in Ibadan North-west Local Government Area of Oyo State, Ibadan?
2. What is the practice of blood donation among the residents?
3. What is the attitude of residents towards blood donation?
4. What are the perceived benefits of blood donation among the residents?
5. What are the factors influencing (i.e. factors hindering or promoting) blood donation?

1.3 Broad Objective

To investigate the practice and factors influencing blood donation among residents in Ibadan North West Local Government Area, Oyo State, Nigeria.

1.4 Specific Objectives

1. To assess the level of knowledge of blood donation among residents in Ibadan North-west Local Government Area of Oyo State, Ibadan
2. To determine the practice of blood donation among the residents.
3. To determine the attitudes of residents towards blood donation.
4. To determine the perceived benefits of blood donation among the residents.
5. To document the factors influencing (i.e. factors hindering or promoting) blood donation.

1.5 Research Hypotheses

Based on the variables to be measured, the following null hypotheses were formulated:

1. There is no relationship between the educational status of respondents and their knowledge of blood donation.
2. There is no association between knowledge of blood donation and practice of blood donation among residents on blood donation.
3. There is no relationship between marital status of respondents and their attitude towards blood donation.

CHAPTER TWO

LITERATURE REVIEW

This chapter contains a review of literature relating to blood donor the practice and factors influencing blood donation. It also contains the conceptual framework upon which this study is based.

2.1 Global View of Blood Donation

Quantitative research has explored the world of donation through essentially three broad areas: the first concerns use and efficacy of motivational incentives; the second is focused on the reasons for and deterrents to giving blood with Blood donors' attitudes towards incentives (Bönig, Schmidt, Hourfar, Schüttrumpf, and Seifried, 2012).

The large body of scientific literature on blood donation is rich and diversified with regards to theoretical and methodological aspects. There are many demographic studies aimed, for example, at delineating the typical profile of donors (Hollingsworth and Wildman, 2004). As far as risks for blood safety are concerned, evidence has been provided that the current quality of infectious disease marker testing significantly militates against, although does not completely eradicate, risks associated with admission of donors with a high risk of carrying certain blood-transmissible agents. However, it could be argued that more effective recruitment of the non- donor pool, which is substantially larger than the group of currently ineligible donors, would be a better strategy. Recruitment of this group will benefit the availability of blood without jeopardizing the current excellent safety profile of blood(Bönig et al., 2012). Donation incentives are often used to improve the effect of recruitment programmes (Kasraian and Maghsudlu, 2012).

Many studies have examined the various motivations of donors and have found that altruism is the most important factor. Donation incentives are often used to improve the effectiveness of recruitment programmes. However, the results of these incentive-based efforts have not been clarified. Incentives may dramatically affect blood safety by attracting high-risk donors who may intentionally fail to identify risk behaviours during the donation interview in order to obtain the incentives (Kasraian and Maghsudlu, 2012). On the other hand, certain incentives could also deter donors

whose prime motivation is for altruistic reasons. Some studies showed a higher prevalence rate of transfusion-transmitted diseases among paid donors. According to these findings, cash incentives or incentives that can be easily converted to cash should not be used (Kasraian and Maghsudlu, 2012). An appropriate process of blood donor selection is very important in achieving safety in blood transfusion, as the desired aim is to protect and safeguard the health of both the donor and the recipient of blood and blood products.

Unnecessary deferral of blood donors may results in the loss of potential donors particularly in our society, where the culture of blood donation is still very poor. Majority of the blood donors in a study were family replacement donor and the remaining (10.9%) were voluntary non-remunerated donors (Ekwere, Ino-Ekanem, Motilewa and Ibanga, 2014). This pattern of donor population is similar to that reported in Kano, North-east Nigeria in which family replacement donor constitutes over 95.7% of the donor population (Kuchiya-Gwarzo and Kwaru, 2007; Ekwere. et al.,2014). It is also similar to a study in Ain Shams University Hospital blood bank in Egypt in which family replacement donor constitute 87.7% of donors compared to 12.3% voluntary donors (Abdel, Ismail, Saad and Azer, 2014; Ekwere. et al., 2014).

However, this contrast a study in a centralized blood transfusion service in Jos, Nigeria, where voluntary blood donors (78.2%) constitute a larger proportion of the donor population than family replacement donors (22.4%) (Damulak, Bolorunduro , Boman and Bako, 2011; Ekwere. et al., 2014). This sharp contrast may be due to the fact that most blood transfusion services undertake regular mobile blood drives and donor sensitization and awareness campaign than hospital based blood banks. Also, like most other studies in Africa with similar population demographics and socioeconomic status, most of our donors were males with females accounting for 16% of the donors (Agbovi et al., 2006; Nébié et al., 2007; Allain et al., 2008; Ekwere. et al., 2014).

As blood utilization increases with the advent of more complex therapeutic interventions, blood collection centres are finding it difficult to maintain an adequate blood inventory because the availability of blood for transfusion is dependent on volunteer donors. Donation anxiety due to a previous blood donation experience might be a major predictor of a donor's future intention not to donate blood.

Providing easy access to donation sites, overcoming time demands (such as scheduling appointments for donation hours) and feeling confident for the procedure, more flexible donation hours, and increasing the number of sites where donation take place have positively influenced blood donation intentions (Ersan, Fatma and Şükran , 2012).

Attitudes towards incentives may differ according to donors' characteristics. In the study that was aimed to assess donors' attitudes towards incentives and determine their potential value for enhancing donation rates in our community (Kasraian and Maghsudlu, 2012). A cross-sectional study was conducted at Shiraz Blood Transfusion Centre, one of the main blood transfusion services in southern Iran. The centre prepares most the of the blood supply for the south of the country. Shiraz Blood Transfusion Centre operates a blood donation service based on voluntary non-remunerated donation. The participants who enrolled in this survey between 1 March and 1 December 2009 were all volunteers whose ages ranged from 17 to 65 years (Kasraian and Maghsudlu, 2012).

A questionnaire solicited information on demographic characteristics, donation status (first-time or regular donor) and motivation for blood donation. It also contained items regarding whether participants would be encouraged to donate again. In in the future if offered a variety of incentives, and which type of incentives they found most attractive. Responses to the possibility of receiving incentives were categorised as encouraged or discouraged. Incentives were classified into four groups: (i) screening tests for fasting blood sugar, cholesterol or haemoglobin; (ii) compensation-payment incentives such as cinema, park or concert tickets; (iii) tokens of appreciation in the form of a plaque, pin or certificate for different donation rates; (iv) gifts such as a mug, T-shirt or other small item bearing the blood donation emblem. Then we compared their motivation towards different incentives according to demographic characteristics. 500 questionnaires distributed, 421 were completed and returned (84.4% response rate). The donors ranged in age from 18 to 63 years (mean 37.76±9.72). Based on the data, 94.5% of the participants were men, 79.5% were married, 14.3% were first-time donors and 58.3% had donated regularly (Kasraian and Maghsudlu, 2012).

The mean number of lifetime blood donations was 8.7±1.14, and the mean number of blood donations per year was 2.33±1.21. Mean age at first blood donation was 23.8±7.92 years. One third of the participants (33.7%) had a high level of education (higher than high-school diploma). Most donors (85.6%) donated blood for altruistic reasons. One quarter (25.3%) of the donors believed that incentives should be offered to donors to encourage them to donate blood and 84.9% of donors reported that specific laboratory tests (such as cholesterol, fasting blood sugar and haemoglobin) were the most attractive incentives. Donors' opinions towards the type of incentives are summarised: the desire for incentives were lower among blood donors who donated for altruistic reasons. The desire for incentives decreased as age increased (odds ratio, OR=0.971; confidence interval, CI=0.957- 0.984). The desire for incentives was greater among married donors (OR=2.47 CI=1.720-3.565), donors with a low educational level (OR=1.264 CI=1.006- 1.586), first-time donors (OR=3.531 CI=2.258-5.521) (Kasraian and Maghsudlu, 2012).

In order to ensure a sufficient blood supply and overcome blood shortages, some blood transfusion services offer donation incentives to enhance the effectiveness of donor recruitment. Knowledge of factors that can encourage blood donors and potential blood donors who have never donated blood is essential for donor recruitment (Kasraian and Maghsudlu, 2012). As a resource, allogenic blood has never been more in demand than it is today. Escalating elective surgery, shortages arising from a fall in supply, a lack of national blood transfusion services, policies, appropriate infrastructure, trained personnel, and financial resources to support the running of a voluntary non-remunerated donor transfusion service, and old and emerging threats of transfusion-transmitted infection, have all conspired to ensure that allogeneic blood remains very much a vital but limited asset to healthcare delivery particularly in Sub-Saharan Africa (Osaro and Charles, 2011). This is further aggravated by the predominance of family replacement and commercially remunerated blood donors, rather than regular benevolent, non-remunerated donors who give blood out of altruism. The demand for blood transfusion is high in Sub-Saharan Africa because of the high prevalence of anaemia especially due to malaria and pregnancy-related complications (Osaro and Charles, 2011).

All stakeholders in blood transfusion have a significant challenge to apply the best available evidenced-based medical practices to the world-class management of this

precious product in a bid to using blood more appropriately. Physicians in Sub-Saharan Africa must always keep in mind that the first and foremost strategy to avoid transfusion of allogenic blood is their thorough understanding of the pathophysiologic mechanisms involved in anemia and coagulopathy, and their thoughtful adherence to the evidenced-based good practices used in the developed world in a bid to potentially reduce the likelihood of allogenic blood transfusion in many patient groups (Osaro and Charles, 2011)..

There is an urgent need to develop innovative ways to recruit and retain voluntary low-risk blood donors. Concerns about adverse effects of allogenic blood transfusion should prompt a review of transfusion practices and justify the need to search for transfusion alternatives to decrease or avoid the use of allogenic blood. These strategies should include the correction of anemia using pharmacological measures (use of antifibrinolytics to prevent bleeding and the use of erythropoietin and oral and intravenous iron to treat anemia) use of non-pharmacologic measures (preoperative autologous blood transfusion, perioperative red blood cell salvage and normothermia to reduce blood loss in surgical patients). All these strategies will help optimize the use of the limited blood stocks (Osaro and Charles, 2011).

2.2 Challenges of Recruitment of Voluntary Non-Remunerated Donors

Globally, approximately 80 million units of blood are donated each year (WHO 2002; Osaro and Charles, 2011). Of this total, 2 million units are donated in Sub-Saharan Africa, where the need for blood transfusions is great because of maternal morbidity, malnutrition, and a heavy burden of infectious diseases such as malaria. Several factors have led to the World Health Assembly resolutions WHA28.72 (World Health Assembly, 1975; Osaro and Charles, 2011) and WHA58.13 (World Health Assembly, 2005; Osaro and Charles, 2011) urging member states to develop national blood transfusion services based on voluntary non-remunerated blood donation: the chronic shortage of safe blood and blood products particularly in low- and medium-income countries; the need to prevent transmission of HIV and other blood-borne pathogens through unsafe blood and blood-product transfusions by collecting blood only from donors at the lowest risk of carrying such infectious agents; and the recognition that voluntary, non-remunerated blood donation is the cornerstone of a safe and adequate national blood supply that meets the transfusion requirements of all patients.

The collection of blood only from voluntary, non-remunerated blood donors is an important measure for ensuring the safety, quality, availability, and accessibility of blood transfusion. Innovative ways to recruit and retain voluntary donors in Sub-Saharan Africa include: celebration of the gift of blood donation; recognition of voluntary blood donors; increasing public awareness of voluntary non-remunerated blood donation; educating the public on the importance of regular, voluntary, non-remunerated blood donation; educating the public on the benefits of voluntary non-remunerated blood donation to recipients; promoting healthy living (nutrition, exercise, lifestyle); and provision of non-cash incentives to encourage people to donate blood.

Blood safety remains an issue of major concern in transfusion practice in most countries in Sub-Saharan Africa where national blood transfusion services and policies, appropriate infrastructure, trained personnel, and financial resources are inadequate to support the running of a voluntary, non-remunerated donor transfusion service. This is further aggravated by the predominance of family replacement and commercially remunerated blood donors, rather than regular, benevolent, non-remunerated donors who give blood through altruism.

Despite recommendations that all blood donors should be voluntary and non-remunerated, replacement donors are common throughout Sub-Saharan Africa (Hensher and Jefferys, 2000; Osaro and Charles, 2011). The primary steps of setting up a national blood transfusion program include: the enactment of a national policy for the blood transfusion service with time-bound programs; a centrally coordinated, structured, and organized blood transfusion service under a defined authority for a country/state; a blood transfusion service based on an organized voluntary blood donor program; screening blood for TTIs appropriate to the region; appropriate and evidence-based use of available blood and blood products; and employment and retention of qualified personnel to lead and manage the blood transfusion service (Nanu, 2001; Osaro and Charles, 2011).

In many countries in Sub-Saharan Africa, most of these steps are in place, and sometimes there are none. There is lack of political will and open-mindedness to innovative ways to improve supply and safety of blood from voluntary donors. The effect of this failure in the stewardship of blood and blood products is that the

incidence of TTIs is generally high. Bloodtransfusions are a substantial source of HIV in Sub-Saharan Africa especially among women with pregnancy-related complications and children with malaria and malnutrition-associated anemia (Koistinen, 1992; Osaro and Charles, 2011). The maintenance of a high-quality blood supply depends on blood volunteers, government funding of blood services, adequate supervision of commercial blood supplies, and professionals who collect, test, and supply safe blood (Mortimer, 1991; Osaro and Charles, 2011).

2.3 Knowledge, attitude and perception regarding blood donation

Blood donors fall into three types, voluntary, replacement and paid donors. Voluntary non remunerated blood donor is a person who gives blood and receives no payment for it, either in the form of cash, or in any kind that could be considered a substitute for money (Alam and El Din Masalmeh, 2004). A replacement donor is also a non-remunerated donor who donates blood for a particular patient in an emergency. Replacement donors are usually family members, colleagues or friends of the concerned patient. Paid or professional donor receives monetary payment for a blood donation (Alam et al., 2004).

It is well established that replacement and paid donors have a higher incidence and prevalence of transfusion-transmitted infections in the recipients. Despite this, replacement and paid donors still make up over 50% of blood donations in the developing countries. In the Kingdom of Saudi Arabia (KSA), most of the blood is provided from replacement donors instead of from volunteer blood donors. For satisfactory donor recruitment, the first essential step is to initiate Knowledge, Attitude and Practice (KAP) studies among a sample of donors and non-donors.

Establishment of modern medical facilities has been accompanied by a simultaneous and marked increase in the requirement of blood and its product. The hospital blood bank has two options to meet this challenge, first to implement policies for appropriate use of blood and second to increase blood donor recruitment (Alam et al., 2004). Blood donation decision making has been investigated worldwide for decades to understand the process better to increase donation efficiency.

A study suggests that there is lack of basic knowledge regarding the blood donation among non-donors. The majority of respondents including donors and non-donors

were of the opinion that only a person from 17-45-years of age can donate blood. Whereas no upper age limit exists for donation but persons 17-60-years old can donate blood. Minimum donor weight of 50 kg (110 lb.) is recommended to donate the usual 450-500 mL of blood because a 50 kg person has a blood volume of approximately 3750 mL, donation of 405-495 mL would represent approximately 10-13% of the donor's volume. Symptoms of hypovolemia can begin to occur in some people with the loss of 15% or greater of the total volume. Whereas in this study 63 (30.1%) non donors were of the perception that donor should have weight more than 70 kg. The whole blood donations are permitted every 56 days depending on the hemoglobin level. Two hundred and fifty-eight (88.6%) donors were of the opinion that they can donate blood after 3 months but 51% non-donors thought that blood could only be given once a year. One hundred and fifty-three (73.2%) non donors did not know how much blood is taken in each donation (Alam et al., 2004).

Results suggest that there are large lacunae in basic knowledge blood donation among the population. In response to the question regarding why they had not donated blood, 89 (42.6%) non donors said they were not approached for blood donation by anyone. Other major reason of non-donation was the perception of a harmful effect such as weakness after donation on the body. Other studies assessing reasons for non-donation from other parts of the world also cited this as one of the major factors of non-donation. Sixteen (7.6%) non donors revealed that they had not donated blood as they might have to donate the blood to their relatives and friends in future. Similarly, 63.9% of blood donors donated blood for their family members or friends. This response reflects a situation in which blood is. This response reflects a situation in which blood is donated largely for a family member in need (replacement) and implies that donation for any other reason (altruism) is a low priority. This is in accordance with studies that have observed a low percentage of voluntary donors in developing countries compared to more developed nations (Alam et al., 2004).

Globally, it has been found that 80% of first time donors every year give up the practice of blood donation. Friends and blood bank staff were a major source of information regarding the voluntary blood donation. Only 5 donors heard regarding voluntary blood donation on electronic mass media. So there is a need that regular programs/advertisement regarding safe blood should held on the television/radio. The

various incentives for voluntary blood donation have been evaluated in different parts of the world.

Issuance of blood donor certificate/blood credit card was claimed to the best incentives for blood donation so that if they would require blood in future they could get after showing the card. Another incentive cited by 14 donors was work off/extra leave from place of work. No blood donor agreed to the payment of money for blood donation. The significant findings of this study were the ignorance of the population of basic knowledge regarding blood donation, and the act of donating blood was associated with replacement than with voluntary donation. There is need for dissemination of information regarding safe blood and voluntary blood donation particularly on the electronic mass media (Alam et al., 2004).

2.4 Outcomes and duration of blood storage

An interesting factor in the relation between transfusion and outcomes is the shelf life of the blood being transfused. The Food and Drug Administration (FDA) currently allows storage of blood for a maximum of 42 days, but a recent study of patients who received red blood cell transfusions during cardiac surgery found that those who received "older blood" (stored for > 14 days) had significantly higher rates of sepsis, prolonged intubation, renal failure, in-hospital mortality, and 1-year mortality compared with those who received "newer blood" (stored for ≤ 14 days).These differing outcomes are generally attributed to the so-called storage defect: as blood gets older, it loses components such as 2,3-DPG and adenosine disphosphate, its red cells lose deformability, and it undergoes build-up of cytokines and free hemoglobin. Increased demand for newer blood in light of the storage defect could further intensify pressures on the blood supply (Kumar, 2009).

2.5 Management of Perioperative Anemia

In light of these shortcomings of blood transfusion, how should anemia be managed perioperatively to reduce or avoid the need for transfusion? Preoperative evaluation Vigilance for anemia and related issues in the preoperative evaluation is fundamental. The evaluation should elicit a history of bleeding tendencies, previous transfusions, and symptoms of anemia. Medications should be reviewed with an eye toward any that may predispose to perioperative bleeding and anemia, such as aspirin,

clopidogrel, and anticoagulants. During the physical examination, alertness for pallor and petechiae is key, as is attentiveness to symptoms of anemia such as shortness of breath and fatigue (Kumar, 2009).

The laboratory work-up begins with a measure of hemoglobin: anemia is defined as hemoglobin less than 13 g/dL in males and less than 12 g/dL in females. If anemia is present and is associated with another hematologic abnormality, the patient should be referred to a hematologist for bone marrow examination. If no other hematologic abnormality exists, the ensuing work-up relies on red blood cell indices. Conditions for which intervention in the short term is possible; namely, anemia of chronic disease, iron deficiency, and vitamin B12 (Kumar, 2009). Overview of management options once the cause of anemia is identified, the choice for optimal medical management can be made. Choices broadly consist of pharmacologic and technological options. The former include iron supplements and erythropoiesis-stimulating agents.

Among other pharmacologic options are thrombin, collagen, fibrin glue, tranexamic acid, and aminocaproic acid, but these agents are less well studied. Technological options include preoperative autologous blood donation, cell salvage, and acute normovolemic hemodilution. In addition to these options, careful management of anticoagulant and antiplatelet medications should be provided, including discontinuation or substitution of drugs that could hamper clotting preoperatively(Kumar, 2009).

2.6 Pharmacologic options

It was noted that males store on average 1 gram of iron while females store on average 270 mg and iron lost in one donation is approximately 250 mg (Mast, Schlumpf, Wright, Custer, Spencer, Murphy and Simon, 2010; Martina,2014). Because of lower average storage of iron in female, women can no longer donate blood as frequently as men especially in low income countries. Iron supplementation Oral iron is available in four preparations: ferrous sulphate, ferrous gluconate, ferrous fumarate, and iron poly- saccharide.

Gastrointestinal side effects may limit these preparations' tolerability. Iron supplements with a high elemental value will require fewer pills and fewer doses,

reducing the risk or frequency of side effects. Intravenous (IV) iron preparations are much safer now than they were years ago, when anaphylactic reactions were a concern. The ones generally used in the perioperative setting are iron sucrose and iron gluconate. Unlike the older IV preparations, the use of iron sucrose and iron gluconate often requires a second dose. The effect on hemoglobin levels usually occurs starting at 1 week, with the maximum effect achieved at 2 weeks. Hypotension, arthralgia, abdominal discomfort, and back pain are potential side effects of IV iron.

2.6.1 Efficacy and safety of iron supplementation

Evidence of the efficacy of preoperative iron supplementation is mounting(Kumar, 2009). A study of 569 patients undergoing colorectal cancer surgery found that among the 116 patients who were anemic, intraoperative transfusion was needed in a significantly lower proportion of those who received 2 weeks of preoperative oral iron supplementation (200 mg) compared with those who received no iron therapy (9.4% vs 27.4%; $P < .05$). Similarly, in an uncontrolled study, 10 days of IV iron sucrose starting 4 weeks preoperatively significantly increased hemoglobin levels in 20 patients with iron deficiency anemia prior to elective orthopedic surgery. Risks of infection and cancer progression have been concerns with iron therapy. However, no significant association between IV iron therapy and bacteremia was identified in a prospective study of 985 patients receiving chronic hemodialysis (Kumar, 2009).

2.6.2 Erythropoiesis-stimulating agents

Erythropoiesis-stimulating agents (ESAs) include epoetin alfa (erythropoietin), first approved by the FDA in 1989, and the more recently introduced darbepoetin alfa. They are approved to treat anemia in several patient populations, but only epoetin alfa is approved by the FDA explicitly for use in patients undergoing major surgery (to reduce the need for blood transfusions). The ESAs have come under intense scrutiny in recent years over their risk-to-benefit ratio, as detailed below. The preoperative dosing schedule for epoetin alfa is usually three weekly doses (plus a fourth dose on the day of surgery) if the surgery is scheduled 3 or more weeks in advance.

However, daily dosing can be used effectively if the preoperative period is less than 3 weeks, provided that it is continued until 4 days after surgery. Oral iron is necessary throughout the course of epoetin alfa therapy (Kumar, 2009). The effect of Iron

administration on tumor progression has not been prospectively studied. In general, IV iron, especially the newer forms, is a safer alternative to blood transfusion. Death occurs at a much lower rate with iron than with blood transfusion (0.4 per million vs 4 per million, respectively), as do life-threatening adverse events (4 per million vs 10 per million, respectively), according to a systematic review by the Network for Advancement of Transfusion Alternatives.

2.7 Efficacy in reducing transfusions

In a systematic review published in 1998, epoetin alfa was shown to minimize perioperative exposure to allogeneic blood transfusion in patients undergoing orthopedic or cardiac surgery. Its benefit was greatest in patients at the highest risk of requiring transfusion. It was effective whether given daily or weekly, and did not significantly increase the risk of thrombotic events when used in surgical patients, although some studies did find an excess of thrombotic events with its use (Kumar, 2009).

2.8 Technological Options and Other Strategies

2.8.1 Autologous blood donation: A practice in decline in cases of elective surgery, autologous blood donation can be used to protect against disease transmission and overcome the challenge of blood type compatibility. Pre-operative autologous donation of blood has been a prevalent practice, but its use is declining. One reason is that waste is high (approximately 50% at Cleveland Clinic), which makes this practice more costly than is often realized. Also, autologous blood donation increases the likelihood that the patient will be anemic on the day of surgery, so that he or she may still need allogeneic blood after all, defeating the initial purpose. Despite these limitations, preoperative autologous blood donation remains a useful option for a subset of patients with multiple antibodies for whom donor blood may be difficult to obtain (Kumar, 2009).

2.8.2 Cell salvage

Cell salvage is an innovative technology that recovers the patient's own blood (after being shed from the surgical incision) for transfusion after filtering and washing. It is particularly well suited to procedures that involve massive blood loss. Cell savage requires technical expertise, however, and involves costs associated with both the machine and disposables. Restricted post-operative phlebotomy accounts for a significant amount of blood loss, especially in intensive care patients with arterial lines. The equivalent of 30% of total blood transfused has been reported to be lost to phlebotomy during an intensive care unit stay. Triggers for transfusion cannot be assigned universally based on blood loss from phlebotomy but must consider the patient's hemodynamic status, cardiac reserve, and other clinical characteristics (Kumar, 2009).

2.9 Promoting responsible blood product use

Blood is expensive, and in recent years hospitals have experienced increases in the cost of blood and blood products. To promote responsible blood use, we have developed a multipronged approach to blood management at Cleveland Clinic. The program's cornerstone is increased awareness of the risks associated with blood transfusions. The emphasis is on educating staff physicians and other caregivers about the appropriate use of blood products. We also have implemented a new policy requiring staff authorization for all blood requested in non-emergency situations. Additionally, requests for blood components require adherence to an indication (Kumar, 2009). In a study to establish which motivational and socio-demographic factors are important for the development of a long-term commitment as a voluntary, non-remunerated blood donor. A cross-sectional sample survey of active blood donors in Oslo, Norway, was conducted.

Donors filled in a self-administered questionnaire during donation. Data on motivation were analysed using factor analysis. Results showed that the blood donors' socio-demographic characteristics were found to be similar to those of the population as a whole. The single, most important, recruitment channel was the influence of active blood donors. Five dimensions of blood-donor motivation were identified with factor analysis. These were: altruism and empathy; social reasons (such as the influence of friends and family); strengthening of one's self-esteem; positive

experiences associated with donation; and a moral obligation to donate. Support for statements on altruistic motives for donation was strong and similar in long-time and short-time donors. In contrast, short-time donors were more likely to be motivated by factors related to self-esteem than were long-term donors (Misje and Heier, 2005).

2.10 Transmission of Infections and Blood Transfusion

The implication of HIV in voluntary blood donors is the risk of transmission of these infections to recipients of blood and blood products. It also implies that safe blood will be more difficult to get. An unsafe blood transfusion is very costly both in terms of human and economic costs. Morbidity and mortality resulting from the transfusion of infected blood have far-reaching consequences, not only for the recipients themselves, but also their families, their communities and the wider society (WHO, 2002). Since a person can transmit HIV infection during the asymptomatic phase, it can contribute to an ever-widening pool of HIV infection in the wider population. From this study, it is observed that HIV infection was found among the 20-39 years age range (Olokoba, Tidi, Salawu, Danburam, Desalu, Abdulrahman, Babalola, Olokoba, Midala, Badung, 2010). This finding is in agreement with the study by (Ejele et al., 2005) in which higher prevalence of transfusion-transmissible viral infections were observed among youths. This observation is worrisome since the most productive and economically viable age group of the populations is worst hit (Ejele et al., 2005).

There is the urgent need for renewed intensification of preventive programmes aimed at high risk behavioural change (Olokoba et al., 2010). Even though the sero-prevalence of HIV infection is low among voluntary blood donors in North-eastern, Nigeria, safe blood will be more difficult to get (Olokoba et al., 2010). It is evident that proper screening procedures prior blood transfusion is a cost-effective approach for prevention and control of transfusion-transmissible infections (TTIs) (Abraham, Oladipo, Adefolarin, Fagbami, 2013). Also, it has been documented that sub-standard test kits are mostly used in resource limited settings for transfusion related diagnosis. However, the role of such practice in epidemiology of transfusion transmissible viral infections in a tertiary health care facility would give an insight to the rates of blood transfusion associated viral transmission in the community at large (Abraham et al.,2013) .

In a study designed to determine the prevalence of Human Immunodeficiency Virus (HIV), Hepatitis B and Hepatitis C viruses among blood donors in a tertiary hospital where quality diagnostic procedures are considered prior recruitment of donors. Post ethical approval, counselled and consenting 507(M= 426; F=81) aged 19 to 68 years (Median age: 39) potential blood donors were recruited and tested for HIV, HBsAg and anti-HCV using commercial ELISA test kit in strict compliance with the manufacturer's procedures. Overall results show rates of 2.0%, 5.9% and 1.4% for HIV, HBsAg and HCV respectively. Also, highest prevalence rates were recorded among age group 26 to 35 years as 2.6%, 7.2% and 2.1% for HIV, HBV and HCV respectively. Furthermore, higher prevalence rates were noted among unmarried individuals as 2.6%, 6.8% and 2.1% for HIV, HBV and HCV respectively (Abraham et al., 2013).

2.10.1 Challenge of transfusion transmissible infections

2.10.1.1 Syphilis: Over the years, much controversy has arisen over the need for syphilis testing of blood donors (VanderSluis, 1985; Osaro and Charles, 2011). Although the American Association of Blood Banks initially dropped its recommendation that donors be tested for syphilis in 1978, the US Food and Drug administration (FDA) has maintained this requirement. This FDA decision was reinforced by the HIV epidemic. It is now recommended in most countries that surrogate testing including syphilis should be done to prevent those at risk from donating blood (Ahmed, Ibrahim and Hassan 2007; Osaro and Charles, 2011).

2.10.1.2 Malaria: It is a serious public health problem in Africa. In 2008, there were more than 247 million new cases and approximately 1 million deaths (WHO, 2010; Osaro and Charles, 2011). In spite of this fact, there is no consensus for measures to prevent post-transfusion malaria in endemic areas. Malaria remains a rare but serious complication of transfusion because of the asymptomatic persistence of parasites in some donors. In non-endemic countries, the predominant strategy of deferral or cellular component discard from 'high-risk' donors is effective in minimizing the incidence, but wasteful. In endemic countries where recipients are commonly immunized, transfusion strategies focus on chemoprophylaxis for the donor and recipient or ensuring that blood collected in highly endemic regions is not

transfused to patients from areas of low endemicity (Seed, Kitchen and Davis, 2005; Osaro and Charles, 2011).

The provision of a secure and safe blood supply has been a major concern in Sub-Saharan Africa with high malaria endemicity. A study involving 3001 blood donors recruited in 7 blood transfusion centres in Senegal during 2 periods, dry season (June–July 2003) and rainy season (October–November 2003), has shown an anti-Plasmodium antibodies prevalence of 65.3% and parasite-specific lactate dehydrogenase antigen prevalence of 0.53%. Plasmodium represents the third most common risk in Senegalese donors of blood-transmitted infectious agents after HBV and syphilis, and more common than HCV and HIV (Diop, Ndiaye, Seck, et al, 2009; Osaro and Charles, 2011). Similarly a study using giemsa-stained blood films from 1018 consecutively recruited blood donors in Nigeria has shown an overall prevalence rate of (10.2%). Infection rate was significantly higher among commercially remunerated donors compared to family replacement donors and voluntary donor (Erhabor, Awah, Uko and Charles, 2007; Osaro and Charles, 2011).

2.10.1.3 Hepatitis C Virus (HCV): HCV Screening donated blood for HCV is important for HCV prevention and is routinely practiced in most countries. The risk of HCV transmission through the transfusion of unscreened blood has led to the systematic screening of blood donors in many settings in Sub-Saharan Africa. HCV is recognized as the primary cause worldwide of transfusion associated non-A–non-B viral hepatitis (Houghton, Weiner and Choo, 1999; Osaro and Charles, 2011) and is endemic in West Africa (Jeannel D, Fretz C, Traore Y, et al., 1998; Osaro and Charles, 2011). The prevalence and cost-effectiveness of testing HCV among 2592 consecutive blood donors was investigated in Uganda. Overall, 4.1% of specimens were HCV enzyme immunoassay (EIA) reactive. Specimens repeatedly reactive on EIA were tested with a recombinant immunoblot assay (RIBA). Of the 4.1% EIA-reactive specimens, 0.6% were RIBA positive and 1.8% were RIBA indeterminate (Hladik, Kataaha and Mermin et al, 2006; Osaro and Charles, 2011).

Similarly a study carried out on 1565 blood donors recruited at the National Blood Transfusion Centre (CNTS) in Senegal, Dakar using two different techniques for the testing of HCV (ELISA technique and immunoblot RIBA), indicated an HCV ELISA positive test in 1.4% and a RIBA positive test in 0.25% of donors. One of the HCV

positive donors was co-infected with HBV (HCV/HBV) (Dieye, Gadji and Cisse et al., 2006; Osaro and Charles, 2011).

2.10.1.4 Hepatitis B virus (HBV): HbsAgis the surface antigen of the hepatitis B virus (HBV). Study has revealed the presence of HBsAg in sexually active group (ages 15 to 29 years of age) among patients in Abeokuta South-western Nigeria and the 4.1% infection rate of HBsAg can be considered as moderately high, thus emphasizes the importance of routine screening of blood for these viruses in order to prevent their transmission among general population. The need for intensive health education to encourage abstinence among sexually active group is emphasized (Okonko, Soleye , Alli , Ojezele , Udeze , Nwanze, Adewale and Iheanyi, 2010).Hepatitis B virus (HBV) has been described as major public health, occurring endemically, in all areas of the world (Maddrey et al., 2000; Okonko et al., 2010).

HBV account for a substantial portion of liver diseases worldwide and infected individuals can remain asymptomatic for decades. However, more than 80% of them become chronic carriers which result in an increased risk of liver cirrhosis, liver cancer and liver failure 20 - 30 years later (Volf et al., 2008; Okonko et al., 2010).Asymptomatic HBV infection among young adults and most sexually active age groups (15-29 years of age) without proper identifiable risk factors or mode of acquisition calls for general surveillance, mass immunization, and public health education to curtail the spread of the virus and its sequalae (Ugwuja and Ugwu, 2010; Okonko et al., 2010).

2.10.1.5 HIV: Blood transfusion continues to be an important route of transmission of HIV particularly in developing countries among young children and pregnant women after transfusion for malaria-associated anemia and pregnancy-related complications. A study undertaken to determine the seroprevalence of HIV infection among 1500 blood donors living in the Niger Delta area of Nigeria showed a prevalence of 1.0%. The highest prevalence occurred among commercially remunerated donors (Ejele, Nwauche and Erhabor, 2005; Osaro and Charles, 2011). Two studies to investigate the risk of transfusion-transmissible HIV infection among Malian blood donors indicated prevalences of 2.6%36 and 4.5%, respectively (Tounkara, Sarro , Kristensen, et al.,2009; Osaro and Charles, 2011). Undetectable

HIV infections in blood banks pose a serious threat to public health (Zohoun, Lafia, Houinato, Anagonou. 2004; Osaro and Charles, 2011).

In Kenya, blood donations from high school students are preferred over adult samples due to the lower HIV infection prevalence within this population. However a study carried out using Stimmunology, and vitro lymphocyte stimulation technique, has revealed a significant number of early, preseroconversion HIV carriers both among adult and teenage Kenyan populations (Minga, Dohoun, Abo, et al., 2010; Osaro and Charles, 2011).

2.11 Motivations for Blood Donation

In a study on adolescents and blood donation: motivations, hurdles and possible recruitment strategies, section which grouped together the questions concerning reasons which, according to the adolescents, would convince them to give blood. With regards to the question "What could make you decide to give blood?" the answers given most frequently by both the males and females were; an emergency situation for someone I care a lot about (males=53.60%, females=62.50%) and the story of someone saved by a blood transfusion. There was not a statistically significant difference between the genders with regards to the answer being able to do it with friends or school friends, whereas males more frequently gave the responses; knowing that I will obtain concrete advantages [educational credits, blood tests, free meal].

In contrast, females statistically significantly more frequently responded an emergency situation for someone I care a lot about, the story of someone saved by a blood transfusion and Knowing how it works. With regards to the question "How do you imagine a blood donor feels emotionally?", which was aimed at encouraging the adolescents to identify with the potential act of giving blood, only the answer Feels appreciated by society, relatives and friends was not statistically significantly different between the genders. The females statistically significantly more frequently than males chose the responses; feels useful because it is life-saving, feels good and satisfied because it is a good deed, although these were also the responses preferred by the males. The males significantly more frequently chose the responses Feels special, different from other people .In response to the question "Who could influence your choice to give blood?" the person nominated most frequently by both genders

was a donor (males=30.70%, females=42.30%). There were no statistically significant differences between the genders with regards to the responses my parents and Friends/classmates, whereas the males statistically significantly more frequently gave the response; my teachers.

Blood transfusion is a therapeutic lifesaving intervention that needs to be properly managed. Presenting for donation does not automatically translate to eligibility to donate, and being eligible to donate does not mean provision of blood that will be released for transfusion (Custer et al., 2004). In a study, majority of the donors were within the 21 to 40 years age group. This was expected as most people within that age group are strong and healthy. Only fifteen donors werefemale. This was not surprising as women are usually excluded on the basis of pregnancy and lactation (Misje et al., 2010). Some others are excluded whilst menstruation was on.Gender has been shown to play key roles in the motivation to donate blood, with fewer women becoming regular donors (Bani and Giussani, 2010).

In Africa, it is on the occasion where no other donor can be found that women usually step forward to donate blood. People need to be educated that gender should not affect voluntary blood donation (Pondei, Lawani and Pughikumo, 2013). On the issue of blood groups, our results confirmed the blood group O Rh D positive as the prevalent blood group in our environment, which is in agreement with other studies in Nigeria (Adeyemo and Soboyejo 2006; Muhibi et al., 2012; Pondei et al., 2013) and elsewhere in the Niger Delta (Nwauche and Ejele 2004; Pondei et al., 2013). Most people are not aware of their blood group types, and some find out only after donating blood. People should be encouraged to find out their blood group types as it saves valuable time in narrowing the type of blood to look for in emergencies, especially those with rare blood types (Pondei et al., 2013). Our observed 0.43% sero-prevalence of HIV among prospective donors is similar to the 0.7% obtained in another study (Olokoba et al., 2010; Pondei et al., 2013). Education of the public plays an important role in blood donation. Lack of public awareness was responsible for a high rate of donor deferrals in Trinidad and Tobago (Charles, Hughes, Gadd, Bodkyn, and Rodriguez, 2010; Pondei et al.,2013), and gaps in knowledge and practice were shown to affect voluntary blood donation in Nigeria (Salaudeen et al., 2011; Pondei et al., 2013).

A question about current availability of the blood has lifted up the concerns on how to keep the world population survive in the future. This has created the necessity to realize the underlying causes rely behind the scenario. The purpose of a study was to investigate the significant application of the Theory of Planned Behaviour (TPB) in determining an individual intention and the actual behaviour to involve in blood donation specifically in Perlis, Malaysia population. The findings indicated that, the TPB is relevant to the prediction of the intention to donate blood. Besides, among the three factors, Perceived Behavioural Control (PBC) is proved to be the best predictor-(Hamid, Basiruddin, and Hassan, 2013). As well, the presence of blood donation experience also is said to have influence on an individual's intention since those who ever donated their blood in the past have more intention to donate blood in future than those who are not (Hamid et al., 2013).

2.12 Practice of Blood Donation

As stated by World Health Organization, the main goal of blood transfusion services (BTS) globally is ensuring the availability of safe and adequate supply of blood and blood products. To achieve this, blood for transfusion must be obtained from voluntary non-remunerated blood donors (VNRD). An appropriate process of blood donor selection is very important in achieving safety in blood transfusion, as the desired aim is to protect and safeguard the health of both the donor and the recipient of blood and blood products. However, unnecessary deferral of blood donors may result in the loss of potential donors particularly in our society, where the culture of blood donation is still very poor (Ekwere et al., 2014).

Less than 10% blood donations are given by female in 18 out of 104 countries (Glynn, Kleinman, and Schreiber, 2002; Martina, 2014). In low-income countries, the donor population was mainly young people and undergraduate student who were between the ages of 18-25 years (Allain, Sarkodie, Boateng, Asenso, Kyerematen, Owusu-Ofori, 2008; Martina, 2014). Studies show that women account for about 30.2% of active donors in Trentino, 33% and 67% of women in Veneto and Tuscany, in Spain 46% of the donors are women, in Denmark 50% and in Finland 55%. In Africans their case is entirely different, about 7% of women accounted for blood donation (Allain, et al. 2008; Martina, 2014). In addition to smaller number of women participation in blood donation in Africa, whom Nigeria is one of them, there is also high prevalence

of iron deficiency and iron deficiency anemia in first time and regular female African blood donors (Boulahriss and Benchemsi,2008; Martina, 2014).

The data of 5,636 prospective blood donors, who presented at the University of Uyo Teaching Hospital (UUTH) blood bank from January 2009 to December 2012, were studied of whom 4,733 (84%) were males and 906 (16%) were females. The female donors were significantly younger than male donors. The age range of female donors was 14.5–42.9 years with a mean of 28.7 years while that of male donors was 30.9 years with a range of 16.1-45.7 years. Majority of the donors (49.1%) were between the ages of 21–30 years. Family replacement donors constitute 89.1% (5,021) of the entire donor population; the remainders, 10.9% (615) were voluntary non-remunerated donors (Ekwere et al., 2014). Provision of adequate supplies of safe blood for transfusion is an essential and complex component of health systems(Ekwere et al., 2014).

Chronic shortage of safe blood is a major public health challenge for countries in sub-Saharan Africa (SSA), resulting in substantial death and disability. International policies and guidelines for blood transfusion- including blood donation, screening, clinical practice and service organisation- are based on experience from, and evidence generated in, high-income countries. Consequently, they are not necessarily appropriate for low and middle-income countries in Africa. However, there is also a critical lack of indigenous transfusion research capacity in SSA, which makes it very difficult to address research priorities and generate an evidence base for the Africa region (Bates and Hassall, 2015).

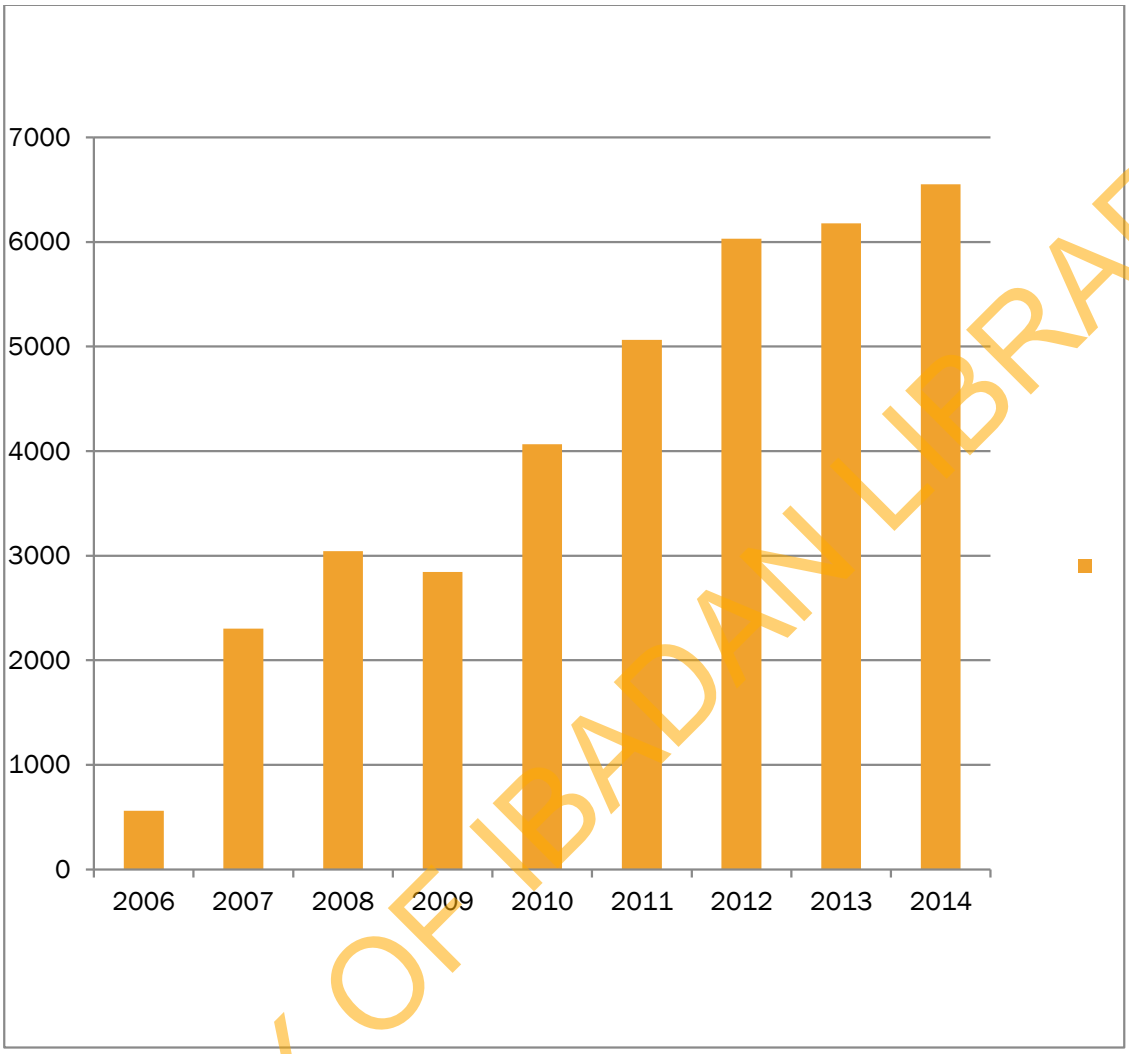
In a statement by Dr Neelam Dhingra, blood shortages in Africa Blood donation rates in Africa are generally very low (about 5 per 1000 population) compared with developed countries (for example, 47 per 1000 population in the United States). In its most recent global survey on blood safety and availability, WHO collected data from 40 of the 48 countries in sub-Saharan Africa. These data indicate that 35 (87.5%) countries collect less than half of the blood needed to meet the transfusion requirements of their populations. In 2004, only about 2.8 million units of blood were collected for a population of around 720 million people (11% of the world's population). Severe anemia occurs more frequently in Africa than in most other parts of the world. This results from the high number of patients with pregnancy-related

complications, malaria, worm infestations, malnutrition and sickle cell disease. Blood transfusion is frequently central to the management of life-threatening anemia, but blood shortages are experienced throughout Africa. These have a particular impact on women and children.

Globally, more than half a million women die each year as a result of complications of pregnancy and childbirth. Of the 20 countries with the highest maternal death rates, 19 are in sub-Saharan Africa where the risk of maternal death is 1 in 16, compared with 1 in2800 in rich countries. The most common cause of maternal death is severe bleeding, which can kill even a healthy woman within two hours, if unattended. In Africa, severe bleeding during delivery or after childbirth contributes to up to 44% of maternal deaths. Many of these deaths could be prevented through access to safe blood. Children are also particularly vulnerable to shortages of blood in Africa because of their high requirement for transfusion arising from severe life-threatening anemia caused by malaria or malnutrition. Falciparum malaria causes more than 1 million deaths each year worldwide. It also contributes indirectly to many additional deaths, mainly in young children, through synergy with other infections and illnesses. Around 60% of the cases of clinical malaria and over 80% of malarial deaths occur in sub-Saharan Africa where 9 out of 10 malarial deaths occur in children under five years of age. Studies report that up to 50% of transfusions given to children are related to malaria-induced anemia. Paradoxically, despite a severely inadequate supply of blood in African countries, blood is often transfused unnecessarily. This needlessly exposes patients to the risk of HIV, hepatitis and other serious side-effects.

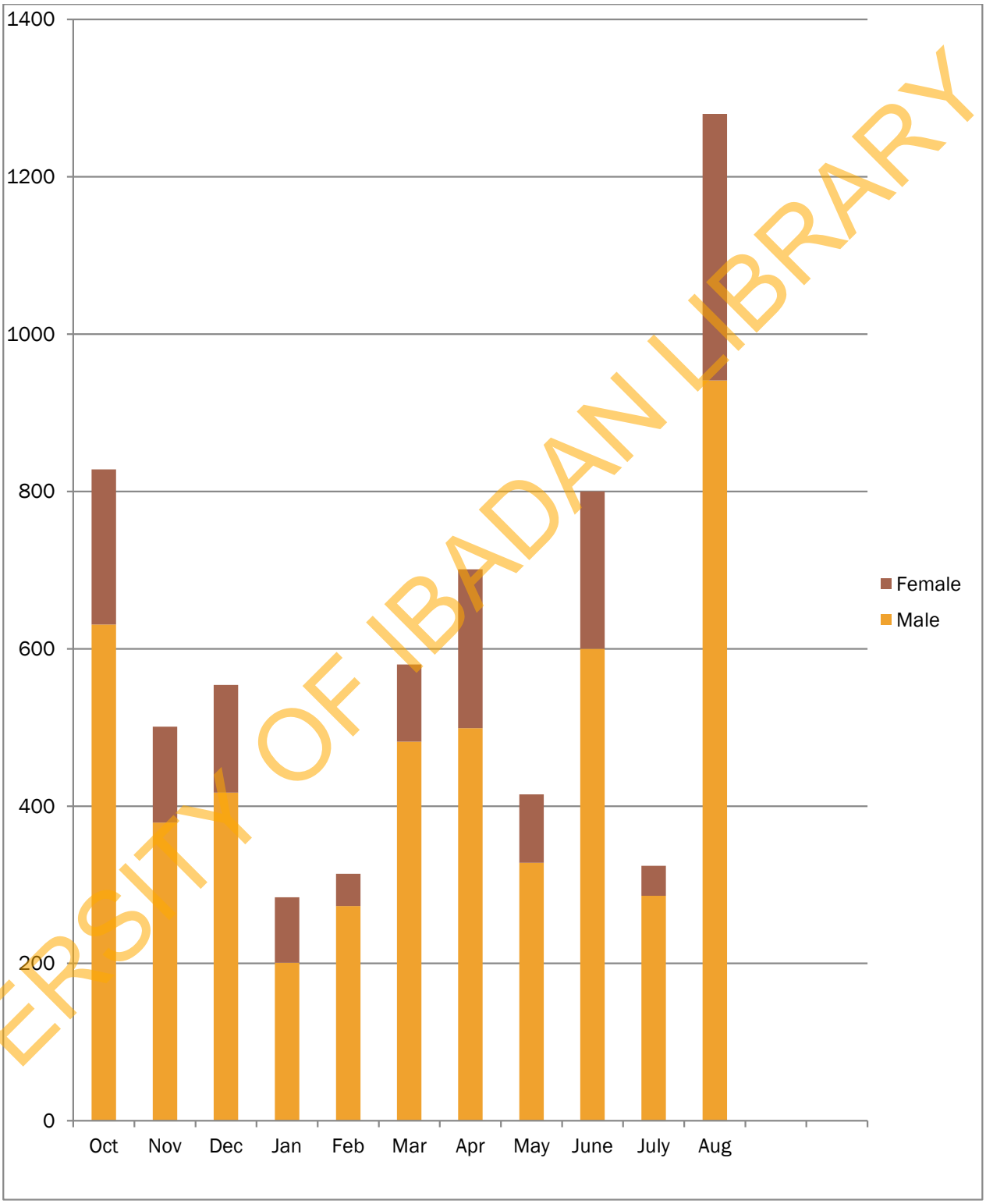
This poor quality clinical care also reduces the availability of blood for patients for whom transfusion is essential and is a waste of scarce resources. Blood donor deferral rates of 16% obtained in Ekwere's study is similar to that reported in some other studies. However, the reasons for the deferrals differ reflecting some differences in donor selection criteria. Furthermore, positivity for transfusion transmissible infectious was the major reason for permanent deferral, while anemia was the major reason for temporary deferral of donors (Ekwere et al., 2014). Also, considering the relatively high proportion of female donors deferred on account of anemia, nutritional advice and iron supplementation was suggested for all female donors (Ekwere et al., 2014).

Figure 1a: Annual Blood Collection (2006-2014)



Source: National Blood Transfusion Service, South-west Zonal Center, Ibadan.

Figure 1b: Blood Collection Profile According to Gender (October 2014-August 2015)



Source: National Blood Transfusion Service, South-west Zonal Center, Ibadan.

2.13 Barriers to Blood Donation

In a study on knowledge and practice of blood donation among medical and non-medical Nepalese students, the common reasons for not donating included no request, medically unfit, no information about blood collection services, fear of weakness, and fear related to venepuncture. Moral satisfaction was the commonest reason to donate. Among Nepalese students, medical students donate more and are more knowledgeable than non-medical students. Lack of information and lack of direct requests are important causes of fewer donors in the non-medical group and girls (Mamatya, Prajapati and Yadav, 2012).

The result of work done by Bani and Giussani (2010), the demographic data of their blood donors showed that female blood donors are very few in number compared to males (Barbara, 2010; Martina, 2014). Reasons like low donor turnover and temporary deferral conditions such as low hemoglobin values, fear of pain and low weight may be responsible for less percentage of female blood donors. Study done by Hollingsworth revealed that female blood donors constituted only 1% of the donor population (Hollingsworth and Wildman, 2004; Martina, 2014). The predominant reasons for small number of female to be involved in blood donation was fear of some aspects of the collection process, such as needles, mistakes and feeling unwell, in addition to above reasons others are poverty and illiteracy in developing countries. Those reasons are more prevalent among women.

2.14 Criteria for Blood Donor Acceptance

According to the National Standards for Blood Transfusion Service the following are the criteria for blood donor acceptance:

- The donor shall be in the age group of 16 to 60 years. For 16 or 17 aged individuals, a written consent from parents / guardians should be obtained before blood donation. Elderly donors between 60- 65 age group must be assessed by a doctor for suitability to donate.
- Minimum acceptable body weight shall be 45 kg for 350ml and 50 kg for 450ml blood collection. In a case, blood volume collected should not exceed 10ml/ kg body weight.
- Minimum hemoglobin level must be 12.0 gm% (12g/dL)

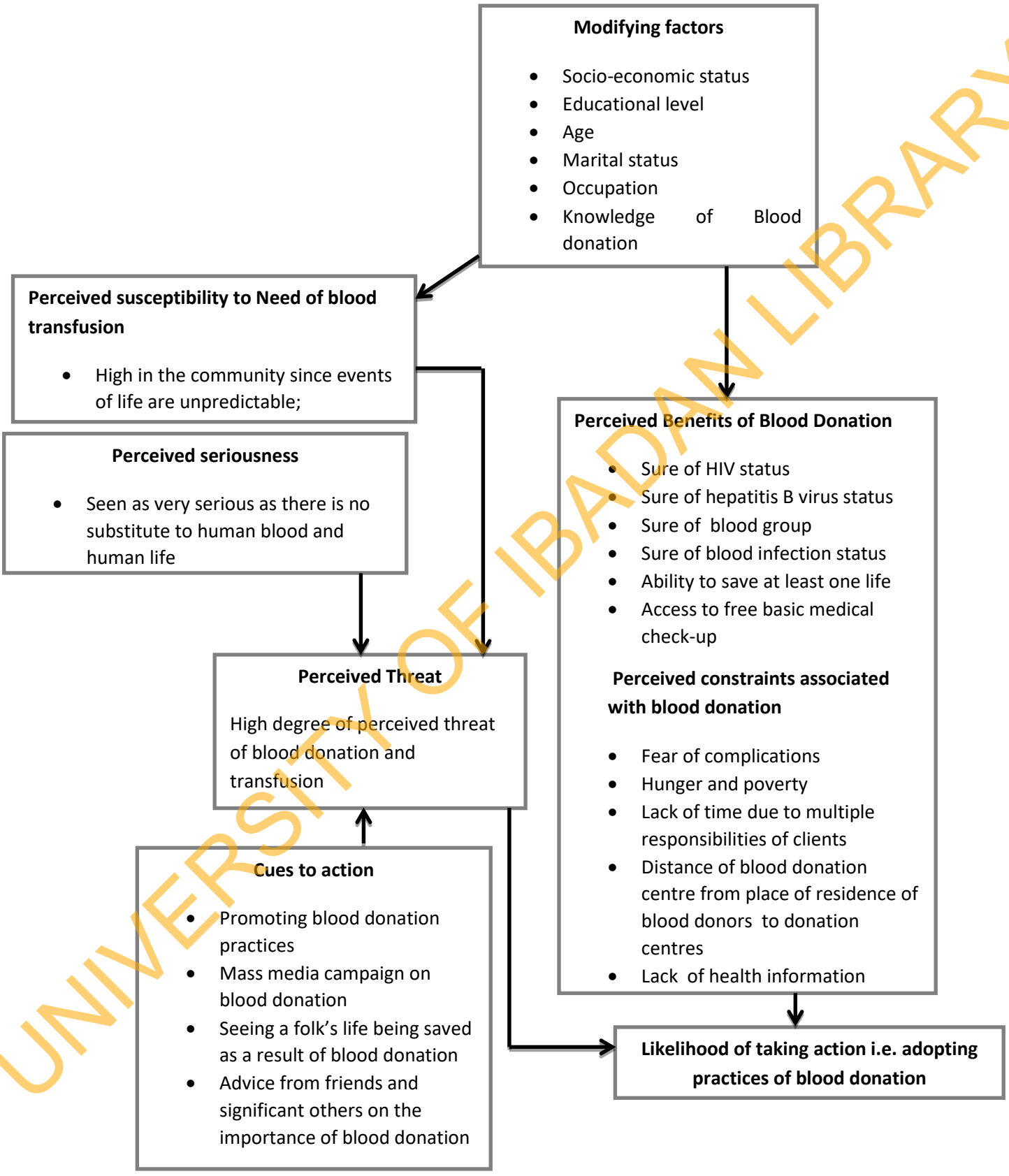
- Blood pressure: -Systolic reading between 90 mmHg and 180mmHg - Diastolic reading between 50 mmHg and 100mmHg
- The donor shall be having normal body temperature on the day of donation
- The donor shall be free from any skin disease at the phlebotomy site on the arm.
- The last blood donation must be at least three months ago.
- The donor shall be in good health and mentally alert on the day of donation.
- The donor shall not be a jail inmate or a drug/ alcohol addict.
- The donor should have eaten something in the last 8 hours and had 5 hours sleep.

2.15 Conceptual Framework for the Study

Based on the experiences in different regions of the world, it has been revealed that the use of appropriate conceptual framework has the potential for adding significant technical and practical value to implementation of health promotion and/or communication programmes. In addition, they facilitate the analysis of public health problems. Conceptual frameworks are useful in both health promotion and behavioural change communication practise. The conceptual framework adopted for this study is Health Belief Model (HBM)

2.15.1 Health Belief Model: was formulated during the 1950s. It deals with the readiness of individuals to comply with a set of recommended preventive health actions within the context of their perceptions of threat posed by failure to take preventive measures (Ross and Mico, 1980). This framework was used to know the perception, belief and mind-set of respondents and thus useful in constructing the survey instrument. The modifying factors was used to construct the socio-demographic characteristics of the respondents which include their gender, age, level of education, marital status, religion, occupation and tribe. The perceived benefit of the model was used to construct questions on benefits on blood donation and factors influencing blood donation. The perceived susceptibility and seriousness was used to construct questions on the attitude and practice respectively. Also the perceived threat and constraints were used to determine the factors inhibiting and barriers to blood donation respectively. The cue to action was used to elicit information on what would encourage people to donate blood. This is further illustrated in figure 2a.

Figure 2a: Application of Health Belief Model (HBM) to practice and factors influencing Blood donation.



CHAPTER THREE

METHODOLOGY

3.0 Study Design

This study was a descriptive cross-sectional study involving Blood donors as well as Non- blood donors in Ibadan North-West Local Government Area of Oyo State. Interviewer-administered questionnaires were used to obtain data from the respondents.

3.1 Scope of the Study

The scope of the study was limited to Practice and the Factors Influencing Blood Donation among Residents in Ibadan North West Local Government Area of Oyo State, Nigeria.

3.2 Study Area

The study was carried out at Ibadan North West Local Government Area of Oyo State; Ibadan North-West is one of the metropolitan Local Government Areas in Ibadan city. Its headquarters is situated at Dugbe/Onireke area in Ibadan. It has an area of 26 km² and a population of 152,834 at the 2006 census. Ibadan North West Local Government (NWLG) was created in 1991 by then military Head of State, Major Gen. Ibrahim Gbadamosi Babangida (RTD).

The Local Government covers a large area of land with a population of about 152, 834 (National Population Commission, 2006). Ibadan NWLG is predominantly an urban area spanning over Onireke (headquarters), Sapati, Agbede Adodo, Beere, Mokola, Ayeye, Dugbe, Inalende, Eleyele, Ologuneru and Oke-Are. The Local Government Area has eleven (11) wards which are Ward 1 (the areas under it are Idi-agba, Asukuna, Ayeye, Adeosun, Alekuso and Akatapa); Ward 2 (the areas under it are Galaxy Oke are, Agbede Adodo, Asukuna, Opoyeosa, Idi-Oro); Ward 3 (the areas under it are Oritamerin, Agbeni, Alfa abata, Agbeni, Gege); Ward 4 (the areas under it are Idiikan, Ogunpa, Amunigun, Agbeni, Ile olosun, Akilapa); Ward 5 (the areas under it are Idikan, Oopo, Okeseni, Ile alapa, Abebi, Ifeleye); Ward 6 (the areas under it are Abebi, Oke paadi, Oniyanrin, Oopo, Daily times); Ward 7 (the areas under it are Ekotedo, Ogunpa, Salvation Army, Idi oro, Queen cinema, Iya olobe); Ward 8 (the

areas under it are Inalende, Alawo, Attanda, Omitowoju, Famoriyo, Adeoyo, Ode oolo); Ward 9 (the areas under it are Adamasingba, Ayorinde, Onireke, Afonta, Kudeti Avenue, Akintola); Ward 10 (the areas under it are Fanmilk, Eleyele, Benjamin, TCTC, Idi ope, Jericho, NIHORT, Odo Elemu, Animashaun); Ward 11 (the areas under it are Olopomewa, Oluseyi, Arometa, Askari, Adetokun, Idi oro elewa, Idi osan, Oke suna, Ayetoro, Babalegba).

(Ibadan North-west Local Government Record (2015), Oyo State. Budget Unit)

3.3 Study site

This study covered all the 11 Wards in Ibadan North-West Local Government Area; this was done to ensure adequate coverage and proper representation of the communities under the Local Government Area. Thirty-five questionnaires were administered in all the wards with exception to ward 8, ward 9, and ward 10 in which thirty-eight, forty-one and forty-one questionnaires were administered respectively. This was done in order to administer the remaining fifteen questionnaires in the wards that had more than five communities under them.

3.4 Study Population

This descriptive cross-sectional study was carried out among 400 randomly selected consenting males and females; that were willing to participate in the study, and reside in the communities in the 11 Wards under Ibadan Northwest Local Government Area.

3.4.1 Inclusion Criteria

The study participants includedmale and female that are within the age range of 18-65 years; who were willing to participate in the study and were within Ibadan North West Local Government Area of Oyo State.

3.4.2 Exclusion Criteria

The participants excluded in this study were individuals who are below the age of 18 years, people who are above the age of 65 years, pregnant women, breastfeeding mothers, individuals with SS genotype, Vulnerable group (mentally derailed, prisoners), as well as people who have serious illnesses or terminal ailments.

3.5 Sample Size

The minimum sample size was calculated usingFischer's formula

$$N = \frac{Z^2pq}{d^2}$$ (Araoye, 2003).

N = minimum sample size required; Z = standard normal deviation set at 1.96 which corresponds to 95% confidence level; p = prevalence of Blood donors = 22.6% (Salaudeen et al., 2011); q = 1 – p (1-0.226 = 0.774); d = level of significance desired, set at 0.05.

$$N = \frac{(1.96)^2 \times 0.226 \times 0.774}{(0.05)^2}$$

$$= \frac{3.842 \times 0.226 \times 0.774}{0.0025}$$

$$= 268.795$$

$$= 269$$

The sample size equals two hundred and sixty-nine.

However, it was decided to increase the sample size to four hundred (400) for generalization of population and also to address possible cases of incomplete responses as well as loss to attrition.

Therefore, sample size equals to four hundred (400).

3.6 Sampling Techniques

All the eleven wards in Ibadan north-west Local Government Area were covered. The communities within these wards were then selected by simple random sampling. Thirty-five questionnaires were administered in each ward. However, forty-one

questionnaires were administered in wards that have more communities under them. Proportionate sampling was used to allocate thirty-five questionnaires to each ward with at least five communities. Also, simple random sampling was used to allocate the remaining fifteen questionnaires to wards with more than five communities under them. These additional communities were selected through balloting. Thereafter, respondents were selected using convenience sampling.

Table 3.1: Communities covered by the study in Ibadan North-West Local Government Area

Ward	Communities covered	Number of questionnaires administered
1.	Idi-agba, Asukuna, Ayeye, Adeosun and Alekuso.	35
2.	Galaxy Oke-Are, Agbede-Adodo, Asukuna, Opoyeosa, Idi-Oro.	35
3.	Oritamerin, Agbeni, Alfa-abata, Agbeni, Gege.	35
4.	Idiikan, Ogunpa, Amunigun, Agbeni, and Ile-olosun.	35
5.	Idikan, Oopo, Okeseni, Ile-alapa, and Abebi.	35
6.	Abebi, Oke-paadi, Oniyanrin, Oopo, Daily times.	35
7.	Ekotedo, Ogunpa, Salvation Army, Idi-oro, and Queen cinema.	35
8.	Inalende, Alawo, Attanda, Omitowoju, Famoriyo, and Ode oolo.	38
9.	Adamasingba, Ayorinde, Onireke, Afonta, and Kudeti Avenue.	35
10.	Fanmilk, Eleyele, Benjamin, TCTC, Idi-ope, NIHORT and Animashaun	41
11.	Olopomewa, Oluseyi, Arometa, Askari, Adetokun, Idi-osan, and Ayetoro.	41
	Total	**400**

3.7 Instrument for Data Collection

Quantitative method of data collection was used for the study. A semi-structured questionnaire was used for data collection from respondents. The questionnaire was divided into seven sections labelled A-G. Section A contained Socio-demographic variables of the respondents, Section B contained variables on the level of knowledge about blood donation. Sections C contained questions on practice of blood donation. Section D and Section E contained questions which were used to assess the attitude of blood donation and the perceived benefits of blood donation respectively, Section F contained questions to determine the factors influencing blood donation section G contained questions on barriers towards blood donation.Interviewer-administered method of data collection was adopted.

3.7.1 Training of Research Assistants

Three research assistants were trained by the researcher that assisted in collating and collecting the data. The training laid emphasis on content, mode of administration of questionnaire, communication skills and ultimately the aim of the study. The training of the research assistants lasted for two days.

3.7.2 Validity of Instrument

Some steps were taken to ensure the validity of the instruments. The instrument and the reviewed literature were critically scrutinized and validated by project supervisor and peers whose necessary corrections were effected. To further validate the instrument, it was pre-tested on respondents in Ibadan South-West Local Government Area. Ibadan South-West is a Local Government Area in Oyo State, Nigeria. It consists of 12 wards. Its headquarters is at Oluyole Estate in Ibadan. It has an area of 40 km² and a population of 283,098 (National Population Commission, 2006). Lessons learnt from the pre-test exercise were used to reconstruct and modify ambiguous and/or difficult questions. The questionnaire was translated to Yoruba language and back-translated to English Language by the Researcher in order to ensure that original meanings of the words used were preserved.

3.7.3 Reliability of the Instrument

The reliability coefficient of the questionnaire was determined from the pre-test by subjecting it to statistical analysis; using the Alpha-Cronbach test. The Alpha-Cronbach reported a reliability coefficient of 0.839. All the lessons learnt during the pre-test were used to modify the instrument; by converting some open-ended questions to close-ended questions using the responses provided in the open-ended questions during pre-test. Also, some questions were filtered and others were re-constructed for easy understanding of the respondents.

3.7.4 Data Collection Process

Three research assistants were trained, that helped in interviewing the respondents and documenting the information appropriately for each of the respondents that participated in the study.After proper introduction, the researcher and the research assistants explained the aim of the study to the respondents, and the consent of the

respondents were sought; after which data was collected from each respondent and the appropriate responses to the questions asked in each item were marked by the interviewer. Each interview lasted for about 20 minutes, while the whole data collection exercise lasted for three weeks.

3.7.5 Data Management and Analysis

Knowledge, practice and attitude were measured on a scale of 37-points, 5-points and 16-points respectively. Knowledge scores of 0-13, 14-25 and 26-37 were rated poor, fair and good respectively. Practice scores of 0-2 and >2-5 were rated as poor and good respectively. Also, attitude scores of 0-8 and >8-16 were rated negative and positive respectively. The questionnaires were serially numbered for control; identification and recall of any instrument with problems. The data collected were checked for completeness and accuracy on a daily basis. The collected data were sorted, edited and coded manually by the researcher with the use of a coding guide. The data was inputted into the computer using SPSS software version 20; which was then used to analyse the data. The data was analysed using descriptive statistics and Pearson's Chi-square test at $p \leq 0.05$.

3.8 Ethical Consideration

The following ethical considerations were conducted for this study:

- Ethical approval was sought and obtained from the Ministry of Health Ethical Review Committee.
- Informed consent was sought from each of the respondents, to ensure that all respondents are willing to provide answers to the items in the questionnaire without force, coercion or vulnerability.
- There was respect for privacy and confidentiality of the respondents; thus the names of the respondents were not required.
- The outcome of the study was made known to relevant bodies by providing the Zonal Coordinator of National Blood Transfusion Service with the findings of the study; such as the level of knowledge, practice, attitude of respondents who participated in the study, factors promoting and factors inhibiting blood donation. So as to help the organization to make valid decisions based on the findings of this study.

- All information given by the participants were kept secret and would not be shared with any other person.
- At any point in time, participant who wished to withdraw was free to do so without suffering any harm or repercussion.

3.9 Limitations to the Study

The limitations to the study include:

1. Some of the respondents were not willing to provide responses to all the information required by the researcher for one reason or the other. However, efforts were made to assure them of confidentiality of information since their names were not required.
2. Some of the respondents initially declined because they taught the researcher was going to ask them to donate blood compulsorily. However their apprehensions were relieved when the researcher assured the respondents of not asking them to donate their blood and re-explained the aim of the study to the respondents.
3. The researcher relied on the information provided by the respondents as there was no way to verify the responses but the researcher assured the respondents of confidentiality of information and tried as much as possible to elicit genuine information from them.

CHAPTER FOUR

RESULTS

The result of this study was presented in this chapter and organised into seven sub-headings: Socio-demographic characteristics of respondents, Knowledge of blood donation, Practise of blood donation, Attitude of respondents towards blood donation, Perceived benefits of blood donation, Factors influencing blood donation and Barriers towards blood donation

4.1 Socio-demographic characteristics of respondents

The socio-demographic characteristics of the respondents are as shown in table 4.1. There were more male (56.0%) than female (44.0%) respondents. The age range of the respondents was 18-65 years with the mean age of 33.1±11.9 years (i.e. 21 years-45 years). Many of the respondents (63.6%) were between the ages of 18-35 years, 31.8% were within the ages of 36-55 years and very few (4.8%) were within ages of 56-65years. 44.2% respondents had Tertiary education, 43.5% had secondary education, 9.0% had primary education and 3.3% had no education. Most of the respondents (58.2%) were married, 39.0% were single, 1.2% was cohabiting, 0.8% was widow/widower, 0.5% was divorced, and 0.3% was separated. In addition, major ethnic group majority of the respondents (87.0%) were Yoruba, 9.5% were Igbo, 2.5% were Hausa; then (1.0%) constituted others (Edo and Fulani). 30.0% of the respondents were traders, 24.0% were students, 18.0% were both private workers and civil servants, 10.7% were artisans, 6.8% were apprentices, 4.2% were drivers, 1.5% were professionals(Doctor, Lawyer, Nurse, Engineer, Architect), 1.3% were unemployed, 1.0% were clergy and housewives each, 0.7% were farmers and 0.3% were sports men/women . 56.7% of the respondents were Christians, and 43.3% were Muslims.

Table 4.1a Socio-Demographic Characteristics of Respondents

N=400

Statement	Frequency	Percentage (%)
Gender		
Male	224	56.0
Female	176	44.0
Educational status		
No education	13	3.3
Primary education	36	9.0
Secondary education	174	43.5
*Tertiary education	177	44.2
Marital status		
Single	156	39.0
Married	233	58.2
Divorced	2	0.5
Separated	1	0.3
Widow/widower	3	0.8
Cohabiting	5	1.2
Ethnic group		
Yoruba	348	87.0
Hausa	10	2.5
Igbo	38	9.5
**Others	4	1.0

* Tertiary education- University, Polytechnic, NCE

** Others- Edo, Fulani

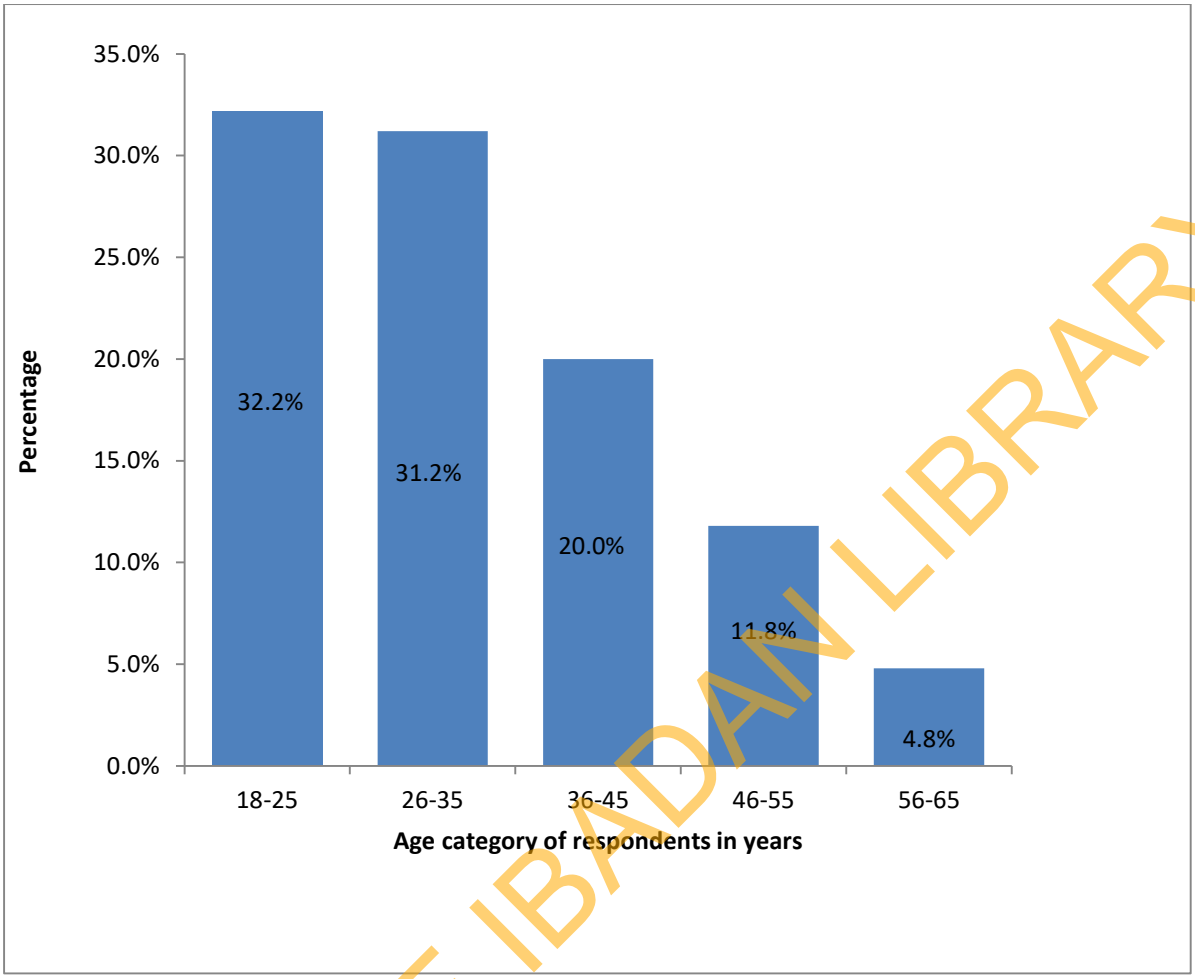
Table 4.1b Socio-Demographic Characteristics of Respondents

N=400

Statement	Frequency	Percentage (%)
Religion		
Christianity	227	56.7
Islam	173	43.3
Traditional	0	0
Occupation		
Student	96	24.0
Civil servant	36	9.0
Private worker	36	9.0
Trader	121	30.2
Apprentice	27	6.8
Driver/Rider	17	4.2
Artisan	43	10.7
Farmer	3	0.7
Unemployed	5	1.3
Housewife	5	1.3
***Professional	6	1.5
****Cleric	4	1.0
Sportsman/woman	1	0.3

***Professional-Doctor, Lawyer, Nurse, Engineer, Architect

****Cleric- Pastor, Evangelist, Bishop, Reverend, Alfa, Imam.



Mean ± SD = 33.1 ± 11.9 years.

Figure 4.1: Respondents' age category

4.2 Knowledge of respondents on blood donation

Based on the chart below, the knowledge score was calculated for each respondent using a 37-point knowledge scale. The level of knowledge of the respondents on blood donation contained in statements which had a score of 1-point for each correct option chosen by the respondent and 0-point for each wrong option chosen by each respondent. The score (0-13) showed that they had poor knowledge of blood donation, the score (14-25) showed that they had fair knowledge and the score (26-37) showed that they had good knowledge of blood donation. The survey instrument revealed that only thirteen (4.0%) of the respondents had good knowledge of blood donation, one hundred and sixty (39.2%) of the respondents had a fair knowledge of blood donation and majority of the respondents; two hundred and twenty-seven (56.8%) had poor knowledge of blood donation.

About half of the respondents (50.2%) answered yes to the question "do you know the common blood groups". However less than half (48.0%) of them know their blood group. It was observed that majority of the respondents do not know the difference between blood group and genotype; as they were declaring their genotype instead of their blood group. 7.3% of the respondents were of the opinion that women should not donate blood. Majority of the respondents said a person can be infected by receiving blood transfusion and HIV was the most mentioned infection with (76.0%) of the respondents mentioning HIV.

However, 3.3% of the respondents said no disease is transmissible by blood transfusion. They said the blood would have been adequately screened before it is being transfused; hence there cannot be any transfusion. Also 14.5% of the respondents said that they do not know about transmissible diseases associated with blood transfusion. Only 8.0% of the respondent answered that an individual can only donate every three to four months, while 40.0% said that they do not know. Also only 2.5% of the respondents knew the volume of blood collected during each apheresis blood donation process. In addition, 54.0% of the respondents do not know how long a blood donation process takes.

Furthermore, it was revealed from the responses that majority (93.5%) of the respondents are aware of blood donation from various sources with social media having the highest proportion. Also many of the respondents in addition to social media got aware of blood donation from health institutions, communication among

members of the community and through educational activities in school. Above all, only 4.0% of the total respondents had a good knowledge of blood donation.

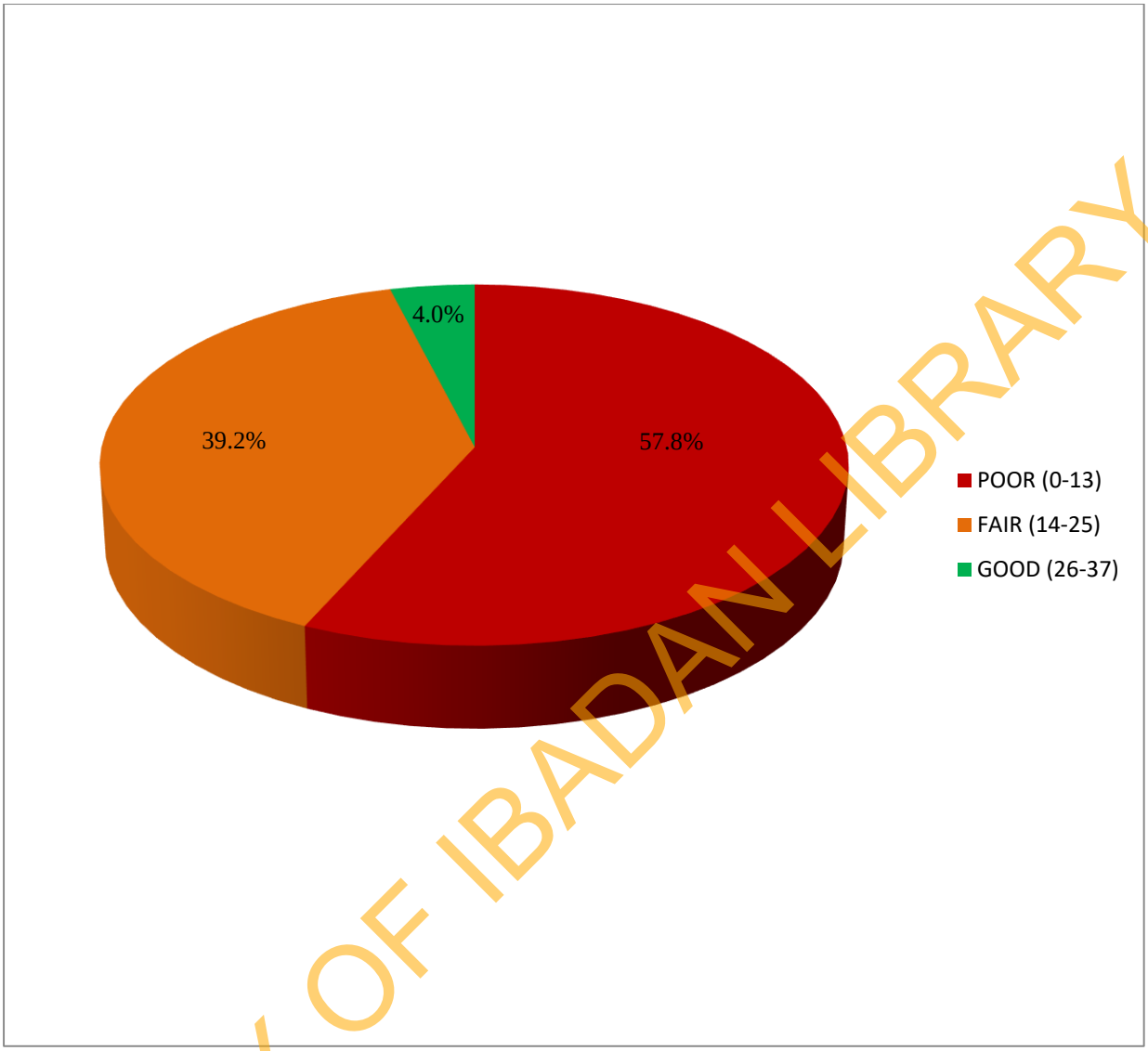


Figure 4.2: Knowledge of respondents on blood donation

Table 4.2a Knowledge of blood donation

N=400

Statement	Frequency	Percentage (%)
Know the common blood groups		
Yes	201	50.2
No	199	49.8
Know their blood group		
Yes	192	48.0
No	208	52.0
Respondents' blood group		
A Positive	54	28.1
A Negative	9	4.7
AB Positive	16	8.3
AB Negative	3	1.6
B Positive	15	7.8
B Negative	5	2.6
O Positive	61	31.8
O Negative	29	15.1
A person can be infected by receiving blood transfusion		
Yes	330	82.5
No	41	10.2
No response	29	7.3
How often an individualcan donate blood		
Weekly	5	1.2
Monthly	27	6.8
Every three months	22	5.5
Every four months	10	2.5
Every six months	55	13.8
Yearly	48	12.0
As many times as the need arises	55	13.8
I don't know	160	40.0
No response	18	4.4

Table 4.2b Knowledge of blood donation

N=400

Statement	Frequency	Percentage (%)
Volume of blood collected during each donation		
Below 300mls	3	0.8
300-350mls	35	8.7
350-400mls	28	7.0
400-450mls	57	14.2
450-500mls	10	2.5
Above 1000mls	7	1.8
Don't know	247	61.8
No response	13	3.2
Minutes blood donation process take		
Less than 10 minutes	53	13.2
10-30 minutes	74	18.5
30-50minutes	38	9.5
Above 50 minutes	7	1.8
Don't know	216	54.0
No response	12	3.0
Respondents know different types of blood donors		
Yes	159	39.8
No	229	57.3
No response	12	3.0

Table 4.2c Knowledge of blood donation

Statement	Frequency	Percentage (%)
Who should donate blood		
Healthy person	279	69.8
Adult (18-65years)	229	57.2
Men	190	47.6
Women	179	44.8
Young (below 18 years)	45	11.3
Aged (above 65 years)	28	7.1
Vulnerable group	24	5.8
Sick person	15	3.8
Who should not donate blood		
Sick person	325	81.3
Vulnerable group	170	42.5
Young (below 18 years)	116	29.0
Aged (above 65 years)	110	27.5
Women	29	7.3
Adult (18-65years)	26	6.5
Men	19	4.8
Healthy person	17	4.3
When is blood transfusion required		
When there is insufficient blood	224	56.0
During blood loss	218	54.5
During accident	179	44.8
In sickness	167	41.8
During childbirth	99	24.8
During pregnancy	69	17.3
Don't know	8	2.0
Who needs blood transfusion		
People with insufficient blood	237	59.3
Sick people	221	55.3
Accident victims	188	47.0
Surgery patients	112	28.0
Women that just gave birth	103	25.8
SS genotype patients	99	24.8
Pregnant women	85	21.3
Don't know	1	0.3
The types of blood donor		
Don't know	179	44.8
Voluntary donor	134	33.5
Replacement donor	118	29.5
Remunerated donor	101	25.3
Self-donor	62	15.5

Table 4.2d Knowledge of blood donation

Statement	Frequency	Percentage (%)
Respondents heard of blood donation		
Yes	374	93.5
No	26	6.5
Total	**400**	**100.0**
How respondents know about blood donation		
Television	185	46.2
Health workers	157	39.2
Radio	133	33.2
Hear around	97	14.0
Friends	92	24.3
Family/ Relatives	88	23.0
School	85	22.0
Books	56	21.2
Internet	39	9.8
During outreach awareness or sensitization	30	7.5
On cars/BCC advert	29	7.2
Religious group	27	6.8
Newspaper	8	2.0
National blood transfusion service (NBTS Centre)	2	0.5
What diseases are transmissible by blood transfusion		
HIV	304	76.0
Ebola	96	24.0
Malaria	95	23.8
Hepatitis B Virus	66	16.5
Gonorrhoea	65	16.3
Diabetes	56	14.0
Hepatitis C Virus	53	13.3
Syphilis	45	11.3
CMV(Cytomegalovirus)	30	7.5
Haemophilia	25	6.3
No disease	13	3.3
Typhoid	3	0.8
Tuberculosis	2	0.5
Hypertension	1	0.3
I don't know	58	14.5

4.3.1 Practice of blood donation among respondents

According to the findings of the survey conducted, only 79 (19.8%) respondents had donated blood before. Among these respondents who have donated blood before, thirty-five respondents (44.3%) donated because a family member needed blood transfusion, eight respondents (10.1%) donated because a friend needed blood transfusion, eleven respondents (13.9%) donated because a relative needed blood transfusion, twenty-two respondents (27.9%) donated blood voluntarily, two respondents (2.5%) donated for remuneration and one respondent (1.3%) donated to know screening status.

Based on the table below, the practice score was calculated for each of the respondents who have donated before using a 5-pont practice scale. The level of practice of the respondents who have donated blood before on blood donation contained in statements which had a score of 1-point for each respondent who are donors and 0-point for each respondent who are non-donors. The score above average (3-5 points) indicates good practice while score (0-2 points) indicates poor practice. Seventy-three (18.2%) respondents had good practice of blood donation, while three hundred and twenty-seven (81.8%) of the respondents had poor practice.

Also among the respondents who had not donated blood before (non-donors), 23.8% said they have never been approached to donate blood, 15.5% said they have no situation that will need them to donate blood for their family members/ loved ones, 7.5% said they are unfit to donate, 6.2% said they are afraid of needles that will be used to get blood from their body, 6.0% they have not donated before due to their poor health condition, 5.5% said that they do not have enough blood in their body, not to talk of drawing some out for another person. Then 2.5% said they have not donated blood before because they are afraid to dying in the process or as a result of the blood donation, while 1.5% blamed their being non-donors on the poor economic situation of the country. Furthermore, 1.5% also said they have not donated blood before due to their genotypic reasons and factors.

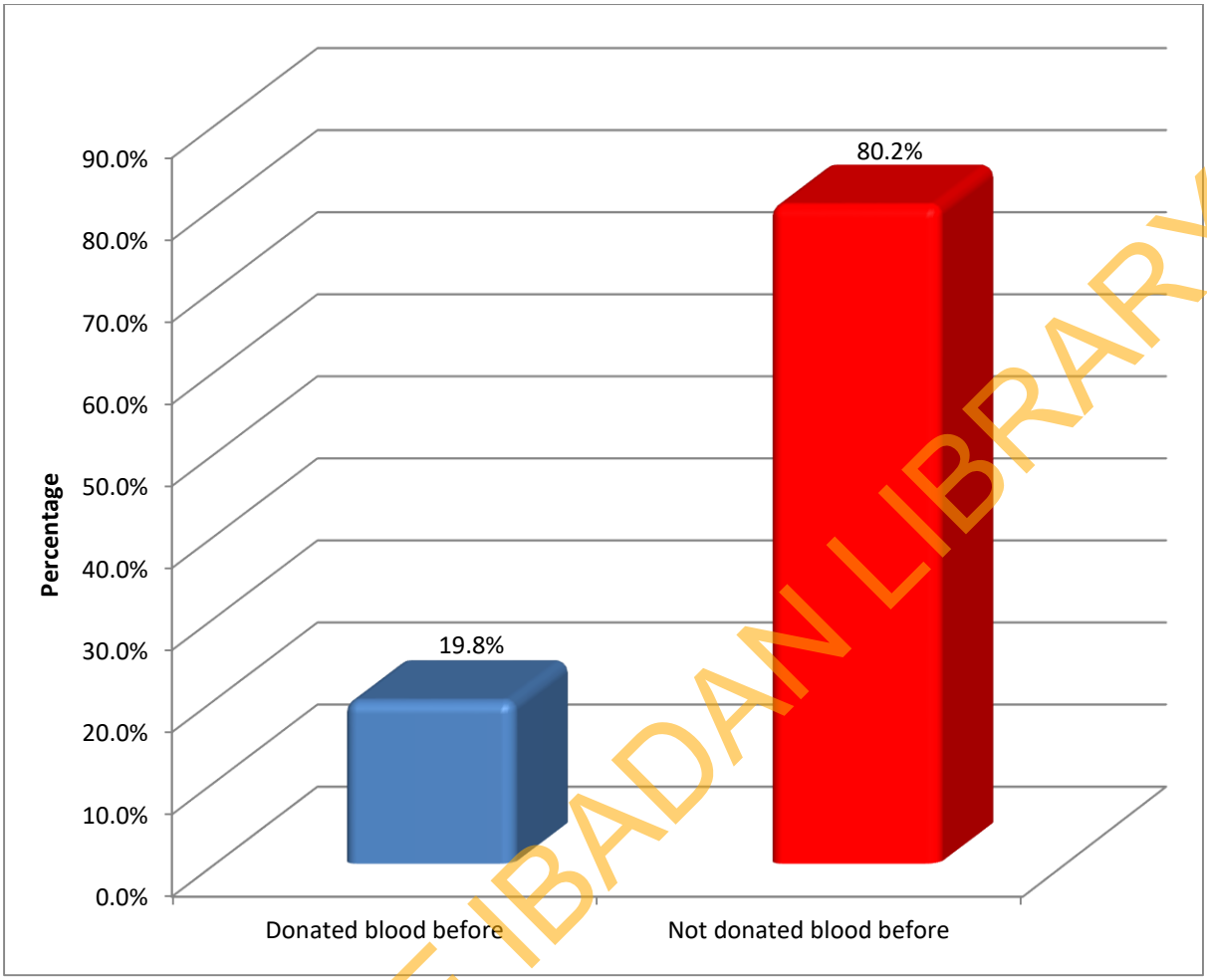


Figure 4.3.1: Respondents who have donated blood before

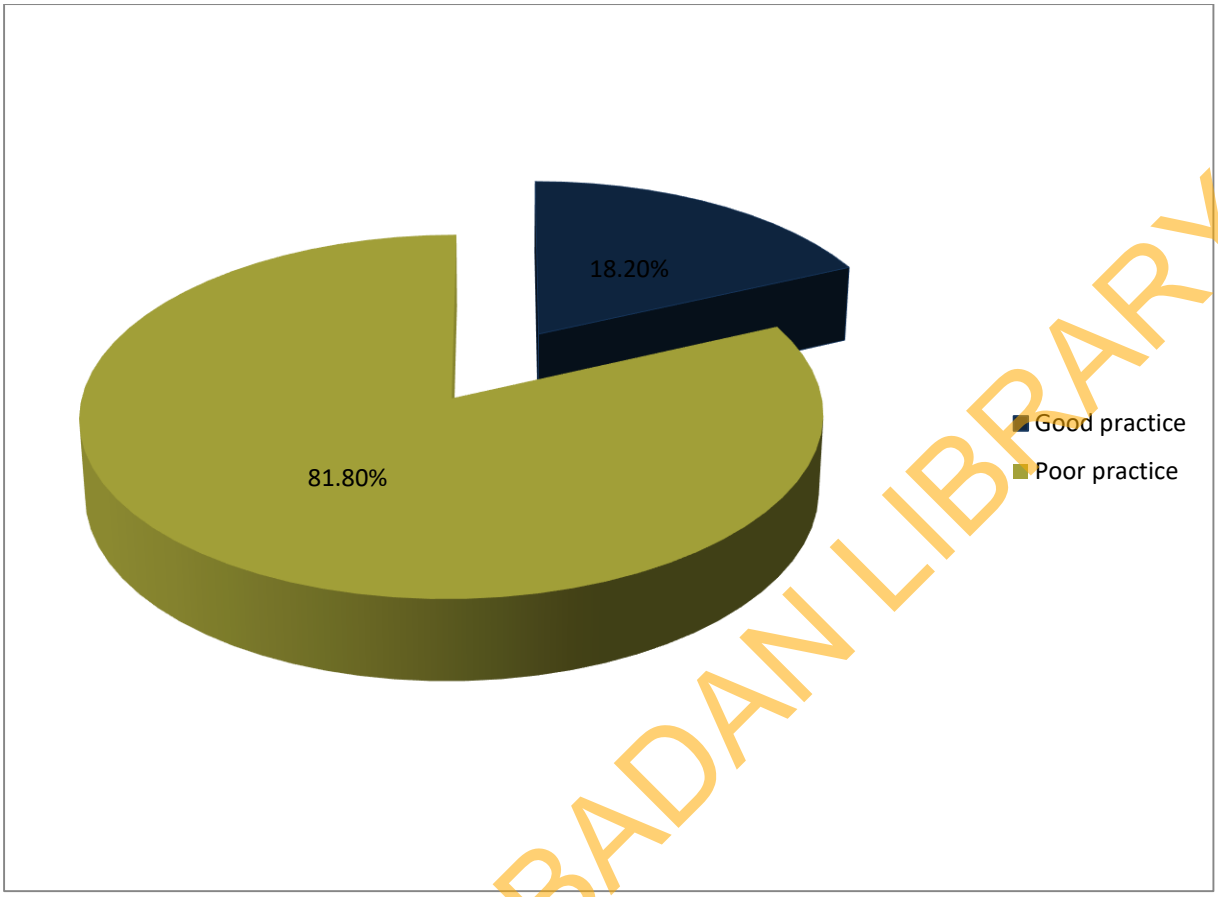


Figure 4.3.2: Level of practice of blood donation among respondents

Table 4.3a Practice of blood Donation among residents

Statement	Frequency	Percentage (%)
Ever donated blood before		
Yes	79	19.8
No	321	80.2
Total	**400**	**100.0**
Frequency of blood donation		
Less than 3 times a year	49	62.0
1-3 times a year	24	30.4
More than 3 times a year	6	7.6
Number of times respondents have donated before		
One time	36	45.6
Two times	15	19.0
Three times	18	22.7
Four times	4	5.1
Five times	3	3.8
Above five times	3	3.8
Last time respondents donated blood		
1-2 years ago	21	26.6
Less than 6 months ago	15	19.0
More than 5 years ago	14	17.7
6-12 months ago	12	15.2
3-4 years ago	10	12.7
6 months ago	7	8.8
Reasons why respondents donated blood		
A family member needed blood transfusion	35	44.3
Voluntary	22	27.9
A relative needed blood transfusion	11	13.9
A friend needed blood transfusion	8	10.1
Remuneration	2	2.5
To know my blood screening status	1	1.3

4.3.2 Characterization of blood donors

In this study, it was documented that only 79 (19.8%) of the respondents that participated in the study had donated before. 58.2% were males, while 41.8% were females. Based on their age category, majority of the blood donors (51.9%) were between the ages of 26years to 45years. Majority of these donors (95%) have at least secondary education. Also 68.3% out of the blood donors were married. Based on their occupation, 29.1% were traders, 13.9% were artisans, and workers (private and civil servants) constitute 22.8% while 11.4% were students. Majority of these donors were Christians (64.6%) while 35.4% were Muslims. Based on their ethnicity, 84.8% were Yoruba, 11.4% were Igbo and 3.8% were Hausa. This is further illustrated in table 4.3.2).

Table 4.3.2: Blood Donor Characteristics based on the Socio-demographic Factors of the Donors.

N=79

Socio-demographic characteristics	Frequency	Percentage (%)
Gender		
Male	46	58.2
Female	33	41.8
Age category (years)		
18-25	16	20.2
26-35	21	26.6
36-45	20	25.3
46-55	16	20.3
56-65	6	7.6
Educational status		
No education	2	2.5
Primary education	2	2.5
Secondary education	30	38.0
*Tertiary education	45	57.0
Marital status		
Married	54	68.3
Single	21	26.5
**Others	4	5.2
Occupation		
Trader	23	29.1
Artisan	11	13.9
Student	9	11.4
Civil servant	9	11.4
Private worker	9	11.4
Apprentice	6	7.6
***Professional	5	6.3
Driver/rider	4	5.1
Housewife	2	2.5
Unemployed	1	1.3
Religion		
Christianity	51	64.6
Islam	28	35.4
Ethnic group		
Yoruba	67	84.8
Igbo	9	11.4
Hausa	3	3.8

*Tertiary education: University, Polytechnic, NCE.

**Others: Divorced, Separated, Widow/widower, Cohabiting.

***Professional: Doctor, Lawyer, Nurse, Engineer, Architect

Table 4.3b Practice of blood Donation among residents

Statement	Frequency	Percentage (%)
Reasons for non-donation by non-donors		
Not approached to donate	95	23.8
No need yet	62	15.5
Unfit to donate	30	7.5
Fear of needles	25	6.2
Because of my health condition	24	6.0
Don't have enough blood	22	5.5
Don't know the person that needs it	15	3.8
Fear of death	10	2.5
Need to donate for family/ relative in the future	7	1.8
Because of my genotype	6	1.5
Poor economic situation	6	1.5
Fear of knowing my infection status	3	0.9
Don't want to	2	0.5
*Others	5	1.0
No response	88	22.0
Respondents will donate if called upon/reminded to do so		
Yes	272	68.0
No	119	29.8
No response	9	2.2
Reasons why respondents don't donate blood		
Don't think I have enough blood	50	42.0
Afraid	40	33.6
Satisfied and don't need money	11	9.3
It can lead to death	9	7.6
Don't want to	6	5.1
**Others	3	2.4

*Others:Not heard about blood donation before, Fear of contracting diseases, Need to donate for friends in the future, Due to pregnancy/breastfeeding,My religion is against it.

**Others: It is not safe, Not fit, My religion does not permit me

Table 4.3c Practice of blood Donation among residents

N=400

Statement	Frequency	Percentage (%)
Will encourage family/relative to donate blood		
Yes	201	50.3
No	194	48.5
No response	5	1.2
Reasons for not encouraging donation		
Cannot do it personally	69	35.6
Don't know their feelings about it	70	36.0
Individual willingness will prevent me	55	28.4
Will encourage friends to donate blood		
No	198	49.5
Yes	190	47.5
No response	12	3.0
Reasons for not encouraging friends to donate		
Don't know their feelings about it	92	46.4
Cannot do it personally	78	39.5
Individual willingness will prevent me	28	14.1

4.4 Attitude of residents towards blood donation

The survey instrument revealed that many of the respondents had good attitude towards blood donation. During the course of the questionnaire administration, many of the respondents affirmed that they would want to donate blood to save lives, but few agreed declared that they would donate blood voluntarily while many of the respondents said they would donate blood for their family members, relatives or friends only.

The respondents have the attitude that they can save life with their blood and many of them were of the opinion that blood donation is good. They were also of the opinion that family or relatives of patients who need blood should donate blood for their patients instead of buying blood or getting a remunerated donor to provide blood.

The attitudinal score was calculated for each respondent using a 16-point attitudinal scale. The attitude of the respondents on blood donation contained in statements which had a score of 1-point for respondent who have positive attitude, 0-point for respondent who have negative attitude and 0-point for those that were undecided. The scores were then summed up to give a total attitudinal score for each respondent. The score below average (0-7) shows that respondent had negative attitude and the score above average (8-16) shows that respondents have positive attitude. The figure 4.12 below shows the graphical representation of respondents' attitude towards blood donation. Three hundred and thirty-two respondents (83.0%) had above average attitudinal score which was categorised as positive attitude, while (17.0%) had below average score which between 0 and 7 points and thus were categorised as negative attitude.

Three hundred and thirty-five respondents (83.8%) think blood donation is good, 50.8% think donor can contract infection, 71.0% said donor can have temporary weakness, 53.8% said donor can fall sick, 22.4% said donor can die due to blood donation and 33.0% are of the opinion that nothing can happen to donor during/after blood donation. About 330 (77.5%) respondents feel patients' family/relatives should be asked to donate blood. Also, 39.5% are of the opinion that patient's family/relative should buy blood instead of donating for the patient that needs the blood.

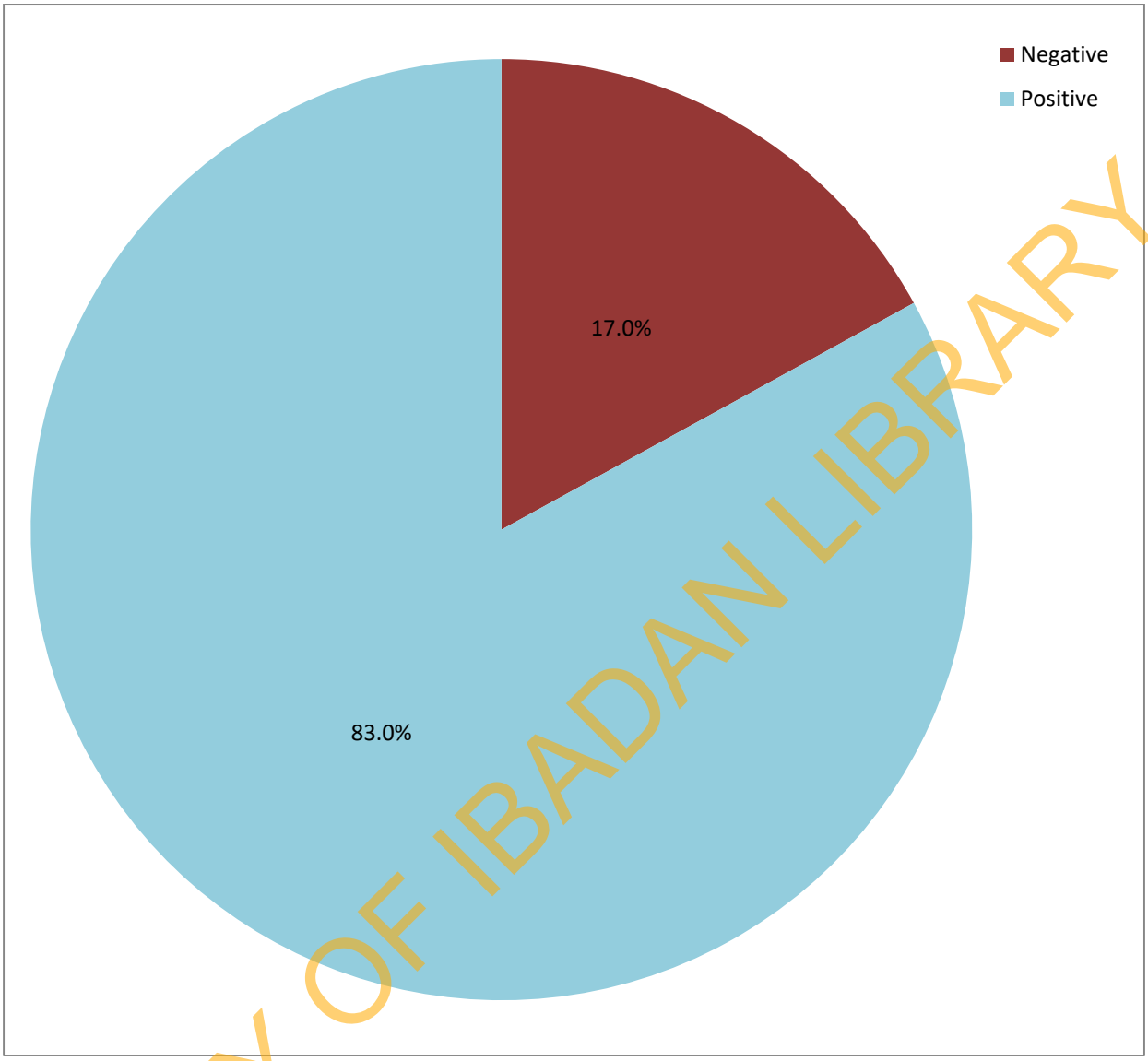


Figure 4.4: Attitude of respondents towards blood donation

Table 4.4a Attitude of residents towards blood donation

Statement	Agree (%)	Undecided (%)	Disagree (%)	No response(%)
Feeling towards blood donation				
It is good	335 (83.8)	41 (10.2)	16 (4.0)	8 (2.0)
It is bad	56 (14.0)	46 (11.5)	277 (69.3)	21 (5.2)
It is Godly	253 (63.2)	83 (20.8)	43 (10.8)	21 (5.2)
Respondents believe something can happen to a blood donor during or after donation	188 (47.0)	72 (18.0)	105 (26.2)	35 (8.8)
Respondents believe the following can happen during or after donation				
Donor can contract infection	203(50.8)	70 (17.4)	123 (30.8)	4 (1.0)
Donor can have temporary weakness	284 (71.0)	50 (12.5)	62 (15.5)	4 (1.0)
Donor can fall sick	215 (53.8)	64 (16.0)	109 (27.2)	12 (3.0)
Donor can die due to blood donation	90 (22.4)	91 (22.8)	212 (53.0)	7 (1.8)
Nothing can happen to donor during/afterblood donation	132 (33.0)	105 (26.2)	156 (39.0)	7 (1.8)

Table 4.4b Attitude of residents towards blood donation

Statement	Agree (%)	Undecided (%)	Disagree (%)	No Response (%)
I feel patients' family/relatives should be asked to donate blood	310 (77.5)	46 (11.5)	16 (4.0)	28 (7.0)
I feel patients' family/relatives should be asked to donate blood due to the following reasons:				
For blood compatibility	326 (81.4)	27 (6.8)	31 (7.8)	16 (4.0)
Because they are family members	310 (77.5)	29 (7.2)	46 (11.5)	15 (3.8)
If need be	326 (81.5)	30 (7.4)	21 (5.3)	23 (5.8)
To save a life	363 (90.8)	10 (2.4)	15 (3.8)	12 (3.0)
Because they can buy	185 (39.5)	90 (22.5)	132 (33.0)	20 (5.0)
Because of love	335 (83.8)	25 (6.2)	27 (6.8)	13 (3.2)

4.5 Perceived benefits of blood donation

From the survey conducted, it was revealed that some of the respondents 68.5% said to know blood group, 63.0% said to know genotype and 63.2% said to know infection status (e.g. HIV, etc.), 51.0% said it is for health challenges, 52.2% said it is for healthy living. However, 34.2% said the benefits are to reduce obesity, 32.0% said it is for spiritual satisfaction, 32.0% said it is for money or economic gain, 40.5% said to save life and 38.0% said it is safe. The table 4.5 below shows the perceived benefits of blood donation**.**

Table 4.5: Perceived benefits of blood donation

Benefits	Spontaneous		Prompt	
	N (%)	Yes (%)	No (%)	No response (%)
Know blood group	27 (4.5)	274 (68.5)	44 (11.0)	82 (20.5)
Know infection status (E.g. HIV, etc.)	30 (5.0)	253 (63.2)	43 (10.8)	104 (26.0)
Know HB genotype	20 (3.4)	252 (63.0)	51 (12.8)	97 (24.2)
For healthy living	71 (11.9)	209 (52.2)	48 (12.0)	143 (35.8)
For health challenges	47 (7.9)	204 (51.0)	65 (16.2)	131 (32.8)
To save life	200 (33.6)	162 (40.5)	5 (1.3)	233 (58.2)
It is safe	59 (9.9)	152 (38.0)	107 (26.8)	141 (35.2)
Reduce obesity	16 (2.7)	137 (34.2)	160 (40.0)	103 (25.8)
Spiritual satisfaction	69 (11.6)	128 (32.0)	120 (30.0)	152 (38.0)
For money/ economic gain	56 (9.4)	128 (32.0)	127 (31.8)	145 (36.2)

4.6 Factors influencing blood donation among residents (promoting factors and inhibiting factors)

According to the survey, ninety (22.5%) respondents said they would give blood only when there is a critical need for blood transfusion. Seventy-four (18.5%) respondents said they would give blood primarily to save life of any blood recipient. Seventy-two respondents (18.0%) said they would donate blood only if the person that needs it is a family member.

Twenty-eight respondents (7.0%) said they would donate blood voluntarily. Four respondents (1.0%) said they would donate blood in order to be remunerated. Also, eighteen (4.5%) respondents said they would donate blood only if the person that needs blood transfusion is someone they know. However, fifty-two of the respondents (13.0%) insisted that absolutely nothing will make them want to donate blood.

In addition, two hundred and six respondents (51.5%) said they needed encouragement to donate blood, while one hundred and sixty-five respondents (41.5%) said they do not need encouragement to donate blood. Among the respondents that needed encouragement to donate blood, 15.7% of the respondents said they needed reassurance, 12.6% said they needed explanation of procedures, 11.5% said that the encouragement they need is for their blood to be the only hope of survival of the person that needs blood transfusion, 3.5% said they would donate for money and 9.8% said they needed enlightenment to donate blood. The information is illustrated in the table 4.6.

Table 4.6: Factors influencing blood donation among residents (promoting factors and inhibiting factors)

N=400

Statement	Frequency	Percentage (%)
Respondents would want to donate blood		
Yes	255	63.8
No	137	34.2
No response	8	2.0
What would make respondents want to donate blood		
If critical need arises	90	22.5
To save life	74	18.5
For a family member	72	18.0
Absolutely nothing will make me want to donate blood	52	13.0
Voluntarily	28	7.0
For someone I know	18	4.5
If I am fit	11	2.7
If lover needs blood	6	1.5
In extreme cases	4	1.0
Remuneration	4	1.0
To show compassion	3	0.8
If the person is a friend	2	0.5
No response	36	9.0
Respondents need encouragement to donate blood		
Yes	206	51.5
No	165	41.3
No response	29	7.2
The kind of encouragement respondents need		
Reassurance	63	15.7
Explanation of procedures	48	12.0
If my blood is the only one available to save the person's life	46	11.5
Money	39	9.8
Enlightenment	14	3.5

Table 4.6.1: Factors inhibiting blood donation among respondents

N=363

Inhibiting factors	Frequency	Percentage (%)
If I am not fit	106	29.1
Fear of needles	40	11.0
Fear of death as a result of blood donation	32	8.8
Don't want to	30	8.3
If person that needs blood is not a family member	29	8.0
Fear of contracting infections (HIV, etc.)	28	7.7
If there are no extreme cases	26	7.2
If no money is involved	20	5.5
Not interested in donating blood	11	3.0
Have an infection (HIV, Hepatitis, etc.)	11	3.0
Don't think I have enough blood	10	2.9
It is risky	9	2.5
It is by choice for me	4	1.1
Warned not to donate	2	0.6
*Others	5	1.5

*Others: If I get to know that they will sell my blood, Don't have time, My religion kicks against it, Nothing, Am scared of seeing blood

Table 4.6.2: Barriers to blood donation among residents

Barriers	Yes(%)	No(%)	No response(%)
Sick/ not feeling well	243(60.8)	121(30.2)	36(9.0)
Fear of contracting transmittable infections	236(59.0)	123(30.8)	41(10.2)
Fear of death	216(54.0)	151(37.8)	33(8.2)
Not enlightened on blood donation	210(52.5)	151(37.8)	38(9.7)
Inadequate food	192(48.0)	165(41.2)	43(10.7)
Fear of needles	160(40.0)	201(50.2)	39(9.8)
Always stressed	155(38.8)	190(47.5)	55(13.7)
Lack of money	145(36.3)	192(48.0)	63(15.8)
My genotype does not permit me to donate	138(34.5)	221(55.3)	41(10.2)
Distance of blood donation centres	135(33.8)	185(46.2)	80(20.0)
Fear of knowing my health status (HIV, Hepatitis, Syphilis,	124(31.0)	222(55.5)	54 (13.6)
Have weight below 50kg	115(28.8)	206(51.5)	79(19.7)
Due to gynaecological reasons (i.e. pregnancy, breastfeeding, menstruation)	112(28.0)	247(61.8)	41 (10.3)
Bad experience from previous blood donation	95(23.8)	258(64.5)	47(11.7)
My spouse does not permit me	92(23.0)	225(56.2)	83(20.8)
My parents do not permit me	83(20.8)	237(59.2)	80(20.0)
My religion does not support it	66(16.5)	250(62.5)	83 (20.8)

4.7 Test of Hypotheses

The following hypotheses were tested in this study.

1. There is no significant relationship between the educational status and their level of knowledge of blood donation.
2. There is no significant association between knowledge of blood donation and practice of blood donation among residents on blood donation.
3. There is no significant relationship between marital status of respondents and their attitude towards blood donation.

4.7.1: There is no significant relationship between the educational status and their level of knowledge of blood donation.

Respondent's level of knowledge of blood donation was cross tabulated with their educational status using Chi-square statistics. The Pearson chi-square analysis revealed that there is a significant relationship between educational status and knowledge of blood donation with 4.0% having good knowledge, 39.3% having fair knowledge and 56.8% having poor knowledge. The observed result was statistically significant with p-value less than 0.05 (p- value=0.000). Therefore, the null hypothesis was rejected (see table 4.7.1).

Table 4.7.1: Relationship between knowledge level and educational status of respondents.

	Educational status of respondents							
		No education	Primary education	Secondary education	Tertiary education	Total	X^2	Df	p-value
Knowledge of blood donation									
	Poor	10	27	113	77	227			
	Fair	3	9	58	87	157	28.442	6	0.000
	Good	0	0	3	13	16			
	Total	**13**	**36**	**174**	**177**	**400**			

4.7.2: There is no significant association between knowledge of blood donation and practice of blood donation.

Respondent's level of knowledge of blood donation was cross tabulated with their practice of blood donation using Chi-square statistics. The Pearson chi-square analysis revealed that there is a significant association between knowledge and practice of blood donation with 4.0% having good knowledge, 39.3% having fair knowledge and 56.8% having poor knowledge. And also 18.3% having good practice and 81.8% having poor practice of blood donation. The observed result was statistically significant with p-value less than 0.05(p-value=0.048). Therefore, the null hypothesis was rejected (see table 4.7.2).

Table 4.7.2: Relationship between knowledge level and practice of blood donation among residents.

		Practice of blood donation					
		Poor	**Good**	**Total**	**X^2**	**df**	**p-value**
Knowledge of blood donation	**Poor**	195	32	227			
	Fair	120	37	157	6.088	2	0.048
	Good	12	4	16			
	Total	**327**	**73**	**400**			

4.7.3 There is no significant relationship between marital status of respondents and their attitude towards blood donation.

The marital status of respondents was cross tabulated with their attitude towards blood donation using Chi-square statistics. The Pearson chi-square analysis revealed that there is no significant relationship between marital status of respondents (with 58.2% being married, 39.0% single, 1.2% cohabiting, 0.8% widow/widower, 0.5% divorced, and 0.3% separated) and their attitude towards blood (83.0% had positive attitude, while 17.0% had negative attitude towards blood donation). The observed result was not statistically significant with p-value greater than 0.05 (p-value=0.244). Therefore, the researcher failed to reject the null hypothesis (see table 4.7.3).

Table 4.7.3: Relationship between marital status of respondents and their attitude towards blood donation.

	Attitude towards blood donation						
		Negative	**Positive**	**Total**	**X^2**	**df**	**p-value**
Marital status of respondents	**Single**	34	122	156	6.698	5	0.244
	Married	32	301	233			
	Others*	2	9	11			
	Total	**68**	**332**	**400**			

Others*: Divorced, Separated, Widow/widower, Cohabiting

CHAPTER FIVE

Discussion, Conclusion, Recommendation

5.1 Introduction

This study investigated the practice and factors influencing blood donation among residents. In this section, the results presented in the preceding chapter are well explained. It includes the explanation of the socio-demographic characteristics, the level of knowledge of blood donation among residents, practice of blood donation among the residents, attitudes of residents towards blood donation, the perceived benefits of blood donation among the residents, factors influencing (i.e. factors hindering or promoting) blood donation, conclusion and recommendations.

5.2 The socio-demographic characteristics of the respondents

Four hundred male and females between the ages of 18-65 years participated in the study and their mean age was 33.1±11.9 years. This is in consistence with the findings of an earlier study on community survey on blood donation practices in a northern state of Nigeria; Kwara state. It revealed that 95.4% of the respondents fall within the age bracket of 18-50 years; which implies that majority of the respondents was within the (active) working class population. The mean age was stated to be 28 ± 3.2 years. 67.3% of the respondents were married; also 61.1% of the respondents had post-secondary education. (Salaudeen, Musa, Awoyemi, Bolarinwa, Adegboye and Samuel, 2011). This is in consistence with another study conducted in Benin city Nigeria which revealed that 74.8% of the respondents had tertiary education (Benedict, Usimenahon, Nwannadi and Aigbe, 2012). Another study conducted on blood donor practices at two blood banks in Bayelsa state, Nigeria indicated that over 65% of the respondents were between the ages of 21-30 years. The study consisted of over 98% male respondents (Pondei, Lawani and Pughikumo, 2013). However, another study has 51.0% female respondents which is also in line but contrast with more female respondents than male respondents (Salaudeen and Odeh, 2011). A study in a developing country reveals that 580% are married, while 40% are single (Benedict, et al. 2012).

Majority of the respondents in this study were married. This is most likely due to the culture of the sample population. This is because individuals within the age of 18-65 years are expected to be married. The study area for this survey was South-Western

part of Nigeria; this explains why most of the respondents (85.2%) were of Yoruba ethnic group. Most of the respondents had at least secondary education (43.5%) and 44.3% had tertiary education.

5.3 Level of knowledge of blood donation among residents

Although many of the respondents have awareness of blood donation, only 3.3% of them have good knowledge of blood donation. This is a very poor level of knowledge.

In a study conducted in South India, only 35.65% of the respondents have on blood donation (Manikandan, Srikumar and Ryanthika, 2013). This is similar to a study among students of tertiary institution in Nigeria where <61.0% of respondents have good knowledge of blood donation (Salaudeen and Odeh, 2011). In a study 7.1% of respondents know their blood group (Salaudeen et al, 2011).

Among the respondents who participated in this study 44.5% answered that they do not know their blood group when asked to state their blood group. Although they initially answered that they know their blood group. This is likely due to low level of sensitization on blood donation. Education of the public plays an important role in blood donation. Lack of public awareness was responsible for a high rate of donor deferrals in Trinidad and Tobago (Pondei et al., 2013;Charles et al., 2010), and gaps in knowledge and practice were shown to affect voluntary blood donation in Nigeria (Pondei et al., 2013; Salaudeen et al., 2011).

5.4 Practice of blood donation among the residents

The result of this study revealed that only 19.8% of the respondents have donated blood before. This is consistent with a study conducted in Kwara state, Nigeria which revealed that less than one quarter (22.6%) of the respondents have ever donated blood, 43.4% have donated once and only 9.0 %have donated up to four times (Salaudeen et al., 2011).

In a study conducted in University of Benin teaching hospital among health workers, only 22.1% have donated blood before. Consistently, in a study among students of tertiary institution in Nigeria, 15% of the respondents have donated blood before with only 3.0% out of them being voluntary donors; others were replacement donors and remunerated donors (Salaudeen et al., 2011).

Furthermore, in a study in South India, 89.25 % of the respondents have never donated blood before (Manikandan et al., 2013). Also in a study conducted among physicians in a tertiary health facility of a developing country, 58.6% have never donated blood before, while 41.4% have donated before (Benedict et al., 2012).

In this study, 0.5% of the respondents donated more than 3 times a year while 10.8% donated less than 3 times a year. 3.5% of the respondents donated less than 6 months ago. A total of 9.3% of the donors donates because a family member and/or a friend needed blood transfusion while 5.5% were voluntary donors. 23.8% gave the reason of not donating because they have not been approached to donate yet, 15.5% said no need to donate yet 0.3% said their religion is against blood donation. However, 68.0% of the respondents said they would donate their blood if called upon (non-donor) or reminded to do so (donors).

It was also found that among the few respondents that had donated blood before. Among the few respondents who had donated before, 58.2% were males and 41.8% females. Also, 68.3% were married. This is in consistence with a study in Oslo, Norway by Misje, Bosnes, Gasdal and Heier, (2005) in which 53% and 47% were male donors and female donors respectively and 49.0% were married. Majority of the donors (95%) had at least secondary education, and 51.9% are within the age of 26-45 years. 29.1% were traders, 13.9% artisans, 22.8% workers, 11.4% students and also 1.3% were unemployed. Many of them 84.8% were Yoruba, 11.4% were Igbo and 3.8% were Hausa. Also, 64.6% were Christians while 35.4% were Muslims.

5.5 Attitude of residents towards blood donation

It was revealed in this study that majority (77.5%) of the responded had positive attitude to blood donation. In consistence with a study conducted majority of the respondents (63.49%) showed positive attitude to blood donation, While 36.4%had negative attitude. This is in consistence with a study on knowledge, attitude and perception towards voluntary blood donation in china; (Uma, Arun and Arumugam, 2013) it revealed that the attitude of our donors was favourable in their perception that blood donation would not harm their body (74%). The general opinion of the blood donors was that creating an opportunity for blood donation would play an important role in motivating them to donate blood. They (99.2%) also emphasized that voluntary donation was the best option as compared to the other donations, which was

concordant with the findings of the study which was done by Olaiya et al., 2004; Uma et al., 2013).

5.6 Perceived benefits of blood donation among residents

Based on this study, (63.3%) respondents said the benefits of donating blood was to know infection status of donor, 63.0% said to know genotype and also 65.8% also said to know blood group. Half (50.0%) respondents spontaneously said the benefit is to save lives.

This is in consistence with a study conducted in a northern state of Nigeria where 63.6% of the respondents said the benefit was to save life, 19.6% said it was to know blood group, HIV status and to know genotype of donor (Salaudeen et al., 2011).

5.7 Factors influencing blood donation among residents

It was revealed that the factors that can motivate blood donation are if critical need arise, to save life and for a family member or a friend that needed blood transfusion. Also some respondents stated that they will donate blood voluntarily regardless of the conditions or situation. It was also revealed that encouragement in terms of explanation of procedures, enlightenment, and reassurance will go a long way in motivating people to donate blood. In consistence, it was revealed in a study that two hundred and fifty (47.2%) donors mentioned that the reason for their first time donation was that they had done it for their friends/ relatives. Also (47.8%) donors, who included first time donors, were willing to become regular donors and they were ready to donate blood once in a year. Three hundred and ninety six (74.7%) donors had a feeling of satisfaction after the blood donation. It was also revealed that 305 (57%) donors felt that creating an opportunity for the donation was an important factor for motivating the blood donation (Uma et al., 2013).

On the other hand, in the study, factors inhibiting blood donation were majorly due to sickness/ illnesses, lack of enlightenment, fear of death, fear of contracting infections, fear of needles, fear of knowing infection status of donor, inadequate food, lack of money due to poor economy and distance of blood donation centres this is in consistence with a study on voluntary blood donors in which revealed that 292 (55%) donors felt that the fear of pain was the main reason for the hesitation of the donors in donating blood. The donors also mentioned that the main reason for their hesitation in

donating blood was the fear of pain (55%), which were similar to the findings of a study which was done by Olaiya et al. in 2004 (Uma et al., 2013).

5.8 Implications of Findings to Health Promotion and Education

Findings of this study reveal that respondents are not enlightened on blood donation. Thus, there is a very wide gap in knowledge of blood donation. People have the awareness of blood donation as a necessity to save the life of loved ones when they are in need of blood transfusion in critical situations. People do not know the severity and seriousness of unavailability of blood as at the required period. Also, there were misconceptions about blood donation and these tend to have a negative effect on the practice. People are also not aware of the health benefits of blood donation to the blood donor.

Also, the distance and location of blood donation centres was a barrier that hindered most potential donors from donating. Although this seemed not to be a problem for replacement donors; as their primary aim was to save the life of their loved ones at all cost. Therefore, more blood donation centres should be provided in order to address the problem of distance and accessibilityof blood donation centres.

Majority of the few people who had donated before are replacement donors, while very few are voluntary donors. However the replacement donor knowledge, attitude and practice get improved after they had donated blood for the first time.

It was also noted that at the time of urgent need of blood to be transfused to a patient, there was time lapse between getting a compatible donor, donating the blood and making the blood available to the recipient. The time lapse all these processes take determine to a large extent if the patient's life will be saved or not. There is also the possibility of transfusing an unsafe blood or incompatible blood to the patients due to urgency and this can result into complications.

Therefore the health implication of unavailability of compatible blood when needed is increased morbidity and mortality. This can be prevented by making safe blood available at all times through improved practice of voluntary blood donation among the eligible population.

5.9 Conclusions

This study has shown that there is still a serious problem with making safe blood available in order to save lives and in all indication, people will continue to die as a result of unavailability of safe blood as at the time needed. Residents in Ibadan North-west Local Government Area still do not know about the need for ensuring availability of safe blood. This is because they are not well-informed. The knowledge of blood donation is very poor as only 4.0% of the respondents have good knowledge of blood donation and majority of the respondents are still of the opinion that there must be an urgent need of blood for a family member, relative or friend before they can consider donating blood. And most times, due to some conditions attached to making the blood available, the victim that needed blood transfusion may end up dying due to unavailability of safe blood as at when due. This is a major setback for Millennium Development Goals four, five and six. Although, many people are aware of blood donation, majority do not consider it as a necessity. Some have misconceptions that blood donation leads to death of the donor. Some even believe that they do not have enough blood, not to think of donating blood for another person. But they will want to donate blood at all cost when an emergency situation arises; when their family or relatives need blood transfusion urgently either due to blood loss or insufficient blood.

Also another point was revealed by this study that although people have positive attitude towards blood donation, however the practice of blood donation is very low as only 19.8 % of the respondents have donated blood before. Study Participants who have donated at least once before; most especially all the voluntary donors and also majority of the replacement donors have better understanding of the benefits of blood donation to both the recipient and also to the donor. They thus do not have misconceptions, but rather they had a good knowledge, attitude and perception towards blood donation and they affirmed that they would like to donate their blood again. They also do not need any encouragement to donate blood as they see it as being beneficial to their health.

Female respondents who have donated blood before picked four months as the interval period for blood donation. Majority of the male donors were replacement donors, who through their experienced affirmed that donating blood does no harm, but

rather is of benefit to the blood donor as well as the blood recipient. They also indicated their interest to donate blood again voluntarily in the nearest future. It was also noted that voluntary donors want to donate blood again voluntarily and are vehemently against those who donate blood for money or economic gain. It was also noted from the information on barriers to blood donation documented from the information provided by the respondents that the factors inhibiting blood donation among the residents outweigh the factors promoting it. The major perceived benefits of donating blood as stated by the respondents were to know their blood group, HB-genotype, and to know their infection status. However, many of the respondents stated that it is for health challenges and also for healthy living. Less than half of the respondents said the benefit of blood donation is to save life and few said it is safe to donate blood. Some also mention the benefit of blood donation as money or economic gain. Also some respondents mentioned that donating blood has spiritual benefits as it will make them to be closer to God and it has spiritual blessings.

Conclusively, there is need for orientation and re-orientation, advocacy, sensitization and public enlightenment to promote blood donation practices in order to save lives and as a means of achieving Millennium Development Goals four, five, six, and eight.

5.10 Recommendations:

The following recommendations are made to address the findings of this research.

i. Education of public is very important in blood donation. There should be continuous public enlightenment on blood donation. This is because most people are enlightened only when they want to donate blood or during special programmes on blood. There should also be adequate counselling of both donors and deferred donors who are not fit to donated blood at a particular point in time.

ii. People should also be encouraged to find out their blood groups so as to save ample time when trying to get blood during emergencies. Also organizations should allow employees to have a copy of their medical test results conducted by their employees during documentation and orientation into the organization. Health facilities should also allow patients to have a copy of the test results conducted on them. This will keep people informed about their health status.

iii. The recording system at blood donation centres should be further enhanced in order to provide adequate data generation as well as follow-ups.

iv. More centrally regulated blood donation centres should be established in order to improve accessibility for potential donors. And also to curb the atrocities of the private laboratories and clinics who offer poor services which can jeopardise the lives of both blood donors and blood recipients

v. Advocacy and coordinated efforts by governments, donor agencies, technical agencies and other stakeholders are urgently needed in Africa. Progress depends on raising the need for safe blood on health and development agendas, and mobilizing increased political commitment and funding among African countries (Neelam Dhingra, 2006).

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APPENDIX I

(English Version of the Questionnaire)

QUESTIONNAIRE ON PRACTICE AND FACTORS INFLUENCING BLOOD DONATION AMONG RESIDENTS IN IBADAN NORTH WEST LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA.

Greetings, my name is _____, from theDepartment of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Oyo State.

The purpose of this research is to investigate the Blood Donor Characteristics and Factors Influencing Blood Donation among Residents in Ibadan North West Local Government Area, Oyo State, Nigeria. This questionnaire contains questions which will be easy to answer. Your completion of this questionnaire is absolutely voluntary. And your participation in this study will be highly appreciated as it will help in the development of an intervention as well as a policy programme.

However, if you decide not to participate in this study, you will neither suffer any discrimination nor harm. We promise that the information provided will be highly confidential; and to this effect, your name will not be required.

Thank you for your kind cooperation.

***Instruction**: Please tick (√), or write where necessary in the spaces provided below.*

SECTION A: <u>Socio-demographic information</u>

1. Gender 1. Male [ ] 2. Female [ ]
2. Age *(at last birthday)*_____
3. Educational status
   1. No Education [ ] 2. Primary education [ ]
   3. Secondary education [ ] 4. Tertiary education *(Poly, NCE, University)* [ ]
   5. Others *(please specify)* _____
4. Marital status
   1. Single [ ] 2. Married [ ] 3. Divorced [ ] 4. Separated [ ]
   5. Widow/Widower [ ] 6. Cohabiting [ ]
5. Ethnic group 1. Yoruba [ ] 2. Hausa [ ] 3. Igbo [ ] 4.Others-*(Pleasespecify)*_____
6. Occupation 1. Student [ ] 2. Civil servant [ ] 3.Private worker [ ] 4.Trader [ ] 5. Apprentice [ ] 6. Driver [ ] 7. Artisan [ ] 8. Farmer [ ] 9.Unemployed [ ] 10. House wife [ ]
   11.Professional *(Dr, Lawyer, Nurse, Engineer, architect)*[ ] 12.Others*(please specify)*_____
7. Religion 1. Christianity [ ] 2. Islam [ ] 3. Traditional [ ]
   4. Others [ ] *(please specify)* _____

SECTION B: <u>Knowledge of blood donation</u>

8. Do you know the common blood groups? 1. Yes [ ] 2. No [ ]
9. Do you know your blood group? 1. Yes [ ] 2. No [ ]
10. What is your blood group? 1. A Positive [ ] 2. A Negative [ ] 3.AB Positive [ ] 4. AB Negative [ ] 5. B Positive [ ] 6. B Negative [ ] 7. O Negative [ ] 8. O Positive [ ] 9. I don't know [ ]
11. Can a person be infected by receiving blood transfusion? 1. Yes [ ] 2. No [ ]
12. Who should donate blood? (*Tick all mentioned*) 1. Men [ ] 2. Women [ ] 3.Young *(below 18 years)* [ ] 4. Adult *(18-65years)* [ ] 5. Aged *(above 65 years)* [ ] 6. Vulnerable group *(refugee, prisoner, mentally derailed, physically challenged)* [ ] 7. Healthy person [ ] 8. Sick person [ ]
13. Who should not donate blood ? (*Tick all mentioned*) 1. Men [ ] 2. Women [ ] 3. Young *(below 18years)* [ ] 4. Adult *(18-65years)* [ ] 5. Aged *(above 65 years)* [ ] 6. Vulnerable group *(refugee, prisoners, mentally derailed, physically challenged)* [ ] 7. Healthy person [ ] 8. Sick person [ ]
14. How often can an individual donate? 1. Weekly [ ] 2. Monthly [ ] 3. Every 3 months [ ] 4.Every 4 months [ ] 5. Every 6 months [ ] 6. Yearly [ ] 7. As much as need arises [ ] 8. I don't know [ ]
15. What volume of blood is collected during each donation? 1. Below 300mls [ ] 2. 300-350mls [ ] 3. 350-400mls [ ] 4. 400-450mls [ ] 5. 450-500mls [ ] 6. 500–1000mls [ ] 7. Above 1000mls [ ] 8. I don't know [ ]
16. What diseases are transmissible by blood transfusion? *(Tick all mentioned)*
    1. HIV [ ] 2. Hepatitis B Virus [ ] 3. Hepatitis C Virus [ ] 4. Syphilis [ ] 5. Malaria [ ] 6. CMV (Cytomegalovirus) [ ] 7. Ebola [ ] 8. Diabetes [ ] 9. Gonorrhoea [ ] 10.Haemophilia [ ] 11. No disease [ ] 12. I don't know [ ]

17. How many minutes is a blood donation process? 1. Less than 10 minutes [ ] 2. 10-30minutes [ ] 3. 30–50minutes [ ] 4. Above 50 minutes [ ] 5. I don't know [ ]
18. Have you heard of blood donation? 1. Yes [ ] 2. No [ ]
19. How did you get to know about blood donation? *(Tick all mentioned)*
    1. Television [ ] 2. Radio [ ] 3. Books [ ] 4. Health workers [ ] 5. Friends [ ] 6. Family/ Relatives [ ] 7. School [ ] 8. On cars as advert [ ] 9. During outreach/ sensitization [ ] 10. Religious group [ ] 11. Hear around [ ] 12.Internet [ ]
    13.Others*(Pleasespecify)*_____
20. When is blood transfusion required? *(Tick all mentioned)* 1. During blood loss [ ] 2. When there is insufficient blood [ ] 3. During accident [ ] 4. In sickness [ ] 5. During pregnancy [ ] 6. During childbirth [ ] 7. I don't know [ ] 8.Others *(Please specify)*_____
21. Who needs blood transfusion? *(Tick all mentioned)* 1. Surgery patients [ ] 2.Pregnant women [ ]3. Sick people [ ] 4. SS genotype patients [ ] 5. People with insufficient blood [ ] 6. Accident victims [ ] 7. Women who just gave birth [ ] 8.Others *(Please specify)*_____
22. Do you know the different types of blood donors we have? 1. Yes [ ] 2. No [ ]
23. What are the types of blood donor? *(Tick all mentioned)* 1. Voluntary donor [ ] 2. Replacement donor [ ] 3. Remunerated donor [ ] 4. Self-donor (Autologous) [ ] 5. I don't know [ ] 6.Others*(please specify)*_____

SECTION C: <u>Practice of blood donation</u>

24. Have you donated blood before? 1. Yes [ ] 2. No [ ] ***(if no, please go to question 29)***
25. How often do you donate? 1. Less than 3 times a year [ ]
    2. 1-3 times a year [ ] 3. More than 3 times a year [ ]

26. How many times have you donated before? 1. One time [ ] 2. Two times [ ]3. Three times [ ] 4. Four times [ ] 5. Five times [ ] 6. Above five times [ ] 7. Never [ ]

27. When was the last time you donated blood? 1. Less than 6 months ago [ ] 2. 6 months ago [ ] 3.6-12 months ago [ ] 4. 1-2 years ago [ ] 5. 3-4 years ago [ ] 6. More than 5 years ago [ ]

28. Why did you donate? 1. A family member needed blood transfusion [ ] 2. A friend needed blood transfusion [ ] 3. A relative needed blood transfusion [ ] 4. Voluntary [ ] 5. Remuneration [ ] 6. To know my screening status [ ]

(If you have donated blood before, please skip question 29)

29. Reasons for non-donation by non-donors. 1. Not approached to donate [ ] 2.Unfit to donate [ ] 3.Need to donate for family or relatives in future [ ] 4. Need to donate for friends in future [ ] 5. Fear of needles [ ] 6. Fear of knowing my status [ ] 7. Due to pregnancy and Breastfeeding [ ] 8. Because of my health condition [ ]9. Because of my genotype [ ] 10. I don't know the person(s) that needs it [ ] 11. No need yet [ ] 12. Poor economic situation [ ] 13. I don't have enough blood [ ]
14. Others *(please specify)*_____

30. Will you donate if called upon or reminded to do so? 1. Yes [ ] 2. No[ ]

31. If No, why? 1. I don't think I have enough blood [ ]
2. I am afraid [ ] 3. I am satisfied and I don't need money [ ] 4. Others *(Please specify)*_____

32. Can you encourage family or relatives to donate blood? 1. Yes [ ]
2. No [ ]

33. If No, why? 1. Because I cannot do it [ ] 2. Because I don't know their feelings about it 3. Because Individual willingness is different [ ] 4. Others *(Please specify)*_____

34. Can you encourage friends to donate blood? 1. Yes [ ] 2. No [ ]

35. If No, why? 1. Because I cannot do it [ ] 2. Because I don't know their feelings about it 3. Individual behaviour will prevent me 4. Others *(Please specify)*_____

SECTION D: <u>Attitude towards blood donation</u>

36. What do think about blood donation?

		Agree	**Disagree**	**Undecided**
i.	It is good			
i.	It is bad			
ii.	It is Godly			

37. I believe something happen to a blood donor during or after donation

1. Agree [ ] 2. Disagree [ ] 3. Undecided [ ]

38. I think the following can happen to a blood donor during or after donation

		Agree	**Disagree**	**Undecided**
i.	Donor can contract infection(s)			
ii.	Donor can have temporary weakness			
iii.	Donor can fall sick			
iv.	Donor can die due to donation			
v.	Nothing can happen to donor during/after blood donation			

39. I feel patient's family/ relatives be asked to donate blood 1. Agree [ ] 2. Disagree [ ] 3. Undecided [ ]

40. I feel a patient's family be asked to donate blood due to the following reasons:

		Agree	Disagree	Undecided
i.	For blood compatibility			
ii.	Because they are family members			
iii.	If need be			
iv.	To save a life			
v.	Because they can buy			
vi.	Because of love			

SECTION E: <u>Perceived Benefits of blood donation</u>

41. Do you see blood as a means to save life of blood recipient? 1. Yes [ ] 2. No [ ]

42. Do you think there are other benefits of donating blood? 1. Yes [ ] 2. No [ ] 3. I don't know [ ]

43. What do you think are the benefits of blood donation to the donor?

		Spontaneously	Prompt	
			Yes	No
i.	To know ones blood group			
ii.	To know ones Hb-genotype			
iii.	Help reduce obesity			
iv.	Spiritual satisfaction			
v.	Know HIV & other infection status of donor			
vi.	For money/economic gain			
vii.	To save life			
viii.	For health challenges			
ix.	For healthy living			
x.	It is safe for me			

44. Are there any other benefits you derive from donating blood aside the ones mentioned? 1. Yes [ ] 2. No [ ]

SECTION F: <u>Factors Influencing Blood Donation</u>

45. Would you want to donate blood? 1. Yes [ ] 2. No [ ]

46. What would make you to donate blood? 1. If critical need arises [ ] 2. To save life [ ] 3.For a family member [ ] 4. For someone I know [ ] 5. Voluntarily [ ] 6. In extreme cases [ ] 7. If the person is a friend [ ] 8. If lover needs blood [ ] 9. To show compassion [ ] 10. For someone I know [ ] 11. Remuneration [ ] 12. If I am fit [ ] 13. Absolutely nothing will make me want to donate blood [ ]

47. What would make you not want to donate blood? 1. If I am not fit [ ] 2. Fear of needles [ ] 3. Fear of death as a result of blood donation [ ] 4. I don't want to [ ] 5. If person that needs blood is not a family member [ ] 6. Fear of contracting Infections (HIV, etc.) [ ] 7. If there are no extreme cases [ ] 8. If no money is involved [ ] 9. I am not interested in donating blood [ ] 10. I have an infection (HIV, Hepatitis, etc.) [ ] 11. I don't think I have enough blood [ ] 12. It is risky [ ] 13. If it is by choice for me [ ]

48. Do you need encouragement to donate blood? 1. Yes [ ] 2. No [ ]

49. What kind of encouragement do you need to donate blood? 1. Reassurance [ ] 2.Explanation of procedures [ ] 3. If my blood is the only blood available to save life [ ] 4. Money [ ] 5.Enlightenment [ ]

SECTION G: <u>Barriers towards Blood Donation</u>

50. What are the barriers why people don't want to donate blood?

Barriers	Mention	Not mention
Distance/ Location of blood donation centres		
Lack of money		
Inadequate food		
I am sick/ not feeling well		
I have weight below 50kg		
I am always stressed		
My genotype does not permit me to donate		
I am not enlightened on blood donation		
Fear of needles		
Fear of death		
Fear of contracting transmittable infections		
My spouse does not permit me		
My parents do not permit me		
My religion does not support it		
Fear of knowing my health status (HIV, Hepatitis, Syphilis,		
Bad experience from previous blood donation		
Due to gynaecological reasons (i.e. pregnancy, breastfeeding, menstruation)		

Thank you for your cooperation.

APPENDIX II

(Yoruba Version of the Questionnaire)

IBEERE FUN IWADI LORI ASA ATI OUN TI O ROMO FIFI EJE SILE LAARIN AWON OLUGBE NI AGBEGBE IJOBA IBILE ARIWA-IWO ORUN, ILU IBADAN NI IPINLE OYO, ILE NIGERIA.

Mo ki yin, oruko mi ni _____ lati Eka Igbelaruge ati Ikeko nipa Ilera, ni ile Eko Isegun ti Unifasiti Ibadan.
Awọn eko iwadi mi da lori sise iwadi awon abuda oriririsi ti awon olufiejesile je ati oun ti o romo fifi eje sile laarin awon olugbe ni agbegbeijoba ibile Ariwa-Iwo Orun, Ilu Ibadan ni Ipinle Oyo,ile Nigeria.

Ibeere yii ni ìbéèrè eyi ti yoo rọrun lati dahun. Pipari ibeere yii jẹ egba atinuwa. Atiwipe ikopa ninu iwadi yi yoo wa ni abẹ abo giga, yoo si ran idagbasoke ti ẹya ilera lowo daradara ati amulo eto.

Sugbon, ti o ba ti pinnu lati ma kopa ninu iwadi yi, o ki yoo jiya eyikeyi iyasoto tabi ipalara. A ṣèlérí pé idahun ti o o pese yoo wa ni ipamon gidigidi; atiwipe ako ni beere fun oruko re.

E ṣeun pupo fun ifowosowopo yin.

E maaki *(√),* tabi ki eko idahun ti o ba ye si awon aye ti a pese si iwaju awon ibeere.

EKA A: AWON ABUDA ENI TI A JE

1. Okunrin ni o ni tabi Obinrin? 1. Okunrin [ ] 2. Obinrin[ ]
2. Kinni ojo ori re ni ojo ibi re to kehin?_____
3. Kini iwe kika re ti o ga julo? 1. Nko ka iwe Kankan[ ]
   2.Alakobere [ ] 3. Ile eko girama [ ] 4. Ile eko giga[ ]
   5. Awon miran *(salaye)*_____
4. Osuwon Igeyawo 1. Apon/ ko tii gbe'yawo[ ] 2. Ti gbe'yawo [ ] 3. Ikosile[ ] 4. Yapa [ ] 5. Opo[ ] 6. Akan ngbe papo ni [ ]
5. Eya 1. Yoruba [ ] 2. Hausa [ ] 3. Igbo [ ] 4. Awon miiran *(daruko)*_____
6. Ise onje Oojo 1. Akeekoo [ ] 2. Ise-ijoba[ ] 3. Ise adani[ ] 4. Okowo[ ] 5. Eni-ikose[ ] 6. Awako[ ]
   7. Onise owo[ ] 8. Agbe [ ] 9. Nko ni ise[ ] 10. Iyawo ile [ ]
   11. Akosemose (*Dokita, Loya, Onimoero, Olukole)* 12. Awon miiran *(salaye)*_____
7. Kinni esin re? 1. Kristieni [ ] 2. Musulumi [ ] 3. Alawo[ ]
   4. Awon miiran *(daruko)*_____

EKA B: IMO NIPA IFI EJE SILE

8. Nje o mon eje egbe ti o wopo? 1. Beeni [ ] 2. Beeko [ ]

9. Nje o mon egbe eje re? 1. Beeni [ ] 2. Beeko [ ]

10. Kini egbe eje re? 1. A Positive [ ] 2. A Negative [ ] 3. AB Positive [ ] 4. AB Negative [ ] 5. B Positive [ ] 6. B Negative [ ] 7. O Negative [ ] 8. O Positive [ ] 9. Mi o mon [ ]

11. Nje omo boya eniyan le ko arun nipa gbigba eje? 1. Beeni [ ] 2. Beeko [ ]

12. Tani oye ki o fi eje sile? *(mu eyikeyi idahun)* 1. Okunrin [ ] 2.Obinrin[ ] 3. Omode [ ] 4. Agbalagba [ ] 5. Eni ipalara/ijamba [ ] 6. Eni ti o wa ni ilera[ ] 7. Eni ti oni aarun[ ] 8. Alaisan [ ]

13. Tani ko ye ki o fi eje sile? *(mu eyikeyi idahun)* 1. Okunrin [ ] 2. Obinrin [ ] 3. Omode [ ] 4. Agbalagba [ ] 5. Eni ipalara [ ] 6. Eni ti o wa ni ilera[ ] 7. Eni ti oni aarun[ ] 8. Alaisan [ ]

14. Bawo lo se se deedee si ki eniyan fi ejesile? 1. Osoose [ ] 2. Osoosu [ ] 3. Eekan ni osu meta [ ] 4.Eekan ni osu merin [ ] 5. Eekan ni osu mefa [ ] 6. Odoodun [ ] 7. Mi o mon[ ]

15. Idiwon eje melo ni won ma ngba fun ifejesile? 1. koto 300mls [ ] 2. 300-350mls [ ] 3. 350-400mls [ ] 4. 400-450mls [ ] 5. 450-500mls [ ] 6. 500–1000mls [ ] 7. Opoju 1000mls [ ] 8. Mio mon [ ]

16. Awon aarun wo lo see ko nipase ifejesile? *(Mu eyikeyi idahun)* 1. HIV [ ] 2. Hepatitis B Virus [ ] 3. Hepatitis C Virus [ ] 4. Syphilis [ ] 5. Iba [ ] 6. CMV (Cytomegalovirus) [ ]

17. Iseju melo ni ifejesile man gba? 1. Ko to 10 minutes [ ] 2. 10-30minutes [ ] 3. 30–50minutes [ ] 4. O koja 50 minutes [ ] 6. Mi o mon [ ]

18. Nje oti gbo nipa fifi eje sile? 1. Beeni [ ] 2. Beeko [ ]

19. Bawo le se mo nipa ifejesile?*(Edaruko)* 1. Telefisan [ ] 2. Radio [ ]

3. Inu iwe [ ] 4. Onise ilera [ ] 5. Oree [ ] 6. Ebi tabi Ara [ ] 7. Ile-iwe [ ] 8. Lori oko ikede [ ] 9. Nigba ikede ita gbamgba [ ] 10. Ile isin [ ] 11. Mogbo kaakiri [ ] 12. Ninu ero ayelujara [ ] 13. Omiran *(Ejowo edaruko)*_____

20. Igbawo ni eniyan nilo lati gba eje? *(Edaruko)* 1. Nigbati eje ba tan lara [ ] 2. Tigba tie je ko ba to[ ] 3. Nigba ijanba [ ] 4. Nigba ailera [ ] 5.ninu oyun [ ] 6. Nigba irobi [ ] 7. Mi o mon [ ] 8.Omiran *(Ejowo eda'ruko)*_____

21. Talo nilo lati gba eje? *(Edaruko)* 1. Onise abe [ ] 2. Alaboyun [ ] 3. Alaisan [ ] 4. Awon to ni egbe eje SS [ ] 5. Omiran *(Ejowo eda'ruko)*_____

22. Nje o mo orisi olufejesile ti owa? 1. Beeni [ ] 2. Beeko [ ]

23. Awon olufeje sile wo ni ani? *(Edaruko)* 1. Olufejesile Atinuwa [ ] 2. Olufejesile iropo [ ] 3. Olufejesile nitori owo [ ] 4. Ifejesile fun ara eni [ ] 5. Lilo ogun fun eje [ ]

EKA D: ASA FIFIEJESILE

24. Nje oti fi eje sile ri? 1. Beeni [ ] 2. Beeko [ ]***(t'oba je Beeko, jowo losi ibeere 29)***

25. Igba melo ni o n fi eje sile lodun? 1. Koto e meta l'odun[ ] 2. Ekan-si-emeta l'odun[ ] 3. Oju emeta l'odun lo [ ]

26. Eemelo ni oti fi eje s'ile ri? 1. Eekan[ ] 2. Eemeji[ ] 3. Eemeta[ ] 4. Eemerin[ ] 5. Eemarun[ ] 6. Oju eemaru lo[ ] 7. Emiko fiejesile ri[ ]

27. Igba wo ni o fi eje sile gbeyin? 1. Koto osu mefa s'eyin[ ] 2. Osu mefa s'eyin[ ] 3. Osu mefa-si- osu mejila seyin[ ] 4. Odun kan –si-mdun meji seyin[ ] 5. Odun meta–si-odun merin seyin[ ] 6. Oju odun marun seyin lo[ ]

28. Kilode ti o fi fiejesile? 1. Ebi mi nilo eje[ ] 2. Ore mi nilo eje[ ] 3. Ara nilo eje[ ] 4. Atinuwa[ ] 5. Fun owo tabi ebun[ ] 6. Lati mo ipo ilera mi [ ]

(ti o bati fi eje sile ri, jowo fo ibeere 29)

29. Kini idi ti e ko fi fiejesile ri? 1. Mi o ri eni wa gba ri[ ] 2. Mi o da pelati fiejesile[ ] 3. Mo nilo lati fun ebi tabi ara ni ojo iwaju [ ] 4. Mo nilo lati fun ore ni ojo iwaju[ ] 5. Moberu abere[ ] 6. Eru n bami lati mo ipo ilera mi [ ] 7. Nitori ipo iloyun ati fifun omo ni oyan[ ] 8. Nitori ipo ilera mi[ ] 9. Nitori egbe eje mi[ ] 10. Omiran*(jowo daruko)*_____

30. Nje iwo yoo fi eje sile ti a ba pe o tabi ran e l'eti? 1. Beeni[ ] 2. Beeko[ ]

31. T'oba je Beeko, kini'di? 1. Mio ro wipe mo ni ejopupo lara[ ] 2. Eeru n bami [ ]3. Nitori mi o nilo owo [ ] 4.Omiran*(jowo daruko)*_____

32. Nje o gba ebi tabi ara ni'moran lati fiejesile? 1. Beeni [ ] 2. Beeko [ ]

33. T'oba je Beeko, kini'di? 1. Nitoripe mio lese [ ] 2. Nitori mi o mo bi yoo seri lara won [ ] **3.** Nitori erongba onikaluku yato [ ] 4.Omiran*(jowo daruko)*_____

34. Nje o gba ore ni'moran lati fiejesile? 1. Beeni[ ] 2. Beeko[ ]

35. T'oba je Beeko, kini'di? 1. Nitoripe mio lese [ ] 2. . Nitori mi o mo bi yoo seri lara won [ ] 3. Nitori iwa onikaluku yoo di mi l'owo[ ] 4.Omiran*(jowo daruko)*_____

EKA E: IWA FIFI EJE SILE

36. Kini ero re nipa fifiejesile?

	Mogba	Mio gba	Mi o le so
O dara			
Ko dara			
Oni laadaa			

37. Mo gbagbo wipe nkan le sele si eniyan lehin ti o ba fi ejesile? 1. Mo gba [ ] 2. Mi o gba [ ] 3. Mi o le so[ ]

38. Iwonyi ni oun ti mo ro wipe o le sele si eniyan nigbati oba fi eje sile lowo tabi tio bati fi sile tan?

	Mo	**Mi o**	Mi o

	gba	**gba**	le so
Olufejesile yoo ko arun			
Yio reefun igba die			
Olufejesile le se aisan			
Olufejesile le ku nitori fifi eje sile			
Ko si nkan ti o le se e			

39. Mo ni ero wipe oye ki a wipe ki ebi tabi ara alaisan ki won fi eje sile? 1. Mo gba [ ] 2. Mi o gba[ ] 3. Mi o le so[ ]

40. Mo ni ero wipe oye ki a wipe ki ebi tabi ara alaisan ki won fi eje sile. Nitrori awon idi eyi:

	Mo gba	**Mi o gba**	**Mi o le so**
Fun ibamu eje			
Nitori won je ebi			
Ti won ban i lo			
Lati doola emi			
Nitori pe won le raa			
Nitori ife			
Nitori pe won le raa			

EKA E: ANFANI FIFI EJE SILE

41. Nje ori eje gege bi ona ati doola emi awon to ngba eje naa sara? 1. Beeni[ ] 2. Beeko[ ]

42. Nje o ro wipe awon anfani miiran wa nipa fifi eje sile? 1. Beeni [ ]

2. Beeko [ ] 3. Nko mon [ ]

43. Kini anfani ti oro wipe fifi eje sile je fun olufiejesile?

S/N	Anfani	Idahun lalai jafara	Idahun leyin ijafara	
			Beeni	Beeko
i.	Lati mon egbe eje eni			
ii.	Lati mo genotype eni			
iii.	Lati din sisanra ku			
iv.	Nitori oun tie sin fe kin se			
v.	Lati mo ipo arun HIV ati awon arun miran			
vi.	Nitori owo tabi anfani			
vii.	Lati doola emi			
viii.	Lati wo ailera olufejesile san			
ix.	Fun igbe aye Alafia			
x.	Nitori wipe ko dami l'egbodo			

44. Nje anfani miiran wa ti on je nipase fifiejesile lehin eyi ti ati daruko?1. Beeni [ ] 2. Beeko[ ]

EKA E:<u>OUN TI O ROMO FIFI EJE SILE (</u>Factors Influencing Blood Donation)

45. Nje iwo yoo fe fi ejesile? 1. Beeni[ ] 2. Beeko[ ]

46. Kini ole mu o fe fi ejesile? 1. Ti oba di karangida [ ] 2. Lati doola emi [ ] 3. Fun ebi [ ] 4. Fun eni ti mo mon [ ] 5. Lati inuwa [ ] 6. Ni asiko ti o ba lee gidi gan [ ] 7. Fun ore [ ] 8. Fun ololufe [ ] 9. Lati s'aanu [ ] 10.fun eni ti mo mon [ ] 11.asiko ti o ba lee gidi gan [ ] 12. Ti o ba di karangida [ ] 13. Owo [ ] 14. Ti nba ni okun lati se [ ] 15. Nkankan ole mumi f'ejesile [ ]

47. Kini ole mu o lati ma fe fi ejesile? 1. Ti mio ban i okun lati se [ ] 2. Eru abeere [ ] 3. Eru iku nipase fifi eje sile [ ] 4. Mii o fe se [ ] 5. Ti eni ti o nilo eje ko ba je ebi/ara mi [ ] 6. Eru kiko arun bii HIV [ ] 7. Ti ko ba pan dandan [ ] 8. Ti ko ban mu owo wa [ ] 9.Ti ko ba wu mi [ ] 10. Mo ni aarun (bii HIV, Hepatitis) [ ] 11. Mi o ro wipe eje po lara mi [ ] 12. Olewu [ ] 13. O je oun ti mole pinu latise tabi lati ma se [ ]

48. Nje o nilo igbani ni iyanju lati fi ejesile? 1. Beeni[ ] 2. Beeko[ ]

49. Iru igbani ni iyanju won i o nilo lati fi eje sile? 1. Owo [ ] 2. Isalaye bi won se nse [ ] 3. Ti o ba je eje mi nikan ni yoo doola emi [ ] 4. Owo [ ] 5. Ilani l'oye [ ]

IDENA FIFI EJE SILE

50. Awon Idena Fifi Eje Sile

S/N	Awon idena	Da'ruko	Ko Da'ruko
i.	Ibi ti ibudo ifejesile wa		
ii.	Aisi owo		
iii.	Aisi ounje		
iv.	Ara mi ko da/ aisan		
v.	Idiwon ara mi koto 50kg		
vi.	O ma n re mi nitori wahala ni gbogbo igba		
vii.	Genotype mi ko fi aye gba kin fiejesile		
viii.	Mi o mon nipa ifejesile		
ix.	Mo beru abere		
x.	Eru wipe yoo fa iku		
xi.	Eru kiko awon arunlati ara fifejesile		
xii.	Oko/Aya mi ko gba mi laye lati fiejesile		
xiii.	Obii mi ko gba mi laye lati fi eje sile		
xiv.	Esin mi ko gba fifi ejesile		
xv.	Eru mimo ipo HIV, Hepatitis ati syphilis mi		
xvi.	Iri ti ko dara ti mo la koja nipase fifi eje sile ni'gba atehinwa		
xvii.	Nitori awon nkan to je mo obinrin (oyun, fifun omo loyan ati sise nkan osu)		

Ese pupo fun iranlowo yin.

APPENDIX III

INFORMED CONSENT FORM

Dear Respondent,

My name is Olotu Esther Mayowa. I am a student in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Oyo State.

The purpose of this research is to investigate the Blood Donor Characteristics and Factors Influencing Blood Donation among Residents in Ibadan North West Local Government Area, Oyo State, Nigeria. This questionnaire contains questions which will be easy to answer. Your completion of this questionnaire is absolutely voluntary. And your participation in this study will be highly appreciated as it will help in the development of an intervention as well as a policy programme.

However, if you decide not to participate in this study, you will neither suffer any discrimination nor harm. We promise that the information you provide will be highly confidential; and to this effect, your name will not be required.

Thank you for your kind cooperation.

Yours faithfully,

Signed

Olotu Esther Mayowa.

Respondent's Confirmation

Having read the information above, I do wish to participate in the study.

Signature ……

Date ……

APPENDIX IV

ETHICAL APPROVAL

TELEGRAMS..... TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....

All communications should be addressed to the Honorable Commissioner quoting

Our Ref. No. AD 13/ 479/ 958 August, 2015

The Principal Investigator,
Department of Health Promotion and Education,
Faculty of Public Health,
University of Ibadan,
Ibadan.

Attention: Olotu Esther

ETHICAL APPROVAL FOR THE IMPLEMENTATION OF YOUR RESEARCH PROPOSAL IN OYO STATE

This is to acknowledge that your Research Proposal titled: "Blood Donor Characteristics and Types of Blood Donation among Residents in Ibadn North-West Local Government Area of Oyo State." has been reviewed by the Oyo state Review Ethical Committees.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.

4. Wishing you all the best.

Sola Adeniji (Dr)
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee