A REVIEW OF EMERGENCY OBSTETRIC CARE SERVICES AND OBSTETRIC FISTULA IN NORTH WESTERN NIGERIA

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ABSTRACT

Confinement is a life-changing, pleasant and joyful event and experience for many mothers. It is a period of difficulty and sadness for some women and her immediate families, particularly when it is accompanied by serious illness, debilitating injuries and death of the baby, mother or both. About half a million women die yearly from causes related to pregnancy and delivery. For each maternal death, approximately 10 to 15 other women sustain serious morbidity, including obstetric fistula (OF) which is closely associated to overall maternal morbidity and mortality. The most effective approach to reducing OF occurrence is to provide essential obstetric services at the community level with prompt access to emergency obstetric services at the first referral level. This study examined the availability of Emergency obstetric care (EmOC) services and factors that influenced the utilisation of the services and identified the potential risk factors of obstetric fistula among women in Nigeria. Quantitative and qualitative methods were used. A community survey involving 60 women and 40 men was conducted in five political wards in Gusau, Zamfara State, Nigeria. Data were collected from March to April 2013 using semi-structured validated questionnaires. For qualitative component, a focus group discussions (FGDs) and Key Informant Interviews (KIIs) were employed. FGD sessions were conducted separately for eight married women and for four men. KIIs were conducted with four sampled traditional birth attendants and six health personnel (nurses) involved in emergency obstetric care services from three selected facilities. A case–control study with a sample of 200 (ratio of 1 case: 1 control) was conducted from August to September 2013 at three selected hospitals in North-Western Nigeria. Cases were patients diagnosed as having OF within the last 3years. Controls were randomly selected from patients (without OF) admitted to the maternity units of these hospitals. The odds ratio was used as a measure of association with their corresponding 95% confidence interval. Variables with p-value of <0.1 were included in

the logistic regression model to generate adjusted Odds Ratios. Generally, the participants in the study perceived that cost of EmOC services was too expensive. Various socio-cultural and economic factors, including husbands' permission, use of traditional birth attendants, privacy, poor attitude of health care providers and poverty, cumulatively affected utilisation of EmOC services. Having Formal educational (OR; 0.013, CI; 0.001-0.530), Having Husband permission (OR; 0.028, CI; 0.001-0.664). Duration of labour ≥ 24hr (OR; 2.659, CI; 1.138-7.512), Delay in the decision to seek facility care (OR; 2.770, CI; 1.760-3.950), and Affordability of facility care cost (OR; 7.432, CI; 3.925-13.682).are risk factors for obstetric fistula. Health Education programs reaching out to both women and men with traditionally palatable messages that will change their attitudes and practices to take responsibility in reproductive health and empowerment of women can be a promising strategy to reduce the occurrence of obstetrics fistula. The government should strengthen the capacity of health facilities rendering EmOC through the provision of equipment, free drugs and services.

ABSTRAK

Waktu pantang selepas melahirkan anak merupakan pengalaman yang gembira. Sebaliknya, tempoh ini adalah yang sukar dan sedih bagi sesetengah wanita dan keluarganya apabila disertai penyakit berat, kecederaan yang membebankan dan kematian bayi, ibu atau kedua-duanya. Hampir satengah juta wanita meninggal dunia setiap tahun dari sebab berkaitan kehamilan dan kelahiran. Bagi setiap kematian ibu, lebih kurang 10-15 wanita lain mengalami morbiditi serius, termasuk *fistula obstetrik (OF*) yang berkait rapat dengan kematian ibu. Cara terbaik untuk mengurangkan berlakunya *OF* adalah melalui penyediaan perkhidmatan obstetrik asas di peringkat komuniti dan kemudahan perkhidmatan kecemasan obstetrik di peringkat rujukan pertama. Kajian ini meneliti ketersediaan perkhidmatan kecemasan EmOC dan faktor-faktor yang mempengaruhi penggunaannya dan mengenalpasti faktor risiko yang berpotensi mempengaruhi berlakunya *OF* di kalangan wanita Nigeria. Kaedah-kaedah kuantitatif dan kualitatif telah digunakan. Survei komuniti telah dijalankan di lima *wad* di Gusau, Zamfara State, Nigeria dimana 60 wanita dan 40 lelaki telah mengambil bahagian dengan mengguna persampelan mudah. Survei dijalankan dari Mac hingga April 2013. Soal selidik diguna untuk mengumpul data. Data kualitatif diperolehi melalui *Focus Group Discussion (FGD),* Temuduga Pemberi Maklumat Utama *(KII). FGD* dijalankan secara berasingan untuk lapan wanita yang sudah berkahwin dan empat lelaki. *KII* mengguna sampel yang terdiri dari empat bidan tradisional dan enam kakitangan kesihatan (jururawat) yang berkhidmat di jabatan penjagaan kecemasan obstetrik di tiga fasiliti kesihatan yang dipilih. Kajian kes-kawalan (*case-control*) melibat 200 sampel (nisbah 1kes: 1 kontrol) telah dijalankan dari Ogos-September 2013 di tiga hospital terpilih di Timur Nigeria. Kes adalah mereka yang didiagnosa *OF* dalam tempoh 3 tahun yang lepas. Kontrol dipilih secara rawak daripada pesakit (tanpa OF) yang dimasukkan di wad bersalin hospital itu. Nisbah Odds (Odds Ratio) diguna untuk

mengukur kaitan faktor risiko *OF* di paras 95% selang keyakinan. Pembolehubah dengan nilai p <0.1 dimasukkan ke dalam model regresi logistik untuk menjana kemungkinan nisbah larasan. Keseluruhannya, peserta kajian berpendapat bahawa kos perkhidmatan EMOC terlalu mahal. Pelbagai faktor sosio-budaya dan ekonomi, termasuk kebenaran suami, penggunaan bidan tradisional, privasi, sikap negatif petugas petugas kesihatan, dan kemiskinan, secara kumulatif menjejaskan penggunaan perkhidmatan EmOC. Mempunyai pendidikan formal (OR: 0,013, CI: 0001-0530), yang mempunyai suami kuasa (OR: 0,028, CI: 0001-0664). Jangka buruh ≥ 24 jam (OR: 2,659, CI: 1138-7512), kelewatan dalam membuat keputusan untuk mendapatkan kemudahan penjagaan (OR: 2,770, CI: 1760-3950), dan keupayaan untuk meringankan kos rawatan (OR, 7432, CI: 3925 -13 682) .is faktor risiko untuk fistula obstetric. Program Pendidikan Kesihatan perlu di tujukan kepada wanita dan lelaki dengan mengunakan mesej yang sesuai dengan tradisi setempat. Pendekatan ini akan mengubah sikap dan amalan mereka untuk bertanggungjawab dalam hal kesihatan. Usaha perlu diambil untuk memperkasa wanita. Cara seperti ini adalah strategi yang sangat berpotensi untuk mengurangkan masalah OF. Kerajaan perlu mengperkuhkan keupayaan dan kemudahan fasiliti kesihatan dan EmOC dengan menyediakan peralatan, ubat-ubatan dan perkhidmatan percuma.

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LIST OF SYMBOLS AND ABBREVIATIONS

BCC	:	Behaviour Change Communication
CBO	:	Community Based Organization
CEDAW	:	Convention on the Elimination of All Forms of Discrimination Against Women
DQA	:	Data Quality Assurance
EmOC	:	Emergency Obstetric Care
FGC/M	:	Female Genital Cutting/Mutilation
FMOE	:	Federal Ministry of Education
FMOH	:	Federal Ministry of Health
FMWA	:	Federal Ministry of Women Affairs
FWCW	:	Fourth World Conference on Women
HDI	:	Human Development Index
HIV/AIDs	:	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IAG	:	Inter-Agency Group
ICPD	:	International Conference on Population and Development
IMNCH	:	Integrated Maternal, Neonatal and Child Health
IPPF	:	International Planned Parenthood Federation

LGA	:	Local Government Area
MDGs	:	Millennium Development Goals
MMR	:	Maternal Morbidity and Mortality
MOV	:	Means of Verification
NARHS	:	National HIV/AIDS Reproductive Health Survey
NDHS	:	National Demographic and Health Survey
NGO	:	Non-Governmental Organization
NHMIS	:	National Health Management Information System
NISS	:	National Integrated Supportive Supervision
OF	:	Obstetric Fistula
OVI	:	Objectively Verifiable Indicator
PHC	:	Primary Health Care
PMF	:	Performance Measurement Framework
RBM	:	Results Based Methodology
RH	:	Reproductive Health
RVF	:	Recto-Vaginal Fistula
SMI	:	Safe Motherhood Initiative
SOME	:	State Ministry of Education

SMOH	:	State Ministry of Health
STI	:	Sexually Transmitted Infection
UN	:	United Nations
UNFPA	:	United Nations Population Fund
UNDP	:	United Nations Development Programme
UNICEF	:	United Nations Children's Fund
VVF	:	Vesico-Vaginal Fistula
WHO	:	World Health Organization.

CHAPTER 1: INTRODUCTION

1.1 Importance of Pregnancy and Child Birth for Women's Reproductive Health

Pregnancy and childbirth are two important life events that affect women's reproductive health and the proliferation of the human species. Women and men both find these very special and very important emotionally. Therefore these two aspects raise the concern of the public and the professionals. However, in a lot of developing countries, and specifically in Nigeria, the women suffer most because of the pitiable status of reproductive health care. Many women die while some are afflicted with various kinds of morbidity and disability resulting from pregnancy and childbirth. All over the world, on a daily basis, about 800 women die from pregnancy or childbirth-related problems. In 2013, 289 000 women died during and right after their pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been avoided (Bolatinubu, 2013)

Although women's health issues have raised the public's eyebrows from one country to another, noticeably, women in developing countries remain sensitive to their own health conditions because of the dismal health care services and of the poor education and information about the reproductive health issues (UNICEF, 2006). In developing countries, complications of pregnancy and childbirth stand out as the leading causes of death among women of reproductive age and the risk of maternal mortality shows to be the highest for adolescent girls below 15 years old. Also, the complications during pregnancy and childbirth are the leading cause of death among adolescent girls in developing countries (World Health Organisation, 2010). Women in these countries have, on average, more pregnancies than women in developed countries, and their lifetime risk of death because of the pregnancy is shown to be higher. A woman's lifetime risk of maternal death, the probability that a 15-year-old woman will gradually die from a pregnancy-related cause is 1 in 3700 in developed countries, as opposed to 1

in 160 in developing countries (Walsh & Alab, 1989). The high number of maternal deaths in some parts of the world mirrors the inequities in access to health services and it throws some light on the gap between the rich and the poor (Wagstaff, 2002). Almost all maternal deaths (99%) occur in developing countries, and more than half of these deaths are reported in the sub-Saharan Africa and almost one-third in South Asia (Lawn, Kerber, Enweronu, & Cousens, 2010).

The maternal mortality ratio in developing countries in 2013 is 230 per 100 000 live births versus 16 per 100 000 live births in developed countries (Hamilton, Hoyert, Martin, Strobino, & Guyer, 2013). A few countries have extremely high maternal mortality ratios, which are around 1000 per 100 000 live births (AbouZahr & Wardlaw, 2001). Large disparities within countries are also evident, between women with high and low income and those living in rural and urban areas. Women die from complications while and after pregnancy and childbirth and most of which develop during pregnancy (Buor & Bream, 2004). Other complications may exist before pregnancy but exacerbate during pregnancy. The major complications responsible for nearly 75% of all maternal deaths are serious bleeding (mostly bleeding after childbirth), infections (usually post-childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications stemming from the delivery, and risky abortion. Others are caused by, or linked with diseases such as malaria, and AIDS during pregnancy (Ronsmans & Graham, 2006).

Maternal health and newborn health have a very close link. Almost 3 million new-born babies die globally annually and an additional 2.6 million babies are stillborn (Cousins et al 2014). To avoid maternal deaths, it is also crucial to prevent unwanted and too-early pregnancies. All women, including adolescents, need to be able to use contraception, benefit from safe abortion services to the full extent of the law, and quality post-abortion care (Grimes et al, 2006).

Poor women in remote areas are the ones suffering the most, especially in regions with a scarce number of skilled health workers, such as sub-Saharan Africa and South Asia. In spite of the fact that levels of antenatal care have increased in many parts of the world in the past decade, only 46% of women in low-income countries benefit from skilled care during childbirth, indicating that millions of births are not attended by a midwife, a doctor or a trained nurse (Filippi et al., 2006).

In high-income countries, all women have at least four antenatal care visits, and attended by a skilled health worker during childbirth and receive post-delivery care. However, only over a third of all pregnant women have the recommended four antenatal care visits (Finlayson & Downe, 2013) in low-income countries. Other factors that prevent women from receiving or seeking care during pregnancy and childbirth are poverty, distance (accessibility), poor information, the lack of services and cultural practices (Patel, Rahman, Jacob, & Hughes, 2004). To improve maternal health, barriers that restrict the access to quality maternal health services must be identified and addressed at all levels of the health system.

There are inadequate and urgent treatment for women with obstetric complications provided by the Emergency Obstetric Care (EmOC) so that they can survive and morbidity reduced (Campbell, Graham, & group, 2006). Emergency obstetric care services are vital in any pregnancy because there is the possibility of the occurrence of life-threatening complications, and we cannot be sure, when these complications would occur. Emergency obstetric care is categorised into two classes: Basic Essential Obstetric Care (BEOC) and Comprehensive Essential Obstetric Care (CEOC). Facilities with the former, provide services such as administration of parenteral oxytocin, antibiotics and anticonvulsants, assisted vaginal delivery, and various others (Paxton, Bailey, & Lobis, 2006) Hence, these Emergency Obstetric Care services are vital.

The comprehensive emergency obstetric care facilities are expected to run around the clock and perform all the basic essential obstetric care services with two additional services namely surgery (caesarian section) and safe blood transfusion (Hung, 2004).

The global concern on the issues of high maternal mortality and morbidity arising from pregnancy-related problems and childbirth, particularly in the developing world, had called for the safe motherhood conference held in Nairobi, Kenya in 1987 and the ensuing introduction of the Safe Motherhood Initiative (Starrs, 2006). UN Secretary-General Ban Ki-moon launched a global strategy for women and children's health during the United Nations Millennium Development Goal (MDG) summit in September 2010, with the goal to save the lives of more than 16 million women and children over the next four years (Ban, 2010). Despite the pronouncement made by the Nigerian Government on the improvement in reproductive health, especially the desire to achieve significant reduction in the incidence of maternal mortality and morbidity by 2015, the Multiple Indices Cluster Survey (MICS) (1999), the Nigeria Health Review (2006), and the Federal Ministry of Health (2009), have reported that Nigeria has one of the highest maternal mortality ratio (MMR) in the world, which varies from 704 to 800 maternal deaths per 100,000 live births (Rahman, Haque, Mostofa, Tarivonda, & Shuaib, 2011). The North-east and North-west zones have the highest maternal mortality rate (MMR) in the country. The trend is not welcoming, as MMR has increased from 800 to 1,732 maternal deaths per 100,000 live births, which threaten the lives of pregnant women in these regions (Mairiga & Saleh, 2009). The Maternal Mortality Rate (MMR) in Nigeria was 560 per 100,000 live births in 2013. The North East Zone has the highest maternal mortality rate of 1,549/100,000 live births, compared to 165/100,000 live births in the South West Zone —an almost 10-fold difference (Galadanchi, 2010). The north-west and central parts have the maternal

mortality ratio (MMR) of 740/100,000 total deliveries. The South-South Maternal mortality ratio (MMR) was 391 per 100,000 births, south-west has MMR of 165/100.000.south east 165/100,000 (Duru, 2014).

1.2 Health Care System in Nigeria

Nigeria is a federation of 36 States and a Federal Capital Territory (Abuja). It has a population of about 167 million people. The 2011 United Nation Development fund (UNDP) Human Development Report ranked Nigeria as a low development country with Human Development Index (HDI) of 0.459 (compared to Sub-Saharan African HDI average of 0.463); thus placing Nigeria in the 156th position of the 187 countries being evaluated. A recent report by the National Bureau of Statistics (NBS) indicated that, in 2010, about 69% of the population lived in relative poverty (less than US$1 per day) (Umukoro, 2013).

The Federal Government, State Governments, and Local Governments provide the health care services in Nigeria. The federal government manages the university teaching hospitals, the National cancer referral hospital and others, while the state governments administer the general hospitals and the local governments handle the dispensaries, primary health centre and health post (Asuzu, 2004; Scott, 2010). Nigeria practices a mixed health care system, and the government, which includes the government-owned hospitals in the states, provides its health care delivery and local government, and the private health care providers run the clinics and hospitals for profit. The non-governmental organisation in the form of missionaries also offers a great contribution to the health care delivery system (Federal Republic of Nigeria, 2009). The Nigerian health care system can be divided into the primary, secondary, and tertiary health care facilities (Asuzu, 2004). Primary health care is provided by both public and private sectors, but mainly by the public. The public sector includes all the health clinics

set up throughout the country. The secondary health care is catered for by the general hospital and specialist centres, while the care is rendered by the university teaching hospitals (Abdulraheem et al., 2012; Asuzu, 2004). Primary Health Care (PHC), supposed to be the foundation of the Nigeria's health care policy is currently delivering services to less than 20% of the potential patients (Abdulraheem et al., 2012; Asuzu, 2004), and it must be said that PHC facilities are in very poor condition (Abdulraheem et al., 2012; Asuzu, 2004). Nigeria currently posts a poor doctor-patient ratio of 1:3500 in comparison with the World Health Organization (WHO) standard of 1:600 (Oche et al., 2013).

Many developing countries including Nigeria are suffering from not having enough midwives, doctors, and nurses. Although Sub-Saharan Africa carries the weight of about a quarter of the global disease, the health workforce is very small, which is 3%. More than 4 million more health professionals are desperately required in 57 countries - mostly in Africa and rural areas of Asia (Petersen, 2003). Baseline surveys conducted in 2008 and 2009 revealed that different categories of staff had provided the maternity services in Northern Nigeria (Doctor et al., 2012). The secondary and tertiary health care facilities are manned by midwives, nurses, and doctors. The primary health care centres, maternity services are mostly delivered by Community Health Officers (CHOs) and Community Health Extension Workers. (Adegoke, Mani, Abubakar, & Van Den Broek, 2013). Surveys were done earlier have highlighted the critical shortage of human resource particularly nurses and midwives for the provision of maternal and newborn and child health in all facilities in Katsina, Yobe and Zamfara states (Adegoke et al., 2013).

The Federal Ministry of Health in Nigeria has eight departments concerning on various aspects of healthcare namely Public Health, Family Health, Hospital Services,

Human Resource, Planning Research and Statistic, Food and Drugs Services, Procurement.

Under the Federal Ministry of Health, these departments together with other ministries, development partners and other relevant stakeholders carry the aims to develop, coordinate, and implement policies and strategies towards increasing the life expectancy of Nigerians, give them sustainable, and improved health care services. Other functions include enhancing the sexual, reproductive, maternal, and neonatal and child health care (Titus, Adebisola, & Adeniji, 2015) aspects. For the time being, the department of public health supervises 23,636 health care facilities, 14, 607 public health care facilities and 9,029 private health care facilities all over the country (Meremikwu et al., 2007). Access to health care services is not really widely distributed in Nigeria, especially for rural areas' residents. In 2006, it was reported that, on the average, only 55.1% of Nigerians had access to medical services (Babalola & Fatusi, 2009). Unlike the 70.9% of the urban residents, only 47.8% of the rural residents have access to medical services (Babalola & Fatusi, 2009).

1.2.1 Health Care Delivery in Zamfara State

Ensuring proper health care safeguard through disease prevention's accurate diagnosis, treatment care and rehabilitation is one of the main aims of a health institution. This is achievable by ensuring accessibility, availability, affordability and utilisation of health care services to all layers of the society. The Health Management Information System (HMIS) of Zamfara State Ministry of health indicates that health care delivery service of the State is relayed by both public and private sectors. The public healthcare system is made up of the primary, secondary and tertiary health facilities. The Local Government Areas (LGAs) are accountable for the construction and running of village dispensaries, Basic Health Clinics and Primary Health Centres. Currently, there are 19 Primary Health Centres and 18 Basic health clinics in the state. The State Ministry of

Health and Health Services Management Board have the responsibility for the Secondary Healthcare level. Under this arrangement, there are 18 General Hospitals (categorised into Grades A, B, and C) with a total of 1,400 beds. A total of 23 private clinics, one Federal Medical Center and a School of Nursing which are located in Gusau metropolis are also available in the State. In the Public Sector, the State has a total of 63 Medical officers, 237 Nurses and 118 Midwives (Sumathi, Kamalanabhan, & Thenmozhi, 2015).

Currently, a daunting task is to make an accurate assessment of the health status of the citizens of the State, because the data collection system is still being developed. However, the general state of health of the population suggests quick intervention that would improve the state's health delivery system. In brief, the state has only 30% of required doctors, 20% of required nurses, 40% of required technologists, and less than 10% of required pharmacists. These figures are somewhat alarming, given the attainment reported in the developed countries.

Figure 1.1 Map of Nigeria showing the three states of the study site

1.2.2 Definition of Terms

Obstetric Complications: World Health Organization defined obstetric complication as those conditions which carry a serious threat of death to a pregnant woman. It implies that problems (not from accidental causes) facing a pregnant woman irrespective of site or duration of the pregnancy; from any cause-related or provoked by the pregnancy or its management (Meremikwu et al., 2007).

Obstetric fistula: Medical condition in which an abnormal opening formed between a woman's bladder and vagina, resulting in urinary incontinence (Wall, 2006).

Emergency Obstetric Care: This refers to a component of reproductive health services provided to handle obstetric emergencies by providing adequate and immediate treatment to save the lives of pregnant women who develop obstetric complications (Bergström, 2000)

Accessibility: *this* implies the opportunity and right to use health care services. In the context of this work, accessibility does not only entail the presence or physical proximity of a health care service but also access to transportation, motorable roads, information, proper manning, equipping, supply of drugs and financial affordability (Farrington & Farrington, 2005)

Availability: This refers to the degree to which the system (emergency obstetric care facility) or equipment is put to use at the time of emergency. In the context of this work, the concept of availability goes beyond the presence of physical structures (facilities) to include the availability of drugs, equipment proper diagnosis, and of course the presence of qualified personnel and 24-hour staff coverage without delays. (Kabir 2007).

Utilisation: The concept of utilisation means to put something to use, especially to find a practical and profitable use of that particular thing. In the context of this work, utilisation refers to the extent to which emergency obstetric care services are put to

maximum utilisation especially when complications arise. It implies how often women use these services; by going to the hospital to deliver in the presence of skilled healthcare providers and or by going to the hospital when complications arise. The mere presence of a facility or expansion of health programmes does not necessarily increase utilisation. In other words, utilisation depends on other inter-related factors. In a broader sense, emergency obstetric care services can be available; but utilisation can largely depend on accessibility and or socio-economic factors (Sabitu 2013).

Perception: In this context, it refers to the individual or community impression or interpretation of emergency obstetric care services in their communities.

Awareness: This refers to the individual or collective insight on maternal health services and practice in the community they live.

1.3 Problem Statement

Pregnancy is a normal physiological change that happens in the body when there is the existence of a baby, as it develops in the womb of a woman. Yet, biologically, complication(s) may arise during pregnancy and or delivery probably result in disability or even death. According to National Economic Empowerment and Development Strategy (NPC), 2007), the Federal Government of Nigeria has introduced and implemented several policies and programmes seeking to enhance the health care delivery system in general and the Emergency obstetric care services, especially at the district level, to support patients' access to such services in particular and consistently with the goals included in the Millennium Development Goal to improve Maternal Health and to reduce Child Mortality. The year 2015 is the established period, and the possibilities of achieving these goals are little. For example, The National Demographic health Survey reports that Nigeria still has an extremely high maternal mortality ratio of 704 to 1,000 maternal deaths per 100,000 live births (Nigerian Health Demographic

Survey & NHDS, 2003). Also, the distribution of MMR in Nigeria varies with the region: in the North-East Zone, 1,549/100,000 live births is almost ten times higher than the rate of 166,/100,000 found in the South-West Zone (Nigerian Health Demographic Survey & NHDS, 2003). This is more than twice the National average. With a rate of 1,025/100,000 live births; the North-West Zone MMR is almost four times the rate in the South-East Zone (Nigerian Health Demographic Survey & NHDS, 2003).

Availability and utilisation of emergency obstetric care (EmOC) services can give a positive impact on maternal and child life. Therefore, although most of the qualified personnel and sophisticated facilities are in the cities; women do not utilise enough the emergency obstetric care services when needed and necessary, and this consequently results in death (Fauveau & Donnay, 2006). Given the situation, do these services exist in health facilities in Gusau Metropolis? If yes, are they being used to the fullest and the best way possible? Even in the urban areas, where Emergency Obstetric Care facilities are available compared to rural areas, most of the women do not penetrate into and benefit from these health care services. The presence of facility does not mean that the services will be utilised, as many women and men find it too costly to pay for such services, although complications are too pressing (World Health Organisation, 2001). They rather ask for the assistance provided by the Traditional Birth Attendants (TBA) or stay at home (Sabitu, 2004, Dalhatu, 2006). Every delivery is distinctive. Therefore, conceived as an emergency, women should deliver with skilled birth attendants present. In Nigeria, particularly in the North-West Zone, recent statistics have shown that there is a wide gap between those who attend hospital delivery and those who decide to deliver their babies at home. This problem is compounded by the Government's failure to prepare enough facilities, equipment and other needed supplies for Emergency Obstetric Care to ensure effective functioning (World Health

Organisation, 2001). In addition, the poor relay of information, transportation, illiteracy, and cultural factors may equally act as barriers to the service utilisation.

One reason behind maternal death is Obstetric fistula which is an abnormal communication between the vagina and bladder (vesico-vaginal fistula) and/or the rectum (rectovaginal fistula), that has to do with childbirth (Paul, 2003). It results from prolonged obstructed labour from whatever cause during childbirth and it can easily cause serious reproductive health problems for women in the developing world. It is this obstruction that underscores the typical features of obstetric fistula; where the sustained pressure from the presenting part of the baby, affects the vaginal walls, the bladder, the rectum, the nerves and blood supply, unfortunately causing tissue damage, disability, and in many cases, death (Wall, 2005).The fistula results in the continuous dribbling of urine and sometimes faeces (urinary and/or faecal incontinence). Dripping urine wets the victims' clothing and it leads to the excoriation of the already damaged vulva and vagina, which also emits a very bad smell. Victims of obstetric fistulae are usually the survivors of traumatic prolonged childbirth, but often times the baby would die during delivery (Wall, Anger, Saigal, & Litwin, (2006)). To make things worse, they become social outcasts; some got divorced and shunned by their families.

In parts of Saharan Africa and Asia, it is estimated that more than 2 million young women had to endure an untreated obstetric fistula. It is not a good news too to find out that 50,000 and 100,000 new women are affected each year (Svjetlana & Mark, 2015). Nigeria constitutes 40% of the worldwide fistula, with approximately 20,000 new cases occurring every year, although recent studies estimated 12,000 new cases every year. Complications of pregnancy and delivery are still found to be the main cause of obstetric fistula (Elneil & mulete, 2010). The NDHS estimates that about four (4) maternal deaths occur in Nigeria on an hourly basis, 90 on a daily basis, and 2,800 on a monthly basis, totalling about 34,000 deaths annually, with wide regional and local

variations (Anum, 2015). It is also estimated that for every maternal death, at least 30 women suffer short to long-term disabilities like obstetric fistula (Anum, 2015; (Garba, Magashi, & Sarah, 2014). The link is strong between the reproductive risk and high fertility, illiteracy, poverty and lack of or poor quality emergency obstetric care services (Mahler, 1987).

All obstetric fistulas can be prevented if the intrapartum care that will detect the abnormal progress of labour is deemed adequate since it will allow timely intervention before there is a problem with the labour (Wall & Lewis, 2012a). Simple graphic analysis of the progress of labour (the partograph) used by trained birth attendants has evidently enabled the reduction of antenatal deaths, prevention of prolonged labour, and subsequently a decrease in operative intervention by allowing normal labour to proceed without pointless interference (Olaku & Akpovye, 2014). Even this level of basic obstetric care is not present throughout most of the developing world (Iloabachie & Meniru, 1990; Ward & Hilton, 2002).The provision of essential obstetric services has never been the focal point for the governments of countries where the maternal mortality and morbidity problem are the most serious. Most maternal deaths are due to unanticipated difficulties such as haemorrhage, hypertensive crises, sepsis, and complications of unsafe abortion, and obstructed labour that cannot be predicted earlier on but when they occur, a prompt intervention would be required. The international public health community has not stressed on the critical need for surgical services in the developing world, and this problem is worsened by the lack of meaningful continuous and active communication between the public-health community and clinical obstetrician-gynecologists (Iloabachie & Meniru, 1990; World Health Organisation, 2000). In the meantime, data concerning unrepaired fistulas continues to accumulate all across various parts of these impoverished countries. Even when fistulas by themselves are not fatal, millions of afflicted women survive in misery, with very poor quality of

life including sexual life, while tens of thousands more are added to them every year. The foreground techniques needed for fistula repair have been known for more than a century (Iloabachie & Meniru, 1990; Scholz, 2002; WHO, 2000). Fistulas can be repaired at minimal cost with low-technology surgical operations performed under spinal anaesthesia, and even that, these basic surgical services are not available to them in most developing countries (Wall & Lewis, 2006). Fistula surgery appears to become more prominent in most technological advancements like improved anaesthesia, synthetic suture materials, better urinary catheters, and techniques of tissue grafting, to better the outcome.

1.4 Rationale

Most studies carried out on maternal health situations are on maternal mortality and few efforts have been made to look further into the Emergency Obstetric Care Services which impact the maternal mortality and morbidity in a positive light. Husbands and family members of obstetric fistula patients may, at first, want to support and show compassion to these women. However, later on, when it becomes clear that the constant loss of urine or faeces is a chronic condition, easily viewed as incurable in the context of the traditional local culture, these women will usually be divorced or neglected by their husbands and are often regarded as outcasts by their own families. Some studies have shown that the incidence of obstetric fistula is higher among the rural poor who have very low level of education, poor antenatal and low usage of modern contraceptives (Molder & Anne, 1998; Scholz, 2002). The reproductive health of women, next, appears to be affected by the age at which they bear children. In developing countries, early marriage for women is associated not only with early childbearing but with other factors such as poverty, low status in the community, low

educational level, and rural residence so automatically their lives are socially compromised.

Therefore, with relatively high obstetric fistula risk, Nigeria needs to increase the level of awareness on the importance of birth control (Contraception) among young married couples, at least until the women reach physical maturity. In areas where early marriage is commonplace, promoting contraceptive use can put childbearing on hold until the woman is physically and emotionally prepared to bear children. Additionally, with better economic status it can bring about positive changes since economic conditions may be the underlying factors behind early marriage and childbearing. Easily accessible emergency obstetric care should be at the back of the minds of health planners and policy makers, especially in the developing world where the burden of preventable maternal deaths is almost unbearable. Recognising the significance of reducing early marriage and childbearing has steadily become a vital public health strategy for obstetric fistula prevention. The above useful information matrix can only be understood clearly via a robotic study of this nature to establish the push and pull factors that predispose the women to this situation and proffer ways to prevent the occurrence and ameliorate the misery of the victims.

Thus, the significance of this work is evident in several ways:

1. Findings of this study can function as an intervention strategy for policy makers as they formulate programs that can look into the socio-economic barriers to accessing emergency obstetric care services.
2. The study will be useful to raise the awareness among community members on the importance of going for emergency obstetric care services and obstetric fistula services.
3. Detection and early referral system for abdominal delivery at any time when obstructed labour is diagnosed

1.5 Research Questions

The research questions that need to be addressed in this paper are as follows:

1. What are the emergency obstetric care problems among women in Zamfara state?

2. Are the health facilities providing Emergency Obstetric Care Services in Gusau Metropolis?

3. Is the general population in Zamfara State aware of the facilities that render Emergency obstetric care services in the area?

4. What are the communities' perceptions of affordability and accessibility to these facilities?

5. Are the facilities being utilised by pregnant women in the area under study?

6. Do the husbands or any significant others encourage or approve the utilisation of these services by their wives?

7. What socioeconomic (education, occupation and income) and cultural factors (normative values, belief and practices) encourage or hinder the utilisation of Emergency Obstetric Care Services in Gusau metropolis?

1.8 Are community members satisfied with Emergency Obstetric Care Services rendered in the health facilities?

1.9 What are the risk factors for Obstetric fistula?

1.6 Study Objectives

The main aim of this study is to dwell in the state of availability, access and utilisation of Emergency Obstetric Care Services in Gusau metropolis of Zamfara State and to ascertain the risk factors for obstetric fistula In North-Western Nigeria. The specific objectives are:

1. To find out more about the awareness among general population concerning availability, and accessibility of facilities that render emergency obstetric care services (EmOC).

2. To ascertain whether the cost of emergency obstetric care services is affordable for pregnant women and their families.

3. To establish clearly the socio-economic and cultural factors that influence or hinder the utilisation of Emergency Obstetric Care Services in the area under study.

4. To evaluate users' perception of quality of emergency obstetric care services in the study area.

5. To verify the obstetric and other risk factors for the development of an obstetric fistula.

1.7 Organization of Thesis

This thesis consists of six chapters. Chapter 1 gives an introduction to the background and motivation of the study. Chapter 2, presents a review of the literature that is relevant to this research. Chapter 3 discusses the methodology that is applied as a framework for this research. Chapter 4 details the research results obtained. Chapter 5 presents a discussion of the results and analyses and makes a comparison with other relevant literature. Finally, Chapter 6 concludes by providing a summary of the main findings and also presents recommendations deemed appropriate and significant to the direction of this study.

CHAPTER 2: LITERATURE REVIEW

The significance of emergency obstetric care services in preventing maternal mortality and morbidity in the world and Nigeria in specific is discussed further in this chapter. This chapter also discusses the epidemiology, the weight of obstetric fistula and its care services in Nigeria, alongside the theoretical and conceptual frameworks for the thesis.

2.1 The Global Maternal Health Context

Despite the fact that the total number of maternal deaths has decreased by 45% from 523,000 in 1990 to 289,000 in 2013 all over the world, maternal mortality still manifests itself as a major public health problem, specifically in sub-Saharan Africa, where half (50.4%) of all maternal deaths worldwide have been reported (Blum, 1991). Almost 90% of maternal deaths during childbirth had taken place in Asia and sub-Saharan Africa, compared to less than 1% in the developed world (Hogan et al., 2010). South Asia has reported half of the world's 600,000 annual maternal deaths, although the contribution is only 29% of the world deliveries (Islam, Hossain, Islam, & Haque, 2005). Nearly 3.5 million births occur in Bangladesh annually and most (92%) of the deliveries are home births, manhandled by untrained persons (Islam et al., 2005). Those living in impoverished conditions have also demonstrated a far greater likelihood of having or incurring a disability in their lifetime.

One of the millennium development goals is to lower the maternal mortality rates by 75% between 1990 and 2015 (Ronsmans & Graham, 2006). The sub-Saharan Africa has experienced little improvement in indicators linked to maternal mortality, which is unlike other regions, raising the concern that the Millennium Development targets will not be achieved (Pierre, Alexandre, Caroline, & Geofry, 2009). Responding to this unsettling situation, many African countries have taken the necessary steps to reduce the maternal mortality.

The context and causes of maternal mortality and morbidity have been well-established and the strategies for amelioration made known (Kyomuhendo & Bantebya, 2003; Okolocha, Chiwuzie, Braimoh, Unuigbe, & Olumeko, 1998). One true and tested practical strategy is to allow the access to fundamental emergency obstetric services (parenteral oxytocin, antibiotics and anticonvulsants; assisted deliveries; manual extraction of the placenta; removal of retained products) and to provide comprehensive emergency obstetric services (basic services plus Caesarean sections and blood transfusions) if needs arise (Donnay, 2000). Access to these services stays prominent in the WHO "Making Pregnancy Safer programme" in ensuring that timely caesarian delivery is prioritised in the sub-Saharan Africa (Lewis, 2008).

Maternal mortality is highest in rural areas in the western parts of Africa where access to emergency obstetric care is fraught with the scant resources and big geographical distances to the health facilities (Jammeh, Sundby, & Vangen, 2011). Although considerable effort is exerted in reducing maternal mortality rates in urban areas, the situation in rural areas is far from improving. Carrying out emergency obstetric care programmes, and maternity referral systems, in particular, is undoubtedly complicated in places where resources are not easy to obtain (Murray, & C, 2006). In many western African countries, the Bamako Initiative fights for cost recovery in standard healthcare, while the costs of comprehensive emergency obstetric care are burdensome for too many families (Safer, 2004). To date, the government of those countries is coming up with several strategies to try and reduce the financial burden (Rogoff, 1999).

Nigeria has been showing the highest number of maternal and child deaths in sub-Saharan Africa and 33,000 Nigerian women die in childbirth every single year (Ronsmans & Graham, 2006). The maternal mortality ratio in Nigeria is 545 per 100,000 live births, a figure higher than the sub-Saharan average (239 per 100,000 live

births), and the 19th highest global rate (Akinyemi & Isiugo-Abanihe, 2014). Being the largest population in Africa, Nigeria seeks to achieve the global MDG targets four (child survival) and five (maternal survival). It does show some progress in reducing the number of both maternal and child deaths in line with the MDGs. However, this progress remains insufficient to meet both MDG goals unless some changes are made to expedite the pace of the efforts exerted. For the past seven years (2003-2010), under-five deaths only reduced from 201 per 100,000 to 158 per 100,000 (Sundquist, Dunlop, Wright, Findlater, & Grauer, 2010). Thus, to fully achieve MDG 4, Nigeria would have to drop further 60% by 2015 (Pogge, 2004).

Nigeria's maternal mortality rate is decreasing steadily. However, a further 75% maternal death reduction would be required between now and 2015 to fulfil the target of MDG 5 (Group, 2008). Although MDG 4 and 5 currently appear to be beyond reach, because Nigeria is heavily populated, even small reductions in maternal and child death rates will make great differences in the actual number of lives saved. That said, there has been a global concern to save lives in a country where 110 mothers and children die by the day (Gafoor; Porter, 2013).

The worst health outcomes and the lowest access to health services have been demonstrated by two groups in Northern Nigeria- women and children. Less than 50% of women do not receive any antenatal care. No area of Northern Nigeria has skilled birth attendance more than 20% while the states in the south and south-east zones escalate to 68% (Helleringer, Doctor, Bairagi, Findley, & Dahiru, 2011). Other than the strong geographical disparities, large variations are also found amongst socio- economic groups, rural and urban areas, and they also depend on factors like gender and age. A key causal factor of poor health outcomes in Northern Nigeria is poor care in the three substantial stages- the before, while and after pregnancy (Babalola & Fatusi, 2009). Effective family planning is said to be one of the most well-known approaches to

reducing maternal and child deaths. Yet, in Katsina and Jigawa (North-West Nigeria) only 1% of married women practice safe sex through contraceptives, compared to Lagos where 26% of married women do so (Mandara, 2012).

There are not many skilled health workers in northern Nigeria, and probably due to this, rural patients need to travel further to get treated, health-wise. It is assumed that the health facilities in the northern area do not have much equipment, other than the fact that there is little basic essential medicine provided. To worsen the situation, the health care facilities are often inaccessible because of the distance and poor road networks. Following recent incidents, increased conflict and instability have further affected the access to, and provision of, health care, particularly in Yobe State (Okojie, 2009). Maternal and New Child Health interventions and immunisation carry some sound evidence of their effectiveness. Although this is communicated very clearly, the manner in which key interventions can be delivered efficiently and effectively within a health system, particularly in fragile states or complex health systems like Nigeria's remain a grey area. Many low-income countries aim to decrease maternal mortality by way of making effective some multifaceted interventions, including improved access to emergency obstetric services (Althabe & NMaaruf, 2008).

However, several instances manage to illustrate that where there are hospitals with trained professional staff, the maternal mortality remains unacceptably high, and this indicates that the mere availability of obstetric services does not necessarily suggest that the maternal health is better (Shiferaw, Spigt, Godefrooij, Melkamu, & Tekie, 2013). Although there is recognition that care responsiveness can be one of the key determinants of maternal mortality, there is not much empirical evidence on the extent and importance of such factors in many low-income countries. Responsiveness of care usually includes the respect towards the patient as shown by how far the health system is aware of the patients' dignity, confidentiality and

autonomy as well as the level of attention and care given to clients (promptness, quality of environment, to name but a few) (Brook & Williams, 1975).

2.2 Emergency Obstetric Services (EmOC)

Emergency obstetric care (EmOC), refers to the care of women and newborn in different phases, namely during pregnancy, delivery and the time after delivery. It specifically ensures timely access to the care of women who have complications giving birth. EmOC has two components namely Basic and Comprehensive EmOC (Moazzam, Masanaka, Kuroiwa, & Ushijima, 2005).

Basic EmOC includes the treatment of sepsis through the provision of potent parenteral antibiotics; Treatment of eclampsia through the provision of a parenteral anticonvulsant; Treatment of prolonged or obstructed labour, Postabortion Care (PAC), Treatment for incomplete abortion, manual removal of placenta and assisted delivery aided by forceps or suction.

Comprehensive EmOC services include those listed above, and: Surgery (specifically caesarian section), Anesthesia and Safe blood transfusion. Basic EmOC can be provided in primary health centres, while comprehensive EmOC in facilities at the secondary or tertiary hospital level (Ibekwe, 2011).

All over the world, 75% of all maternal deaths are caused by haemorrhage, obstructed labour, sepsis, eclampsia and unsafe abortion (Say, Chou, & Gemmill, 2014). They are 100% preventable through improved access to adequate health-care services and EmOC which means that if adequate and timely EmOC is provided, most maternal deaths can be prevented. In 1987, WHO Safe Motherhood programme marked on the importance of access to EmOC if maternal mortality reduction is to experience progress (AbouZahr & Carla, 2003).

Looking at the criteria set by the UN (1997), there should be at least one comprehensive and four basic EmOC facilities to serve every 500,000 population (Lobis, Fry, & Paxton, 2005). Under a proper analysis, obviously, the facilities in Nigeria and indeed that of most developing countries (Kenya and Uganda) are not able to reach even the minimum recommendations. Studies in other countries (Cameroon and Chad) have found that comprehensive EmOC facilities, but not basic EmOC facilities, tend to be numerically adequate, that is if we see it in terms of the number of the population (Pearson & Shoo, 2005)

Along with this sparse distribution in Nigeria, there are palpable inadequacies at the level of the service delivery points (hospitals, health centres and maternity centres) subsequently leading to undue delays in attending to pregnancy complications and therefore hinder prompt access to EmOC to women who desperately need clinical and medical attention.

2.3 Factors Affecting Utilization of Emergency Obstetric Care Services (EMOC)

Studies in Bangladesh and other resource-constrained countries do make some progress in their service utilisation- thanks to their community and social mobilisation. Some very particular interventions such as making facilities women-friendly have been aptly recommended (Islam et al., 2005). In Nigeria, the multiple indicators cluster survey (1999), indicates that north-west and northeast zones are two areas with the highest maternal mortality rates. Additionally, the percentage of facilities which provide Comprehensive Emergency Obstetric Care (CEOC) and Basic Emergency Obstetric Care (BEOC) as indicated by the 2003 Nigerian Demographic Health Surveys (NDHS) is low in most of the Nigerian states in the north, as most of the health facilities are not capable of running obstetric emergencies. In Nigeria, these regional differences deeply affect the utilisation. Hence, the availability and utilisation of emergency obstetric care

services in the management of pregnancy-related complications leave a positive impact on maternal deaths and morbidity rates.

The importance of antenatal care to pregnant women is not denied because, through antenatal care, complications can be identified and women are equally informed of the danger signs of complications during pregnancy and childbirth. However, there was an increase in the proportion of mothers not receiving antenatal care, from 29.7 % in 1999 Nigerian Demographic Health Surveys to 36.9% in 2003. Also noteworthy is the fact that the majority (66%) of births still took place at home compared to 31% in 1999 with only one-third of live births occurring in a health facility. Additionally, the individual reports of the UNFPA 2004 survey done on reproductive health and gender indicators in 15 UNFPA- Assisted states revealed that the level of utilization of antenatal and postnatal services in Katsina is 22.9 percent, Sokoto 16.5%, Kebbi 20.7%, Bauchi 43.5%, Borno 36.7% are low (Oyemomi, Oyebola, & Anipr, 2003). The proportion of women giving birth in a health facility is higher in the southern states of Anambra (87.9%) Abia (82.8%), Osun (79.4%) and Ogun (74.2%) than in the northern states, Sokoto (5.7%), Kebbi (8.2%) and Katsina (7.5%) states having the extremely lowest (Luka & Samuel, 2014). In addition, a report from Minjibir local Government Kano state, revealed that hospital attendance during pregnancy and delivery is low (38.31%), compared to their counterparts in Agbowa (Lagos state) where it is recorded that 93% of the sampled women attend antenatal care (ANC) (Ejembi, Alti-Muazu, & Dahiru, 2004). Also, a high percentage (80.3%) of births is attended by skilled personnel; unlike Minjibir where only 22.37% of births is assisted by skilled health personnel. They further established that even though medical facilities are available in the communities studied, many women do not seek for antenatal care (Galadanci, Ejembi, Iliyasu, Alagh, & Umar, 2007). Women in the rural areas of both Kano and Zamfara deliver their babies in their homes. Ignorance is named as one of the major

factors deterring pregnant women, childbirth and nursing mother from getting the necessary treatment at the hospitals. Studies conducted worldwide revealed that there was a wide range of categories of different but interrelated factors associated with women's utilisation of Emergency Obstetric care services (Idris, Gwarzo, & Shehu, 2007).

2.3.1 Availability of EmOC Facility

Availability of EmOC services is reliant on factors like the emergence of trained service providers, the motivation of the EmOC team, and support from the facility manager, availability of emergency drugs and maintenance of equipment. Round-the-clock (24/7) quality of care is essential for better utilisation and life-saving moments during complications (Ifenne, Essien, Golji, & Sabitu, 1997). The participatory planning development at the local level using appreciative inquiry or by other methodologies may help motivate the staff to provide EmOC services and use evidence-based target specific technologies (to ensure that healthcare remains to be of high quality (Sabitu et al., 1997).

The availability of facility is an important component of utilisation because the facility will have to be 'there' and be around before there is any need for the people to use it. The availability of a facility is also dependent on the policies of a particular nation or state. Non-availability of a modern maternal health service can demotivate women, especially women in rural areas from seeking care during emergencies (Ochejele, Enegela, & Heywood, 2005). As reported by another study, attempts to seek emergency obstetric care can be put on hold, where there is no facility, or where the facility is located far away (Okoli. et. al, 2014). This enables women from gaining access to proper healthcare during emergency or complication resulting in maternal death. Studies have also highlighted noticeable disparities in the distribution of medical health care facilities, especially between rural and urban areas.

The health sector is characterised by status, service delivery, and resources availability differences according to regions. It is, therefore, a problem to support the poor to get the services when they need them. Also, as observed in Kebbi State, the availability of reproductive health care facilities varies widely between rural and urban areas of the state, as more facilities are provided in the urban rather than in the rural areas. Senchi is the only rural community that has a clinic providing antenatal, delivery, and other related services. The fact that facilities are non-available can serve as a barrier to women's utilisation of emergency obstetric care services. Similarly, a study conducted by in Nasarawa State revealed that though reproductive health services are available in varying forms in all communities, he noted that the urban areas were characterised by a wider range of facilities and had more specialised services than do the rural communities (Ifenne et al., 1997).

2.3.2 Quality of Care in EmOC

It is a fact that any woman can develop a serious life-threatening complication during pregnancy so they may require medical care. There is also no reliable way to predict which woman will have to bear these complications (Zahr & Wardlaw, 2004). It is, therefore, essential that all pregnant women should receive appropriate and timely obstetric care. The quality of care is important in the provision of emergency obstetric care services in the sense that it encompasses a range of services that includes competent staff, essential drugs, equipment, timely provision of care etc. Determining the quality of care using the user's perspective has been criticised, however in a Gambian study, it is shown that its measurement fulfils the identification of problems with EmOC utilisation (Srivastava, Avan, Rajbangshi, & Bhattacharyya, 2015).

In Northern Nigeria, recent studies on reproductive health services, emergency obstetric care inclusive, demonstrated the communities' general dissatisfaction with the quality of reproductive health care services at facilities (Onamade, 2014). A survey

supported by the state ministry of health noted that there exists a General hospital in Minjibir local government of Kano state but then the quality of care is questionable for the fact that there is a shortage of Obstetricians and Gynaecologists (Suleiman, 2011).

In the same vein, in Katsina state findings indicated that while there are general hospitals and comprehensive health centres in the state, many of these facilities have not enough staff, lack of supply of drugs and equipment which are necessary for emergency obstetric care services (Ali, Abdullahi, & Danchua, 2015; Kana, Doctor, Peleteiro, Lunet, & Barros, 2015). The study also observed the unfriendly attitude of the health facility staff, explaining the general preference for women to deliver at home with the assistance of the traditional birth attendants (Okoli et al., 2012). Similarly, findings in Kebbi state had named poor staffing, deficient skills, inadequate equipment and consumables, weak linkages, long hours of waiting, and the negative attitude of health care providers among factors that have deterred women from getting the emergency obstetric care services (Basheer & Pumpaibool, 2015). These findings are consistent with the report studies in Sokoto State, Nasarawa State, and Zamfara state; that private healthcare providers are friendlier and more accommodating than their public counterpart. A study in perceived barriers has this assertion that the lack of privacy when services are being rendered and favouritism on the part of the health care providers often daunt women from finding these reproductive health services. In rural communities, quality of health care is very poor as there is almost no facility that can handle emergency obstetric complications (Omo et al., 2009). Furthermore, findings in Nasarawa state revealed that in rural areas, women with obstetric complication(s) are always referred to secondary and tertiary facilities due to the fact that their facilities did not have the equipment to address such cases. Certainly, the quality of obstetric care service and its utilisation in developed countries can determine the rates of maternal death and morbidities. The problems that have to do with the utilisation of Emergency

Obstetric Care services are not only tied to their unequal distribution but also the quality of care.

2.3.3 Cost of EmOC Service

Many women die or suffer disability because of certain fundamental issues which are all related in some ways to poverty. Studies from Mali, reveal that programmes that empower women socially and economically, increased their decision-making power and improve the demand for maternal services (UNICEF., 2008). The declining income and low purchasing power, alongside the high cost of drugs and treatment, have combined to keep health services inaccessible to many Nigerians (Orubuloye & Caldwell, 1975). Similar findings in Kano, Katsina and Sokoto states identified that the high cost of health care (including the cost of drugs and cost of other services) serves to be one of the factors that hinder the utilisation of emergency obstetric care services (Adamu & Salihu, 2002). Quantitative and qualitative health services are placed more in the urban than in the rural areas, and this can invariably affect utilisation. A study done in Kenya found that mothers in the wealthiest households are more than twice more likely to receive ANC than mothers in the poorest households (Pearson & Shoo, 2005). A study in Kaduna state, reported next that as of the year 2004, it was very expensive to implement emergency obstetric care in all communities studied, ranging from three thousand five hundred (₦3,500) to Twenty Thousand (₦20,000) Naira (Nigerian currency, equivalent to $21-125 USD) (Essien & Ifenne, 1997). Although modern medicine is preferred, as it is safer and reliable, the higher cost of facility service charges, forced the community members to use the traditional herbs for medication. In Kebbi and Kano states respectively, it is found that many people indicated that the lack of funds as hindering their ability to buy the drugs prescribed to them and other services deemed necessary for them under the Emergency Obstetric Care, especially where it involved a caesarian section (Sabitu et al., 1997).

In addition, in a formative assessment report of emergency obstetric and Maternal Newborn Care (EmOC) in Kano and Zamfara states, financial constraints were identified as one of the factors that hamper women from using the Emergency Obstetric Care services even when the life of pregnant women is at stake. From the above, our conclusion is that cost can prevent a woman from utilising Emergency Obstetric Care services (Adeyinka, Sia, Christine, & Adetoro, 2014). This can further be associated with the fact that, low socio-economic status can change itself in various ways and cause inability to pursue timely care. The cost implication associated with seeking Emergency Obstetric Care services involves a series of cash demanding procedures, including the transportation cost, hospital charges, medication, and feeding (both patient and the caretaker). These problems can in effect, contribute to non-utilization, or underutilization of Emergency Obstetric Care services.

2.3.4 Distance and Geographical Access to Facility

Community-effects research on health outcomes in developing countries (Malawi, 2007) has examined the demographic make-up of residents and neglected factors such as geography, the availability of and physical access to health services, road conditions and the mechanisms through which community effects may operate. Community characteristics that exert a strong direct positive influence on women's decision to go for maternity care include the percentage of women in a community who delivered a child in a health facility, high neighborhood living standards in urban areas and the presence in the community of a health worker which provides prenatal care (Gage, 2007). The adverse effects on the utilization of maternal health services have been linked with mountainous terrain and poor road conditions, with a high mean number of children per woman in the community living at a distance from medical care or major urban areas and suffering from the lack of access to the main road potentially affect utilization (Jammeh et al., 2011).

The health facility location is another important factor that ascertains the utilisation of health care services, appalling road conditions, and long distances can be real obstacles to getting to a health facility during moments of complication. In addition, the effect of distance becomes stronger when there is also poor transportation system, poor roads and the fact that the transportation cost is high (Gething et al., 2012). In Gambia, a similar study observed that the distance separating potential patients from the nearest health facility has been shown to be a vital barrier to seeking health care, especially in rural areas (Jammeh et al., 2011).

The nature of roads and means of transportation have a great impact on distance when it comes to the utilisation of the Emergency Obstetric Care services. A report from Tanzania reveals that a woman with retained placenta bled to death at a roadside waiting for a taxi to bring her to the hospital (Kruk et al., 2009). Similarly, the distance and bad condition of infrastructure were identified by as barriers to the utilisation of Emergency Obstetric Care services. The issue of referral from one health facility to another level of care will tend to lead to delays especially if the distance between the two facilities is great, and the complication requires immediate treatment. Various works have shown that patients are more likely to utilise health services which are nearer to their homes than those farther away. This is because of the travel time; transport and cost required to obtain care are shorter and lower respectively (Ajala, 2009). However, the above assertion is not always correct; since the rich in the society do not see distance as a barrier to the utilisation of emergency obstetric care services. Similarly, in other views proximity, as well as income, is important determinants of the utilisation of health care services. Affluent and literates patients prefer to seek care from tertiary health care facilities than primary health centres closer to them, because of the perceived quality of care at these facilities. Therefore, distance can be only be considered as relative factor that can hinder utilisation (Ajala, 2009)

2.3.5 Educational Attainment

Education has an important role to play when it comes to the development of an individual in society. It elevates one's consciousness and provides an atmosphere for improvement in all life aspects. Education boosts self-confidence and impacts the moulding of attitudes and behaviours of individuals in the society (Odea & Jennifer, 2000). It also adds to the knowledge and awareness through more information and thinking about certain phenomena in the society. To look into this further, this means that education elevates a woman's social standing, further affecting her autonomy in the decision-making power which further correlates with her health status (Ger, 1992). Findings from a Ugandan study reveal that educated women in the country are more informed about the danger signs of pregnancy and the vital need to seek care; they know better as to where and how to get care at a health facility. This is because education is seen to enable one to raise his or her level of awareness and health literacy, subsequently allowing them to communicate easily with the medical health care providers and seek appropriate care when they are required to do so (Kabakyenga, Ostergren, Turyakira, & Pettersson, 2011).

In Ghana, the works of Thaddeus and Maine showed that higher level of education positively correlated with the use of health care facility. The demographic health education survey 2003, revealed the existence of a substantial variation in educational attainment of not only men and women, but also the variation according to regions. For example, 66% of adults in the North-West and 62% in the North-East had never been to school, compared to only 15% of adults in the south-south and south-east (Oyediran & Isiugo, 2005). In the northern region, 31% of men have never been to school compared to 51% of women; whichever way, women are the most disadvantaged, because making a wise decision on a health related matter does not really depend on the women's education, but equally on the education of the head of the

family, which explains why men's education has become essential (Rai, Singh, & Singh, 2012).

2.3.6 Religions and Cultural Factors

The society to which a woman belongs can well affect her reproductive health. As in the case of Somalia, the society is patriarchal and traditionally men are regarded as superior to women (Ogbomo & Wonami, 2005). This is because the society is reinforced by religious, economic and social norms. Thus, women's mobility and access to services are bound by the males such as husbands, relatives or in-laws. Several studies indicate that the barriers to the service utilization during pregnancy complications are not only related to the availability of health care facilities, but they also have to do with the socio-cultural norms, lack of women's decision-making power within the family, lack of awareness about the danger signs and availability of services, distance and lack of availability of appropriate transport, treatment cost, lack of emergency drugs and perceived low quality of care at the facilities (Islam et al., 2005).

Some ingrained beliefs and cultural practices hinder the act of seeking for the appropriate measure in times of complications during or after pregnancy. Women and of course, men have strong religious beliefs which sometimes manifest themselves as a barrier to the use of available Emergency Obstetric Care Services. According to Nigerian Health Review (2006), such beliefs can account for women saying No to Caesarean section or blood transfusion or even to the utilisation of the health care facility that can actually save their lives (Helman, 2007).

Harmful traditional practices lead to a delay in getting appropriate care when complications happen. Among the strict communities of Northern Nigeria, where women are not permitted by their husbands to seek treatment from facilities located far away especially when the illness is seen as trivial (MaClean, 1969). In Zaria and rural Kano, respectively (States in Northern Nigeria) the findings reveal that people (Men)

have adopted a fatalistic attitude towards pregnancy and childbirth; as a result, complications (leading to death or disability) are seen as a natural cause and/or the act of God and as such cannot be tampered with (Adamu & Salihu, 2002). One of the reasons is that they do not want to bare their bodies to male health workers, which they see as an Islamic injunction for modesty. Following a study in Sokoto, this restriction imposed by male household heads is responsible for the fact that few pregnant women attended the antenatal clinic, while unskilled Traditional Birth Attendants (Shamaki & Buang, 2015) attended childbirth that takes place in the home. This concurs with a report that established that in the Kano States, other than poverty, some of the major problems associated with utilisation of health care facilities are the fact that home delivery is favoured, the dependency on local medications, and the high cost of traditional rites among others, which consume funds (Olaku, 2014).

2.3.7 Gender Power Relations

One of the interrelated factors that contribute to the low utilisation of Emergency Obstetric Care Service is the gender power relations which translate into women's low status, and the lack of power in decision-making within the family and among the people in the community. The limited reproductive rights and gender inequality embedded in the socio-cultural milieu further contribute to non-utilization of Emergency Obstetric Care services (Adamu & Salihu, 2002).

The low status of women in the society has, in general, affected their reproductive health. This was reported from the study in Zaria and Kano respectively, that no woman leaves the confines of her matrimonial home without getting their spouses' permission. The decision whether or not to seek care when complications develop rests totally on the husband. This practice is not only found in Kano and Zaria but throughout the Muslim Northern Nigeria and especially in the rural areas (Airede & Ekele, 2003).

However, what strikes as interesting is that although the International Conference on Population and Development (ICPD; 1995) placed maternal health within the context of Reproductive and Human Rights rather effectively; most northern Nigerian women are not enjoying these rights to the fullest (Alison & Jason, 1995).

2.4 Obstetric Fistula in the Context of Maternal Mortality and Morbidity

Complications of pregnancy and delivery are cited as the main causes of morbidity and mortality in women of reproductive age (AbouZahr & Carla, 2003). The development of obstetric fistula is directly linked to one of the major causes of maternal mortality, or in specific, obstructed labour. Every year, more than half a million healthy young women die from pregnancy and childbirth complications. Virtually all these types of deaths occur in developing countries (World Health Organization, 2009).

The World Health Organization (W.H.O) estimates that throughout the world, more than 300 million women suffer from short/long-term complications that stem from pregnancy or childbirth, with around 20 million new cases happening annually (World Health Organisation, 2003).The complications include infertility, serious anaemia, uterine prolapsed and fistula. All over the world, obstructed labour takes place in an estimated 5% of live births and accounts for 8% of maternal deaths (Hill et al., 2007). Adolescent girls are specifically susceptible to obstructed labour since their pelvic cavities are not developed fully (Khan, Wojdyla, Say, Gülmezoglu, & Van Look, 2006).

Throughout the world, but mainly in parts of sub-Saharan Africa and Asia, it is estimated that more than 2million young women live with untreated obstetric fistula OF. There is roughly between 50,000 and 100,000 new women affected each year (Miller, Lester, Webster, & Cowan, 2005). Most maternal health issues occur in low-income countries, where the reproductive risk is strongly linked with high fertility, illiteracy,

poverty, lack of or poor quality medical care(Andrew, 2004). Unless they gain access to a hospital that provides subsidised treatment and care, women may live with the fistula until they die, often at a very young age, out of the complications, they have in regard of their fistula. Such women normally do not receive any support from their husbands or family members. At the Addis Ababa Fistula Hospital, their husbands neglected 53%, and one woman in every five said that she had to beg for food fight for her survival (Wall, 2005). In India and Pakistan, some 70% to 90% of women with fistula were abandoned or divorced, according to the limited number of hospital studies (Jokhio, Winter, & Cheng, 2005; Singh, Chandhiok, & Dhillon, 2009). It is not surprising, thus, that few women in some communities who can no longer handle the pain and suffering, chose to kill themselves (Shefren, 2009).

Based on the recent data, for Nigeria the maternal mortality ratio has reduced marginally and at the estimation was from 487.117 to 54518 per 100,000 live births which are still one of the highest rates in the world (Ujah et al., 2005).

2.4.1Epidemiology of Obstetric Fistula

The estimation is that Nigeria accounts for 40% of the worldwide fistula prevalence. Recent prevalence of obstetric fistula estimate was 150,000 (Stanton, 2007). Previous estimates put the prevalence between 800,000 and 1,000,000 (Wall, 2005). Lately, there has been an emergence of a new scenario of the OF profile with older multiparous women in their twenties and thirties, who delivered natural births previously, developing obstetric fistulae. These are largely attributed to a low level of skilled birth attendance during the delivery, inadequate access to emergency obstetric care and increasing recourse to deliveries at home and alternative healthcare system (Okonofua, 2010).

Following the 2008 National Demographic Health Survey (NDHS), the prevalence of obstetric fistula is 0.4%. Fistula prevalence is higher in Northern Nigeria

zones than in the southern parts. In contrast, the highest prevalence in the Southern zones was found in South Nigeria (0.5%), followed by South East Nigeria (0.3%) and South-west Nigeria (0.2%). The prevalence of obstetric fistula for all Northern zones combined is 0.5%, compared to 0.3% for the Southern zones. Almost one-third of women surveyed (30.7%) had heard of fistula symptoms, with a higher level of knowledge in both the North East and North West zones (49.6% and 66.2%, respectively) than in the rest of the areas (Bankole et al., 2009). Applying the 0.4% lifetime prevalence to the estimated number of women of reproductive age in Nigeria (37,425,000); 149,700 (approximately 150,000) women of reproductive age in Nigeria either at the time being have an obstetric fistula, or have had fistula symptoms in the past (Ashimi, Amole, & Iliyasu, 2015).

Projections have been made using age- specific NDHS estimates of lifetime prevalence, the average population size of each age group of women in the nation, and the average number of years since last birth, to arrive at estimates of incidence in Nigeria (Zheng & Anderson, 2009). There were roughly 20,000 new cases every year because of the large scale unreported births taking place beyond the facilities, although recent studies have given some lower estimates of approximately 12,000 new cases per year (Shittu, Ojengbede, & Wara, 2007).

Some factors have been named- poverty, ignorance, illiteracy, preference for home delivery and the desire to avoid Caesarean section, early childbearing (as opposed to early marriage); harmful traditional practices like ("*gishiricut*": Local Hausa word that describes a form of the traditional practice of female genital mutilation in some communities in Northern Nigeria), low social status of women together with the poor access to and the utilization of EmOC services are other reasons named for the higher incidence of obstetric fistula in Nigeria (Tunçalp, Tripathi, Landry, Stanton, & Ahmed, 2015).

2.4.2 Obstetric Classification of Fistula

The location of an obstetric fistula depends on which part of the course of the second stage labour becomes obstructed and which tissues are trapped between the bony pelvis and the fatal head. Thus, a fistula can be about any series of contiguous structures in the pelvis: ureterovaginal fistula, vesicouterine fistula, vesicocervical fistula, vesicovaginal fistula, urethrovaginal fistula, rectovaginal fistula, and combinations of such injuries (Kees, 1995).

Referring to the work of J Marion Sims in the 19th century, surgeons have worked on various systems to classify and describe the nature and location of obstetric fistulas, but there is still no consensus on the way that it is to be carried out (Elkins & Thomas, 1994). As Mc-Conchae noted in 1958, "*It is common to find that each author has either used his own form of classification based solely on the anatomical structures involved, or the size of the fistula, or even one of convenience*". Fistulas are most commonly described according to location, as mid-vaginal, juxtacervical, urethrovaginal, and so on. Although there has been a proposal for new systems of classification, there is still a dispute over what a classification system should do (Judith, 2004).

In oncology, for example, many internationally accepted systems exist when it comes to staging cancer. These systems have all been linked with the prognosis for treatment of the particular cancers for which they have been developed. Similarly, any useful classification system for obstetric fistulas should be more than descriptive. It must evaluate or score the prognostic factors that are relevant to the treatment outcome. As for now, no proposed classification system for obstetric fistula has been evaluated prospectively to investigate how it stays in correlation with the surgical outcome. Until this is done, the classification systems for obstetric fistulas will stay to be the intellectual exercises of limited clinical use. Detailed review of published work suggests

that the main prognostic factors that affect the treatment of obstetric fistulas are the extent of the scarring in the operative area, whether the continence mechanism of the urethra and bladder neck is involved in the fistula, the size of the fistula (especially if there has been extensive loss of bladder tissue from necrosis), and the presence of other serious injuries, such as a concurrent Obstetric fistula (Goh, Browning, Berhan, & Chang, 2008).

2.4.3 Review of Risk Factors for Obstetric Fistula

In this literature review, all accessible relevant published studies on Obstetric fistula (OF) were carried out. They comprised of case reports, single reviews, and cross-sectional and case-control studies. We also excluded studies published in languages other than English, and studies published in the abstract form only. Studies that did not address the issues in this review were excluded. Studies on obstetric fistula were searched online from the various sources.The database used was from January to March 2013. Most of the papers come from the West and East of the African countries, particularly Nigeria, Cameroon, Kenya, Sudan,

Information was obtained from a number of sources- WHO and UNFPA websites, Science Direct, PubMed (Medline) and Google Scholar. The keywords used were obstetric fistula; fistula; urogenital fistula; vesicovaginal fistula vesicovaginal fistula epidemiology; vesicovaginal fistula prevalence; vesicovaginal fistula causes; and vesicovaginal fistula repair. Other keywords were vesicovaginal fistula Africa; developing countries; low resource countries and developed countries. The words were in string pattern or separately. To add, information from published textbooks was also found useful. The profile analyses included patients, aetiology of Obstetric fistula, the level of education, occupation, antenatal booking status, age at marriage place of delivery and mode of delivery. Other information was the reasons for the delay in

seeking care, perinatal outcome, complication associated with Obstetric fistula, and Obstetric fistula repair outcome.

Table 2.1 Summary of Obstetric fistula Studies included in this research project

S/N	Study Title	Study Design (Methodology)	Sample Size	location	Criteria for selection
1	Risk factors for obstetric fistula in the Far North Province of Cameroon	Case Series Study	42	Cameroon	Good
2	Risk factors for caesarian section	Cross- sectional	234	Universidad Federal do Rio de Janeiro, Rio de Janeiro, Brazil.	Good
3	Vesico-vaginal fistula: is there a shift in Etiological determinants?	Descriptive	96	Benin City, Nigeria	Good
4	Prevention and treatment of obstetric fistula: Identifying research needs and public health priorities	Review	200	Baltimore, Maryland, USA	Good
5	Risk factors that predict failure after vaginal Repair of obstetric vesicovaginal fistulae	Retrospective analysis (Descriptive)	1045	Ethiopia	Good
6	Risk factors for the breakdown of perineal laceration repair after vaginal delivery	Retrospective case-control	176	Michigan	Good
7	Risk factors for obstetric fistulae in north-eastern Nigeria	Case- Control	160	Nigeria	Good
8	Risk factors for developing residual urinary incontinence after obstetric fistula repair	Descriptive	530	Ethiopia	Good
9	Risk factors of vesico-vaginal fistulae in Maiduguri Nigeria	Case-control	240	Nigeria	Good

2.5 Relevance of Studying Risk Factors for Obstetric Fistula

It is wise to say that "it is better to prevent disease than to cure", and reproductive health care is a perfect example where preventive medicine gets to ensure the well-being of the

mother throughout their reproductive life. This objective can be applied to the preconception, at delivery and after delivery problems, and the couple's preparation for this important life phases of childbirth and childbearing is crucial. Though all mothers and children are prone to suffer from disease or disability, there are some mothers and infants who are at increased or special risk of complications of pregnancy/labour or both. The medical dictionary defines risk as a characteristic statistically associated with, although not necessarily causally related to, higher risk of morbidity or mortality.

Also, A risk factor is defined as any ascertainable characteristic or circumstance of a person (or group of such persons) known to be associated with an abnormal risk of developing, or being adversely affected by a morbid process (WHO, 1973). Risk factors can be the predictor to causes or signal, which are identifiable before a series of events and unforeseen complications emerge. Risk identification system has been utilised to separate patients with high-risk for low-risk patients, which have a considerable cost implication for both the over-stretched health system and the poor patients who comply with the advice as to whether or not she may require further intervention, based on her own health problem. The predictability of the risk factors relies on the process from which they were derived. WHO has recommended that a risk factor should cater for the following criteria: a simple single measurement (which is acceptable and with low cost), with strong predictability or effect (high odds ratio ORs), reliable (narrow confidence interval for ORs), timely (permitting effective intervention, including referral), sensitive and specific for screening, and efficient in performance (low number of false classification) (Wall & Lewis, 2006).

Published studies describing risk factors for developing obstetric fistula, mostly from Africa and Asia have been scant. We do not have that many case reports, descriptive, cross-sectional, and case-control studies on this issue and unfortunately, there were also flaws in their methodologies (Steven, Catherine, & Lewis, 1996).

The general validity of a lot of these published studies on fistula is regarded as an issue, as it keeps giving contradicting findings in the same region (Africa) with variation from country to country, even among regions with differences in cultural and religious dichotomies (Harrison, 1997). Thus, the development and identification of the risk factors have to be done according to a region in the country, which forms part of the study objectives. However, some of the risk factors are applicable to the entire region. The risk factors for obstetric fistula can be divided into two major categories, which are the social- cultural and the obstetric factors.

2.5.1 Socio-Cultural Factors

The explanation over the mean age at marriage or mean age at occurrence of as a fundamental risk factor for OF and the description of the potential risk factors for obstetric fistula in northern Cameroon (Tebeu et al., 2012) have been given by various studies. It is reported that the median age of patients was 35 years (range, 18–45 years), Elsadig in Khartoum pointed that the age range was found to be (18- 24 years); with no point estimate being mentioned (Abdelgadir, 2012). Meanwhile, others from eastern Nigeria reported a mean age of 34.1 years with a range of (20 to 39). However, another study established a striking finding of the lower age limit of 13 years from the north central part of Nigeria (Tahzib, 1985). All the referenced studies previously mentioned are not comparable with one another, which is a great weakness. As some reported the age when the patients first developed the fistula, others refer to the time the patient experienced their first repairs. Standardisation is vital because most fistula patients are teenagers and only a few can be allowed to mention their age at marriage, especially when the fistula has developed. The findings would have been more believable if the authors had mentioned or adopted the same method of establishing patients' age at marriage. A proxy using the onset of menarche is a common suggestion

as far as the age at marriage is concerned. This can be corroborated by the elderly family members who normally go with the patient to the facility**.**

2.5.2 Poverty

Poverty has been reported as the predisposing factor for OF in developing countries, as reported by all the reviewed papers for the following countries-Kenya, Ethiopia and Uganda (Parkhurst & Oluke, 2010). Inadequately developed infrastructures and malnutrition are also prevalent in rural areas. The finding in this regards is similar. Nonetheless, the scale used to measure poverty across the study areas is different, and the gross domestic product in the various countries also varies. Recently, the World Bank has developed a universal tool to gauge the individual purchasing power irrespective of where one lives or resides. This shall be adopted in our study to obtain a more objective assessment of the socio-economic status of the women suffering from OF.

2.5.3 Female Genital Mutilation

Many controversies have surrounded the role of female genital mutilation as a risk factor for OF. A study in Khartoum reported that 76.9% of patients were circumcised (Bello, 1995). Another one conducted in two rural hospitals in Kenya, documented that female genital mutilation makes up 80% of OF (Khisa & Nyamongo, 2012). In Nigeria 6- 13% of OF were said to be caused by Gishiri cut easily described as random cut within the female genital organ during labour, usually by the traditional birth attendant to assuage the presumed obstruction on the babies way out, while in some Arabian countries reports have been made on the insertion of caustic material causing minor bleeding and subsequent fibrosis (Becks e al 2010). It was mentioned in this literature that those harmful traditional practices lead to the healing process which ends up with fibrosis and cause the delay in the second stage of subsequent labour where the

presenting part is stuck in the perineum for a long time, and this leads to the development of fistula (Bodunrin, 1999; Wall & Lewis, 1998).

2.5.4 Educational Attainment

Several studies have marked a strong relationship between OF and level of education. Virtually all the papers reported a very high illiteracy level among the OF patients 75%, 80%, 87% and 90%. (Bello, Morhason, Olayemi, & Adekunle, 2011; Ijaiya et al., 2010; Shittu et al., 2007; Wall et al., (2006)) respectively. Illiterate women are the least concerned about the benefits of attending reproductive health services like antenatal care and birth spacing. Based on the factor that there is consistency in the studies, the method used by the majority cannot be more direct and clear. There were 4 classes of patients- those having attended primary school, secondary with tertiary or none. One question that needs to be asked, however, is the group of people from the northern part of Nigeria who were known to have a well-recognised Islamic form of education where do you place them? The argument here is that the western education should not be deemed the only benchmark for qualifying one as illiterate. In the same vein, the southern part of Nigeria where it is mostly dominated by Christians also has their own form of Christian knowledge wich is delivered in the English language.

2.5.5 Obstetric Factors (Parity and History of Preceding Pregnancy)

As found in the southern Port Harcourt Nigeria, many of the patients were multiparas (64.5%) (Lawson, 1992). Primiparas were the group affected in most centres in Nigeria namely, Sagamu (50%) and Maiduguri (51.3%). Jos (45.8%), Ilorin (43.2%) (Ijaiya et al., 2010; Murray et al., 2006; Wall & Lewis, 1998) Most of the obstetric fistula patients did not receive antenatal care when they were pregnant. 72– 77% of the patients from Sokoto, Kano and Jos did not receive antenatal care respectively (Wall & Lewis, 2012a). About 90% of Maiduguri patients, 70.8% of Sagamu patients and 47% of Jos

patients were accompanied by unskilled birth attendants during their pregnancy (Wall & Lewis, 1998). Only 3.8% of Obstetric fistula patients in Gombe had a live birth in the deliveries previously (Melah et al., 2007). Pregnancy outcome was dismal in most delivery-related cases. Stillbirth rate of 87%–91.7% were recorded in Jos, Ile-ife, and Sokoto respectively (Ijaiya et al., 2010; Sarah & Sam, 2007; Wall, Karshima, Kirschner, & Arrowsmith, 2004).

2.5.6 Maternal Height

One vital determinant of obstetric risk of developing Obstetric fistula is maternal height. Various studies have stressed on the use of the indicators to identify high-risk pregnancy and revealed that very short women are highly prone to suffer from cephalo-pelvic disproportion (CPD) and they need to be referred to centres which can perform operative delivery. The height assessment for the detection of these short-statured women has been suggested by WHO as the operative delivery in women with cephalo-pelvic disproportion can avoid maternal and fetal death and major morbidity like obstetric fistula. Several studies have mentioned about the use of maternal height as a simple and sensitive indicator of pregnancy outcome (Keppal 1995). It demonstrates the significance of short stature among Scandinavian mothers and confirms it to be a risk factor for obstetric performance. The stress is also on its use as an indicator for adverse outcome in pregnancy where it is emphasised that height should be taken as seriously as the weight because of its obstetric significance (Panel 1998). According to Maharaj (2010), it is easy to measure the height and remains a useful tool to forecast difficult childbirth and CPD. WHO's collaborative study of maternal anthropometry and pregnancy outcome suggests the use of maternal height and weight for screening in its service application (Kees, 1995).

2.5.7 Obstructed Labour

A considerable amount of literature on vesico-vaginal fistulas based on developing countries shows that the most common cause of obstetric fistula formation was prolonged obstructed labour making up as much as 70% to 93.7% (Iloabachie & Meniru, 1990; Kees, 1995; Wall et al., (2006)). The data on maternal morbidity (non-fatal obstetric complications) in developing countries are lacking, but obviously, the number of serious morbid episodes greatly surpasses the number of maternal deaths in the developing nations (Wall, Karshima, Kirschner, & SD., 2004). In some parts of the world, a woman's lifetime risk of maternal death is high and her lifetime risk of suffering serious maternal morbidity (including obstetric fistula) may be even much higher. In the scarcity of studies that have looked at the issue of maternal morbidity, the ratios of serious morbidities to maternal mortalities in Indonesia, Bangladesh, India and Egypt have been calculated. For each maternal death, there were 149, 259, 300 and 591 serious morbidities calculated in these respective countries, and 112, 114, 24, and 67 life-threatening morbidities respectively (Say et. al, 2014). Thus, by reducing the maternal mortality rate, it will indirectly reduce the morbidity and near miss related to it.

2.5.8 Antenatal Care

Poor antenatal care had a link with educational level in virtually all the studies. A case-control study on risk factors of OF reported that 90.7% did not receive any antenatal care, at all. The same finding was reported in Sudan with 89%, but 55% were found to have attended at least once (Cousens. et. al, 2014). The use of antenatal care as a risk factor have been much of a controversy, as the risk approach which is primarily used in most developing countries is not proven effective. The focus rested on antenatal care with little attendance but the focus on specific finding is much better, thus the interpretation of the findings must be dealt with carefully. From an epidemiologic

perspective, as most significant risk factors for fistula formation are mainly due to poor reproductive health services, identifying the barriers to reproductive health services specific to this group in the population will contribute to the prevention of OF. The health policy makers can be informed by the study results, in preventing the burden of disease linked to poor reproductive health outcomes.

Family planning services in sub-Saharan Africa were introduced late, starting in urban facilities and expanding to the rural areas at such a slow pace. An average African is unwilling to use modern contraceptives. African women resorted to using different mechanisms to create a gap between childbirths, and modern family planning was not welcome. A decision on child spacing only began in the last years of the 1970s and it was only in the early 1980s that the virtues of population programs had become better understood.

The change of attitude was reasoned by several factors. The realisation that family planning could benefit the health of mothers and children played a major role. Also, the economic modernization and monetization, exponential urbanisation, access to modern education by women and the economic crisis and the subsequent imposition of structural adjustment programmes in many African countries all positively influence the attitude of political leaders towards family planning. In this period, many developing countries, especially those in South-East Asia, were reaping the economic benefits of sustained family planning programmes. African countries were also able to learn from the experiences of countries in various parts of the world.

Today, most African countries have accepted family planning as an integral part of their reproductive health programs. In a decade, (Odusoga, 2001; Ogbomo & Wonami, 2005). African leaders reunited in declaring their commitment to support population programmes that are compatible with their economic growth. In 1994 at the International Conference on Population and Development (ICPD), African countries

actively passed the final resolutions that called for the generalisation of reproductive health services in member countries. Today, more than twenty-five countries have official population policies and their own specific demographic targets. As it is, Africa is a large continent with various characteristics with regard to reproductive health and sexuality. There are geographical (West Africa versus East and Southern Africa), historical (French-speaking versus English-speaking), religious (Muslims versus Christians) as well as urban and rural population differences in access to, and use of, family planning methods (Inimgba, 1999).

2.6 Availability and Accessibility of Reproductive Health Care Services

In Nigeria, other than being built around curative services, the health system mostly focuses on its urban areas. Family planning was introduced as a clinical method. In most federation states, less than half of the population who mostly live in major urban centres have access to a health facility. The assertion that family planning is integrated into their primary health system is true, but the unfortunate thing is that it is still unavailable for the vast majority of the population residing in rural areas.

The need for family planning in Nigeria is greatly unmet DHS 2008. It is estimated that almost 40% of married women of reproductive age would either like to stop childbearing or space the birth of their next child, but they fail to do so because they have no access to family planning services DHS 2008. The real unmet need for family planning may even be greater if one includes unmarried women who are sexually active and wish to use a family planning method. Given the fact that most of the Nigerian population live in the rural areas and that most of these areas are better supplied with family planning services, the safe assumption to make is that most of the unmet need for family planning in Nigeria is higher among the rural population. The indication is that although tradition and cultural beliefs and low level of education are

more prevalent in rural areas than in the cities, and even though information and services do not reach the rural population, millions of rural men and women seek to regulate their reproductive lives, but fail to do so.

The unmet need is expected to become even greater since the number of young women entering their reproductive age's increases and more and more women will want to adopt family planning (Khan et al., 2006). What are the problems associated with the availability and accessibility of family planning services in Africa, specifically in rural areas? The need for high-level government commitment could not be taken lightly. In Africa, in terms of financial and human resources, programme successes largely depend on government support. Most governments neglect the rural family planning programmes because they tend to focus more on the urban sites. Availabilities of commodities and the ability of out of pocket payment had influenced the rural settings.

There were barriers that discourage them from using the services. One is the poor outreach services to rural areas. Also, some users have to succumb to age restrictions. The younger ones could not access the services, married women could only have commodities under their husband's consent, unmarried are refused entirely, and there is no option for the users. In many rural areas, human production are perceive as a natural process that should not be tampered by man-made methods. Such ideas continue to persist following the lack of clear community awareness activities. The husbands are also ignorant about the many myths and rumours surrounding the issues. The poor communication between the urban elites and rural communities via the radio, television and transportation between them lead to poor understanding of method (Wall & Lewis, 2012a).

2.7 Theoretical Framework

The theoretical framework offers a basis for the symbolic representation of all relevant variables being reviewed. This section, thus, gives a critical review of the relevant theories, which would facilitate the empirical and methodological investigations of the issues studied.

2.7.1 Health Belief Model (HBM)

The Health Belief Model (HBM) is a psychological model which tries to elaborate on and predict health seeking behaviours, by focusing on the individuals' attitudes and beliefs. The model was first suggested by Rosenstock (1966) and developed by (Rosenstock, Strecher, & Becker, 1988) in which they tried to explain the adaptation of health seeking behaviours. The HBM assumes that a person's beliefs and attitudes are very important determinants of their health related actions. It holds that person will take action over his or her health if that person:

1. Feels that a negative condition can be prevented (that is the individuals' view of his or her own threat or vulnerability to illness);
2. Beliefs about how serious the illness is;
3. Has a positive expectation by taking a recommended action (that is the person's perception of the benefit is linked with actions to reduce the vulnerability level); and
4. The belief that he or she can successfully take a recommended health action (that is an evaluation of potential barriers associated with the proposed action).

In view of the above, several concepts namely perceived susceptibility i.e. the individual's view of his/her vulnerability to the illness; perceived severity (i.e. individual's beliefs about the severity of the illness) definable in terms of physical or social disability; perceived benefits (i.e. individuals perception of the benefit) is

associated with actions to reduce the level of threat or vulnerability; and perceived barriers (i.e. individual's estimates of physical, psychological, financial and costs) are overweighed by the benefit resulting from adapting the health behaviour, were proposed as accounting for people's "readiness to make action".

The concept of Self-efficacy (i.e. one's confidence in the ability to successfully perform an action) by Rosenstock et al was an addition to these constructs in 1988 to help the HBM to better answer to the challenges of changing habitual unhealthy behaviours. The fundamental argument of this theoretical model is that an individual's attitudes and beliefs direct his/her line of action in health seeking (preventive and curative) behaviour. There is also the assumption that motivation serves as a necessary condition for action. It focuses on the factors and variables whose interplay ascertain the decision to seek or not to seek care and from which sources that they are sought. The motivational level of the individual is the overriding factor behind the decision to make use of the preventive medicine. The HBM posits that an individual enters a process of health seeking behaviour when he or she runs the risk of being infected or health complications.

The behaviours occur prior to the infection or complications because the possibility of infection or health complications can make the person(s) become sick. So, owing to the perceived severity, the pro-health behaviour is developed to ensure healthy life can be achieved via preventive action. Looking at the model above, it can be said that broadly speaking, the motivation for hospital delivery and in the particular utilisation of EmOC is a health goal that carries a significant value determinant that is safe delivery without any complication supervised by skilled attendants.

This is because complications of pregnancy cannot really be foreseen; thus, every pregnancy can turn out to be an emergency, and hence, the need for preventive measures is very timely and important. In other words, pregnant women in Gusau

metropolis should utilise the health facilities by joining the antenatal care, and delivery in the hospital to reduce the level of vulnerability of any unpredicted complication. However, being at risk does not always spur the motivation to adopt preventive measures. The motivation to consider using the preventive medicine may not necessarily be used only on health value, but instead there may be other contributing factors that may influence the motivational readiness to benefit from the Emergency Obstetric Care Services. This is because there will be some contributing factors that may influence an individual's readiness to adopt preventive measures. Other than the cost related factors, transportation, decision making which involves husband's permission and quality of care at health facility are equally important factors to utilisation with the three Phase Delay Model captured adequately.

2.7.2 Phase Delay Model

In a similar manner, the three phases of delay model provided by Thaddeus and Maine (1990) acknowledged the influence of socio-cultural, economic and political factors in the utilisation of EmOC services. They are Phase one, two and three. "Phase One delay" is a delay in the decision to seek care presented at the onset of a complication. The model stipulates that such factors include socio-economic, cultural and religious factors. "Phase Two delay" refers to the delay in getting to the facility which is determined by factors like the distance, nature of roads, means and cost of transportation. And lastly "the Phase Three delay refers" to factors linked with quality of care at the facility. The factors named include poor hospital management, poor attitude of staff, technical incompetence, lack of skilled personnel, and lack of equipment, drugs and other supplies at EmOC facilities especially in the developing countries like Nigeria.

Linton perceives culture as "the way of life of it is members (a group of people), the collection of ideas and habits, which they learn, share and transmit from generation to generation" (Nistor, 2003). Mafela who cited in Haralambos, defined culture as "that

complex whole which includes knowledge, beliefs, art, morals, laws, customs, and any other capabilities and habits that are acquired by man as a member of society" (Mafela, 1996). A culture, which is largely shared and acquired through the socialisation process, has a very great effect on the way of life of a social group. Even though cultural traits have the tendency to overlap with other cultures, inventions, or internal adjustment, the adaptive culture may not have to lead to a perfect adjustment. On this basis, the pattern of social roles that developed because of the development of western medical institutions (adaptive culture) may not lead to the change in perception and attitude towards delivery. Judging on this, healthcare providers should show cultural sensitivity to what the pregnant women require.

The cost of getting obstetric complication treatment is a serious factor that can hinder utilisation. The cost of EmOC services is very costly and unreachable to the most common person in Nigeria. The worrying thought of paying for these services alone has prevented most people (men) from neither permitting nor bringing their wives to the hospital when complication happens. The imposition of fees for delivery services in most areas of the country gives a serious impact on service utilisation. As in Gusau metropolis, the delivery cost, medical services including drugs, bed space, and other diagnostics are seen as high. The combination of these factors combines to prevent pregnant women from utilising these facilities especially considering the high rates of poverty in the country. Low level of education amongst women and their families may equally affect utilisation because education improves one's ability to recognise the danger sign in pregnancy and childbirth and to take what is considered to be an appropriate line of action.

Citing Thaddeus and Maine (1990), even after the decision is made to go to the hospital; there are other factors that can affect utilisation, namely the availability, nature

of means of transportation, a cost of transportation, and the time of the day when the complications happen.

Once a pregnant woman has arrived at a medical facility, she may have to wait to get the much-needed care, further deterring them from seeking and receiving prompt and adequate treatment. Such delay is very much associated with poor hospital management, poor staff attitude, inadequate skilled personnel at EmOC, and poor supply of equipment, drugs, blood, and other commodities that serve as necessities at the Emergency Obstetric Care.

With regard to the multi-dimensional nature of the study problem, it will not be easy to adopt a single approach in explaining Emergency Obstetric Care problem in the research area. However, from the perspective adopting, the Three Phase Delay model and the Health Belief model can be used to serve as the theoretical framework for this study because they give a plausible explanation of the variables connected to the availability and utilisation of Emergency Obstetric Care services. Interactionists examine the roles played by the Health Care professionals and patients and see the relationship between them as significant. In the interaction process, pregnant women may have their own perception or certain kind of biases towards the health care provider and when it is negative, it can hinder the Emergency Obstetric Care Services utilisation. Therefore, the quality of care that includes the attitude of healthcare providers can greatly leave an impact on the behaviour and decision to seek care should any complication occur.

The Three Phase delay model recognises the influence of socio-cultural, economic and political factors and how these factors affect the utilisation of EmOC services. For pregnant women in Gusau metropolis, the decision to seek medical care depends on several factors- the availability of healthcare facilities for certain, as well as various socio-cultural, religious and economic factors that can determine whether or not

women in Gusau metropolis can utilise EmOC facilities. On the other hand, the Health Belief Model dwells into the behaviour of pregnant women in seeking preventive medical care to avoid perceived susceptibility (complication associated with pregnancy and childbirth) and thus, the benefits that ascertain this situation (action).

On this note, pregnant women take preventive action of engaging in health seeking behaviour by receiving antenatal care, and hospital delivery so that if there are sudden complications and if the delivery is in the hospital, complications of pregnancy can easily be prevented and treated, thus making this model useful.

2.8 Conceptual Framework

Following the literature review, this section sheds light on the efforts that have been carried out in conducting this research according to the study objectives, as shown in Figure 2.1. This study began by evaluating the perception and awareness of the community with regard to the emergency obstetric care services followed by checking on the availability and functionality of the EmOC facilities in terms of infrastructure, supplies and equipment. An assessment of the health workforce, skills and training are also carried out. The major complications and its risk factors of obstetric fistula are also provided. The findings of this research will hopefully serve as a guide to policymakers to improve maternal health.

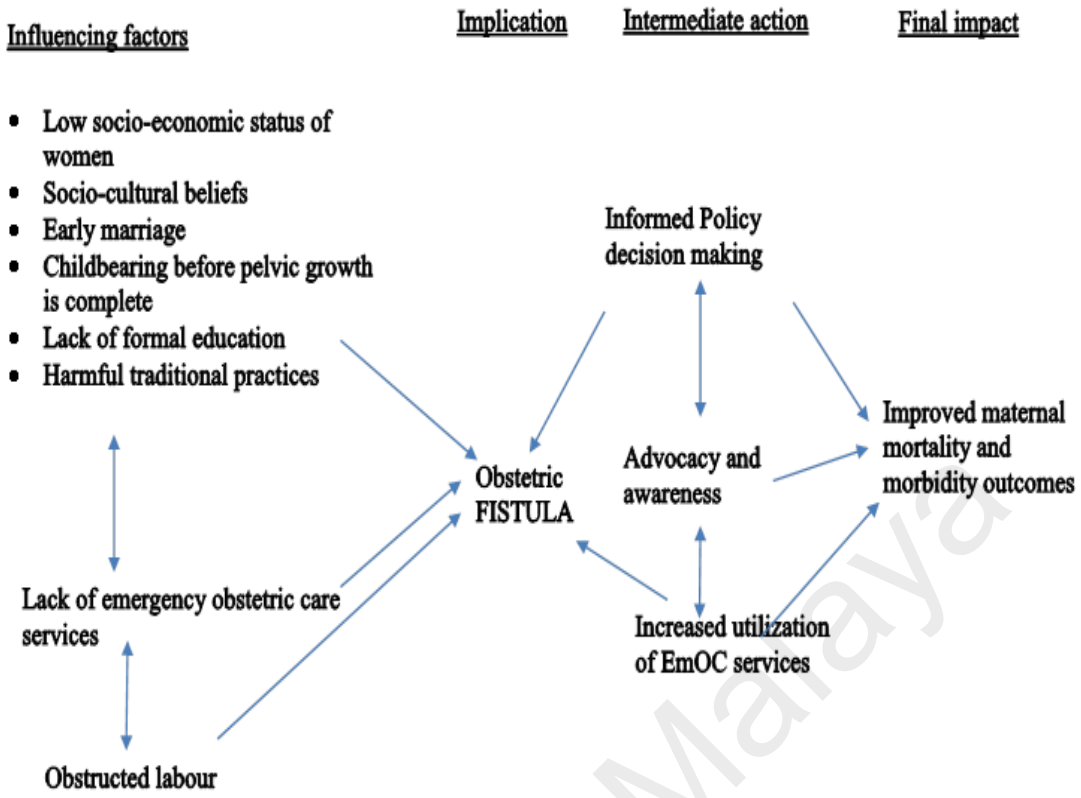

Figure 2.2 Conceptual framework

CHAPTER 3: METHODOLOGY

This chapter describes the research methodology used in this study. Research methodology tools are important for developing a framework, which assists in performing a research in a systematic manner. The operation encompasses all the stages involved, from conception to the final outcome, in attaining all the study objectives. This research comprised a combination of study methods, notably, qualitative and quantitative. It was conducted in two phases:

Phase IA; A community based descriptive survey

Phase IB; Qualitative study involving community and health care providers

Phase II: Quantitative study – A facility based (case-control study).

In both the quantitative and qualitative methods, the methodology details the study design, study population, study area, sample size estimation, sampling method, study instruments, data collection, data management, and data analyses.

This chapter is divided into three sections. The first section describes the community-based study where quantitative and qualitative methods. The second section explains the facility based quantitative (case-control) study. The next section describes the strengths of the study for both applied methods. The fourth section discusses the limitations of both methods in this study. The fifth section highlights the ethical considerations of the study.

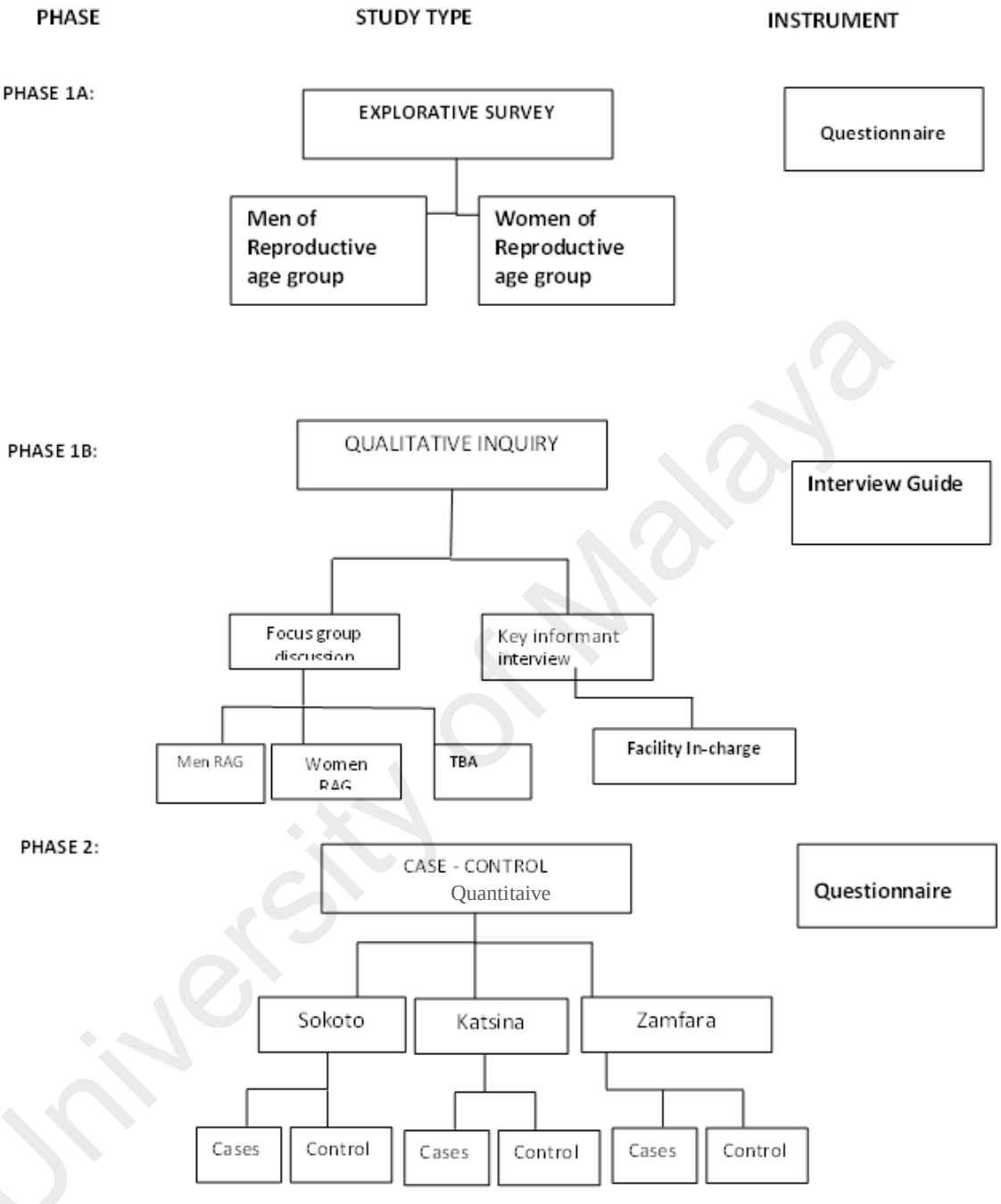

Figure 3.3 Sequential process of research work

3.1 Justification for the Mixed Research Methods

This is an evolving philosophical assumption of the research process in which the researcher combines elements of quantitative and qualitative research approaches for the purpose of ensuring breadth of understanding or corroboration (Johnson, Onwuegbuzie, & Turner, 2007). This approach is particularly useful for understanding the complexity of risk factors for obstetric fistula and utilisation of Emergency Obstetric Services.

Pragmatism allows for the mixed-method research to existing side-by-side with philosophies of quantitative research, which have been historically synonymous to post-positivist worldview; and the qualitative research, which has been historically synonymous with a constructionist worldview (Giddings & Grant, 2006). Pragmatic philosophy argues that truth is "what works" for judging answers to the research questions presented (Johnson et al., 2007). The main assumption of pragmatism is quantitative and qualitative methods are compatible, thus rejecting the view that they are opposing paradigms.

The methodological division result from the viewpoints that each design conforms to a distinct epistemological paradigm (Clarke, 2003a, 2003b, 2009; Lempp & Kingsley, 2007; Sale, Lohfeld, & Brazil, 2002). Consistent with this point of view, quantitative research falls within a positivist paradigm, which speculates that the world is typically stable and predictable, complying with conventional standards and norms. Conversely, qualitative research is considered by a number of researchers to fall within the interpretive paradigm and hypothesise that the world is in a transition with varied individual realities.

Alternatively, a number of researchers argued that instead of engaging in a philosophical debate, it is preferable to recognize quantitative and qualitative approaches as a continuity in research methods and each is best suited based upon the research objective, and uphold that both approaches are essential in understanding

human experience (Casebeer & Verhoef, 1997; Clarke, 2009; Curry, Nembhard, & Bradley, 2009; Lempp & Kingsley, 2007; Morgan, 2007; Shah & Corley, 2006).

3.1.1 Rationale for the Combined-Methods Design

This study utilised the mixed-method approach to corroborate the findings of quantitative and qualitative studies in order to explain the underlying reasons why and how individuals are reluctant to use facilities even at lower cost.

The mixed-methods research design is used because neither quantitative nor qualitative methods are independently sufficient to have a better insight of the course of an event or occurrence such as understanding the complexity of risk factors for obstetric fistula and emergency obstetric services. Mixed-methods research design provides an extensive understanding of an issue than a single method design. It compensates for the flaws inherent in each of the methods utilised. It can report bias in the manner of interpreting a phenomenon and can reinforce assimilation and applicability of data (Giddings & Grant, 2006).

The use of a mixed-method approach in a single research design is increasingly becoming a common practice in clinical medicine and health services research (Clarke, 2003a; Curry et al., 2009; Lempp & Kingsley, 2007; Sale et al., 2002). The quantitative research paradigm, which has long been the emphasis of medical research, now increasingly considers qualitative research methods as a way to broaden the scope of evidence-based medicine (Green & Britten, 1998; Lempp & Kingsley, 2007). Quantitative research emphasises only on the importance of measurement and analysis of the relationship between variables (Leff & Goldstein, 2003; Lempp & Kingsley, 2007; Shah & Corley, 2006).

3.2 Phase IA: Community-Based Descriptive Survey

This section describes the research design that was utilised to obtain information-rich data, design consideration and procedures. The role of the researcher and ethical considerations are also discussed. The main focus was on assessing the knowledge and views of the community members on the emergency obstetric services.

3.2.1 Study Design

This was a cross-sectional community-based descriptive study. The rationale of choosing this study design was because it is the most appropriate design to provide answers to the research questions and study objectives that evaluate community demographic and socio-economic characteristics (Levin, 2006). This design is relatively inexpensive and it enables researchers to collect a great deal of information quite quickly. Data is obtained using questionnaires, and researchers are able to amass large amounts of information from a pool of participants on several different variables. This design allows the researcher to see how differences in sex, age, educational status and income may be associated with the critical variable of interest, specifically, Emergency Obstetric Services (EmOC) (Levin, 2006). Based on the information collected during the above-mentioned survey, an interview guide for the detailed exploratory phase was designed.

3.2.2 Study Population

The study population comprised married women between the ages of 15 to 49 years and married men between the ages of 20 to 60 years, which represent the reproductive age group among the community members ((National planning commission, 2014).

The selection of study participants was based on the following inclusion and exclusion criteria. The inclusion criteria for study participants were married women aged 15 to 49 years and married men aged 20 to 60 years residing within the selected

study area. For both genders, they must have at least one child and willing to participate in the study. The exclusion criteria of the study participants were men and women who were not residents of the study area, and those who had a mental disorder and those who refused to participate in the study.

3.2.3 Study Setting

Zamfara State is one of the 36 states in the Federal Republic of Nigeria. The State was created in October 1996; it was carved out of the former Sokoto State. It is one of the seven States in the North-West geo-political zone of Nigeria. It has 14 Local Government Areas. The population consists of Hausa, Fulani and many other resident migrant ethnic groups. The culture of the people is influenced by Islam which is the main religion in the area. The people of Zamfara State are mostly farmers and traders with agriculture being the backbone of the state's economy. There are also a number of commercial and industrial activities in the area. Based on the 2006 National Population and Housing Census, Zamfara State has a population of 2,259,846 (1,630,344 males and 1,629,502 females). It covers a land area of 38.48 square kilometres.

This study was conducted in Gusau Metropolis, the capital of Zamfara State. The state capital houses the Federal and State departments, ministries, schools and industries. The state's Universal Basic Education Board reports that there are 1,403 public and private primary schools in the state. Out of the 1,403 schools, 166 are situated within Gusau Local Government Area. There are 37 private and 23 public schools within the metropolis. The state has nine major industrial complexes, of which six are situated in Gusau. There are 15 independent privately owned cotton ginneries situated in Gusau metropolis. In addition to these public and privately owned industries, there are many small and medium scale and cottage industries. Gusau Metropolis has a total of ten private clinics, two general hospitals, a federal medical centre, and four primary health centres, all situated at strategic locations. The Metropolis is made up of

five administrative wards, namely; Tudun Wada, Madawaki, Mayana, Galadima and Sabon Gari.

3.2.4 Sample Size

In view of the descriptive nature of this phase of the study, the researcher decided to select a convenient sample of 100 participants, comprising 40 men and 60 women who fulfilled the inclusion and exclusion criteria. Although females are more directly concerned with issues of labour and delivery, the husbands play a vital role in decision making, including those related to the women's reproductive health and wellbeing.

3.2.5 Sampling Method

In all forms of research, it would be ideal to test the entire population, but in most cases, the population is just too large that it is impossible to include every individual. This is the reason why one selects a sample from the population. In cases where no sampling frame is available, most researchers rely on nonprobability sampling techniques like convenience sampling, the most common of all sampling techniques. Many researchers prefer this sampling technique because it is fast, inexpensive, easy and the subjects are readily available (Shuttleworth, 2009). The most obvious shortfall of convenience sampling is sampling bias and that the sample is not representative of the entire population. This may be the biggest disadvantage when using a convenience sample because it leads to more problems and criticisms. The main setback about using a convenience sample is the limitation in making inferences and generalisation about the entire population, resulting in the low external validity of the study (Sincero, 2012). Thus in order to help the researcher identify and focus on main issues, there is also a need to explore qualitatively on the research topic.

There are five geopolitical wards in Gusau local government of Zamfara state. In this research, only streets in the geopolitical wards were considered. One hundred

participants (40 men and 60 women), who fulfilled the inclusion criteria were selected from five geopolitical wards. From each geo-political ward, four streets were conveniently identified. In each street, two men and three women were recruited. The purpose of selecting from all five geo-political wards was to obtain the comprehensive views of the residents in the community. The initial response rate was 93 percent. Seven participants, three men (one from Mayayna ward and two from Tudunwada ward) declined to participate, while four women (two from Sabongari, one from Tudunwada and one from Birnin-ruwa) declined to participate in the study. However, they were replaced to achieve the total sample size of 100.

3.2.6 Study Instrument

In this study, a structured questionnaire was used. There were six sections in the questionnaire, namely: (i) demographic characteristics, (ii) socioeconomic status, (iii) access to emergency obstetric care services, (iv) affordability of emergency obstetric care services (v) utilisation of EmOC service.

2.2.7 Development of Questionnaire

The questionnaires were interviewer-administered. The questionnaire was developed by going through a series of development processes in order to ensure the quality of the questions so that it can achieve the aims and objectives of the study. The process commenced by adapting related questions from studies in a similar field that had been carried locally in Nigeria and internationally in another African country (Uganda). The studies included one that was previously conducted in northern Nigeria, namely, Partnership for Reviving Routine Immunization and Maternal and Child Health project (PRRINNMNCH 2009). Some questions were either modified or adapted to ensure that the questions were relevant and appropriate for the current study and according to the study objectives.

The questionnaire was first developed in English and then translated into Hausa. The forward-and-backward translation was undertaken by two independent persons who were not involved in this research. A trained journalist who worked in the Hausa section of Frequency Modulation radio (FM9.5) station of Gusau Zamfara state, conducted the forward translation of the questionnaire from English to Hausa language and it was back translated to English language by a lecturer from the English department of State College of Art and Science in Gusau, Zamfara state (Appendix A and G). The purpose of this process was to have similar meanings in order to minimise instrument bias and to have better reliability and validity of the research findings in different languages (Burns et al., 2008).

Reliability and Validity of the Questionnaire

A pilot survey was carried out to test the questionnaire for reliability, validity and cultural appropriateness. It was also conducted to determine format appropriateness, any difficulties in answering the questions, duration to complete the interview and to verify data collection methods. The pilot survey was conducted at Kwatarkashi ward, about 40 kilometres away from the Gusau metropolis. This area is similar to the study area in many aspects, but it was not included in the actual data collection of the main study. The research team pretested the questionnaire on ten females and five males in the reproductive age group and who had at least one child. The participants were recruited by using convenient sampling.

The researcher administered the questionnaire individually to the participants, and the time taken to complete the questionnaire was noted. Information gained from the pilot test and the interviews were incorporated to produce the final version of the questionnaire. Face validity of the questionnaire was tested by a panel which evaluated: (i) the clarity of the questionnaire; (ii) whether the questionnaire was simple, easily

understood, any inappropriate, redundant or missing items, and how likely the questionnaire was to address the research objective; (iii) the relevancy, flow and arrangement of the questionnaire; and (iv) the wording of the questionnaire.

Content validity of the questionnaire was assessed by a sociologist knowledgeable in the field of research from the Department of Sociology at Usmanu Danfodio University, Sokoto. This was conducted to evaluate whether the questionnaire content accurately assessed all the fundamental aspects of the topic. Based on the feedback, a few adjustments and modifications were made in order to cover all the essential aspects necessary for this study.

3.2.8 Data Collection

The data collection was carried from February to March 2013. The study was conducted in all the five geo-political wards. From each selected area, four streets were selected conveniently, making a total of 20 streets. Houses were selected from these streets, again using convenient sampling method. When there was more than one eligible participant who was willing to participate in the study, a consensus was reached and one person was chosen.

3.2.9 Data Management and Analysis

Data management and analysis were done in a systematic way with the aim of obtaining useful information. The raw data were organised according to geopolitical wards. The researcher and his assistant ensured that each participant was coded correctly to facilitate in the data handling, data entry, and identification of missing data. The collected data were entered into the SPSS statistical software package version 16.0. Data entry was carried out by grouping according to areas in order to perform and manage the data cleaning effectively. This was an important and inevitable procedure where the data were inspected and any erroneous data detected were corrected if it was

found necessary and possible to do so. In addition, missing values were also assessed and managed by approaching the participants who failed to answer all the questions. Subsequently, the data from each ward were merged accordingly for statistical analysis. In order to ensure no double data entry or errors, data were checked randomly before and after the data were merged.

3.3 Phase IB: Qualitative Study

The aim of this phase was to explore the perceived socio-cultural issues pertaining to the emergency obstetric care services, availability, accessibility and utilisation.

3.3.1 Study Design

In order to understand the issues of emergency obstetric care services availability, accessibility and utilisation, and possible in-depth solution and details, a qualitative inquiry was utilised. The selected method for qualitative study was Focus Group Discussion (FGD) and Key Informant Interview (KII).

A focus group discussion is a form of group interviewing in which a small group (usually 6 to 8 people) is led by a facilitator in a loosely structured discussion on the topic of interest. The course of the discussion is usually planned in advance and most facilitators rely on an outline, or facilitator's guide, to ensure that the topic of interest is covered well.

It is not uncommon for two discussion groups, groups that are identical in demographic and life stage characteristics, to have different thoughts on the same subject. What is said in one group or qualitative interview may not be repeated in a second group. This reflects the exploratory nature of qualitative investigations and the diverse nature of populations. As pointed out by (Patton, 1987), a single observation is clearly not a reliable reflection of the real world.

Key informant interview is a qualitative in-depth interview carried out with people who are knowledgeable, expressive, can help in understanding the situation, can provide insight into the nature of the problems, and can give recommendations for solutions (Patton, 2002). By conducting key informants interviews, this study managed to obtain important and useful information during a short period of time without requiring a large sample size.

3.3.2 Study Population

Study participants for this phase were in two categories; the focus group discussion and the key informant interview. For the focus group discussion, men and women of reproductive age group, with at least one child were selected.

The study population of the key informants were further divided into two: Traditional Birth Attendants (TBAs) and health care providers. TBAs were the elderly women in the community who assisted women during home deliveries. They usually work in rural, remote and other medically underserved areas. TBAs may not have formal education and training in health care provision, and there are no specific professional prerequisites such as certification or licensure (WHO 2010). They often learn their trade through apprenticeship or are self-taught. In many communities, one of the criteria for being accepted as a TBA by pregnant women is their experience as a mother.

The health care providers were those working in facilities within the study catchment area (Gusau local government) who were responsible for running the maternal health care units of the selected facilities. These staff had varying levels of qualification and skills, ranging from certified nurses and midwives to community health extension workers. They offer services related to antenatal and post-natal care,

assist in labour, conduct deliveries, and provide child spacing advice and services and immunisation.

3.3.3 Study Setting

This study was conducted at the District head's residence of Tududun-ward metropolis and the four ward heads' residence of Gusau in Zamfara state. The focus group discussion was conducted in a room was provided by the district head. The room had good ventilation, with sitting arrangements and afforded privacy. Tudun-Wada and Sabon-gari ward has a bigger community (in terms of population size) almost twice that of Mayana, Galdima and Birnin-ruwa. The TBAs were scattered across all the wards. All wards had either primary health care, secondary health care, tertiary health care facility or a combination of any two. For example, Sabon-gari has two secondary health care facilities and Tudunwada has one tertiary health facility and two primary health facilities. Mayana, Birnin ruwa and Galadiama have only one comprehensive health centre and two primary health care facilities.

3.3.4 Sample Size

Even though qualitative investigations typically involve the use of small samples, choice of sample size is still an important consideration because it determines the extent to which the researcher can make efficient generalisations (Onwuegbuzie & Leech, 2005b). In general, sample sizes in qualitative research should not be too large that it makes it difficult to extract thick, rich data. At the same time, as noted by Sandelowski, the sample should not be too small that it is difficult to achieve data saturation (Flick, 1998; Morse, 1995), and theoretical saturation (Strauss & Corbin, 1990). In the qualitative part of this study, there were 76 respondents.

A total of twelve focus group discussions sessions were held with a group of at least five to six participants in each session. There were eight FGD sessions for women

and four FGD sessions for men. Ten respondents, four TBAs and six health personnel, were selected for the in-depth interview.

3.3.5 Sampling Method

All participants for the qualitative study were selected by using purposive sampling. The selected strategy for purposive sampling was based on grounded theory approach (Patton, 2002). Men and women of reproductive age group from the study site were approached and requested to participate in the focus group discussions. For the key informant interview (KII), a purposive sampling technique was also used to select two Traditional Birth Attendants from the study area. They were interviewed to obtain information regarding pregnancy and childbirth in the state, particularly in Gusau Metropolis.

In terms of selecting health care professionals from public health facilities, purposive (judgmental) sampling technique was used to select three facilities from the Government hospitals; two secondary and one primary health centres, in the metropolis. The selection was based on facilities offering either basic or comprehensive obstetric care services. From each selected health facility, two midwives in charge of maternal and child health care were interviewed.

3.3.6 Conduct of study

In the conduct of qualitative research, the researcher is the key person who collects, observes, analyses and interprets the research data (Shaw, 1999). The credibility of qualitative method depends extensively on the researcher's skill, competence and rigour in performing the fieldwork (Jack, Norman, & Helen, 1993). It is also essential to have the support of the field supervisor who is well-equipped with knowledge, experience, skills, competency and rigour in conducting a qualitative inquiry. In this study, the researcher conducted all the interviews himself with the help of an assistant in order to

maintain the quality of the interview which in turn guarantees that rich and useful data will be obtained from the interview sessions.

In order to conduct the interviews successfully towards meeting the study objective, an interview guideline was developed in advance with questions related to the study objective. The use of the interview guide was to ensure that the interviewer examined similar issues in the distinct groups based on the need to identify the factors influencing emergency obstetric care service utilizations. For this study four sets of guides were developed; for (i) Women of reproductive age, (ii) men, (ii) traditional birth attendants and (iv) facility staff (see Appendices B, C, D and E). The interview guide which included open-ended in-depth interview questions was designed by the researcher based on the findings developed during the quantitative phase of the study and was adhered to, closely. Interviews were conducted in Hausa and so the interview guides were translated into the Hausa language to facilitate the interviews with the consented subjects.

3.3.7 Data Collection

This qualitative study was carried out from April to May 2013. Twelve Focus Group Discussion (FGD) sessions were conducted, separately for married women and men. There were eight sessions for married women and four sessions for married men, taking into account the age group categorization. Two FGD sessions were conducted in three wards (Mayana, Galadiam and Birnin-ruwa), and three FGD sessions in two wards (Tudun-Wada and Sabon-gari) of Gusau local government. A total of four FGD sessions for the male categories were spread across the two major wards (Sabongari and Tudun-wad) while the eight female FGD sessions were spread across the four wards (Mayana, Galadima and Birrnin-ruwa and Sabon-gari).

All FGD sessions were conducted in the local dialect of the people (Hausa) and all the sessions were tape recorded, after obtaining permission from participants. The

FGD sessions for male respondents were facilitated by the researcher, while the FGD sessions for women were conducted by the two trained research assistants. The research assistants could communicate fluently in the local dialect of the people (Hausa) and English. The data generated was first transcribed by the research team, and later translated into English. A lecturer from the English department of State College of Art and Science Gusau, Zamfara state, translated the transcripts into English.

In-depth interviews were conducted on four TBAs, one each from the four wards; Tudun-Wada, Sabongari, Mayana, Galadima and six health personnel involved in emergency obstetric care services. All in-depth interviews were tape recorded after obtaining permission from the participants. The sessions for TBAs were conducted in Hausa (local dialect) and later transcribed, while the interviews with the health personnel were conducted in the English language.

3.3.8 Data Management and Analysis

The demographic data were processed using Statistical Package for Social Sciences (SPSS version 16). The processed data were summarised using frequencies and percentages. The FGDs and KIIs for the qualitative data were recorded on tape. All the information obtained was transcribed verbatim. This textual data was compared and combined with information notes taken during the interview sessions. In addition, the content of the textual data was double-checked with summaries and conclusions made at the end of the interview sessions in order to ensure that those notes were similar to what they answered during the interviews. Basic description of data was done through open coding where textual data was decomposed into parts, which were marked and coded with the aid of the Nvivo software. The parts were then compared based on the similarities and differences that combined to form new categories and subcategories

This was followed by linking the various categories, This is often referred to as axial coding, and the information of each category and it is subcategories was refined

and determined in relation to its conditions, context, strategies and consequences and were later integrated into the quantitative data. All original verbatim quotations were used to corroborate the findings. However, some modifications were needed to ease understanding.

3.4 Phase II: Quantitative (Facility-Based Study)

3.4.1Case- Control study

Case-control studies compare patients who have a disease or outcome of interest (cases) with patients who do not have the disease or outcome (controls), and are examined retrospectively to compare how frequently the exposure to a risk factor is present in each group to determine the relationship between the risk factor and the disease (Breslow, 1982).

Case-control studies are observational in nature because no intervention is attempted and no attempt is made to alter the course of the disease. The goal is to retrospectively determine the exposure to the risk factor of interest from each of the two groups of individuals: cases and controls.

In order to investigate risk factors for obstetric fistula, a case-control study was carried out in the three selected secondary level hospitals in the North-western region of Nigeria. The hospitals were the major obstetric fistula hospitals for admission and/or referral for most obstetric fistula patients in the state.

3.4.2 Study Population

The study sites were Farida Obstetric Fistula Hospital Gusau, Babar-Ruga Obstetric Fistula Hospital Katsina and Maryam Abacha Obstetric Hospital Sokoto. The study population included women who had delivered within the previous three years. An obstetric fistula hospital setting is managed and operated like a boarding school. The

hospital has peri-operative, intra-operative and post-operative wards. All services are free of charge and three square meals are provided, though not guaranteed.

3.4.3 Case Control Ratio

Studies have shown that there is little or no gain in efficiency beyond 1:1 unless control data is obtained at no cost (Carly 2003); based on this the researcher decided to employ a ratio of 1:1 for the case-control study.

3.4.4 Case Definition

A case was defined as a woman with treated or untreated obstetric fistula condition following pregnancy within the previous three years attending obstetric fistula clinic at any of the three selected hospitals.

3.4.5 Inclusion Criteria for Cases

Patients who consented to take part in the study and fulfilled the definition of case or control. Only patients with fistula from obstetric causes are enrolled in the study. Three years was considered in order to reduce the recall bias.

3.4.6 Exclusion Criteria for Cases

Patients with more than three years history were excluded. Patients with fistula secondary to infection, cancers and trauma were also excluded. In addition, those with a mental disorder were also excluded.

3.4.7 Control Definition

A control was defined as a woman who had delivered within the previous three years with no history of treated or healed obstetric fistula, attending the gynaecological clinic in any of the obstetric fistula study sites.

3.4.8 Inclusion Criteria for control

Patients who consented to take part in the study and fulfilled the definition of control. Patients with other gynaecological condition from obstetric causes were enrolled in the study.

3.4.9 Exclusion Criteria for Control

Patients with more than three years history were excluded. Patients with other gynaecological condition secondary to infection, cancers and trauma were also excluded. In addition, those with a mental disorder were also excluded.

3.4.10 Study Setting

In the northern states of Sokoto, Zamfara, and Katsina there are public hospitals with fistula care support. These hospitals are staffed by personnel from state Ministry of Health (MOH) under the jurisdiction of the state Ministries of Women and Children Affairs (MOWCA). These facilities are at the secondary care level which provides other curative services as well.

For this study, one hospital with obstetric fistula support services was selected from each state in the northwestern region. The selected hospitals were; Maryam Abacha Women and Children's Hospital in Sokoto, Babbar ruga Obstetric Fistula Hospital in Katsina and State Zamfara Obstetric Fistula Hospital in Zamfara. These three hospitals are the pioneers for obstetric fistula care in northwestern Nigeria.

Babbar Ruga Obstetric Fistula Hospital, Katsina

This hospital provides curative (specialist and general) and preventive medical services. It also serves as a referral centre for the peripheral hospitals in Katsina states. It has a 150-bed capacity and has clinical departments including Medicine, Paediatrics, Surgery, Obstetrics and Gynaecology. In addition, the hospital serves as a training institution for

doctors and nurses on obstetrics fistula surgical procedures and management. It runs training courses for trainers for fistula surgery.

The hospital is located in Katsina city, the capital of Katsina state, which is one of Nigeria's oldest, largest and perhaps most traditional states. Commerce and agricultural have been the backbone of Katsina's economy. Islam is the dominant religion although there are significant groups of Christians and others belonging to traditional African faiths. Urban drift from rural areas within Kano, other states in Nigeria and Northern West Africa, has provided a steady stream of migrants adding to the state growing population. Kano is, therefore, a cosmopolitan melting pot of people. According to the 2006 National census, it has a population of over 3 million people. English is the official language, but the Hausa language is commonly spoken here.

Maryam Abacha Obstetric Fistula Hospital, Sokoto

This general hospital is under the jurisdiction of the health services management board. The clinical arm has five departments; Medicine, Surgery, Paediatrics, Community Health, Obstetrics and Gynaecology. The Obstetrics and Gynaecology department consist of several units including the Obstetric fistula Unit which have thirty beds dedicated to fistula surgery patients. There are pre-and post-operative sections and a general theatre at this hospital. Wednesdays are dedicated to fistula surgery and emergencies only. Manpower for the unit comprises one trained surgeon and three nurses. There is a dedicated fistula section within the hospital with its own kitchen and laundry. There is also a fistula hostel/rehabilitation centre with 48 beds nearby, where post-operative cases are sent for both post-operative care and rehabilitation. A seasoned fistula surgeon performs fistula surgery three days a week. When he is away, two doctors and three nurses perform fistula repairs.

Farida Obstetric Fistula Hospital, Gusau

This hospital provides comprehensive obstetric care services. It also conducts training programmes for training and clinical exposure for the student nurses in obstetric fistula care and management. The hospital also serves as a special centre for training doctors in fistula surgeries. There are 50 inpatient beds with an annual turnover in excess of two hundred patients. The hospital has 12 services and 4 clinical departments (Obstetrics and Gynaecology, Paediatrics, Medicine and Vesico-vaginal fistula department). The staff include consultants, medical officers, nurses and paramedical staff including laboratory technologists, pharmacists, laundry workers, drivers, and administrative and support staff.

3.4.11 Sample Size Calculation

In analytical studies, testing associations between selected risk factors for a selected outcome, appropriate sample size is important to ensure sufficient power of the study. In this study, several risk factors for obstetric fistula were selected based on previous literature in African countries. In a study in Kenya, Zeinab et al (2010) reported age at marriage (OR=3.4), parity (OR=2.9), low education (OR=5.1), age at index delivery (OR=6.8), antenatal visits (OR) = 15.4) as significant factors associated with obstetric fistula. In another study, Barageine et al (2014) reported low education of husband (OR = 3.1) and height lower than 1.50 meters (OR = 3.7) as significant factors associated with obstetric fistula. In this study, age at marriage, parity, education, husband's education, age at index delivery, antenatal visits and height were tested. Since several variables are tested, it was necessary to calculate the minimum required sample size for each variable. For this study, the Power and Sample Size Software was used to calculate the sample size for each variable. The minimum required sample size to test all the selected variables, with $\alpha = 0.05$ and a power of 90% was 82 per group. In this study a sample size of 100 per group was taken, in anticipation of nonresponse.

3.4.12 Sampling Method

Cases were selected from the study site proportionate to the number of cases seen at the site in July to August 2013. The obstetric fistula hospital in Katsina and Sokoto are much larger in terms of patient turn out. They also serve as referral centres for more difficult cases from neighbouring states. For the final sample, 140 respondents were selected from these two hospitals and the balance of 60 from Gusau, Zamfara. An equal number of cases and controls were selected from each hospital.

Case-patients who met the inclusion criteria were enrolled consecutively as they came to the clinic until the desired sample size was achieved. For the selection of controls, the patients' files were reviewed and the patients who satisfied the criteria were selected using simple random sampling procedure.

3.4.13 Study Instrument

This section details the procedure involved in the instrument validations of tools used in this study. For the quantitative study, the instrument was an interviewer-administered questionnaire adopted with modification from USAID Engender Health- Fistula Care Project research on the determinants of obstetric fistula in five African countries (Capes, Ascher, Abdoulaye, & Brodman, 2011). This questionnaire was developed and designed specifically to address several issues concerning the assessment of maternal health morbidity. It has a number of properties that suggest it may be a valuable tool for use in research on a variety of maternal health issues, (Canty & Zimet, 2000; Cheng & Chan, 2004; Cheng & Chan, 2004; Edwards, 2004). Previous studies have indicated the questionnaire has good internal consistency, test-retest reliability, and strong factorial validity in addition to good construct validity (Bruwer, Emsley, Kidd, Lochner, & Seedat, 2008; Canty & Zimet, 2000; White et al., 2007).

3.4.14 Development of Questionnaire

The instruments used in this study included the following:

i. **Demographic information questionnaire OFDG:**

Eleven questions were asked to assess the participants' socio-demographic information. The sample of the questionnaire is shown in (Appendix F).

ii. **Antenatal care section of the Questionnaire (OFANC)**

The three experts who participated in the discussion reviewed and shortened the original twenty-two-items questionnaire to seven items following rigorous deliberation on its content validity. Twelve questions were excluded due to overlap with questions in the labour and delivery questionnaire and three questions were excluded because these were not considered essential. Adding multiple responses were recommended by the experts considering the level of literacy of the study participants. The team recommended skipping in situations where a negative response from the preceding question implies skipping the subsequent question. For example, a participant whose response is "No" to the question on "have you ever attended antenatal care during pregnancy" should not be asked the estimated cost of antenatal care services or perceived quality.

iii. **Labour and Delivery Questionnaire (OFL)**:

A shortened version of the original twenty one items questionnaires was used to assess knowledge pertaining to labour and delivery among the participants. The version used in this study consisted 18 questions with multiple option responses. The sum of the correct responses was used in data analyses (Appendix B3).

iv. **Contraceptives question (OFCU)**:

There were six questions with multiple options. The items in this questionnaire assessed knowledge, attitude and practice towards modern contraceptives.

3.4.15 Validity and Reliability of the Study Instruments

Face Validity

The questionnaire was face validated among a sample of ten participants. The questions in the questionnaire were discussed individually. Comments were sought related to timing, ease and understandability of the questions in the questionnaire. Comments from every participant were noted. Seven out of the ten participants made the following independent common observations on the following questions:

A. Demographic Questionnaire

Delete questions: "How much is your husband's income?" participants hardly knew the personal income of their spouses.

B. Estimated cost of ANC per visit questionnaire

1. This item in the questionnaire had a lot of variation in the responses. Some reported there was no cost (fee) was paid while some others paid. So cumulative estimated cost was considered

2. Rephrased Question: "Who decide where a woman give birth", to "Who give final permission to deliver in hospital".

The questions were revised accordingly.

Content Validity

The content validity of all the above-mentioned research instruments was assessed by 3 experts comprising one sociologist, one from Department of Social and Preventive Medicine and one from Obstetrics and Gynaecology department of University of

Sokoto, and University of Ibadan, Nigeria. The main aim was to determine the applicability of the questionnaires in the cultural setting of Nigeria and its appropriateness for determining the outcome measures. A Professor of Epidemiology with experience in behavioural change research, another Professor and two Associate Professors with experience in reproductive health research, research methodology and maternal health were involved in the manual development and validation of the study instruments**.** The comments given by the experts were documented. (Appendix M).

Reliability Test

The questionnaire used in this study was pre-tested among 42 participants from a facility not selected for the study. Reliability testing was conducted using the Cronbach's alpha reliability analysis for internal consistency. The summary of the reliability results is provided in Table 3.1.

Table 3.1 Reliability Test Results (n = 42)

Instrument	Number of Items	Cronbach's Alpha
OFDGV	11	0.712
OFANC	7	0.830
OFLD	18	0.717
OFCU	6	0.829

Key; OF-obstetric fistula. H; history. L; labour. C; contraceptive. D; delivery

Remunerations

No monetary incentives were given to the participants as it was clearly indicated in the letter of invitation and during the meeting with participants prior to the implementation of the program, but the participants were provided with meals.

3.4.16 Data Collection

The data collection was carried out from July to August 2013. The aim of the study was to investigate the risk factors for developing a fistula. The method included a retrospective review of patients' medical records to extract data on the antenatal care,

intrapartum and post-partum periods. A semi-structured interviewer-administered questionnaire was used to collect additional data from the patients. The team of research assistants, medical officers, matrons, and the fistula ward's obstetric matrons of each of the hospital were trained by the principal researcher.

Training of State Personnel

The principal researcher interviewed and recruited candidates from a listing of the personnel for data collection. These people were then trained in their respective facilities and briefed in detail on the following topics: survey background, methodology and administration of questionnaires. The best candidates were then selected for the data collection exercise. The interviewers administered the questionnaire to the cases and controls. The face-to-face interviews were done concurrently based on the eligibility criteria.

3.4.17 Data Management and Analyses

Data management and analyses were done in a systematic way with the aim of achieving useful information. Data was entered into the computer accordingly by wards and then collated.

Data Quality Control: The data were assessed to determine the extent and pattern of the missing data. No inconsistencies were seen and there were no sufficient occurrences of missing data to necessitate analysis of comparison of participants with and without missing data. In all the 4 outcome variables assessments in this study, there was a total of 40,123 variables, and less than 300 responses were left blank accounting for about 0.34% of the total data. The outcome variables were examined for possible outliers using the skewness, kurtosis and normality indicators.

3.4.18 Data Analysis

All data were double entered into SPSS version 16 by the researcher and a research assistant into separate databases that were later compared and differences were addressed by re-checking the raw data.

Descriptive analyses of the demographic variables for both cases and controls were done using means, proportions and frequencies. In the univariate logistic regression analyses, the selected risk factors for obstetrics fistulae were tested one at a time. Odds ratios and their 95% confidence intervals were computed and are comparisons were made. The variables that were significant at the univariate level were tested in multivariate logistic regression analysis and the adjusted odds ratios and their 95% confidence intervals were compared. Significance was set at 0.05 level.

3.4.19 Strengths of the Study

This study was considered a high impact study in North-western Nigeria, using a Mix-Method of qualitative and quantitative study. This approach for studying emergency obstetric care services/ obstetric fistula has never been conducted in this manner in Nigeria.

Worldwide, most of the studies on emergency obstetric care services and obstetric fistula were conducted separately, ignoring the role of emergency obstetric care services in reducing maternal morbidity and mortality. The need to triangulate evidence by corroboration of causes of disease with possible risk factors will persuade policymakers to embrace evidence-based decision making in carrying out policies that will have a direct impact on the communities.

In relation to influencing community gate-keepers on the need to embrace only the good traditional practices, this study is imperative and has relevance, in identifying remote social-cultural myths and misconceptions.

3.4.20 Limitations of the Study

The data represents only a sample of women of reproductive age, and also some facility- based patients in obstetric fistula hospitals and only those located in three states of Katsina, Sokoto and Zamfara, out of the 36 states of Nigeria. There is a lot of variation in terms of socio-economic, cultural and religious practices among the six geo-political zones in Nigeria. Hence, the generalizability of the findings to all states should be made with caution. However, the findings of this study can be generalised to the north-western zone of Nigeria.

The selection of cases and controls from the hospital may lead to selection bias in recruiting patients who have a greater tendency to seek health intervention for themselves. Further, the recall bias is one of the major challenges for this type of study. However, it is hoped that the period of three years will help to minimise the recall bias.

3.4.21 Ethical Consideration

This research undertaking has obtained the approval from the University of Malaya Medical Centre (UMMC) Research and Ethic Committee, State hospital services management board of Zamfara, and obstetric fistula hospital in Katsina and Sokoto (Appendices N, O, P and Q).

This research adhered to the ethical principles in human research, which included respect for persons, beneficent or maleficent, and justice. Prior to the conduct of this study or interview sessions, detailed verbal explanations were given to all the participants regarding the purpose and nature of the study and confidentiality was also assured. For the qualitative study, the interviewees were informed of the time that would be taken for the interview session and that during the interview sessions an audio recording and note taking would be carried out.

Subsequently, a written informed consent was obtained from all participants who agreed to participate voluntarily in this research. This informed consent form was

signed and dated at the time the participants accepted to participate in the study, and it was verified by the assigned research assistant. Even after the participants had consented, they were free to withdraw from the research without any need to justify their decision at any time. They were also allowed not to answer any questions that they did not want or felt uncomfortable about. All the information given by respondents were kept confidential and would only be used for the purpose of the research,

CHAPTER 4: RESULTS

In this chapter, the results of the study are presented. There are three parts: the first part describes the findings from the exploratory cross-sectional survey, the second part of the qualitative study and the third on the factors associated with obstetrics fistula based on a case-control study.

4.1 Exploratory Community Survey

The results are displayed in six sections as stated above. The findings were obtained from four geopolitical wards selected in Zamfara State, Nigeria.

4.1.1The Participants' Demographic Characteristics

This section presents the respondents' demographic, socioeconomic, reproductive health background and access to emergency obstetric services. The details are provided in Table 4.1. Out of the 100 participants that were recruited 60% of the respondents were women of reproductive age while the remaining 40% were men of reproductive age.

Table 4.1 Socio-Demographics characteristics of the respondents (n =100)

Socio-demographic variables	Percentage
Gender	
Men	60
Women	40
Age category	
15-24 years	11
25-34 years	30
35-44years	31
45- years and above	28

Table 4.1 Socio-Demographics characteristics of the respondents (n =100) continued

Socio-demographic variables	Percentage
Educational attainment	
Quranic education only	41
Primary	32
Secondary	27
Occupation	
Civil servant	30
Trading	39
Farming	20
Crafts	11
Income	
Less than ₦ 100,000	41
₦100,000-₦ 200,000	25
₦ 200,001-₦ 300,000	12
₦3001,001-₦400,000& above	7
No income	15

As shown in Table 4.1, a majority (41%) of respondents have attained Qur'anic education. In terms of occupation, the majority (39%) of respondents were engaged in trading. The majority (66%) of the respondents earn less than N 200,000 Naira (equivalent to 3000 USD) per annum.

Questions were asked on the number of children they have and the number of children they would like to have. The results are shown in Table 4.2.

Table 4.2 Number of children delivered (n=100)

Number of children	Percentage
Current	
1-5	69
6-10	25
11 and above	6
Desired	
1-5	71
7 and above	20
No response	9

As shown in in Table 4.2, a majority (69%) of respondents have between 1-5 children and the majority (71%) of them want 1-5 children.

4.1.2 Availability and Awareness of EMOC Services

This section presents information on the respondents' awareness of the availability of health facilities that render EMOC services in the area. The results are presented in Table 4.3.

Table 4.3 Awareness of the Availability of EMOC Facilities (n=100)

Name of facility	Percentage
Federal Medical Center (FMC)	86
Farida General Hospital	83
King Fahad Women And Children Hospital	77
Dr Karima PHC	09
Shagari PHC	31
Total	***286**

* Multiple responses

As seen in Table 4.3, the awareness is quite encouraging, More than 80% of the respondents were aware of the EMOC in their vicinity.

4.1.3 Geographical Access to EMOC Facility

Location of the health facility is another important factor that determines the utilisation of health care services. In addition, the effect of distance becomes stronger when combined with a lack of transportation and good road network. The distribution of the distance to the nearest EMOC is provided in Table 4.4.

Table 4.4 Distance to Nearest Health Facility (n=100)

Distance	Percentage
Less than one kilometer	17
1-2 K	75
3-4 Km	8
Total	**100**

As shown in Table 4.4 all, the respondents are staying within 4 km radius from the EMOCs

4.1.4 Utilization of EMOC Services and complications associated with pregnancy

The section sought to obtain respondents' utilisation of health facilities that provide EMOC services, awareness of danger signs associated with pregnancy, awareness of the complications associated with pregnancy, management of pregnancy related complications, and as well as factors that could either hinder or influence utilisation.

Table 4.5 Preferred place of delivery and awareness of danger signs associated with pregnancy (n=100)

Variable	Percentage
Place of delivery	
Home	52
Hospital	48
Aware of danger signs associated with pregnancy	
Yes	97
No	3

As shown in Table 4.5, about one-half of the respondents preferred to deliver at home. An overwhelming majority (97%) of the respondents were aware of the danger signs associated with pregnancy and childbirth. This implies that the general knowledge about obstetric complications in the community is quite high.

On knowledge about obstetric complication, the majority (92%) of the participants knew about placenta retention (Table 4.6). Only 23% had knowledge of pre-eclampsia.

Table 4.6 Knowledge about Obstetric Complication (n=100)

Obstetric complication	**Percentage**
Retained placenta	92
Postpartum haemorrhage	77
Prolonged labour	76
Haemorrhage	67
Obstructed labour	41
Infection	35
Abortion	34
Pre-eclampsia	23
Total	**497***

*Multiple responses

One of the questions in the questionnaire was on pregnancy/delivery related complications. The results showed that majority (62%) of the women had some form of complication during pregnancy or delivery (Table 4.7). The types of complications are presented in Table 4.8.

Table 4.7: Complication during Pregnancy/Delivery (n=100)

Complication	**Percentage**
Yes	62
No	38
Total	**100**

Table 4.8 Types of complications (n=100)

Obstetric complication	Percentage
Retained placenta	19.2%
Postpartum haemorrhage	17.2%
Prolong labour	16.5%
Haemorrhage	14.6%
Eclampsia	10.0%
Obstructed labour	9.1%
Infection	7.3%
Abortion	2.3%
Pre-eclampsia	3.8%

Among those who had complications, 35 of the women went to hospital, 17 sought the services of nurse/midwife and only 10 sought the services of the TBA (Table 4.9)

Table 4.9 Action taken in the cases of complications

Action taken	Frequency
Went to hospital	35
Called Nurse/midwife	17
Called TBA	10
Total	**62**

The action taken when in complication by income group is presented in Table 4.10

Table 4.10 Distribution of action taken by Income (n=100)

Income	TBA	Nurse/hospital
Below ₦100, 000	64.7%	35.3%
₦100,000-₦200,000	28.8%	77.2%
More than ₦200,000	-	100%

As shown in Table 4.10, 64.7% of respondents with an average income of ₦100, 000 and below per annum sought assistance from the TBAs, while 35.3% sought the

assistance of a nurse/hospital. The majority (77.2%) of the respondents whose income ranged between ₦100, 000-₦200, 000 employed the services of a nurse/hospital to manage complications. All those with income of ₦200, 000 and above sought the services of the nurse/hospital.

The respondents who had the complication were asked about the attitude of health care providers and their line of action in seeking care for complication. The results are presented in Table 4.11.

Table 4.11 Perceived attitude of health care providers (n=100)

Selection	Unfriendly	Hostile	Friendly
TBA	40%	60%	-
Nurse or midwife	52.9%	35.3%	11.8%
Hospital	54.8%	27.4%	17.7%

As summarised in Table 4.11, among those who sought the assistance of the TBAs, 40% described the attitude of health care providers as unfriendly, while 60% viewed their attitude as hostile. Among the respondents who called a nurse or midwife, 11.8% described the attitude of health care providers as friendly, 52.9% viewed their attitude as unfriendly, and 35.3% viewed the health care providers as hostile. Among the respondents who went to the hospital when complication occurred, 17.7% described the attitude of health care providers as friendly, 54.8% as unfriendly while 27.4% described their attitude as being hostile. The majority of the respondents, irrespective of the line of action taken to manage complication(s), viewed the attitude of health care providers to be negative.

Preferred place of delivery by educational level is summarised in Table 4.12. As seen in this table, among those with primary education, a majority (66.7%) preferred to deliver at home. However, more than 95% of those with Quranic or secondary level and higher would prefer to delivery at the hospital.

Table 4.12 Preferred place of delivery by level of education (n=100)

Education	Home	Hospital
Primary	66.7%	33.3%
Qur'anic	4.7%	95.3%
Secondary and higher	3.8%	96.2%

On sources of information on pregnancy and childbirth, a majority (58%) cited radio as the source of information (Table 4.13). Surprisingly only 36% mentioned antennal care clinics as the source of information.

Table 4.13: Source of Information on Pregnancy and Childbirth (n =100)

Source of Information on Pregnancy and Childbirth	Percentage
Radio	58
Health care providers	38
Antenatal care	36
TV	35
TBA	13
Others	5
Total	*185

*Multiple responses

4.1.5 Deaths Resulting From Obstetric Complication

A question was asked in the questionnaire whether the respondent was aware of any deaths resulting from obstetric complication in the study area. The results showed that 90% of the respondents were aware of deaths resulting from obstetric complication in their vicinity (Table 4.14). The majority (67%) said they knew about 1to 3 women had died, while 19% said 4 to 6, 10% said 7to 9, and only 4% said 10 women had died of obstetric-related complications.

Table 4.14 Knowledge on Recent Death resulting from Obstetric Complications (n=100)

Knowledge of Death in Community	Percentage
Yes	90
No	7
No response	3
Total	**100**

4.1.6 Facility-Related Factors Affecting Utilization of EMOC Services

This section reports the results on the facility related problems that affect the utilisation of emergency obstetric care by women and how they perceived the quality of services being provided.

On knowledge and skills of heath care staff, 62% of the respondents agreed that were knowledgeable and skilled (Table 4.15)

On hospital equipment's and supplies, 71% agreed that they were in good conditions (Table 4.16)

Table 4.15 Perceived knowledge and skills of heath care staff (n=100)

Knowledgeable and skilled	Percentage
Yes	62
No	38
Total	**100**

Table 4.16 Hospital equipment and supplies (n=100)

Hospital equipment's and supplies	Percentage
Good	71
Poor	29
Total	**100**

On women's perceived facility challenges, a majority (32%) of the participants complained of no drugs, 30% complained about long waiting time at a health facility,

24% mentioned that there were insufficient health care providers and 14% indicated that they were ignorant of procedures available at the health centres. (Table 4.17)

Table 4.17 Challenges faced by respondents at the hospitals (n=100)

Challenges	Percentage
Lack of drugs	32
Long waiting time	30
Insufficient staff	24
Ignorant of procedures	14
Total	**100**

The response to the attitude of healthcare providers showed that only 19% opined that they were friendly (Table 4. 18)

Table 4.18 Respondents view on the attitude of Health Care Providers (n=100)

Attitude	Percentage
Friendly	19
Unfriendly	39
Hostile	26
No response	16
Total	**100**

4.1.7 Economic-related Factors Affecting Utilisation of EMOC Services

The cost of service is another determinant of utilisation of EMOC services, which ranges from the actual services to the cost of medications and bed fees. The study revealed that only 14% could afford the facility charges while the majority (54%) considered the charges as very expensive.

4.1.8 Decision-making on Utilization of EMOC Services

Male involvement in issues of reproduction is critical in the sense that they play a vital role in the decision relating to the antenatal care, place of delivery, the willingness of husbands to give permission to their wives when the need arise. In this study, 90% of the female respondents mentioned that the husband is the only person that can grant them permission to visit the health facility when the need arise, while the father-in-law and other relatives account for 3% each. Only 1% of the respondent said it was the mother-in-law. The final decision to attend a health care facility also showed that 90% of the respondents reported that the husband was responsible for decisions regarding place of delivery and 3% mentioned that the father in-law made the final decision on the place of delivery. Only 3% regarded it as the choice of the wife.

Table 4.19 Decision maker on health facility visits (n=100)

Person	**Percentage**
Husband	90
Father-in-law	3
Other relatives	3
Mother-in-law	1
Oneself	3
Total	**100**

4.1.9 Summary

The respondents in this study belong to a community that is predominantly Hausa comprising Muslim petty traders with a low level of formal education, low economic power, and relatively high fertility. With respect to perceived emergency obstetric care services, the findings showed that the community members were aware of the facilities that provide services, however only a few could afford the services and therefore utilisation was suboptimal. In addition, perceived quality of services provides was said to be poor due to lack of adequate skilled personnel, drugs and functional equipment.

Socio- cultural and economic barriers were identified as major reasons for their preference to patronising traditional birth attendants and home deliveries. All the factors could contribute to occurrence of obstetric fistula in this region.

4.2 Qualitative Study

In the qualitative study, the results were related to the participants' demographic characteristics and awareness/perception, and socio-cultural factors (education, normative values, and income) that influenced or hindered utilisation of Emergency Obstetric Care Services in the area under study.

Table 4.20: Background Characteristics of Participants in Focus Group Discussion and In-depth-interview

Categories of participant In FGD	Age Mean(Min - Max)	Parity Mean (Min-Max)
Women of reproductive age	18 (15-25)	4.5 (1-6)
Women of reproductive age	27 (26-46)	5.6 (2-6.5)
Men of reproductive age	21 (18-25)	4.2 (1-6)
Men of reproductive age	26 (26-58)	5.3 (2-6.5)
Key Informants	**Categories**	**Gender**
TBA	4	Female
Nurses	6	Female 4, Male 2

Table 4.21: Sequential Process for Qualitative Research

Interview category	Focus Group Discussions	In-depth Interviews	Average time duration
Women of reproductive age group	4 x (15-25yrs) 4 x (26- 49yrs) (5-6 persons) Per session		1hour
Men of reproductive age group	2 x (18 -25yrs) 2x(26-58yrs) (5-6 persons) Per session		1 hour
Traditional Birth attendants		1x4 (1 TBA per session)	1 hour
Facility in-charges		1 x 6 (1 Facility in-charge per session)	45mins
Total	**12**	**10**	

The concept and idea of benefits of emergency obstetric services enjoyed universal acceptability among the participants in all the communities studied. Even women who neither utilised the services nor cared to go to health care facilities for delivery, easily and happily highlighted the advantages that emergency obstetric services offered, without being specifically asked.

Utilisation of EMOC services largely depends on awareness. It is only when pregnant women or their husbands are aware of the existence of these services that they will utilize the service when the need arise. Participants had a high level of awareness. Very few showed uncertainty arguing that going by the definition of EMOC, they were not aware of any facility that renders urgent and adequate 24-hours service along with the other EMOC functional prerequisites. The data showed that there was a high level of awareness with respect to facilities rendering EMOC in the community

A participant in the focus group discussion said,

> "We have the Shagari hospital, it is just a stone,s throw from us and we have Samara hospital, the federal medical center, Dr. Karima and Farida Hospitals" (AL, HW FGD, Kwanar Birnin Ruwa).

Another said:

> There are health care centres such as Primary Health Care, General Hospital and Private Clinics. The only hospital that provides free antenatal and delivery service is the King Fahad Ibn Abdul-Azeez, Women and Children Hospital at Samaru, but then the supply of drugs is erratic. Whenever our wives go to a hospital after the first week of a month they find out that drugs and other essential commodities are not available. We have to buy prescribed drugs, conduct and pay for investigations elsewhere … all others (Farida General Hospital, Shagari PHC And Federal Medical Center (FMC), you have to pay… indeed the price of EMOC at FMC is not affordable because you have to pay for every service including bed space… only the rich can afford to seek care in FMC (MS,HB FGD, Awala).

Even though available health facilities providing EMOC have been widely mentioned, yet many participants indicated their dissatisfaction with the state of EMOC,

saying that EMOC does not exist in Gusau metropolis because if EMOC is a lifesaving service then these services are not geared towards saving lives because women with obstetric complications are rejected for flimsy excuses like no registration card (associated with ANC) or no bed space even if she is dying.

A participant lamented:

> Not only when a woman does not attend ANC, even when she does, if she is not rich or her husband is not rich, they can reject her. I know of a woman, who had obstructed labour; the hand of the child was out. Her relatives rushed her to three government hospitals, one after the other, she was rejected. Finally, she was admitted to a private clinic around 3 am in the morning. There she lied unattended to, until the later hours of the same morning because there was no money for initial deposit. Her relatives had to go on borrowing to raise the money. She eventually had a successful operation (MB,HW FGD, Premier).

The implication of rejecting women that present with obstetric complication is that people will be discouraged to go to the hospital even when life is threatened, and this has serious implications on utilisation and consequently on maternal mortality rate in Zamfara State.

The findings of the qualitative part of the study indicate that the reasons given by the respondents were many but the major problems militating against EMOC utilisation were mainly poverty, health workers' attitude, and lack of transportation.

4.2.1 Cost of EmOC Services

Costs associated with transportation fare, especially for those who could not afford to attend a health facility outside their villages/localities is an important factor. A male household head and participant at an FGD session in a rural location, was emphatic that the problem revolved around *talauchii*, (translated to a condition of material poverty):

> If the need is, we prefer to go to the hospital, but due to the issue of poverty, we rather stay at home (LJ,HB, FGD, Premier). Make no mistake about the bush on this facility delivery thing: our problem is poverty; our daily struggles relate to feeding our families. You are thinking of how to feed the family, buy a ram to slaughter to celebrate births, you hardly boast of N5.00 and you struggle with transportation to reach the hospital

> with a woman in labour only to be confronted with a list of things to purchase. God save you if your wife now needs surgery which can cost thousands of Naira… the simple truth is the government has to help us. (KY, HB.FGD Birnin-Ruwa)

Shyness and reticence, and deep dislike/distaste for being touched by males other than their husbands; "…there are others who are disallowed by their husbands, from going to the clinic" because such husbands could not contemplate their wives being attended to by strange males. (JK, HW. FGD Awala).

4.2.2 How Traditional Birth Attendants (TBAs) are perceived by Community

Responses from the qualitative data equally indicated a high proportion of participants actually preferred home delivery (even when there was complication) either under the care and supervision of a Traditional Birth Attendant (TBA) or experienced older women, or alone. They lamented that hospitals did not provide the needed privacy; rather they "dumped" all pregnant women in one labour room watching and waiting in pain for their turn to deliver. Participants provided their reasons as thus:

> We prefer TBAs services because of the sub-human manner in which they pack woman in labour rooms. So for the sake of privacy, we prefer our women to deliver at home (NR,HB FGD, Hayin Bugaje).

> I do not like to say that hospital is a bad place. But a majority of women prefer to deliver at home… at the hospital, they neither sympathise with the patient nor her guardian. They are only after extorting money from you. They will ask you to go and buy drugs; before you come back your wife has delivered safely. But they will still confiscate the drugs and also charge you some money (AT, HB. FGD, Kwanar Ruwa).

> The negative attitude of the health personnel and the unhygienic conditions at the health facilities discourage women from utilising such faculties. Because sometime you will go to hospital, only to perceive bad odours. For example, they have a particular delivery room for women that have not registered with them for ANC. They usually take such women and sometimes wives of the poor to deliver in such an unhygienic condition. This makes users dissatisfied… moreover there is no adequate supply of water and electricity (RB,TBA.KII, Awala).

> Most of the women here prefer to use the TBAs because that is the tradition. They will call us to their houses and we will render them the service effectively without shouting at them. No much expenses and the TBAs is paid like N500 depending on the person. Some even give up to N100 (HS,TBA,KII, Tudun-Wada).

> Culture hinders women's accessibility to reproductive health services especially if the husband is conservative. He will not allow her to go hospital until when she develops a problem. Illiteracy is also another factor that hinders women to go to a hospital. Religion does not deter anybody from seeking medical care (GU, HW. FGD, Galadima).
>
> We dislike certain practices associated with hospital delivery. They make us lay on our back (naked) to deliver instead of the squatting posture we are used to (RY, HW. FGD. Birnin Ruwa).

Poverty was cited by many as the reason for preference of home delivery.

> We prefer to deliver at home in order to avoid humiliation from medical personnel and financial implication of seeking medical care at hospital (HG, HW. FGD. Premier).
>
> Here at Shagari Hospital we pay N20 for registration card while we pay N10 at the Samara hospital and the rest like FMC it is N50. For other services, it goes beyond this amount which most of us cannot afford. Therefore we prefer to deliver at home (BD, HW, FGD, Galadima).
>
> We prefer our wives to deliver at home because of poverty. If my wife delivers at home, I will use the money that I would have paid to a hospital in buying foodstuff for her (JN.HB FGD, S/Gari).

A member of a focus group and an IDI participant described the situation thus;

> There is no difficulty as that of poverty, especially at night when there are no vehicles. The taxi drivers usually charge very high amount and our rich men do not have the initiative of buying a vehicle for conveying emergency cases to the hospital (RU.HB. FGD, Premier).
>
> The most outstanding problem is that of money. This is the factor that we will first consider before going to the hospital because we are mainly poor (TY.TBA, KII. S/Gari).
>
> The most important factor is money. If you have it you can clear any difficulty and if do not have it that is where the problem lies… (AF.HB. FGD, S/Gari).

The data from the qualitative method (FGD and IDI) indicated that there was general awareness among the participants in the study area of pregnancy and childbirth related complications at the various stages of pregnancy. Some of the problems identified included fever, nausea, constant vomiting of anything they ate, headache, dizziness, backache and lack of appetite. Other serious problems included abortion, eclampsia, pre-eclampsia, high blood pressure, retained placenta, prolonged labour and obstructive delivery which lead to serious problems during delivery. A significant

number of the respondents believed that these problems occurred naturally, though at the same time they believed that going to hospital for antenatal care would assist in reducing the extent of the problems as conceived by TBAs.

> The problems of pregnant women here include vomiting, dizziness and swelling of limbs. During childbirth, women encounter problems such as convulsion, bleeding, obstructive labor and retention of the placenta.
>
> When it is beyond our control we refer them to the hospital (LB.TBA KII, Galadima).
>
> The commonest cases nowadays are bleeding, pains in the lower abdomen and stillbirths, and retention of the placenta (TBA KII, Kawanar Birnin Ruwa).

A participant from FGD said that:

> Women encounter problems during labour … for instance, a woman can deliver safely … but later the mother may experience bleeding or retained placenta (ZK, HB, FGD, Kawanar Birnin Ruwa).
>
> I always experience prolonged labour but I do not experience bleeding. But nowadays a strange bleeding occurs to women after delivery. A woman will deliver safely but after some hours she will begin to bleed profusely (SA.HW. FGD, Awala).

A health worker identified the most common kinds of obstetric complications in the community as:

> Pregnancy-related complications include hypertension, eclampsia, bleeding, anaemia and malaria in pregnancy. During childbirth, there is antepartum and post-partum haemorrhage (DL.FW, KII.S/Gari).

4.2.3 Geographical Access to EMOC Facility

Many participants were of the view that EMOC facilities were far in terms of location, and especially difficulty in finding proper transportation and high expenses for it. These are some of the views expressed by the participants in the qualitative component of the study.

> It is far, not everybody can afford the transport fare during emergencies. They can charge you between ₦1000-₦ 3000 from the house to the hospital. Under normal circumstances, it is ₦ 30-₦ 50 (LS.TBA-KII, Awala).
>
> They are far away from people; we have to use transport to get there. Transportation becomes even more difficult if a woman is experiencing

> labour or obstetric complications. Because the taxi operators are always reluctant to carry such patients emphasising that they don't want their vehicles to be stained with blood… for those that agree to carry such women, they charge an exorbitantly (NB.HB. FGD, Galadima).
>
> The main source of concern in that of transportation. We do not have cars and taxi drivers are charging exorbitant amount for their services; our rich men do not care to provide the community with a bus that carries sick persons as they sometimes provide for dead bodies. So you see no money for medicine and no money for drugs. So even if you want to go to the hospital you cannot dare to do it (IR.HB.FGD, Kwanar Birnin Ruwa).

Another participant remarked:

> When a woman has a complication and her husband does not have any means of transportation they are in trouble especially if it is in the night… for example our neighbour's wife was in labour throughout the day, we thought she will deliver without any problem, unfortunately, she developed complication (obstructed labour) late in the night, we went around the neighborhood to look for transportation, but we couldn't get any. The only person who obliged to assist eventually discovered less fuel in his car… indeed she finally gave birth to a dead baby and after a few days she gave up (TH.HW. FGD, Tudun-Wada).

Knowledge of obstetric complications elicited from the qualitative data (FGD and KII) indicated that a significant number of the participants in the study area had experienced one or more pregnancy related complications. The problems mentioned included retained placenta, postpartum haemorrhage, infection, haemorrhage, eclampsia, prolonged labour, abortion, pre-eclampsia, and obstructive delivery and these led to serious problems.

The participants expressed the following:

> I encountered problems during labour… especially for this last birth, though I delivered safely but I experienced bleeding because I had a retained placenta (FG.HW. FGD, Kwanar Brining Ruwa).
>
> I always experience prolonged labour but I do not experience bleeding. But nowadays a strange bleeding occurs to women after delivery. A woman will deliver safely but after some hours she will begin to bleed profusely (SA.HW. FGD, Tudun-Wada).
>
> My wife gave birth recently and after some hours she began experiencing uncontrolled bleeding (postpartum haemorrhage), we had to rush her to the hospital because she has never experienced such problem in her previous delivery (ZG.HB. FGD, Hayin Bugaje).

> Recently my two wives gave birth, though within an interval of a month, yet, they both experienced different kinds of complication each… the first one hand had prolonged labour, while the second one experienced retained placenta (NY.HB. FGD, Premier).

4.2.4 Line of Action in Seeking Care for Complication

This suggested that majority first sought obstetric services from other sources when sequencing Complications occurred.

This was further supported by responses presented in the qualitative data as follows:

> Sometimes prayers are recited on women during labour. But if the situation persists we rush them to the hospital (TG.HB. FGD, Premier).

> In childbirth most of the complications are postpartum. Some came with retained placenta; some come with bleeding during pregnancy… this mostly occurs to unbooked cases. Most of them deliver at home and come to the hospital with complications. They will end up with postpartum haemorrhage….. there is always delay at home because a decision to come to the hospital are delayed by the family members, that is why sometimes the women may even die (DW.FW. KII.S/Gari).

> Mostly the problems are taken care of through the use of herbs or Quranic verses from a Muslim and sometimes we use our expertise. We do not normally go to the hospital until when the situation goes beyond our control (MN.TBA-KII, Kwanar Birnin Ruwa).

Facility-Related Factors Affecting Utilization of EMOC Services

This was in harmony with the qualitative data, where inadequate personnel, equipment and personnel were widely reported in the FGDs and IDIs conducted. These were evident in the views expressed by participants:

> Some of the equipment are neither available nor adequate (female FGD, Haying Bugaje).

> There is a need for more personnel and equipment. Sometimes there will be no bed space to accommodate a patient. Such a patient will have to wait until another is discharged. (LS.TBA-KII Kwanar Birnin Ruwa).

> There is not enough equipment in the hospitals. But there is enough water, there is no electricity, and generators are old. If a patient needs to be operated upon and there is no light, she has to buy fuel to use the generator (SB.HB. FGD, Galadima).

> Sometimes women will be brought in a critical condition but they will say there is no bed space to accommodate her and refer her to another hospital (HG.HW. FGD, Premier).

> The equipment's and personnel are available but not adequate. They are not enough compared to the size of our population. Look at the beds we have at the hospital; when you go to the hospital there is just a single labour room with few beds, where women who are about to deliver lay half naked; this contradicts our religion… in addition, you find out that the number of personnel are very few, they become exhausted easily when they have a lot of deliveries to attend to (UN.TBA-KII, Tudun Wada).
>
> There is a woman that delivered inside taxi cab because there was no bed space in the hospital (IH.HB. FGD, premier).

The health workers in the study expressed differently:

> We have equipment's and commodities, but we need more in order to excel. For instance, we don't have enough beds. Once patients come to the hospital with serious cases and find out that there is no bed space they become so unhappy. It is not our wish to send them away, we feel it too (DW.FW.KII.Sabon Gari).
>
> We need more doctors, gynaecologists and laboratory scientists because there are certain tests we cannot conduct here; we have to refer to other sister facilities (DF.FW.KII.Birnin-Ruwa).

4.3 Opinion of Doctors and Nurses Professional Competence

Many argued they were qualified while others opined they were not. To buttress their sequence Views, excerpts from responses are presented below;

> I can say they are qualified because they are the only ones we know so there is no basis for comparison (ZS.HW FGD, Premier)
>
> The doctors are qualified and so also the nurses but those nurses have a problem because they humiliate people; here I can say that they are not qualified (LS.TBA-KII, Awala).
>
> So far I can say that they are qualified, but the number is inadequate (OK. FGD, Kwanar Birnin Ruwa).

4.3.1Typical Problems Faced at Health Facilities

There was widespread dissatisfaction with the quality of the services provided by the existing facilities. Problems faced at the health facility were reported in the qualitative data.

A participant had this to say:

> The reproductive health facilities we have are a mere shadow. You will only know this when you go there; after long hours of waiting and humiliation, you see a doctor who will prescribe drugs for you and tell you to go outside and buy. No drugs in the hospital (GT.HB. FGD, premier)

Another participant said:

> There are not enough drugs, you hear over the radio that government has procured assorted drugs for the hospitals but when we go there, will find out that it is not all types of drugs that are available. A woman can get two out of six types of prescribed drug for her. The number of personnel is not adequate and also equipment (MK.HB FGD, Kwanar Birnin Ruwa).

Waiting time was ranked high in the list of complaints against the quality of health services. Respondents attributed a variety of reasons to the time wastage at health facilities. Some associated time wastage with an inadequate number of staff while to others, one's economic status determined how much time was spent in a health facility, that is; wealthy patients spent lesser time than the less privileged patients.

A participant voiced:

> If you go very early, you will see the doctor in time; like around 6 am. Even when you go around that time you will find some are already there. But in the case of emergencies, you will be allowed to see the doctor immediately. But under normal circumstances you can spend up to 8 hours that is from 6am to 2pm (KA.HB. FGD, Awala).

Other members of the focus group attributed the problem to insufficient health workers.

> Actually, I can say the number of personnel is not adequate. Because had it been they are adequate, there would not have been long queues and long waiting period at the hospitals (Female FGD, Hayin Bugaje).

> We need more staff as we have a shortage of staff, for any reason, if you visit the hospital after four o'clock you will not find anybody, you see, this because we are very few. One cannot work throughout the day and night alone. (DW. FW .KII. Galadima).

The participants complained about the poor attitude of nurses and midwives, and the nonchalant attitude of doctors who were not always at their station. A participant argued:

> … Negative attitude of health workers counts significantly against patronising health facilities for antenatal, delivery and for women presenting with obstetric emergencies (NB.HB. FGD, Galadima).

> Economic status can determine the kind of treatment a woman will receive at the hospital… if you are rich and good looking they treat you with respect and kindness (NB.HW. FGD, Birnin Ruwa).

> … Even where you present with complication, the midwives and nurses are not sympathetic at all. Instead of them to give simple instruction, being aware of your condition, rather they frown and shout at you especially if they perceived that you are illiterate or you may not be able to buy the needed commodities including the ones they confiscate… they relate to patients as if they don't know their rights. For this reason, if not for fear of complication. I would prefer to deliver at home (NM.HW. FGD, Tudun-Wada).

4.3.2 Economic-related Factors Affecting Utilization of EMOC Services

To further reinforce the association of cost with poverty, a traditional birth attendant summed it up thus:

> Actually, the services are not affordable because a majority of people here are traders they are not civil servants, they earn less income. So they cannot afford to buy the drug and pay for other services. You can buy medicine at ₦1000 or ₦2000 and later be told to pay for the services rendered to you. Hospitals card is not a problem it cost just between ₦40-₦50. But laboratory test cost between ₦700-₦900. So a woman can spend up to ₦2000 on the first day of her going to the hospital. For delivery, you have to pay between ₦1500-₦2000 (LB.TBA-KII, Kwanar Birnin Ruwa).

A health worker lamented:

> Most of the people cannot afford the cost of EMOC. It is only a few that can. The costs should be reviewed downward if possible. It is the cost that prevents many women from coming to the hospital to deliver. For instance, the cost for normal delivery is between ₦1, 500-₦2000, it is even higher for C.S. that is why they would prefer to deliver at home. They only come to the hospital if there is a problem (DW. FW. KII. Sabon-Gari).

4.3.3 Decision-making on Utilisation of EMOC Services

There was a general consensus among the FGD and IDI participants, that the husbands were the head of the households "no matter the type of heights that had been attained by the woman" a respondent added. The husbands were responsible for giving permission and they make the final decision on the place of delivery. A participant had this to say,

> It is the responsibility of the husband to give permission (TH.HW.FGD, Premier). Sometimes husbands permission is not the problem … TBAs are among the contributing factors of obstetric problems… because they

> contribute to delay in going to the hospital… they continue to administer one form of remedy or the other to the patient… until when the patient takes two days or even more in labour and this causes complication during delivery (LB.FW.KII. Sabon Gari).
>
> It is the husband that gives permission on issues of not only hospital utilisation but entire household activities (NS.HW. FGD, Galadima).
>
> It is no other person than the husband. If the husband is not around, the father-in-law can give permission or the elder brother-in-law (IB.HB. FGD, Haying Bugaje).
>
> It is the husband. If you go without his permission he will reprimand you (SF.HW.FGD, Kwanar Birnin Ruwa).

Person that initiates the decision to seek care.

To further complement this issue, some participants had these to say:

> Our men in this area… no matter your condition, you have to tell them that there is a need to go to the hospital otherwise they either watch you, call a neighbour or relative (KI.HW. FGD, Kwanar Birnin Ruwa).
>
> When my wife feels that her condition is becoming unbearable, she may request to be taken to the hospital (JN.HB FGD, Awala).
>
> When I notice that my wife is in labour… I usually find transport to take her to the hospital (KN.HB. FGD, Hayin Bugaje).

Person that makes the final decision on place of delivery

A participant remarked thus:

> It is the husband because we live in an Islamic society and everyone knows what shariah says in respect of this. Nobody can make the final decision on the place of delivery except the husband, not even his (husband's) father (LA.HB.FGD, Tudun-Wada).

Poverty has been widely identified as a major problem associated with permission and place of delivery. Some of the respondents argued that when a woman has money to pay for hospital bills she may be able to influence permission and decision on the part of the husband.

> … When a woman is willing to pay for medical expenses, husband's permission does not really become a problem. Once you have your money, they (husbands) will support you (FG.HW.FGD, Galadima).

A health worker summed it up:

> Sometimes husbands withhold permission because they do not have the money to pay for the services (DW.FW.KII.Galadima).
>
> (Note: Name given as initial, E.g. Kabiru shehu as KB. Housewife as WH. Husband as HB. The traditional birth attendant, TBA. Facility worker as FW.)

Summary

Delivery was seen not only as a delicate process requiring stoicism on the part of the women but also as a natural process requiring privacy, and it is widely preferred to be conducted at home.

The services of TBAs were said to be well accepted and patronised in the communities, although their role is limited primarily to providing advice pre-delivery and support post-delivery. Although construed to be convenient, confidential, inexpensive and readily available, TBAs have serious shortcomings due to their lack of knowledge and skills such their tendency to delay referring difficult cases

Husbands were said to be the main decision-makers regarding access to Maternal and Child Health (MNCH) services for women and children. This leads to delays in decision-making, especially when men are away from the home/community. Health facilities and qualified health workers were often the last options used when women, newborns or children were in danger.

There was poor knowledge of obstetric danger signs such as prolonged labour, or how long to wait for the placenta to be delivered. Convulsions during labour were said by some to be caused by evil spirits. Very few respondents understood the severity of symptoms of complications.

There are many physical access barriers to MNCH services in Zamfara state due to the lack of good motorable roads, and the presence of rivers with collapsed bridges. Widespread poverty in the study communities meant that financial access barriers to use of MNCH services were very severe. Few communities had any functional system or scheme in place to cater for health emergencies when they occurred.

The 'hospital factor' constitutes a big barrier to utilisation of MNCH services in Zamfara. Respondents commented on, the lack of health workers, long waiting times, providers' poor attitudes to patients, the inappropriateness of being seen by a male health worker, poor knowledge of the health workers, clients' lack of familiarity with the hospital environment, and inadequate supply of drug and equipment.

4.4 Hospital Based Case-Control Study

In the quantitative (facility based case-control) study, the results are displayed in the tables below. The findings were obtained from three obstetric fistula hospital and tabulated to summarise the demographic, prenatal, labour and delivery and postnatal data.

4.4.1Demographic profile of the respondents in this study

The demographic profile of the patients with obstetric fistula (case) and those without obstetric fistula (control) in this study are presented. One Hundred cases and hundred controls were included in the analysis. A majority of the case were aged < 25 years (51%), while controls were aged 25–35 years (91%). The median age was 25.0(IQR15.00) years for cases and 27.0(IQR9.5) years for controls (Table 4.22). The Mean age at marriage among cases was found to be 14.32 ± 3.32, while that of the control was 16.96 ± 3.45. Twenty percent of the cases had their first pregnancy when they were 11–15 years old and 73% had their first pregnancy by the time they were 20 years old. Only Six percent of the controls had their pregnancy by the time they were 11-15 years old. Forty-five percent of the cases were primiparous the as number of parity increases the cases reduced. Ownership of mobile phone (as a proxy of socio-economics status) was lower in the cases (54.0%) as compared to the controls (78.0%). Ninety-three percent (67/72) of the cases took more than two hours to get to a facility irrespective of mode of transport while as 98% (71/72) of controls took two hours or

less to get to a health facility. Fifty-two percent of cases and 90% of controls had attended the antenatal clinic at least once in the last pregnancy or the pregnancy associated with fistula. (Table 4.22).

Table 4.22 Characteristics of the women in the case and control groups (N=200)

Variable	Cases n=100 (%)	Control n= 100(%)	Total n= (%)	χ^2/ t	*p* value
Age group					
≤ 25	51 (51.0)	44 (44.0)	95 (47.5)	10.815[Y]	< 0.05*
26 – 35	30 (30.0)	47 (47.0)	77 (77.0)		
36 – 45	10 (10.0)	9 (9.0)	19 (9.5)		
46 – 55	9 (9.0)	0 (0.0)	9 (4.5)		
Median (IQR)	25.0(IQR15.00)	27.0(IQR9.5)	27.6(IQR2.5)	4925.0[U]	0.854
Age at marriage					
Mean ± SD	14.32 ± 3.32	16.96 ± 3.45	16.29±2.627	-5.511 [t]	<0.001*
Ever attended formal school					
Yes	11 (11.0)	47 (47.0)	58 (29.0)	31.472	<0.001*
No	89 (89.0)	53 (53.0)	142 (71.0)		
Marital status					
Married	64 (64.0)	94 (94.0)	158 (79.0)	24.393[Y]	<0.001*
Divorced	32 (32.0)	5 (5.0)	37 (18.5)		
Widowed	4 (4.0)	1 (1.0)	5 (2.5)		
Parity					
1	45 (45.0)	22 (22.0)	67 (33.5)	28.245	<0.001*
2 – 3	14 (14.0)	48 (48.0)	62 (31.0)		
≥ 4	41 (41.0)	30 (30.0)	71 (35.5)		
Height					
≤ 1.50	45 (45.0)	29 (29.0)	74 (37.0)	5.491	<0.05*
> 1.50	55 (55.0)	71 (71.0)	126 (63.0)		
Occupation					
Yes	27 (27.0)	24 (24.0)	51 (25.5)	0.237	0.626
No	73 (73.0)	76 (76.0)	149 (74.5)		

Table 4.22 Characteristics of the women in the case and control groups (N=200) continued

Variable	Cases n=100 (%)	Control n= 100(%)	Total n= (%)	χ^2/ t	*p* value
Age of husband					
≤ 25	10 (10.0)	5 (5.0)	15 (7.5)	9.114	0.058
26 – 35	28 (28.0)	27 (27.0)	55 (27.5)		
36 – 45	35 (35.0)	47 (47.0)	82 (41.0)		
46 – 55	15 (15.0)	18 (18.0)	33 (16.5)		
> 55	12 (12.0)	3 (3.0)	15 (7.5)		
Mean ± SD	40.36 ± 11.27	40.15 ± 8.41	40.255±9.919	0.149 [t]	0.881
Husband ever attended formal school					
Yes	33 (33.0)	55 (55.6)	88 (44.2)	10.261	<0.001*
No	67 (67.0)	44 (44.4)	111 (55.8)		
Ownership of a mobile phone					
Yes	54 (54.0)	78 (78.0)	132 (66.0)	12.834	<0.001*
No	46 (46.0)	22 (22.0)	68 (34.0)		

χ^2: Chi-square; t: Independent Samples t-test; Y: Yates corrected chi-square; *: *p*-value <0.05

Comparing the cases and controls, the mean age at first pregnancy was higher in controls than in cases ($p < 0.01$). Cases and their spouses had mostly no formal education (89 %), while most controls and their spouses (47%) had some form of formal education (p value < 0.01) (Table 4.22). Of the hundred cases, (32%) were divorced and (4%) were Widows as compared to controls where (94%) were married and (5%) were divorced. Most of the women with fistula who were divorced relate the divorce to the fistula onset. Only (27%) of the cases had any form for artisan (Business) that earn them some income compared to controls where 76% had some form of business where they earn some income. Almost half of the cases (45%) were shorter than 150cm while (71%) the controls were taller than 150 cm. Also, half of the cases (50%) reported a labour duration of more than 24 hours. Seventy-two percent of the controls had labour

duration of fewer than 12 hours and only (5 %) had the duration of 24-72 hours. Seventy-three percent (73%) of cases and 72% of controls delivered in a health facility. Only twenty-six percent (19/73) of the cases made the decision to seek facility services within six hours of labour while 52% (38/72) of controls made the decision within six hours of labour.

Table 4.23 Obstetrics characteristics of cases and controls (N=200)

Variable	Cases n (%)	Control n (%)	Total n (%)	χ^2/ t	*p*-value
Age at marriage					
11 – 15	68 (68.0)	29 (29.0)	97 (48.5)	27.888[Y]	<0.001*
16 – 20	30 (30.0)	61 (61.0)	91 (45.5)		
21 – 25	2 (2.0)	7 (7.0)	9 (4.5)		
26 – 30	0 (0.0)	3 (3.0)	3 (1.5)		
Duration of labour					
≤ 12	24 (24.0)	72 (72.0)	96 (48.0)	61.235	<0.001*
13 – 24	26 (26.0)	23 (23.0)	49 (24.5)		
25 – 48	27 (27.0)	2 (2.0)	29 (14.5)		
49 – 72	21 (221.0)	3 (3.0)	24 (12.0)		
> 72	2 (2.0)	0 (0.0)	2 (1.0)		
Attended ANC clinic					
Yes	52 (52.0)	90 (90.0)	142 (71.0)	35.066	<0.001*
No	48 (48.0)	10 (10.0)	58 (29.0)		
Husband grants permission for ANC					
Yes	52 (52.0)	88 (88.0)	140 (70.0)	30.857	<0.001*
No	48 (48.0)	12 (12.0)	60 (60.0)		
Estimated cost of medication per visit					
Affordable	13 (29.5)	61 (69.3)	74 (56.1)	18.837	<0.001*
Not affordable	31 (70.5)	27 (30.7)	58 (43.9)		
Place of delivery					
Home	27 (27.0)	28 (28.0)	55 (27.5)	0.025	0.874
Facility	73 (73.0)	72 (72.0)	145 (72.5)		

Table 4.23 Obstetrics characteristics of cases and controls (N=200) continued

Variable	Cases n (%)	Control n (%)	Total n (%)	χ^2/ t	*p*-value
Duration from onset of labour to decision to seek service (n = 145)					
< 6 hours	19 (26.0)	38 (52.8)	57 (39.3)	10.872	<0.001*
≥ 6 hours	54 (74.0)	34 (47.2)	88 (60.7)		
Time taken from home to facility (n = 145)					
< 2 hours	67 (93.1)	71 (98.6)	138 (95.8)	1.565 Y	0.211
≥ 2 hours	5 (6.9)	1 (1.4)	6 (4.2)		
Referral to other facility (n = 145)					
Yes	19 (26.0)	6 (8.5)	25 (17.4)	7.751	<0.05*
No	54 (74.0)	65 (91.5)	119 (82.6)		
Age at 1st pregnancy					
11 – 15	20 (20.0)	6 (6.0)	26 (13.0)	12.836Y	<0.05*
16 – 20	74 (74.0)	73 (73.0)	147 (73.5)		
21 – 25	5 (5.0)	15 (15.0)	20 (10.0)		
26 – 30	1 (1.0)	6 (6.0)	7 (3.5)		
Mean ± SD	17.26±2.11	19.02 ±2.74	18.14 ±2.593	-5.091	<0.001*
Mode of delivery					
SVD	69 (69.0)	98 (98.0)	167 (83.5)	30.521	<0.001*
CS	31 (31.0)	2 (2.0)	33 (16.5)		

χ^2: Chi-square; t: Independent Samples t-test; Y: Yates corrected chi-square; *: *p*-value <0.05

Table 4.24, below show Fifty-three percent of the cases have knowledge of contraception however only 12.0% of them are using any method of contraceptive as compared with 31.0% of controls who are using a contraceptive. This was found to be statistically significant (p-value 0.001). Among those who use a contraceptive, the traditional method of contraceptive was found to be used more in cases (41.7%) than in the controls (12.9%). Eighty-eight percent of the cases never use any form of modern method of contraceptive while 31% of the control uses some form of a modern contraceptive.

Table 4.24 Knowledge and use of contraception in cases and controls

Variable	Cases n (%)	Control n (%)	Total n (%)	χ^2/ t	*p*-value
Knowledge of contraception					
Yes	53 (53.0)	46 (46.0)	99 (49.5)	0.980	0.322
No	47 (47.0)	54 (54.0)	101 (50.5)		
Use of any method of contraception					
Yes	12 (12.0)	31 (31.0)	44 (22.0)	10.695	<0.001*
No	88 (88.0)	69 (69.0)	156 (78.0)		
Method of contraception used					
Traditional	5 (41.7)	4 (12.9)	9 (20.9)	2.761^{Y}	0.097
Modern	7 (58.3)	27 (87.1)	34 (79.1)		

χ^2: Chi-square; Y: Yates corrected chi-square; *: *p*-value <0.05

The table 425 below summarises the distribution of the cases by age group and parity. The majority (60.0%) of the cases were primi para and ≤25 year, furthermore as the age increase the number of cases decrease, same applied for Para 1 and above. The relationship between the age group and the parity of the cases was not found to be significant (p-value 0.193).

Table 4.25 Distribution of fistula cases by age and parity (N=100)

Age group	Primipara n (%)	>1 parity n (%)	Total n (%)	χ^2	*p*-value
≤ 25	29 (64.4)	22 (40.0)	51 (51.0)	4.731	0.193
26 – 35	11 (24.4)	19 (34.5)	30 (30.0)		
36 – 45	2 (4.4)	8 (14.5)	10 (10.0)		
46 – 55	3 (6.7)	6 (10.9)	9 (9.0)		

χ^2: Chi-square; Y: Yates corrected chi-square; *: *p*-value <0.05

At multivariate analysis, patients who ever attended formal school have (OR; 0.013, CI; 0.001-0.530) of having a fistula. Those with duration of labour ≥ 24 hours have 2.6 times the increase in the odds of having fistula as compared with those with

shorter duration of labour (OR;2.659, CI;1.138-7.512). Furthermore, those who estimated that they cannot afford the cost of facility care have 7.43 times increase in the odds of having fistula as compared with those who can afford care (OR;7.432, CI;3.925-13.682). In addition, delay in taking a decision to seek the care of more than 6 hours after onset of labour was found to be associated with 2.77 times increased odds of having a fistula (OR;2.770, CI;1.760-3.950). A husband who permits their spouse to attend ANC has lesser odds (Protective) of having fistula (OR; 0.028, CI; 0.001-0.664).

Table 4.26 Factors associated with obstetrics fistula

Variables	OR	95% CI	AOR	95% CI	*p*-value
Age (≤ 25/ others)	1.325	0.759 – 2.311	4.809	0.487-47.482	0.179
Patients who Ever attended formal school (Yes/ No)	0.113	0.045 – 0.285	0.013	0.001 – 0.530	<0.05*
Married (Yes/ No)	0.139	0.067 – 0.292	0.260	0.018 – 3.840	0.327
Primi parity (Primi parity/others)	2.901	1.567 – 5.369	1.088	0.134 – 8.808	0.937
Height (≤ 1.50m/ >1.50)	2.003	1.116 – 3.594	1.405	0.186–10.604	0.742
Husband ever attended formal education (Yes/ No)	0.394	0.22 – 0.700	0.427	0.057 – 3.193	0.407
Age at marriage (≤ 18 / > 18 years)	7.761	2.862–21.046	6.006	0.271–13.090	0.257
Duration of labour (> 24 hours / ≤ 24 hours)	19.000	7.124-50.676	2.659	1.138 –7.512	<0.05*
Estimated cost facility care (Not affordable/ Affordable)	5.387	2.444–11.875	7.432	3.925–13.682	<0.05*
Duration from onset of labour to decision to seek facility service (> 6 hours/ ≥ 6hours)	3.467	1.735 – 6.932	2.770	1.760 – 3.950	<0.05*
Referred to other facility (Yes/ No)	3.361	1.388 – 8.138	2.333	0.203 – 6.847	0.497
Age at 1st pregnancy (≤ 18years/ > 18years)	3.762	2.022 – 6.998	3.410	0.293 – 9.612	0.327
Mode of delivery (SVD/ CS)	0.148	0.072 – 0.303	0.001	0.000	1.000
Use of any form of contraceptive (Yes/ No)	0.304	0.145 – 0.634	0.574	0.054 – 6.065	0.645
Owns a mobile phone (Yes/No)	0.331	0.179 – 0.613	0.096	0.007 – 1.423	0.088
Ever attended ANC (Yes/No)	0.120	0.056 – 0.258	0.727	0.001 – 3.345	0.926
Husband Permission to attend ANC (Yes/ No)	0.045	0.011 – 0.196	0.028	0.001 – 0.664	<0.05*

OR: Odds ratio; AOR: Adjusted Odds ratio; 95% CI: 95% Confidence Interval; *: *p*-value <0.05
R^2: 0.793; Predictive value: 93.3%; χ^2: 89.585; p-value: <0.001

4.4.2 Summary

Based on this study, place of delivery, duration of labor, young age at marriage, the need to obtain permission from the husband, walking to facility and use of traditional contraceptives were identified as risk factors for obstetric fistula.

CHAPTER 5: DISCUSSION

This chapter presents the discussion on the findings of this research, and compares them with those from other studies. The comparison of the findings of this study with those of others, when appropriately contextualised, can contribute to potential inputs for health systems planning and for health policy formulation. The discussion will address issues pertaining to availability, accessibility, affordability and use of maternal health care services, with emphasis on emergency obstetric services which in the long run can reduce the incidence of obstetric fistula.

This chapter commences by discussing the characteristics of the participants involved in the survey, namely, the community-based part of this research and then the qualitative enquiry. This is followed by the discussion which focuses on hospital based case-control study.

5.1Community Exploratory Survey

Females constituted 60% of all respondents recruited for the community based study. The majority (72%) of the respondents in the sample were in the reproductive age group of 15 to 44 years. The majority of the study subjects were in their active fertility period. The educational status of the respondents showed that only 59% had received some sort of formal "western" schooling while the remaining 40% attended Koranic schools. Most (88%) of the respondents were Muslims. The respondents from Hausa ethnic group constituted 69% of the sample. Fulani, Igbo and Yoruba ethnic groups formed 31% of the sample. In the sample, 30% of the respondents were civil servants, while 39% were engaged in one form of trade or another. A majority of the respondents were low-income earners, with 39% earning less than 100,000 Naira per annum. Also, 20% among the women in the sample indicated that they had no income at all. These demographics reflect the characteristic features of the population in the northern part of

Nigeria, where there is a high level of illiteracy and child destitution (Oshewolo, 2010). In Nigeria, there is a very distinct dichotomy between the northern and southern parts of the country. The north is more populated, but the level of education of the people of northern Nigeria is far below the level of education of the people in the southern part of the country. This difference in educational level between these regions partly account for some of the differences in health-seeking behaviours (Elumilade, Asaolu, & Adereti, 2006).

The research findings revealed that numerous pregnancy-related problems exist within the study area. The problems associated with pregnancy and childbirth differed from one stage of the pregnancy to another; some were minor while others were more threatening. Some of the minor problems identified were swelling of the legs, loss of appetite, nausea, and dizziness. The more serious ones were hypertension, abortion, prolonged labour, haemorrhage, postpartum haemorrhage, eclampsia, obstructive delivery and retained placenta. These findings concur with the reports of the United Nations Population Fund (2004) which indicated that in the North-West Zone of Nigeria, pre-eclampsia, haemorrhage, sepsis, anaemia, prolonged and obstructed labour were major complications of pregnancy which led to maternal mortality and morbidity (Goni, 2005). On a wider perspective, United Nations Children's Fund (UNICEF) also found haemorrhage, infection, obstructed labour, eclampsia, and unsafe abortion to be the leading causes of maternal morbidity, worldwide (Prata, Passano, Sreenivas, & Gerdts, 2010). Poverty was cited as the major reason for the problems associated with pregnancy and childbirth. The poor could not afford the basic food requirements during pregnancy and the cost associated with seeking care.

Availability of facility is an important issue in health care seeking behaviour among the women in Nigeria. A study in Gambia reported that attempts to seek Emergency Obstetric Care can be delayed where there is no facility or when an

available facility is located far from the place of residence (Cham, Sundby, & Vangen, 2005). In Gusau metropolis a number of health facilities providing EmOC existed, equipped with primary, secondary and tertiary healthcare facilities. The most widely mentioned public health facilities were Federal Medical Centre and Farida General Hospital. The King Fahad Women and Children's Hospital is the only health facility that provides free services for women and children. Even though EmOC facilities exist, there is general dissatisfaction among the study population on the limited number of reproductive health care facilities that provide EmOC and more so on the quality of EmOC services provided.

The finding of this study is similar to the study conducted by UNFPA in 2005 on EmOC facilities in Nigeria. The UNFPA study reported that the percentage of facilities providing Comprehensive Emergency Obstetric Care (CEOC) and Basic Emergency Obstetric Care (BEOC) were low in most of the Northern states of Nigeria and most of the health facilities did not have the capacity to manage obstetric emergencies (Onah, Okaro, Umeh, & Chigbu, 2005). In Nigeria, the regional differences that exist in the health care facilities make a difference in the healthcare seeking behaviour among the pregnant women in different. The lack of emergency obstetric care services in the northern regions result in inadequate management of pregnancy-related complications. This concurs with the findings in a previous study which reported that low utilisation and emergency obstetric care services in the management of pregnancy-related complications had a major impact on maternal deaths and morbidity rates (Nigussie, Mariam, & Mitike, 2005). The findings in this research also support the Three Phase Delay model of Thaddeus and Maine which stipulates that among other factors, a decision to seek medical care depends on the availability of health care facilities (Barnes-Josiah, Myntti, & Augustin, 1998).

In low-income settings, life-threatening obstetric complications very often go unnoticed and labour and delivery complications are frequently not properly managed at the health care facilities. The requirements, considered to be the minimum in the provision of care at the district or sub-district hospitals or health centres, are also seriously inadequate in many countries, Nigeria inclusive, where these facilities do not even exist at some secondary level hospital (Deborah, 1993).

Therefore it is the responsibility of the government to provide adequate and functional EMOC facilities in Gusau metropolis.

In this study, it was found that there exists a high level of awareness of the facilities that render EmOC in the respondents' vicinity. In the quantitative study, an overwhelming majority (94%) of respondents were aware of the facilities that render EmOC services and this was corroborated by the qualitative findings. It was also found that a lot of demand creation had taken place in the past. However, the health care institution had failed to provide these services as most of the facilities were not functional.

In this study, it was found that awareness does not translate to utilization of facilities that render EmOC services. Even though majority (94%) of the respondents indicated that, they were aware of the location of EmOC services, many women preferred to deliver at home.

This study found that about one-half of the women prefer to deliver at home rather than in a hospital. Even though a high percentage (94%) of the respondents indicated being aware of EmOC faculties, only 48% preferred to utilise the health care facilities.

About two-thirds of the women in the sample mentioned that they had experienced complications. Out of this, only 35% indicated that they went to the hospital as their first line of action. Based on the responses in the qualitative study, most

of the women would prefer home to hospital delivery and would only go to the hospital when complications were beyond control. First, they would try to manage complications at home using culturally defined methods. Pregnant women in Gusau metropolis were motivated to seek hospital care for complication because they wanted to prevent the adverse effects of complications and at the same time ensure healthy living. This is in tandem with the Health Belief Model which stipulates that because of perceived severity, the pro-health behaviour is developed to ensure healthy life through preventive action (Rosenstock et al., 1988).

On the reasons for seeking care at EmOCs, 29% and 21% of the respondents cited privacy and financial affordability, respectively. The main reasons for not seeking care at EmOCs were transportation, health workers' attitude, lack of husband's permission and local traditional practices. Some of the respondents perceived that hospitals did not provide the needed privacy. This finding is similar to a study conducted in Malawi, where the investigators reported 'privacy' to be the second most important reason (apart from poverty) for home delivery (Norman, Breen, & Richter, 2007). The high preference for 'home delivery' among the respondents in this study is not surprising because the North West zone has the highest percentage of the home deliveries, with 89% of women delivering their babies at home. The national figure for 'home delivery' is 66% (Udeh, 2015).

Poverty in Nigeria is alarming. The National Bureau of Statistics showed that 61% of Nigerians lived on less than $1 per day in 2010 compared to 51% in 2004 (World health Organization, 2010). Poverty in Nigeria is the result of corruption and the inequitable distribution of the country's oil wealth (Obi, 2007). Nigeria is Africa's biggest oil producer, pumping more than two million barrels of crude oil per day, but corruption has deprived many ordinary Nigerians of sharing and benefitting from the country's wealth (Rose-Ackerman, 1997).

In this study, about one-half of the respondents stated that EmOC services were very expensive, and out of this, majority opined that they cannot afford to pay for the EmOC services. Cost here refers to the cost of registration, meals, bed space, blood, and other laboratory services. The high cost of services limits the individual's ability to seek EmOC services in Gusau metropolis. Based on the feedback from the qualitative study, at Gusau metropolis, the cost of drugs and other diagnostic services ranged between one thousand (N1000) to two thousand (N2000) Naira; normal delivery cost between one thousand five hundred (N1500) to two thousand (N2000) Naira and caesarean section cost between twenty thousand (N20,000) to (N30,000) Naira.

The findings on cost and affordability of EmCo services are similar with that of the studies conducted in Gambia, Bangladesh and Nairobi (Essendi, Mills, & Fotso, 2011; Nahar, Banu, & Nasreen, 2011; Ziraba, Mills, Madise, Saliku, & Fotso, 2009). Another study on the cost of emergency obstetric care in the North-eastern region of Nigeria revealed that the cost of EmOC services was very high ranging from three thousand five hundred (N3, 500) to twenty thousand (N20, 000) Naira (H. E. Onah, Ikeako, & Iloabachie, 2006). Emergency obstetric services bills are catastrophic to most families in Gusau metropolis. Such thought alone prevents most husbands from granting permission to their wives to deliver in the hospital.

The relatively low maternal death and morbidity among the women seeking care at Aminu Kano teaching Hospital which provides free maternal and health services supports the point that cost is the major determinant of health-seeking behaviour (Ameyaw, 2011). If the cost is affordable, women will seek EmCo services. Only the wealthy ones can afford the services of paying hospitals were the facilities are good and naturally have good delivery outcomes. For example in Murtala Mohammed Specialist Hospital, case fatality as a percentage of deliveries decreased from 7.9% in 1999 to 3.7% in 2005 (Ameyaw, 2011). The rich have no problem seeking immediate care,

which comes with a high cost, but not the poor. This is what constitutes Thaddeus and Maine's (1999) Phase One Delay, where financial constraints are seen as contributing factors to delay in decision making to seek care.

Many participants in the focus group sessions mentioned that, financially, they were reliant on annual sales of agricultural produce. Other than the harvest times, the men are generally under-employment or unemployed. As such being prepared for EmCOs services all the year around is almost impossible. Paying for emergency obstetric services results in households drawing down their assets or being indebted, resulting in a deepening of poverty.

In general, low income was found to be the major factor hindering utilisation of EmOC services. Money is the first and foremost thing women have to consider first before going to the hospital. This is not surprising considering the low level income in the community. Patients have to pay for drugs, hospital services, transportation, etc. The majority of the women cannot afford a Caesarean Section. Low income and a high cost of services hinder health care utilisation. The findings in this study are similar to that of a study conducted in Cote d'lvoire where poverty was identified as the major hindrance to hospital delivery (Gohou, Ronsmans, Kacou, & Yao, 2004).

In this community, the women were not at liberty to choose the place of delivery. They have to get permission from their husbands or their relatives, mainly the in-laws. The main reason for the husbands not permitting their wives to seek care at the hospitals is their inability to pay for the medical services. The low socio-economic status in the society generally affects the women's reproductive health. Similar findings were reported in a study conducted in North-Western Nigeria where it was reported that no woman leaves the confines of her matrimonial home without the husband's permission, and decisions to seek care when complications develop, depended solely on the husband

and when such permission is withheld utilization is hindered (Ibiwunmi, 2011; Oshi, 2009).

In Gusau, one of the challenges is ensuring timely availability of suitable transport to transfer the patients with obstetric emergencies to the EmOC facilities. Distance and cost of transportation were among the major challenges to EmCO utilisation. The majority of the respondents in this study were in an urban area, within 1 to 2 kilometres radius from a health facility. There was a general consensus that being in the metropolis, distance itself was not the problem, but the availability of mode of transportation to the facility was perceived to be a major barrier in seeking timely care in times of complication. Other studies conducted in Kenya, Burkina Faso and Tanzania also reported similar findings that lack of infrastructure as one of the factors that hinder utilization of maternal health care facilities of which EmOC is a component (Essendi et al., 2011; Perkins et al., 2009; Ridde, Richard, Bicaba, Queuille, & Conombo, 2011).

In this study, a majority of respondents who delivered at home had primary school education or none. Respondents with higher level of education preferred skilled delivery compared to those with primary or no education. A similar pattern was reported by a study conducted in Khartoum and Uganda (World Health Organization, 2009).

Even when the pregnant woman with complication eventually reached the hospitals, they did not seem to get adequate care. Those with bad experiences were not happy with factors such as poor hospital management, lack of skilled personnel and poor attitude of the health care personnel. When patients have difficulty in relating to the health care providers, utilisation is greatly affected. There were also complaints about the lack of or inadequate drugs, lack of equipment's and other needed supplies to effectively carry out EmOC services. Even when the facilities were available, they had to wait for a long time before being treated. Long waiting times are usually associated with inadequate staff or equipment. In 2007 the Zamfara State Integrated Development

Programme (ZASIDEP) reported the doctor to population ratio as 1: 135,000 which was far from the WHO recommended the ratio of 1: 10,000 for developing countries (Siminoff, Fetting, & Abeloff, 1989). Similar findings were reported in studies conducted in Malawi and Uganda (Kongnyuy, Hofman, Mlava, Mhango, & Van Den Broek, 2009; Pearson & Shoo, 2005).

Most of the respondents in this study mentioned that they were not satisfied with the quality of care provided at the health care facilities. Their dissatisfactions were mainly on the lack of drugs, inadequate equipment and personnel, long waiting times and unsympathetic attitude of healthcare providers. They complained that they were packed into one labour room to deliver without any consideration for privacy. In the respondents' view, EmOC "does not exist" in Gusau metropolis. They argued that, if EmOC was a lifesaving service then these services should be geared towards saving lives. Several women with obstetric complications were rejected for flimsy excuses like no registration card (associated with ANC) or no bed space, even if the patient was dying. These problems have serious consequences on utilisation of Emergency Obstetric Services.

In Gusau metropolis the Shagari hospital, which is a Primary Health Centre, offers 8 hours service (8am-4pm). The King Fahad Ibn Abdulazeez Women and Children Hospital and Farida General Hospital offer 24-hours service. The three health facilities are supposed to provide a range of services from maternal and child health care to general healthcare delivery. The operational capacity of health facilities for quality EmOC service provision is far from satisfactory. Inadequate and non-functional equipment's and supplies were observed in the facilities visited. This was evident in the survey findings as well. Most participants in the study area indicated lack of drugs in health facilities in both primary and secondary health care facilities, including the Government-owned facilities which provide free services. This has reduced such

facilities to mere consulting points and drugs where possible, are sought from elsewhere. This situation further limits access to adequate EmOC Services in the event of any complication. The blood banks do not have sufficient blood storage facilities for transfusion in case of emergencies. The hospitals have a number of staff in the various departments, yet, the number of Obstetricians and gynaecologists, theatre Nurses and anaesthetics is not encouraging considering the crucial role they play in providing EmOC services. In addition, these hospitals have low bed capacity.

5.1.1 Facility- based Case-Control Study

Risk factors for obstetric fistula

In this facility based case-control study, the result indicate that duration of labour for more than 24 hours, un- affordability of hospital services cost and more than 2 hours delay from onset of labour to decision to seek facility care, as risk factors for developing obstetrics fistula. Other risk factors included lack of formal education and lack of husband permission to attend antenatal care services. The findings of this study are consistent with a recent study in Kenya, where they found the duration of more than 24hours, a delay from onset of labour to a decision to seek care in the facility as risk factors for obstetric fistula Roca et al (2013).

This finding supports previous research into this obstetric fistula area which links Low level of education, socioeconomic status, and ignorance among the patients and their husbands contributed to the low rate of utilisation of skilled birth attendance Nigeria republic, Kenya and Ethiopia respectively (Ezeonwu, 2011; Kagia, 2013) (Gebrehiwot & Tewolde, 2014)

In this series majority of obstetric fistula patients and their spouses are non-literate and likewise in other studies, the contributory factors to the development of obstetric fistula and its consequences are intrinsically associated with low level of

education, poverty, non-availability / poor health facility utilization and low socio-economic status (Ijaiya et al., 2010; Tsui et al., 2007).

The low rate of education among the obstetric fistula patients is corroborated by UNFPA report that only 2% of 15-19 year-old married Nigerian girls are in schools, compared to 69% of unmarried girls (Hindin & Fatusi, 2009). The more education a girl receives the less she is to be married as a child. A girl of fewer than 18 years cannot make a fully informed choice whether to marry or not to marry therefore child marriage is regarded as a form of forced marriage and violation of girls' rights. This practice is seldom in developed countries but rampant in rural and impoverished areas of sub-saharan Africa and Asia (Warner, 2004), where opportunities and prospect for girl child are limited.

It hinders the achievement of Millennium development goals 3 (improve gender equality and empower women), MDG 4 (reduce child mortality) and MDG 5 (improve maternal health). Studies have shown that child marriage increases the likelihood of HIV infection and of domestic violence (Dunkle et al., 2004).

In most cases, men decide and enforce religious beliefs, practices and traditions even in matters that directly concern the women's reproductive health issues (Hunnicutt, 2009). Women attain high status only if she delivers many male children. In contrast to the southern part of the country, in Northern Nigeria, while few boys are sent to western school, the girls help in domestic work and are given away in early marriage, predisposing them to the risk of early pregnancy and to the risk of maternal morbidity and mortality. Female school enrollment in most Northern Nigerian communities is considered the waste of resources to the immediate family (Schildkrout, 1982).

The southern ethnic groups with a low prevalence of fistula are predominantly Christians, which could be related to the fact that, development of western education in Nigeria commenced as an upshot of Christian religion, introduced by the British

colonists; perhaps this is why western education was not readily embraced by the Northerners (Gann & Duignan, 1978). One of the most important factors contributing to the occurrence of obstetric fistula in developing countries is poverty (Muhammad, 2009). In this series, three variables affordability of health care cost, ownership of handphone and occupation of the participants was used as a proxy for estimation of the socioeconomic status participants. The finding depict majority of the control own a hand-phone, and has some form of business (Artisans) as means of income generation, compared to the cases where only half possess hand-phone and have a means of income generation. This finding was corroborated by a study in Africa which show women with obstetric fistula suffer ostracism (Ahmed & Holtz, 2007).

Unaffordability of transportation, consultation and medication cost, were cited as the reason for the preference for patronising traditional birth attendants and home deliveries in the qualitative seasons, many families view the health care bill as catastrophic. In this series, a majority of the control group could afford the healthcare bill when compared with the cases. This is similar to a study in northeastern Pakistan, Faisalabad (Muhammad 2009).

In northern Nigeria, when a woman for whatever reason (health related inclusive) leaves her matrimonial home without her husband permission is considered an abomination(Kalunta-Crumpton, 2016). There is a strong belief that women's movement must be under strict male control and permission from the husband or a suitable male surrogate must be obtained before money can be spent on health care (Ijaya 2010).

The majority of the patients in this series had early marriage and pregnancy, which is similar to findings from other parts of sub-Saharan Africa, where most of the fistula patients were married before the age of 20 years (Nour, 2006). Nigeria

demographic and health survey 2008 shows that north-west Nigeria had the least age at first marriage in Nigeria (Rai, Singh, & Singh, 2012).

Women that marry early are more likely to have their first child earlier that is why obstetric fistula is most common among primiparous women in areas, where early marriage is prevalent as in this study centres, and many other communities in developing countries. A study from Africa countries on adolescent marriages report, girls are giving out in marriage before attaining menarche (Wall, 2006). In child pregnancy, the pelvis has not reached its full development for safe passage of a term foetus, hence the young girl is prone to developing cephalo-pelvic disproportion and ultimately prolong obstructed labour. If the obstruction is not relieved early it leads to pressure necrosis and vesicovaginal fistula.

Compared to control, a majority of cases were shorter than (<1.5cm), and the when tested by itself, short stature was significantly associated with fistula. Small stature is related to small pelvic capacity (pelvic contracture) which increases the risk of developing obstructed labour during delivery, consequently leading to obstetric fistula. This is supported by studies from Zaria and Sokoto, Nigeria where a majority of fistula patients were found to have short stature compared to other populations (Rahimi, Capes, & Ascher, 2013; Udeh, 2015). However, when controlled for other variables, short stature was not significant.

In this study, antenatal care uptake among the women in the control group was higher compared to the fistula group. However, antenatal care uptake was not significantly associated with fistula at multivariate analysis. There has been massive community mobilisation going on by the government on the need to attend antenatal care for all pregnant women. This had impacted in the antenatal care coverage but facility delivery is still low, as shown in the qualitative study above. Further analysis showed that antenatal care uptake was not associated with place of delivery and type of

delivery. This was also true in a study conducted in Zambia, where 97.5% of fistula patients had an antenatal care in the index pregnancy (Holme, Breen, & MacArthur, 2007).

Although both cases and control reported to had reached the facility from home in less than 2hrof onset of labour. The women who had to walk had a higher risk of fistula compared to those who could afford to travel in a car or taxi. The majority of the respondents in this study stayed within less than 2hr from home to the health facilities. Most of the patients mentioned that it is not the distance, but the unavailability of transportation was the major barrier to go to a health facility (In qualitative enquiries above). When they do not own a family car or cannot afford to hire a car or taxi, it is not easy for the women to reach the health facility safely and in time, especially at night. A similar finding from Northeastern Nigeria showed that distance of more than 3km from the women's homes to the health facilities is a risk factor for obstetrics fistula (Melah et al., 2007). Transport problems and long distances have been identified as contributors to delay in reaching the health facilities (Holme et al., 2007; Wall & Lewis, 2012b). Access to subsidised hospital shuttle across the community will serve as an ad-hoc solution to this problem. Meanwhile, hospitals need to be improved by providing better low-cost transportation services (such as ambulances) to enable women to get to facilities (any time of the day) in good time. (COMBS, Murphy, & Laros Jr, 1991). Several studies have reported a median duration of labour among obstetric fistula patients ranging from 20 to 28 hours and that more than 70% to 96% of patients had been in labour for more than 24 hours (Tebeu, De Bernis, Doh, Rochat, & Delvaux, 2009). In this study, hours of labour was significantly associated with fistula. All the women in the control group delivered within 12 hours of labour, while in the fistula group only 24% of the women delivered with 12 hours. This observation is similar to a finding in a Kenyan study, where it was reported that 78% of fistula patients went

through long hours of labour (McFadden, & Mabeya, 2011). As reported in other studies as well, prolonged obstructed labour is the most common cause of obstetric fistula (Ampofo et al, 1989; Lewis, Karshima, Kirschner, & Arrowsmith, 2004). Followed by *Gishiri cut*, (incision made on the anterior vaginal wall by Hausa traditional health practitioners to treat infertility, amenorrhea or to relieve obstructed labour) which accounted for 6.2% cases of obstetric fistula in Maiduguri (Ampofo. et al, 1990). Other causes included gynaecological operations, advanced cervical cancer, caesarian section, forceps delivery, uterine rupture, craniotomy and traumatic vaginal laceration resulting from trauma/fall (Orji, Aduloju, & Orji, 2007).

In addition to the physical trauma suffered by obstetric fistula patients, they also suffer both psychological and social trauma. One of the undesirable outcomes of obstetric fistula secondary to obstructed labour is perinatal loss, with sex predilection (Male children) as depicted by studies in Zambia and Niger Republic reported 78% and 91% stillbirths in obstetric fistula-obstructed labour, respectively (Holme et al., 2007; Meyer et al., 2007). During prolonged obstructed labour the fetus may experience fatal hypoxemia, fetal distress and subsequently fetal death. If delivered before fetal death, the baby may have birth asphyxia, neurological complications or neonatal death.

In this series, higher frequency of separation/divorce was noted in obstetric fistula patients than among the controls. This observation is similar to the findings in Ethiopia, Niger republic, and Zambia findings (Holme et al., 2007; Nafiou et al., 2007; Tsui, Creanga, & Ahmed, 2007). In some situations, the obstetric fistula patients are abandoned by their family members and ostracised by their communities (Lewis & De Bernis, 2006).

All the women in this study had some knowledge on contraceptives. Some had used the modern contraception methods while others had used traditional methods. The use of modern contraception is unique among medical interventions in terms of its

potential benefits in reducing poverty, and maternal and child mortality and morbidity. However, in many poor countries, especially in sub-Saharan Africa, high fertility and high unmet need for family planning exist and the populations are projected to double in the next few decades (Cleland et al., 2006).

The 2008 Nigerian demographic and health survey revealed that northern Nigeria had the highest fertility rate and low utilisation of modern contraceptives. The national average fertility rate in Nigeria is currently at 5.7 children per women but in the Northern zone, it is 7.3 children per women (Nigerian Health Demographic Survey & (NHDS), 2003). In general, the contraceptive prevalence rate in southern Nigeria was reported as 27 % while in the northern part it is seven percent. Teenage pregnancy accounts for 8% in the south-east and it is 45 % in the northern part. The use of modern contraceptives among married women in the southern zone was reported as 21% in contrast to three percent (3%) in the north-western zone (Bankole et al., 2008).

But interestingly participants in this study expressed willingness to use modern contraception which may help them as a means to delay pregnancy till they attain maturity, or completely healed for those with fistula defect. Promotion of the use of modern contraception in countries with high birth rates has the potential to reduce poverty and hunger and avert 32% of all maternal deaths and nearly 10% of childhood deaths (Cleland et al., 2006). It will also influence substantially to improve women's esteem, and achievement of individual aspiration

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

This chapter presents conclusions and recommendations based on the research findings. The conclusions are drawn based on the findings of this study, particularly on emergency obstetric care services and obstetric fistula. The limitations and strength of this study as well its public health implications are also discussed.

6.1 Conclusions

This study was conducted in Gusau metropolis of Zamfara State, with a view to assessing the state of availability, affordability and utilisation of emergency obstetric care services. Findings from the survey and interviews clearly indicated that emergency obstetric care services problems still exist in the community. As per utilisation of facilities, this study concludes that though there is knowledge on obstetric problems and a high-level awareness on the health facilities that render emergency obstetric care services, yet, utilisation is very low. The findings of this study revealed that socio-economic factors were the major determinants influencing effective utilisation. The cost of EmOC services are perceived to be very expensive and therefore not affordable to the majority. Compounding the problem is the healthcare providers' negative attitudes which posed as a major barrier to utilization of EmOC. This study concludes that physical proximity alone does not necessarily enhance utilization of EmOC services. Transportation facilities and affordability to access these facilities are equally important.

This study also concludes that the availability of skilled personnel and adequate material resources required to institute appropriate interventions which are important in saving the lives of pregnant women who develop obstetric complications are lacking (in some facilities) and inadequate in the facilities. Even though women acknowledged the importance of ANC, yet, many indicated a preference for home delivery and only attend ANC for fear of being rejected at the health facility. Another factor favouring home

delivery is the issue of privacy, which is related to the religious and cultural norms of the people that go against exposing one's nakedness. This factor also affected the utilisation of EmOC services.

Dislike for facility delivery and delay in seeking care in times of complication are mainly attributed to poverty. Seeking EMoC Services involves a series of cash demanding procedures, from deciding to seek care, transportation, to the payment of other medical bills. Financial constraints have prevented many people from utilizing such services even when there was a need. It is worth noting that the ill-equipped facilities and the current poverty situation in the country have further compounded the problem.

The conclusion above explained why obstetric fistula remains a public health issue of concern in north-west Nigeria, where child marriage, low education, poverty, low skilled birth attendance rate and low contraceptive uptake are prevalent.

6.2 Strengths of the Study

This study was a high impact study in North-western Nigeria, utilising a Mix-Method, qualitative and quantitative approach. This approach for studying Emergency obstetric care services/ obstetric fistula has never been used extensively in the northern region of Nigeria.

Worldwide, most of the studies on Emergency obstetric care services and obstetric fistula were conducted separately, ignoring the role of emergency obstetric care services in reducing maternal morbidity and mortality. The triangulation of evidence by corroboration of causes of disease with possible risk factors will provide convincing evidence to stakeholders and policy makers to embrace evidence-based decision-making process in formulating policies that will have a direct impact on the communities.

In terms of influencing community gatekeepers on the need to embrace only the good traditional practices, this study has to some extent identified some "hidden" social-cultural myths and misconceptions.

6.3 Limitations of the Study

The data represents only a sample of women of reproductive age, and also some facility based patients in obstetric fistula hospital and only those located in three states; Katsina, Sokoto and Zamfara. There are 36 states in Nigeria. There is a lot of variation in terms of socio-economic, cultural and religious practices among the geopolitical zones in Nigeria. Hence, the generalizability issue to all states should be interpreted with caution. The findings of this can be generalised to the north-western zone of Nigeria.

The selection of cases-and-controls from the hospital may have led to some selection bias by recruiting patients with a greater tendency to seek health intervention for themselves. Further, the recall bias is one of the major challenges for this type of study.

6.4 Recommendations

1. There is the need for the Zamfara State Government, in partnership with donor agencies to work to improve the quality of maternal health care services in the state. In particular, there is the need to upgrade the quality of EmOC facilities, recruit more medical personnel and upgrade the skills of existing health workers.

2. From the study, it is obvious that many women die as a result of obstetric complications; hence there is an urgent need for the Government to strengthen the capacity of EmOC facilities and provide free and readily available drugs and services to women who develop obstetric complications in the State. As a policy, the

government must provide relevant equipment's, accompanied by training in EmOC to support the use of equipment.

3. In the Primary Health Centres, lower cadres of health workers, in particular, Community Health and Extension Workers, are often involved in delivery services. Therefore a Modified Life Saving Skills (MLSS) Training programme should be institutionalized with regular drills for obstetric emergencies.

4. The health personnel need to be sensitised in the areas of service delivery and attitude. The cadre of healthcare providers must be thought the importance of good human relations as this will enhance positive attitude towards patients and consequently health care utilization. Being sympathetic to their patients the healthcare providers will be able recognise patients' health related problems early.

5. Well-to-do individuals in the society should assist by donating to the hospitals. The communities should also contribute money and procure ambulances for conveying pregnant women with emergency cases to the hospitals. This will encourage women to go to hospital if a complication arises, thereby reducing maternal mortality and morbidity in the area.

6. Obstructed labour should be recognised early and cases must be referred to health care facilities as soon as possible so that immediate care can be provided

7. Treatment for obstetric cases and women with such complications should be provided in an urgent and adequate manner, without delays. These women must be treated with self-respect and dignity.

8. Religious leaders should sensitise husbands towards the use of hospital services and the need to allow their wives utilise EmOC /family planning services when the need arise. This can be achieved through sermons and media presentation.

9. Women must be economically empowered to enable them to participate in decision-making concerning their reproductive health. Advocacy on child spacing campaign for both men and women of reproductive age group.

10. Programmes related to free maternal and child health care should be properly implemented and monitored by god-fearing individuals.

11. The government should educate the public, especially the pregnant women and the people involved in decision making. Formal education should be made free and mandatory for girls up to high school.

12. The State House of Assembly should formulate legislation against negative traditional practices such as early marriage and childbearing, *gishiri cut* and gender inequality such as women waiting for permission before seeking medical attention.

13. Transport system should be improved by providing hospital shuttle for the less privileged women.

14. There must be the provision of a safety net through strengthening the use of community health insurance scheme. The soft interest-free loan must be made available to community members.

15. The men and women must be made aware of the advantages of family planning. The use of modern contraception is one of the important aspects of family planning but many women are still seeking traditional contraceptive methods.

16. The referral system between the different levels of facilities must be improved. Efficient communication between the community members and staff of health care facility can be promoted by using modern technologies like a mobile phone.

17. The government should provide scholarships to encourage female students to attend training programmes on maternal health.

6.5 Public Health Implications

Obstetric fistulas can be prevented by the adequate intrapartum care that will detect the abnormal progression of labour and would enable timely intervention before labour become obstructed. Simple graphic analysis of the progress of labour (the partograph) used by trained birth attendants reduces maternal deaths, prevents prolonged labour, and even results in a decrease in operative intervention (by allowing normal labour to proceed without unnecessary interference); yet even this level of basic obstetric care is absent throughout most of the developing world. The provision of essential obstetric services has never been a top priority for the governments of countries where the fistula problem is most severe. The maternal health programmes that do exist are often restricted to the provision of rudimentary prenatal care or emphasise birth control, but family planning programmes and antenatal health care services by themselves will never have more than a marginal effect on maternal mortality. Most maternal deaths occur due to unexpected complications that cannot be predicted in advance but demand prompt intervention when they occur: haemorrhage, hypertensive crises, sepsis, complications of unsafe abortion, and obstructed labour. The international public health community has not emphasised the critical need for surgical services in the developing world, and this problem has been made worse by the lack of meaningful ongoing communication between the public-health community and clinical obstetricians and gynaecologists. In the meantime, the backlog of unrepaired fistulas continues to increase throughout these impoverished countries. Since fistulas by themselves are not fatal, the millions of women thus afflicted continue to live lives of unremitting misery, while tens of thousands more are added to their ranks every year.

6.6 Implications for Future Research

For the future, emphasis should focus on the impact of programmes on women empowerment and maternal health care-seeking behaviour which are viewed as important strategies to reduce preventable maternal morbidity and mortality worldwide. Global efforts to empower women have aimed to redress gender-based inequalities by implementing programmes to increase opportunity, control, and inclusion for women. Empowered women, particularly those who are more autonomous, have increased pregnancy health care-seeking behaviour and are more likely to have skilled delivery attendance, utilise modern contraceptive methods and have lower infant mortality. At the same time, there has been increasing emphasis to encourage greater male participation in women's health (Becker, 1985).

In addition, specific programmes on increasing men's involvement in ANC are hope to encourage husbands to support women's care from pregnancy to delivery, and throughout the postnatal period. Research suggests that men's presence during ANC can improve uptake of institutional deliveries, postnatal service utilisation, and spousal communication. It is also considered an important strategy for reducing maternal morbidity and mortality by enabling them to sufficiently prepare for birth and avoid delays in seeking healthcare for obstetric emergencies

REFERENCES

Abdelgadir, E. (2012). *Exploring Barriers to the Utilization of Mental Health Services at the Policy and Facility Levels in Khartoum State, Sudan.* University of Washington.

Abdulraheem, I. S., Olapipo, A. R., & Amodu, M. O. (2012). Primary Health Care in Nigeria: Critical issues and strategies for enhancing the use by the rural communities. *Journal of Public Health and Epidemiology, 4*(1), 5-13.

AbouZahr, & Carla. (2003). Global burden of maternal death and disability. *British medical bulletin, 67*(1), 1-11.

AbouZahr, C., & Wardlaw, T. (2001). Maternal mortality at the end of a decade: signs of progress? *Bulletin of the world health organization, 79*(6), 561-573.

Adamu, Y., & Salihu, H. (2002). Barriers to the use of antenatal and obstetric care services in rural Kano, Nigeria. *Journal of obstetrics and gynaecology, 22*(6), 600-603.

Adegoke, A. A., Mani, S., Abubakar, A., & Van Den Broek, N. (2013). Capacity building of skilled birth attendants: a review of pre-service education curricula. *Midwifery, 29*(7), e64-e72.

Adeyinka, A., Sia, M., Christine, O., & Adetoro, A. (2014). Utilisation of skilled birth attendance in Northern Nigeria: a cross-sectional survey. *Midwifery, 30*(1), e7-e13.

Ahmed, S., & Holtz, S. (2007). Social and economic consequences of obstetric fistula: life changed forever? *International journal of Gynecology & obstetrics, 99*, S10-S15.

Airede, L., & Ekele, B. (2003). Adolescent maternal mortality in Sokoto, Nigeria. *Journal of obstetrics and gynaecology, 23*(2), 163-165.

Ajala, A. S. (2009). *Rural health provisioning: socio-cultural factors influencing maternal and child health care in Osun State, Nigeria*: Peter Lang.

Akinyemi, A. I., & Isiugo-Abanihe, U. C. (2014). Demographic dynamics and development in Nigeria. *Etude de la Population Africaine, 27*(2), 239.

Ali, Abdullahi, & Danchua. (2015). *Knowledge of and challenges experienced by health workers managing maternity patients in primary health care (PHC) clinics of Yobe State, Nigeria.*

Alison, M., & Jason, F. (1995). The Cairo conference on population and development: A new paradigm? *Population and development review*, 223-260.

Althabe, & NMaaruf. (2008). Strategies for improving the quality of health care in maternal and child health in low-and middle-income countries: an overview of systematic reviews. *Paediatric and perinatal epidemiology, 22*(s1), 42-60.

Ampofo. et al. (1989). Epidemiology of vesico--vaginal fistulae in northern Nigeria. *West African Journal Of Medicine, 9*(2), 98-102.

Ampofo. et al. (1990). Epidemiology of Vesico-Vaginal fistulae in northern Nigeria. *West African Journal of Medicine. , 1990;9:*, 98-102.

Ameyaw, E. A. (2011). *An Assessment of the Effect of the Free Maternal Care Policy on the Utilisation of Maternal Care Services in the New Juaben Municipality.* Institute of Distance Learning, Kwame Nkrumah University of Science and Technology, Kumasi.

Andrew, B. (2004). Obstetric Fistula in Ilorin, Nigeria. *PLoS Med, 1*(1), e2.

Ashimi, A. O., Amole, T. G., & Iliyasu, Z. (2015). Prevalence and predictors of female genital mutilation among infants in a semi urban community in northern Nigeria. *Sexual & Reproductive Healthcare, 6*(4), 243-248.

Asuzu, M. C. (2004). The necessity for a health systems reforms in Nigeria. *Journal of Community Medicine and Primary Health Care, 16*(1), 1-3.

Audu, B., Kullima, A., & Bako, B. (2008). Epidemiology of vesico-vaginal fistula: No longer a calamity of teenagers. *Journal of obstetrics and gynaecology, 28*(4), 432-433.

Babalola, S., & Fatusi, A. (2009). Determinants of use of maternal health services in Nigeria-looking beyond individual and household factors. *BMC pregnancy and childbirth, 9*(1), 1.

Ban, K.-m. (2010). *Global strategy for women's and children's health*: UN.

Bankole, A., Sedgh, G., Okonofua, F., Imarhiagbe, C., Hussain, R., & Wulf, D. (2009). *Barriers to safe motherhood in Nigeria*: Guttmacher Institute Washington DC.

Bankole, A., Sedgh, G., Oye-Adeniran, B. A., Adewole, I. F., Hussain, R., & Singh, S. (2008). Abortion-seeking behaviour among Nigerian women. *Journal of Biosocial Science, 40*(02), 247-268.

Barnes-Josiah, D., Myntti, C., & Augustin, A. (1998). The “three delays” as a framework for examining maternal mortality in Haiti. *Social Science & Medicine, 46*(8), 981-993.

Basheer, S. A., & Pumpaibool, T. (2015). Knowledge, attitude and maternal health care utilization among married women of reproductive age towards vesicovaginal fistula in kebbi state, nigeria. *J Health Res, 29*(2), 93-100.

Becker, G. S. (1985). Human capital, effort, and the sexual division of labor. *Journal of labor economics*, S33-S58.

Bello, F. A., Morhason-Bello, I. O., Olayemi, O., & Adekunle, A. O. (2011). Patterns and predictors of self-medication amongst antenatal clients in Ibadan, Nigeria. *Nigerian Medical Journal, 52*(3), 153.

Bergström, S. (2000). Appropriate obstetric technologies to deal with maternal complications. *Safe Motherhood Strategies: a Review of the Evidence*.

Blum, R. W. (1991). Global trends in adolescent health. *Jama, 265*(20), 2711-2719.

Bodunrin. (1999). Female Genital Mutilation: Perceptions and beliefs in a Nigerian rural community. *African Anthropologist, 6*(1), 72-81.

Bolatinubu, M. (2013). Tuberculosis comorbidity with communicable and non-communicable diseases: integrating health services and control efforts. *The Lancet infectious diseases, 13*(5), 436-448.

Breslow, N. (1982). Design and analysis of case-control studies. *Annual review of public health, 3*(1), 29-54.

Brook, R. H., & Williams, K. N. (1975). Quality of health care for the disadvantaged. *Journal of community health, 1*(2), 132-156.

Bruwer, B., Emsley, R., Kidd, M., Lochner, C., & Seedat, S. (2008). Psychometric properties of the Multidimensional Scale of Perceived Social Support in youth. *Comprehensive Psychiatry, 49*, 195–201.

Buor, D., & Bream, K. (2004). An analysis of the determinants of maternal mortality in sub-Saharan Africa. *Journal of Women's Health, 13*(8), 926-938.

Cleland. et al. (2014.). National, regional, and worldwide estimates of stillbirth rates in 2009 with trends since 1995: a systematic analysis. *Lancet,, 377(9774)*(1319), 30.

Campbell, O. M., Graham, W. J., & group, L. M. S. S. s. (2006). Strategies for reducing maternal mortality: getting on with what works. *The Lancet, 368*(9543), 1284-1299.

Canty-Mitchell, J., & Zimet, G. D. (2000). Psychometric properties of the Multidimensional Scale of Perceived Social Support in Urban Adolescents. *Am J Community Psychol 28*, 391-400.

Capes, T., Ascher-Walsh, C., Abdoulaye, I., & Brodman, M. (2011). Obstetric fistula in low and middle income countries. *Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine, 78*(3), 352-361.

Casebeer, A. L., & Verhoef, M. (1997). Combining qualitative and quantitative research method: Considering the possibilities for enhancing the study of chronic diseases *Chronic Diseases in Canada, 18*, 130-135.

Cham, M., Sundby, J., & Vangen, S. (2005). Maternal mortality in the rural Gambia, a qualitative study on access to emergency obstetric care. *Reprod health*, *2*(1), 3.

Cheng S-T, & Chan A. C. M. (2004). The multidimensional scale of perceived social support: dimensionality and age and gender differences in adolescents. *Personality and Individual Differences*.

Cheng, S. T., & Chan, A. C. (2004). The multidimensional scale of perceived social support: dimensionality and age and gender differences in adolescents. *Pers Individ Dif, 37*, 1359–1369.

Clarke, P. (2003a). Towards a greater understanding of the experience of stroke: Integrating quantitative and qualitative methods. *Journal of Aging Studies, 17*, 171–187.

Clarke, P. (2003b). Towards understanding of the experience of stroke: Integrating quantitative and qualitative methods. *Journal of aging studies, 17*, 171-187.

Clarke, P. (2009). Understanding the Experience of Stroke: A Mixed-Method Research Agenda. *The Gerontologist, 49*(3), 293–302.

Cleland, J., Bernstein, S., Ezeh, A., Faundes, A., Glasier, A., & Innis, J. (2006). Family planning: the unfinished agenda. *The Lancet, 368*(9549), 1810-1827.

COMBS, C. A., Murphy, E. L., & Laros Jr, R. K. (1991). Factors associated with postpartum hemorrhage with vaginal birth. *Obstetrics & Gynecology*, *77*(1), 69-76.

Commission, N. P. NDHS 2008. *National Population Commission. ORC Marco, Calverton*.

Curry, L. A., Nembhard, I. M., & Bradley, E. H. (2009). Qualitative and Mixed-Method Provide Unique Contributions to Outcome Research. *Circulation, 119*, 1442-1452.

Deborah, M. (1993). *Safe motherhood programs: options and issues*: Columbia University, Center for Population and Family Health.

Doctor, H. V., Findley, S. E., Ager, A., Cometto, G., Afenyadu, G. Y., Adamu, F., & Green, C. (2012). Using community-based research to shape the design and delivery of maternal health services in Northern Nigeria. *Reproductive health matters, 20*(39), 104-112.

Donnay, F. (2000). Maternal survival in developing countries: what has been done, what can be achieved in the next decade. *International journal of Gynecology & obstetrics, 70*(1), 89-97.

Dunkle, K. L., Jewkes, R. K., Brown, H. C., Gray, G. E., McIntryre, J. A., & Harlow, S. D. (2004). Gender-based violence, relationship power, and risk of HIV infection in women attending antenatal clinics in South Africa. *The Lancet, 363*(9419), 1415-1421.

Edward. et al. (2015). Obstetric fistula management and predictors of successful closure among women attending a public tertiary hospital in Rwanda: a retrospective review of records. *BMC research notes, 8*(1), 774.

Edwards, L. M. (2004). Measuring Perceived Social Support in Mexican American Youth: Psychometric Properties of the Multidimensional Scale of Perceived Social Support. *Hispanic Journal of Behavioral Sciences, 26*(2), 41-48.

Ejembi, Alti-Muazu, & Dahiru. (2004). Utilization of maternal health services by rural Hausa women in Zaria environs, northern Nigeria: has primary health care made a difference? *Journal of Community Medicine and Primary health care, 16*(2), 47-54.

Elkins, & Thomas. (1994). Surgery for the obstetric vesicovaginal fistula: a review of 100 operations in 82 patients. *American journal of obstetrics and gynecology, 170*(4), 1108-1120.

Elneil, s., & mulete, m. (2010). New initiatives in evidence-based learning in obstetric fistula surgery in the developing world. *RCOG, 3*(1), 10-13.

Elumilade, D., Asaolu, T., & Adereti, S. (2006). Appraising the institutional framework for poverty alleviation programmes in Nigeria. *International Research Journal of Finance and Economics, 3*(9), 66-77.

Essendi, H., Mills, S., & Fotso, J.-C. (2011). Barriers to formal emergency obstetric care services' utilization. *Journal of Urban Health, 88*(2), 356-369.

Essien, E., & Ifenne, D. (1997). Community loan funds and transport services for obstetric emergencies in northern Nigeria. *International journal of Gynecology & obstetrics, 59*, S237-S244.

Ezeonwu, M. C. (2011). Maternal birth outcomes: Processes and challenges in Anambra State, Nigeria. *Health care for women international, 32*(6), 492-514.

Farrington, J., & Farrington, C. (2005). Rural accessibility, social inclusion and social justice: towards conceptualisation. *Journal of Transport geography, 13*(1), 1-12.

Fauveau, V., & Donnay, F. (2006). Can the process indicators for emergency obstetric care assess the progress of maternal mortality reduction programs? An examination of UNFPA Projects 2000–2004. *International journal of Gynecology & obstetrics, 93*(3), 308-316.

Federal Republic of Nigeria. (2009). Annual Abstract of Statistics: National Bureau of Statistics.

Filippi, V., Ronsmans, C., Campbell, O. M., Graham, W. J., Mills, A., Borghi, J., . . . Osrin, D. (2006). Maternal health in poor countries: the broader context and a call for action. *The Lancet, 368*(9546), 1535-1541.

Finlayson, K., & Downe, S. (2013). Why do women not use antenatal services in low- and middle-income countries? A meta-synthesis of qualitative studies. *PLoS Med, 10*(1), e1001373.

Gafoor. et al. (2006). Unsafe abortion: the preventable pandemic. *The Lancet, 368*(9550), 1908-1919.

Gafoor, L. A. Research Area: Developmental.

Gage, A. J. (2007). Barriers to the utilization of maternal health care in rural Mali. *Social Science & Medicine, 65*(8), 1666-1682.

Galadanci, H., Ejembi, C., Iliyasu, Z., Alagh, B., & Umar, U. (2007). Maternal health in Northern Nigeria—a far cry from ideal. *BJOG: An International Journal of Obstetrics & Gynaecology, 114*(4), 448-452.

Gann, L. H., & Duignan, P. (1978). *The Rulers of British Africa, 1870-1914*: Stanford University Press.

Garba, Magashi, A., & Sarah, B. (2014). The Nigeria Independent Accountability Mechanism for maternal, newborn, and child health. *International journal of Gynecology & obstetrics, 127*(1), 113-116.

Ger, G. (1992). The positive and negative effects of marketing on socioeconomic development: The Turkish case. *Journal of Consumer Policy, 15*(3), 229-254.

Gething, P. W., Johnson, F. A., Frempong-Ainguah, F., Nyarko, P., Baschieri, A., Aboagye, P., . . . Atkinson, P. M. (2012). Geographical access to care at birth in Ghana: a barrier to safe motherhood. *BMC Public health, 12*(1), 991.

Gebrehiwot, Y., & Tewolde, B. T. (2014). Improving maternity care in Ethiopia through facility based review of maternal deaths and near misses. *International journal of Gynecology & obstetrics, 127*, S29-S34.

Giddings, L. S., & Grant, B. M. (2006). Mixed methods research for the novice researcher. *Contemporary Nurse, 23*, 30-11.

Goh, J. T., Browning, A., Berhan, B., & Chang, A. (2008). Predicting the risk of failure of closure of obstetric fistula and residual urinary incontinence using a classification system. *International Urogynecology Journal, 19*(12), 1659-1662.

Gohou, V., Ronsmans, C., Kacou, L., & Yao, K. (2004). Responsiveness to life-threatening obstetric emergencies in two hospitals in Abidjan, Côte d'Ivoire. *Tropical Medicine & International Health, 9*(3), 406-415.

Goni, h. l. (2005). *Estimation of maternal mortality using the indirect sisterhood method in fika lga, yobe state, nigeria.* AHMADU BELLO UNIVERSITY ZARIA.

Green, J., & Britten, N. (1998). Qualitative research and evidence based medicine. *British Medical Journal, 316*, 1230–1232.

Group, C. C. W. (2008). Countdown to 2015 for maternal, newborn, and child survival: the 2008 report on tracking coverage of interventions. *The Lancet, 371*(9620), 1247-1258.

Hamilton, B. E., Hoyert, D. L., Martin, J. A., Strobino, D. M., & Guyer, B. (2013). Annual summary of vital statistics: 2010–2011. *Pediatrics*, peds. 2012-3769.

Harrison, K. A. (1997). Maternal mortality in Nigeria: the real issues. *African Journal of Reproductive Health/La Revue Africaine de la Santé Reproductive, 1*(1), 7-13.

Helleringer, S., Doctor, H. V., Bairagi, R., Findley, S. E., & Dahiru, T. (2011). Northern Nigeria maternal, newborn and child health programme: selected analyses from population-based baseline survey. *The Open Demography Journal, 4*, 11-21.

Helman, C. G. (2007). *Culture, health and illness*: CRC Press.

Hill, K., Thomas, K., AbouZahr, C., Walker, N., Say, L., Inoue, M., . . . Group, M. M. W. (2007). Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data. *The Lancet, 370*(9595), 1311-1319.

Hindin, M. J., & Fatusi, A. O. (2009). Adolescent sexual and reproductive health in developing countries: an overview of trends and interventions. *International perspectives on sexual and reproductive health, 35*(2), 58-62.

Hogan, M. C., Foreman, K. J., Naghavi, M., Ahn, S. Y., Wang, M., Makela, S. M., . . . Murray, C. J. (2010). Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5. *The Lancet, 375*(9726), 1609-1623.

Holme, A., Breen, M., & MacArthur, C. (2007). Obstetric fistulae: a study of women managed at the Monze Mission Hospital, Zambia. *BJOG: An International Journal of Obstetrics & Gynaecology, 114*(8), 1010-1017.

Hung, O. L., & L, N. (2004). Tintinalli′ s Emergency Medicine: A Comprehensive Study Guide.

Hunnicutt, G. (2009). Varieties of patriarchy and violence against women: Resurrecting" patriarchy" as a theoretical tool. *Violence against women*.

Ibekwe, P. C. (2011). Need to Intensify emergency obstetric care services in Nigeria. *Journal of Public Health in Africa, 2*(2), 33.

Ibiwunmi, j. (2011). *Maternal health care delivery in northern nigeria: An assessment of rotary international's intervention programme (2000-2007).*

Idris, S., Gwarzo, U., & Shehu, A. (2007). Determinants of place of delivery among women in a semi-urban settlement in Zaria, northern Nigeria. *Annals of African Medicine, 5*(2), 68-72.

Ifenne, D., Essien, E., Golji, N., & Sabitu, K. (1997). Improving the quality of obstetric care at the teaching hospital, Zaria, Nigeria. *International journal of Gynecology & obstetrics, 59*, S37-S46.

Ijaiya, M., Rahman, A., Aboyeji, A., Olatinwo, A., Esuga, S., Ogah, O., . . . Adeniran, A. (2010). Vesicovaginal fistula: a review of nigerian experience. *WEST AFRICAN JOURNAL OF MEDICINE, 29*(5).

Iloabachie, G., & Meniru, G. (1990). The increasing incidence of anaemia in pregnancy in Nigeria. *Orient J Med, 2*(4), 194-198.

Inimgba NM, O. A., John CT. (1999). Vesico-Vaginal Fistulae in Port Harcourt, Nigeria. . *Trop J Obstet Gynaecol., 1999;16(1):*, 49-51.

Islam, M., Hossain, M., Islam, M., & Haque, Y. (2005). Improvement of coverage and utilization of EmOC services in southwestern Bangladesh. *International journal of Gynecology & obstetrics, 91*(3), 298-305.

Jack, F., Norman, W., & Helen, H. (1993). *How to design and evaluate research in education* (Vol. 7): McGraw-Hill New York.

Jammeh, A., Sundby, J., & Vangen, S. (2011). Barriers to emergency obstetric care services in perinatal deaths in rural gambia: a qualitative in-depth interview study. *ISRN obstetrics and gynecology, 2011*.

Johnson, R. B., Onwuegbuzie, A., & Turner, L. A. (2007). Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research, 1*, 112-133. doi:DOI: 10.1177/1558689806298224

Jokhio, A. H., Winter, H. R., & Cheng, K. K. (2005). An intervention involving traditional birth attendants and perinatal and maternal mortality in Pakistan. *New England Journal of Medicine, 352*(20), 2091-2099.

Judith, T. (2004). A new classification for female genital tract fistula. *Australian and New Zealand journal of obstetrics and gynaecology, 44*, 502-504.

Kabakyenga, J. K., Ostergren, P.-O., Turyakira, E., & Pettersson, K. O. (2011). Knowledge of obstetric danger signs and birth preparedness practices among women in rural Uganda. *Reprod health, 8*(1), 33.

Kabir, M., Iliyasu, Z., Abubakar, I., & Umar, U. (2003). Medico-social problems of patients with vesicovaginal fistula in Murtala Mohammed Specialist Hospital, Kano.

Kana, M. A., Doctor, H. V., Peleteiro, B., Lunet, N., & Barros, H. (2015). Maternal and child health interventions in Nigeria: a systematic review of published studies from 1990 to 2014. *BMC Public health, 15*(1), 334.

Kees, W. (1995). Surgical classification of obstetric fistulas. *International journal of Gynecology & obstetrics, 49*(2), 161-163.

Kagia, C. W. (2013). *Delivery Practices And Associated Factors Among Mothers Attending MCH Clinics At Selected Health Facilities In Nyandarua South District, Central Kenya*

Khan, K. S., Wojdyla, D., Say, L., Gülmezoglu, A. M., & Van Look, P. F. (2006). WHO analysis of causes of maternal death: a systematic review. *The Lancet, 367*(9516), 1066-1074.

Khisa, A. M., & Nyamongo, I. K. (2012). Still living with fistula: an exploratory study of the experience of women with obstetric fistula following corrective surgery in West Pokot, Kenya. *Reproductive health matters, 20*(40), 59-66.

Kalunta-Crumpton, A. (2016). Attitudes and solutions toward intimate partner violence: Immigrant Nigerian women speak. *Criminology and Criminal Justice*, 1748895816655842.

Kruk, M. E., Mbaruku, G., McCord, C. W., Moran, M., Rockers, P. C., & Galea, S. (2009). Bypassing primary care facilities for childbirth: a population-based study in rural Tanzania. *Health policy and Planning, 24*(4), 279-288.

Kyomuhendo, & Bantebya, G. (2003). Low use of rural maternity services in Uganda: impact of women's status, traditional beliefs and limited resources. *Reproductive health matters, 11*(21), 16-26.

Lewis, Karshima, J. A., Kirschner, C., & Arrowsmith, S. D. (2004). The obstetric vesicovaginal fistula: characteristics of 899 patients from Jos, Nigeria. *American journal of obstetrics and gynecology, 190*(4), 1011-1016.

Lawn, J. E., Kerber, K., Enweronu-Laryea, C., & Cousens, S. (2010). *3.6 million neonatal deaths—what is progressing and what is not?* Paper presented at the Seminars in perinatology.

Lawson, J. (1992). Vaginal fistulae. *Journal of the Royal society of Medicine, 85*(5), 254.

Leff, A. P., & Goldstein, L. B. (2003). Survey Methods in Stroke Medicine. *Seminars in Cerebrovascular Diseases and Stroke, 3*(2), 77-84.

Lempp, H., & Kingsley, G. (2007). Qualitative assessments. *Best Practice & Research Clinical Rheumatology, 21*(5), 857–869.

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-based dentistry, 7*(1), 24-25.

Lewis, G. (2008). Reviewing maternal deaths to make pregnancy safer. *Best practice & research Clinical obstetrics & gynaecology, 22*(3), 447-463.

Lewis, G., & De Bernis, L. (2006). *Obstetric fistula: guiding principles for clinical management and programme development*: World Health Organization.

Lobis, S., Fry, D., & Paxton, A. (2005). Program note: applying the UN process indicators for emergency obstetric care to the United States. *International journal of Gynecology & obstetrics, 88*(2), 203-207.

Lozo, & Mark, M. (2015). Maternal health and disease control. *Disease Control Priorities• Third Edition, 95.*

Luka, & Samuel, A. (2014). *Determinants of pregnancy outcomes among antenatal care attendees in birnin gwari local government area of kaduna state, nigeria.* Ahmadu Bello University Zaria.

MaClean, C. M. U. (1969). Traditional healers and their female clients: an aspect of Nigerian sickness behavior. *Journal of health and social behavior*, 172-186.

Mahler, H. (1987). The safe motherhood initiative: a call to action. *The Lancet, 329*(8534), 668.

Mairiga, A., & Saleh, W. (2009). Maternal mortality at the state specialist hospital Bauchi, Northern Nigeria. *East African medical journal, 86*(1).

Mandara, M. (2012). Family planning in Nigeria and prospects for the future. *International journal of Gynecology & obstetrics, 117*(1), 1-4.

McFadden, E., Taleski, S. J., Bocking, A., Spitzer, R., & Mabeya, H. (2011). Retrospective review of predisposing factors and surgical outcomes in obstetric fistula patients at a single teaching hospital in Western Kenya. *J Obstet Gynaecol Canada, 33*, 30-35.

Melah, G., Massa, A., Yahaya, U., Bukar, M., Kizaya, D., & El-Nafaty, A. (2007). Risk factors for obstetric fistulae in north-eastern Nigeria. *Journal of obstetrics and gynaecology, 27*(8), 819-823.

Meremikwu, M., Okomo, U., Nwachukwu, C., Oyo-Ita, A., Eke-Njoku, J., Okebe, J., . . . Garner, P. (2007). Antimalarial drug prescribing practice in private and public health facilities in South-east Nigeria: a descriptive study. *Malaria journal, 6*(1), 55.

Meyer, L., Ascher-Walsh, C. J., Norman, R., Idrissa, A., Herbert, H., Kimso, O., & Wilkinson, J. (2007). Commonalities among women who experienced vesicovaginal fistulae as a result of obstetric trauma in Niger: results from a survey given at the National Hospital Fistula Center, Niamey, Niger. *American journal of obstetrics and gynecology, 197*(1), 90. e91-90. e94.

Miller, S., Lester, F., Webster, M., & Cowan, B. (2005). Obstetric fistula: a preventable tragedy. *Journal of Midwifery & Women's Health, 50*(4), 286-294.

Moazzam, A., Masanaka, H., Kuroiwa, & Ushijima. (2005). Emergency obstetric care in Pakistan: potential for reduced maternal mortality through improved basic

EmOC facilities, services, and access. *International journal of Gynecology & obstetrics, 91*(1), 105-112.

Molder, H., & Anne, W. (1998). Epidemiological and surgical aspects of urogenital fistulae: a review of 25 years' experience in southeast Nigeria. *International Urogynecology Journal, 9*(4), 189-194.

Morgan, D. L. (2007). Paradigm lost and pragmatism regained: Methodological implications of combining quantitative and qualitative methods. *Jiurnal of Mixed-Mtehods Research, 1*, 48-76.

Murray, F, S., & C, S. (2006). Maternity referral systems in developing countries: current knowledge and future research needs. *Social Science & Medicine, 62*(9), 2205-2215.

Nafiou, I., Idrissa, A., Ghaichatou, A., Roenneburg, M., Wheeless, C., & Genadry, R. R. (2007). Obstetric vesico-vaginal fistulas at the National Hospital of Niamey, Niger. *International journal of Gynecology & obstetrics, 99*, S71-S74.

Nahar, S., Banu, M., & Nasreen, H. E. (2011). Women-focused development intervention reduces delays in accessing emergency obstetric care in urban slums in Bangladesh: a cross-sectional study. *BMC pregnancy and childbirth, 11*(1), 1.

Nigerian Health Demographic Survey, & (NHDS). (2003). Health survey (NDHS). *Problems in accessing health care. NDHS/National Population Commission*, 140.

Nigussie, M., Mariam, D. H., & Mitike, G. (2005). Assessment of safe delivery service utilization among women of childbearing age in north Gondar Zone, North West Ethiopia. *Ethiopian Journal of health development, 18*(3), 145-152.

Norman, A. M., Breen, M., & Richter, H. E. (2007). Prevention of obstetric urogenital fistulae: some thoughts on a daunting task. *International Urogynecology Journal, 18*(5), 485-491.

Nour, & Nawal. (2006). Health consequences of child marriage in Africa. *Emerging infectious diseases, 12*(11).

Nour, N. M. (2009). Child marriage: a silent health and human rights issue. *Reviews in obstetrics and gynecology, 2*(1), 51.

Nour, N. M. (2006). Health consequences of child marriage in Africa. *Emerging infectious diseases, 12*(11).

National. P. C. (2014). ICF International. Nigeria. Demographic and health survey 2013. *Abuja, Nigeria*.

National. P. C. (2007). *National Economic Empowerment and Development Strategy-2: NEEDS-2*: National Planning Commission.

Obi. et al. (2014). Availability and utilization of emergency obstetric care services in three communities in Kaduna State, Northern Nigeria. *African Journal of Reproductive Health, 14*(3), 83-88.

Obi, C. (2007). Oil and development in Africa: some lessons from the oil factor in Nigeria for the Sudan. *Oil Development in Africa: Lessons for Sudan after the Comprehensive Peace Agreement, Copenhagen: Danish Institute for International Studies Report*(8).

Oche, M., Raji, M., Kaoje, A., Gana, G., Ango, J., Okafoagu, N., . . . Umar, A. (2013). Medical students' specialty preferences: A survey in a medical school in Northern Nigeria. *Sci. Res. Essays, 8*(25), 1603-1609.

Ochejele, S., Enegela, J., & Heywood, A. (2005). assessment of the quality of Emergency Obstetric care at the Federal Medical Centre, Makurdi, Nigeria. *Tropical Journal of Obstetrics and Gynaecology, 21*(2), 160-163.

Odea, & Jennifer. (2000). Improving the body image, eating attitudes, and behaviors of young male and female adolescents: A new educational approach that focuses on self-esteem. *International Journal of Eating Disorders, 28*(1), 43-57.

Odusoga, O., Oloyede, O., Fakoya, T., & Sule-Odu, A. (2001). Obstetric vesico-vaginal fistula in Sagamu. *Nig Med Pract, 39*, 73-75.

Odusoga OL, O. O., Fakoya TA, Sule-Odu AO. . (2001). Obstetric Vesico-Vaginal Fistula in Sagamu. . *2001;39(5/6):*, 73-75.

Ogbomo, & Wonami, O. (2005). Women, Power and Society in Pre-colonial Africa. *Lagos Historical Review, 5*.

Okojie, C. (2009). *Decentralization and public service delivery in Nigeria*: International food policy research institute (IFPRI).

Okoli, U., Abdullahi, M. J., Pate, M. A., Abubakar, I. S., Aniebue, N., & West, C. (2012). Prenatal care and basic emergency obstetric care services provided at primary healthcare facilities in rural Nigeria. *International journal of Gynecology & obstetrics, 117*(1), 61-65.

Okolocha, C., Chiwuzie, J., Braimoh, S., Unuigbe, J., & Olumeko, P. (1998). Socio-cultural factors in maternal morbidity and mortality: a study of a semi-urban community in southern Nigeria. *Journal of Epidemiology and Community Health, 52*(5), 293-297.

Okonofua, F. E. (2010). Focused antenatal care: Is it feasible in Nigeria. *Trop J Obstet Gynaecol, 27*(1), 58-59.

Olaku, & Akpovye, D. (2014). *High-Risk Pregnancies and Perceptions of Maternal Mortality among Women in Plateau State of Nigeria.* Department Of Sociology, Faculty Of Social Sciences, Ahmadu Bello University, Zaria.

Olaku, D. A. (2014). *High-risk pregnancies and perceptions of maternal mortality among women in plateau state of nigeria.* Department of sociology, faculty of social sciences, ahmadu bello university, zaria.

Omo-Aghoja, L., Omo-Aghoja, W., Okonofua, F., Aghedo, O., Umueri, C., Otayohwo, R., . . . Esume, C. (2009). Perceptions and attitudes of a rural community to abortion in the Niger-delta region of Nigeria. *Nigerian journal of clinical practice, 12*(4).

Onah, Okaro, J., Umeh, U., & Chigbu, C. (2005). Maternal mortality in health institutions with emergency obstetric care facilities in Enugu State, Nigeria. *Journal of obstetrics and gynaecology, 25*(6), 569-574.

Onah, H. E., Ikeako, L. C., & Iloabachie, G. C. (2006). Factors associated with the use of maternity services in Enugu, southeastern Nigeria. *Social Science & Medicine, 63*(7), 1870-1878.

Onamade, A. (2014). *Access And Utilization Of Antenatal Care Services In Funtua Local Government Area, Katsina State, Nigeria.* Ahmadu Bello University, Zaria.

Organization, W. H. (2010). *World health statistics 2010*: World Health Organization.

Orji, E., Aduloju, O., & Orji, V. (2007). Correlation and impact of obstetric fistula on motherhood. *Journal of Chinese Clinical Medicine, 2*, 448-454.

Orubuloye, I. O., & Caldwell, J. C. (1975). The impact of public health services on mortality: a study of mortality differentials in a rural area of Nigeria. *Population Studies, 29*(2), 259-272.

Oshewolo, S. (2010). Galloping poverty in Nigeria: an appraisal of government interventionist policies. *Journal of Sustainable Development in Africa, 12*(6), 264-274.

Oshi, D. C. (2009). *Rural women and the financing of health care in Nigeria.* Institute of Social Studies.

Oyediran, K. A., & Isiugo-Abanihe, U. C. (2005). Perceptions of Nigerian women on domestic violence: Evidence from 2003 Nigeria Demographic and Health Survey. *African Journal of Reproductive Health*, 38-53.

Oyemomi, Oyebola, E., & Anipr. (2003). An Assessment of Poverty Reduction Strategies in Nigeria (1983-2003). *Unpublished doctoral dissertation). St. Clement University, South Africa*.

Parkhurst, & Oluke, J. (2010). Understanding the correlations between wealth, poverty and human immunodeficiency virus infection in African countries. *Bulletin of the world health organization, 88*(7), 519-526.

Patel, V., Rahman, A., Jacob, K., & Hughes, M. (2004). Effect of maternal mental health on infant growth in low income countries: new evidence from South Asia. *Bmj, 328*(7443), 820-823.

Paul, H. (2003). Vesico-vaginal fistulas in developing countries. *International journal of Gynecology & obstetrics, 82*(3), 285-295.

Paxton, A., Bailey, P., & Lobis, S. (2006). The United Nations Process Indicators for emergency obstetric care: reflections based on a decade of experience. *International journal of Gynecology & obstetrics, 95*(2), 192-208.

Pearson, L., & Shoo, R. (2005). Availability and use of emergency obstetric services: Kenya, Rwanda, Southern Sudan, and Uganda. *International journal of Gynecology & obstetrics, 88*(2), 208-215.

Perkins, M., Brazier, E., Themmen, E., Bassane, B., Diallo, D., Mutunga, A., . . . Ngobola, O. (2009). Out-of-pocket costs for facility-based maternity care in three African countries. *Health policy and Planning, 24*(4), 289-300.

Petersen, P. E. (2003). The World Oral Health Report 2003: continuous improvement of oral health in the 21st century–the approach of the WHO Global Oral Health Programme. *Community Dentistry and oral epidemiology, 31*(s1), 3-24.

Pierre, F., Alexandre, D., Caroline, T., & Geofry, D. (2009). Improved access to comprehensive emergency obstetric care and its effect on institutional maternal mortality in rural Mali. *Bulletin of the world health organization, 87*(1), 30-38.

Pogge, T. (2004). The first United Nations millennium development goal: A cause for celebration? *Journal of Human Development, 5*(3), 377-397.

Porter, G. (2013). Transport services and their impact on poverty and growth in rural Sub-Saharan Africa.

Prata, N., Passano, P., Sreenivas, A., & Gerdts, C. E. (2010). Maternal mortality in developing countries: challenges in scaling-up priority interventions. *Women's health, 6*(2), 311-327.

Rahimi, S., Capes, T., & Ascher-Walsh, C. (2013). Obstetric Fistula *Around the Globe for Women's Health* (pp. 33-53): Springer.

Rahman, M., Haque, S. E., Mostofa, M. G., Tarivonda, L., & Shuaib, M. (2011). Wealth inequality and utilization of reproductive health services in the Republic of Vanuatu: insights from the multiple indicator cluster survey, 2007. *Int J Equity Health, 10*(58), 1-10.

Rai, R. K., Singh, P. K., & Singh, L. (2012). Utilization of maternal health care services among married adolescent women: insights from the Nigeria Demographic and Health Survey, 2008. *Women's Health Issues, 22*(4), e407-e414.

Ridde, V., Richard, F., Bicaba, A., Queuille, L., & Conombo, G. (2011). The national subsidy for deliveries and emergency obstetric care in Burkina Faso. *Health policy and Planning, 26*(suppl 2), ii30-ii40.

Rogoff, K. (1999). *International institutions for reducing global financial instability*. Retrieved from

Ronsmans, C., & Graham, W. J. (2006). Maternal mortality: who, when, where, and why. *The Lancet, 368*(9542), 1189-1200.

Rose-Ackerman, S. (1997). The political economy of corruption. *Corruption and the global economy, 31*, 60.

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the health belief model. *Health Education & Behavior, 15*(2), 175-183.

Sabitu, K., Alti-Mu'azu, M., Musa, A., Ifenne, D., Essien, E., Golji, N., . . . Team, Z. P. (1997). The effect of improving maternity services in a secondary facility, Zaria, Nigeria. *International journal of Gynecology & obstetrics, 59*, S99-S106.

Safer, M. P. (2004). Making pregnancy safer: the critical role of the skilled attendant. *World Health Organization: Geneva*.

Sale, J. E. M., Lohfeld, L. H., & Brazil, K. (2002). Revisiting the quantitative and qualitative debate: Implications for mixed-method research. *Quality and Quantity 36*, 43-53.

Sarah, A., & SA, H. (2007). Social and economic consequences of obstetric fistula: Life changed forever? *International journal of Gynecology & obstetrics, 99*, S10-S15.

Say et. al. (2014). Global Causes of Maternal Death: A WHO Systematic Analysis. . *Lancet.*

Say, L., Chou, D., & Gemmill, A. (2014). Global causes of maternal death: a WHO systematic analysis. *The Lancet Global Health, 2*(6), e323-e333.

Schildkrout, E. (1982). Dependence and autonomy: The economic activities of secluded Hausa women in Kano, Nigeria. *Women and work in Africa*, 55-81.

Scholz, C. H. (2002). *The mechanics of earthquakes and faulting*: Cambridge university press.

Scott-Emuakpor, A. (2010). The Evolution of Health Care System in Nigeria: Which Way Forward in the Twenty-First Century. *Niger Med J, 51*(2), 53-65.

Shah, S. K., & Corley, K. G. (2006). Building Better Theory by Bridging the Quantitative–Qualitative Divide. *Journal of Management Studies, 43*(8), 0022-2380.

Shamaki, M. A., & Buang, A. (2015). The socio-cultural behaviours of women's health facilities utilisation in Northern Nigeria. *Mediterranean Journal of Social Sciences, 6*(4), 517.

Shaw, E. (1999). A guide to the qualitative research process: evidence from a small firm study. *Qualitative Market Research: An International Journal, 2*(2), 59-70.

Shefren, J. M. (2009). The tragedy of obstetric fistula and strategies for prevention. *American journal of obstetrics and gynecology, 200*(6), 668-671.

Shiferaw, S., Spigt, M., Godefrooij, M., Melkamu, Y., & Tekie, M. (2013). Why do women prefer home births in Ethiopia? *BMC pregnancy and childbirth, 13*(1), 1.

Shittu, O., Ojengbede, O., & Wara, L. (2007). A review of postoperative care for obstetric fistulas in Nigeria. *International journal of Gynecology & obstetrics, 99*, S79-S84.

Shuttleworth, M. (2009). What is the Scientific Method?

Sincero, S. (2012). General Adaptation Syndrome. *Explorable. com*.

Singh, S., Chandhiok, N., & Dhillon, B. S. (2009). Obstetric fistula in India: current scenario. *International Urogynecology Journal, 20*(12), 1403-1405.

Srivastava, A., Avan, B. I., Rajbangshi, P., & Bhattacharyya, S. (2015). Determinants of women's satisfaction with maternal health care: a review of literature from developing countries. *BMC Pregnancy & Childbirth, 15*(1), 1.

Starrs, A. M. (2006). Safe motherhood initiative: 20 years and counting. *The Lancet, 368*(9542), 1130-1132.

Stanton. (2007). Challenges in measuring obstetric fistula. *International journal of Gynecology & obstetrics, 99*, S4-S9.

Steven, A., Catherine, H., & Lewis, W. (1996). Obstructed labor injury complex: obstetric fistula formation and the multifaceted morbidity of maternal birth trauma in the developing world. *Obstetrical & gynecological survey, 51*(9), 568-574.

Suleiman, A. H. (2011). Utilization of maternal health care services in Nigeria: An analysis of regional differences in the patterns and determinants of maternal health care use. *MSc Unpublished, The University of Liverpool*.

Sumathi, G., Kamalanabhan, T., & Thenmozhi, M. (2015). Impact of work experiences on perceived organizational support: a study among healthcare professionals. *AI & SOCIETY, 30*(2), 261-270.

Sundquist, S., Dunlop, T., Wright, J., Findlater, R., & Grauer, K. (2010). *Immunizaon Report 2010*.

Svjetlana, L., & Mark, M. (2015). Mary Lake Polan, Ambereen Sleemi, Mulu Muleta Bedane. *Disease Control Priorities• Third Edition*, 95.

Tahzib, F. (1985). Vesicovaginal fistula in nigerian childen. *The Lancet, 326*(8467), 1291-1293.

Tebeu, P. M., Maninzou, S. D., Fosso, G. K., Jemea, B., Fomulu, J. N., & Rochat, C. H. (2012). Risk factors for obstetric vesicovaginal fistula at University Teaching Hospital, Yaoundé, Cameroon. *International journal of Gynecology & obstetrics, 118*(3), 256-258.

Tebeu, P. M., De Bernis, L., Doh, A. S., Rochat, C. H., & Delvaux, T. (2009). Risk factors for obstetric fistula in the Far North Province of Cameroon. *International journal of Gynecology & obstetrics, 107*(1), 12-15.

Titus, O. B., Adebisola, O. A., & Adeniji, A. O. (2015). Health-care access and utilization among rural households in Nigeria. *Journal of Development and Agricultural Economics, 7*(5), 195-203.

Tsui, A., Creanga, A., & Ahmed, S. (2007). The role of delayed childbearing in the prevention of obstetric fistulas. *International journal of Gynecology & obstetrics, 99*, S98-S107.

Tunçalp, Ö., Tripathi, V., Landry, E., Stanton, C. K., & Ahmed, S. (2015). Measuring the incidence and prevalence of obstetric fistula: approaches, needs and recommendations. *Bulletin of the world health organization, 93*(1), 60-62.

Udeh, K. (2015). *The Influence of Media Campaigns on Vesico Vaginal Fistula Prevention and Control In North West Nigeria.* (Masters), Benin, Nigeria.

Ujah, I., Aisien, O., Mutihir, J., Vanderjagt, D., Glew, R., & Uguru, V. (2005). Factors contributing to maternal mortality in north-central Nigeria: a seventeen-year review. *African Journal of Reproductive Health*, 27-40.

Umukoro, N. (2013). Poverty and Social Protection in Nigeria. *Journal of Developing Societies, 29*(3), 305-322.

UNICEF. (2006). 'Ethical Dimension Of Globalization' *International Journal On Trade And Sustainable Development, Vol.2(1&2):*, Pp. 30-35.

UNICEF. (2008). *The state of the world's children 2009: maternal and newborn health* (Vol. 9): Unicef.

Wagstaff, A. (2002). Poverty and health sector inequalities. *Bulletin of the world health organization, 80*(2), 97-105.

Wall. (2005). The obstetric vesicovaginal fistula in the developing world. *Obstetrical & gynecological survey, 60*(7), S3-S51.

Wall, Anger, Saigal, & Litwin. ((2006)). The prevalence of urinary incontinence among community dwelling adult women: . *Urologic Diseases of America Project., 175(2),*(601-604), 1-67.

Wall, & Lewis. (1998). Dead mothers and injured wives: the social context of maternal morbidity and mortality among the Hausa of northern Nigeria. *Studies in family planning*, 341-359.

Wall, & Lewis. (2006). Obstetric vesicovaginal fistula as an international public-health problem. *The Lancet, 368*(9542), 1201-1209.

Wall, & Lewis. (2012a). A framework for analyzing the determinants of obstetric fistula formation. *Studies in family planning*, 255-272.

Wall, & Lewis. (2012b). Overcoming phase 1 delays: the critical component of obstetric fistula prevention programs in resource-poor countries. *BMC pregnancy and childbirth, 12*(1), 68.

Wall LL, Karshima AK, Kirschner C, & SD., A. (2004). The obstetric vesicovaginal fistula: Characteristics of 899 patents from Jos, Nigeria. . *American Journal of Obstetrics and Gynaecology., 2004;190:*, 1011-1019.

Wall, L. L., Karshima, J. A., Kirschner, C., & Arrowsmith, S. D. (2004). The obstetric vesicovaginal fistula: characteristics of 899 patients from Jos, Nigeria. *American journal of obstetrics and gynecology, 190*(4), 1011-1016.

Walsh, & A, J. (1989). Disease problems in the Third World. *Annals of the New York Academy of Sciences, 569*(1), 1-16.

Ward, K., & Hilton, P. (2002). Prospective multicentre randomised trial of tension-free vaginal tape and colposuspension as primary treatment for stress incontinence. *Bmj, 325*(7355), 67.

Warner, E. (2004). Behind the wedding veil: Child marriage as a form of trafficking in girls. *Am. UJ Gender Soc. Pol'y & L., 12*, 233.

White, J. H., Alston, M. K., Marquez, J. L., Sweetapple, A. L., Pollack, M. R., Attia, J., . . . Whyte, S. (2007). Community-Dwelling Stroke Survivors: Function Is Not the Whole Story With Quality of Life. *Arch Phys Med Rehabil 88*, 1140-1146.

World Health Organisation. (2000). UNFPA.(2004). *Maternal mortality in 2000: Estimates developed by WHO, UNICEF, UNFPA*.

World Health Organisation, W. (2000). UNFPA.(2004). *Maternal mortality in 2000: Estimates developed by WHO, UNICEF, UNFPA*.

World Health Organisation, W. (2001). *The World Health Report 2001: Mental health: new understanding, new hope*: World Health Organization.

World Health Organisation, W. (2003). *The world health report 2003: shaping the future*: World Health Organization.

World Health Organisation, W. (2010). *World health statistics 2010*: World Health Organization.

World Health Organization, W. (2009). *Global health risks: mortality and burden of disease attributable to selected major risks*: World Health Organization.

Zahr, C. A., & Wardlaw, T. M. (2004). *Maternal mortality in 2000: estimates developed by WHO, UNICEF and UNFPA*: World Health Organization.

Zheng, A. X., & Anderson, F. W. (2009). Obstetric fistula in low-income countries. *International journal of Gynecology & obstetrics, 104*(2), 85-89.

Ziraba, A. K., Mills, S., Madise, N., Saliku, T., & Fotso, J.-C. (2009). The state of emergency obstetric care services in Nairobi informal settlements and environs: Results from a maternity health facility survey. *BMC Health Services Research, 9*(1), 1.

LIST OF PUBLICATIONS AND PAPERS PRESENTED

The following papers have been accepted for publication from this thesis at ISI-cited journals:

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Tukur I, Obembe P, Bello A, Magaji B, Karuthan C. "Correlates of Depression among Obstetric Fistula Patients at Fistula Centre Sokoto, Northwestern Nigeria". At the 1st Asia Pacific Clinical Epidemiology and Evidence based medicine Kuala Lumpur, 2012 6-8th July, 2012 Sunway Putra Hotel, Kuala Lumpur, Malaysia.