

DETERMINANTS OF POSTNATAL CARE NON-UTILIZATION AMONG WOMEN IN NIGERIA

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DECLARATION

I, **Somefun Dolapo Oluwaseyi**, declare that “Determinants of Postnatal Care Non-Utilization among Women in Nigeria” is my own piece of work. It is submitted for the degree of Master of Arts in Demography and Population Studies at the University of the Witwatersrand, Johannesburg. To the best of my knowledge, it has not been submitted before for any other degree or examination in any other university and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

..... [Signature of candidate]

.....day of 20.....

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DEDICATION

This work is dedicated to my mother Mrs Ayodele Alake Somefun

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LIST OF ABBREVIATIONS

ANC - Antenatal Care

AIDS - Acquired Immunodeficiency Syndrome

CIA - Central Intelligence Agency

CSO - Central Statistics Office

DHS -Demographic and Health Surveys

HIV - Human Immunodeficiency Virus

MMR - Maternal Mortality Ratio

MDG - Millennium Development Goals

NMR - Neonatal Mortality Rate

NDHS - Nigeria Demographic and Health Survey

NPC - Nigerian Population Commission

OR - Odds Ratios

PNC - Postnatal Care

UN - United Nations

UNFPA - United Nations Population Fund

UNICEF -United Nations Children's Fund

USAID - United States Agency for International Development

WHO- World Health Organization

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ABSTRACT

Background:

Although, there are several programs in place in Nigeria to ensure maternal and child health, maternal and neonatal mortality rates remain high with maternal mortality rates being 560/100,000 and neonatal mortality rates at 40/1,000 live births. While there are many studies on the utilization of maternal health services such as antenatal care and skilled delivery at birth, studies on postnatal care are rare. While efficient utilisation of postnatal care services has been proven to reduce morbidity and mortality among mothers and their newborns, the uptake of this service is low in Nigeria. Thus, identification of the factors that are associated with non-utilization of postnatal care services could shed light on what needs to be done to improve the uptake of the services in Nigeria and assist the country in achieving the MDG4 and MDG 5 targets of bringing down the levels of child and maternal mortality. Therefore, the aim of this study is to examine the factors associated with the non-utilization of postnatal care among mothers in Nigeria.

Methods:

Population-based cross-sectional data from 2008 Nigeria Demographic and Health Survey (NDHS) were used in this study. For analysis, the postnatal care uptake for 28,647 children born in the five years preceding the survey was considered. The dependent variable was a composite variable derived from a list of questions on postnatal care. Mothers who received postnatal care were coded as (0) while mothers who did not receive postnatal care were coded as (1). Child's characteristics and mother's characteristics were used as the explanatory variables. Descriptive statistics were used to examine the patterns of postnatal care non-utilization by selected characteristics of mothers and children in the country. Binary logistic regression was used to identify factors associated with postnatal care non-utilization in Nigeria at bivariate and multivariate levels.

Results:

Results showed that 96% of the mothers of the 28,647 children did not utilize postnatal care services in the period examined. About 50% of the study population between 25-34 years did not

utilize postnatal care and 46% of the women who did not utilize postnatal care had no education. Results from multivariate logistic regression show that accessibility, antenatal care use, birth size, education, place of delivery and region are significantly associated with the non-utilization of postnatal care services. Women who received antenatal care had lower odds (OR=0.23, 95% CI=1.09-1.87) of not utilizing postnatal care services. Also mothers of children who were smaller than average at birth had higher odds (OR=1.43, 95% CI=1.09-1.87) of not utilizing postnatal care services.

Conclusions:

This study revealed the low uptake of postnatal care service in Nigeria. To increase mothers' utilization of postnatal care services and improve maternal and child health in Nigeria, interventions should be targeted at mothers who deliver children that have low birth weight and great attention should be given to the women outside the South West region especially the Northern region of the country. In addition, it is crucial that steps should be taken on educating women. This would have a significant influence on their perceptions about the use of postnatal care services in Nigeria.

CHAPTER ONE

INTRODUCTION

1.0. Introduction to Chapter

This chapter begins with an overview of maternal mortality and morbidity. It outlines the causes of maternal mortality and how this can be avoided. It reiterates how the utilization of health care services (antenatal, skilled delivery at birth and postnatal) can improve the wellbeing of mothers and children and narrows down maternal morbidity and mortality to postnatal care utilization. It gives a brief description of the knowledge gap, the statement of problem, objectives of the study, the research questions and a justification of the study.

1.1 Background

Maternal mortality is defined by the World Health Organization (WHO) as the death of women while pregnant or within 42 days after termination of pregnancy irrespective of the site and duration, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (WHO, 2011). It is widely regarded as a key indicator of population health and of social and economic development (McMillian, 2012). For instance, women with low levels of education are more likely to live in poverty compared to those who have attained higher levels of education. They may be involved in unhealthy work conditions and have lower wages with little or no benefits thus restrained access to health care. These factors can impact on maternal health negatively (Koch et al., 2012).

Although, there has been significant improvement in maternal health outcomes of individuals globally, there is a wide disparity among the regions of the world (WHO, 2002). For instance, a number of countries in sub-Saharan Africa, have halved their levels of maternal mortality between 1990 and 2010 and in some regions, particularly Asia and North Africa, even greater headway has been made (WHO, 2012). In addition, between 1990 and 2010, some regions have experienced reduction in their maternal mortality ratios (MMR) for instance, the MMR in Eastern Asia decreased by 69% followed by Northern Africa (66%), Southern Asia (64%) compared to sub-Saharan Africa (41%), (UNFPA, 2012). A report by the WHO in 2012 revealed

that 99% of the 287,000 annual maternal deaths in 2010 occurred in developing countries, and most of these deaths were as a result of unsafe abortion and the inaccessibility of or lack of access to health care services due to geographical, economic and/or socio-cultural barriers were avoidable (Bianco & Moore, 2012; WHO, 2012).

One of the targets/goals of the Millennium Development Goal (MDG) is the reduction of maternal mortality. The target of the Millennium Development Goal Five (MDG 5) is the reduction of maternal mortality ratio by three quarters between 1990 and 2015 (United Nations, 2013). Measures of maternal mortality such as the maternal mortality ratio, maternal mortality rate and lifetime risk indicate a global decline. Similarly, the World Health Organization has reported a decline of 47% since 1990 through 2010 globally. Although maternal mortality has declined by 35% worldwide, there are specific countries that still have alarmingly high maternal mortality (WHO, 2010). For instance, the maternal mortality rate in Nigeria is about 630 deaths per 100,000 live births (WHO,2010), compared to 160 per 100,000 live births in Botswana, and 8 per 100,000 in the United States which is a developed country, and 400 per 100,000 live births worldwide (CIA, 2012). This shows that the maternal death rate in Nigeria is one of the highest in the world. This may have been a result of the slow progress towards achieving MDG 5.

On average, women in developing countries have a higher risk of getting pregnant compared to women in developed countries (WHO, 2012). Furthermore, this increased pregnancy rate also increases their (lifetime) risk of death. In the developing world, a woman has a 1 in 76 risk of maternal death in her lifetime compared to 1 in 8,000 risk of maternal death in developed countries (WHO, 2012). About 99% of global deaths arising from pregnancy, and the associated complications, occur in the developing world, where bearing/giving birth to a child remains one of the most serious health risks for women (WHO, 2012). The vast majority of maternal deaths occur in Africa and Asia, where the high fertility rates and, a shortage of trained personnel and a weak/impoverished health care systems brings tragedy to many young women (UNICEF, 2012).

The causes of maternal mortality could be either direct or indirect. The major direct causes of maternal mortality include: haemorrhage, infection, high blood pressure, unsafe abortion, and an obstructed labour. About 80% of maternal deaths can be attributed to direct causes (WHO, 2012). Indirect causes accounts for approximately 20% of maternal deaths. These include: pre-existing medical conditions, such as anaemia, malaria, hepatitis, heart disease, and HIV/AIDS.

Other underlying causes of maternal mortality include: early/forced marriage and early pregnancies, pregnancies spaced too closely together, female genital mutilation/cutting, lack of education and empowerment. For every maternal death, there are approximately thirty times as many cases of pregnancy-related illness or disability (WHO, 2011). For example, obstetric fistula (an opening between the bladder and the vagina) is usually the result of obstructed labour and it causes incontinence (the inability to hold urine). Although fistulas are preventable with good obstetric care, they have tragic consequences for many women, who are often left abandoned and isolated because of the chronic leakage of urine and, at times, faeces (UNFPA, 2012).

Further, the majority of these maternal deaths occur in poor resource settings and it has been well documented that developing countries such as Nigeria, also have the highest maternal mortality rates (Nour, 2008; Yamin *et al.*, 2013). The low socioeconomic status of women in developing countries does not only signify low incomes but is also associated with the general well-being and health seeking behaviours which can affect their health and that of their new-borns. These socio-economic and demographic factors have been shown to be associated with the utilization of maternal health care services. These factors include: age, education, wealth index, ethnicity, culture, decision making power, religion (Stephenson *et al.*, 2006; Dhaka *et al.* 2007; Titaley, 2009; Ntambue *et al.*, 2012). Furthermore, the availability, accessibility and quality of health services are also very important factors that may influence women's decision to seek maternal health care services (Chakraborty *et al.* 2003).

The reduction of maternal mortality and morbidity would depend largely on the increased use of reproductive and maternal healthcare services (McDonagh, 1996; Koblinsky *et al.*, 2008; Singh *et al.*, 2009). It is well documented that countries with the highest rates of maternal, neonatal and child mortality have, among other social issues, inadequate health care facilities and personnel to provide the necessary family planning services, antenatal care, skilled attendance at birth and postnatal care (Doctor *et al.*, 2011).

Antenatal care (ANC) is the care women receive during and throughout pregnancy which protects the mothers and ensures they have a healthy pregnancy and safe delivery (Lincetto, 2006). It is important because it has an influence on the delivery of a healthy baby and safeguards the mother's health. The results from the 2008 Nigeria Demographic and Health

Survey (NDHS) show that 58% of women received some antenatal care (ANC) from a skilled provider, most commonly from a nurse or midwife (30%) or a qualified gynaecologist (23%). About 45% of women had the recommended four or more ANC visits, but only 16% of women had an antenatal care visit by their fourth month of pregnancy, as recommended. More than one-third of women (42%) received no antenatal care (NDHS, 2008).

The use of skilled birth attendants during delivery has been established as a key predictor in the reduction of mortality rates in the world over (Fapohunda and Orobato, 2013). However, the utilization of Obstetric Services in Nigeria is currently very low with only a third of the deliveries being done under the supervision of trained health personnel (Bawa *et al.*, 2004). Using the 2008 NDHS, Fapohunda and Orobato (2013) concluded that a high number of Nigerian women used predominantly unskilled attendants and one in five births were delivered with 'No One Present'.

The postnatal period refers to the period from one hour after the delivery of the placenta and continues until 6 weeks (42 days) after delivery (WHO, 1998). Compared to antenatal care and skilled attendance at birth, postnatal care has been neglected in safe motherhood programs (Wang *et al.*, 2011). This is an area of concern because more than 60% of maternal deaths occurred during the postpartum period and about 45% of postpartum maternal deaths occur within 1 day of delivery. The risk of maternal death is highest close to birth then decreases over the subsequent days and weeks then this figure rises to more than 65% within one week, and more than 80% within two weeks (Moore *et al.*, 2002). Also, 38% of global neonatal deaths occur in sub-Saharan Africa and this region has the highest neonatal mortality rate recorded in the world (34 deaths per 1,000 live births in 2011) (UNICEF, 2012).

It has been established by Sines (2007) that the utilization of postnatal care services gives women the chance of receiving information on healthy practices that are crucial to maternal and child health survival. This includes advice on the care of new born, exclusive breastfeeding practices and use of family planning. Mothers could also be treated for health conditions like postpartum haemorrhage, infection/genital tract sepsis and pre-eclampsia/eclampsia that may be picked up within the postnatal period while babies who have jaundice or thrush can also be treated.

A study of 30 countries using DHS data found out that seven out of ten mothers who delivered outside a health institution did not receive postnatal care (Fort, Kothari, Noureddine, 2006). In the same study, about 40% of the women with live births outside a health institution interviewed five years preceding the survey did not receive a postnatal care check-up. On the list by Fort (2006), Ethiopia has the highest number of women who did not receive postnatal care with 90%. This is followed in descending order by Bangladesh at 73%, Nepal at 72% and Rwanda, 71%. Other sub-Saharan countries which have a substantial proportion of women who did not receive postnatal care include Uganda (57%), Mali (49%), Kenya (46%), Nigeria (46%), Burkina Faso (44%), Malawi (41%) and Zambia (41%) (Fort, 2006).

1.2 Problem Statement

The survival and well-being of a woman and her new-born depends on the care received during pregnancy, delivery and the postnatal period. This is because a large number of maternal and neonatal deaths occur during the first 24 hours after delivery (*Lawn et al., 2005*).

The early postpartum period is critical to newborn survival (Moore, 2002). Neonatal mortality now accounts for approximately two thirds of the eight million annual deaths worldwide in children less than one year of age. Ninety-eight percent of all newborn deaths occur in developing countries, mainly Africa and Asia (WHO, 2012). The first week of life is a particularly vulnerable period, when 50-70% of fatal and life-threatening newborn illnesses occur (WHO, 1994). Most of these newborn deaths are due to sepsis, asphyxia and problems associated with low birth weight.

A large number of women in the sub-Saharan region do not have access to healthcare during the early postnatal period which puts them at risk of diseases and mortality (*Lawn et al., 2004*). The harsh reality is that about 4 million infants do not live through the immediate postnatal period, and a large number of them are disabled due to pregnancies and births that are poorly monitored or handled (*De Bernis et al., 2003*). This is a situation that has remained almost unchanged for many years. Studies show that deaths within the first week of life account for almost 40% of all deaths among children under the age of five (Black, 2005: WHO, 2012). Also, about 700 babies die (around 30 every hour) on a daily basis in sub-Saharan Africa which has the highest number of newborn deaths in Africa, and the second highest in the world (WHO, 2012). Ensuring a safe motherhood and a healthy childhood remains a major challenge in sub-Saharan Africa and

Nigeria is no exception. The rate of maternal mortality (630 per 1,000 live births) and perinatal mortality (88.4 per 1,000 pregnancies) in Nigeria is particularly very high (WHO, 2010). A more recent report by the Federal Ministry of Health (FMOH) has concluded that nearly a quarter of a million babies die annually in Nigeria and there has been no significant reduction in the average neonatal mortality rate (2011). Many of the maternal deaths occur at home and are therefore unseen and uncounted in the official records of statistics. Given that the country's population is the largest in Africa, Nigeria's failure to make inroads regarding the achievement of the Millennium Development Goals has a significant influence on the rest of sub-Saharan Africa's performance in meeting these goals as a whole and contributes disproportionately to global childhood mortality crisis.

In 2009, UNICEF and WHO recommended home visits for care of the newborns in the first week of life as a complementary strategy to facility-based postnatal care in order to improve newborn survival. Five countries were selected for the review – Bangladesh, Malawi, Nepal, Nigeria and Rwanda. Four of the countries have adopted PNC home visits as a national policy or strategy. Nigeria has not yet adopted this approach but has developed an Integrated Maternal, Newborn Strategy and Child Health Strategy (IMNCH, 2007), which addresses early PNC contacts. The Federal Ministry of Health subsequently adopted and launched the Integrated Maternal, Newborn and Child Health Strategy (IMNCH) in Nigeria in 2007. The aim was to address the issues of Maternal, Newborn and Child Health (MNCH) and achieve maternal and child health targets in Nigeria. Some of the strategic objectives proposed were for a new way of thinking, resourcing and putting to action a minimum range of evidence-based, high impact interventions that have already been proven to work and to act as the articulation of a bold and new thinking on fast tracking of comprehensive actions to change the course of maternal and child health. Priority was given to actions focused on: Antenatal Care, intra-partum care, emergency obstetric and newborn care, routine postnatal care and newborn care. The roll-out of the IMNCH strategy took place in 23 states¹ of the 36 in the country. However, according to the 2008 Nigeria Demographic and Health Survey (NDHS), no key package along the continuum of care achieved coverage above 60%, and it was found that there is massive disparity across and within states.

¹States: Organized community living under one government and belong to a federal union (Concise Oxford Dictionary)

Some other independent projects such as the Society of Gynaecologist and Obstetricians of Nigeria (SOGON), the Partnership for Safe Motherhood, and the National Council of Women's Societies (Shiffman and Okonofua, 2007) have been conducted in the country, but gaps in coverage still remain. The reality is that despite these initiatives and projects, the neonatal mortality is still high even though it has only decreased from 64 per 1,000 live births in 1990 (NDHS, 1990), to 50 per 1,000 live births in 2003 (NDHS, 2003) and 40 per 1,000 live births in 2008(NDHS, 2008). The possible shortcoming of the IMNCH program can be attributed to inadequate funding and lack of accountability for resources.

In Nigeria, only 36% of the women utilize PNC services (NPC and ICF Macro, 2009). This suggests that majority of the maternal deaths and disabilities could have been avoided if more women have access to the appropriate postnatal care since mothers and children are most vulnerable to ill health or death immediately after delivery. The consequence of poor PNC may be seen in the form of disability, morbidity and mortality. It had been established by WHO that complications following childbirth are more common and aggravated by poor healthcare, resources and social attitudes towards medical care in developing countries. The long-term maternal complications in the postnatal period include chronic pain, impaired mobility, damage to the reproductive system and infertility (Safe Motherhood, 2002). Some women also suffer genital prolapses after bearing several children (Ashford, 2002). This condition is extremely uncomfortable and can lead to other complications in future pregnancies if not properly addressed in the postnatal period (Ashford, 2004). These complications could be eliminated through preventive maternal healthcare services, such as: physiotherapy, family planning, health education, and screening. The lack of healthcare during the postnatal period may be missed opportunities to promote healthy attitudes, such as: breastfeeding practices, full child immunization and knowledge on family planning for the mother. In order to avoid these complications and save the lives of mothers and newborns, it is important to identify the factors associated with non-utilization of postnatal care in Nigeria.

1.3.1 Research Question:

What are the factors associated with non-utilization of postnatal care among women in Nigeria?

1.3.2 General Objective:

To identify the factors associated with non-utilization of postnatal care among women in Nigeria

1.3.3 Specific Objectives:

1. To examine the levels of postnatal care non-utilization in Nigeria.
2. To examine the association of each selected women and children characteristics to postnatal care non-utilization.
3. To identify the factors associated with postnatal care non-utilization among women in Nigeria.

1.4 Justification

A recent report by the Federal Ministry of Health (FMOH) suggests that 70% of new-born deaths in Nigeria could have been prevented if essential interventions in the existing health care programmes were taken up by Nigerian mothers and their new-borns (FMOH, 2011). The effective uptake of PNC services and healthy home practices could also have saved over 90,000 newborns in the country (FMOH, 2011). Thus, calls for research on the identification of factors that influence women's non-use of postnatal care in Nigeria as it would increase the survival of neonates through the prevention of morbidity (such as: neonatal sepsis and hypothermia) and mortality. It would also help in promoting healthy choices and behaviours, such as: offering exclusive breastfeeding and ensuring that adequate knowledge and attention is given to low birth weight babies.

Postnatal care is an aspect of child survival that has received limited attention in Nigeria. This situation is tragic, especially as most of these babies die from preventable causes, such as: intra-partum-related injury, infections, and prematurity (FMOH, 2011). Further, there is limited research on factors that determine utilization or non-utilization of PNC in Nigeria. The few studies that have been carried out in Nigeria have been at local geographic regions (Ugboaja, 2013; Osubor *et al.*, 2006) or have looked at adolescents (Rai *et al.*, 2012). Given the poor uptake of PNC, a study at national level is important as it may help in directing policies that address the issue of PNC non utilization at national level. In addition, the few studies that exist on postnatal care in Nigeria have concentrated on women who make use of these services with little attention on factors that are associated with women, who do not utilize postnatal care. The strength of this study is that it has the potential to identify the factors or determinants of PNC non-utilization. Identification of these factors will give clues on how the issues can be tackled.

The knowledge of this is important for implementing strategies that reduce maternal and infant mortality in the immediate post-delivery period.

Once identification of the factors associated with non-use of PNC services has been made, measures can be put in place to accelerate the achievement of the MDG 4 and 5. In conclusion, given the importance of postnatal care and the low levels of its uptake, it is important to gain knowledge on the lack of use and identify factors that are associated with the non-utilization of postnatal care in Nigeria. This would help in strengthening PNC programs which have been seen to be among the weakest of all reproductive and child health programs in Nigeria.

1.4 Outline of the Study

This thesis is organized as follows. Chapter 1 presents the background to the study, problem statement, research objectives and Justification. The literature review and theoretical framework is presented in chapter 2. Chapter 3 presents the methodology employed in the study. While chapter 4 presents the profile of the study sample and results. The discussion is presented Chapter 5 and Chapter 6 has the conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.0 Introduction

This chapter presents a review of the literature and the conceptual framework. The literature focuses on the factors that hinder women from utilising maternal health services globally and in sub-Saharan Africa and specifically in Nigeria.

2.1 Importance of Postnatal Care Utilization

The risks of maternal mortality and morbidity are highest at birth and in the period immediately after birth. For newborns and mothers, there is the danger of complications as neonatal sepsis or post-partum haemorrhage and a delay of even a few hours before appropriate care is delivered can be fatal or result in long-term injuries or disability to the child and the mother (Lawn *et al.*, 2010).

The utilization of postnatal care is an effective means of providing a significant intervention to improve new-born survival (Baqui *et al.*, 2009) but is also one of the weakest of all the reproductive and child health programmes in Nigeria (Warren *et al.*, 2006). It has been established earlier that the first day is the time of highest risk for both the mother and the newborn baby. The reality is that 18 million women in Africa currently do not give birth in a healthcare facility which in turn poses challenges for planning and implementing postnatal care (PNC) for mothers and their newborns (Warren *et al.*, 2006). There are a number of approaches for delivering basic and effective PNC, most of which involves a combination of home visits with a follow-up visit conducted at a healthcare facility. Home visits with healthcare systems support have been effective and feasible in settings where there is a weak healthcare system and a high neonatal mortality rate (WHO, UNICEF, USAID, 2009). The timing of first postnatal check-up is crucial for the effective management of any post-delivery complications. The WHO and UNICEF (2013) recommend that newborns in healthcare facilities should not be sent home within the crucial first 24 hours of life, and that postnatal visits to the health care facility should be scheduled while a visit to a health facility for postnatal care as soon as possible after birth is recommended for all home births. These esteemed international organizations recommend at

least two home visits for all home births where access to health facility is limited and add that the first visit should occur within 24 hours of birth and the second visit on day three as a follow-up in case there are any complications. If possible, a third visit should be made before the end of the first week of life. In summary, the World Health Organization (WHO) recommends up to four contacts with new mothers during the early postpartum period. These visits should occur at one, three, seven and fourteen days postpartum. It is only after this critical early postpartum period that what is commonly understood as routine postpartum care which includes: counselling on breastfeeding, infant feeding and immunization, maternal nutrition and family planning-should take place (AbouZahr and Bere, 1999). It is therefore key that increased programmatic emphasis be placed on assuring that new mothers and their newborns receive routine, skilled care that focuses on early detection of complications and prompt referral in addition to the conventional six week (or “fortieth day”) post-partum visit (AbouZahr and Bere, 1999).

Postnatal care is essential for the decline of post-partum haemorrhage which is a leading cause of maternal mortality in developing countries (Wang *et al*, 2011). The utilization of the healthcare services for postnatal care allows for the early detection of postpartum problems and possible complications by skilled health professionals. The early detection ensures that prompt treatment is given and also facilitates interventions which could be useful in the reduction of maternal and infant mortality worldwide (Titaley *et al.*, 2010). Thus the utilization of postnatal care can assist the lives of both mothers and children, for example, easing muscle aches and pains that result from nursing and carrying the newborn, restoring the mother’s body to a pre-pregnancy condition and increasing effective contraceptive use (Dhakal *et al.*, 2007). In the case of the newborn, proper hygiene, warmth, breastfeeding, danger sign recognition and provision of eye prophylaxis and immunizations. Immunization is an important component of postnatal care for newborns and it remains one of the most effective health interventions that has prevented about 24% of the 10 million yearly deaths of children under five years (Abou-Zahr, 2001).

The other benefits of postnatal care include the promotion of healthy lifestyle for mothers and babies through information, early detection of complications and referral to experts if necessary, extra visits for pre-term babies, prevention of maternal-child transmission of HIV, and appropriate feeding and family planning (Darmstadt *et al.*, 2005). It helps to improve the health of the newborn by exposing them to vaccinations, malaria insecticide-treated bed nets, nutrition,

including vitamin A and zinc, care of children with HIV, including *co-trimoxazole* and integrated management of childhood illness (Darmstadt *et al.*, 2005).

Despite the advantages associated with utilization of postnatal care, the uptake of these services and benefits is still very low and varies across regions, in developed countries, nearly all mothers and their infants receive postnatal care, although the quality and frequency of this care varies greatly (Li *et al.*, 1996). On the other hand, in developing countries, the need for care and support after child birth was, until recently, less well recognized. Despite its proven significance in developing countries, the postnatal period is generally the most neglected period (Li *et al.*, 1996). According to WHO, rates of provision of skilled health care are lower after childbirth than during the period of pregnancy or during childbirth, even though both the risks for illness and the potential to improve longer-term outcomes are as great (WHO, 2005).

2.2 Trends in Postnatal Care Utilization

To illustrate the point, Demographic and Health Surveys (DHS) data from 1990 to 2009 in 38 countries across four regions was split into: 21 countries in sub-Saharan Africa; four countries in North Africa/West Asia/Europe; eight countries in South/Southeast Asia; and five countries in Latin America and the Caribbean. This data set shows the differences in the utilization of postnatal care services. In South/Southeast Asia, in four countries (Bangladesh, India, Nepal and Pakistan), up to 72% of mothers who did not give birth at a health facility received postnatal care. Cambodia and the Philippines are no exceptions, with a high proportion of women who did not give the birth at a health facility reporting postnatal care (up to 88% in the Philippines), although these figures do not provide information on the content and providers of services. In three of the four Latin America and Caribbean countries studied (Bolivia, the Dominican Republic and Peru), although more than half of women did not deliver at a healthcare facility, they reported attending postnatal check-ups (Wang *et al.*, 2011). It was found that, 90% or more of women who delivered at a health care facility reported for postnatal check-ups. The results in sub-Saharan Africa were different as it was discovered that very low proportions of women who did not deliver at a health facility had a postnatal check-up, except in Ghana and Madagascar, where little over half of such women had a postnatal check-up during this period (Wang *et al.*, 2011).

A cross-sectional study using a mixed-method approach conducted in Bandarban District in the remote south-eastern part of Bangladesh revealed that 94% of the women did not utilize postnatal care services. From the qualitative results, the non-utilization of postnatal care services among the women was due to large distances to service centres, illiteracy, lack of awareness of health issues and language barriers (Islam and Odland, 2011). Using the 2004 Bangladesh Demographic and Health Survey (BDHS), Rahman (2008) identified different factors affecting postnatal care of mothers in the urban and rural areas. His findings revealed that there is a strong urban-rural differential in the utilization of postnatal care (PNC) among urban and rural mothers. He found that urban illiterate mothers were two times more likely to receive postnatal care from medically trained providers than rural illiterate mothers. On the contrary, receiving PNC from medically trained providers among highly educated mothers was almost same both in the urban and rural area.

Using data from the District Level Household Survey (DLHS-3) conducted in 2007–8, Singh *et al.*, (2008) found that about 44% of the mothers interviewed in the survey received PNC check-up within 48 hours of giving birth and only 45% of the newborns were checked within 24 hours in India. Their findings showed the magnitude of the socio-economic inequalities through the use of PNC services. To illustrate this, Singh found that the use of PNC was three times higher among the rich compared with the poor. The rich were much more likely than the poor to get their babies seen by a healthcare worker within 24 hours of birth. In addition, they were also more likely than the poor to get their newborns examined in a private facility (Singh *et al.*, 2012).

A descriptive cross-sectional study looked at 150 rural women in two Village Development Committee areas (VDCs) or 'villages' in the Kathmandu district, Nepal and revealed that the utilization of PNC was 34% within 42 days after delivery and 19% within 48 hours (Dhakal *et al.*, 2007). They concluded that lack of awareness was the main barrier to the utilisation of postnatal care. Another study in Nepal which was a community based cross sectional study conducted from January to February, 2012 among the mothers who were currently having young children aged 6 weeks to 23 months in Kapilvastu district of western Nepal revealed that out of the 223 participants, 25.1% attended any PNC, 13.5% attended early PNC (within 24 hours of delivery) and 19.3% sought PNC service from healthcare workers (Paudel *et al.*, 2013).

A nationally representative sample of 10,023 women was studied using data from the 2006-7 Pakistan Demographic and Health Survey (PDHS) showed that only 24% of mothers received a PNC check-up within six weeks after delivery from their last pregnancy in the same year. This study found that women in Pakistan do not usually attend an institutionalised medical facility for routine PNC consultations, except for serious cases or potentially fatal complications that compels them to go to a hospital (Bibi *et al.*, 2012). The 2006-7 Pakistan Demographic and Health Survey (PDHS), concluded that utilization is still low and socio-economic status remains a major determinant of postnatal care utilization (Yunus *et al.*, 2013).

An analytic study using the 2002-3 Indonesia Demographic and Health Survey with a sample size of 15,553 live-born infants revealed that 67% of the infants born within the period received postnatal care and 94% received it in the first week of life (Titaley, Dibley and Roberts, 2009). Hence, in Indonesia, infants who received postnatal care within the first 40 days of life had a significantly lower risk of dying than infants who never received postnatal care services (Titaley *et al.*, 2009)

There is also a large gap that exists in postnatal care across 23 African countries. As few as 13% of mothers and infants received postnatal care within two days of delivery (Warren *et al.*, 2006). Even with a combination of women who delivered in health facility and women who did not, the utilization of PNC was still low in sub-Saharan Africa. This point is supported by the statistics from Uganda (74.1%), Nigeria (55.2%), Zambia (49.8%), Zimbabwe (44.8%) and Ghana (22.5%) (Wang *et al.*, 2011).

A study in Ethiopia revealed that PNC services were low at 37.2%. Using a combination of simple random and multistage sampling techniques, they found that mothers who were educated, exposed to media and women with low parity were more likely to use PNC services (Regassa, 2011). Only 23% of mothers who gave birth outside a health facility received a first postnatal check within the first two days of birth and more than 70% of mothers who gave birth at home did not see any health care provider during the postnatal period (NDHS, 2003). More than one-third of women (38%) received a postnatal check-up within two days of delivery. However, 56% of women did not receive any postnatal care within 41 days of delivery (NDHS, 2008). A study in Nigeria using Data from the 2005 National HIV/AIDS and Reproductive Health Survey found out that at the level of the individual, education, age at the birth of the last child, ethnicity,

approval of family planning and family size ideals were the strongest predictors of postnatal care (Babalola and Fatusi, 2009). Another study in Nigeria which aimed at identifying community contextual factors influencing the decisions to seek postnatal care revealed that women from communities with a high level of education were more likely to deliver their baby in a hospital. In the same study, regional variations were observed as women from South-West region were 1.3 times more likely to seek postnatal care than those from North-West (Ononokpono *et al.*, 2012).

2.3 Factors that determine the Utilization of Postnatal Care

There are multiple factors that determine the utilization of postnatal care, as well as its nature, and the timing of utilization. Some of the factors encourage mothers to utilize PNC; others factors are seen by mothers as a deterrent from visiting a PNC. Both the positive and negative factors that have been found to be associated with non-utilization with postnatal care will be discussed.

2.3.1 Age

A higher level of maternal and neonatal mortality rates have been observed among mothers who deliver at high and low extremes of maternal age (Stephenson & Tsui, 2002; Reynolds *et al.*, 2006). This implies that women who are very young or very old may have higher levels of maternal mortality rates. This may be as a consequence of their non-use of postnatal care services. This is particularly true of women under 20 years and those over 40, as they are more prone to complications during pregnancy and childbirth that affects both them and their babies. Although, the age of a mother plays an important role in her utilization of postnatal care services, the direction of relationship is different to what may be expected (Burgard, 2004). It was found, that younger women have more knowledge about modern healthcare services than older women (Stephenson & Tsui, 2002). However, many others studies have found the opposite effect of knowledge, as older women know more and are more likely to use PNC services than younger mothers and add that other factors such as decision making power at the house hold level could play a role in holding the younger women back (Glei, Goldman & Rodriguez, 2003; Burgard, 2004; Reynolds *et al.*, 2006).

2.3.2 Accessibility

The distance to health facility is either a push or pull factor that also plays an important role in utilization of postnatal care services. It makes sense that healthcare personnel and facilities must

be easily accessible to where patients, in this case, mothers live and work. This enables mothers to have the means and knowledge of getting to those services which encourages the utilization of these vital medical services. The ease of access to postnatal care services may be facilitated or hindered by the location and physical distance of the service from the client. In other words, the effectiveness of the PNC service, through its utilization may be hindered by the lack of access or the other way round. Distance may impede or enhance utilisation of a healthcare service. A number of studies in developing countries have documented strong evidence that the physical proximity of health care service can play an important role in the utilization of health services (Buor, 2003 and Feikin *et al.*, 2009). In contrast, in a developing country like Nepal, a study found that access which was measured by: visiting health care worker, when mothers listened to the radio broadcasts and were exposed to information via the mass media found that there is a positive association between accessibility and postnatal care utilization (Sharma, Sawangdee & Sirirassamee, 2007). The cost of services which could be transport or drugs can reduce women's use of postnatal care services. From economics, price is negatively related to demand.

2.3.3 Antenatal Care

Use of antenatal care services has been found to be associated with the use of postnatal care. The utilization of antenatal care services usually ensures the use of skilled medical attendants at birth and postnatal care (Lincetto, 2006). The report from the 2008 NDHS show that about 55% of the women in Nigeria had less than four antenatal visits and only 16% had their first antenatal visit during the first trimester of the pregnancy. This could result in low use of PNC services in the country. A study in Uttarakhand, India found a positive association between use of antenatal care services and the utilization of postnatal care. They found that women who received partial and full antenatal care were 1.7 and 2.9 times respectively more likely to go for postnatal checkup than women who received no antenatal care (Chimankar and Sahoo, 2011). A study in rural Tanzania also concluded that use of antenatal care promotes the utilization of PNC services (Magoma, 2013). A study focusing on adolescents in Malawi observed that the utilization of postnatal care services by adolescent mothers was significantly influenced by the (at least four) antenatal care visits (Singh *et al.*, 2013). In addition, a study in Nigeria concluded that urban women who received antenatal care in South Eastern Nigeria were more significantly more likely to utilize postnatal care services (Ugboaja, 2013). The association between antenatal care and postnatal care may be partly explained by the existence of contextual factors that affect both

phenomena simultaneously (Sepehri *et al.*, 2008; Stephenson *et al.*, 2006) but it has also been documented that women may utilize ANC services and ignore PNC services as they may just want to know the status of the health of the child at that time (Amooti-Kaguna & Nuwaha, 2000). Antenatal care utilization could improve women's awareness and knowledge on the importance and the availability of postnatal care services, which can motivate them to utilize postnatal care services (York, *et al.*, 2000). This link between the two should encourage concentrated efforts by policymakers to motivate mothers in Nigeria to utilize antenatal services and ultimately to use the PNC services.

2.3.4 Birth Order

Birth order is an important predictor in explaining the utilization of postnatal care services. Due to the uncertainty and the perception of risk associated with first pregnancies, women are more likely to seek medical attention for first-order births than for subsequent ones. For instance, in Malawi, adolescent women with a high order of birth (birth order 2/3) had lower probability in utilizing postnatal services compared to adolescent women with a first birth order (1) (Singh *et al.*, 2013). This finding correlates with the observation made by studies conducted in Nigeria (Rai, Singh, & Singh, 2012) and Turkey (Celik & Hotchkiss, 2000). This study showed that women are significantly more likely to use maternal healthcare services for their first child. Another reason could be because women are more cautious toward health risks with their first pregnancy are more cautious toward health risks (Raj *et al.*, 2009). However, with each preceding pregnancy, women may tend to believe that modern health care is not necessary and rely more on past experiences provided that they have not had any bad experiences (Mekonnen & Mekonnen, 2002). There is evidence that a higher birth order suggests a greater family size and hence fewer resources are available to access PNC services (Bhatia & Cleland, 1995).

2.3.5 Birth Size

The NDHS 2008 reports that the neonatal mortality rate (NMR) for babies categorised by mothers as 'small' or 'very small' was more than twice that for babies classified as 'average' or 'larger than average'. In Indonesia, Titaley (2009) found that the odds of not using postnatal care was significantly higher for smaller than average-sized infants compared to larger than average-sized infants. He hypothesized that mothers may delay visits to postnatal care services due to the perceived vulnerability of their small baby to cope with/handle the journey.

2.3.6 Pregnancy-wantedness

Unwanted fertility increases the probability of under-utilization of maternity healthcare (Gage, 1998). In a cross-sectional study in Namibia and Kenya, It was concluded that unwanted pregnancy and poor timing of pregnancy was associated with low utilization of ANC (Gage, 1998). A study using data from California Maternal and Infant Health Assessment sought to understand the link between pregnancy-wantedness and postnatal care seeking behaviours. They concluded that women who were happy with their pregnancy were significantly more likely to seek postnatal care-taking services (Libet, 2003). There are results from Indonesia that showed that the opposite can happen. In Indonesia, mothers that intended to become pregnant were actually more likely not to utilize postnatal care services (Titaley, 2009). The reason for this in Indonesia could be as a result of maternal education or household wealth index.

2.3.7 Education

Research in developing countries has consistently shown that there is strong relationship between education and the utilization of postnatal care. It has been consistently established by several studies that education affects utilization of postnatal care services, concluding that better educated mothers are more likely to utilize postnatal care services (Dhakal *et al.*, 2007; Rahman *et al.*, 2011; Neupane & Doku, 2013). Other studies in Nigeria have also documented the positive impact of high maternal educational attainment on utilization of postnatal care services in Nigeria (Ononokpono, 2012; Ugboaja *et al.*, 2013). However, there is also evidence indicating that education alone may not be sufficient to improve health-care-seeking behaviour of women. For instance, Kyomuhendo (2003) found that despite a favourable and enabling policy environment, universal primary education and decentralization of health services, there has not been an increase in utilization of health care services by women in Uganda. He explained that this may be because women's care-seeking behaviour was not the result of individual preferences, educational attainment or choice but conditioned by other factors such as community poverty, norms and tradition.

2.3.8 Marital Status

The marital status of a mother highlights the difficulty she may face as she might have to rely on her husband to secure access to medical treatment, financially and practically (Rahman, 2000). For instance, she may require her husband's support or permission if she has to travel a long

distance for medical consultation. A study focusing on rural Ethiopia found that married women were more likely to use antenatal care than their unmarried counterparts but found no difference in the use of postnatal care services among the two groups (Mekonnen & Mekonnen, 2002).

2.3.9 Occupation

It has been found that employment increases awareness and provides new ideas, behaviour and opportunities through interaction with other people outside the home and community (Riley, 1997). It is assumed that women who are employed will have enough finance to pay for postnatal services which may translate into high decision making power in the home but some researchers have argued that the type of employment a woman is involved in determines her use of these services (Miles-Doan, Brewster, 1998). This has led to mixed results from studies which have aimed to determine the effect of work status on the utilization postnatal care services. Some studies have found that formally women are more likely to utilize postnatal care services (Kishor & Neitzel, 1997), due to their capacity to be more empowered. Other studies have shown that women employed in the agricultural sector are less likely to utilize postnatal care services (Obermeyer and Potter, 1991 and Addai, 2000). A reason for this could be because majority of mothers who are into agricultural services reside in the rural areas and may only seek modern postnatal care services after they have exhausted resources and expertise in their communities (Addai, 2000). Furuta & Salway (2006), report that women's employment does not translate directly into greater use of maternal healthcare in Nepal. It was found that Nepalese women who work but have no control over the use of their earnings were least likely to receive maternal healthcare. This may be because most of the women who work are from poor households and work for family survival. Hence, working women were no more likely to receive maternal healthcare than women who did not work, even after controlling for socioeconomic status and place of residence. Even though the answer is not clear, working women perhaps experience time constraint that reduces their opportunities for receiving health care (Furuta & Salway, 2006).

2.3.10 Place of Delivery

The place where mothers give birth usually indicates whether or not the birth was attended to by skilled birth attendants. More than one half of Nigerian babies die at home. According to the 2008 NDHS, at least 62% of births occur at home, while only 35% take place in a health care facility and there had been no significant increase in facility births over the five years preceding

the survey. Health care facility delivery and assistance of delivery by healthcare workers are two of the factors that have been found to be associated with the increased utilization of postnatal care services (Anwar *et al.*, 2008; Mrisho *et al.*, 2009). For instance, a nationally representative study in Nepal found that place of delivery was independently associated with postnatal check-up within 2 months of delivery (Neupane and Doku, 2013). Another study in Nepal which was community-based also discovered that mothers who had delivery assisted by healthcare workers and had their delivery at a health care facility were more likely to utilize early PNC services than their counterparts who did not (Paudel *et al.*, 2013).

2.3.11 Place of Residence

Women residing in rural areas are less likely to utilize postnatal care services than their urban counterparts. This statement is consistent with findings in Ethiopia by Mekonnen & Mekonnen, (2002). Other researchers have explained that urban women have many advantages over their rural counterparts which may influence their postnatal care use. These advantages include; higher levels of knowledge, access to services and health care promotion programs that use urban-focused mass media (Ezeonwu, 2011; Koblinsky *et al.*, 2006; Singh *et al.*, 2011).

2.3.12 Religion

Commonly held beliefs and norms in form of religious practices shape the way women perceive their own health and their response to the health services available. Religion has an important role in the utilization of postnatal care services. Religion helps in shaping beliefs, norms and values (Stephenson *et al.*, 2006). These values or beliefs that women hold may prevent women from utilizing postnatal care services. Religious belief has been found to be a push factor or source of exclusion from maternal health care utilization in India and Africa (Stephenson *et al.*, 2006; Ochako *et al.*, 2011; Rahman *et al.*, 2011). Using logistic regression to adjust for confounding factors, a cross-sectional study conducted in a peri-urban town in Zimbabwe revealed that religion (apostolic faith) was associated with non-utilization of postnatal care services, because the women believed in faith healing and prefer traditional midwives. It has also been found that non-Catholic women were less likely to use maternal healthcare in Ghana, whilst Catholic women were less likely to utilize maternal healthcare in Kenya when compared to Protestants (Stephenson *et al.*, 2006). This shows that religious affiliation is strong as it is usually a community head belief (Muchabaiwa *et al.*, 2012).

2.3.13 Wealth Status

In Nigeria, the lack of finance emerged as the major issue among women who did not fulfil the minimum requirements of four antenatal care services or two postnatal care services within the first month after delivery. This was related to the cost of health services, transportation costs, or both. Also, the limited availability of health services in remote areas was a problem, especially if the village midwife frequently travelled out of the village. In addition to the long distances away from health facilities, the poor condition of the roads was a major concern for pregnant mothers or mothers who had just given birth, particularly for those living in remote areas. Economic status has been consistently shown to have a positive association with utilization of health care service and postnatal care is no exception (Fosu, 1994, Elo, 1992). This is as a result of the high cost of getting to care in sub-Saharan Africa which may include transportation and medications. Women who are poor may not be able to afford these costs and this may discourage them from the use of these services. Thus the non-utilization of postnatal care services among poor households could be due to the low priority assigned to health seeking when compared to other basic daily needs or to the lack of resources for health care expenses, whereas households with funds available could spend a proportion of their earnings on health care (Muldoon *et al.*, 2011). Poor young women are often found to be uneducated, unemployed, and detached/excluded from social networks; thus they are less easily reached by programs that rely on mass media for the diffusion of information regarding the utilization of existing health services (Singh, Rai, & Singh, 2012; Rani & Lule, 2004).

Generally, we found that the determinants of postnatal care non-utilization are not uniform across regions and countries. Despite the several studies that have contributed to the utilization of postnatal care services, there are a few studies that have failed to identify the factors that influence their non-utilization at the national level. The implication of this is that the women who need to be targeted with interventions have been missed and this would delay the achievement of the MDG5. Also, the few studies (Osubor *et al.*, 2006; Babalola & Fatusi, 2009; Rai *et al.*, 2012; Ugboaja, 2013) that exist on postnatal care in Nigeria have focused on local geographical levels which limits their validity as it cannot be applied to the whole of Nigeria. It is this gap that this study will focus on addressing by using a national database to inform healthcare policy and interventions.

2.4 Theoretical and Conceptual Framework

From the studies reviewed, there are several different theoretical models that have been used to examine the issues of healthcare utilization. These models include: Young's Choice-making model (1981), Rosenstock's Health Belief model (1988) and Andersen and Newman's Health Behavioural model (2005).

Young's Choice-making model is based on the ethnographic studies of health services utilization. This model integrates four important aspects of an individual's health service choice: perceptions of the gravity of the health choice which explains both the individual's perception and their social network's consideration of illness severity; the knowledge of a home treatment. If a person is aware of a home remedy that is effective, they are more likely to utilize that treatment before utilizing a professional health care system, the individual's faith in a remedy which considers the individual's belief of effectiveness of treatment for the present illness; the accessibility of treatment. Accessibility combines the individuals' evaluation of the cost of healthcare services and the availability of those services.

Rosenstock's Health Belief model is a psychological model that attempts to explain and predict health behaviours. It focuses on the attitude and beliefs of the individual towards their health. The model is based on the assumptions that a person will take a health-related action; if they are personally vulnerable to the condition; if that person feels that a negative health condition can be avoided, believes that he/she can avoid a negative health condition by taking a recommended action and believes that he/she can successfully take a recommended health action (Rosenstock, 1990). The Health Belief model has been applied to Preventive medicine to promote healthy behaviours, which include health-promotion (e.g. diet, exercise) and health-risk behaviour (e.g. smoking) as well as vaccination and contraceptive practices (Conner & Norman, 1996). One of the limitations of this model is that it does not account for other factors that influence health behaviours. For instance, environmental factors outside an individual's control may prevent engagement in desired behaviours.

Andersen (1960) developed a model of health care utilization which looks at three categories of determinants. It is the most frequently used framework by researchers for analysing the factors associated with utilization of health care. It affirms that health care utilization is a function of the predisposition of an individual to use the services (predisposing factors); factors that facilitate or

hinder the use (enabling factors) and the individuals need for the service (need factors). The initial model has been revised repeatedly to include more variables that have been shown to increase the variance in explaining the utilization of health care services (Andersen, 1995). For this reason, the Andersen and Newman's behavioural model would be considered for this study. Since this study concentrates on identifying and understanding the relationship between the factors that influence the non-utilization of maternal healthcare services, we have adopted the Health Behaviour model and its subsequent modification (Aday & Andersen, 1974; Andersen, 1968; Andersen, 1995; Andersen & Newman, 1973) as the theoretical framework. This model has been successfully applied in the study of healthcare services utilization in developing countries (Amin, Shah, & Becker, 2010; Fosu, 1994; Subedi, 1989).

2.4.1 Andersen and Newman's Behavioural Model

The Andersen and Newman's behavioural model which is also known as the 'health care utilization model' (Anderson and Newman, 2005) shows the factors that determine the use of health services. He posits that the access and usage of health services by individuals can be determined by: predisposing, enabling, and need factors. Predisposing factors are the socio-cultural characteristics of individuals that exist prior to illness. The predisposing factors are further divided into; (1) social structure including education, occupation, ethnicity, social networks, social interactions and culture, (2) health beliefs which refer to the attitudes, values and knowledge that individuals possess regarding the health care system. For example, a woman is more likely to seek care if she believes that the available health services can treat her condition and (3) the demographic characteristics, like: age and gender. The enabling factors explain the logistical process of accessing care. The enabling factors explain resources present in the family and community and are categorized into; personal/family support (income, health insurance and means and how to access health services), community factors (availability of health personnel and facilities and amount of time individual has to wait) and genetic factors of psychological characteristics. Need factors represent both the perceived (an individual's perception of his/her general health or well-being) and the evaluated (professional judgment about the health status of individuals and their actual need for health care services).

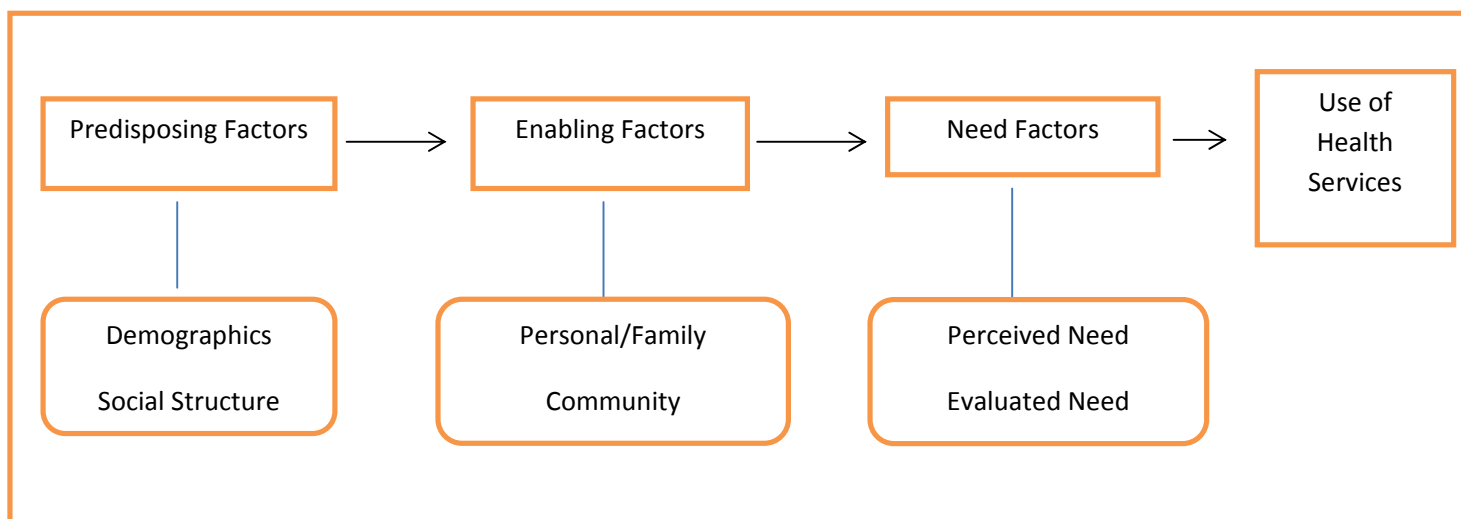


Figure 1: The Initial Model (Anderson and Newman, 2005)

A number of studies in developing countries have employed this framework as conceptual framework and generated a number of variables to the three factors that have been classified by Anderson and Newman (Chakraborty et al., 2003; Titaley et al., 2009; Jahangir, Irazola & Rubinstein, 2012). Some of the variables that have been classified as ‘predisposing’ factors are: ‘age’, ‘sex’, ‘occupation’, ‘education’, ‘race’, ‘ethnicity’ and ‘living arrangement’. The ‘enabling’ factors according to these studies include: ‘family income’, ‘social network’, ‘socio-economic status’, ‘previous use of formal healthcare’, ‘distance to healthcare facility’, ‘transportation access’, ‘regular source of healthcare’ and ‘characteristics of healthcare delivery system’. Factors that have been grouped into ‘need’ factors include: ‘level of functional impairment’, ‘perceived and evaluated health status’, ‘family burden’, ‘symptoms’ and ‘pregnancy-wantedness’.

2.5 Conceptual Framework

The conceptual framework used in the study is adapted from the Anderson and Newman (2005) framework for health service utilization. This study makes use of the ‘predisposing’, ‘enabling’ and ‘need’ factors that have been shown to influence health service utilization. The ‘predisposing’ factors were grouped into mother and child’s characteristics. The child’s characteristics include: child’s sex and birth order. The mother’s characteristics were made up of demographic characteristics and social structure. These include: ‘the mother’s age’, ‘educational attainment’, ‘occupation’, ‘marital status’, ‘place of usual residence’, ‘religion’ and ‘region’. The ‘enabling’ factors of healthcare service utilization have been previously classified into family and community factors in other studies. The enabling factors in this study focused on: ‘antenatal

care utilization’, ‘place of delivery’, ‘wealth status’ and ‘accessibility’ to health services. The ‘need’ factors include: ‘pregnancy-wantedness’ and ‘birth size’.

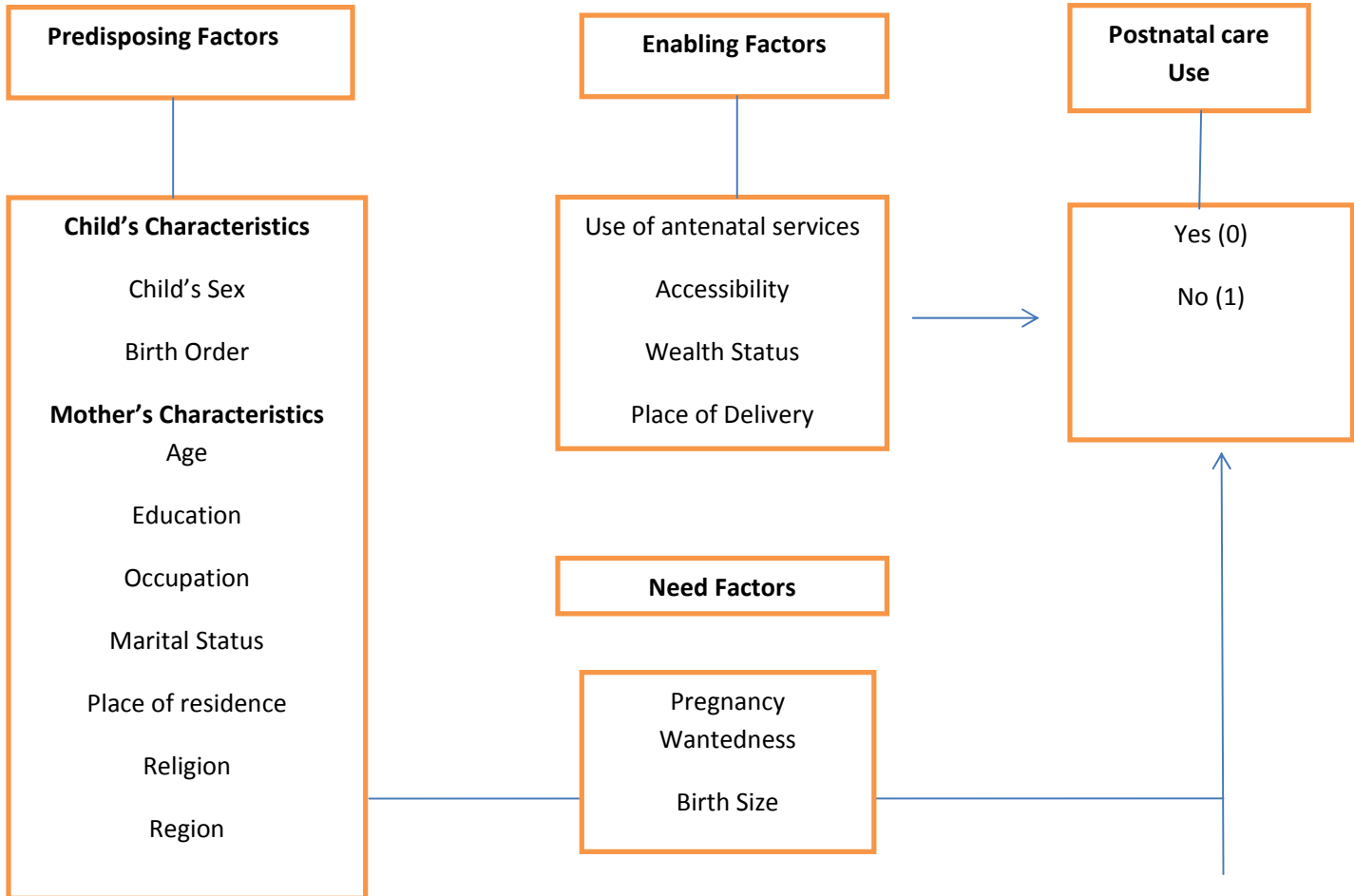


Figure 2: Conceptual Framework Adapted from the Andersen and Newman Model (2005)

2.6 Hypothesis

In this study, we hypothesize that the various predisposing, enabling and need factors, are associated with the non-utilization of postnatal care services among Nigerian mothers. Specifically that:

- 1) Women who do not utilize antenatal care services are less likely to use postnatal care services. Empirical evidence has shown that use of antenatal care increases the likelihood of using postnatal healthcare (Chimankar and Sahoo, 2011; Ugboaja, 2013).

- 2) Women with different accessibility problems are less likely to utilize PNC services. Since women's decision not to utilize postnatal care services may be influenced by the availability and the means to reach those services. Further studies have found accessibility to be a major determinant of postnatal care utilization (Chakraborty *et al.*, 2003; Mekonnen and Mekonnen, 2003).

- 3) Women with low levels of education are more likely not to utilize PNC services. Many studies have documented the effect of education on postnatal care utilization (Elo, 1992; Regassa, 2011; Mrisho, 2009; Worku, Yalew & Afework, 2003).

2.7 Summary

This section presents review on local and international literature on factors associated with PNC utilization. It starts with the introduction of PNC and looks at trends in PNC utilization before discussing the variables that have been seen to influence the use of PNC. It also reviews the theoretical and conceptual framework that has been used in the study.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the methodology used in establishing the determinants of postnatal care non-utilisation by women in Nigeria. It provides detailed information on how the objectives of the study are achieved. It explains the research setting, the study design, the sample size, the research instrument, and the procedure followed in obtaining the information, the analysis used to interpret the information and the limitations.

3.1 Study Design and Data Source

This is a population-based cross-sectional study that utilized secondary data from the Nigerian Demographic and Health Survey (NDHS) for 2008. The data was collected by the National Population Commission (NPC) from June to October 2008 with a representative sample of more than 36,000 households. Women between 15-49 years in these households and men between 15-59 years in households were interviewed. The 2008 NDHS is a survey taken after three previous surveys in 1990, 1999, and 2003. This survey provides current information on demographic and health indicators of a population. It provides up-to-date information on fertility, childhood mortality, marriage, fertility preferences, awareness and use of family planning methods, infant and child feeding practices, maternal and child health, maternal mortality, and HIV/AIDS related knowledge and behaviour among others.

The child recode dataset was used for this study. This dataset has one record for every child born in the five years preceding the survey to interviewed women. It contains the information related to the child's pregnancy, delivery, postnatal care and immunization among others. The data for the mother of each of these children are included. This file is used to look at child health indicators such as immunization coverage, vitamin A supplementation, recent occurrences of diarrhea, fever, coughs for young children and treatment of childhood diseases. The survey was technically assisted and funded by ICF Macro through the Measure DHS project. The Measure DHS received her funding from the United States Agency for International Development

(USAID). The USAID provides support and technical assistance for implementing population and health surveys in countries worldwide.

3.2 Study Population and Sample Size

This study is based on 28,647 live births born to 18,028 women (between 15-49 years) in the five years preceding the 2008 Nigeria Demographic and Health Survey.

3.3 Data Management

3.3.1 Variable Description and Measurement

3.3.1.1 Outcome Variable:

The primary outcome of this study was non-utilization of postnatal care services. The variable is constructed using the WHO definition of postnatal care, which takes into account attendance of PNC services, checked by trained health personnel and timing of care (within 42 days of birth). It was thus derived from the following questions:

- 1) After discharge/delivery at home, anyone checked respondent?
- 2) Who checked respondent's health after discharge?
- 3) How long after discharge/delivery at home was respondent's health checked?

These three questions address the guidelines by the WHO.

For the purpose of this study, which draws reference from other studies, qualified health care providers include; doctors, nurses, midwives, community or village health workers and auxiliary midwives, while unqualified health care providers include traditional birth attendants, and 'others'. Qualified health care providers are country specific and variations exist. However, in Nigeria, Community Health Officers (CHOs) are trained at the schools of health technology (WHO, 2013) which is why we have included them in the analysis as qualified health care providers. With regards to timing, it is recommended that the mother and baby be assessed within one hour of birth and again before discharge if the mother is in a facility, and also within first 42 days. For births that occur at home, first visits should target the crucial 24 hours after birth, and a further visit within first 42 days. Thus, the categorization of PNC as use and non-use in this study complies with the highest level of PNC (appropriate care). Mothers were considered to have made adequate utilization of PNC services if she and her baby were checked by qualified

healthcare personnel (doctors, nurses, midwives, auxiliary midwives or community/village health workers) within 42 days of child birth. Hence, PNC utilization was categorized in this study as “1” (i.e. respondent was not attended to by qualified healthcare personnel within 42 days of birth); and “0” (i.e. respondents was attended to by a qualified health worker within the appropriate timing – not later than 42 days after birth).

3.3.1.2 Independent Variables:

The independent variables used in this study include demographic, social and economic variables and they have been selected based on existing literature on postnatal care utilization and the adapted Anderson and Newman’s framework.

Age of the Respondent: this variable refers to age of the woman at the time of the survey and is originally categorized as: ‘15-19’, ‘20-24’, ‘25-29’, ‘30-34’, ‘35-39’, ‘40-44’ and ‘45-49’. It was categorized as ‘15-24’, ‘25-34’, and ‘35-49’ in this study.

Antenatal care (ANC) utilization: in this study, a visit to a qualified health care provider for ANC irrespective of timing and frequency was used as a proxy for antenatal care. Women who did not visit a doctor, nurse, midwife or auxiliary midwife were coded as: (0) and (1) otherwise.

Accessibility: most studies have isolated the travel time and transport cost when looking at access to health facilities. In the DHS data, women were asked whether a range of factors would be a big problem for them in accessing health care. We generated a proxy variable using three DHS standard questions. The questions included: (i) getting money needed for treatment (ii) distance to health care facility and (iii) having to take transport. The responses for the questions asked are “big problem” and “not a big problem” Responses to these questions were categorized as (1) big problem – coded as ‘1’ and (2) not a big problem – coded as ‘2’.

Birth order: this refers to the rank of the child at birth. It is a continuous variable that ranges from 1-18. It has been categorized as ‘1’ (first order), ‘2-4’ and ‘5+’.

Birth size: this variable has been considered because it is a proximate determinant of neonatal mortality. Some studies have used actual birth weight but we utilized average birth weight due to the large number of missing values in the birth weight variable in the DHS. It is originally categorized as ‘very large’, ‘larger than average’, ‘average’, ‘smaller than average’ and ‘very

small'. It was re-categorized as: (1) 'larger than average', (2) 'average' and (3) 'smaller than average'.

Sex of child: sex of the infant was included in the analysis because previous research has shown that resources may be allocated to favour male infant access to PNC services in some countries (Bishari, Suzuki, McQuestion, Chakraborty, & Koenig, 2002; Yount, 2003; Li, 2004). Sex had two categories: male and female.

Pregnancy Wantedness: this refers to whether the mother wanted the child at conception. Wantedness was grouped into three categories: wanted, later and no more. It was categorized as (1) 'wanted' (2) 'wanted later' (mistimed) and (3) 'wanted not more' (unwanted).

Educational status: educational status refers to the highest educational level the mother attained and it was categorized into three levels: no education, primary education, secondary and higher level of education. In the survey, the category secondary and higher education were separate categories but for this study the two were merged because the numbers of women in the higher education group was very small.

Marital status: describes the type of marital relationship the mother was in. This was grouped into three categories in this study: (1) 'never married', (2) 'currently married' and (3) 'formerly married'.

Mother's occupation: examines the women were employed or not and also looks at the type of employment they were engaged in. This was coded as: mothers not working (1), mothers who stated that they were professionals, technical, management, skilled manual and clerical were coded as women engaged in formal employment (2), mothers who stated they were into sales were coded as 'sales' (3), women who stated that they were agricultural employees were coded as: women involved in agricultural employment (4) and women who stated that they were unskilled manual was coded as "other" (5).

Place of delivery: the definition of skilled attendance at birth involves two components - both the presence of skilled healthcare personnel as well as an "enabling environment", which means adequate supplies and equipment, possibilities for transport and effective communications (Adegoke, 2009). The place of delivery was assessed by this question in the DHS: 'Where did

you give the birth? The responses were ‘your home’, ‘others’ home’, ‘government hospital’, ‘public health center’, ‘health post’, ‘other government hospital’, ‘non-government hospital’, ‘private hospital’, ‘clinic’ and ‘others’. Births that took place at home were categorized as non-health facility and health facility if otherwise. This was categorized into (1) “non-health facility” and (2) ‘health facility’

Place of residence: describes the location of a woman’s residence. This is a dichotomous variable categorized as whether a woman was living in an urban or rural area as at the time the interview took place. It was coded as ‘1 for urban’ and ‘2 for rural’.

Region: has six categories that remain unchanged. South West region was selected as reference group because it is the most developed out of all the regions.

Religion: percentage distribution of women by religious affiliation. Classification of this variable was developed according to previous literature by merging together the Catholic and other Christians. Women who were traditionalist were also merged with women who stated they belonged to other religions. The categories used as are (1) ‘Christian’, (2) ‘Muslim’ and (3) ‘Other’.

Wealth Status: the wealth variable was derived from the wealth index for the households. The index has five quintiles in the data set; the lowest quintile (poorest), 2nd quintile (poorer), 3rd quintile (middle), 4th quintile (wealthier) and the 5th quintile (wealthiest). The variables that were included in the calculation of the index include: ownership of house- whether the house is owned by the household head or rented, whether there is electricity in the house or not, source of drinking water- pipeborne or well, ownership of a car, the type of cooking fuel used- firewood or others, location of kitchen- whether indoors or outside and the number of rooms in the house (NDHS, 2008). In this study, ‘poorest’ and ‘poorer’ were coded as (1) ‘poor’, middle as (2) ‘middle’ and ‘wealthier’ and ‘wealthiest’ as (3) ‘rich’

Table 3.1: Variable Definition and Codes of Selected Variables

| Variable Code | Variable Name | Original variable Categories | How it is coded in this study |
|---------------------------|-----------------------------|--|--|
| V013 | Age | 15-19 20-24 25-29 30-34 35-39 40-44 45-49 | 15-24 (1) 25-34 (2) 35+ (3) |
| V467c, V467d, V467e | Accessibility | Big problem Not a Big Problem | Big problem (1) Not a Big Problem (2) |
| M2a, M2b, M2c | Anc Use | Proxy | No (1) Yes (2) |
| bord | Birth Order | Continuous Variable (1-18) | 1-2 (1) 3-4 (2) 5+ (3) |
| M18 | Birth Size | Very large Larger than average Average Smaller than average Very small | Larger than Average (1) Average (2) Smaller than Average (3) |
| B4 | Child Sex | Male Female | Male (1) Female (2) |
| M10 | Pregnancy Wantedness | Then Later No More | Then (1) Later (2) No more (3) |
| V106 | Education | No education Primary Secondary Higher | No education (1) Primary (2) Secondary and Higher (3) |
| V502 | Marital Status | Never married Currently married Formerly married | Never married (1) Currently married (2) Formerly married (3) |
| V717 | Occupation | Not working Prof; tech, manag Clerical Sales | Not Working (1) Formal Employment (2) Sales (3) Agricultural Employment (4) |

| | | | |
|------|---------------------------|---|--|
| | | Agric-employee Services Skilled manual Unskilled manual | Other (5) |
| M15 | Place of Delivery | Respondents home Other home Government hospital Govt. health centre Govt. health post Other public Private hospital/Clinic Other private medical | Health Facility (1) Non-health Facility (2) |
| V102 | Place of Residence | Urban Rural | Urban (1) Rural (2) |
| V101 | Region | North Central North East North West South East South South South West | South West (1) North Central (2) North East (3) North West (4) South East (5) South South (6) |
| V130 | Religion | Catholic Other Christian Islam Traditionalist Other | Christian (1) Muslim (2) Traditionalist/Other (3) |
| V190 | Wealth Status | Poorest Poorer Middle Richer Richest | Poor (1) Middle (2) Rich (3) |

3.4 Data Plan

Three levels of analysis (univariate, bivariate and multivariate) were employed in this paper. At the univariate level, the percentage distribution of study sample was presented to show the distribution of respondents by the various characteristics of mothers and children stated above. At the bivariate level, Pearson's chi-square test was performed to examine statistically significant relationship between the independent variables and the outcome variable. Also, a logistic regression was employed to examine the crude effect of each independent variable and the outcome variable. At the multivariate level, a binary logistic regression was employed to examine the relationship between all the independent variables and the outcome variable.

The model is specified as follows:

$$\text{Logit [P(y = 1)]} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \dots \beta_k X_k$$

Where β_0 is the constant, which indicates the probability of rejecting the hypothesis being tested and the X_i are the set of explanatory variables. The analysis of all data was done by STATA statistical software Version 12. All tests were done at 5% significance level and at a confidence level of 95%. In order to avoid problems of over-sampling from the sample, appropriate weighting factors were used in the analysis.

3.5 Limitations

This study made use of cross-sectional data. As such, the study is unable to conclusively determine the temporal relationship between independent variable and dependent variable i.e. unable to establish a causal relationship between predictor variables and outcome, rather, associations are examined. Also, the 2008 Nigeria Demographic and Health Survey data was collected retrospectively. This may be associated with recall bias given that the events took place five years following the survey. For instance, women may forget or may not accurately recall during the interview the number of postnatal care visits attended.

3.6 Ethical Consideration

The study made use of secondary data, which was already anonymised at the collation stage, hence, no risk of breaking any interviewee confidentiality or associated considerations.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the findings of the study. First to be presented are the results relating to the univariate analysis. These include the levels of post-natal care non-utilization among women in Nigeria together with their percentage distribution by other demographic, socio-economic and behavioural characteristics. The second presentation of results is the bivariate analysis which is employed to determine the unadjusted effect of each independent variable on postnatal care non-utilization using chi-square and logistic regression. Finally, the multivariate analysis is employed to examine the adjusted effect of all the independent variables on postnatal care non-utilization in Nigeria.

4.1 Levels of Postnatal Care Non-utilization in Nigeria

The first objective was to examine the levels of postnatal care non-utilization in Nigeria. Of the 28,647 births born to women in the last five years preceding the survey, 95.76% did not utilize postnatal care. Figure 3 shows the percentage distribution by postnatal care non-utilization.

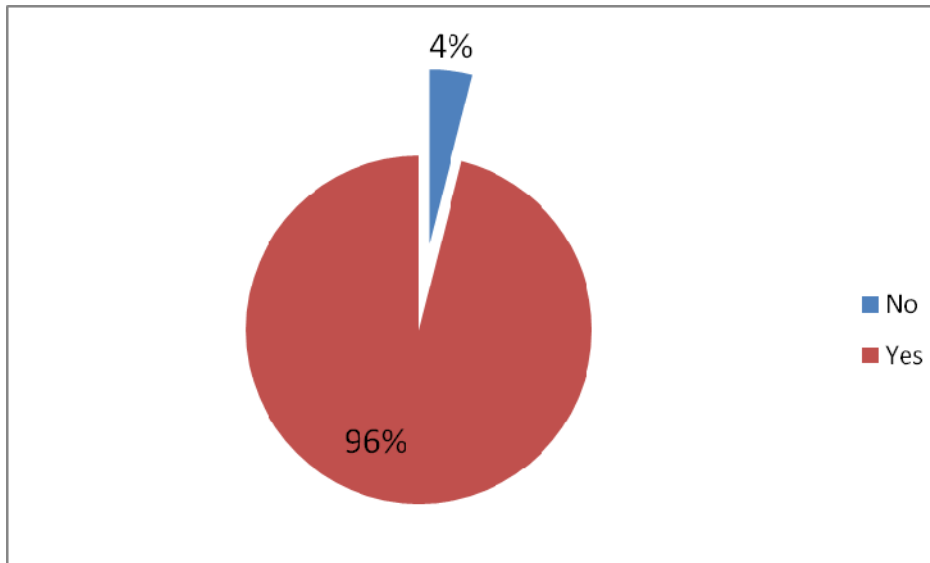


Figure 3: Percentage distribution of women who had live births in the five years preceding the survey by postnatal care

Figure 3 shows that 96% of the women did not utilize postnatal care services in Nigeria.

4.2 Characteristics of the Study Sample

Table 2 presents the percentage distribution of selected characteristics by postnatal care non-utilization.

As presented in Table 2, the results indicate that 49.8% of the children were children of women aged 25-34, predominantly high proportion (71.8%) of the children were children of mothers who stated accessibility was not a big problem and a high number of the children (95.6%) were delivered by currently married women. More than half of the children (55.2%) were children of Muslim mothers and about half of the children (46.5%) were children of mothers with no formal education with 70.2% of the children from rural area. In addition, 63.9% of the children were children of mothers who delivered in a non-health facility while a low number (7.2%) of the children were children of mothers in formal employment.

Table 2: Percentage distribution of Selected Characteristics by Postnatal Care

| Variable | Frequency | Percent (%) |
|---------------------------|------------------|--------------------|
| Age | | |
| 15-24 | 6,967 | 24.80 |
| 25-34 | 13,999 | 49.82 |
| 35+ | 7,133 | 25.38 |
| Accessibility | | |
| Big problem | 7,896 | 28.19 |
| Not a Big Problem | 20,117 | 71.81 |
| Anc Use | | |
| No Anc | 7,381 | 42.03 |
| Received Anc | 10,179 | 57.97 |
| Birth Order | | |
| 1-2 | 10,341 | 36.80 |
| 3-4 | 8,018 | 28.53 |
| 5+ | 9,740 | 34.66 |
| Birth Size | | |
| Larger than Average | 13,003 | 47.40 |
| Average | 10,453 | 38.11 |
| Smaller than Average | 3,974 | 14.49 |
| Child Sex | | |
| Male | 14,288 | 50.85 |
| Female | 13,811 | 49.15 |
| Child Wantedness | | |
| Then | 25,198 | 89.68 |
| Later | 1,716 | 6.11 |
| No More | 1,184 | 4.22 |
| Education | | |
| No Education | 13,071 | 46.52 |
| Primary | 6,521 | 23.21 |
| Secondary & Higher | 8,507 | 30.28 |
| Marital Status | | |
| Never Married | 467 | 1.66 |
| Currently Married | 26,888 | 95.69 |
| Formerly Married | 744 | 2.65 |
| Occupation | | |
| Not Working | 8,490 | 30.22 |
| Formal Employment | 2,045 | 7.28 |
| Sales | 9,428 | 33.55 |
| Agricultural Employment | 4,848 | 17.25 |
| Other | 3,287 | 11.70 |
| Place of Delivery | | |
| Health Facility | 9,835 | 36.06 |
| Non-health Facility | 17,437 | 63.94 |
| Place of Residence | | |
| Urban | 8,359 | 29.75 |
| Rural | 19,741 | 70.25 |
| Region | | |
| South West | 4,519 | 16.08 |

| | | |
|----------------------|--------|--------------|
| North Central | 3,829 | 13.63 |
| North East | 4,575 | 16.28 |
| North West | 8,779 | 31.24 |
| South East | 2,730 | 9.72 |
| South South | 3,666 | 13.05 |
| Religion | | |
| Christian | 12,017 | 43.02 |
| Muslim | 15,441 | 55.27 |
| Other | 478 | 1.71 |
| Wealth Status | | |
| Poor | 12,920 | 45.98 |
| Middle | 5,417 | 19.28 |
| Rich | 9,762 | 34.74 |

4.3 Association between each Independent Variable and Postnatal Care Utilization

To achieve the second objective of the study which was to examine the association between each independent variable and postnatal care non-utilization, a chi-square analysis and a binomial logistic regression was carried out. The chi-square result is presented in Table 3 and the independent unadjusted effect of the independent variables on postnatal care non-utilization is presented in panel 1 of Table 4.

Chi-square results in table 3 are indicative that 49.8% of children of mothers aged 25-34 did not utilize PNC but this association was not statistically significant. Also, there was no difference in the use of PNC services among male and female children. A high percentage (71.46%) of the mothers who reported that accessibility was not a big problem and more than half (56.3%) of the mothers of children who did not use ANC services did not utilize postnatal care. These associations were seen to be statistically significant.

A large proportion of the mothers who stated they wanted the child 'then' (90.0%) and mothers who were currently married (95.8%) did not utilize PNC services and these associations were statistically significant. As many as 47.41% of children of uneducated mothers did not utilize PNC services, and 96% of the mothers who did not utilize PNC were currently married women and by occupation, about 33.5% of the mothers who did not utilize PNC were into sales while 30.4% of the women were not working. These associations were also statistically significant.

Nearly 2/3 (62.81%) of the women who delivered in a non-health facility did not use PNC and the prevalence of non-utilization of postnatal care services was higher in rural areas (70.67%) than in urban areas. This could be as a result of more women in the study being representative of rural areas than urban areas.

North West region had the highest percentage (31.74%) of women who did not utilize PNC while the South East region had the lowest number (9.76%) of women who did not utilize PNC. The number of mother who did not utilize PNC by religious affiliation was almost equally distributed between Christians and Muslims. The results indicate that a majority of women (46.84%) who were poor did not utilize postnatal care as compared to other women in the middle and rich category. This result is indicative of a decrease in postnatal care non-utilization with an improvement of living standards.

The bivariate analysis in panel 1 of Table 4 show that all selected variables, except age and child's sex are statistically significant with postnatal care non-utilization.

Results indicated that women who stated that accessibility was not a big problem had lower odds (OR= 0.64, CI= 0.53-0.78) of not utilizing PNC compared to mothers who reported that it was a big problem. With regards to ANC use, women who received ANC had lesser odds (OR= 0.32, CI=0.23-0.39) of not utilizing PNC. Birth size was negatively associated with PNC non-utilization. Mothers who reported the size of their children to be average were about 1.5 times more likely not to utilize PNC services. Similarly, mothers who reported that their children were smaller than average at birth had higher odds (1.69) of not utilizing PNC services.

Women who stated that they would have preferred to have the child later had 0.54 lesser odds of not utilizing postnatal care compared to women who wanted the child then In addition, women who stated that they wanted no more children had lesser odds (0.39) of not utilizing postnatal care. A negative association was found between educational attainment and PNC non-utilization. The non-utilization of postnatal care decreased with an increase in the educational level. Women who had attained primary level of education had 0.41 lesser odds of not utilizing postnatal care compared with women with no formal education while women with secondary and higher education had 0.38 lower odds of not utilizing postnatal care.

Marital status was significantly associated with postnatal care non-utilization. Women who were currently married were 2.63 times more likely not to use postnatal care and women who were formerly married were about 1.57 times more likely not to use postnatal care compared to never married women. With regard to occupation, women employed in the formal sector, sales and agricultural employment, had lower odds (0.68, 0.82, and 0.81) of not utilizing postnatal care as compared to women who were unemployed

Mothers of children who were delivered in a non-health care facility had lesser odds (0.14) of not utilizing postnatal care as compared to mothers who delivered in a health care facility. This association was statistically significant. Mothers of children in rural areas had higher odds (1.54) of not utilizing PNC services compared to their counterparts in the urban areas.

The findings revealed that Muslim mothers' were about two times more likely not to utilize PNC and the association was significant. Mothers who stated they were into other religion or traditionalist had 1.61 higher odds of not utilizing postnatal care but this association was insignificant at the 5% level of significance.

The odds of not utilizing postnatal care were highest among mothers who were in the North West region. They were about three times more likely not to utilize PNC services compared to mothers in the South West. Mothers in the North Central had 1.97 higher odds of not utilizing postnatal care as compared to women in the South West region. Mothers in the North East had 2.20 higher odds of not utilizing postnatal care as compared to women in the South West region. Mothers in the South East region had 1.91 higher odds of not utilizing postnatal care as compared to women in the South West region. Mothers in the South South region had 1.14 higher odds of not utilizing postnatal care but the association was not significant.

The odds of not utilizing postnatal care services decreased as the household wealth index increased. Women who belonged to the middle category had lower odds (0.44) of not utilizing postnatal care and this association was significant. Women in the rich category also had lower odds (0.39) of not utilizing postnatal care and the association was significant.

Table 3: Chi-square Association between Independent Variables and Postnatal Care

| Variable | Received PNC N=1,135 | Did not Receive PNC N=27,512 | P-value |
|---------------------------|---------------------------------|---|----------------|
| Age | | | 0.447 |
| 15-24 | 26.28 | 24.73 | |
| 25-34 | 48.98 | 49.86 | |
| 35+ | 24.74 | 25.41 | |
| Accessibility | | | 0.000 |
| Big problem | 20.38 | 28.54 | |
| Not a Big Problem | 79.62 | 71.46 | |
| Anc Use | | | 0.000 |
| No Anc | 20.07 | 43.63 | |
| Received Anc | 79.93 | 56.37 | |
| Birth Order | | | 0.098 |
| 1-2 | 34.15 | 36.92 | |
| 3-4 | 31.70 | 28.39 | |
| 5+ | 34.15 | 34.69 | |
| Birth Size | | | 0.000 |
| Larger than Average | 57.58 | 46.95 | |
| Average | 31.83 | 38.39 | |
| Smaller than Average | 10.59 | 14.66 | |
| Child Sex | | | 0.351 |
| Male | 52.47 | 50.78 | |
| Female | 47.53 | 49.22 | |
| Child Wantedness | | | 0.000 |
| Then | 81.09 | 90.05 | |
| Later | 9.89 | 5.94 | |
| No More | 9.01 | 4.00 | |
| Education | | | 0.000 |
| No Education | 26.41 | 47.41 | |
| Primary | 30.89 | 22.87 | |
| Secondary & Higher | 42.70 | 29.73 | |
| Marital Status | | | 0.000 |
| Never Married | 3.94 | 1.56 | |
| Currently Married | 91.93 | 95.85 | |
| Formerly Married | 4.13 | 2.58 | |
| Occupation | | | 0.010 |
| Not Working | 25.94 | 30.40 | |
| Formal Employment | 8.94 | 7.21 | |
| Sales | 34.81 | 33.50 | |
| Agricultural Employment | 18.12 | 17.21 | |
| Other | 12.20 | 11.68 | |
| Place of Delivery | | | 0.000 |
| Health Facility | 7.93 | 37.19 | |
| Non-health Facility | 92.07 | 62.81 | |
| Place of Residence | | | 0.000 |
| Urban | 39.07 | 29.33 | |
| Rural | 60.93 | 70.67 | |
| Region | | | 0.000 |

| | | | |
|----------------------|-------|--------------|-------|
| South West | 26.97 | 15.60 | |
| North Central | 12.01 | 13.70 | |
| North East | 12.90 | 16.43 | |
| North West | 20.07 | 31.74 | |
| South East | 8.80 | 9.76 | |
| South South | 19.25 | 12.77 | |
| Religion | | | 0.000 |
| Christian | 55.52 | 42.46 | |
| Muslim | 43.08 | 55.81 | |
| Other | 1.40 | 1.73 | |
| Wealth Status | | | 0.000 |
| Poor | 26.56 | 46.84 | |
| Middle | 24.51 | 19.05 | |
| Rich | 48.93 | 34.12 | |

Table 4: Logistic Regression producing Odds Ratios of Factors Associated with Postnatal Care Non-utilization and Selected Characteristics of Mothers and Children in Nigeria

| Variable | Panel 1 | | Panel 2 | |
|----------------------|------------|-----------|------------|-----------|
| | Unadjusted | | Adjusted | |
| | Odds Ratio | [95% CI] | Odds Ratio | [95% CI] |
| Age | | | | |
| 15-24 | 1.00 | | 1.00 | |
| 25-34 | 1.08 | 0.92-1.27 | 1.08 | 0.88-1.34 |
| 35+ | 1.09 | 0.91-1.31 | 1.18 | 0.90-1.57 |
| Accessibility | | | | |
| Big problem | 1.00 | | 1.00 | |
| Not a Big Problem | 0.64* | 0.53-0.78 | 0.62* | 0.49-0.76 |
| Anc Use | | | | |
| No Anc | 1.00 | | 1.00 | |
| Received Anc | 0.32* | 0.23-0.39 | 0.23* | 0.19-0.29 |
| Birth Order | | | | |
| 1-2 | 1.00 | | | 1.00 |
| 3-4 | 0.83* | 0.71-0.97 | 0.84 | 0.68-1.02 |
| 5+ | 0.94 | 0.80-1.10 | 0.89 | 0.70-1.12 |
| Birth Size | | | | |
| Larger than Average | 1.00 | | 1.00 | |
| Average | 1.48* | 1.27-1.73 | 1.29* | 1.09-1.53 |
| Smaller than Average | 1.70* | 1.33-2.17 | 1.43* | 1.09-1.87 |
| Child Sex | | | | |
| Male | 1.00 | | 1.00 | |
| Female | 1.07 | 0.94-1.21 | 1.05 | 0.91-1.21 |

| | | | | |
|---------------------------|-------|-----------|-------|-----------|
| Child Wantedness | | | | |
| Then | 1.00 | | 1.00 | |
| Later | 0.54* | 0.41-0.71 | 0.75* | 0.57-0.99 |
| No More | 0.34* | 0.31-0.52 | 0.91 | 0.65-1.25 |
| Education | | | | |
| No Education | 1.00 | | 1.00 | |
| Primary | 0.41* | 0.34-0.50 | 0.62* | 0.48-0.78 |
| Secondary & Higher | 0.38* | 0.32-0.47 | 0.46* | 0.35-0.59 |
| Marital Status | | | | |
| Never Married | 1.00 | | 1.00 | |
| Currently Married | 2.63* | 1.88-3.66 | 0.82 | 0.52-1.30 |
| Formerly Married | 1.57* | 1.00-2.48 | 0.62 | 0.35-1.09 |
| Occupation | | | | |
| Not Working | 1.00 | | 1.00 | |
| Formal Employment | 0.68* | 0.52-0.92 | 0.96 | 0.67-1.37 |
| Sales | 0.82* | 0.68-0.98 | 0.97 | 0.78-1.19 |
| Agricultural Employment | 0.81 | 0.65-1.01 | 0.85 | 0.65-1.12 |
| Other | 0.82 | 0.62-1.07 | 0.99 | 0.72-1.36 |
| Place of Delivery | | | | |
| Health Facility | 1.00 | | 1.00 | |
| Non-health Facility | 0.14* | 0.11-0.19 | 0.02* | 0.01-0.03 |
| Place of Residence | | | | |
| Urban | 1.00 | | 1.00 | |
| Rural | 1.54* | 1.28-1.85 | 1.10 | 0.88-1.36 |
| Region | | | | |
| South West | 1.00 | | 1.00 | |
| North Central | 1.97* | 1.48-2.63 | 2.09* | 1.45-3.01 |
| North East | 2.20* | 1.66-2.91 | 2.21* | 1.52-3.21 |
| North West | 2.73* | 2.07-3.61 | 2.77* | 1.86-4.11 |
| South East | 1.91* | 1.41-2.61 | 1.27 | 0.87-1.84 |
| South South | 1.14 | 0.86-1.52 | 1.54* | 1.10-2.17 |
| Religion | | | | |
| Christian | 1.00 | | 1.00 | |
| Muslim | 1.69* | 1.42-2.02 | 1.00 | 0.76-1.31 |
| Other | 1.62 | 0.94-2.78 | 0.99 | 0.53-1.86 |
| Wealth Status | | | | |
| Poor | 1.00 | | 1.00 | |
| Middle | 0.44* | 0.35-0.54 | 0.56* | 0.45-0.70 |
| Rich | 0.39* | 0.32-0.48 | 0.42* | 0.32-0.55 |

1.00=Reference Category (RC), CI: Confidence Interval; *= P<0.05

4.4 Factors Associated with Postnatal Care Non-utilization

The second panel of Table 4.3.1 identified the determinants of PNC non-utilization

Age and child's sex remained insignificant at the multivariate level. Results show that accessibility to a health facility is a significant predictor of PNC utilization among mothers in Nigeria. Mothers who stated that access was not a big problem had lower odds (OR=0.62, CI=0.49-0.76) of not utilizing PNC as compared to mothers who stated it was a big problem. This association was statistically significant. Women who received ANC had lesser odds (OR=0.23, CI=0.19-0.29) of not utilizing postnatal care services and this association was significant. Mothers of children who were of average size at birth had higher odds (OR=1.29, CI= 1.09-1.53) of not utilizing PNC services. Also mothers of children who were smaller than average at birth had higher odds (OR=1.43, 95% CI= 1.09, 1.87; $p<0.05$) of not utilizing PNC services. This association was statistically significant.

The higher the level of education, the less likely mothers were not to utilize PNC services. Mothers who had attained a primary level of education were less likely (OR=0.62, CI= 0.48-0.78) not to utilize postnatal care compared to women with no education and this association was significant. Also mothers who had attained secondary or higher level of education had lower odds (OR=0.46, CI= 0.35-0.59) of not utilizing PNC and the association was significant. Women who gave birth in a non-healthcare facility had lesser odds (OR=0.02, CI= 0.14-0.31) of utilizing PNC services compared to mothers who reported giving birth in a health care facility and this association was significant.

Results further indicate that mothers of children born in the North Central region have higher odds (OR=2.09, CI= 1.45-3.02) of not utilizing PNC services as compared to mothers in the South West region. Mothers in the North East region have higher odds (OR=2.20, CI= 1.51-3.21) of not utilizing PNC services as compared to mothers in the South West region. Mothers in the North West region have higher odds (OR=2.76, CI= 1.86- 4.11) of not utilizing PNC services as compared to mothers in the South West region. Mothers in the South South region also had higher odds (OR=1.54, CI= 1.10-2.17) of not utilizing PNC services and all the odds were significant. Mothers with higher wealth quintiles had lower odds of not utilizing postnatal care. Mothers who belonged to the middle class category had lower odds (OR=0.56, CI= 0.45-0.70) of not utilizing PNC services and children of mothers who were rich also had lower odds (OR=0.75, CI= 0.57-0.99) of not utilizing PNC services. This association was statistically significant.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter discusses the findings of the study. The discussion compares the findings of the current study with similar previous studies and also attempts to highlight similarities and differences.

5.1 Discussion

The objective of this study was to identify factors that are significantly associated with the non-use of postnatal care services in Nigeria. The findings show that the uptake of appropriate postnatal care utilization is very low in Nigeria, as previously documented in the country (Ugboaja, 2013; Fatusi, 2009). About 96% of the women who had births in the five years preceding the survey did not utilize postnatal care. This could be due to a high number (62%) of home births by the mothers in Nigeria (NDHS, 2008). Our results differ from 2008, NDHS report which reported that 56% of women did not receive any postnatal care within 41 days of delivery. This may be due to the categorization of PNC in this study which defined skilled personnel as: doctors, nurses, midwives, community or village health workers, auxiliary midwives and community health officers.

This study identified the following factors as having an important influence on non-utilization of postnatal care services in Nigeria: accessibility, ANC use, birth size, child wantedness, education, place of delivery, region and wealth status. Most of these findings are consistent with previous studies (Dhakal *et al.*, 2007; Titaley, 2009; Regassa, 2011; Rai *et al.*, 2012). The identification of these factors are important in developing public health policies and interventions on increasing the utilization of postnatal care services in Nigeria and elsewhere.

Mothers of children who reported that accessibility was not a big problem had lower odds of not utilizing PNC services. This finding is consistent with those of other studies conducted in Africa and other developing countries, which confirm that physical proximity (Stock, 1983) and

geographical distance (Rahamanet *et al.*, 1982) play an important role in the utilization of maternal health services. The lower utilization of PNC services among mothers who stated that accessibility is a problem could be linked to their socio-economic status. The majority of the women in the rural areas may not be able to afford the cost of transport to these health facilities. However, improved electricity, transportation, water, and sanitation services are, on average, more widely available in urban areas, and could enhance a mother's utilization of PNC services (Fotso, 2007). In addition, greater awareness of health promotion programs and access to services among urban young women could have a positive impact on the utilization of healthcare services (Mekonnen, & Mekonnen, 2002). This study demonstrated that mothers who received ANC from a skilled provider had lower odds of not utilizing PNC services. This is consistent with other findings (Chimankar and Sahoo, 2011; Ugboaja, 2013; Magoma, 2013; Rai *et al.*, 2012; Muchabaiwa *et al.*, 2012).

Education emerged as a significant determinant of PNC non-utilization. It has been argued that better educated women understand the importance of postnatal care and are more likely to know where to get it (Raghupathy, 1996) than less educated women. Women with higher education had greater chance of using PNC services. This finding is in line with those of many other studies (Fotso, Ezeh & Essendi, 2009; Babalola & Fatusi, 2009; Munsur, Atia & Kawahara, 2010). Education is likely to empower an individual to gain access to health promotion message, information to obtain services and importance of the available services. Likewise, educated individuals are likely to be able to process the health message. Elsewhere, it has been documented that educated women are more aware of health problems, have more knowledge on the availability of health care services, and use this information more effectively to maintain or achieve good health (Chakraborty *et al.*, 2003). In addition, educated women may have higher socioeconomic status which may translate to having higher autonomy in their households and may enhance their decision-making power which will improve their ability for making independent decisions on their health leading to greater modern healthcare utilization. One argument is that higher education leads not only to more knowledge, but also to the ability to adapt to and process new information (Caldwell, 1979). This results in a higher receptivity of educated mothers to health messages and increased understanding of preventive care. Educated women also have a higher status in the household, on average, and thereby a greater decision-

making potential, better communication within the family, and higher economic independence (Cleland, 1988; Raghupathy, 1996).

The analysis showed a highly significant association between the place of delivery and the utilization of postnatal care services. This is an unexpected finding in that children delivered in a non-health care facility had lower odds of not utilizing PNC services. This finding differs from that of a study done in Indonesia and Nepal which found that infants delivered outside a health care facility were significantly less likely to utilize postnatal care services (Titaley, 2009; Khanal *et al.*, 2014). They explained that women who deliver in a health facility are more likely to receive medical care from skilled attendants which may aid their PNC utilization (Khanal *et al.*, 2014). Our results may probably be because mothers who deliver at the health facility may feel quite confident about their health and the health of their newborn and may not see the need to return for check-ups while those that did not deliver in health facility would like the health of the child to be checked and hence, are more likely to utilize PNC services.

Pregnancy wantedness was significantly associated with PNC non-utilization. Women who stated they wanted the child later were less likely not to utilize PNC services. This is contrary to findings from Magadi *et al.*, (1999) which concluded that mistimed or unwanted pregnancy leads to non-utilization of maternal health care services. It was found that smaller than average-sized babies were more likely not to utilize PNC services. This is an unexpected finding as we expect that mothers of children with low birth weight may utilize PNC services more due to the observed fragility of small babies. This study shows that the household wealth status of mothers is significantly associated with their utilization of postnatal care services. This finding is in line with various other studies that point out the significant economic inequality in healthcare service utilization (Fosu, 1994; Elo, 1992; Ochako, Fotso, Ikamari, and Khasakhala, 2011; Nwogu, 2009). It has been hypothesized that poor households may not have the resources for healthcare expenses, because their priority is to meet their basic daily needs, whereas wealthier households can spend a higher proportion of their earnings on healthcare (Amin *et al.*, 2010; Singh *et al.*, 2011).

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter provides the conclusions drawn and the suggested recommendations.

Conclusion and Recommendations

Postnatal care utilization is a significant part of maternal and child health care. It is connected with the physical, nutritional and emotional well-being of mothers and new born (WHO, 2012). A lot of studies have concentrated on the issues of maternal and neonatal mortality because of the great impact they have on the national health scenario. However, studies on postnatal care utilization which is an important component of maternal and child health is hardly done. Therefore, this study examined the factors associated with the non-utilization of postnatal care among mothers in Nigeria.

The study highlighted the poor utilization of appropriate postnatal care in Nigeria, with many as 96% of the women not receiving postnatal care within the most critical period (within 42 days after delivery), from a skilled provider. The Results supports our hypothesis which states that women who receive ANC and women who state that accessibility to PNC services is not a problem are more likely to utilize PNC services. This should encourage policy makers to reinforce the uptake of ANC which can help increase the uptake of PNC service. The results further show high level of association between certain predisposing and enabling factors with non-use of PNC. These are; birth size, education, region and wealth status. This study will be useful in informing policy-making with information for decreasing the inequalities associated with non-utilization of PNC services. This study will also inform policy makers to promote widespread coverage of quality PNC services as an integral part of the ongoing health care services for mother and child.

Findings have provided clues on areas to be targeted. The results from this study suggest that public health policies aimed at reducing maternal and newborn morbidities and mortalities in Nigeria should include strategies to improve postnatal care utilization through: increasing maternal education, poverty reduction which involves education and empowerment of women by

providing them with skills that can assist them make appropriate livelihood. Improving accessibility to postnatal care services should also be a priority in Nigeria. Community based efforts should ensure availability of services which should be offered within a reasonable distance from where mothers live.

Improving maternal health requires a range of interventions across the health care system (AbouZahr 2003; UNFPA 2004b), but one of the main goals is to increase the number of women utilizing postnatal care services within 42 days of delivery and with qualified health personnel. Community-based outreach projects that target special groups of poor women are needed. These projects should be designed in ways that involve poor women, and other community members. In addition to providing reproductive health information and services, they should also address a wide range of needs including life skills, literacy, vocational training, and livelihood activities. The findings of this study suggest that previous and current postnatal healthcare programme efforts have been limited in reaching mothers, serving their specific needs or addressing the socioeconomic obstacles that prevent their utilization of existing PNC services. The low utilization of PNC services is a serious threat to this generation, and the next generation of mothers and their children. In the long run, the content and service delivery strategy of maternity programs must be designed keeping in mind the socioeconomic context of mothers to reach the most underserved mothers, particularly those who are uneducated, poor, and from other marginalized social groups. Government and private agencies should focus on these questions: How can the best care be provided? Where is postnatal care most needed– at home or in the facility? Can the PNC services be provided in facilities and homes be linked? How can the referral systems be strengthened?

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APPENDIX I

Frequency Distribution of Variables Used in Constructing Postnatal Care Utilization

| Variable | Frequency | Percent (%) |
|--|-------------------|--------------|
| M66 – After discharge/delivery at home, anyone checked respondent? | | |
| No | 16,524 | 78.13 |
| Yes | 4,066 | 19.22 |
| 9 | 560 | 2.65 |
| | N=21, 550 | N=100 |
| M67 - How long after Discharge or delivery at home was respondent health checked? | | |
| Continuous variable from zero hours – 330 hours | | |
| >306 | 26,093 | 8.92 |
| <307 | 2,554 | 91.08 |
| | N= 28, 647 | N=100 |
| M68 - who checked respondent health after discharge/delivery at home | | |
| Doctor | 187 | 7.07 |
| Nurse, midwife | 643 | 24.30 |
| Auxiliary midwife | 185 | 6.99 |
| Traditional birth attendant | 1,465 | 55.37 |
| Community/village health worker | 120 | 4.54 |
| Other | 16 | 0.60 |
| | 30 | 1.13 |
| | N=2,646 | N=100 |