FACTORS INFLUENCING INTENTION TOWARDS ORGAN DONATION AMONG HEALTH PROFESSIONALS IN LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY TEACHING HOSPITAL, OSOGBO, NIGERIA

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DEDICATION

To the One who calls the unworthy, the One who calls the inadequate to adequacy.

To the One who forms the mind, spirit and body for an ordained future.

To the one who hears the inaudible cries when situations become too overwhelming.

To the one who teaches us to dig deeper, knowing full well that treasures are not found on the surface.

To the one who teaches us resilience, the tool against permanent defeat.

To the one who gives us a reason to forge ahead.

ABSTRACT

One of the greatest technological advancements in modern medical practice is the discovery that lives could be saved through Organ Donation (OD) and transplantation. However, there is an unmet demand for OD and transplantations because few people including Health Professionals (HPs) are willing to donate. Therefore, this study was conducted to identify the factors influencing intention to donate organs among HPs at Ladoke Akintola University of Technology Teaching Hospital, Osogbo.

This descriptive cross-sectional study employed stratified random sampling technique using profession as the basis for stratification to proportionately select 410 HPs through balloting. A semi-structured interviewer-administered questionnaire was used to elicit information on socio-demographic characteristics, OD awareness, knowledge, attitude and intention to donate. Knowledge and attitude were measured on a 41-point and 15-point scales respectively. Knowledge score of ≤22 was rated as poor while attitudinal score of ≤9 was rated as negative. Intention to be Living Donors (LDs), Cadaveric Donors (CDs) or both were classified as willing and unwilling. Two In-Depth Interviews (IDIs) which was used to complement the quantitative data were conducted with two available doctors in organ transplantation-related fields and analysed using thematic approach. Quantitative data were analysed using descriptive statistics, Chi-square and logistic regression at $p<0.05$.

Respondents' mean age was 33.6±7.4 years and 57.9% were females. Majority (83.5%) were doctors (37.1%) and nurses (46.4%). Others (16.4%) were pharmacists, paramedics and Health Record Officers (HROs). Most (99.7%) respondents had heard about OD. Out of this, 70.8% were aware of OD requests in Nigeria. Majority had poor knowledge (80.2%) and negative attitude (72.3%) to OD. None had donated an organ before while 44.2% were willing to donate. Of those willing to donate, 29.3% preferred to be LDs alone while 49.4% preferred to be both LDs and CDs. The reasons adduced for willingness to donate were to save lives (19%) and if a loved one needed it (13.2%). Adverse health consequences (33.9%), fear of death (17.5%) and lack of conviction to donate (12.5%) were the reasons for unwillingness to become LDs. The reasons for unwillingness to be CDs included not having considered it

(46.0%), its complicated process (23.4%) and religious implications (20.4%). Majority (73.6%) believed that education was imperative to promoting OD while 12.4% supported the use of incentives. Knowledge of OD was not significantly associated with OD intention. The proportion of doctors willing to donate (58.9%) was significantly higher than HROs (42.1%). Sex was a significant predictor of OD intention (OR: 2.2, 95% CI: 1.4-3.3) with males more willing to donate. Respondents with positive attitude to OD were more willing to donate (OR: 5.0, 95% CI: 3.1-8.1). The IDIs revealed that HPs were unwilling to donate due to fear and uncertainty of OD outcome. It was agreed that information about successful OD should be made available to the public.

Intention to donate was influenced by sex and attitude. Health education strategies such as periodic workshops, handbills providing information to dispel existing fears and misconceptions about organ donations should be promoted especially among female health professionals.

Keywords: Health professionals, Organ donation, Organ transplantation

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CERTIFICATION

I certify that this project was carried out by Agnes Aderinola OYENIRAN in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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GLOSSARY OF ABBREVIATIONS/ACRONYMS

ABUTH:	Ahmadu Bello University Teaching Hospital
AKTH:	Aminu Kano University Teaching Hospital
CRF:	Chronic Renal Failure
CVD:	Cardiovascular Diseases
ENSUTHI:	Enugu State University Teaching Hospital
ESRD:	End-Stage Renal Disease
HCTT:	Human Cells and Tissues for Transplantation
HPs:	Health Professionals
ICU:	Intensive Care Unit
IDIs:	In-Depth Interviews
KONOS:	Korean Network for Organ Sharing
LASUTH:	Lagos State University Teaching Hospital
LTH:	Ladoke Akintola University of Technology Teaching Hospital
LUTH:	Lagos University Teaching Hospital
LYG:	Life-Year Gained
NHMRC:	National Health and Medical Research Council
OAUTHC:	Obafemi Awolowo University Teaching Hospital Complex
OPTN:	Organ Procurement and Transplantation Network
SPSS:	Statistical Products and Services Solution
SRTR:	Scientific Registry of Transplant Recipients
TPB:	Theory of Planned Behaviour
UNCTAD:	United Nation Conference on Trade and Development
UNOS:	United Network for Organ Sharing
UBTH:	University of Benin Teaching Hospital
UITH:	University of Ilorin Teaching Hospital
UMTH:	University of Maiduguri Teaching Hospital
UCH:	University College Hospital
WHA:	World Health Assembly
WHO:	World Health Organization
WTO:	World Trade Organization

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

One of the greatest technological advancements in modern medical practice is the discovery that lives could be saved by using the tissues or organs of one person to replace that of another through a process called Organ Donation and Transplantation (Siminoff, Gordon, Hewlett and Arnold, 2001). Dr Peter Doyle, while speaking at a plenary session during the South East Asia regional meeting of the World Health Organization in Jaipur, India said, "that organ and tissue transplantation is legally, ethically and organizationally one of the most complex branches of medicine" (WHO, 2009). In certain conditions, this is now the treatment of choice being more effective and efficient than any mechanical or pharmaceutical approach (Hudson, Johnson and Culley, 2004).

Organ transplantation has become a life-saving procedure for many disease conditions hitherto considered incurable (Fadare and Salako, 2010). The World Health Organization estimated that about 66,000 kidney transplantations, 20,000 liver transplantations and 6,000 heart transplantations are performed yearly across the globe (WHO, 2009). The procedure therefore saves thousands of lives worldwide (Saleem, Ishaque, Habib, Hussain, Jawed et al., 2009). Organ transplantation is well recognized to be the most cost-effective therapy for many life threatening conditions involving end-stage organ failure that may afflict people of any age group, race or gender (Shimazono, 2007). The procedure has been seen to prolong life and enhance the quality of life (Fadare and Salako, 2010).

Dr. Elmin Steyn while providing a sombre overview of transplant activity in South Africa made a good argument in favour of organ transplantation. In her own words, "transplantation does not necessarily require super expensive technology and although the post-surgery anti-rejection therapy is costly, it is still less expensive than treatment for other life-threatening conditions such as cancer, heart attacks and serious injuries and although post transplant therapy continues for life, arguments in favour of transplantation has been understood in the

context of a functional person returning to work and fulfilling a role in the family and community, versus a disabled person on costly permanent dialysis or other forms of long-term treatment for end-stage organ failure" (Steyn, 2011).

Today, most organ transplants are relatively safe procedures, no longer considered as experiments, but considered as treatment options for thousands of patients with medical indications, such as those suffering from renal failure, heart disease, respiratory disease, and cirrhosis of the liver (Ota, 2004).

1.2 Problem Statement

The success of organ and tissue transplantation relies on the willingness of the public to donate their organs, either during their lifetime or after their death (Hudson, Johnson and Culley, 2004). Central to this is the knowledge that the number of persons needing organ and tissue transplants is on the increase in Nigeria which at present may not be fully comprehended due to the inadequacy of the national health system (Shonibare, 2012; Urhoghide, 2013).

Organ and tissue donation is a health issue that affects distinct populations all very different in their needs and in their group characteristics (Thompson, 2003). The demand for tissues and organs is on an alarming increase (Arnold, Bartlett, Bernat, Colonna, Dafoe et al., 2002) but there is currently shortage of donor organs and tissues worldwide (Rithalia, McDaid, Suekarran, Myers and Sowden, 2009). Though there has been a dramatic increase in the number of donors over the years (Fernandez and Stohr, 2009), the fact that demand still far outstrips supply has become a major challenge (Spital, 1995; Conesa, 2003; Mocan and Tekin, 2005; Wolfe, Merion, Roys and Port, 2009; WHO, 2009).

Too few people choose to donate their organs and tissues, many patients in need of transplants are not receiving them in time (Parisi and Katz, 1986; Howard, 2007). Donated organs and tissues have therefore become a very essential but scarce resource which is not readily and adequately available. The United Network for Organ Sharing (UNOS) illustrated the severity of the problem by some statistics. Every 13 minutes, another name is added to the national waiting list for

organ transplants, and every day, 17 people die while waiting for a transplant that could have saved their lives (UNOS, 2003).

In Nigeria, it has been reported that the conditions that lead to organ failure and subsequently end stage chronic organ failure abound (Odutola, Ositelu, D'Almaida and Mabadeje, 1989; Bamgboye, 2003) thereby leading to premature death and morbidity (Chijioke, 2003). This position was further elucidated by Dr.Bappa Adamu at the first global consultation on regulatory requirements for human cells and tissues for transplantation (WHO, 2005). He reported a high unmet demand for transplantations and high mortality of those in need of transplants. In the nation's large population, international standing, and economic resources, the lack of an organized system of care for chronic disease - such as organ transplantation - has also for some time been a big puzzle (Fadare and Salako, 2010; Adejuyigbe, 2011).

The importance of tissue donation was recognized as far back as 1973 when the Federal Government of Nigeria acknowledged the need for an eye bank and promulgated the decree No. 23 titled Corneal Grafting Decree 1973 (Akinsete, 2011). This paved way for the establishment of the Eye bank of Nigeria by the Society for the Blind and Ophthalmological Society of Nigeria. Sadly however, not a single cornea had been harvested locally until August 2010 (Faderin, 2011).

Recently, attention has been drawn to the importance of donation and transplantation of organs and tissues in Nigeria. This is evident in sections 49-58 of the recently passed national health bill by the nation's lawmakers which seeks to regulate the act of donation and transplantation (National Health Bill, 2011). However, following disagreements, disputes and political stalling, the President declined to sign it into law and it was returned once again to the National Assembly (Akinloye, 2013).

At present, only corneal (Faderin, 2011), living-related kidney transplantations (Fadare and Salako, 2010) and bone marrow transplants (Madike, 2011) are performed in Nigeria. It is therefore obvious that not much has been achieved as regards organ and tissue donation. It has been said that corneal blindness contributes about 7.9% to the estimated 1,170,000 blind people in the country and 33% to reversible blindness worldwide (Akinsete, 2010). One of the

factors contributing to the continued prevalence of corneal blindness is the non availability of corneas for transplantation (Olugbile, 2010).

As much as medical and technological advances are being made to provide health services to patients needing transplantation, these can only be achieved when commensurate efforts are geared towards potential donors and their families (Thompson, 2003). Although medical advances have resulted in a dramatic increase in the number of organ and tissue transplantations each year, there is a limited supply of organs and tissues, thus, demand exceeds supply (Mocan and Tekin, 2005; Mocan and Tekin, 2007). As more and more people come down with end-stage organ and tissue failure and the waiting list for organs and tissue transplantation continues to increase with many deaths being recorded while people wait (Coalition on Donation, 2003), the only hope for these patients is for more people to make the decision to be organ and tissue donors (Thompson, 2003).

Although there is dearth of information on organ and tissue donation in Nigeria, the problem of low donation rates has been reported to be global (Rithalia et al., 2009), cutting across the developed, developing and the under developed countries of the world (Vathsala, 2004; Moosa, 2008; Elmin, 2011). It therefore suffices to say that in spite of repeated campaigns promoting transplantation, the high donation refusal rate remains unchanged (Cantarovich, Heguilén, Filho, Duro-Garcia, Fitzgerald et al., 2007) and despite global efforts to encourage and regulate organ and tissue donation (WHO, 2009), relatively little is known with few materials available or published on this subject. This contributes to the constraints being encountered in getting more Nigerians to be involved in the campaign towards organ donation.

The increasing cases of end-stage organ failure coupled with the rising number of candidates on organ donation waiting lists have provided impetus for extensive research over the few decades. Although many contributing factors have been suggested and identified, the following are consistently found in literature: the lack of successful identification of potential donors, the failure to obtain consent for organ donation (Sheehy, Conrad, Brigham, Luskin, Weber et al., 2003) and insufficient medical management of potential donors (Jenkins, Reilly

and Schwab, 1999). Lack of successful potential organ donor identification as well as failure to obtain consent for donation may be significantly impacted by knowledge and attitude toward organ donation and transplantation among health professionals and the public (Smith, 2008).

Health professionals have vital roles in educating the public about organ donation, identifying potential donors, approaching families for consent and becoming donors themselves (Erdogan, 2002; Akgun, Bilgin, Tokalak, Kut and Haberal, 2003; Collins, 2005). They are informed individuals who are expected to have better knowledge and positive attitude to issues relating to organ donation but available studies (Melo, Batista, Teixeira, Figueiredo, Ribeiro et al., 2011; Symvoulakis, Tsimtsiou, Papaharitou, Palitzika, Markaki et al., 2012) have documented otherwise. These studies also reported varying levels of knowledge and attitude to organ donation among categories of health professionals.

In Nigeria, little is known about the knowledge, attitude and disposition of health professionals to organ donation. Considering the findings by Lima, Lima, Cerqueira, Cerqueira, Ramos et al. (2010); Siddiqui, Nizami, Raza, Ali, Bikak, et al. (2012) that adequate knowledge and positive attitudes of health professionals to organ donation leads to higher donation rates, exploring the knowledge and attitudes of these professionals to organ donation might be pertinent to understanding the reasons for low donation rates.

1.3 Justification

The importance of organ and tissue transplantation cannot be over-emphasized. But without organ and tissue donation/donors, this life saving procedure cannot continue to exist. The need for organ and tissue donors is therefore paramount as the justification behind this study.
It was therefore expedient to carry out this study to assess the level of awareness, knowledge, attitudes and intentions towards organ and tissue donation among health care professionals since they are seen as role models in their communities, they form an integral part of the country, have been in the vanguard of the promotion of organ donation and also constitute a significant number of potential organ and tissue donors in the society whose donating

decisions can help to increase organs and tissues availability thereby reducing morbidity and mortality.

This study provides knowledge about the willingness of health care professionals towards donation and transplantation of other parts of their body other than bone marrow, cornea and kidney transplantation which are currently being done. It also identifies factors that predicts willingness to donate organs and otherwise. It identifies efficient public enlightenment programmes and health promotion campaigns that can help increase rate of organ donation.

1.4 Research Questions

The study provided answers to the following research questions:

1. What is the level of awareness of organ donation among categories of health professionals in Ladoke Akintola University of Technology Teaching Hospital (LTH), Osogbo?
2. What is the level of knowledge of organ donation among categories of health professionals in LTH, Osogbo?
3. What is the attitude to organ donation among categories of health professionals in LTH, Osogbo?
4. What is the prevalence of organ donation practice among categories of health professionals in LTH, Osogbo?
5. What intentions do categories of health professionals have towards organ donation in LTH, Osogbo?

1.5 Research Objectives

1.5.1 Broad Objective

The main objective of this study was to investigate the factors influencing intention to donate organs among health professionals in Ladoke Akintola University of Technology Teaching Hospital, Osogbo in order to obtain and provide important data and to make recommendations that could be useful in promotion of organ donation.

1.5.2 Specific Objectives

The specific objectives of this study were:

1. To assess the level of awareness on organ donation among categories of health professionals in Ladoke Akintola University of Technology Teaching Hospital (LTH), Osogbo.
2. To assess the level of knowledge on organ donation among categories of health professionals in LTH, Osogbo.
3. To highlight the attitude of categories of health professionals in LTH, Osogbo to organ donation.
4. To determine the prevalence of organ donation practice among categories of health professionals in LTH, Osogbo.
5. To identify the intentions towards organ donation among categories of health professionals in LTH, Osogbo.

1.6 Research Hypotheses

The research hypotheses for this study were:

1. There is no relationship between socio-demographic variables (kind of profession, age, sex, religion and educational qualification) and knowledge about organ donation among health professionals in LTH, Osogbo.
2. There is no relationship between socio-demographic variables (kind of profession, age, sex, religion and educational qualification) and attitude to organ donation among health professional in LTH, Osogbo.
3. There is no relationship between socio-demographic variables (kind of profession, age, sex, religion and educational qualification) and intentions towards organ donation among health professionals in LTH, Osogbo.
4. There is no relationship between knowledge about organ donation and intentions towards organ donation among health professionals in LTH, Osogbo.
5. There is no relationship between attitude to organ donation and intentions towards organ donation among health professionals in LTH, Osogbo.

1.7 Operational Definitions of Terms

Awareness: ability of respondents to answer questions on whether they have heard about organ donation, their source of information about it and where transplantations are done based on their level of acquaintance with the requisite information.

Knowledge: ability of respondents to answer correctly questions on the state of organ donation based on their level of understanding with the requisite information.

Attitude: a state of readiness to respond in a characteristic way (view or opinion) to issues relating to organ donation.

Prevalence: the degree to which organ donation is practiced.

Intention: a determination to act in a certain way, herein classified as willing or unwilling to donate organs.

Health professionals: doctors (consultants, resident doctors, medical officers, house officers), nurses, pharmacists, paramedics (physiotherapists, medical laboratory scientists, radiographers) and health information officers.

Organs: kidney, liver, lung, heart, pancreas, bone marrow and cornea.

CHAPTER TWO

LITERATURE REVIEW

2.1 Organs and Tissues

A tissue is a group of biological cells that perform a similar function while an organ is a collection of these tissues joined in structural units to perform a specific function or group of functions (Widmaier, Raff and Strang, 2007). The World Health Organisation in 2009 defined an organ as a differeniated and vital part of the human body, formed by different tissues, that maintains its structure, vascularisation and capacity to develop physiological functions with an important level of autonomy (WHO, 2009). The human body is made up of several of these tissues and organs which forms the systems of the body (Starr and McMillan, 2006; McGuire and Beerman, 2009). Each system depends on the others, either directly or indirectly, to keep the body functioning normally (Widmaier et al., 2007).

2.2 Organ Donation and Transplantation

Organ donation and transplantation has been defined as a process of surgical removal of a biological tissue or an organ of the human body from a donor and the surgical transfer of the donated tissue or organ to another individual (Zurani, Robson, Razack and Dublin, 2010) for the purpose of improving the health of the recipient (Ogbonmwan, 2005). The lack of a globally recognised terminology and definitions triggered off the unification of terms and basic definitions on cell, tissue and organ donation in order to create a global glossary by the world health organisation. The organization therefore gave an official definition of organ donation and transplantation as the transfer of organs from a donor to a recipient with the aim of restoring functions in the body (WHO, 2009).

2.2.1 Globalization, Burden of Non-Communicable Diseases and Organ Failure

Globalization can be summarized as the increasing interconnectedness of countries and the openness of borders to ideas, people, commerce, and financial capital (Woodward, Drager, Beaglehole and Lipson, 2001). It has beneficial and harmful effects on the health of populations (Yach and Bettcher, 1998). Financial and economic globalization and the World

Trade Organization (WTO) rules which regulate trade have the potential to improve population health status by increasing national incomes. However, this benefit has not reached most poor populations (United Nations Conference on Trade and Development, 2002).
Globalization drives chronic diseases risks in many complex ways, both directly and indirectly (Woodward et al., 2001) but debates about globalization and health have focused almost exclusively on communicable diseases. However, chronic diseases - especially cardiovascular diseases, cancer, chronic respiratory diseases and diabetes - now constitute the bulk of the global burden of disease. The magnitude of this burden including its associated complications with regards to organ failure is well documented but the response to these epidemics, despite the threat they pose to health systems, has been grossly inadequate (Yach and Beaglehole, 2004).

Chronic diseases are an important contributor to health inequalities within and between countries and are predominant among poor populations, largely because of inequalities in the distribution of major chronic disease risk factors (Evans, Whitehead, Diderichsen, Bhuiya and Wirth, 2001; Kunst, Groenhof and Mackenback, 1998; Leon and Watt, 2001). Non-communicable diseases (NCDs) make the largest contribution to mortality, both globally and in the majority of developing and under-developed countries. It has also been reported that the global pattern of death and disability will continue to be dominated by chronic diseases.

In 2000 there were an estimated 56 million deaths globally, with chronic diseases accounting for 60% of these deaths (WHO 2002a). The leading chronic diseases are cardiovascular disease (CVD), especially coronary heart disease (CHD) and stroke (16 million deaths); cancer (7 million deaths); chronic respiratory disease (3.5 million deaths); and diabetes (almost 1 million deaths). Similarly in 2005, about 60% (35 million) of the total number of death globally were due to NCDs (WHO, 2009). Moreover, deaths due to NCDs are projected to increase by 17% globally between 2005 and 2015 and by 27% in the African region. In Africa, the prevalence of hypertension has rapidly increased, from 3% in rural areas to more than 30% in some urban settings (Mufunda, Chatora, Ndambakuwa, Nyarango, Kosia et al., 2006). According to a report of the Medical Research Council, in the South African context, NCDs accounted for 37% of deaths, while cardiovascular disease and diabetes together

accounted for 19% of total deaths (Steyn, Bradshaw, Norman, Joubert, Schneider et al., 2006).

Coronary heart disease and stroke are expected to be the leading causes of death and of disability adjusted life years lost (DALYs) by the year 2020 (WHO, 2002a). The secular trend for chronic disease risk factor levels has been negative over the last decade in most developing countries thereby portending a massive increase in the occurrence of chronic diseases over the next two decades in these countries (Yach and Beaglehole, 2004).

Hypertension affects about 20% of the adult population, an estimated 691 million people worldwide and it represents one of the major risk factors for heart disease, stroke and kidney failure. The number of people with Diabetes mellitus is currently estimated to be about 135 million and this may present one of the most daunting challenges in the future because the number of cases is expected to rise to about 300 million by the year 2025. While the increase in cases will exceed 40% in developed countries, it is anticipated to be in the order of 170% in developing countries (World Health Report, 1997).

Global findings have showed that there are about ten million cornea blind worldwide (Waziri-Erameh, Afekhide and Edema, 2007); a large percentage of whom live in the less developed world (Andel and Sign, 1999). Cornea opacity has also been reported to be a common cause of blindness in Nigeria (Babalola, Ezepue, Waziri-Erameh and Abiose, 1995).

Several studies have demonstrated the high incidence of chronic renal disease among black Americans. Unfortunately, there are no reliable statistics in all African countries. However, there is a general impression that it is at least three to four times more frequent than in more developed countries; this is substantiated by analysis of the causes of death, reporting that uremia accounts for 1% to 1.5% of total annual deaths among Egyptians, both in the predialysis era and for two decades thereafter (Barsoum, Rihan, Ibrahim and Lebstein, 1974).

Bamgboye (2003) reported that the incidence of end-stage renal disease (ESRD) is increasing worldwide at an annual growth rate of 8%, far in excess of the population growth rate of 1.3% and that every year; millions of people die prematurely of cardiovascular diseases linked to chronic kidney disease. End-stage renal disease is however more prevalent in Africa and

seems to be of a more severe form than that found in Western countries (Kibukamusoke, 1968). The most common mode of presentation is the nephrotic syndrome, with the age of onset at five to eight years. It is estimated that 2% to 3% of medical admissions in tropical countries are due to renal-related complaints, the majority being the glomerulonephritides, which in East and Central Africa are characterized by poor response to treatment and progression to renal failure. Nephrotic syndrome accounts for 0.5% of all hospital admissions in Zimbabwe; 0.2% in Kwa Zulu Natal, South Africa and 2% in Uganda (Naicker, 2003). Gibson (1996) and Hillenbrand and Land (1996) also found that the prevalence of chronic renal failure (CRF) is very high in Nigeria, as it accounted for between 2.8% and 11% of medical admissions to Nigerian tertiary hospitals.

The WHO in 2006 pronounced Nigeria as the country with the highest number of sufferers of sickle cell anaemia in the world. The organisation puts the annual number of sickle cell anaemia suffers in Africa at about 200,000, noting that Nigeria accounts for 150,000 sickle cell anemic children every year (WHO, 2006). Sickle cell anaemia related complications are enormous and treatment for these complications are usually very costly; some complications require surgery for persistent painful erections, eye problems, ulcers, kidney transplant and gallbladder removal (Centre for Disease Control and Prevention, 2011). The prospects for chronic disease prevention and control are improving rather slowly and have not kept pace with the growing burden of NCDs (Yach and Beaglehole, 2004).

Thus, with globalization driving the risks of developing these NCDs, there are growing concerns about how often complications arise from these diseases and also how more often than not these results in the failure of the organs. Globally, the treatment of choice for chronic organ failure remains organ donation and transplantation (Morris, 2004).

2.2.2 History of Organ Transplant

Organ transplants are reported to have started in the 1930s (Linden, 2009). This history was also affirmed by the WHO Director-General's report to the Executive Board at its Seventy-ninth session when he pointed out that human organ transplantation began with a series of experimental studies at the beginning of the twentieth century. The report drew attention to

some of the major clinical and scientific advances in the field since Alexis Carrel was awarded the Nobel Prize in 1912 for his pioneering work which included the commencement of surgical transplantation of human organs from deceased, as well as living, donors to sick and dying patients which began after the Second World War (WHO, 2010).

The process of transplantation however started on a shaky note due to the human body not being receptive to foreign tissues with several unsuccessful attempts until 1954 when the first successful kidney transplant between twins was performed (Ogbonmwan, 2005). This success paved way for several other successfully performed kidney transplants in the 1950s (Linden, 2009). Following that, doctors discovered how to transplant other organs successfully, thus improving quality of life, and reducing morbidity and mortality (Linden, 2009), focusing first on the essential organs and subsequently on the "non essential" parts of the body (Ogbonmwan, 2005).

Some of the other major breakthrough in organ transplantation that received worldwide attention was the orthotopic liver transplantation in 1963 done by Dr. Thomas E. Starzl in Denver, USA, and Christian Barnard's heart transplantation in Cape Town, South Africa in 1967 (Okay, 2012). A more recent major breakthrough in transplantation medicine is the first living lung donation which occurred in 1990. By the 1980s, transplantation surgery became routine and far less risky due to the improvement of anti-rejection drugs (Ogbonmwan, 2005).

St. Nicholas Hospital, Lagos pioneered organ transplantation in Nigeria when the hospital established a dialysis and transplant unit in 1998 (Bamgboye, 2003) and performed the first renal transplantation in 2000 (Ayo, 2001; Takure, Alikah and Onuora, 2010). In 2011, the first stem cell transplant in the country and West Africa was performed by University of Benin Teaching Hospital (UBTH) on a seven-year old sickle cell patient using the bone marrow donated by the recipient's brother. The success of this transplant made his haemoglobin to become AA, which also resulted into more than 20 sickle cell patients already lined up for the same transplant (Bazuaye, 2012).

Since the 1950s, organ transplantation has made giant strides to become the standard of care with remarkable improvement in survival and quality of life for many patients (Morris, 2004).

In all these historic and heroic events, there was always at the centre, the expectation that one day organ transplantation would be a service to all without regard to geographic location in the world or economic standing in society.

Over the past 50 years, the transplantation of human organs, tissues and cells has become a worldwide practice which has extended, and greatly enhanced the quality of, hundreds of thousands of lives. Continuous improvements in medical technology, particularly in relation to organ and tissue rejection, have led to an increase in the demand for organs and tissues, which has always exceeded supply despite substantial expansion in deceased organ donation as well as greater reliance on donation from living persons in recent years (WHO, 2010).
Today, organ transplantation has blossomed into a major medical undertaking, encompassing many tissues and organs- kidney, cornea, pancreas, liver, heart, lung, intestine, bone marrow and recently, the multi-visceral and multiple-organ transplantations (Okay, 2012).

2.2.3 Rationale and Benefits of Organ Donation and Transplantation

Organ donation is one of the most altruistic acts a person can perform. Organs from a single donor can affect the lives of as many as 50 people (Cook, 2012). Organ transplantation has become a standard of care for end-stage organ failure (Morris, 2004). According to World Health Organization (WHO), with the rise in cases of kidney disease and renal failure, there are at least 200,000 people on waiting lists for kidneys (WHO, 2007). The most effective approach that can be taken to meet this demand is through the act of organ donation which may be living donation and cadaveric donation.

Bone marrow stem cell transplant has also been reported to be the single most effective cure for sickle cell anaemia, thereby providing hope and improving the quality of life of these people. This is especially important for countries like Nigeria which has the highest population of sickle cell sufferers in the world, with 24% of the nation's population being carriers of the mutant gene and a prevalence of sickle cell anaemia is 20 per 1000 births (WHO, 2006).
United Network for Organ Sharing (UNOS) revealed that over 4,000 people die each year in the United States because a suitable donor cannot be found. At least half of the people on the

organ waiting list are also expected to die waiting because the waiting list has been growing at three times the rate of the available supply of organs (UNOS, 2000a). Yet, this need could be eliminated if all people who are eligible were willing to donate:

> "The single greatest obstacle to increasing the number of patients who receive life-saving transplants is the scarcity of available organ donations. The only way to increase organ donations is to educate the public…about the importance of becoming an organ donor" (UNOS, 2000b).

Patients, relatives, and society suffers major consequences from end-stage organ failure leading to social and economic losses (disabilities, cost of treatment e.g. dialysis) affecting public health (Sebayel, 2010). A single act of organ donation can therefore lead to social and economic gains to the society.

Survival Benefit: The benefit side of organ transplantation includes patient survival, life-year gained (LYG) and quality of life. The table below shows the survival benefit of different types of organ transplantation.

Table 2.1: Survival Benefit of Organ Transplantation

Organ	**LYG (life-year gain)**
Liver	16.9
Kidney and pancreas	12.9
Kidney	7.2
Lung	2.1

Source: UNOS data, 2008 Organ Procurement and Transplantation Network (OPTN)/ Scientific Registry of Transplant Recipients (SRTR) Annual Report

Quality of Life: Quality of life is measured in transplant patients using disease specific or generic instrument. An obvious example is the comparison of quality of life for transplanted patients and patient on dialysis. Klarman, Francis and Rosenthal (1968) used the anchored 0 to 1 scale to weigh survival time by quality of life with the generation of quality adjusted life years (QALY). Laupacis, Pus, Mairhead, Wong, Ferguson et al. (1996) measured utility directly and found that the quality of life increased in renal transplant patients by 23% from 0.57 to 0.7. The European quality of life scale (EQ-5D) was also used in liver transplant patients. Bryan, Ratcliffe, Neuberger, Burroughs, Gunson et al. (1998) and Ratcliffe (2002) found that quality of life improved from 0.53 before transplant to 0.78 at one year.

Economic Advantage: The economic advantage is illustrated by taking the example of renal transplantation; wherein the annual cost of transplant can be as low as 10% of that of dialysis (Sebayel, 2010). Although organ transplantation is still plagued by problems such as organ shortage, transplant rejection, infections, medication side effects, and post transplant malignancies, by and large, these problems are less frequent and better managed now than in the 20th century. Furthermore, these problems notwithstanding, organ transplantation is currently the established standard of care for qualifying patients with chronic or end stage diseases of the kidney, liver, lung, heart, pancreas, cornea and bone marrow (Okay, 2012) and all efforts should be put into combating these problems.

2.2.4 Types of Organ Donation

Organ and tissue donation can either be from a living donor or deceased (cadaveric) donor (Norman, 2003; Saleem et al., 2009). The source of cadaveric donation can be from either related or unrelated donors while the types of living donation are living-related, living un-related (Ogbonmwan, 2005). While some organs and tissues can be transplanted from both living and deceased donors, some can only be transplanted from deceased donors (Ota, 2004). Living donations are from live donors and usually involve kidney transplants, since it is possible for a person to keep living with only one kidney.

There have also been cases of donated pieces of other organs such as the lungs, liver, pancreas and intestine from living donors (Maurer, Ryu and Beck, 2007). Some of the organs and tissues that can be transplanted from both living and cadaveric donors are livers and kidneys

and more recently lung but this is still very rare (Maurer, Ryu and Beck, 2007). On the other hand, patients who require heart transplant, a double lung transplant or a cornea transplant would need to get the organ from a deceased donor or from people who are brain dead but on life support (John, Bradley, McCartney and Busin, 2007; Paramesh, Zhang and Fonseca, 2007; Shroff, 2009).

2.2.5 Process of Organ Donation and Transplantation

It has been reported that understanding the importance of the organ donation process could help to increase the number of willing donors (Cook, 2012). The processes involved in living donation however differ from that of donation after death.

Process in Living Donation

To be a living organ donor, the donor must undergo medical testing to ensure that the organs are a match for the recipient. The donor must also be in good health, free from diseases and conditions such as diabetes, cancer, high blood pressure and other chronic diseases that affect the immune system. Age is also a factor in living organ donations; most donors are between 18 and 60 (Cook, 2012). Other studies have however reported that age is not a limiting factor to donation as there have been donors beyond this age bracket. Individuals under the age of 18 can also donate their organs but will need parental permission to donate an organ (Wolverton, 2010).

Process in Donation after Death (Cadaveric Donation)

Deceased organ donation is from a person who has recently died. These donors usually die in accidents or other unexpected events, such as a heart attack or brain aneurysm. In these cases, organ donation is only considered after all life-saving efforts have failed. A patient may die in the emergency room or may experience brain death. A diagnosis of brain death establishes that the body's internal controls can no longer be maintained and that recovery is not possible (Martyn, Wright, and Clark, 1988) Once a patient is considered brain-dead, physicians work with his family and an organ donor coordinator to discuss the donation process and gain their consent. Although the patient may have been a registered organ donor, his family must still consent for the process to move forward (Cook, 2012).

After permission has been given, the hospital enters the donor's vital statistics, such as height, weight and blood type, into a national organ donation database. This information is then matched up with patients in the database who need transplants and who match the donor. Once a match has been made, the organs are harvested for transport to the recipient. This is usually done very soon after donor's death, although donation of some tissues such as corneas or skin can be delayed (Cook, 2012). After organs have been taken from a donor, the family proceeds with the usual funeral arrangements. A follow-up meeting with an organ donor coordinator may take place a few weeks after the process to tell them about the transplant recipients who were helped by the donation of their loved one's organs (Cook, 2012).

Organ transplantations are performed by an extensive team of qualified and competent health care professionals who have been specially trained for the procedure. The transplant surgeon for whatever organ, must be trained, certified and experienced in the area of his sub-specialty to undertake implantation of the organ. This must, in addition, entail the physical presence of a complement of qualified anaesthesiologist and team, pathologist and team, internists and team- nephrologist, haematologist, cardiologist, pulmonologist, infectious disease specialist, gastro-enterologist, paediatrician, oncologist; and general radiologist/interventional radiologist and team, specialized nurses, social workers, psychiatrist, psychologist and team, nutritionist, physical rehabilitation team, laboratory, and pharmacist/other ancillary staff (Okay, 2012).

2.3 Overview of World Health Organization Activities and Plans in Transplantation

The World Health Organization in 1991 published guiding principles on Organ Transplantation endorsed by the World Health Assembly (WHA) (Resolution WHA44.25). These Guiding Principles were based on three major precepts:

> That organs should come preferably from deceased persons (though living adult donors may be used with consent), that living donors should generally be genetically related to recipients, and that no payment may be given or received for organs (though the cost of recovery, preservation and supply may be paid) (WHO, 2005).

These guiding principles have over the past 17 years greatly influenced professional codes and practices as well as legislation around the world.

In 2003, following wide consultation on the subject of organ transplantation, the World Health Organisation organized a meeting of experts in Madrid. At this meeting, the experts from all the WHO Regions closely analysed issues of global concern in relation to the ethics, access and safety of tissue and organ transplantation. According to WHO (2005), the report of the Madrid Conference highlighted some of the key challenges to be faced in tissue banking and transplantation globally which could be summarised as follows:

1. Poor levels of education, training and research in tissue banking and the existence of tissue trafficking on a global basis including unregulated commercialisation;
2. Limited or non-existent evidence for efficacy of transplantation of some tissues;
3. Lack of harmonisation of regulatory standards resulting in high costs for tissue banks; and
4. Concern regarding self-sustainability of 'not-for-profit' banks on the one hand while preventing excessive income of 'for-profit banks' using altruistically-donated human material.

A major milestone of the Madrid meeting was the adoption of a resolution giving a clear mandate to WHO to gather and publish global data on transplantation, to provide technical support to improve access and harmonize standards and to encourage Member States to develop ethical policies in the field. The publication of this resolution was followed by the first WHO Global Consultation on the Regulatory Requirements for Human Cells and Tissues for Transplantation which was held in Ottawa, Canada in 2004 (WHO, 2005). This meeting acknowledged the special status of human cells and tissues for transplantation (HCTT) as a specific class of health product and noted that access to HCTT is very limited in many countries and that international circulation is widespread for certain tissues and cells. It also noted that national or regional legislation or regulation is lacking in many geographical areas and that HCTT carry disease transmission risks which must be minimized. The need for national oversight and for quality system approaches in the delivery of these services was greatly stressed while the development of global systems of vigilance and surveillance were considered fundamental to ensuring optimal practice (WHO, 2006).

The major output of the first WHO Global Consultation on the Regulatory Requirements for Human Cells and Tissues for Transplantation were access to Safe and Effective Cells and Tissues for Transplantation, key Safety Requirements for Essential Minimally Processed

Human Cells and Tissues for Transplantation and an initiative to develop a Global Knowledge Database on Transplantation (GKT) to promote maximum transparency in the field. In furtherance of its oversight function, the WHO in 2006 held the second global consultation on regulatory requirements for Human Cells and Tissues for Transplantation in Geneva, Switzerland. This second global consultation aimed to review and take forward the significant outputs of the first meeting in Ottawa in 2004 and to explore and develop further initiatives to improve access, safety and quality in the transplantation of tissues and cells globally (WHO, 2006).

In the light of changes in practices and attitudes regarding organ and tissue transplantation, the Fifty-seventh World Health Assembly in resolution WHA57.18 requested the Director-General, inter alia,

> To continue examining and collecting global data on the practices, safety, quality, efficacy and epidemiology of allogeneic transplantation and on ethical issues, including living donation, in order to update the Guiding Principles on Human Organ Transplantation.

Accordingly, the sixty-third World Health Assembly in May 2010, in Resolution WHA63.22 endorsed the revised WHO Guiding Principles on Human Cell, Tissue and Organ Transplantation (WHO, 2010), having been developed through an extensive consultation process (WHO, 2009).

2.3.1 WHO Guiding Principles on Human Cell, Tissue and Organ Transplantation

In response to current trends in transplantation, particularly organ transplants from living donors and the increasing use of human cells and tissues, the WHO adopted updated guiding principles from the 1991 version. The updated principles are intended to provide an orderly, ethical and acceptable framework for the acquisition and transplantation of human cells, tissues and organs for therapeutic purposes. According to WHO (2010), cells, tissues and organs may be removed from deceased and living persons for the purpose of transplantation, only in accordance with the following 11 guiding principles:

1. Consent for deceased donor's donation: cells, tissues and organs may be removed from the bodies of deceased persons for the purpose of transplantation if consent is obtained as required by law and if there is no reason to believe that the deceased person objected to becoming a donor.
2. No conflict for death determination: Physicians whose onus it is to determine that a potential donor has died should not be directly involved in cell, tissue or organ removal from the donor or subsequent transplantation procedures; nor should they be responsible for the care of any intended recipient of such cells, tissues and organs.
3. Deceased, but also consenting live donors: Donation from deceased persons should be developed to its maximum therapeutic potential, but adult living persons may donate organs in accordance with domestic regulations. In general living donors should be genetically, legally or emotionally related to their recipients. Live donations are acceptable when the donor's informed and voluntary consent is obtained, when professional care of donors is ensured and follow-up is well organized, and when selection criteria for donors are scrupulously applied and monitored. Live donors should be informed of the probable risks, benefits and consequences of donation in a complete and understandable fashion; they should be legally competent and capable of weighing the information thereby making an informed consent; and they should be acting willingly, free of any undue influence or coercion thereby making a voluntary consent.
4. Protection of minors and incompetent persons: No cells, tissues or organs should be removed from the body of a living minor for the purpose of transplantation other than narrow exceptions allowed under national law. Specific measures should be in place to protect the minor and, wherever possible the minor's assent should be obtained before donation. What is applicable to minors also applies to any legally incompetent person. For legal minors, major exceptions like familial donation of regenerative cells (when a therapeutically comparable adult donor is not available) and kidney transplants between identical twins (where avoiding immuno-suppression represents a benefit to the recipient adequate to justify the exception, in the absence of a genetic disorder that could adversely affect the donor in the future) may however be authorized. This is to be done with the permission of the parent(s) or the legal guardian although review and approval by an independent body, such as a court or other competent authority, should be required in the

situation that conflict of interest exists. In any event, a minor's objection to making a donation should prevail over the permission provided by any other party and professional counselling provided to potential living donors in order to assess, and when needed, address any pressure in the decision to donate, is especially important for minor donors.

5. No sale or purchase: Cells, tissues and organs should only be donated freely, without any monetary payment or other reward of monetary value. Purchasing, or offering to purchase cells, tissues or organs for transplantation, or their sale by living persons or by the next of kin for deceased persons, should be banned. This principle aims to prevent trafficking in human materials and to affirm the special value of donating human materials to save and enhance life. This principle however does not preclude reimbursing reasonable and verifiable expenses incurred by the donor, including loss of income and medical expenses. Each country's particular circumstances should be addressed by National legal structures because the risks to donors and recipients vary. Each jurisdiction will determine the details and method of the prohibitions it will use, including sanctions which may encompass joint action with other countries in the region. The ban on paying for cells, tissues and organs should apply to all individuals, including transplant recipients who attempt to circumvent domestic regulations by travelling to locales where prohibitions on commercialization are not enforced.
6. Promotion of donation, no advertising nor brokering: Promotion of altruistic donation of human cells, tissues or organs should not involve advertisement or public appeal unless undertaken in accordance with domestic regulation. Advertising the need for or availability of cells, tissues or organs for the purpose of offering or seeking payment to individuals for their cells, tissues or organs, or, to the next of kin, where the individual is deceased, should however be prohibited. Brokering that involves payment to such individuals or to third parties should also be prohibited.
7. Responsibility on origin of transplant: this principle describes the roles of physicians, other health professionals and health insurers in ensuring altruistic donation. The principle states that Health care professionals should only proceed with the removal, intermediate management or implantation of cells, tissues or organs when donations are unpaid and truly voluntary. Physicians and health care facilities should also not refer patients to transplant facilities in their own or other countries that make use of cells, tissues or organs

obtained through payments to donors, their families or other vendors or brokers; nor may they seek or accept payment for doing so. Post-transplant care may be provided to patients who have undergone transplantation at such facilities, but physicians who decline to provide such care should not face professional sanctions for such refusals, provided that they refer such patients elsewhere. Health insurers and other payers should reinforce adherence to high ethical standards by refusing to pay for transplants that violate the Guiding Principles.

8. Justifiable professional fees: This provision reinforces Guiding Principles 5 and 7 by forbidding profiteering in cell, tissue and organ recovery and implantation. Health authorities should monitor the fees charged for transplantation services to ensure that they are not disguised charges for the cells, tissues or organs themselves. All persons and facilities involved should be accountable for all payments for transplantation services. A medical or other health care practitioner uncertain whether a fee is justifiable should seek the opinion of an appropriate licensing or disciplinary authority before proposing or levying the fee. Fees charged for similar services may be used as a reference.
9. Allocation rules: The allocation of organs, cells and tissues should be guided by clinical criteria and ethical norms, not financial or other considerations. Allocation rules, defined by appropriately constituted committees, should be equitable, externally justified, and transparent. The principle also seeks to ensure that the criteria for distributing cells, tissues and organs should accord with human rights and, in particular, should not be based on a recipient's gender, race, religion, or economic condition.
10. Quality, safety, efficacy of procedures and transplants: this principle prescribes that high-quality, safe and efficacious procedures are essential for both donors and recipients. Evaluation of information regarding the long-term risks and benefits is essential to the consent process and for adequately balancing the interests of donors as well as recipients. The benefits to both must outweigh the risks associated with the donation and transplantation. Donors should not be permitted to donate in clinically hopeless situations. Transplantation of human material which does not involve maintenance treatment may not require active, long-term follow-up, though traceability should be ensured for the anticipated lifetime of the donor and the recipient. Internationally agreed means of coding to identify tissues and cells used in transplantation are essential for full traceability.

11. Transparency and Confidentiality: Transparency can be summarized as maintaining public access to regularly updated comprehensive data on processes, in particular allocation, transplant activities and outcomes for both recipients and living donors, as well as data on organization, budgets and funding. Such transparency is not inconsistent with shielding from public access information that could identify individual donors or recipients while still respecting the necessity of traceability recognized in Principle 10. The objective of the system should be not only to maximize the availability of data for scholarly study and governmental oversight but also to identify risks – and facilitate their correction – in order to minimize harm to donors or recipients.

2.5 Awareness of Organ Donation

The need to create awareness on the issue of organ donation has been reported by various studies (Kazim, 2008; Akhtar, 2008) and in order for the awareness campaign to be more effective, the safety of organ donation procedure should be emphasized, as a majority of those that declined to donate did so mainly for fear of adverse health consequences (Aghanwa, Akinsola, Akinola and Makanjuola, 2003).

A cross-sectional study was conducted by Bapat and Kedlaya (2010) at the Department of Nephrology, St John's Medical College Hospital in Bangalore among 143 medical postgraduate students. Ninety seven percent were aware of organ donation and cadaver donation. Sources of information were television (61%), newspaper (60%), magazines (51%) and radio (31%). Similar findings from another cross sectional study that was conducted in Kasturba Medical College, India to investigate the knowledge, attitude and practices regarding whole body donation among medical professionals revealed that only 8% of the respondents were unaware of the term organ donation (Ballala, Shetty and Malpe, 2011).

A multi-centre cross-sectional study on awareness of organ donation was conducted in 2009 among health professionals at the Ibrahim Medical College and BIRDEM Hospital, Holy Family Red Crescent Medical College and Hospital and Holy Family Red Crescent Nursing Institute in Dhaka city, Bangladesh. A total of 462 respondents were purposively selected for the study comprising 103 doctors (71 graduate doctors and 32 postgraduate doctors), 41

diploma nurses, 50 Bsc nursing students and 268 medical students. Most of the respondents had heard about organ donation but only 31.4% of them were aware of an organ transplantation law in Bangladesh. Among the categories of respondents, more of the postgraduate doctors (53.2%) were aware of this law compared to 35.1% of the MBBS doctors, 29.1% of the medical students, 28% of the Bsc nursing students and 26.8% of the diploma nurses (Ahmad, Kabir, Mazid, Akther, Hossain et al., 2010).

In Nigeria, results from a study carried out to comparatively investigate the level of awareness about kidney donation showed that health workers had the highest level of awareness about kidney transplantation as compared with rural dwellers and patients' relatives (Aghanwa et al., 2003). The findings of another study which focused on determining the knowledge of eye donation and corneal transplant among final year medical students of the University of Nigeria, Enugu Campus (UNEC) revealed that 79.4% of the one hundred and thirty-one students that participated in the study were aware of eye donation/corneal transplant. However, 72.5% of the students were not aware that the eyes can only be removed from a dead donor and 64.1% were also not aware that eyes with cataract could be donated (Okoye, Maduka-Okafor and Eze, 2010).

2.6 Knowledge of Organ Donation

Knowledge has been reported to be an important predictor of organ donation willingness. Both qualitative and quantitative studies have established that people who hold misconceptions about organ donation are far less likely to consent to be potential donors. Some studies conducted have however showed that knowledge about organ donation appears to be relatively easy to target for change.

Two campaigns that incorporated interpersonal communication into their organ donor awareness efforts reported high levels of success in increasing knowledge and subsequent rates of signing organ donor cards (Hall, Callender, Yeager, Barber, Dunston et al., 1991; Sanner, 1994). This was buttressed by the results from a 2001 study on the effect of knowledge, attitudes and values on willingness to communicate about organ donation which showed that when people are knowledgeable about organ donation and feel positively toward

it, they may be more confident in approaching family members about their wishes. It therefore stands to reason that when individuals have a high level of knowledge and feel committed to the issue of organ donation, they are better able to answer questions, debunk common myths, misconceptions and misgivings about organ donation which family members and the general public may have (Morgan and Miller, 2001).

A study reported that health professionals often lose an opportunity to obtain an organ because they falsely believe that a patient is unsuitable for donation and lack sufficient knowledge about organ donation to answer questions and concerns raised by potential donors (Schutt, 2000). In a study of 60 nurses from the intensive care unit (ICU), operation room (OR), or renal and surgical units in one of the public hospitals under the Hong Kong Hospital Authority, knowledge of respondents about cadaveric organ donation was found to be low and nurses who were knowledgeable about cadaveric organ donation had a more positive attitude (Chan, Po-lin, Lee, and Wong, 1997).

In another related study, Essman and Thornton (2006) aimed to measure the knowledge and attitudes of medical students related to issues of organ donation and transplantation and also sought to understand the extent to which the students have been trained to develop a certain perception towards organ donation and how this changed before and after they attended medical school. As part of their study, Essman and Thornton administered a 41 question survey to assess knowledge of 537 medical students about organ donation, allocation and transplantation. A total of 264 first year and 236 second year students responded to the questionnaire and the results suggested that only 11% of students received training on organ donation before attending medical school and 22% received training during their attendance at medical school. However second year students were more likely than first year students to have received training on organ donation although both first and second year students were found to be more likely to answer donation related knowledge questions incorrectly (Essman and Thornton, 2006). The study further revealed that donation training in medical school significantly increased knowledge regarding donation and also patients' question regarding donation. This is consistent with that of Goz, Mustafa and Medine (2006) where medical students have gaps in their knowledge on organ donation and transplantation process.

The knowledge of health technical, nursing and medicine students about organ donation was investigated by Goz et al. (2006). The results of the study indicated that the students lack information on organ donation and that greater emphasis should be placed on providing information to the students during their training program so that knowledge of future health care professionals in matters of transplantation could be improved. The level of knowledge of medical students as reported by various studies may therefore be a predictor of the level of awareness among the general public and to an extent may predict what their trainers - who are health professionals - know about organ donation (Okoye et al., 2010).

Siddiqui, Nizami, Raza, Ali, Bikak et al. (2012) conducted a study of 243 health care professionals in critical care areas of two hospitals in Karachi. The study population included 100 physicians (interns, residents and medical officers) and 143 nurses. The health care professionals were asked to complete a questionnaire regarding their knowledge and attitude towards deceased-donor organ transplant. Knowledge was measured on a nine point scale and 69.1% of the respondents had adequate knowledge with a knowledge score of five. The study also revealed that there was no significant difference between knowledge scores across sex, profession or knowing someone who needed an organ.

A survey of 135 critical health care professionals (98 critical care nurses, 32 physicians, and 5 hospital administrators) in non transplant hospitals in Canada revealed that respondents had little knowledge about transplant statistics. Other knowledge inconsistencies were found regarding when donation occurs, the criteria for donor candidacy, and religious positions on donation (Chernenko, Jensen, Newburn-Cook and Bigam, 2005). Another survey of 188 health care professionals (physicians and nurses) working in critical care hospitals in northwest Ohio conducted in 2006 found that majority of respondents had good knowledge about organ donation. Knowledge was defined to be greater than or equal to 70 percent correctly answered questions in the knowledge section of the survey and critical care provider respondents on average answered 76 percent correct (Smith, 2008).

The effect of training on knowledge of nurses in Iran was reported by Aghayan, Arjmand, Emami-Razavi, Jafarian, Shabanzadehet al. (2009) after conducting a one day workshop on organ donation among 66 nurses. The nurses completed a 29 item questionnaire on

knowledge about organ donation, pre and post workshop. The mean knowledge score was 16.89±3.33 and 23.76±1.66 at pre and post workshop respectively thus revealing a significant difference in knowledge before and after the workshop (p=0.000). The result of this study therefore showed that the workshop had a significant effect on the nurses' knowledge about organ donation thereby demonstrating that educational programs can enhance nurses' knowledge about organ donation.

In a 2011 survey of 495 health professionals' (386 nurses and 109 physicians) knowledge and behaviour in relation to cadaveric organ donation and transplantation carried out by Melo et al., respondents were found to lack specific knowledge on organ donation and transplantation; there were also no significant differences in knowledge between physicians and nurses concerning specific organ donation and transplantation issues. Specifically, having had specific training on organ donation and transplantation was significantly associated with correct answers to questions on knowledge, thus emphasizing the effect of training on knowledge of issues relating to organ donation (Melo et al., 2011).

Another similar study was conducted among 585 health care professionals at Hamad medical corporation, Qatar to assess their knowledge of organ donation. The study also used different categories of health care professionals, with a consent rate of 71.5%. The categories of health care professionals used were physicians (36.8%), nurses (48.6%) and Emergency Medical Service technicians (14.6%). The study revealed that, in general, health care professionals have an acceptable level of knowledge of organ donation and transplantation. When the knowledge level of the health care professionals were compared, level of knowledge about organ donation was higher among physicians, EMS technicians were significantly less likely to know which organs were appropriate for living donation and nurses were significantly less likely to understand the rules about being a designated donor (Alsaied, Bener, Al-Mosalamani and Nour, 2012).

The knowledge and attitude of health care professionals - comprising 61 doctors and 109 nurses - regarding cadaveric organ donation was assessed through a multi-centre study conducted in Seoul, Korea. The authors found that the knowledge of respondents about brain

death and organ retrieval was poor and they also reported a significant difference in respondents' knowledge scores according to marital status (p=0.001) and level of education (p=0.019). Comparing this with the result of previous studies, the authors concluded that the knowledge of respondents about cadaveric organ donation had not improved (Jeon, Kim, Kim, Byeon, Hong et al., 2012).

A cross-sectional study was conducted in Turkey to assess health care professionals' knowledge, attitude and behaviour related to cadaveric organ donation and transplantation. This multi-centre study of 1184 health care professionals from five health care institutions revealed that doctors had significantly better knowledge of organ donation and transplantation compared to nurses and lack of knowledge has a negative impact on respondents' attitude to organ donation (Akgün, Bilgin, Tokalak, Kut and Haberal, 2003). A more recent study was also conducted in Turkey to assess the level of knowledge and awareness about organ donation among 297 staff of Ministry of Health Ordu University Training and Research hospital. The respondents were physicians, allied healthcare personnel, security personnel and administrative personnel. Majority of the respondents had good knowledge about organ donation: 92.3% correctly defined organ donation, 95.6% accurately defined brain death as the complete and irreversible loss of brain functions, and 91.9% knew that a living individual can donate (Enginyurt, Tas and Ozer, 2013).

In a cross-sectional study conducted in Ile-Ife, Nigeria by Aghanwa et al. (2003), three hundred and sixteen Nigerians (96 first-degree relatives of end-stage renal disease patients, 69 rural dwellers and 151 health workers) were interviewed regarding their willingness to donate kidneys using an interview schedule designed to elicit socio-demographic information, knowledge about kidney transplantation and attitude toward kidney donation. Results from the study revealed that a higher proportion of health workers (91.4%) than patients' relatives (52.1%) and rural dwellers groups (24.8%) had some knowledge of kidney transplantation. The differences in knowledge were also statistically significant across the three groups.

Another Nigerian study conducted among consultant and senior registrar grade ophthalmologists and which focused on knowledge about cornea donation revealed that respondents had adequate knowledge about cornea donation (Waziri-Erameh, Ernest and

Edema, 2007). Takure, Alikah and Onuora (2010) conducted a study of medical students in Irrua, Nigeria and found that respondents lacked knowledge about issues relating to cadaveric organ donation in Nigeria as well as the number of hospitals that offered kidney transplantation.

Several studies have also reported that increasing the knowledge of health care professionals may be an effective strategy for achieving higher levels of organ procurement (Soukup, 1991; Taylor, Young and Kneteman, 1997; Sque, Payne and Vlachonikolis, 2000), thus making it imperative for healthcare professionals to be sufficiently educated in the donation and transplantation process as this is not only associated with improved knowledge in the field but also a level of comfort in addressing patient questions regarding organ donation. Gaber, Hall, Phillips, Tolley and Britt (1990) and Vrtis and Nicely (1993) however reported that there is increasing evidence that knowledge alone does not influence the willingness of health care professionals to engage in organ procurement and that attitudes may in fact play a more important role.

2.7 Attitude towards Organ Donation

Researchers in various countries in an attempt to better understand the factors affecting intention or willingness to communicate with family about organ donation have examined attitudes and related variables on organ donation among Japanese, Chinese, and Americans (Wu and Tang, 2009), people in Pakistan (Saleem et al., 2009), and people in Netherlands (Ryckman, Gold, Reubsaet and van den Borne, 2009). Few studies have also focused on studying health care professionals' attitude to organ donation as they are believed to be significant part of the society having an indisputable role to play in promoting organ donation. Investigations of several researchers regarding negative attitudes towards organ donation among health care professionals have revealed concerns. These findings show that the attitudes of health care professionals, as evidenced by their expressed willingness to donate their own or a family member's organs, are markedly less favourable than those of the general public (Falvo, 1987; Gaber et al., 1990; Roels, Roelants, Timmermans, Hoppenbrouwers, Pillen et al., 1997; Schutt and Henne-Bruns, 1997; Persson, Dmitriev, Shevelev, Zelvys, Hermeren et al., 1998). In a study to examine attitudes to cadaveric organ donation in Irish

preclinical medical students, findings revealed that attitudes of healthcare professionals can improve the rates of organ donation, and that educational programs aimed at improving both attitudes and knowledge base of professionals can have positive outcomes (Cahill and Ettarh, 2011).

A survey to investigate the attitude of nursing staff toward organ donation in a Spanish hospital with a solid-organ transplant program found that nursing personnel are fundamental in the organ donation and transplantation process, and their attitude toward donation has a decisive effect on patients, patients' families, and the general public. Therefore nurses' attitudes toward organ donation will affect patients and their families as well as the general public in a decisive way that is reinforced by nurses' status as health care professionals (Zambudio, Martínez-Alarcón, Parrilla and Ramírez, 2009). It is however a matter of great concern that various studies have shown that organ donation and transplantation generate stress among nurses and that nurses lack information on the topic (Collins, 2005; Ingram, Buckner and Rayburn, 2002; Naude, Nel and Uys, 2002; Ozdag and Bal, 2001) although other studies have reported that nurses have a very favourable attitude (Molzahn, 1997).

According to the result of a study conducted by Jeon et al. in 2012, the attitude of doctors and nurses towards cadaveric organ donation was described as passive. Further analysis of this result revealed that there were statistically significant differences between respondents' sex, age, marital status, level of education and attitude to organ donation. Significantly, attitude also positively correlated with respondents' knowledge of organ donation (Jeon et al., 2012). Findings from another study on attitude toward deceased organ donation and transplantation in a hospital with a transplant program revealed that a considerable number of hospital professionals may be opposed to organ donation. This attitude of health care professionals who are not always in favour and therefore do not create the right social climate to encourage participation appears to be one of the barriers preventing the procurement of more transplant organs (Ríos, Conesa, Ramírez, Galindo, Martínez et al., 2005). The attitude of health professionals to organ donation was also reported to be similar to that described in the general public and is determined by many factors which include job category, knowledge of the

concept of brain death, consideration of the matter of donation in the family and fear of manipulation of the cadaver (Ríos, Ramírez, Martínez, Montoya, Lucas et al., 2006).

The attitudes of health care professionals towards organ donation was also studied by Schaeffner, Windisch, Freidel, Breitenfeldt and Winkelmayer (2004), who conducted a cross sectional study with a 28 item questionnaire among 1136 medical students and physicians and evaluated knowledge and attitudes towards organ donation and transplantation in Germany. The results showed that only 8% of the healthcare professionals actually felt sufficiently prepared for approaching relatives of organ donors. The study indicated that attitudes and levels of education reflected on actually supporting organ donation. Schaeffner et al. (2004) emphasized that higher medical education is generally associated with positive attitude towards organ donation and health care professionals with higher levels of education are usually more comfortable about discussing organ donation with the donor relatives.

Burra, De Bona, Canova, D'Aloiso, Germani et al. (2005) and Goz et al. (2006) also highlighted the fact that a favourable attitude of health professionals, medical, nursing and dentistry or health technician students towards organ donation may be one of the factors in organ procurement rates. Burra et al. (2005) further reported that favourable attitude of health care professionals can improve the situation significantly by positively influencing families of potential donors, although education of health professionals early in their career will be required for this to happen. The study by Burra et al. (2005) included a 10 item questionnaire which 100 students completed and their mean age was recorded at 23.7 years. The results indicated that more than 91% of students showed a positive attitude towards organ donation. A cross sectional study conducted in Pakistan also found that health care professionals had an overall positive attitude to deceased-donor transplant but there was no significant difference between sex, profession, knowledge level and their attitude to organ donation (Siddiqui et al., 2012).

Nurses in Hong Kong stated that reasons for not donating included concern over the sanctity of the body and fears that doctors would be more reluctant to save their lives if they had agreed to be organ donors (Yuet-mui, Po-lin, Wai-kuen and Ngun-ho, 1997). Similarly, in a sample of 456 nursing students, refusal to donate was significantly associated with the belief

that giving consent to donate organs is the same as giving a doctor permission to hasten death (Garde and Corbett, 1994). In addition, concerns about donation are often related to beliefs about reincarnation or other religious attitudes or to a sense that the organs in some ways contain the essence of the individual (Sanner, 2001).

A workshop was conducted in Iran to survey nurses' knowledge and attitude towards organ and tissue donation. The nurses filled a questionnaire containing 8 questions on attitudes towards organ donation before and after the 1-day organ donation workshop. The mean attitude score before (4.76±1.71) and after (5.08±1.34) the workshop was not statistically significant ($p=0.235$), indicating that the workshop did not have a significant effect on the nurses' attitude to organ donation (Aghayan, Arjmand, Emami-Razavi, Jafarian, Shabanzadehet al., 2009).

In order to document whether attitude to organ donation changes over time, Sorensen and Bogh conducted two studies to investigate whether attitude to organ donation had changed over a period of ten years among health professionals. In 2000, questionnaires were distributed among health care professionals (doctors, nurses, social and health care assistants) working in 17 intensive care units in Northern Denmark. Also in 2009, an identical questionnaire was administered to health professionals working in the same study setting. The overall result for all respondents revealed that 92% had positive attitude to organ donation in 2009 compared to 81% in 2000. This result was statistically significant ($p<0.01$). In 2000 and 2009, there was a significant variation between the different groups of professionals. Positive attitude was highest among doctors rising from 94% to 99%. In the nurses group the figure rose from 80% to 91% and in the group of social and health care assistants, the increase was from 70% to 84%. In both studies this variation between groups of health care professionals was statistically significant at $p<0.001$ (Sorensen and Lone 2013).

The result of a study conducted among different categories of health care professionals by Alsaied et al. (2012) revealed a general fairly positive attitude towards organ donation with nurses having a better opinion about it. A recent Nigerian study conducted among 172 doctors and nurses participants at workshops during the 43rd annual conference of the Paediatrics

Association of Nigeria in Ile-Ife also revealed that majority of these professionals had favourable attitude to organ donation (Esezobor, Disu and Oseni, 2012).

2.8 Prevalence of Organ Donation Practice

The practice of donating organs varies between and within countries. For example, Canada's organ donation rate in 1999 was 14.1 per million population, compared with 21.3 per million in the United States and 33.6 per million in Spain (Cooper, Lang and Leman, 2000). Despite this varied practice, low donation rates and difficulty with organ procurement have been reported to be a serious health problem worldwide resulting in lower than expected rates of transplantation (Korean Network for Organ Sharing, 2008). The global estimates of organs transplanted during 2007 indicate that around 100,000 solid organ transplantations take place every year with varying values for the different transplanted organs (WHO, 2009). Kidneys constitute the majority of transplanted organs.

Table 2.2: Global estimations on Organ Transplantations performed in 2007

Pancreas	Lung	Heart	Liver	Kidney
2,797	3,245	5,181	19,882	68,273

Source: 2007 Global Knowledge Base and Database on Donation and Transplantation

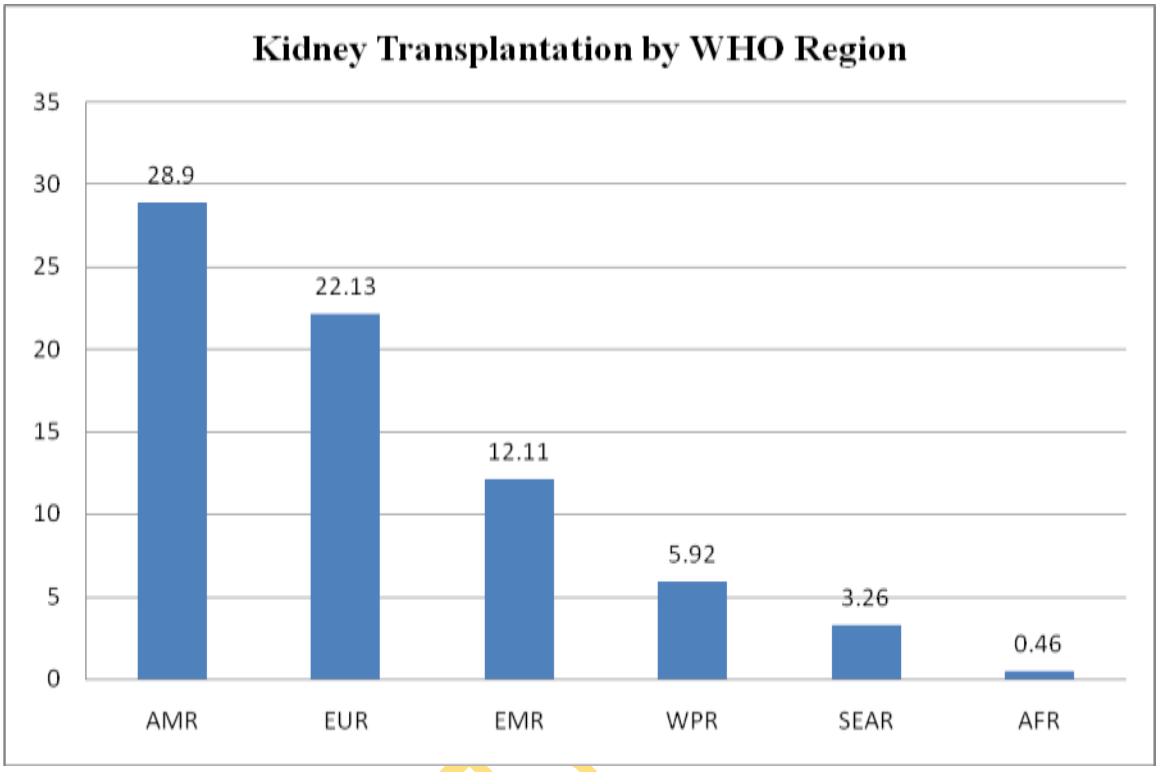

Figure 2.1: Estimations on Kidney Transplantation (Living and Deceased Donor) (per million population) per Region

Source: 2007 Global Knowledge Base and Database on Donation and Transplantation

The number of patients between 1995 to 2000, waiting for organ transplantation in the United States increased by 80 percent, while the number of cadaveric donors grew by less than 12 percent (Mocan and Tekin, 2005). The United network for organ sharing in 2008 reported that 27,963 transplants were performed from 14,000 donors. Unfortunately, this is a far cry from the 104,000 people listed, awaiting organs. (UNOS, 2009). Hispanic American individuals were also found to be 60% less likely to donate their organs than non-Hispanic white individuals (Siegel, Alvaro and Jones, 2005). Approximately 3,500 organ transplants and 2500 cornea transplants are carried out each year in the UK with more than 7500 people waiting for organ transplant at a time and usually people wait for kidney, heart, lung or liver transplant. (National Health Service, 2011).

Korean Network for Organ Sharing also reported that 2,360 transplants were performed in Korea in 2007 while 15,897 patients were waiting for an organ transplant in the same year (KONOS, 2008). Australia currently has one of the lowest donation rates in the developed world (Becker and Elias, 2007). There were 218 donors in the country in 2004 (10.8 donors per million population, 1,800 individuals waiting for a transplant in 2005 and an estimated fatality of one in six waiting for a transplant (Jones et al., 2009).

Data available shows that the prevalence of organ donation practice is low globally. South Africa, for example has one of the lowest organ donation rate (2-3/million) while United Kingdom and Spain; which is the most successful country has a rate of 13/million and 30/million respectively (Steyn, 2011). Due to low prevalence of organ donation practice therefore, organ procurement is and remains a global challenge and even though the rates vary from country to country, they all indicate that globally, the rates of transplantation is lower than expected.

The results of the survey carried out in Qatar among categories of health care professionals revealed that only 39.0%, 29.5% and 27.6% of the physicians, EMS technicians and nurses respectively knew someone who had donated an organ. However, while majority (61.7%) of the doctors knew an organ recipient, only 38.4% of the nurses and 36.1% of the EMS technicians knew an organ recipient. Further analysis in this study also revealed that

physicians were significantly more likely to know someone who had received a transplant (Alsaied et al., 2012).

Another study on prevalence of organ donation, conducted among 297 hospice staff revealed that 8.1% of the respondents had donated an organ, 13.1% had a relative who donated an organ, and 6.7% stated that their relatives had received a transplant organ (Enginyurt et al., 2013). In Nigeria, the practice of organ donation is not also common. Only kidney (Fadare and Salako, 2010), cornea (Faderin, 2011) and more recently bone marrow transplants (Madike, 2011) have been done. Many studies have reported various factors as responsible for low donation rates. Some of these factors are uncertainty about the safety of donation, (Boulware, Ratner, Sosa, Tu, Nagula et al., 2002), perceptions and ethical values of health professionals (Spital, 1996), lack of appropriate skill in approaching family members (Bia, Romos, Danovitch, Gastron, Harmon et al., 1995) and the presence of medical conditions in some potential donors (Canaud and Mion, 1995; Barsoum, 1994).

2.9 Intention to Donate Organs

Studies have implicated health professionals in the willingness to donate organs. A study conducted among physicians in Germany by Schaeffner et al. (2004) revealed that healthcare professionals can influence the willingness to donate organs. A two-centre study was carried out in the United States by Hobeika, Simon, Malik, Pachter, Frangos et al. (2009). Anonymous questionnaires were distributed and retrieved from 106 surgical attendings, surgical residents, and medical students at these centres. The study examined respondents' willingness to donate their organs and family member's organs, as well as experience with transplant procedures and religious views regarding organ donation. Sixty-four percent of respondents were willing to donate their organs, and willingness to donate inversely correlated with professional experience. Eighty-four percent of those surveyed would agree to donate the organs of a family member, including 55% of those who refused to donate their own organs. Reasons adduced for refusal to donate were organ procurement procedure (83%), religious beliefs (16%) and experience on the transplant service (16%). The authors of this study concluded that the surveyed physicians are less willing to donate their organs compared with the general public.

The results of two studies - one in 2000 and the other in 2009 - conducted by Sorensen and Lone on willingness to donate organs after death among ICU staffs in Northern Denmark revealed that there was a significant change in willingness to donate from 49% in 2000 to 69% in 2009 ($p < 0.01$). It was also evident that there were considerable variations between the professions. The highest willingness was found in the doctors' group: in 2000, 70% were willing to donate their own organs while in 2009, 81% would do so. In the nurses group the figure rose from 45% to 67%, whereas in the group of social and health care assistants the increase was insignificant from 47% to 48% (Sorensen and Lone 2013).

In 2009, a study was conducted among medical and nursing staff of the West London renal and transplant centre, to assess their views on the current practice of live donor kidney transplant. Most respondents were willing to donate a kidney to a blood relative (92.6%), a non-blood relative or friend (81.5%), and 12.0% were willing to donate to a stranger. Considering themselves as potential recipients, most were willing to accept a kidney from a blood relative (91.7%) or non-blood relative or friend (85.2%), while 44.5% would accept a kidney from a stranger (Mazaris, Warrens and Papalois, 2009). Akgun et al. (2003) conducted a study among health care professionals in Turkey and the findings of the study revealed that 44.2% of the respondents were willing to donate their organs and the rate of willingness to donate was significantly higher among doctors than nurses.

Another study was conducted in Turkey to document health personnel's willingness to donate their organs. Only 36.7% of the 297 personnel studied were willing to donate their organs while 20.5% were unwilling, and 41.8% were indecisive of the issue. Majority (79.8%) of those willing to donate stated the need to save a live or improving someone's health status as reason for their disposition while 36.1% of those unwilling to donate stated that they did not want their body to be mutilated. However, majority (77.4%) of them were willing to receive an organ transplant if the need arises. The findings of the study further revealed a lack of correlation between age, sex, level of education and being a donor or intent of organ donation (Enginyurt et al., 2013).

A study conducted in the United Kingdom aimed at identifying factors associated with the wish of hospice doctors, nurses and healthcare assistants to donate their organs after death

revealed that of the 76 staff studied, 43 (56.6%) were willing to donate their organs. The doctors and nurses were significantly more willing to donate (p=0.011) and also more likely to have discussed organ donation with their families (p<0.001) compared to healthcare assistants (Wale, Arthur and Faull, 2013).

Results from another study conducted among categories of health care professionals also found that support for organ donation was high among all the categories of health care professionals studied and that majority of the doctors (78.6%), nurses (68.5%) and EMS technicians (67.2%) were willing to donate a kidney to a family member in need. Only 26.6%, 21.3% and 17.2% of the doctors, EMS technicians and nurses respectively were open to the idea of donating a kidney to a stranger. The study further revealed that majority of the doctors (74.7%) and EMS technicians (62.3%) and half (50.7%) of the nurses were willing to receive an organ transplant if the need arises. The doctors were also significantly more willing to receive an organ transplant if needed. Only a few of the EMS technicians (27.9%), nurses (24.1%) and doctors (16.2%) had discussed their decision to donate or otherwise with their family members (Alsaied et al., 2012).

A Bangladesh study conducted among categories of health professionals, nursing and medical students revealed that 33.8% of the respondents were willing to donate their organs after death. Further analysis of the result of this study by categories of respondents showed that half (50.7%) of the respondents who were graduate doctors expressed willingness to donate their organs after death followed by 40.6% of the postgraduate doctors, 30.2% of the medical students, 30% of the Bsc nursing students and 26.8% of the diploma nurses (Ahmad et al., 2010).

The results of the study conducted by Siddiqui et al. (2012) revealed that 53.9% of health professionals were supportive of living organ donation while 34.0% opposed it. Similarly, support for deceased donation was 51.4% while 36.6% of the respondents opposed. A little above one-third (35.8%) of the respondents were willing to donate their organs after death while the rest were unwilling or undecided. In contrast, more than half (56.4%) of the respondents were ready to receive an organ if necessary. The study further revealed that only

36.6% expressed willingness to discuss the issue of deceased-donor transplants with their family members and more physicians compared to nurses were significantly more willing to engage in this discussion.

Most noteworthy among the reasons given by health care professionals for unwillingness to donate was religious concerns (86.8%): 56.8% were concerned that religious rulings was against it, 66.3% considered organ procurement as blasphemous mutilation of the body and 55.1% were concerned about transplanting organs to a person of another religion (Siddiqui et al., 2012). Other reasons adduced for refusal were mistrust of doctors (77.4%), body with missing parts (40.3%) and body disfigurement (30.0%). Misconception, fear, and adverse socio-cultural beliefs have been identified as some of the factors responsible for the unwillingness to donate a kidney in developing countries with transplantation programs (Siminoff et al., 1995; Ka Siske, Ma, Louis and Swan, 1995).

In Nigeria, results from a study carried out to document attitudes toward kidney donation among health workers, patients' relatives and rural dwellers in Ile-Ife revealed that 62.0% of the health workers, 52.1% of the patients' relatives and 27.1% of the rural dwellers expressed willingness to donate. While there was no significant difference regarding the willingness of health workers and patients' relatives to donate a kidney, each of these groups was significantly more willing to donate than the rural dwellers. The same study reported altruism as the primary motivation for those willing to donate a kidney and fear of adverse health consequences as the most important reason for refusal to donate (Aghanwa et al., 2003).

Babalola, Samaila, Ezepue, Waziri-Erameh and Abiona (1995) carried out a multi-centre study on knowledge and attitude of Nigerians towards cornea donation and tried to establish the willingness of Nigerians to donate their cornea after death. In the study, 37% of the respondents were willing to donate their cornea after death but the authors also noted that a substantial proportion in all probability may be unwilling when it comes to actual donation. Approximately 12 years later, partly informed by the results of the study by Babalola et al. and the need to indirectly verify its findings, Waziri-Erameh et al. (2007) conducted a similar study among ophthalmologists and found that 41% of respondents were willing to donate their cornea while only 21% signed the donor forms. This Nigerian study also revealed that more

respondents were willing to donate a close relative's cornea and give permission for close relatives to receive donor cornea from executed prisoners when compared to the respondents. The study also suggested that the belief in reincarnation or life after death as the reason many respondents were not willing to donate.

In a study of 502 physicians, nurses and medical students in Jos University Teaching Hospital, Nigeria, Agaba et al. found that 75.6% of respondents were willing to be living kidney donors (Agaba, Ocheke, Agaba, Idoko, Ugoya et al., 2008). The study revealed that respondents who were unwilling to donate their kidneys cited reasons such as religious beliefs, ethical considerations, and perceived risk associated with donation. A similar study among doctors and nurses in Ile-Ife, Nigeria revealed that 59.3% of the respondents were willing to donate their organs. Age and attitude were positively correlated with willingness to donate organs and being a medical doctor was the strongest predictor of willingness to donate an organ (Esezobor, Disu and Oseni, 2012).

Previous study by Terasaki, Cecka, Gjertson and Takemoto (1995) has showed that these misconceptions militating against organ donation can be corrected thereby increasing people's willingness to donate organs. This has provided impetus for researches and made many countries to develop strategies to help in increasing the number of donors such as passing legislation and the use of organ donor card of a deceased person to be legally binding based on previous wishes (El-Shoubaki, Bener and Al-Mosalamani, 2006).

Studies on the relationship between socio-demographic variables, knowledge, attitude and willingness to donate organs have showed contradicting results and this has been stated as an indication that there is no clear to pinpoint the factors that play significant roles in the process of organ donation decision-making (Shaheen and Souqiyyeh, 2000; El-Shoubaki and Bener, 2005; El-Shoubaki, 2006). However, if barriers to the willingness for organ donation can be identified, these barriers can then be targeted for change (Morgan and Miller, 2001).

2.10 Conceptual Framework

In recent years, there has been a gradual development of models and theories to explain and modify behaviour. Attempts at applying conceptual framework for this study was based on

the Theory of Planned Behaviour (TPB). The Theory of Planned Behaviour is an extension of the Theory of Reasoned Action. The Theory of Reasoned Action was developed by Ajzen and Fishbein in 1967 to explain human behaviour that is under 'voluntary' control (Fishbein and Ajzen, 1975). Later on behaviour appeared not to be 100% voluntary and under control, this resulted in the addition of perceived behavioural control. With this addition the theory was called the Theory of Planned Behaviour (TPB).

The Theory of Planned Behaviour is therefore designed to account for behaviours that are not under an individual's complete volitional control (Ajzen and Fishbein, 1980; Ajzen, 1991). It is predicated on the assumption that intention to act is the most immediate determinant of behaviour, and that all other factors influencing behaviour will be mediated through behavioural intention. Behavioural intentions on the other hand are thought to be influenced by the following factors:

Attitude towards Behaviour: belief that a desired outcome will occur if a particular behaviour is followed, and that the outcome will be beneficial to health. Intention towards organ donation is determined by attitude to donation which could be an individual's positive or negative evaluation of organ donation.

Subjective Norms: relates to a person's beliefs about what other people think they should do and by an individual's motivation to comply with those other people's wishes. Subjective norm is thought to determine organ donation intention based on perceived social pressure to either donate or not.

Perceived Behavioural Control: recognises that a person's intentions will become significantly greater if they feel they have greater personal control over behaviour. This component recognises that there are many factors beyond the immediate control of individuals that will shape their ability to behave in a desired way. Perceived behavioural control as a direct predictor of behaviour explains the perceived ease or difficulty of donating organs.

Attitude, subjective norms and perceived behavioural control are informed by underlying behavioural, normative and control beliefs respectively.

Personal or Moral Norms: This refers to personal feelings of moral obligation or responsibility to perform or refuse to perform a certain behaviour and previous studies

(Gorsuch and Ortberg, 1983; Pomazal and Jaccard, 1976; Schwartz and Tessler, 1972) have suggested that this should also be considered in explaining behavioural intention as it is expected to influence intentions, in parallel with attitudes, subjective (social) norms and perceptions of behavioural control.

This theory therefore predicts that organ donation intention (behavioural intention) and consequently organ donation (the behaviour itself) is influenced by both the individual and significant others; hence determining how an individual will act. The theory of planned behaviour is useful in understanding an individual's belief about organ and tissue donation, the actions that can be confidently taken to improve donation and to identify the significant others that shape donating decisions. In this study the constructs of attitude, subjective norm, perceived behavioural control and perceived moral obligation in the theory of planned behaviour (TPB) will be used to explain organ donation decisions.

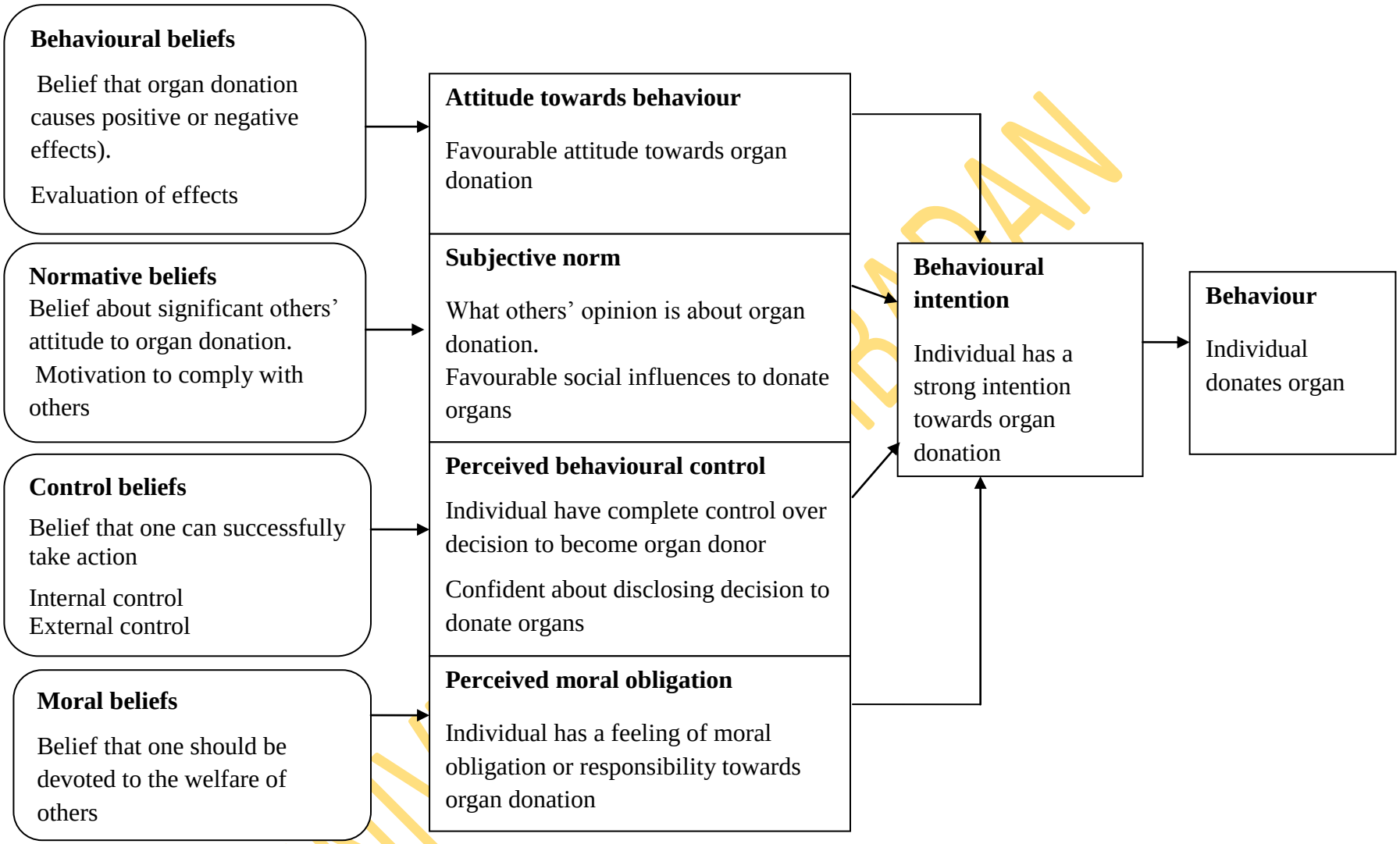

Fig 2.2: Model of Theory of Planned Behaviour on Factors Influencing Intention towards Organ Donation as applied to the study

2.11 Summary and Observed gap in Reviewed Literature

In the reviewed literature, there were consistent and contrary findings within and between countries. Most of the studies reviewed in this chapter were mainly from developed countries, with few from other developing countries, Sub-Saharan Africa and Nigeria. The studies from Nigeria that were reviewed focused on kidney donation and cornea donation while none was found on bone marrow donation even though such donation is performed in Nigeria.

No published studies on the factors influencing intention to donate organs vis a vis the awareness and knowledge about organ donation, attitude to organ donation, practice of organ donation and willingness to donate different kinds of organs either as living or cadaveric donation among different groups of health professionals have been undertaken in Nigeria to date. Reviewed literature presented studies on some of these variables as separate research topics.

Although the reviewed studies from Nigeria revealed that awareness in terms of having heard about organ donation was high among health professionals, none of these studies looked into awareness about requests to donate organs and organ transplant hospitals in Nigeria. With regards to knowledge and attitude towards organ donation, studies from Nigeria that were reviewed apart from focusing either on knowledge and/or attitude towards only kidney or cornea donation, respondents were limited to only the medical and nursing professions.

Only one reviewed study from Nigeria looked at knowledge about organ donation generally but without assessing knowledge about specific organs that can donated. Nigerian studies that focused on organ donation within the scope of willingness were also limited to either kidney or cornea donation and were conducted mostly on doctors and nurses. On the other hand, none of the reviewed literature investigated the prevalence of organ donation among health professionals.

Gaps in these reviews, especially with reference to sub-Saharan Africa and Nigerian will be filled by revealing:

1. The level of awareness, knowledge, attitude and intention towards organ donation among health professionals as well as the difference in these variables among groups of health professionals;
2. Health professionals' general disposition to organ donation including their disposition to living and cadaveric organ donation;
3. Health professionals' practice of organ donation and willingness to donate different organs of the body;
4. Factors influencing health professionals' knowledge, attitude and intention to donate organs;
5. Reasons for unwillingness to be organ donors among health professionals;
6. Consistent and contrary findings to previous studies that have been conducted;
7. Areas that require further investigation.

CHAPTER THREE

METHODOLOGY

3.1 Study Design

The study was descriptive and cross-sectional in design. It was aimed at investigating the factors influencing intention towards organ and tissue donation among health professionals in Ladoke Akintola University of Technology Teaching Hospital (LTH), Osogbo.

3.2 Description of Study Area and Study site

The study was carried out in LTH located at Olorunda Local Government Area, Osogbo, Osun State. Osogbo is the capital of Osun State; a city which is located in the tropical rain forest belt of South-western part of Nigeria, is about 1100 meters above sea level and has a distance of about 500 kilometres from Abuja the capital city of Nigeria. It lies approximately on latitude 40°N of the equator and longitude 7.34°E of Greenwich meridian. Osogbo is cosmopolitan with basic social infrastructures and the area is marked by two seasons, the rainy season which starts from April and terminates in October and dry season which prevails from October to March. It has a population of about one million people and it's a gateway to Kwara state and other parts of Northern Nigeria.

The study site is located in Olorunda Local Government Area. The Local Government is one of the thirty Local Government Areas in Osun State with administrative headquarter at Igbona, Osogbo. In addition to the study site which is a tertiary health facility, the Local Government area also has a secondary health facility and thirteen Primary Health Centres.

LAUTECH Teaching Hospital, Osogbo is situated in the North-western part of Osogbo, about 700 metres from the railway station, initially on the outskirt area of the city. The hospital is a relatively new and upcoming teaching hospital which came into being by an edict that was gazetted in 1997. It was granted full accreditation by the Medical and Dental Council of Nigeria in May 2001 and this gave the hospital the opportunity to graduate its first set of medical students in December 2002. Postgraduate accreditations have also been given for

some departments by the National/West African Post Graduate Colleges to train resident doctors to become specialists in their chosen fields.

The hospital is a state jointly owned tertiary health facility with a total number of 280 beds, 11clinics, 19 wards and a total population of 1507 staff. The hospital has two directorates which are the directorates of Clinical and Administrative Services. The directorates are further divided into Service Departments. The clinical services of the hospital is divided into the following departments: National Health Insurance Scheme (NHIS), Medical records, Morbid Anatomy and Histopathology, Chemical Pathology, Haematology/Blood Bank, Anaesthesia, Community Medicine, Ear, Nose and Throat (ENT), Internal Medicine, Obstetrics and Gynaecology (O and G), Paediatrics, Psychiatry, Physiotherapy, Pharmacy, General out-patient (GOPD), Nursing, IHVN, Surgery and Radiology. Being a training institution, LTH consists of various categories of health professionals such as Doctors (consultants, resident doctors, medical officers and house officers), Nurses, Pharmacists, Physiotherapists, Medical Laboratory Scientists, Health Information Officers and Radiographers.

3.3 Study Population

The study population constituted health professionals (doctors, nurses, paramedics, pharmacists and health information officers) in LTH, Osogbo, irrespective of their years of experience.

3.4 Inclusion and Exclusion criteria

3.4.1 Inclusion criteria

Eligible participants were health professionals working in the teaching hospital who were not below 18 years. The health professionals that were included in the study were Doctors (consultants, resident doctors, medical officers and house officers), Nurses, Pharmacists, Paramedics (Physiotherapists, Medical Laboratory Scientists and Radiographers) and Health Record Officers.

3.4.2 Exclusion criteria

Staffs of the hospital other than the health professionals mentioned above were excluded. Health professionals below 18 years were also excluded from the study.

3.5 Sample Size Calculation

The sample size of the study was calculated using the Leslie Kish formula below.

$$n = \frac{z^2pq}{d^2}$$

where:

n = sample size.

z = the standard normal deviate at 5% which is usually set at 1.96.

p = reasonable estimate of key proportions; 60% or 0.60 (proportion of respondents who were aware of organ donation in the study conducted by Odusanya and Ladipo (2006).

q = 1-p = 100 – 60 = 40% or 0.4

d = degree of accuracy (precision); 0.05

$$n = \frac{1.96^2 \times 0.6 \times 0.4}{0.05^2}$$

= **370**

To take care of non response rate, 10% of the calculated sample size was added to make a total sample size of **410** for the study.

3.6 Sampling Technique

A stratified random sampling technique was used in selecting respondents for the study. The sampling technique involved the use of the following procedures:

Procedure 1: The health professionals were stratified into five strata using their profession as the basis for stratification.

Procedure 2: Proportionate sampling was used to determine the number of health professionals interviewed in each stratum (Table 3.1) using the following formula:

$$\text{Proportion of HP in each stratum} = \frac{\text{number of eligible HPs in each stratum}}{\text{total number of eligible HPs}} \times \text{sample size}$$

Procedure 3: Balloting was used to select the health professionals that were interviewed from each stratum. The health professionals were assigned numbers. The numbers were thoroughly mixed in a bowl and thereafter selected by the researcher without looking. The health professionals that were assigned the selected numbers were interviewed.

Table 3.1: Distribution of Health Professionals in LTH, Osogbo.

S/N	Strata of the Health Professionals	Number of Health Professionals in each Stratum	Number of Health Professionals selected from each Stratum
1	Doctors	293	$\frac{293 \times 410}{770}$ = **156**
2	Nurses	355	$\frac{355 \times 410}{770}$ = **189**
3	Pharmacists	15	$\frac{15 \times 410}{770}$ = **8**
4	Paramedics	71	$\frac{71 \times 410}{770}$ = **38**
5	Health Record Officers	36	$\frac{36 \times 410}{770}$ = **19**
	TOTAL	770	**410**

Source - Ladoke Akintola University Teaching Hospital Osogbo, Finance Office.

3.7 Methods and Instruments for Data Collection

The data for the study was collected using both qualitative and quantitative method of data collection through in-depth interview using pre-tested in-depth interview guide and pre-tested semi-structured questionnaires respectively which were designed based on the research questions, literature review and consultations with experts in the fields of Organ Donation and Health Promotion and Education.

3.7.1 In-depth Interview Guide

The in-depth interview guide was a 15-item guide containing open-ended questions that was designed to garner information that could not be obtained using the questionnaire from available doctors in organ transplantation-related fields. Two In-depth Interviews were conducted with a consultant nephrologist and a consultant ophthalmologist (Appendix 1).

3.7.2 Semi-structured Questionnaire

The items on the questionnaire were divided into six sections – labelled sections A, B, C, D, E and F. Section A consisted of questions for documenting the demographic characteristics of the health professionals while sections B and C were used to assess respondents' awareness

and knowledge of organ donation respectively. Section D contained questions that were used to determine the prevalence of organ donation practice. Attitudes relating to organ donation were assessed using questions in Section E. Questions in Section F were used to document respondents' intention to donate their organs and factors influencing such intentions (Appendix 2).

In formulating the questionnaire, open-ended and close-ended questions were used. The questionnaires were interviewer administered. Knowledge and attitude were measured on a 41-point and 15-point scales respectively and each correct answer was assigned a score of one while each wrong answer was assigned zero. Knowledge scores of ≤22 and >22 were rated as poor and good respectively while attitudinal scores of ≤9 or >9 were respectively rated negative and positive. Intention to be living donors, cadaveric donors or both was classified as willing and unwilling.

3.8 Validity and Reliability

3.8.1 Validity

The validity of the instruments was ensured through the review of literature. The input of project supervisor, other lecturers in the Department of Health Promotion and Education and senior colleagues were used to enhance the validity of the instruments. Supportive information that enhanced the contents of the questionnaire was obtained through the In-depth interview.

3.8.2 Reliability

The instruments for data collection were pre-tested among health professionals in Obafemi Awolowo University Teaching Hospital, Ile-Ife. The teaching hospital share similar characteristics with LTH, Osogbo; both being tertiary and teaching hospitals. Furthermore, the two hospitals are located within similar social and cultural settings. The questionnaire was pre-tested among 41 health professionals (i.e. 10% of the sample size) while the in-depth interview guide was pre-tested with a consultant haematologist. Necessary corrections were made following the pretest exercise. The In-depth interview was transcribed and analysed

thematically and the responses were used to make fundamental corrections to the In-depth interview guide.

Finally, the pretested copies of the questionnaire were subjected to measures of internal consistency with the use of Cronbach's Alpha co-efficient analysis to determine its reliability. This model of internal consistency is based on the average inter-item correlation. A result showing correlation coefficient greater than 0.50 is said to be reliable and the closer the value of the reliability test to 1, the more reliable is the instrument. In this study, the reliability co-efficient was 0.79, thus confirming its high degree of reliability.

3.9 Data collection process

The data was collected solely by the researcher and this was carried out within a period of six weeks between the hours of 9am and 8:30pm. A total of 410 copies of the questionnaire were given out but 394 questionnaires were retrieved thus yielding a response rate of 96%.

The data collection process involved the following steps:

1. Introduction of the researcher and the presentation of the ethical approval to conduct the study;
2. Identification and establishment of rapport with the hospital staff to determine if they were eligible for the study including a disclosure of the nature of the study, its objectives, duration of interview, assurances of confidentiality of responses and securing of consent;
3. Administration of the questionnaire to the respondents;
4. Collection of completed questionnaire and a quick on the spot check for completeness;
5. Appointments were fixed with the consultants who agreed to participate in the In-Depth Interviews. The tape recorder and audio-tapes for recording the interview were tested before the commencement of the interview and each interview took between 40 and 45 minutes. The interviews were conducted in the evenings at the interviewees' offices to ensure disturbance-free sessions. After each session, the audio-taped interview was replayed, carefully listened to and transcribed.

3.10 Data Management and Analysis

The IDIs were transcribed and a report of each was written. These reports were then analysed thematically. As much as possible, necessary quotations which buttressed the quantitative findings were presented and integrated with the findings.

Cleaning and editing of the questionnaires was done on the field and necessary corrections were made. A coding guide was developed after a careful and meticulous review of responses to facilitate coding and data entry. The copies of the questionnaire were coded and entered into the computer using the serial number that had been pre-assigned to each questionnaire. A template was designed on the Statistical Products and Services Solution (SPSS version 16) software for entry of the coded data and analysis. The data entered into the computer were subjected to descriptive and inferential statistical treatment. This helped to generate frequency data and tables, run Chi-square and logistic regression at 95% confidence interval and a P value of 0.05. Information obtained were summarized and presented in tables and charts.

3.11 Ethical Considerations

Ethical approval for the study was obtained from Oyo State Research Ethical Review Committee, Ministry of Health (Appendix 4). Entry into the hospital was facilitated by the letter of introduction from the Department of Health Promotion and Education, University of Ibadan. The respondents' consent (Appendix 3) was obtained after provision of adequate, clear and complete information about what the study entailed. They were also informed of their right to withdraw from the study whenever they felt like.

Assurances of confidentiality of participants' responses were maintained during and after the interviews. Confidentiality was also ensured as requested by one of the participating consultants during the In-Depth Interview. In order to ensure anonymity of responses, no identifier such as name of the participants was required.

3.12 Limitation and Delimitation of the Study

There was dearth of information in the literature on organ donation in Nigeria. This posed a serious difficulty in respect of empirical findings that could be used to design this study. The challenge was ameliorated through the review of literatures on studies conducted outside Nigeria.

Although the quantitative instrument was designed to be self-administered, the investigator had to resort to the use of interviewer-administered method to interview some of the consenting participants due to their busy schedule. Only two In-Depth Interviews were conducted because the consultant haematologist was not available throughout the duration of data collection. Hence, an expert opinion as regards bone marrow donation and transplantation could not be obtained.

This study examined only willingness to donate. This variable is different from actual behaviour like signing an organ donor card which the study did not evaluate. Previous studies (Babalola et al., 1995; Waziri-Erameh et al., 2007) have found some disparity between these two variables. Hence, it is necessary to bear in mind the distinction between these variables in the application of this study's findings.

CHAPTER FOUR

RESULTS

4.1 Respondents' socio-demographic characteristics

Tables 4.1 and 4.2 show the socio-demographic characteristics of the respondents. All the 394 respondents were health professionals working in Ladoke Akintola University of Technology Teaching Hospital (LTH), Osogbo. Majority (83.5%) of the respondents were doctors (37.1%) and nurses (46.4%). Others (16.4%) were pharmacists, paramedics and health record officers. The age of respondents ranged from 20-55 years with a mean age of 33.6±7.4 years. Majority (78.4%) were Christians and many (57.9%) of them were females. Most (91.1%) respondents were from the Yoruba ethnic group and few (3.6%) were from the other ethnic minority groups.

Majority of the pharmacists (75.0%), doctors (71.2%), health record officers (63.2%) and nurses (62.8%) were married while majority (63.2%) of the paramedics were single. Most (90.4%) respondents practice monogamy. A total of 243 (61.7%) health professionals were holders of a first degree as their highest educational qualification. A large proportion (48.7%) of the health professionals worked in the accident and emergency (8.6%), surgery (18.5%) and internal medicine (21.6%) departments of the hospital. The working experience of the participants ranged from 1-32 years with a mean work experience of 7.6±6.3 years. Majority (75.9%) had working experiences which ranged from 1-10 years.

Table 4.1: Socio-Demographic Characteristics of Respondents (N= 394)

Socio-demographic Characteristics	Health Professionals				
	Doctors (N=146) No (%)	Nurses (N=183) No (%)	Pharmacists (N=8) No (%)	Paramedics (N=38) No (%)	Health Record Officers (N=19) No (%)
Sex:					
Male	98 (67.1)	40 (21.9)	7 (87.5)	18 (47.4)	3 (15.8)
Female	48 (32.9)	143 (78.1)	1 (12.5)	20 (52.6)	16 (84.2)
Age in years:					
20-29	20 (13.7)	72 (39.3)	2 (25.0)	22 (57.9)	8 (42.1)
30-39	88 (60.3)	71 (38.8)	6 (75.0)	13 (34.2)	9 (47.4)
40-55	38 (26.0)	40 (21.9)	0 (0.0)	3 (7.9)	2 (10.5)
Ethnic group:					
Yoruba	132(90.4)	166 (90.7)	8 (100.0)	34 (89.4)	19 (100.0)
Igbo	9 (6.2)	7 (3.8)	0 (0.0)	2 (5.3)	0 (0.0)
Hausa	2 (1.4)	1 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)
Others*	3 (2.1)	9 (4.8)	0 (0.0)	2 (5.3)	0 (0.0)
Religion:					
Christianity	113 (77.4)	149 (81.4)	5 (62.5)	27 (71.1)	15 (78.9)
Islam	33 (22.6)	34 (18.6)	3 (37.5)	11 (28.9)	4 (21.1)
Marital status:					
Single	42 (28.8)	67 (36.6)	2 (25.0)	24 (63.2)	7 (36.8)
Married	104 (71.2)	116 (62.8)	6 (75.0)	14 (36.8)	12 (63.2)

*The other health professionals were from the following ethnic minority groups in Nigeria:

Doctors: Bini 3(2.1%)

Nurses: Bini 7(3.8%), Isoko 1(0.5%), Efik 1(0.5%)

Paramedics: Bini 1(2.6%), Efik 1(0.5%)

Table 4.2: Socio-Demographic Characteristics of Respondents (N= 394)

Socio-demographic Characteristics	Health Professionals				
	Doctors (N= 146) No (%)	Nurses (N= 183) No (%)	Pharmacists (N= 8) No (%)	Paramedics (N= 38) No (%)	Health Record Officers (N=19) No (%)
Educational qualification:					
National Diploma	0 (0.0)	81 (44.3)	0 (0.0)	0 (0.0)	7 (36.8)
First degree	93 (63.7)	94 (51.3)	8 (100.0)	38 (100.0)	10 (52.6)
Postgraduate degree	53 (36.3)	8 (4.4)	0 (0.0)	0 (0.0)	2 (10.5)
Working experience:					
1-10	113 (77.4)	128 (69.9)	8 (100.0)	34 (89.5)	16 (84.2)
11-20	24 (16.4)	39 (21.3)	0 (0.0)	4 (10.5)	3 (15.8)
21-30	9 (6.2)	16 (8.7)	0 (0.0)	0 (0.0)	0 (0.0)
Department of Practice*:					
Internal Medicine	45	35	0	0	5
Surgery	30	43	0	0	0
Community Medicine	8	14	0	0	2
Accident & Emergency	8	23	0	0	3
Microbiology	0	0	0	20	0
Haematology	3	2	0	10	0
Opthalmology	9	5	0	0	1
Paediatrics	8	23	0	0	2
Pharmacy	0	0	8	0	0
Obstetrics & Gynaecology	12	17	0	0	4
Psychiatry	10	18	0	0	0
Physiotherapy	0	0	0	8	0
Radiology	6	0	0	0	0
Histopathology	4	0	0	0	0
Ear, Nose and Throat	2	5	0	0	1
Orthopaedic	1	5	0	0	1
Intensive care unit	0	3	0	0	0

*Absolute numbers.

4.2 Awareness of Organ Donation

Table 4.3 presents results relating to respondents' awareness of organ donation. Most (99.7%) respondents had heard about organ donation. Only one respondent had never heard of organ donation. Training programme topped the list of the mentioned sources of information among the doctors (67.8%), nurses (67.8%), pharmacists (75%) and paramedics (52.6%) while the television/radio (68.4%) topped the list of health record officers' sources of information about organ donation. Seminar/workshop/conference was the least mentioned sources of information among the pharmacists (12.5%), paramedics (15.8%) and health record officers (10.5%). On the other hand, the least reported source of information about organ donation among the doctors and nurses was television/radio (29.5%) and friend/colleague (18.6%) respectively (Table 4.3).

The details relating to respondents' awareness of organ donation requests and organ transplant hospitals in Nigeria are also presented in Table 4.3. Majority (71.2%) of the respondents were aware of the request to donate organs in Nigeria. A total of 253 (64.4%) health professionals declared that they knew hospitals where organ transplantations are being performed in Nigeria. Obafemi Awolowo University Teaching Hospital Complex (OAUTHC) topped the list of the mentioned organ transplant hospitals among the doctors (60.2%), nurses (44.0%), pharmacists (75.0%) and paramedics (46.2%) followed by University College Hospital (UCH). On the other hand, UCH (50.0%) topped the list of mentioned organ transplant hospitals among the health record officers followed by OAUTHC. The least mentioned organ transplant hospitals among all categories of the participants were Lagos State University Teaching Hospital (LASUTH) and University of Maiduguri Teaching Hospital (UMTH) (Table 4.4).

The in-depth interviewees were of the view that the awareness level of organ donation is low. The following quote reflects one of their responses:

> *Here, the awareness, the orientation is quite low and it is like a general phenomenon here and that is why you have many people waiting even at their expiration hour (Consultant Nephrologist).*

Table 4.3: Respondents' awareness of organ donation (N= 394)

Variables	Health Professionals				
	Doctors (N=146) N (%)	Nurses (N=183) N (%)	Pharmacists (N=8) N (%)	Paramedics (N=38) N (%)	Health record officers(N=19) N (%)
Ever heard of organ donation:					
Yes	146(100.0)	183(100.0)	8 (100.0)	38 (100.0)	18 (94.7)
No	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (5.3)
Sources of information about organ donation*:	**(N=146)**	**(N=183)**	**(N=8)**	**(N=38)**	**(**N=393) (N=18)**
Training programme	99 (67.8)	124 (67.8)	6 (75.0)	20 (52.6)	4 (21.2)
Friend/colleague	45 (30.8)	34 (18.6)	4 (50.0)	8 (21.1)	9 (47.4)
Newspaper/Magazine	54 (37.0)	50 (27.3)	3 (37.5)	13 (34.2)	8 (42.1)
Internet/Online resource	59 (40.4)	47 (25.7)	3 (37.5)	11 (28.9)	4 (21.1)
Seminar/conference/workshop	44 (30.1)	41 (22.4)	1 (12.5)	6 (15.8)	2 (10.5)
Television/Radio	43 (29.5)	52 (28.4)	3 (37.5)	14 (36.8)	13 (68.4)
Ever heard of request to donate organs in Nigeria:					**(**N=393)**
Yes	102 (69.9)	130 (71.0)	8 (100.0)	29 (76.3)	11 (61.1)
No	44 (30.1)	53 (29.0)	0 (0.0)	9 (23.7)	7 (38.9)
Know organ transplant hospitals in Nigeria:					**(**N=393)**
Yes	113 (77.4)	100 (54.6)	4 (50.0)	26 (68.4)	10 (55.6)
No	33 (22.6)	83 (45.4)	4 (50.0)	12 (31.6)	8 (44.4)

*Multiple responses.

**N=393

Table 4.4: Respondents' awareness of Organ Transplant Hospitals in Nigeria (N= 253)

Variable	Health Professionals				
	Doctors (N=113) N (%)	Nurses (N=100) N (%)	Pharmacists (N=4) N (%)	Paramedics (N=26) N (%)	Health record officers (N=10) N (%)
Organ Transplant Hospitals*					
OAUTH	68 (60.2)	44 (44.0)	3 (75.0)	12 (46.2)	3(30.0)
LUTH	22 (19.5)	12 (12.0)	0 (0.0)	1 (3.8)	1(10.0)
UCH	35 (31.0)	25 (25.0)	2 (50.0)	10 (38.5)	5 (50.0)
LASUTH	2 (1.8)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)
UMTH	2 (1.8)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)
AKTH	3 (2.7)	2 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)
UBTH	7 (6.2)	4 (4.0)	1 (25.0)	1 (3.8)	0 (0.0)
ST.NICHOLAS	15 (13.3)	10 (10.0)	0 (0.0)	0 (0.0)	0 (0.0)
UITH**	3 (2.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
ENSUTHI**	0 (0.0)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)
REDMINGTON**	0 (0.0)	3 (3.0)	0 (0.0)	0 (0.0)	0 (0.0)
AYOMIDE**	0 (0.0)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)
NATIONAL HOSPITAL**	1 (0.9)	3 (3.0)	0 (0.0)	0 (0.0)	1 (10.0)
LTH**	3 (2.7)	5 (5.0)	0 (0.0)	0 (0.0)	1 (10.0)
ABUTH**	2 (1.8)	1 (1.0)	0 (0.0)	1 (3.8)	0 (0.0)
EKO HOSPITAL**	0 (0.0)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)

*Multiple responses.

**Incorrect responses.

4.3 Knowledge Relating to Organ Donation

The proportion of respondents with good and poor knowledge scores relating to organ donation are shown in Table 4.5. Majority (80.2%) of the respondents had poor knowledge of organ donation while only 9.8% had good knowledge. Respondents had a mean knowledge score of 17.6±5.8. Similarly across the categories of health professionals studied, only few had a good knowledge of organ donation (Table 4.5).

As reflected in Table 4.6, majority (63%) of the respondents reported that organ donation is the removal of tissues from a living or deceased person for the purpose of transplantation to another person. Six (1.5%) and 18 (4.6%) respondents reported that organ donation is the removal of tissues from only cadavers and only living persons respectively. Furthermore, about one-third (30.5%) of the respondents reported that in addition to organ donation being the removal of tissues from a living or deceased persons, it also involved the removal of ova, foetus and sperm (Table 4.6). Similarly, in response to the question on why organ donation is done, most (97.5%) respondents reported that the purpose of organ donation is to save someone's life. However, 2% of the respondents believed that organ donation is done out of sympathy/compassion, for money or out of threat (Table 4.6).

The in-depth interviewees explained the term "organ donation" and also provided other in-depth information relating to knowledge of organ donation. Typical responses of the interviewees relating to what is organ donation, why it is done and organ transplant hospitals include the following:

> *What organ donation means is that you are giving, someone is giving his/her organ to support another patient whose organ, that particular organ has lost its function, ok. That's like a literal definition to transplantation of organ donation because you don't just donate organ when there is no need for it (Consultant Nephrologist).*

> *I know it is done, in UCH and somewhere in Lagos I dont remember (Consultant Ophthalmologist).*

Ok, one of the earliest, the pioneers in kidney transplantation I don't remember but I think it is St. Nicholas in Lagos, a private hospital in Lagos or Obafemi Awolowo University teaching hospital in Ife. I think St. Nicholas started, followed by Ife. I think so. UCH has done one, I think one. LUTH has done one, Ilorin is planning. I don't know about others but I think there are. Those that I have mentioned, I am sure (Consultant Nephrologist).

In response to the questions on the types of organ donation and what organs can be donated, the interviewees provided an insight with the following responses:

So donation could be a living donor or could be what we call cadaveric donor which means a person who has just died and still under preservatives. Herein, they have a way of transplanting this organ (Consultant Nephrologist).

Virtually any organ in the body can actually be donated, ok. You see, it is much easier when we talk about kidney and that is why I enjoy talking about the kidney because there are two organs. So one can actually be given out (Consultant Nephrologist).

The same thing goes for the heart, people donate their heart". Of course, a living person cannot donate, he can only sign a will that when I die, at the terminal stage, take my heart. The first heart transplant that was done was done in South Africa; Cape Town. It was an accident; an accident just happened and he was rushed to the theatre. Of course the chance for survival was low and so they discovered that the heart would be useful for someone else (Consultant Nephrologist).

So people can actually volunteer to donate to relations. I said a relation that is what the law supports now. It's not that I will just go and meet somebody and decide that I need money and wants to donate my kidney. It could be from father, mother, children or close friends (Consultant Nephrologist).

The interviewees explained further that there may or may not be any risks associated with organ donation depending on the type of donation and the part of the body that is to be donated. The following quotes reflect some of their responses:

> *It depends on if the person is alive or dead. I can't really say much about kidney transplant but as regard ophthalmology, people who donate cornea are people who don't need them, and so of no risk to them (Consultant Ophthalmologist).*

> *The risk, ehn, ehm, of course, they will put to sleep, surgery will be done, pain is one thing. Of course the risk that any patient that undergo surgery will be exposed is the same like pain, bleeding, anxiety, infection, yeah, those are the risks. We try as much as possible to reduce to the least minimum the risk from donation, ok. For kidney transplant that I know of, the percentage of donor dying as regards that is very rare (Consultant Nephrologist).*

One of the interviewees who stated specifically that it is important to avoid all risks associated with donation since the act of donation in itself is altruistic had this to say:

> *It is for the donor not to suffer and from what that means; it cuts across everything because you don't want them to suffer. Most of the time, we try as possible, the best of our effort to make sure that they don't suffer from anything because we see them as assisting, helping, rendering assistance, so why should they suffer and that is why we usually take them through the series of test, the pre-donation test, ok. So we take them through, so if their organ is not optimal, we don't take them, ok. As much as possible, psychologists are also involved in transplantation, we take them through psychological examinations, counselling and make life better for them after the transplantation (Consultant Nephrologist).*

Table 4.5: Respondents' level of knowledge about organ donation (N= 393)

Variable	Health Professionals				
	Doctors (N=146) N (%)	**Nurses (N=183) N (%)**	**Pharmacists (N=8) N (%)**	**Paramedics (N=38) N (%)**	**Health Record Officers (N=18) N (%)**
Respondents' Knowledge Grade:					
Good knowledge	47 (32.2)	20 (10.9)	2 (25.0)	9 (23.7)	1 (5.6)
Poor knowledge	99 (67.8)	163 (89.1)	6 (75.0)	29 (76.3)	17 (94.4)

Mean knowledge score = 17.6±5.8

Good knowledge score = >22

Poor knowledge score = ≤22

Table 4.6: Respondents' Knowledge of definition and purpose of Organ Donation (N=391)**

Variables	Health Professionals				
	Doctors (N=146) N (%)	**Nurses (N=181) N (%)**	**Pharmacists (N=8) N (%)**	**Paramedics (N=38) N (%)**	**Health Record Officers (N=18) N (%)**
Definition of organ donation:					
The removal of tissues of the human body from a deceased person	1 (0.7)	3 (1.6)	0 (0.0)	0 (0.0)	2 (11.1)
The removal of tissues of the human body from a living person	2 (1.4)	14 (7.7)	0 (0.0)	1 (2.6)	1 (5.6)
The removal of tissues of the human body from living or deceased person for the purpose of transplantation to another person*	95 (65.1)	110 (60.1)	4 (50.0)	25 (65.8)	13 (72.2)
The transfer of ova/foetus/sperm	0 (0.0)	2 (1.1)	0 (0.0)	0 (0.0)	0 (0.0)
The removal of tissues including ova, foetus, and sperm from a living or deceased person.	48 (32.9)	54 (29.5)	4 (50.0)	12 (31.6)	2 (11.1)
Reason why organ donation is done:					
To save someone's life*	146 (100.0)	174 (95.1)	8 (100.0)	38 (100.0)	17 (94.4)
Other reasons	0 (0.0)	7 (3.8)	0 (0.0)	0 (0.0)	1 (5.6)

*Correct response.

**No responses were excluded.

The other purposes of Organ Donation as stated by the health professionals were:

Nurses: Out of compassion/sympathy 2(1.1%), For money 2(1.1%), Out of threat 3(1.6%).

Health Record Officers: Out of compassion/sympathy 1(5.6%).

Tables 4.7 and 4.8 highlight the mentioned organs that can be donated for transplantation. The kidney (74.0%) topped the list of the mentioned organs that can be donated followed by bone marrow (33.1%), heart (32.1%), liver (27%), cornea (20.4%), lung (13.2%) and pancreas (3.6%). Only 22.6% of the respondents knew that all of the above mentioned organs can be donated for transplantation (Table 4.7).

Another question was asked to assess respondents' knowledge of organs that can be donated while alive. Majority (90.1%) knew that kidney can be donated while alive followed by bone marrow (35.1%), liver (17.3%), lung (10.7%) and pancreas (3.3%). Forty six (11.7%) and 20 (5.1%) participants mentioned cornea and heart respectively as organs that can be donated while alive. A total of 29 (7.4%) respondents also reported that all of the above mentioned organs can be donated while alive (Table 4.7).

Table 4.8 shows respondents knowledge of organs that can only be donated after death. A little above half (51.1%) and only 28.5% of the respondents reported the heart and cornea respectively as organs that can be donated only after death. A total of 83 (21.1%), 68 (17.3%), 65 (16.5%), 39 (9.9%) and 24 (6.1%) respondents reported that the liver, lung, kidney, pancreas and bone marrow respectively can only be donated after death. Also, 35 (8.9%) respondents believed that all of the above mentioned organs can be donated only after death.
The participants were asked to specify the organs that can be donated for transplantation while alive and after death. The details of their responses are also presented in Table 4.8. Majority (65.1%) of the respondents knew that kidney can be donated while alive and after death. On the other hand, only 22.1%, 17.6%, 11.2% and 2.5% of the respondents respectively knew that the bone marrow, liver, lung and pancreas can be donated both as living and cadaveric donations . A total of 65 (16.5%) and 35 (8.9%) respondents specified that the cornea and heart respectively can be donated while alive and after death while 9.4% of them also specified all of the above named organs as organs that can be donated while alive and after death.

Table 4.7: Respondents' Knowledge of organs that can be donated for transplantation

(N=393)

Variables	Health Professionals				
	Doctors (N=146) N (%)	**Nurses (N=183) N (%)**	**Pharmacists (N=8) N (%)**	**Paramedics (N=38) N (%)**	**Health Record Officers (N=18) N (%)**
Respondents' knowledge of organs that can be donated for transplantation*:					
Kidney	98 (67.1)	149 (81.4)	6 (75.0)	25 (65.8)	13 (72.2)
Bone Marrow	57 (39.0)	60 (32.8)	1 (12.5)	11 (28.9)	1 (5.6)
Heart	48 (32.9)	60 (32.8)	1 (12.5)	13 (34.2)	4 (22.2)
Liver	47 (32.2)	44 (24.0)	1 (12.5)	9 (23.7)	5 (27.8)
Cornea	42 (28.8)	33 (18.0)	0 (0.0)	4 (10.5)	1 (5.6)
Lung	23 (15.8)	21 (11.5)	0 (0.0)	8 (21.1)	0 (0.0)
Pancreas	8 (5.5)	5 (2.7)	0 (0.0)	1 (2.6)	0 (0.0)
All of the above	45 (30.8)	26 (14.2)	2 (25.0)	13 (34.2)	3 (16.7)
Respondents' knowledge of organs that can be donated for transplantation while alive*:					
Kidney	130 (89.0)	166 (90.7)	8 (100.0)	34 (89.5)	16 (88.9)
Bone marrow	71 (48.6)	47 (25.7)	3 (37.5)	15 (39.3)	2 (11.1)
Heart**	4 (2.7)	10 (5.5)	0 (0.0)	5 (13.2)	1 (5.6)
Liver	30 (20.5)	21 (11.5)	3 (37.5)	12 (31.6)	2 (11.1)
Cornea**	27 (18.5)	15 (8.2)	1 (12.5)	1 (2.6)	2 (11.1)
Lung	20 (13.7)	17 (9.3)	0 (0.0)	5 (13.2)	0 (0.0)
Pancreas	8 (5.5)	4 (2.2)	0 (0.0)	1 (2.6)	0 (0.0)
All of the above**	15 (10.3)	11 (6.0)	0 (0.0)	2 (5.3)	1 (5.6)

** Incorrect responses

*Multiple responses

Table 4.8: Respondents' Knowledge of organs that can be donated for transplantation

(N=393)

Variables	Health Professionals				
	Doctors (N=146) N (%)	**Nurses (N=183) N (%)**	**Pharmacists (N=8) N (%)**	**Paramedics (N=38) N (%)**	**Health Record Officers (N=18) N (%)**
Respondents' knowledge of organs that can be donated only after death*					
Kidney**	17 (11.6)	39 (21.3)	1 (12.5)	2 (5.3)	6 (33.3)
Bone marrow**	2 (1.4)	19 (10.4)	0 (0.0)	3 (7.9)	0 (0.0)
Heart	93 (63.7)	81 (44.3)	5 (62.5)	21 (55.3)	1 (5.6)
Liver**	34 (23.3)	42 (23.0)	1 (12.5)	2 (5.3)	4 (22.2)
Cornea	50 (34.2)	42 (23.0)	2 (25.0)	12 (31.6)	6 (33.3)
Lung**	25 (17.1)	37 (20.2)	2 (25.0)	3 (7.9)	1 (5.6)
Pancreas**	21 (14.4)	14 (7.7)	3 (37.5)	1 (2.6)	0 (0.0)
All of the above**	18 (12.3)	11 (6.0)	0 (0.0)	5 (13.2)	1 (5.6)
Respondents' knowledge of organs that can be donated while alive and after death*					
Kidney	94 (64.4)	129 (70.5)	5 (62.5)	19 (50.0)	9 (50.0)
Bone marrow	50 (34.2)	31 (16.9)	2 (25.0)	3 (7.9)	1 (5.6)
Heart**	6 (4.1)	18 (9.8)	1 (12.5)	8 (21.1)	2 (11.1)
Liver	37 (25.3)	19 (10.4)	2 (25.0)	7 (18.4)	4 (22.2)
Cornea**	32 (21.9)	19 (10.4)	1 (12.5)	9 (23.7)	4 (22.2)
Lung	16 (11.0)	23 (12.6)	1 (12.5)	3 (7.9)	1 (5.6)
Pancreas	6 (4.1)	4 (2.2)	0 (0.0)	1 (2.6)	0 (0.0)
All of the above**	17 (11.6)	13 (7.1)	0 (0.0)	5 (13.2)	2 (11.1)

*Multiple responses

** Incorrect responses

Table 4.9 shows respondents' detailed response concerning the organs that can be donated for transplantation in Nigeria health facilities. Majority (78.6%) of the respondents knew that kidney can be donated for transplantation in Nigeria health facilities. However, only a few of them knew that bone marrow (21.1%) and cornea (17.0%) can be donated for transplantation in Nigeria health facilities (see table 4.9 for details). On the other hand, 5.9% as well as 4.8%, 1.8% and 0.5% of the respondents respectively assumed that the heart, liver, lung and pancreas are organs of the human body that can be donated for transplantation in Nigeria. Four respondents, representing 1.0% of the total respondents also reported that all of the above mentioned organs can be donated for transplantation in Nigeria.

Table 4.10 highlights respondents' knowledge on the categories of people with certain health conditions who can benefit from organ donation while Table 4.11 presents respondents' answers on those who cannot donate an organ. Many (54.5%) respondents disclosed that people with end stage renal failure could benefit from the act of organ donation. End-stage heart failure (20.4%), sickle cell anaemia (13.0%), end-stage liver failure (8.9%), cancers particularly leukaemia (8.7%), cornea blindness (7.1%), aplastic anaemia (5.6%) and end-stage lung failure (3.3%) were also reported as health conditions people could possess to be able to benefit from organ donation. Some (1.8%) of the respondents also stated that children can benefit from organ donation. However, some respondents (1.5%) assumed that victims of road accidents were also among categories of people with certain health conditions that can benefit from organ donation (Table 4.10). About half (48.9%) of the respondents reported that people with HIV/AIDS cannot donate an organ. Sickle cell anaemia (18.1%), organ failure (14%), cancer (7.1%), pregnancy (6.3%), hypertension (4.8%) and diabetes (2.8%) were also rightly stated as conditions in which a person cannot be eligible to donate an organ. However, children (5.6%) and aged (5.6%) were reported as categories of people who cannot donate an organ (Table 4.11).

Table 4.9: Respondents' Knowledge of organs that can be donated for transplantation in Nigeria health facilities

(N=393)

Variables	Health Professionals				
	Doctors (N=146) N (%)	**Nurses (N=183) N (%)**	**Pharmacists (N=8) N (%)**	**Paramedics (N=38) N (%)**	**Health record officers (N=18) N (%)**
Respondents' knowledge of organs that can be donated in Nigeria health facilities*:					
Kidney	122 (83.6)	132 (72.1)	8 (100.0)	32 (84.2)	15 (83.3)
Bone marrow	36 (24.7)	35 (19.1)	1 (12.5)	10 (26.3)	1 (5.6)
Heart**	6 (4.1)	11 (6.0)	0 (0.0)	6 (15.8)	0 (0.0)
Liver**	4 (2.7)	3 (1.6)	2 (25.0)	5 (13.2)	5 (27.8)
Cornea	41 (28.1)	23 (12.6)	1 (12.5)	1 (2.6)	1 (5.6)
Lung**	2 (1.4)	3 (1.6)	0 (0.0)	2 (5.3)	0 (0.0)
Pancreas**	6 (4.1)	1 (0.5)	0 (0.0)	0 (0.0)	1 (5.6)
All of the above**	1 (0.7)	3 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)

*Multiple responses

** Incorrect responses

Table 4.10: Respondents' Knowledge of categories of people who can benefit from organ donation

(N= 393)

Variable	Health Professionals				
	Doctors (N=146) No (%)	**Nurses (N=183) No (%)**	**Pharmacists (N=8) No (%)**	**Paramedics (N=38) No (%)**	**Health record officers (N=18) No (%)**
Respondents' knowledge of categories of people who can benefit from organ donation*:					
End-stage renal failure patients	97 (66.4)	90 (49.2)	6 (75.0)	17 (44.7)	4 (22.2)
End-stage heart failure patients	30 (20.5)	37 (20.2)	0 (0.0)	10 (26.3)	3 (16.7)
Aplastic anaemic	11 (7.5)	9 (4.9)	1 (12.5)	0 (0.0)	1 (5.6)
Sickle cell anaemic	27 (18.5)	20 (10.9)	0 (0.0)	3 (7.9)	1 (5.6)
Cornea blind	15 (10.3)	11 (6.0)	0 (0.0)	2 (5.3)	0 (0.0)
End-stage liver failure patients	19 (13.0)	8 (4.4)	1 (12.5)	7 (18.4)	0 (0.0)
Road traffic accidents victims**	2 (1.4)	3 (1.6)	0 (0.0)	1 (2.6)	0 (0.0)
Cancer patients	16 (11.0)	17 (9.3)	0 (0.0)	1 (2.6)	0 (0.0)
Children	2 (1.4)	5 (2.7)	0 (0.0)	0 (0.0)	0 (0.0)
End-stage lung failure patients	6 (4.1)	7 (3.8)	0 (0.0)	0 (0.0)	0 (0.0)

*Multiple responses

** Incorrect responses

Table 4.11: Respondents' Knowledge of categories of people who cannot donate organs

(N=393)

Variable	Health Professionals				
	Doctors (N=146) No (%)	**Nurses (N=183) No (%)**	**Pharmacists (N=8) No (%)**	**Paramedics (N=38) No (%)**	**Health record officers (N=18) No (%)**
Respondents' knowledge of people who are not eligible to donate organs*:					
Sickle cell anaemic	30 (20.5)	29 (15.8)	0 (0.0)	7 (18.4)	5 (27.8)
Organ failure patients	25 (17.1)	20 (10.9)	2 (25.0)	7 (18.4)	1 (5.6)
HIV/AIDS patients	88 (60.3)	78 (42.6)	4 (50.0)	18 (47.4)	4 (22.2)
Cancer patients	13 (8.9)	12 (6.6)	1 (12.5)	2 (5.3)	0 (0.0)
Aged**	9 (6.2)	11 (6.0)	0 (0.0)	2 (5.3)	0 (0.0)
Pregnant women	8 (5.5)	10 (5.5)	1 (12.5)	1 (2.6)	5 (27.8)
Hypertensive	3 (2.1)	14 (7.7)	0 (0.0)	2 (5.3)	0 (0.0)
Diabetic	4 (2.7)	6 (3.3)	0 (0.0)	1 (2.6)	0 (0.0)
Children**	8 (5.5)	9 (4.9)	0 (0.0)	5 (13.2)	0 (0.0)

*Multiple responses
** Incorrect responses

The respondents were asked questions relating to knowledge about risks involved with organ donation. Most (93.1%) respondents reported that organ donation involves some risk to the donor. By category, all of the pharmacists and health record officers and most of the doctors (95.9%), paramedics (92.1%) and nurses (91.7%) knew that organ donation involves some risk to the donor. Only 2 (1.4%) doctors, 1 (0.6%) nurse and 1 (2.6%) paramedic reported that there are no risks involved in donating an organ. Also, 14 (7.7%) nurses, 4 (2.7%) doctors and 2 (5.3%) paramedics did not know if organ donation involves some risk to the donor. Of those who knew that organ donation involves some risk to the donor (93.1%), 42.3% reported that infection is one of the risks a donor could be exposed to followed by anxiety and depression (27.9%), bleeding (25.7%), pain (24.9%) and body weakness (13.9%). A total of 161 (44.0%) respondents knew that all of the above-mentioned are risks a donor could be exposed to. On the other hand, 5 (1.4%) respondents believed that a donor is also exposed to death (Table 4.12).

Table 4.13 highlights respondents' knowledge of the most important risk associated with organ donation. Out of the 366 (93.1%) respondents who reported that organ donation involves some risks to the donor, 45.3% of them were of the opinion that infection is the most important risk to avoid in a donor followed by bleeding (16.7%), anxiety and depression (14.2%), pain (4.1%) and body weakness (2.2%). Only 12.3% of the respondents agreed that all of the above mentioned risks are equally important and should all be avoided. On the other hand, 1.4% of the respondents believed that death is the most important risk associated with organ donation.

Table 4.12: Respondents' Knowledge of risks associated with Organ Donation

(N=366)

Variables	Health Professionals				
	Doctors (N=139) N (%)	**Nurses (N=166) N (%)**	**Pharmacists (N=8) N (%)**	**Paramedics (N=35) N (%)**	**Health Record Officers (N=18) N (%)**
Respondents' knowledge of risks associated with organ donation*:					
Infection	76 (54.7)	57 (34.3)	4 (50.0)	12 (34.3)	6 (33.3)
Body Weakness	16 (11.5)	18 (10.8)	1 (12.5)	8 (22.9)	8 (44.4)
Anxiety and Depression	45 (32.4)	38 (22.9)	4 (50.0)	6 (17.1)	9 (50.0)
Pain	36 (25.9)	39 (23.5)	4 (50.0)	8 (22.9)	4 (22.2)
Bleeding	44 (31.7)	38 (22.9)	3 (37.5)	6 (17.1)	3 (16.7)
All of the above	56 (40.3)	83 (50.0)	3 (37.5)	17 (48.6)	2 (11.1)
Others **	1 (0.7)	3 (1.8)	0 (0.0)	1 (2.9)	0 (0.0)

*Multiple responses

****** Doctors - other risk mentioned was death 1(0.7%)
Nurses - other risk mentioned was death 3(1.8%)
Paramedics - other risk mentioned was death 1(2.9%)

Table 4.13: Respondents' Knowledge of the most important risk associated with Organ Donation

(*N=353)

Variables	Health Professionals				
	Doctors (N=135) N (%)	**Nurses (N=160) N (%)**	**Pharmacists (N=7) N (%)**	**Paramedics (N=35) N (%)**	**Health Record Officers (N=16) N (%)**
Respondents' knowledge of the most important risk associated with organ donation:					
Infection	73 (54.0)	70 (43.8)	1 (14.3)	17 (48.6)	6 (37.5)
Body weakness	1 (0.7)	2 (1.2)	0 (0.0)	1 (2.9)	4 (25.0)
Anxiety and Depression	27 (20.0)	18 (11.2)	0 (0.0)	5 (14.3)	2 (12.5)
Pain	1 (0.7)	9 (5.6)	1(14.3)	3 (8.6)	1 (6.2)
Bleeding	14 (10.4)	36 (22.5)	4 (57.1)	5 (14.3)	2 (12.5)
All of the above	18 (13.3)	22 (13.8)	1 (14.3)	3 (8.6)	1 (6.3)
Others **	1 (0.7)	3 (1.9)	0 (0.0)	1 (2.9)	0 (0.0)

*No responses were excluded

** Doctors- other most important risk mentioned was death 1(0.7%)
Nurses- other most important risk mentioned was death 3(1.8%)
Paramedics- other most important risk mentioned was death 1(2.9%)

4.4 Attitude to Organ Donation

The proportion of respondents with positive and negative attitudinal scores relating to organ donation is shown in Table 4.14. Majority (72.3%) of the respondents had negative attitude to organ donation while only 27.7% had positive attitude. Respondents had a mean attitude score of 7.9±2.5 (see table 4.14 for details).

Tables 4.15a, 4.15b, 4.15c and 4.15d present respondents' attitude relating to organ donation. Most (92.9%) of the respondents agreed that organ donation saves lives and should be promoted. Majority (72.8%) of the respondents were of the view that donating organ to another person is charitable. Majority (71.4%) disagreed with the statement that "consenting to be cadaveric donors while alive is like enticing death. Likewise, majority (77.1%) dissented that the spirit of the dead is not peaceful if their organs live in another person's body. Few (4.3%) respondents opined that their religion does not allow organ donation. Similarly, few (13.3%) respondents opined that deceased organ donation be made mandatory by law. The view of 16.8% of the respondents was that organs of unclaimed prisoners should be targeted for organ donation. More than half (56.0%) of the respondents averred that it is important for a person to be buried with all their organs. One-third (33.8%) of the respondents admitted that they would not allow their family members to donate their organs.

The interviewees were of the opinion that they would be willing to receive organ if the need arises since they know that when the solution to a health challenge reaches the stage of organ transplantation, then it means that is the only medically feasible option. A typical response of one of the interviewees is:

> *Why not. When it comes to organ transplantation as the only option, it means that you either take it and live or leave it and die (Consultant Ophthalmologist).*

An interviewee who was willing to receive organ if need be but was however not sure to be ready to donate citing circumstances as what would be the determinant had this to say:

> *I may not be able to tell you if I would donate or not but circumstances would determine. Personally, I don't have anything against organ donation. Of course, I will be willing to receive transplantation treatment (Consultant Nephrologist).*

Table 4.14: Respondents' Organ Donation Attitudinal Score (N=394)

Variable	Health Professionals				
	Doctors (Mean±SD)	Nurses (Mean±SD)	Pharmacists (Mean±SD)	Paramedics (Mean±SD)	Health Record Officers (Mean±SD)
Respondents' Mean Attitudinal Score	8.6±2.3	7.5±2.6	7.6±1.9	7.9±2.1	6.4±2.1

Overall mean attitudinal score = 7.9±2.5

Good attitudinal score = >9

Poor attitudinal score = ≤9

Table 4.15a: Respondents' Attitude relating to Organ Donation

(N=394)

Attitudinal statement	**Agree**	**Disagree**	**Not sure**
	No. (%)	**No. (%)**	**No. (%)**
Organ donation saves lives and should be promoted			
Doctors (N= 146)	141 (96.6)	0 (0.0)	5 (3.4)
Nurses (N= 183)	165 (90.1)	8 (4.4)	10 (5.5)
Pharmacists (N= 8)	7 (87.5)	0 (0.0)	1 (12.5)
Paramedics (N= 38)	36 (94.7)	1 (2.6)	1 (2.6)
Health record officers (N= 19)	17 (89.5)	0 (0.0)	2 (10.5)
Donating organ to another person is charitable			
Doctors (N= 146)	106 (72.6)	33 (22.6)	7 (4.8)
Nurses (N= 183)	142 (77.6)	28 (15.3)	13 (7.1)
Pharmacists (N= 8)	6 (75)	0 (0.0)	2 (25)
Paramedics (N= 38)	26 (68.4)	11 (28.9)	1 (2.6)
Health record officers (N= 19)	7 (36.8)	9 (47.4)	3 (15.8)
My religion does not allow organ donation			
Doctors (N= 146)	4 (2.7)	129 (88.4)	13 (8.9)
Nurses (N= 183)	8 (4.4)	147 (80.3)	28 (15.3)
Pharmacists (N= 8)	0 (0.0)	5 (62.5)	3 (37.5)
Paramedics (N= 38)	4 (10.5)	29 (76.3)	5 (13.2)
Health record officers (N= 19)	1 (5.3)	15 (78.9)	3 (15.8)
Deceased organ donation should be made mandatory by law			
Doctors (N= 146)	17 (11.6)	111 (76.0)	18 (12.3)
Nurses (N= 183)	23 (12.6)	138 (75.4)	22 (12.0)
Pharmacists (N= 8)	0 (0.0)	6 (75.0)	2 (25.0)
Paramedics (N= 38)	11 (28.9)	23 (60.5)	4 (10.5)
Health record officers (N= 19)	1 (5.3)	15 (78.9)	3 (12.4)

Table 4.15b: Respondents' Attitude relating to Organ Donation

(N=394)

Attitudinal statement	Agree	Disagree	Not sure
	No. (%)	No. (%)	No. (%)
Organs of unclaimed prisoners should be targeted for donation			
Doctors (N= 146)	31 (21.2)	84 (57.5)	31 (21.2)
Nurses (N= 182)	24 (13.2)	125 (68.7)	33 (18.1)
Pharmacists (N= 8)	1 (12.5)	5 (62.5)	2 (25.0)
Paramedics (N= 38)	9 (23.7)	26 (68.4)	3 (7.9)
Health record officers (N= 19)	1 (5.3)	15 (78.9)	3 (15.8)
Health Professionals should be role models for donation by becoming donors			
Doctors (N= 146)	27 (18.5)	90 (61.6)	29 (19.9)
Nurses (N= 183)	43 (23.5)	114 (62.3)	26 (14.2)
Pharmacists (N= 8)	0 (0.0)	7 (87.5)	1 (12.5)
Paramedics (N= 38)	12 (31.6)	20 (52.6)	6 (15.8)
Health record officers (N= 19)	4 (21.1)	14 (73.7)	1 (5.3)
It should be mandatory that critically ill and dying patients be approached or their relatives approached to ask about organ donation			
Doctors (N= 146)	49 (33.6)	61 (41.8)	36 (24.7)
Nurses (N= 183)	49 (26.8)	101 (55.2)	33 (18.0)
Pharmacists (N= 8)	4 (50.0)	3 (37.5)	1 (12.5)
Paramedics (N= 38)	14 (36.8)	19 (50.0)	5 (13.2)
Health record officers (N= 19)	7 (36.8)	10 (52.6)	2 (10.5)
Organ donation is about 'playing god'			
Doctors (N= 146)	5 (3.4)	129 (88.4)	12 (8.2)
Nurses (N= 182)	20 (11.0)	124 (68.1)	38 (20.9)
Pharmacists (N= 8)	1 (12.5)	6 (75.0)	1 (12.5)
Paramedics (N= 38)	3 (7.9)	28 (73.7)	7 (18.4)
Health record officers (N= 19)	5 (26.3)	9 (47.4)	5 (26.3)

Table 4.15c: Respondents' Attitude relating to Organ Donation

(N=394)

Attitudinal statement	**Agree**	**Disagree**	**Not sure**
	No. (%)	**No. (%)**	**No. (%)**
I regard donating my organs as a way of serving God			
Doctors (N= 146)	55 (37.7)	66 (45.2)	25 (17.1)
Nurses (N= 182)	49 (26.9)	90 (49.5)	43 (23.6)
Pharmacists (N= 8)	1 (12.5)	4 (50.0)	3 (37.5)
Paramedics (N= 38)	11 (28.9)	18 (47.4)	9 (23.7)
Health record officers (N= 19)	6 (31.6)	9 (47.4)	4 (21.1)
It is not important for a dead person to be buried with all their organs			
Doctors (N= 146)	55 (37.7)	69 (47.2)	22 (15.1)
Nurses (N= 182)	42 (23.1)	114 (62.6)	26 (14.3)
Pharmacists (N= 8)	6 (75.0)	1 (12.5)	1 (12.5)
Paramedics (N= 38)	12 (31.6)	24 (63.2)	2 (5.3)
Health record officers (N= 19)	6 (31.6)	12 (63.2)	1 (5.3)
Agreeing when alive to donate organs as a gift when one dies is like tempting death			
Doctors (N= 146)	6 (4.1)	120 (82.2)	20 (13.7)
Nurses (N= 181)	24 (13.3)	120 (66.3)	37 (20.4)
Pharmacists (N= 8)	1 (12.5)	7 (87.5)	0 (0.0)
Paramedics (N= 38)	8 (21.1)	25 (65.8)	5 (13.2)
Health record officers (N= 19)	5 (26.3)	8 (42.1)	6 (31.6)

Table 4.15d: Respondents' Attitude relating to Organ Donation

(N=394)

Attitudinal statement	**Agree**	**Disagree**	**Not sure**
	No. (%)	**No. (%)**	**No. (%)**
Organs should not be removed from someone who is brain dead because the person is still alive			
Doctors (N= 146)	46 (31.5)	69 (47.3)	31 (21.2)
Nurses (N= 183)	73 (39.9)	70 (38.2)	40 (21.9)
Pharmacists (N= 8)	3 (37.5)	4 (50.0)	1 (12.5)
Paramedics (N= 38)	23 (60.5)	9 (23.7)	6 (15.8)
Health record officers (N= 19)	11 (57.9)	4 (21.1)	4 (21.1)
The spirit of a dead person is not peaceful if their organs live in the body of another person			
Doctors (N= 146)	4 (2.7)	127 (87.0)	15 (10.3)
Nurses (N= 182)	12 (6.6)	132 (72.5)	38 (20.9)
Pharmacists (N= 8)	0 (0.0)	7 (87.5)	1 (12.5)
Paramedics (N= 38)	3 (7.9)	26 (68.4)	9 (23.7)
Health record officers (N= 19)	5 (26.3)	11 (57.9)	3 (15.8)
I cannot donate but I will be willing to receive organ from a donor			
Doctors (N= 146)	11 (7.5)	95 (65.1)	40 (27.4)
Nurses (N= 183)	22 (12.0)	105 (57.4)	56 (30.6)
Pharmacists (N= 8)	2 (25.0)	2 (25.0)	4 (50.0)
Paramedics (N= 38)	6 (15.8)	24 (63.2)	8 (21.1)
Health record officers (N= 19)	5 (26.3)	9 (47.4)	5 (26.3)
I would allow my family members to donate their organs			
Doctors (N= 146)	58 (39.7)	32 (21.9)	56 (38.4)
Nurses (N= 182)	40 (22.0)	78 (42.8)	64 (35.2)
Pharmacists (N= 8)	1 (12.5)	4 (50.0)	3 (37.5)
Paramedics (N= 38)	12 (31.6)	11 (28.9)	15 (39.5)
Health record officers (N= 19)	3 (15.8)	8 (42.1)	8 (42.1)

4.5 Prevalence of organ donation practice

Most (98.2%) respondents reported that they did not know anyone who had ever donated an organ. Also, none of the respondents had donated or received an organ. About forty percent (39.8%) of the respondents however stated that they had been told of someone who donated an organ.

Though the in-depth interviewees could not give an exact prevalence of organ donation practice, they however noted that the practice is very poor among the general public and even among health professionals. Adverse beliefs and negative perceptions were mentioned as reasons for the poor prevalence of organ donation. Typical responses which relate to prevalence of organ donation practice include:

> *It is low, very low from my own observation but I don't have any statistics or data. I have so many patients that are actually waiting. I am sorting out one that is yet to get a donor. It is very low, the prevalence is very low. But in all, observations have shown, in fact, publications anyway have shown that it is quite low (Consultant Nephrologist).*

> *Oh, it's very poor. Ha ha ha. It is really very poor and even many of us are so fetish. That is just it. The upbringing, what you have grown up to know. So many fetish things, for example people will tell you that ehm after abdominal surgery, you shouldn't take milk because to them it's the milk that can, that can ehm transform into pus that starts coming out, u know some beliefs. So about the eye too, like I had asked somebody in the past, there was a child that came to see us who I thought would benefit from cornea transplantation and I told the mother that the child should go for that. She said no, how can I, how can they get another person's ehm part of another person's eye and ehm sow to the daughter's eye that is one and then secondly that if that opening, if that cornea is removed, that in the next world, the child may come out with a hole in the eyes, you know and such beliefs. So some beliefs adversely affect it (Consultant Ophthalmologist).*

4.6 Intention to Donate Organs

A total of 331 (84%) respondents were in support of organ donation while 63 (15.0%) were not in support. Support for organ donation was highest among the doctors (95.2%), followed by paramedics (86.8%), nurses (77.6%), pharmacists (75.0%) and health record officers (57.9%). Of those in support of organ donation, 22.4% were supportive of living donations alone and 13.6% were supportive of cadaveric donations alone. On the other hand, majority (64.0%) were in support of both living and cadaveric donations.

A total of 174 (44.2%) respondents were willing to become organ donors while more than half (55.8%) of the respondents were unwilling to donate their organs (Table 4.16). Of those willing to donate their organs, 29.3% preferred to be living donors alone, 21.3% preferred to be cadaveric donors alone and 49.4% preferred to be both living and cadaveric donors (Table 4.16). Table 4.17 presents respondents motivation for organ donation. The greatest motivation towards organ donation was to save lives (19.0%) followed by if loved one needed an organ (13.2%).

Respondents who were willing to be living donors (34.8%) were asked to mention the organs they were willing to donate. Kidney (87.6%) topped the list of mentioned organs followed by bone marrow (30.0%), liver (1.5%), cornea (1.3%) and lung (0.5%). Less than two percent (1.3%) of the respondents also reported that they were willing to donate all the above named organs while alive. In response to the question; "who will you be willing to donate to", 54.0% of them reported that they would love to donate to their family members while 46% would be willing to donate to anyone in need (Figure 4.1). Respondents who were not willing to be living donors (65.2%) were asked to state reasons for their refusal, the results of which are presented on Table 4.18. Adverse health consequences (33.9%), fear of death (17.5%) and lack of conviction to donate (12.5%) were the major reasons adduced for unwillingness to be living donors.

Table 4.19 presents response of respondents who were willing to be cadaveric donors (31.2%) on the organs they were willing to donate. Kidney (47.2%) topped the list of mentioned organs while the least mentioned organ was the lung (1.6%). When asked to state if they would be willing to communicate their decision to be cadaveric donors to their family members, most (90.2%) replied in the affirmative while only 12 (9.8%) reported that they

would not wish to tell their families. On whether they would be ready to back their donation decision by law, majority (71.5%) reported they would while 28.5% reported that they would not (Table 4.20). Majority (68.8%) of the respondents were not willing to be cadaveric donors. Reasons adduced for this included not having considered it (46.0%), its complicated process (23.4%) and religious implications (20.4%). The details of this are presented on Table 4.21.

Sixty six percent of the respondents reported that as a next of kin, they would respect family members' donation decision after their death while 34.0% reported that they would not. In order to promote organ donation, majority believed that education (73.6%) and media publicity (68.8%) was imperative. Some respondents believed that legislations (15.5%) could help to promote organ donation while 12.4% supported the use of incentives. About two percent (1.5%) of the respondents however reported that nothing should be done to promote organ donation.

Respondents' opinion of the influence of the study on their disposition to organ donation and the reasons for this opinion was asked. A total of 140 (35.5%) respondents reported that the interview had an influence on their view about organ donation while 254 (64.5%) stated that the interview did not influence them in any way. Of those who declared that the interview influenced them positively, 57.9% reported that it served as an avenue for sensitization, 38.6% reported that it provided them an opportunity to think about organ donation and 2.9% stated that it aroused their interest in the field of organ donation. Of those who reported that the interview had no influence on them, having an opinion about organ donation prior interview (26.0%), the need for more enlightenment (20.1%) and fear of death (16.5%) were the principal reasons cited for this.

The in-depth interviewees were in support of organ donation and of the view that organ donation is something that is good. The following quotes reflect some of their comments:
Talking about organ donation, personally I don't have anything against organ donation (Consultant Nephrologist).

It is something that is good. But here in Nigeria, talking about organ donation, the readiness is very very low. As a professional, it is better for the person to have a cornea transplant to ease the person. Since no one needs it forever, I think people should donate. If a relation of mine needs a cornea, he/she can have the two (Consultant Ophthalmologist).

The interviewees disclosed further that people including health professionals are not willing to donate their organs. They also gave reasons why people are not willing to donate their organs to include fear and uncertainty of organ donation outcome, religious and cultural beliefs. Some of their responses were as follows:

People are not ready to donate their organ and even when they die, they are not ready to donate their organ, that's what my observations have also shown. The way I talk to people is as if you are giving your blood. I give them a good example of myself, that as tiny that I am, I still donate blood. So, no one can take your blood if you are not fit, the same applies to your organ (Consultant Nephrologist).

It is a big challenge not just in Nigeria but all over. Even if you go to places like US, UK, you will hear people saying that they are on queue, they have to wait for the time when somebody will be available, ok. When an organ will be available could mean that maybe somebody has signed his will, that when am dying, remove this organ and give it out. That is where people are well taught and informed. but here, even when someone dies and you want to do autopsy, I don't know the percentage of autopsies we have done in this hospital but it also applies in other centres and not just here. I want to believe it is worse in the north due to religious and cultural belief (Consultant Nephrologist).

And ehm we had a conference once, even ophthalmologist, people were asked if they were ready to, can donate their cornea, you would be surprised that some didn't want it. So it is upbringing and what people are used to but they didn't state their reasons (Consultant Ophthalmologist).

The interviewees agreed that health education strategies like training of health personnel, awareness campaign, advocacy and education are needed to encourage health professionals and the general public to donate their organs. They were also of the opinion that making information about successful organ donation available to the public will help to promote organ donation. Their typical responses include the following:

> *Awareness, create awareness, public awareness, give loans, organise programs in the community, write papers, awareness, education, awareness (Consultant Nephrologist).*

> *Knowledge. People need to be educated of its significance because the educational level of Nigerians is low and it should be made affordable at all levels that is health education. Also, people need to see results and successes achieved in the health sector to encourage people; as results speak for itself. Well, there have to be encouragement from the government. People should be trained and sent for further studies (Consultant Ophthalmologist).*

They explained further that promoting organ donation is not just the duty of the government but also the health professionals and the entire populace. The following quotes reflect some of their comments:

> *The success rate as far as transplantation in Nigeria is concerned is good. It is our duty to encourage the donors and we implore others to support us in educating and creating the readiness and awareness to people as regards organ donation, ok. My opinion is that it is good but we need cooperation, a good understanding and a need to create more awareness to people (Consultant Nephrologist).*

> *We should educate ourselves, organise programmes to educate ourselves because that is where it starts from, because we relate with the people more. Many of them will come to us to ask for our opinion, so we should educate ourselves. we should get ourselves informed that, look, that you are donating an organ, nobody will pick an organ for you with the mind that after you are gone and the man that you donated to is alive, no, no sane doctor will do that. So, it is creating awareness, educating ourselves (Consultant Nephrologist).*

Table 4.16: Respondents' Willingness to Donate Organs

(N=394)

Variables	Health Professionals				
	Doctors (N=146) N (%)	**Nurses (N=183) N (%)**	**Pharmacists (N=8) N (%)**	**Paramedics (N=38) N (%)**	**Health Record Officers (N=19) N (%)**
Willing to donate organs:					
Yes	86 (58.9)	60 (32.8)	4 (50.0)	16 (42.1)	8 (42.1)
No	60 (41.1)	123 (67.2)	4 (50.0)	28 (57.9)	11 (57.9)
Willingness to be Living Donor, Cadaveric Donor or Both (N=174)					
	Doctors (N=86) N (%)	**Nurses (N=60) N (%)**	**Pharmacists (N=4) N (%)**	**Paramedics (N=16) N (%)**	**Health Record Officers (N=8) N (%)**
Willing to donate while alive alone:					
Yes	22 (25.6)	15 (25.0)	3 (75.0)	6 (37.5)	5 (62.5)
Willing to donate after death alone:					
Yes	22 (25.6)	11 (18.3)	0 (0.0)	2 (12.5)	2 (25.0)
Willing to donate while alive and after death:					
Yes	42 (48.8)	34 (56.7)	1 (25.0)	8 (50.0)	1 (12.5)

Table 4.17: Respondents' Motivation towards Organ Donation

(N=117)

Variable	Health Professionals				
	Doctors (N=58) N (%)	**Nurses (N=37) N (%)**	**Pharmacists (N=2) N (%)**	**Paramedics (N=6) N (%)**	**Health Record Officers (N=14) N (%)**
Motivation towards Organ Donation:					
Love one in need	13 (22.4)	6 (16.2)	1 (50.0)	2 (33.3)	1 (7.1)
Knowing I can save lives	13 (22.4)	13 (35.1)	1 (50.0)	4 (66.7)	2 (14.3)
Incentives	20 (34.5)	0 (0.0)	0 (0.0)	0 (0.0)	1 (7.1)
If others donate	12 (20.7)	0 (0.0)	0 (0.0)	0 (0.0)	10 (71.4)
Sense of responsibility and pride	0 (0.0)	18 (48.6)	0 (0.0)	0 (0.0)	0 (0.0)

* No responses were excluded

N= 137

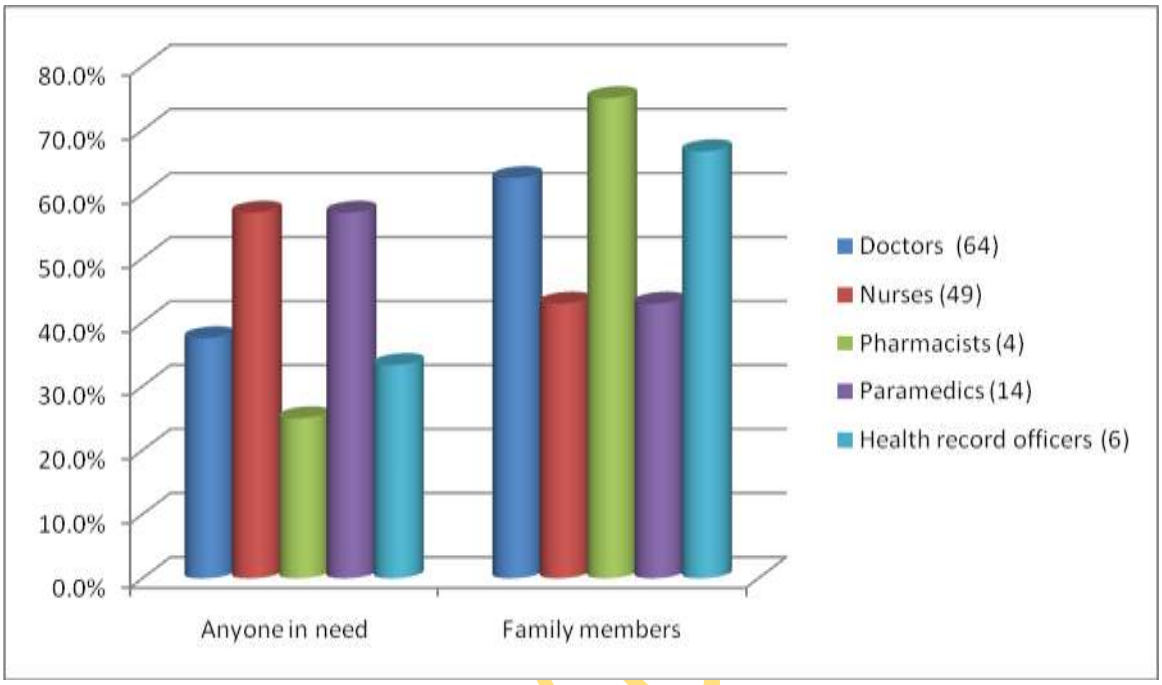

Figure 4.1: Respondents' Favoured Recipients of their Organs

Table 4.18: Respondents' reasons for unwillingness to be living donors*

(N=257)

Variable	Health Professionals				
	Doctors (N=82) N (%)	**Nurses (N=134) N (%)**	**Pharmacists (N=4) N (%)**	**Paramedics (N=24) N (%)**	**Health Record Officers (N=13) N (%)**
Reasons for unwillingness to be living donors:					
Adverse health consequences	19 (23.2)	56 (41.8)	1 (25.0)	7 (29.2)	4 (30.8)
Lack of conviction to donate	12 (14.6)	11 (8.2)	0 (0.0)	8 (33.3)	1 (7.7)
Fear of death	10 (12.2)	27 (20.1)	0 (0.0)	5 (20.8)	3 (23.1)
Never considered organ donation	13 (15.9)	7 (5.2)	0 (0.0)	0 (0.0)	0 (0.0)
I also need the organs to live optimally	13 (15.9)	14 (10.4)	1 (25.0)	2 (8.3)	1 (7.7)
My religion does not support organ donation	6 (7.3)	7 (5.2)	2 (50.0)	1 (4.2)	2 (15.4)
I just don't wish to donate my organs	10 (12.2)	10 (7.5)	1 (25.0)	2 (8.3)	4 (30.8)
Organ donation is not good for females	0 (0.0)	1 (0.7)	1 (25.0)	0 (0.0)	1 (7.7)
Uncertain about competency of medical practice	4 (4.9)	8 (6.0)	0 (0.0)	1 (4.2)	5 (38.5)

*Multiple responses

Table 4.19: Organs that respondents were willing to Donate after Death*

(N=123)

Variable	Health Professionals				
	Doctors (N=64) N (%)	**Nurses (N=45) N (%)**	**Pharmacists (N=1) N (%)**	**Paramedics (N=10) N (%)**	**Health Record Officers (N=3) N (%)**
Organs:					
Kidney	30 (46.9)	23 (51.1)	0 (0.0)	4 (40.0)	1 (33.3)
Heart	5 (7.8)	6 (13.3)	0 (0.0)	2 (20.0)	1 (33.3)
Cornea	12 (18.8)	5 (11.1)	0 (0.0)	1 (10.0)	0 (0.0)
Liver	5 (7.8)	0 (0.0)	0 (0.0)	1 (10.0)	1 (33.3)
Lung	0 (0.0)	2 (4.4)	0 (0.0)	0 (0.0)	0 (0.0)
Bone marrow	4 (6.3)	6 (13.3)	0 (0.0)	0 (0.0)	0 (0.0)
Pancreas	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
All of the above	27 (42.2)	16 (35.6)	1 (100.0)	4 (40.0)	0 (0.0)

*Multiple responses

Table 4.20: Respondents' Willingness to Communicate and Legally uphold Organ Donation Decision

(N=123)

Variables	Health Professionals				
	Doctors (N=64) N (%)	**Nurses (N=45) N (%)**	**Pharmacists (N=1) N (%)**	**Paramedics (N=10) N (%)**	**Health Record Officers (N=3) N (%)**
Willingness to communicate donation decision to family members:					
Yes	58 (90.6)	42 (93.3)	1 (100.0)	9 (90.0)	1 (33.3)
No	6 (9.4)	3 (6.7)	0 (0.0)	1 (10.0)	2 (66.7)
Willingness to back donation decision by law:					
Yes	47 (73.4)	30 (66.7)	1(100.0)	8 (80.0)	2 (66.7)
No	17 (26.6)	15 (33.3)	0 (0.0)	2 (20.0)	1 (33.3)

Table 4.21: Respondents' reasons for unwillingness to be Cadaveric Donors*

(N=271)

Variable	Health Professionals				
	Doctors (N=82) N (%)	**Nurses (N=138) N (%)**	**Pharmacists (N=7) N (%)**	**Paramedics (N=28) N (%)**	**Health Record Officers (N=16) N (%)**
Reasons for unwillingness to be cadaveric donors:					
Cannot decide, need family consent	2 (2.4)	6 (4.3)	1 (14.3)	2 (7.1)	1 (6.3)
Never thought about organ donation	49 (59.8)	57 (41.3)	2 (28.6)	7 (25.0)	10 (62.5)
Not ready to help someone this way	6 (7.3)	7 (5.1)	1 (14.3)	2 (7.1)	0 (0.0)
Organ donation is not necessary	2 (2.4)	1 (0.7)	0 (0.0)	0 (0.0)	0 (0.0)
Would be very old by the time I will die	2 (2.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
People will regard one as a cultist if body is mutilated	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.3)
Concerned about its complicated process	19 (23.2)	32 (23.2)	1 (14.3)	8 (28.6)	4 (25.0)
Lack of adequate knowledge about organ donation	5 (6.1)	15 (10.9)	0 (0.0)	2 (7.1)	1 (6.3)
Uncertain about its religious implication	14 (17.1)	30 (21.7)	2 (28.6)	7 (25.0)	2 (12.5)
My body shall be kept whole as my parent gave it to me	4 (4.9)	23 (16.7)	1 (14.3)	4 (14.3)	4 (25.0)
If God says so	0 (0.0)	1 (0.7)	0 (0.0)	1 (3.6)	0 (0.0)

*Multiple responses

4.7 Test of hypothesis

4.7.1 Hypothesis 1

There is no relationship between socio-demographic variables (kind of profession, age, sex, religion and educational qualification) and knowledge about organ donation among health professionals in LTH, Osogbo.

Table 4.22 shows respondents' knowledge about organ donation by selected socio-demographic characteristics. The distribution of respondents with good scores among the doctors, nurses, pharmacists, paramedics and health record officers were 32.2%, 10.9%, 25.0%, 23.7% and 5.3% respectively. Overall, there was significant relationship between knowledge about organ donation and profession of respondents.

Good knowledge about organ donation increased by age. The proportion of health professionals with good knowledge about organ donation among those aged 20-29, 30-39 and 40-55 years were 15.4%, 19.3% and 28.9% respectively. Overall, there was no significant relationship between knowledge about organ donation and age of respondents.

The proportion of male respondents with good knowledge about organ donation was 25.9% and this is higher than the proportion of female respondents with good knowledge (15.9%). There was significant relationship between sex and level of knowledge about organ donation.

More Muslims (21.2%) had good knowledge about organ donation compared with adherents of Christian religion (19.8%). There was however no significant relationship between religion and level of knowledge about organ donation.

There was a positive relationship between educational qualification and knowledge that is knowledge about organ donation was highly associated with increasing level of medical education. For instance, 6.8% of respondents with National Diploma as their highest educational qualification had good knowledge about organ donation. The proportion of respondents who had good knowledge about organ donation among those with first degree and postgraduate degree as their highest educational qualification was 21.9% and 31.7% respectively. A similar pattern was observed among respondents with poor knowledge about organ donation. Overall, there was significant relationship between knowledge about organ donation and educational qualification.

In view of the fact that there was a significant individual relationship between respondents' profession, sex, educational qualification and knowledge about organ donation, the null hypothesis was rejected. On the other hand, there was no significant relationship between respondents' age, religion and knowledge about organ donation, therefore the null hypothesis failed to be rejected.

In order to determine the factors that influenced respondents' knowledge of organ donation, the variables (profession, sex and educational qualification) that were significant at 5% were further inputted into the logistic regression model and analysed to adjust for possible confounding factors. Considering the effects of all the variables that are interacting, profession, sex and educational qualification did not remain significant predictors of knowledge of organ donation in the binary logistic regression model (Table 4.23).

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Table 4.22: Respondents' level of Knowledge about Organ Donation by Demographic Characteristics

(N=393)

Characteristics	Level of Knowledge			p-value
	Good N (%)	Poor N (%)	Total N (%)	
Profession				
Doctors	47 (32.2)	99 (67.8)	146 (100.0)	X^2= 0.00
Nurses	20 (10.9)	163 (89.1)	183 (100.0)	p<0.05
Pharmacists	2 (25.0)	6 (75.0)	8 (100.0)	
Paramedics	9 (23.7)	29 (76.3)	38 (100.0)	
Health record officers	1 (5.6)	17 (94.4)	18 (100.0)	
Age group (in years)				
20-29	19 (15.4)	104 (84.6)	123 (100.0)	X^2= 0.06
30-39	36 (19.3)	151 (80.7)	187 (100.0)	p>0.05
40-55	24 (28.9)	59 (71.1)	83 (100.0)	
Type of religion				
Christian	61 (19.8)	247 (80.2)	308 (100.0)	X^2= 0.77
Islam	18 (21.2)	67 (78.8)	85 (100.0)	p>0.05
Sex				
Male	43 (25.9)	123 (74.1)	166 (100.0)	X^2= 0.01
Female	36 (15.9)	191 (84.1)	227 (100.0)	p<0.05
Educational qualification				
National Diploma	6 (6.8)	82 (93.2)	88 (100.0)	X^2= 0.00
First degree	53 (21.9)	189 (78.1)	242 (100.0)	p<0.05
Postgraduate degree	20 (31.7)	43 (68.3)	63 (100.0)	

Table 4.23: Factors that influenced respondents' knowledge of organ donation

Variables	p-value	Odds ratio (95% CI)
Profession:	0.06	
Doctors	0.08	6.52 (0.81 – 52.16)
Nurses	0.42	2.37 (0.30 – 18.88)
Pharmacists	0.23	4.91 (0.36 – 67.00)
Paramedics	0.17	4.60 (0.52 – 40.41)
Health record officers**		1.00
Sex:		
Male	0.95	1.02 (0.58-1.79)
Female**		1.00
Educational qualification:	0.29	
Postgraduate degree	0.56	1.22(0.63 – 2.38)
First degree	0.16	0.48 (0.18 – 1.32)
National Diploma**		1.00

**Reference category

4.7.2 Hypothesis 2

There is no relationship between socio-demographic variables (kind of profession, age, sex, religion and educational qualification) and attitude to organ donation among health professional in LTH, Osogbo.

Table 4.24 shows respondents' attitude to organ donation by selected socio-demographic characteristics. The selected characteristics were profession, age, sex, religion and educational qualification. The distribution of respondents with positive attitude among the doctors, nurses, pharmacists, paramedics and health record officers were 41.1%, 21.9%, 12.5%, 21.1% and 5.3% respectively. Overall, there was significant relationship between attitude to organ donation and profession of respondents.

The proportion of respondents with positive attitude among those aged 20-29, 30-39 and 40-55 years were respectively 27.4%, 29.9% and 24.1%. Overall, there was no significant relationship between attitude to organ donation and respondents' age.

The proportion of male respondents with positive attitude to organ donation was 38.0% and this was higher than the proportion of female respondents with positive attitude (20.6%). There was significant relationship between attitude to organ donation and sex of respondents.

More Christians (72.8%) had negative attitude to organ donation compared with adherents of Islamic religion (69.4%). There was however no significant relationship between attitude to organ donation and respondents' religion.

There was a positive relationship between educational qualification and attitude that is positive attitude increased with educational qualification. For instance, 20.5% of respondents with National Diploma as their highest educational qualification had positive attitude to organ donation. The proportion of respondents who had positive attitude to organ donation among those with first degree and postgraduate degree as their highest educational qualification was 29.6% and 31.7% respectively. Overall, there was no significant relationship between attitude to organ donation and educational qualification.

The null hypothesis failed to be rejected since there was no significant relationship between age group, religion, educational qualification and attitude to organ donation. For the other characteristics that were significant (profession and sex), the null hypothesis was rejected.

The factors that influenced attitude to organ donation are presented on table 4.25. The variables (profession and sex) that were significant at 5% were inputted into the logistic regression model and analysed to adjust for possible confounding factors. The logistic regression analysis showed that profession and sex remained significant predictors of respondents' attitude to organ donation indicating that sex and the kind of profession were factors that influenced their attitude to organ donation. Comparatively, doctors were nine times more likely to have a positive attitude to organ donation than those who were health record officers (OR: 9.35, 95% CI: 1.20–73.19). Similarly, the effect of sex on attitude to organ donation was also significant (p=0.02), indicating that the male respondents were about two times more likely to have a positive attitude to organ donation than the female respondents (OR: 1.83, 95% CI: 1.11–3.03).

Table 4.24: Respondents' attitude to Organ Donation by selected Demographic Characteristics

(N = 394)

Characteristics	Attitudinal Disposition			p-value
	Positive N (%)	Negative N (%)	Total N (%)	
Profession:				
Doctors	60 (41.1)	86 (58.9)	146 (100.0)	X^2= 0.00
Nurses	40 (21.9)	143 (78.1)	183 (100.0)	p<0.05
Pharmacists	1 (12.5)	7 (87.5)	8 (100.0)	
Paramedics	8 (21.1)	30 (78.9)	38 (100.0)	
Health record officers	1 (5.3)	18 (94.7)	19 (100.0)	
Age (in years):				
20-29	34 (27.4)	90 (72.6)	124 (100.0)	X^2= 0.61
30-39	56 (29.9)	131 (70.1)	187 (100.0)	p>0.05
40-55	20 (24.1)	63 (75.9)	83 (100.0)	
Religion:				
Christian	84 (27.2)	225 (72.8)	309 (100.0)	X^2= 0.54
Islam	26 (30.6)	59 (69.4)	85 (100.0)	p>0.05
Sex:				
Male	63 (38.0)	103 (62.0)	166 (100.0)	X^2= 0.00
Female	47 (20.6)	181 (79.4)	228 (100.0)	p<0.05
Educational qualification:				
Postgraduate degree	20 (31.7)	43 (68.3)	63 (100.0)	X^2= 0.20
First degree	72 (29.6)	171 (70.4)	243 (100.0)	p>0.05
National Diploma	18 (20.5)	70 (79.5)	88 (100.0)	

Table 4.25: Factors that Influenced Respondents' Attitude towards Organ Donation

Variables	p-value	Odds ratio (95% CI)
Profession:	<0.001	
Doctors	0.03	9.35 (1.20 – 73.19)
Nurses	0.13	4.89 (0.63 – 37.87)
Pharmacists	0.73	1.68 (0.09 – 31.56)
Paramedics	0.21	3.96 (0.45 – 34.68)
Health record officers**		1.00
Sex:		
Male	0.02	1.83 (1.11 – 3.03)
Female**		1.00

**Reference category

4.7.3 Hypothesis 3

There is no relationship between socio-demographic variables (kind of profession, age, sex, religion and educational qualification) and intentions towards organ donation among health professionals in LTH, Osogbo.

Table 4.26 shows respondents' intention to donate organs by selected socio-demographic characteristics while Tables 4.27 and 4.28 respectively highlights intention to be living donors and cadaveric donors by selected socio-demographic characteristics. The selected characteristics were profession, age, sex, religion and educational qualification. The distribution of respondents willing to be organ donors among the doctors, nurses, pharmacists, paramedics and health record officers were 58.9%, 32.8%, 50.0%, 42.1%, and 42.1% respectively. More doctors were willing to donate compared to the other professionals. Similarly, this trend was noted among respondents who were willing to be living and cadaveric donors. Overall, there was significant relationship between willingness to donate and profession of respondents.

The proportion of respondents willing to donate their organs among those aged 20-29, 30-39 and 40-55 years were respectively 41.9%, 44.9% and 45.8%. There was no significant relationship between willingness to donate and respondents' age. Similarly, there was no significant relationship between willingness to be living donors, willingness to be cadaveric donors and respondents' age.

The proportion of male respondents willing to donate was 55.4% and this was higher than the proportion of female respondents that were willing to donate (36.0%). A similar pattern was observed among respondents who were willing to be living and cadaveric donors. Overall, there was significant relationship between willingness to donate and sex of respondents.

More Muslims (48.2%) were willing to donate compared with adherents of Christian religion (43.0%). Similarly, this pattern was observed among respondents who were willing to be living donors and cadaveric donors. Overall, there was no significant relationship between willingness to donate and respondents' religion.

There was a positive relationship between educational qualification and intention to donate that is intention to donate increased with educational qualification. For instance, 36.4% of respondents with National Diploma as their highest educational qualification were willing to donate while the proportion of respondents who were willing to donate among those with first degree and postgraduate degree as their highest educational qualification was 46.1% and 47.6% respectively. A similar pattern was observed among respondents who were willing to be cadaveric donors. However, the proportion of respondents who were willing to be living donors among those with first degree as their highest educational qualification (38.3%) was higher than that of respondents who had postgraduate degree (31.7%). Overall, there was no significant relationship between intention and educational qualification.

The null hypothesis was therefore rejected for the significant relationship between profession, sex and organ donation intention but failed to be rejected for the other variables that were not significant (Table 4.26).

Table 4.26: Respondents' Organ Donation Intention by Selected Demographic Characteristics

(N=394)

Characteristics	Organ donation intention			p-value
	Willing N (%)	Unwilling N (%)	Total N (%)	
Profession:				
Doctors	86 (58.9)	60 (41.1)	146 (100.0)	X^2= 0.00
Nurses	60 (32.8)	123(67.2)	183 (100.0)	p<0.05
Pharmacists	4 (50.0)	4 (50.0)	8 (100.0)	
Paramedics	16 (42.1)	22 (57.9)	38 (100.0)	
Health record officers	8 (42.1)	11 (57.9)	19 (100.0)	
Age (in years):				
20-29	52 (41.9)	72 (58.1)	124 (100.0)	X^2= 0.83
30-39	84 (44.9)	103 (55.1)	187 (100.0)	p>0.05
40-55	38 (45.8)	45 (54.2)	83 (100.0)	
Religion:				
Christian	133 (43.0)	176 (57.0)	309 (100.0)	X^2= 0.39
Islam	41 (48.2)	44 (51.8)	85 (100.0)	p>0.05
Sex:				
Male	92 (55.4)	74 (44.6)	166 (100.0)	X^2= 0.00
Female	82 (36.0)	146 (64.0)	228 (100.0)	p<0.05
Educational qualification:				
Postgraduate degree	30 (47.6)	33 (52.4)	63 (100.0)	X^2= 0.24
First degree	112 (46.1)	131 (53.9)	243 (100.0)	p>0.05
National Diploma	32 (36.4)	56 (63.6)	88 (100.0)	

Table 4.27: Respondents' Living Organ Donation Intention by Selected Demographic Characteristics

(N=394)

Characteristics	Organ donation intention			p-value
	Willing N (%)	Unwilling N (%)	Total N (%)	
Profession:				
Doctors	64 (43.8)	82 (56.2)	146 (100.0)	X^2= 0.02
Nurses	49 (26.8)	134 (73.2)	183 (100.0)	p<0.05
Pharmacists	4 (50.0)	4 (50.0)	8 (100.0)	
Paramedics	14 (36.8)	24 (63.2)	38 (100.0)	
Health record officers	6 (31.6)	13 (68.4)	19 (100.0)	
Age (in years):				
20-29	44 (35.5)	80 (64.5)	124 (100.0)	X^2= 0.89
30-39	66 (35.3)	121 (64.7)	187 (100.0)	p>0.05
40-55	27 (32.5)	56 (67.5)	83 (100.0)	
Religion:				
Christian	103 (33.3)	206 (66.7)	309 (100.0)	X^2= 0.25
Islam	34 (40.0)	51 (60.0)	85 (100.0)	p>0.05
Sex				
Male	73 (44.0)	93 (56.0)	166 (100.0)	X^2= 0.00
Female	64 (28.1)	164 (71.9)	228 (100.0)	p<0.05
Educational qualification:				
Postgraduate degree	20 (31.7)	43 (68.3)	63 (100.0)	X^2= 0.15
First degree	93 (38.3)	150 (61.7)	243 (100.0)	p>0.05
National Diploma	24 (27.3)	64 (72.7)	88 (100.0)	

Table 4.28: Respondents' Cadaveric Organ Donation Intention by Demographic Characteristics

(N=394)

Characteristics	Organ donation intention			p-value
	Willing N (%)	Unwilling N (%)	Total N (%)	
Profession:				
Doctors	64 (43.8)	82 (56.2)	146 (100.0)	X^2= 0.00
Nurses	45 (24.6)	138 (75.4)	183 (100.0)	p<0.05
Pharmacists	1 (12.5)	7 (87.5)	8 (100.0)	
Paramedics	10 (26.3)	28 (73.7)	38 (100.0)	
Health record officers	3 (15.8)	16 (84.2)	19 (100.0)	
Age (in years):				
20-29	39 (31.5)	85 (68.5)	124 (100.0)	X^2= 0.94
30-39	57 (30.5)	130 (69.5)	187 (100.0)	p>0.05
40-55	27 (32.5)	56 (67.5)	83 (100.0)	
Religion:				
Christian	96 (31.1)	213 (68.9)	309 (100.0)	X^2= 0.90
Islam	27 (31.8)	58 (68.2)	85 (100.0)	p>0.05
Sex:				
Male	64 (38.6)	102 (61.4)	166 (100.0)	X^2= 0.01
Female	59 (25.9)	169 (74.1)	228 (100.0)	p<0.05
Educational qualification:				
Postgraduate degree	25 (39.7)	38 (60.3)	63 (100.0)	X^2= 0.25
First degree	74 (30.5)	169 (69.5)	243 (100.0)	p>0.05
National Diploma	24 (27.3)	64 (72.7)	88 (100.0)	

4.7.4 Hypothesis 4

There is no relationship between knowledge and intentions towards organ donation among health professionals in LTH, Osogbo.

Respondents' willingness to donate their organs increased by their level of knowledge about organ donation. The proportion of respondents who were willing to donate among those who had good knowledge of organ donation was 51.9% and this was higher than the proportion of respondents who had poor knowledge and were willing to donate (42.2%). A similar trend was noted among respondents who were willing to be cadaveric donors. On the other hand, the proportion of respondents who had poor knowledge and were willing to be living donors (35.2%) was higher than the proportion of respondents who had good knowledge and were willing to donate (32.9%). Overall, there was no significant relationship between intention and knowledge of organ donation, hence the null hypothesis failed to be rejected (Table 4.29).

Table 4.29: Relationship between Respondents' Knowledge and Intention towards Organ Donation

Characteristics	Intention			p-value
	Willing N (%)	Unwilling N (%)	Total N (%)	
Organ donation intention				
Knowledge of organ donation:				
Good	41 (51.9)	38 (48.1)	79 (100.0)	X^2= 0.12
Poor	133 (42.2)	182 (57.8)	315 (100.0)	p>0.05
Living organ donation intention				
Knowledge of organ donation:				
Good	26 (32.9)	53 (67.1)	79 (100.0)	X^2= 0.70
Poor	111 (35.2)	204 (64.8)	315 (100.0)	p>0.05
Cadaveric organ donation intention				
Knowledge of organ donation:				
Good	28 (35.4)	51 (64.6)	79 (100.0)	X^2= 0.37
Poor	95 (30.2)	220 (69.8)	315 (100.0)	p>0.05

4.7.5 Hypothesis 5

There is no relationship between attitude and intentions towards organ donation among health professionals in LTH, Osogbo.

More respondents with positive attitude to organ donation (71.8%) were willing to donate compared with respondents who had negative attitude to organ donation (33.5%). A similar trend was noted among respondents who were willing to be living donors and cadaveric donors. Overall, there was significant relationship between intention and respondents' attitude to organ donation. The null hypothesis was therefore rejected (Table 4.30).

The factors that influenced respondents' organ donation intention is presented on Table 4.31 while the factors that influenced living and cadaveric organ donation intentions are presented on Table 4.32. In order to document this, variables that were significant at 5% level of significance (profession, sex, and attitude) were entered into the logistic regression model and analysed to adjust for possible confounding factors. Considering the effect of other interacting variables, profession did not remain significant predictor of willingness to donate generally, as living donors and as cadaveric donors in the binary logistic regression model.

The analysis however showed that sex and attitude remained significant predictors of respondents' organ donation intentions: Male health professionals were two times more likely than female health professionals to be willing to donate their organs (OR: 2.21, 95% CI: 1.47–3.33). The male health professionals were also two times more likely than their female counterparts to be willing to donate their organs while alive (OR: 2.01, 95% CI: 1.32–3.07) and after death (OR: 1.80, 95% CI: 1.17–2.77). Compared to health professionals who had negative attitude to organ donation, health professionals with positive attitude towards organ donation were five times more likely to be willing to donate their organs (OR: 4.99, 95% CI: 3.11–8.12), four times more likely to be willing to donate their organs while alive (OR: 3.96, 95% CI: 2.44–6.42) and about five times more likely to be willing to donate their organs after death (OR: 4.85, 95% CI: 2.97–7.93).

Table 4.30: Relationship between Respondents' Attitude and Intention towards Organ Donation

Characteristics	Intention			p-value
	Willing N (%)	Unwilling N (%)	Total N (%)	
Organ donation intention				
Attitude to organ donation:				
Positive	79 (71.8)	31 (28.2)	110 (100.0)	X^2= 0.00
Negative	95 (33.5)	189 (66.5)	284 (100.0)	p<0.05
Living organ donation intention				
Attitude to organ donation:				
Positive	65 (59.1)	45 (40.9)	110 (100.0)	X^2= 0.00
Negative	72 (25.4)	212 (74.6)	284 (100.0)	p<0.05
Cadaveric organ donation intention				
Attitude to organ donation:				
Positive	65 (59.1)	45 (40.9)	110 (100.0)	X^2= 0.00
Negative	58 (20.4)	226 (79.6)	284 (100.0)	p<0.05

Table 4.31: Respondents' Organ Donation Intention by Profession, Sex and Attitude

Variables	p-value	Odds ratio (95% CI)
Willingness to be organ donor		
Profession:		
Doctors	0.96	1.03 (0.37 – 2.86)
Nurses	0.15	0.49 (0.18 – 1.30)
Pharmacists	0.99	0.98 (0.17 – 5.56)
Paramedics	0.55	0.70 (0.22 – 2.24)
Health record officers**		1.00
Sex:		
Male	<0.001	2.21 (1.47 – 3.33)
Female**		1.00
Attitude:		
Positive	<0.001	4.99 (3.11 – 8.12)
Negative**		1.00

**Reference category

Table 4.32: Respondents' Living and Cadaveric Organ Donation Intention by Profession, Sex and Attitude

Variables	p-value	Odds ratio (95% CI)
Willingness to be living organ donor		
Profession:		
Doctors	0.78	0.86 (0.29 – 2.53)
Nurses	0.31	0.58 (0.20 – 1.65)
Pharmacists	0.61	1.58 (0.27 – 9.19
Paramedics	0.86	0.90 (0.29 – 3.02
Health record officers**		1.00
Sex:		
Male	<0.001	2.01 (1.31 – 3.07)
Female**		1.00
Attitude:		
Positive	<0.001	3.96 (2.44 – 6.42)
Negative**		1.00
Willingness to be cadaveric organ donor		
Profession:		
Doctors	0.24	2.24 (0.59 – 8.53)
Nurses	0.73	1.26 (0.34 – 4.65)
Pharmacists	0.67	0.57 (0.05 – 7.17)
Paramedics	0.68	1.36 (0.31 – 5.99)
Health record officers**		1.00
Sex:		
Male	0.01	1.80 (1.17 – 2.77)
Female**		1.00
Attitude:		
Positive	<0.001	4.85 (2.97 – 7.93)
Negative**		1.00

**Reference category

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This chapter focuses on the findings of the study and it encompasses the socio-demographic information; awareness and knowledge about organ donation, attitude disposition to organ donation, prevalence of organ donation practice, intention to donate organs and factors influencing such intention. The chapter ends with conclusion and recommendations.

5.1 Socio-demographic characteristics of the respondents

Majority of the doctors and pharmacists were males. This is so because medicine and pharmacy are widely thought to be predominantly male profession in Nigeria. The result of a study on Gender Analysis of Student Enrolment in Nigerian Universities by Kola Adeyemi and Nelson Akpotu in 2004 buttressed this when it revealed that female enrolment in sciences and science-based courses such as medicine and pharmacy was low (Adeyemi and Akpotu, 2004). On the other hand, majority of the nurses and health record officers were females. This is not surprising because more females enrol for admission into these professions than males. In fact, there is always an erroneous impression that nursing is a female profession (Sullivan, 2001; Zelek and Phillips, 2003). There were almost an equal number of males and females among the paramedics; this suggests that the profession is not sex-biased.

The age of respondents ranged from 20–55years, an age structure which revealed an adult population. The provisions of the 1974 Nigeria labour act which stipulates that a person to be recruited for employment should be or above the age of eighteen years (Uvieghara, 2001) coupled with the official or statutory working-age population in Nigeria which is between 15-64 years (World Bank, 2013) may have accounted for the age of the respondents. Since the minimum number of years any of the health professionals is expected to have used during their training programme was 3 years, the age range of respondents in the current study suggests that some of the respondents may have completed their secondary school education before the statutory or official age of 18 years as contained in the National Policy of

Education (Federal Republic of Nigeria, 2004) and subsequently entered higher institution before this age.

Majority of the respondents had a first degree as their highest educational qualification. Many of the nurses however had below first degree (National Diploma). This implies that a good number of nurses in the hospital hold a general nursing and midwifery certificate.

5.2 Awareness of Organ Donation

Findings from this study revealed a higher level of awareness (99.7%) of organ donation when compared to 60% reported by an earlier study conducted in Lagos Nigeria (Odusanya and Ladipo, 2006). This variation can be explained on the basis of difference in study population; the study in Lagos was conducted among the general public while this study was done among health professionals.

Unlike the findings of studies among the general population (Saleem et al., 2009; Maroof, Kiyani, Zaman, Khan Gul, Nayyar et al., 2011) in which the electronic media appeared to play a crucial role in creating awareness about organ donation, this was not so for this study. Training programme constituted participants' major source of information about organ donation. This suggests that there was an inclusion of organ donation in many of the respondents' training curriculum. It is clear from this study that the print media, electronic media and the internet fall within the same frequency with regards to being sources of information for organ donation.

Majority were aware of requests to donate organs in Nigeria. This could be because of the recent and continuous clamour for people to donate organs in Nigeria. Majority of the respondents knew organ transplant hospitals in Nigeria though not all of them correctly mentioned such hospitals. This implies that not all who answered in the affirmative actually knew any of the organ transplant hospitals in Nigeria. It was not surprising that OAUTHC topped the list of known transplant hospitals among the respondents because the hospital has been in the vanguard of kidney transplantation which many have benefited from (Adejuyigbe, 2011). Also, the proximity and collaboration of these two teaching hospitals with each other may have accounted for this.

5.3 Knowledge of organ donation

This study showed that only 9.8% of the respondents had good knowledge of organ donation. The result is consistent with the finding of a similar study conducted to assess nurses' knowledge which reported that only 10.8% of the nurses had good knowledge of organ donation (Ozdag and Bal, 2001). The findings of this study however showed a much lower prevalence of adequate knowledge regarding organ donation when compared to 65.5% reported by an earlier study in Pakistan (Ashraf, Ali, Ali, Ali, Alam et al., 2005), 68.3% in Canada (Molzahn, 1997) and 85.2% in Curitiba, Brazil (Coelho, Cilião, Parolin, De Freitas, Gama Filho et al., 2007).

A justification for the variance in knowledge could be because different knowledge variables were used in this study as compared to the other studies for the assessment of knowledge status of respondents with regards to organ donation. The limited knowledge of respondents about organ donation may also be indicative of the novelty of organ donation and transplantation in Nigeria and a paucity of teaching on the subject of organ donation in health professionals' training curriculum. The knowledge result in this study is however consistent with the findings of deficit knowledge concerning organ donation among health professionals in Korea (Kim, Elliot and Hyde, 2004), nurses in Hong Kong (Ozdag and Bal, 2001; Chan et al., 1997) and doctors in Netherlands (Schutt, 2000).

Majority of the respondents knew that organs for donation can come from both living persons as well as cadavers. This is significantly different from a previous study where only 23% knew that organs for donation can come from both living persons as well as cadavers (Saleem et al, 2009). Respondents chose different reasons for the purpose of organ donation; each individual chose an option nearest to their understanding for the reasons that drive organ donation. A notable finding of this study is that most respondents believed that the principal aim of organ donation is to save lives while only a few reported otherwise. This is quite noteworthy because in principle, the kind of understanding expected of the purpose for organ donation is the kind of donation that is driven by altruistic purposes (WHO 2010; McIntyre, Barnett, Harris, Shanteau, Skowronski et al., 1987). Consistent with the findings of this study, a study from Pakistan showed that apart from majority (71.5%) answering about saving

another human's life, a few responded that organ donation is done out of compassion/sympathy (15.2%) while only 1.0% cited monetary benefits (Khan, Masood, Tufail, Shoukat, Ashraf et al., 2011). A distinctive or peculiar result from this study are a few others who thought that it is done out of threat.

In this study, knowledge about different organs that can be donated for transplantation varied from 74.0%, 33.1%, 32.1%, 27.0%, 20.4%, 13.2% and 3.6% for kidney, bone marrow, heart, liver, cornea, lung and pancreas respectively. In a similar study done by Yeun, Burton, Chiraseveenuprapund, Elmore, Wong et al. (1998) and Maroof et al. (2011), level of knowledge was greatest about kidney donation. The proportion of respondents in this study who knew about liver donation was almost the same as the study conducted by Maroof et al. but while almost half (48.8%) of their respondents knew about cornea donation, only 20.4% of respondents knew about this in the present study. Similarly, the result of the study in consistence with this present study showed that their respondents were least knowledgeable about lung and pancreas donation (Maroof et al., 2011). Consistent with the result of this study that only 22.6% of the respondents knew that kidney, heart, bone marrow, liver, cornea, lung and pancreas can all be donated is the finding of Saleem et al (2009) that only 26.2% of their respondents knew that all of the organs studied can be donated.

This study revealed that majority of the respondents knew that kidneys can be donated for transplantation in Nigeria. This finding can be explained on the basis that there have been more emphasis and awareness creation on kidney donation than other organs of the body as evident in a number of studies focusing on kidney donation (Chijioke et al., 2010; Aghanwa et al., 2003; Bamgboye 2003; Fadare and Salako, 2010) and the number of hospitals that perform kidney transplantation in Nigeria. It is however disheartening that despite the fact that respondents were health professionals, only a few of them knew that bone marrow and corneas can be donated for transplantation in Nigeria. Bone marrow transplantation is relatively new in Nigeria with the first procedure carried out in 2012 at UBTH and despite the recognition and commendation accorded this feat, only 21.1% of the respondents were aware of this. Even more dismal is the poor knowledge about cornea donation, the only cadaveric donation that has been backed by law since 1973 (Oluyade, 2011) and which its

transplantation has been in existence in the country since 1972 (University College Hospital, 2011). This suggests that the health professionals are not well acquainted with the state of organ donation and transplantation in Nigeria.

A few of the respondents reported that children and aged are categories of people who cannot donate an organ. According to the WHO Guiding Principles on HCTT, minors (children) and incompetent persons are eligible to donate their organs provided measures are put in place to protect such persons and assent obtained where possible (WHO, 2010). Insight into the trends of organ donation and transplantation as it relates to age of donors and recipients spanning 10 years (2000-2009) also revealed that the age of living donors ranged from less than 11 years to over 65 years while that of deceased donors and transplant recipients both ranged from less than 1 year to over 65 years (Organ Procurement and Transplantation Network/Scientific Registry of Transplant Recipients, 2010).

Although with a higher proportion (93.1%), observation from this study is comparable with two studies done in Pakistan which reported that 64.6% and 55.8% of their respondents knew that organ donation is associated with some risks to the donor (Khan et al., 2011; Saleem et al., 2009). While only about 25.0% of respondents from the study conducted by Saleem et al. knew that organ donation could be associated with all of infection, pain, body weakness, bleeding, anxiety and depression, 44.0% of respondents who participated in this study knew that organ donation is associated with all of the above mentioned risks. The disparity in knowledge about these risks may be explained on the basis of difference in study population; the study by Saleem et al. was conducted among the general public while this study was conducted among health professionals who are better placed to know more about risks associated with a surgical procedure because they work day to day in the hospital environment.

Among the socio-demographic variables under consideration, kind of profession, sex and level of education were significantly associated with knowledge about organ donation while age and religion were not. The kind of profession, sex and level of education positively influenced the knowledge about organ donation while age and religion had no influence on knowledge. The observation that the association between age and knowledge was not

statistically significant is comparable with similar studies done in Karachi, Pakistan (Saleem et al., 2009) and Kingston, Ontario (Bardell, Hunter, Kent and Jain, 2003) but contrary to the finding of another study from Nurpur Shahan also in Pakistan (Maroof et al., 2011). Similarly consistent with the result of this study is the finding from a Pakistan study which revealed that religion did not have a significant association with knowledge about organ donation (Saleem et al., 2009).

Despite the lack of sufficient knowledge observed among all the categories of health professionals in this study, the doctors were significantly more knowledgeable about organ donation than the other health professionals. Previous studies by Akgun et al. (2003) and Bener, El-Shoubaki and Al-Mosalamani (2008) have similarly noted that doctors have significantly higher knowledge level about organ donation than nurses. Contrary to the finding of this study in which the association between sex and respondents' knowledge was statistically significant, a study from Ontario, Canada (Bardell et al., 2003) and two studies from Pakistan (Maroof et al., 2011; Saleem et al., 2009) respectively showed that knowledge about organ donation was not significantly associated with sex (p=0.88, p=0.06). The statistically significant association that was observed between increasing level of medical education and knowledge is consistent with the findings of studies from Brazil (Lima et al., 2010), Hongkong (Chung, Ng, Li, Sum, Man et al., 2008) and Germany (Schaeffner et al., 2004).

5.4 Attitude to Organ Donation

The result of this study revealed that only 27.7% of respondents had positive attitude to organ donation. Previous researches conducted in Korea among health professionals and nursing students have also lent credence to negative attitudinal disposition to organ donation (Kim et al., 2004; Kim et al., 2006). Contrary to this finding, results of other research conducted among health professionals, postgraduate and undergraduate medical students respectively in Pakistan, India and Hong Kong however reported positive attitude to organ donation among majority of their respondents (Chung et al., 2008; Bapat and Kedlaya, 2010; Siddiqui et al., 2012). The reason for this attitudinal related similarity and difference in attitude to organ donation between these countries is not very clear but may be attributed to different cultures

and social set up particularly when taking into consideration that the studies used for comparison of attitudinal disposition of respondents were conducted in the Asia continent. Findings of a comparative study on attitudes and intention of donor behaviour among health professionals and community members revealed that health professionals hold a less positive attitude to organ donation than the community members (Brkljacic, 2002) which also buttressed the finding of this study.

Most participants opined that organ donation should be promoted. This finding was corroborated by Khan et al. (2011), who showed that many respondents were in favour of promoting organ donation. With regards to allowance of organ donation in religion, observation in this study is comparable with a study done in India which reported that 96% of respondents did not believe that organ donation is against their religion. Majority of the respondents disagreed that deceased organ donation should be made mandatory. This suggests reluctance for cadaveric organ donation that has continued to increase reliance on living organ donation particularly in developing countries (Vathsala, 2004). Some developed countries where cadaveric organ donation is mandatory rely on the "opting out" or "presumed consent" law legislation. Although this may not be the sole factor, countries like Spain, Singapore and Austria which have adopted this system have the highest donation rates globally (Khan et al., 2011; National Health and Medical Research Council, 2007).

Under a system of "opting out" or "presumed consent" every person is deemed to have given their consent to organ donation unless they had specifically pre-stated their unwillingness to give organs in writing (WHO, 2009). There have been controversial and dissenting views about the "opting out" or "presumed consent" system of organ donation. Opt out systems can be "hard", as in Austria, where the views of close relatives are not taken into account or "soft" as in Spain, where relatives' views are sought (NHMRC, 2007).

One-third of the respondents were unwilling to allow their family members to donate their organs. This attitude is perverse for organ donation especially as it was observed among health professionals. The study also revealed that majority of the respondents took an exception to the influence of health professionals as role model for health with regards to

organ donation. This trend has been noted by previous studies on organ donation as well as health-related issues other than organ donation that health professionals would have benefited from personally (Alsaied et al., 2012; Bischoff, Reynolds, Sessler, Edmond and Wenzel, 2000).

Many respondents disagreed with the statement that it should be mandatory that critically ill and dying patients be approached or their relatives approached to ask about organ donation. The onus lies on health professionals to recognize and request organs from potential donors with such duty involving some training and interpersonal skills in order to make such requests appropriately (Bapat and Kedlaya, 2010). This finding probably suggests a lack of confidence on the part of the respondents to approach potential donors or their relatives to make requests for organ donation. The importance of an intact body for burial was noted among many respondents as was observed by a similar study conducted among medical students in South Africa (Sobnach, Borkum, Millar, Hoffman, Muller et al., 2011). This opinion has been reported to be associated with the belief in an after-life and respect for ancestors and nature (Lam and Colloughm, 2000).

An equal number of respondents agreed and disagreed that a person who is brain dead is still alive and is therefore not a candidate for organ donation. Health professionals work in the hospital settings and have extensive training, so it is assumed that they understand the concept of brain death (Sque, Payne and Vlachonikolis, 2000). Empirical findings however showed that the concept of brain death is poorly understood and thus many people do not regard brain death as true death (Kim et al., 2004). This misunderstanding has been found to be associated with negative attitude toward transplantation and has been consistently attributed to low donation rates in various populations (Lima et al., 2010; Sobnach et al., 2011; Akgün, Tokalak and Erdal, 2002).

Brain death and cardiac death which are the two medical criteria for declaring a person dead invariably precede the retrieval of organs in deceased donation with more countries adopting the brain death criterion for determining death. The world health organization in the global glossary of terms and definitions on donation and transplantation defined brain death as the

irreversible cessation of cerebral and brain stem function; characterized by absence of electrical activity in the brain, blood flow to the brain, and brain function as determined by clinical assessment of responses. The organization further emphasized that a brain dead person is dead, although his or her cardiopulmonary functioning may be artificially maintained for some time (WHO, 2009). Hence, it is imperative for health professionals to have a better understanding and positive attitude to the brain death concept.

Some participants agreed that they cannot donate their organs but they are willing to receive an organ. The results of a research carried out by Nadal and Nadal (2005), Steinberg (2004) and Kolber (2003) had earlier revealed that many people who are unwilling to donate their own organs even after death are willing to receive an organ. Consequently, this trend that has been observed over time has made these studies to suggest the adoption of reciprocity and priority to motivate organ donors.

Sex and profession were found to have a statistically significant association with attitude to organ donation. Male respondents had significantly more positive attitude to organ donation than the female respondents and doctors had a more positive attitude to organ donation than other health professionals. The results of this study is contrary to the finding of a similar study conducted among health professionals by Siddiqui et al. (2012) that there was no significant difference between sex, profession and attitude. While this study revealed that males had more positive attitude, the study conducted among Chinese University students by Chen, Zhang, Lim, Wu, Lei et al. (2006) showed that female University students had more positive attitude to organ donation compared to their male counterparts. The reason for this inverse sex-related relationship between this study and the one conducted in China is not clear but may not be unconnected to different cultures and social settings in the countries where these studies were conducted. A research conducted in Instabul, Turkey among health professionals by Demir, Selimen, Yildirim and Kucuk (2011) has also lend credence to doctors having more positive attitude to organ donation than nurses.

Consistent with this study, previous studies showed that there was no significant association between age and attitude to organ donation (Chen et al., 2006) and religion and attitude to organ donation (Siddiqui et al., 2012). The result of this study is contrary to the finding of the research conducted by Schaeffner et al. (2004) which reported a significant positive association between level of education and attitude but in conformity with the study by Shahbazian, Dibaei and Barfi (2006) that level of education cannot always improve people's attitude toward organ donation.

5.5 Prevalence of Organ Donation Practice

The result of this study which showed that none of the respondents in this study had donated an organ is comparable with the study by Saleem et al. (2009) which reported that only 1 (0.3%) respondent had actually donated an organ. Only 1.8% of respondents in this study knew someone who had donated an organ compared to a higher proportion of 31% reported by Saleem et al. (2009) in Pakistan. The reason for this difference may not be difficult to comprehend. While many similarities are expected between countries like Pakistan and Nigeria since they are among the developing nations of the world, the achievements with regards to organ donation and transplantation is however disparate. Although Pakistan also lacks a well established and organized organ donation and transplantation system, the prevalence of organ donation practice in the country is more consistent and surpasses that of Nigeria (Saleem et al., 2009).

5.6 Intention to Donate Organs

This study revealed that majority of the respondents was in support of organ donation although a lower proportion of them were willing to donate. Previous researches conducted (Alsaied et al., 2012; Bener et al., 2008 and Ozdag and Bal, 2001) have also lend credence to high support for organ donation but lower willingness to donate among health professionals. In a survey of willingness to donate organs in Lagos, Nigeria, only 30% of the respondents expressed willingness to donate their organs (Odusanya and Ladipo, 2006). This percentage is lower than the finding of this study and the disparity may be due to the difference in the study population; the study in Lagos was conducted among the general public.

In this study, 34.8% of the respondents expressed willingness to be living donors. Out of this, 54.0% mentioned that they would like to donate their organs to family members. These percentages are comparable to data obtained in studies from countries like China (Zhang, Li, Zhou, Miao, Wang et al., 2007) and Pakistan (Maroof et al., 2011). In the study done in China, 49.8% of respondents indicated they would be willing to be living organ donors and 62.0% individuals designated relatives as their most probable recipients. The study from Pakistan also revealed that 52.5% of respondents were willing to be living donors and 50.9% expressed willingness to donate to family members. Being penchant in donating to families can be viewed as a natural response of man who being a social animal operates in a society where the basic functional unit of life is the family especially in a country like Nigeria where great value is placed on closely knit family system. Donation of organ to a family member might therefore be viewed as an essential obligation or it might simply emanate from a feeling of love and compassion for the relative.

A lower proportion of respondents were willing to be cadaveric donors compared with those willing to be living donors which may be a reflection of an aversion for cadaveric donation. This finding may explain the earlier observation in this study in which more than half of the respondents stressed the importance of burying an individual with all the organs intact. This finding is comparable with a previous study carried out by Alashek, Ehtuish, Elhabashi, Emberish and Mishra (2009) in Libya where less than one third of respondents were also willing to donate their organs after death.

Respondents were most willing to donate kidneys either as a living or cadaveric donor. The findings of Manninen and Evans (1985) and Ipsos Reid (2010) respectively showed a similar observation as the result of these studies revealed that 50% and 98% of respondents willing to be donors were most likely to donate kidneys. This may be indicative of a higher level of awareness about kidney donation compared to other organs which may not be unconnected to the fact that the kidney is a “twin” organ.

It is encouraging that most respondents indicated their willingness to disclose their cadaveric donation decision to their family members and to back their decision by law. Previous studies (Radecki and Jaccard 1997; Martínez, López et al., 2001; Thompson, Robinson et al., 2003;

Jacoby and Jaccard, 2010) have showed that this may help to increase donation rates because a large proportion of families act in accordance with the wishes of the deceased when their decision is known prior to their death. Zepeda-Romero, Garcia-Garcia and Aguirre-Jauregui (2003) further lend credence to the need for prior communication: 89.0% would authorize organ donation from a deceased relative, assuming the relative had previously expressed the desire to donate while on the contrary only 29% would give such an authorization without their relative's prior consent.

Findings in this study revealed that while many of the respondents were willing to donate family members' organs after their death, only a few of them were willing to do so themselves. The result of a research carried out by Gallup poll (1983), Manninen and Evans (1985) and Hobeika et al. (2009) had earlier revealed a similar discovery. Gallup poll (1983) showed that among those who were aware of organ donation, willingness to have the kidney of a loved one donated dropped from 72% to 50% for donation of their own child's kidney and to a dismal 24% for donation of their own kidney after death. Based on these findings, Prottas (1983) argued that a deterioration support is seen as one moves from abstract support for the concept of donation to more concrete and behavioural intentions.

However, the result of this study showed that more than one third of the respondents were unwilling to donate the organ of family members after their death. This category of respondents cannot be overlooked; the next of kin are also central to cadaveric organ donation because they are always asked to give legal permission before the procedure can be undertaken (Overcast, Evans, Bowen, Hoe and Liyak, 1984).

Many of those that declined to be living donors in this study did so due to fear of adverse health consequences, lack of conviction to donate and fear of death. In addition to this, uncertainty of competence of medical practice, uncertainty about religious standpoint and a perceived need of the organs to live optimally were cited as reasons for unwillingness to be living donors. These outlined reasons are consistent with findings of Newton (2011); Bilgel, Sadikoglu and Bilgel (2006); Aghanwa et al. (2003); Siminoff and Arnold (1999); Stevens (1998). According to Aghanwa et al. (2003), reasons for declining to serve as living donor

included concern with adverse effects of health and religious beliefs. It is disheartening that despite the success rate of organ donation and transplantation in Nigeria (Adejuyigbe, 2011), health professionals are also concerned with competency in the medical profession and fear of death. The rate at which Nigerians go abroad for transplantation treatment should therefore not be astonishing as this may be indicative of the lack of confidence of health professionals in this aspect of medical practice as observed in this study. The finding of a study conducted in USA by Minniefield, Yang and Muti (2001) also supported the lack of confidence in the medical system.

The study revealed that the most prominent reason for refusal to donate after death was that respondents had simply never thought about organ donation. Also, about one quarter had concerns about the complicated process of cadaveric organ donation. In addition, many individuals stated uncertainty about its religious implications. These reasons had already been reported as the most important reasons for refusing this type of donation by previous studies in Iran (Broumand, Parsapoor and Asghari, 2012), Pakistan (Maroof et al., 2011), South Africa (Sobnach et al., 2011), Libya (Alashek et al., 2009) and Nigeria (Chijioke et al., 2003). That almost half of the respondents indicated that they had never considered donating their organ as the reason for refusal may be denotative of insignificant attention given to bringing to consciousness the subject of organ donation by relevant stakeholders. Given that this was the most prominent reason for refusal to donate; this finding may depict as factual the saying that truth is what is repeated constantly and consistently.

Many preceding studies which focused on attitude and willingness to donate after death have also showed that refusal because of religious concerns were frequent observations (Hobeika et al., 2009; Alashek et al., 2009; Khan et al., 2011). The majority of the world's religions have strongly endorsed organ donation and transplantation as an act of generosity and merits (Ashraf et al., 2005; El-Shoubaki, 2006; Oliver, Woywodt, Ahmed and Saif, 2010). This finding is therefore indicative of the unawareness of the respondents regarding religious edicts regarding organ donation.

Lack of adequate knowledge about deceased organ donation, the need to maintain a whole body in death, fear of body mutilation and the need for family's consent were recognized

reasons for unwillingness in previous studies as well as this study (Zepeda-Romero et al., 2003; Conesa, Ríos, Ramírez, Rodríguez, Rivas et al., 2003; Morgan, Miller and Arasaratnam, 2004; Cheng, Chung, Ho and Wong, 2005). The belief of reincarnation or life after death held by many people may be the probable reason for the need to have an intact body for burial. This belief is strong and widespread enough to include health professionals and has been implicated in the poor rate of organ donation in developing countries (Waziri-Erameh et al., 2007).

The use of education and media publicity as strategies to promote organ donation was stressed by majority of the respondents. Empirical studies from other countries (Maroof et al., 2011; Bilgel et al., 2006) have documented the positive impact of the role of the media in education, creating awareness and sensitisation about various issues regarding organ donation. A dismal finding in this study is that most participants did not express the need for effective legislation to govern organ donation practices. This finding is exactly contrary to the study conducted in Pakistan by Saleem et al. (2009) which showed that 88.1% of respondents expressed the need for legislation to promote organ donation. It is no gainsaying that effective legislation is imperative to promoting organ donation especially cadaveric donation as this has continued to impede the successful entrenching of organ donation in Nigeria (Adejuyigbe, 2011).

It is perhaps symptomatic of the general state of ignorance that many respondents volunteered that they had learned a great deal from completing the questionnaire. Many reported that completing the questionnaire was a form of sensitization while a few also reported that it influenced their attitude. The study was designed to explore knowledge and attitude and other factors that could influence intention to donate organ but not provide feedback. McIntyre et al. (1987) also reported a similar finding and indicated that the reason for this may be because most respondents had apparently thought little about organ donation that even seemingly neutral questions prompt insight and analysis by respondents.

Kind of profession, sex and attitude to organ donation were found to significantly influence willingness to donate organs. On the other hand, age, type of religion, educational qualification and knowledge of organ donation did not significantly influence intention to

donate. Doctors were significantly more willing to donate than other health professionals. The result of this study is in conformity with a previous study by Akgun et al. (2003) that compared to nurses, doctors were significantly more willing to become organ donors.
Contrary to finding of this study, an earlier study conducted in Nigeria showed that willingness to donate an organ was not associated with sex (Odusanya and Ladipo, 2006). On the other hand, the result of a study conducted in Libya showed that willingness to donate was significantly associated with sex. In conformity with this study, the study from Libya showed that male respondents exhibited significantly stronger willingness than females to donate their organs (Alashek et al., 2009).

The result of this study has shown that positive attitude to organ donation was a significant predictor of willingness to donate. Despite the use of different variables to measure respondents' attitude, several studies on organ donation previously conducted around the world and in very diverse settings have revealed that respondents who have positive attitude to organ donation are significantly more willing to donate their organs (Schaeffner et al., 2004; Sander and Miller, 2005; Burra et al., 2005; Chung et al., 2008).

In contrast to the previous studies conducted in Nigeria (Odusanya and Ladipo, 2006) and Libya (Alashek et al., 2009) which showed that willingness to donate an organ was significantly associated with younger age, the result of this study did not demonstrate any association with age. In consistency with the result of this study, a research conducted by Aghanwa et al. (2003), Goz et al. (2006) and Bilgel et al. (2006) showed that willingness to donate was not significantly associated with age.

While this study showed that type of religion and level of education was not significantly associated with willingness to donate, the study conducted by Boulware et al. (2002) and Schaeffner et al. (2004) respectively revealed otherwise. On the other hand, findings of similar studies conducted in Nigeria and Iran (Aghanwa et al., 2003; Waziri-Erameh et al., 2007; Broumand et al., 2012) demonstrated no association between type of religion, education and willingness to donate; findings which are consistent with that of this study.

Much debate surrounds the relationship between knowledge of organ donation and willingness to donate. While the findings of some studies revealed that knowledge does not translate into willingness and no statistically significant association exists between knowledge of organ donation and willingness to donate (McIntyre, 1987; Bilgel et al., 2006; Chung et al., 2008), other studies have showed that people with high knowledge levels are more willing to donate their organs than those with low knowledge levels (Sander and Miller, 2005; Shahbazian et al., 2006; Wakefield, Reid and Homewood, 2011).

5.7 Implications for Health Promotion and Education

There is no gainsaying that the findings from this study have health promotion and education implications and imply the need for multiple interventions directed at tackling the phenomenon. The responsibility of health education focuses on the modification of people's behaviour and behavioural antecedents (WHO, 1988; Green and Kreuter, 1991). Health education is concerned with helping people develop practices that ensure the best possible well-being (WHO, 1988) which could be individual or collective. Health education principles, strategies and methods can be employed to address the negative findings identified in this study.

Firstly despite the high awareness level, the study identified an overall low level of knowledge of organ donation. This suggests an absence of in-depth understanding about organ donation. This situation also creates opportunities for misconceptions which could constitute an impediment to organ donation. In light of this, there is a need for training strategy to address this phenomenon. To achieve this, the training of health professionals on organ donation and transplantation could be incorporated into their continuing medical education.

Training programs could be in form of seminars, internship, discussion, lectures and brainstorming which should be based on the results of a properly conducted needs assessment in order to ensure its appropriateness to particular health professional groups. The training objectives should among other things focus on the following: knowledge with inclusion of a general overview of organ donation and transplantation, state of organ donation and

transplantation in Nigeria, processes and risks associated with organ donation, eligibility to donate and benefit from organ donation. It is imperative at this salient period in the development of organ donation programs in the country to re-appraise the training curriculum of all health professionals with an intention to determine the presence and scope of content elements relating to organ donation or the absence of organ donation related content elements, which need to be infused into them.

Secondly, the findings also indicate a deficiency of many communication channels to educate respondents about organ donation. As a matter of policy, health facilities in Nigeria should be provided with resource centres which need to be equipped with educative resource materials on organ donation in Nigeria and the world at large. Seminars, workshops and conferences focusing on organ donation and transplantation should also be organised periodically to ensure on-the job continuing education. Previous research (Whitaker, Baker and Arias, 2007) has indicated that public enlightenment can create awareness, influence knowledge, perception and attitude and foster political will for action. Public enlightenment programmes which combine techniques such as the use of posters, handbills, jingles and documentaries could therefore be helpful because they have the potential for reaching large numbers of people. The fact that females were less willing to donate their organs suggests that delineation of campaigns should address interventions in this group, educating them on the importance of organ donation.

Thirdly, the respondents had an aversion for organ donation due to misconceptions and adverse beliefs. This aversion went on to negatively influence respondents' willingness to donate their organs. Few respondents called for effective legislation to govern the practice of organ donation; a strategy which could effectively arouse health professionals' interest in this field. It is necessary therefore to educate respondents on the importance of legislation in organ donation. Any policy or legal enactment to regulate the practice of organ donation should take into consideration the country's diverse social, cultural, economic and religious set up. Hence, this should be based on identifying common grounds or unanimity of opinion hoping that the nation would have learnt a lesson from the attempted subterranean manner in which other health related provisions were introduced in the past (Campaign Against Unwanted

Pregnancy, 2000). Nigeria being a multi-religious society, advocacy should be employed to ensure that the stakeholders in the major religions have a positive opinion about organ donation and also communicate such to their followers.

Finally, it is necessary for government through the Federal Ministry of Health to play its role in sensitizing health professionals at all levels and with different professional affiliations about the state of organ donation in Nigeria and globally. This could be achieved using the following strategies and activities:

1. Organising conferences on organ donation among relevant stakeholders, developing, printing and distributing communication tools that will promote organ donation.
2. Developing the capacity of health professionals to handle organ donation and transplantation procedures as well as on the job training for health workers particularly those in organ-transplantation fields.
3. Establishing organ donation and transplantation registries, printing and distributing organ donor cards for people to make their organ donation intention known and the incorporation of same in the drivers' license.
4. Developing appropriate statistical tools for reporting organ donation and transplantation activities both in the public and private health sector.
5. Partnering the Federal Ministry of Education which oversees the education of past, present and future health professionals, various media organizations to educate the public on organ donation and disseminate information on the success of previous donation and Non-Governmental Organizations to achieve the aforementioned strategies and activities.

Conclusion

The research explored the level of awareness, knowledge and attitude to organ donation as well as prevalence of organ donation practice and intention to donate organs among health professionals in Ladoke Akintola University of Technology (LTH), Osogbo. Most health professionals had heard about organ donation and their medical training program was the predominant source of information. Level of knowledge of organ donation was generally low among the health professionals. None of the health professionals had donated an organ before and only a handful of them knew people who had ever donated an organ.

Substantial proportions of the health professionals had a negative attitude to organ donation and were not willing to donate their organs either as a living or cadaveric donor. Reasons expressed for unwillingness were related to health professionals' attitudinal disposition to organ donation and they included not having given organ donation a thought, uncertainty of donor outcome, religious implications, complicated processes of organ donation and adverse beliefs.

Intention to donate organs among health professionals in LTH, Osogbo was influenced by sex and attitude. Because of the public health importance of organ donation, these identified factors constituting barriers to organ donation need to be tackled using appropriate strategies.

5.9 Recommendations

The recommendations made based on the findings of the study are as follows:

1. The management of the hospital through the associations to which the health professionals belong, Non-Governmental Organizations and other relevant Government agencies including Federal and State ministries of Health, Education, Information and Justice should design and implement educational programs aimed at upgrading health professionals' knowledge about organ donation. The educational programs should encompass not only the health professionals but other health workers, law enforcement agencies and clients of the hospital. The program should also implement behavioural change communication intervention aimed at dispelling fears and misconceptions, positively influencing their attitudinal disposition and subsequently their willingness to donate.
2. Content elements of organ donation education should be integrated into the training curriculum of future health professionals and the continuing training of health professionals with a view to upgrading their knowledge about organ donation while still undergoing training. In situation where this is already infused, the curriculum should be upgraded to meet the knowledge need of future and present health professionals.
3. As a matter of urgency, there is a need to create avenues where organ donation intention can be expressed in order to have a clear indication of those who are truly willing to donate their organs. To achieve this, Government should establish organ donation

registries where donor cards can be obtained and also incorporate this in the various means of personal identification. It is imperative for Government to formulate policies like the passage of the National Health Bill to govern organ donation practices and collaborate with relevant information agencies to highlight the successes of previous donations. As part of her duties, the Government should provide opportunities for cross-fertilization of ideas and opinion about organ donation among stakeholders (Health professionals, media, law enforcement agencies, religious leaders).

4. There is a need for synergy and collaboration among all hospitals including public, private and mission owned health facilities to ensure successful take off and prevent any impediment to sustaining the present transplantation programs through effective communication on issues relating to organ donation including the matching of donors with recipients. The health facilities and the health professionals should respectively be encouraged to have libraries with resource materials on organ donation and avail themselves the opportunity for its use.

5.10 Suggestions for Further Study

1. There is a need to carry out a similar study among the general population to allow for a comparison of findings and proffer effective solutions that would be more generalized and more nationally representative.
2. There is the need to carry out an intervention study which should be quasi-experimental in design to determine the efficacy of using different health education strategies to train health professionals on issues relating to organ donation. It will, in addition, assist to determine the outcome of such intervention on health professionals' knowledge, attitude and willingness to donate their organs.

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APPENDIX I

FACTORS INFLUENCING INTENTION TOWARDS ORGAN DONATION AMONG HEALTH PROFESSIONALS IN LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY TEACHING HOSPITAL, OSOGBO, NIGERIA
IN-DEPTH INTERVIEW GUIDE

Good day.

I am Oyeniran Agnes Aderinola, a student in the Department of Health Promotion and Education, College of Medicine, University of Ibadan. We have approached you to conduct an interview on organ donation with a view to know your personal and expert opinion about it. Your opinion is highly important and your responses will be kept confidential. We will also crave your indulgence to allow us to use a tape recorder to record this interview so that no information is lost. Do you have any questions?
May I proceed?

1. What are the common Non-communicable diseases people present with in Ladoke Akintola University of Technology Teaching Hospital, Osogbo? Probe for their Public Health importance.
2. What are the complications and treatment options for these diseases?
3. Please tell me about organ donation as treatment option for end-stage organ failure?
4. What is the prevalence of organ donation practice in Nigeria? Probe for prevalence of practice in South West zone and among Health Professionals.
5. Please tell me the experience of LAUTECH Teaching Hospital with regards to organ transplantation?
6. What are the capacities/resources available within the hospital for performing organ transplantation?
7. What is your opinion about organ donation? Is it a good thing to do? Why or why not.
8. What will be your action if you find yourself in the situation that someone close to you is in need of organ? Probe for personal and professional action and willingness to receive transplantation treatment.
9. What will be your action if a professional colleague is in need of transplantation treatment? Will you recommend transplantation in Nigeria or abroad?
10. What do you suggest should be done to promote willingness towards organ donation among health professionals and in Nigeria?

APPENDIX II

FACTORS INFLUENCING INTENTION TOWARDS ORGAN DONATION AMONG HEALTH PROFESSIONALS IN LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY TEACHING HOSPITAL, OSOGBO, NIGERIA QUESTIONNAIRE

Dear respondent,

Good day. My name is Oyeniran Agnes A., a postgraduate student of the Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan conducting a study designed to gain insight on the knowledge, attitude and intentions of health care professionals towards organ and tissue donation. This study is essentially for academic purpose and all information provided will be treated with utmost confidentiality. Under no circumstance either during or after the study will the information provided be used against you. In order to ensure this, you need not write your name or house address on the questionnaire. Some of the questions touch on very personal issues. Your personal opinion on these issues will be greatly appreciated. Please kindly answer all questions sincerely.

You have a right to decline to participate in the study without any consequence.
If you consent to participate in the study please kindly go ahead to fill the questionnaire.

Serial No: _____
Date of Interview: _____

SECTION A: Socio Demographic data

1. Profession _____
2. Age in years (as at last birthday): { }
3. Years of work experience _____
4. Department of practice in the hospital _____
5. Sex: (i) Male { } (ii) Female { }
6. Religion: (i) Christian { } (ii) Islam { } (iii) Traditional { }

   (iv) Others (specify) _____
7. Ethnic group: (i) Yoruba { } (ii) Igbo { } (iii). Hausa { }

   (iv) Others (specify) _____

8. Marital status: (i) Single { } (ii) Married { } (iii) Widowed { } (iv) Separated { } (v) Divorced { }

9. Family setting: (i) Monogamous { } (ii) Polygamous { }

10. Highest educational qualification: (i) MBBS { } (ii) B. Pharm { }
(iii) Bsc Nursing { } (iv) Bsc Physiotheraphy { } (v) Bsc Microbiology { }
(vi) Bsc. Medical Laboratory Science { } (vii) Midwifery { } (viii) General Nursing { }
(ix) HND { } (x) OND { } (xi) Others (specify) _____

SECTION B: **Awareness on Organ and Tissue Donation** *(please tick the option appropriate to you)*

11. Have you ever heard of the term "Organ Donation"? (i) Yes { } (ii) No { }

Please go to **Q.28 if you answered **No** to the above question.*

12. Through which of the following sources did you hear about organ donation? ***(You can choose more than one option).*** (i) Training program { } (ii) Friend or colleague { }
(iii) Newspaper/magazines { } (iv) Internet/Online resources { }
(v) Seminar/Conference/Workshop { } (vi) TV/Radio { } (vii) Others (specify) _____

13. Are you aware of any request for people to donate organ in Nigeria? (i) Yes { } (ii) No { }

14. Do you know hospitals that perform organ transplantation in Nigeria?
(i) Yes { } (ii) No { }

*If you answered **NO** to **Q.14** please go directly to **Q.16***

15. Please mention such hospitals

_____

(For official use only) Total score obtained ☐
Code of category ☐

SECTION C: Knowledge of Organ and Tissue Donation (*Please tick the option appropriate to you)*

16. The term 'Organ Donation' means
(i) the removal of the tissues of the human body from a deceased person
(ii) the removal of the tissues of the human body from a living donor.
(iii) the removal of the tissues of the human body for the purpose of transplantation to

another person

(iv) can include transfer of cell/ova/foetus/sperm

(v) All of the above

17. Why is organ donation done?

(i) To save someone's life (ii) Out of compassion/sympathy (iii) For money

(iv) As a 'responsibility' (v) Others (specify) _____

18. What organs/tissues can be **donated for transplantation**? (***You can choose more than one option***)

(i) Kidney (ii) Heart (iii) Cornea (iv) Liver (v) Lung (vi) Bone marrow

(vii) Pancreas (viii) All of the above

19. Which of the following organs/tissues can be **donated for transplantation** while alive? ***(You can choose more than one option)***

(i) Kidney (ii) Heart (iii) Cornea (iv) Liver (v) Lung (vi) Bone marrow

(vii) Pancreas (viii) All of the above

20. Which of the following organs/tissues can **ONLY** be **donated for transplantation** after death? ***(You can choose more than one option)***

(i) Kidney (ii) Heart (iii) Cornea (iv) Liver (v) Lung (vi) Bone marrow

(vii) Pancreas (viii) All of the above

21. Which of the following organs/tissues can be **donated for transplantation** while alive and after death***? (You can choose more than one option)***

(i) Kidney (ii) Heart (iii) Cornea (iv) Liver (v) Lung (vi) Bone marrow

(vii) Pancreas (viii) All of the above

22. Which of the following organs/tissues are being **donated for transplantation** in Nigeria health facilities ***(You can choose more than one option)***

(i) Kidney (ii) Heart (iii) Cornea (iv) Liver (v) Lung (vi) Bone marrow

(vii) Pancreas (viii) All of the above

23. Please give three (3) categories of people who can benefit from organ/tissue donation?

_____

24. Please give three (3) categories of people who cannot donate organ/tissue?

_____

25. Does **organ donation** involve any risks? (i) Yes { } (ii) No { } (iii) Don't know { }

*If you answered **No or Don't know** to **Q.25**, please go directly to **Q.28***

26. What are the risks someone donating an organ could be exposed to? (***You can choose more than one option***) (i) Infection (ii) Bodily weakness (iii) Anxiety and depression (iv) Pain (v) Bleeding (vi) All of the above (vii) None of the above (viii) Others (specify) _____

27. Which risk, in your opinion, is the most important to avoid to someone donating an organ? (i) Infection (ii) Bodily weakness (iii) Anxiety and depression (iv) Pain (v) Bleeding (vi) All of the above (vii) None of the above (viii) Others (specify) _____

(For official use only) Total score obtained ☐
Code of category ☐

SECTION D: Prevalence of organ & tissue donation practice *(please tick the option appropriate to you)*

28. Do you know anyone who has **donated** an organ/tissue? (i) Yes (ii) No

29. Have you ever **donated** an organ/tissue? (i) Yes (ii) No

30. Have you ever **received** an organ/tissue? (i) Yes (ii) No

31. Have you ever been told of someone who **donated** an organ/tissue? (i) Yes (ii) No

SECTION E: Attitude to organ & tissue donation *(please tick the option appropriate to you)*

32	**Attitudinal item**	**Agree**	**Disagree**	**Not Sure**
i	Organ donation saves lives and should therefore be promoted			
ii	Donating organ to another person is charitable			
iii	My religion does not allow organ donation			
iv	Deceased organ donation should be made mandatory by law			
v	Organs of unclaimed prisoners should be targeted for donation			
vi	Health care professionals should be role models for organ donation by becoming donors			
vii	It should be mandatory that patients who are critically ill and dying be approached or their family members approached to ask about organ donation			
viii	Organ donation is about "playing god"			

ix	I regard donating my organs as being a way of serving God			
x	A dead person does not need any organs, so it is not important for a person to be buried with all their organs			
xi	Agreeing when alive to donate organs as a gift when one dies is like tempting death.			
xii	Organs should not be removed from someone who is brain dead because the person is still alive			
xiii	The spirit of a dead person is not peaceful if their organs live in the body of another person.			
xiv	I cannot be an organ donor but I would be willing to receive organ from a donor			
xv	I would allow my family members to donate their organs			

(For official use only) Total score obtained ☐
Code of category ☐

SECTION F: Intention towards Organ & Tissue Donation *(please tick the option appropriate to you)*

33. Are you supportive of organ/tissue donation from deceased people? (i) Yes (ii) No

34. Will you be willing to do so in the future? (i) Yes (ii) No

*If you answered **NO to Q.34**, please go directly to **Q.38***

35. Which of the following organ/tissue are you willing to donate after death?

(i) Kidney (ii) Heart (iii) Cornea (iv) Liver (v) Lung (vi) Bone marrow

(vii) Pancreas (viii) All of the above (ix) Others (Please specify) _____

36. Will you be willing to communicate your decision to your family members?

(i) Yes (ii) No

37. Will you be willing to back your donation decision by law? (i) Yes (ii) No

*If you answered **Qs. 35-37** please skip **Q.38** and go directly to **Q.39***

38. Could you tell us the reason why you are not willing to donate any of your organs after death?

(i) I cannot decide on my own, need family's consent

(ii) Uncertain about religious stand point

(iii) Concerned about complicated process of organ donation.

(iv) Never thought about organ donation

(v) Lack of satisfactory knowledge about the need for organ donation

(vi) "My body shall be maintained complete as my parents gave it to me as a whole"

(vii) I am not ready to help another person this way

(viii) Others (specify) _____

39. Will you be willing as a next of kin to respect a family member's donation decision after his/her death? (i) Yes (ii) No

40. Are you supportive of living organ donation? (i) Yes (ii) No

41. Will you be willing to donate your organ to somebody who needs it? (i) Yes (ii) No

*If you answered **NO** to **Q.41,** please go directly to **Q.45***

42. Which of your organs will you be willing to **donate for transplantation** while alive?

(i) Kidney (ii) Heart (iii) Cornea (iv) Liver (v) Lung (vi) Bone marrow

(vii) Pancreas (viii) All of the above (ix) Others (Please specify) _____

43. Who will you be willing to donate to? _____

44. What could be your greatest motivation towards organ donation?

(i) Incentives (ii) Loved one in need (iii) If others around me donate, I will

(iv) Sense of responsibility and pride (v) Knowing that I can save someone's life

(vi) Others (specify) _____

*If you answered **Qs.42-44** please skip **Q.45** and go directly to **Q.46***

45. Why are you not willing to donate organs while alive?

_____

46. What kind of actions should be taken in order to promote willingness towards organ donation? (***You can choose more than one option***)

(i) Media publicity (ii) Education (iii) Legislation (iv) Others (specify) _____

47. Has this interview influenced your willingness to donate your organ/tissue?

(i) Yes (ii) No

48. Please give a reason for your answer to **Q.47**

_____

(For official use only) Total score obtained ☐

Code of category ☐

APPENDIX III

INFORMED CONSENT FORM FOR RESPONDENTS

Greeting to you. My name is Oyeniran Agnes Aderinola and I am a graduate student of the Department of Health Promotion and Education, College of Medicine, University of Ibadan. I am conducting a research study on factors influencing towards organ donation among health professionals in Ladoke Akintola University of Technology, Osogbo.

Title of the research: Factors influencing intention towards Organ and Tissue Donation among healthcare professionals In Ladoke Akintola University of Technology Teaching Hospital, Osogbo, Osun State, Nigeria.

Names and affiliation of researcher: This study is being conducted by Oyeniran Agnes A. of the Department of Health Promotion and Education, College of Medicine, University of Ibadan, Oyo State, Nigeria.

Purpose of research: The purpose of this study is to assess the knowledge, attitude, prevalence of practice and intention towards organ and tissue donation among healthcare professionals in LAUTECH Teaching Hospital, Osogbo, Osun State.

Procedure of the research: I will be recruiting 410 participants into the study and I invite you to take part in this research project. If you accept, you will be asked to participate in the filling of the questionnaire which will be given to you. No one else other than the researcher or research assistants will be present. The information that will be given is considered confidential and only Miss Oyeniran Agnes and her colleagues will have access to the information documented during the research.

Expected duration of research and of participant's involvement: the duration of the data collection for this research, which you are being requested to participate in is two weeks and each respondent will spend about 15 minutes to 20 minutes in filling the questionnaire.

Risks and Discomforts: There are no physical risks associated with participation in this study. However, if you feel uncomfortable with some of the questions being asked, you may decide not to answer such questions.

Costs to the participants: Your participation in this research will not cost you anything.

Benefits: There will be no direct benefit to you but the information obtained from this study will help to provide suggestions on appropriate health education strategies that can be targeted at increasing the rates of organ and tissue donation.

Confidentiality: All information collected cannot be linked to you in any way as your name will not be collected. As part of my responsibility; only the researcher, members of the researcher's staff and representatives from the **Universities of Ibadan** and/or **Oyo State Research Ethical Review Committee** may have access to study records. They are required to keep your identity confidential. Results of this study may be used for research publications, or presentations at scientific meetings, but your personal results will never be discussed as an individual. No identifying information will be kept on the actual survey form so nobody will be able to connect your name to the survey. The questionnaire containing the interview will be stored for the duration of 2 years after which it would be destroyed.

Alternative to participation: Your participation in this research is entirely voluntary. You do not have to take part in this research if you do not wish to do so. You may stop participating in the interview at any time that you wish, and there will be no negative consequences for you in any way.

Detailed contact information:
This research has been approved by the Oyo State Research Ethical Review Committee, Ministry of Health, Secretariat, Ibadan.
Should you have any question about your participation in this research, you may contact the principal investigator;

Miss Oyeniran Agnes Aderinola
Address: Department of Health Promotion and Education, Faculty of Public Health, University College Hospital, Ibadan.
Telephone: 08035133022, 07057442232
E-mail: agnes_tope@yahoo.com.

Or the supervisor of this research;
Dr. Oyedunni S. Arulogun
Address: Department of Health Promotion and Education, Faculty of Public Health, University College Hospital, Ibadan.
Telephone: 08035794630 E-mail: omoyisola2002@yahoo.com

Statement of person obtaining informed consent:

I have fully explained this research to _____and have given sufficient information, including about risks and benefits, to make an informed decision.

DATE: _____ SIGNATURE: _____

NAME: _____

Statement of person giving consent:

Now that the study has been well explained to me and I fully understand the content of the study process, I hereby agree to be part of the study.

DATE: _____ SIGNATURE: _____

NAME: _____

APPENDIX IV

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/ 250 17th July, 2012

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

Attention: Oyeniran Agnes, A

Ethical Approval for the Implementation of your Research Proposal in Oyo State

This acknowledges the receipt of the corrected version of your Research Proposal titled: "Factors influencing intention towards Organ and Tissue Donation among Healthcare professionals in Ladoke Akintola University of Technology teaching Hospital, Osogbo, Osun state".

2. The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey, to you, the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that 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 the findings as this will help in policy making in the health sector.

4. Wishing you all the best,

OYO STATE RESEARCH ETHICAL REVIEW COMMITTEE
Signature & Date
MINISTRY OF HEALTH, Medical Research & Statistics

Mrs. V. A. Adejoju
Secretary, Oyo State, Research Ethical Review Committee