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MPH-Population Studies

**Determinants of postnatal care service utilization among adolescent women (15-19) in Zambia. An analysis of the 2013/14 Zambia Demographic Health Survey (ZDHS)**

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## ABSTRACT

**Background:** Globally, about 287,000 women die from causes related to pregnancy and childbirth and 162,000 of these are in Sub-Saharan Africa. 16 million adolescent women (aged 15-19) give birth every year around the world and about 95% of these births are concentrated in middle and low income countries (WHO:2012). In Zambia the utilization of postnatal care services by adolescent women was unknown while that of women aged 15-49 was about 63% (CSO: 2013).

**Objectives:** The study aimed at determining postnatal care service utilization by adolescent women in Zambia. Specific objectives included determining the proportion of utilization of postnatal care services, Comparing differential residential patterns in the utilization of postnatal care and determining the influence of socio-economic and demographic characteristics on postnatal care utilization among adolescent mothers in Zambia.

**Methodology:** The study was a cross sectional study that used secondary data which was extracted from the 2013-2014 Zambia Demographic and Health Survey focusing on postnatal care utilization. About 3,625 adolescent women aged 15-19 were selected based on a national stratified-cluster sample design from which the collected data was analysed. Data was analysed using STATA version 13.0 software and the type of analysis involved was univariate, bivariate and multivariate logistic regression.

**Results:** Findings revealed that 76% of adolescent women were utilizing postnatal care services whereas 85% of them were aged 15. Eighty seven percent of urban adolescent women utilized postnatal care services as compared to 71% of rural women who utilized the service. There was a statistically significant relationship between postnatal care utilization and the type of residence at 95% CI, ( $P < 0.0001$ ). The results in multivariate analysis showed that secondary education, second born child, rural residence and other denominations were the direct determinants of postnatal care utilisation. This came to light because the above mentioned variables were statistically significant in multivariate analysis at 95% CI.

**Discussion and Recommendations:** The utilization of postnatal care services by adolescent women (76%) is lower than that of antenatal care services which is 96%. The study revealed that the utilisation of postnatal care services were different across the adolescent age ranges and also among different residential areas (rural and urban). The main determinants of postnatal care utilization were secondary education, second born child, rural residence and other denominations. The study recommended that health facilities institute adolescent women's friendly corners where adolescent women could get information and be taught on how to take good care of themselves and their children.

## DECLARATION

I, Melvin Kunda Mwansa hereby declare that this dissertation is my original work and has not been presented for any other awards at the University of Zambia or any other University.

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## **LIST OF ABBREVIATIONS**

AIDS-Acquired Immune Deficiency Syndrome

ANC-Antenatal care

BIRPERHT-Bangladesh Institute of Research for Promotion of Essential and Reproductive Health Technologies

CSO-Central Statistical Office

EAø Enumeration areas

EDHS-Ethiopian Demographic and Health Survey

HIV-Human Immune Virus

MOH-Ministry of Health

PNC-Postnatal care

UNFPA-United Nations Fund for Population Activities

UNZABREC-University of Zambia Biomedical Research Ethics Committee

UNZA-The University of Zambia

WHO-World Health Organisation

ZDHS-Zambia Demographic and Health Survey

## Chapter One: Introduction

### 1.1: Background

According to an estimate, around 16 million adolescent women (aged 15-19) give birth every year around the world and about 95% of these births are concentrated in middle and low income countries (WHO, 2012a). Childbirth in adolescence is often risky and associated with a host of life threatening adverse health outcomes such as premature delivery, delivery and postnatal complications, unsafe abortion complications, and obstetric fistula (Christiansen, 2013). Hence, it is not surprising that despite accounting for only 11% births worldwide, adolescent women carry 23% of overall burden of the problem in terms of disability adjusted life years (Gore, 2011). Complications of pregnancy and childbirth are also among the leading causes of death among women aged 15-19 years (WHO, 2014).

Approximately 536,000 maternal deaths occur annually, of which over 95% occur in sub-Saharan Africa and Asia. Africa has the highest burden of maternal mortality in the world and sub-Saharan Africa is largely responsible for the dismal maternal death figure for that region, contributing approximately 98% of the maternal deaths for the region (Sub-Saharan). The lifetime risk of maternal death in sub-Saharan Africa is 1 in 22 mothers compared to 1 in 210 in Northern Africa, 1 in 62 for Oceania, 1 in 120 for Asia, and 1 in 290 for Latin America and the Caribbean (WHO, 2007).

Globally, approximately 287,000 women died from causes related to pregnancy and childbirth in 2010. 162,000 of the 287,000 were in Sub-Saharan Africa and 83,000 were in South Asia (Tey and Lai, 2013). The maternal mortality ratio (MMR) defined as the number of women who die during pregnancy and childbirth per 100,000 live births) ranges from 16 in the developed countries to 220 in South Asia and 500 in sub-Saharan Africa (Grace, 2013). Millions of women in developing countries experience life threatening and other serious health problems related to pregnancy or childbirth. Complications of pregnancy and child birth because more deaths and disability than any other reproductive health problems (Who, 2012b).

The days and weeks following childbirth, the postnatal period is a critical phase in the lives of mothers and new-born babies. Major changes occur during this period which determines the well-being of mothers and new-borns. The postnatal period, defined as the time immediately after the birth of the baby and up to six weeks (42 days) after birth, is critical for the new-born and the mother. This is because, immediately after birth, bleeding and infection pose the greatest risk to the mother's life, while preterm birth, asphyxia and severe infections

pose greatest risk to new-born (Macones et al., 2005). Yet, this is the most neglected time for the provision of quality services by most mothers and also parents in general. Lack of appropriate care during this period could result in significant ill health and even death(WHO, 2014).

Postnatal care is one of the most important maternal health-care services, because it can help prevent impairment, disabilities and also reduction of maternal mortality and child mortality. Further, postnatal care is one of the recommended interventions to reduce the maternal and new-born deaths during postpartum period(Dhakal et al., 2007).

According to the World Health Organization (WHO, 2014), of the 2.9 million new-born deaths that occurred in 2012, close to half of them occurred within the first 24 hours after. Many of these deaths occurred in babies born too early and too small, babies with infections, or babies asphyxiated around the time of delivery(WHO, 2014). Labour, birth and the immediate postnatal period are the most critical for new-born and maternal survival. Unfortunately, the majority of mothers and new-borns in low- and middle-income countries do not receive optimal care during these periods.

Every year in Africa, at least 125,000 women and 870,000 new-borns die in the first week after birth, yet this is when coverage and programmes are at their lowest along the continuum of care. The first day is the time of highest risk for both mother and baby. The fact that 18 million women in Africa currently do not give birth in a health facility poses challenges for planning and implementing postnatal care (PNC) for women and their new-borns. Regardless of place of birth, mothers and new-borns spend most of the postnatal period (the first six weeks after birth) at home(Christiansen, 2013).

The most vulnerable time for both is during the hours and days after birth. Lack of care in this time period may result in death or disability as well as missed opportunities to promote healthy behaviours, affecting women, new-borns, and children, which results in the high rates of both maternal and child mortality.

In Zambia the utilization of postnatal care services by women aged 15-49 was about 49% (CSO, 2007). However, there was an improvement to 63% in 2013. On the other hand, there were no studies that have been conducted and published especially or specifically on the on

the utilization of postnatal care services among young women (15-19) but rather only studies that addressed the utilization rates in the whole reproductive age span (15-49). The postnatal care utilisation amongst Adolescent women (15-19) was not known but only that of all women (15-49) was known. Early marriages were on the increase in Zambia and this result in early child bearing. The UNFPA 2014 reported that there were about 42% of early marriages (marriages in women less than 20 years) in Zambia. However, this had a lot of consequences among the young, as most of them were not knowledgeable on the postnatal care practices and how to take good care of themselves and the new born. This coupled with most of the African traditions brings about morbidity of both the new-borns and the mothers.

Postnatal care utilization practices in Zambia among the young for instance (15-19) was not known, However only the postnatal care utilization for all the women in the reproductive age span (15-49) was known. Postnatal care utilization is important for both the new-borns and the mothers, because it helps prevent impairment, disabilities and also reduction of maternal and child morbidity and mortality. This is because; the non-utilization would result in a high risk of mother and infant mortality.

### 1.2: Statement of the Problem

There is large proportion of maternal and neonatal deaths that occur during the first 24 hours after delivery. It was noted that Zambia has been recording both high infant (45/1000 live births) and under-five mortality(75/1000 live births) as well as maternal mortality (398/100,000) which in most instances are as a result of morbidity due to the non-utilization of postnatal care services(CSO, 2013-14). Young mothers (adolescents) especially those aged 15-19 years tend to be at a higher risk of maternal mortality and subsequently causes infant mortality(Paudel et al., 2013).

About a third of the mothers in Zambia were not utilizing postnatal care services, despite 96% of them utilising antenatal care services(CSO, 2013-14). The national target for utilisation of postnatal care services is 80% and the service delivery system should be investigated if the indicator falls below 70% (MOH 2010).The postnatal care utilisation for young women was not known, yet young women have a higher risk in pregnancy and child birth complications. Some complications include; Anaemia, premature delivery, low birth weight, unsafe abortions, CPD and most of these leads to increased morbidity and mortality in both mothers and children. It is important to know the magnitude of the non-utilization of

Postnatal Care services among young women 15-19 years, as well as factors that can deter young girls from using these services, so that specific interventions can be proposed.

### 1.3 CONCEPTUAL FRAMEWORK

The model of utilization of maternal health services to be used will be based on the conceptual framework of health-seeking behaviour, an emerging model of health seeking behaviour phase 4 developed by Anderson and Newman (Anderson and Newman, 1968) and revised in 1995. The framework was first developed in the 1960s and has since gone through four phases of being revised. Developed in the 1990s, the framework below represents the fourth phase. This behavioural model proposed that the use of health care services is a function of three sets of individual characteristics: Predisposing characteristics, Enabling characteristics and Need characteristics.

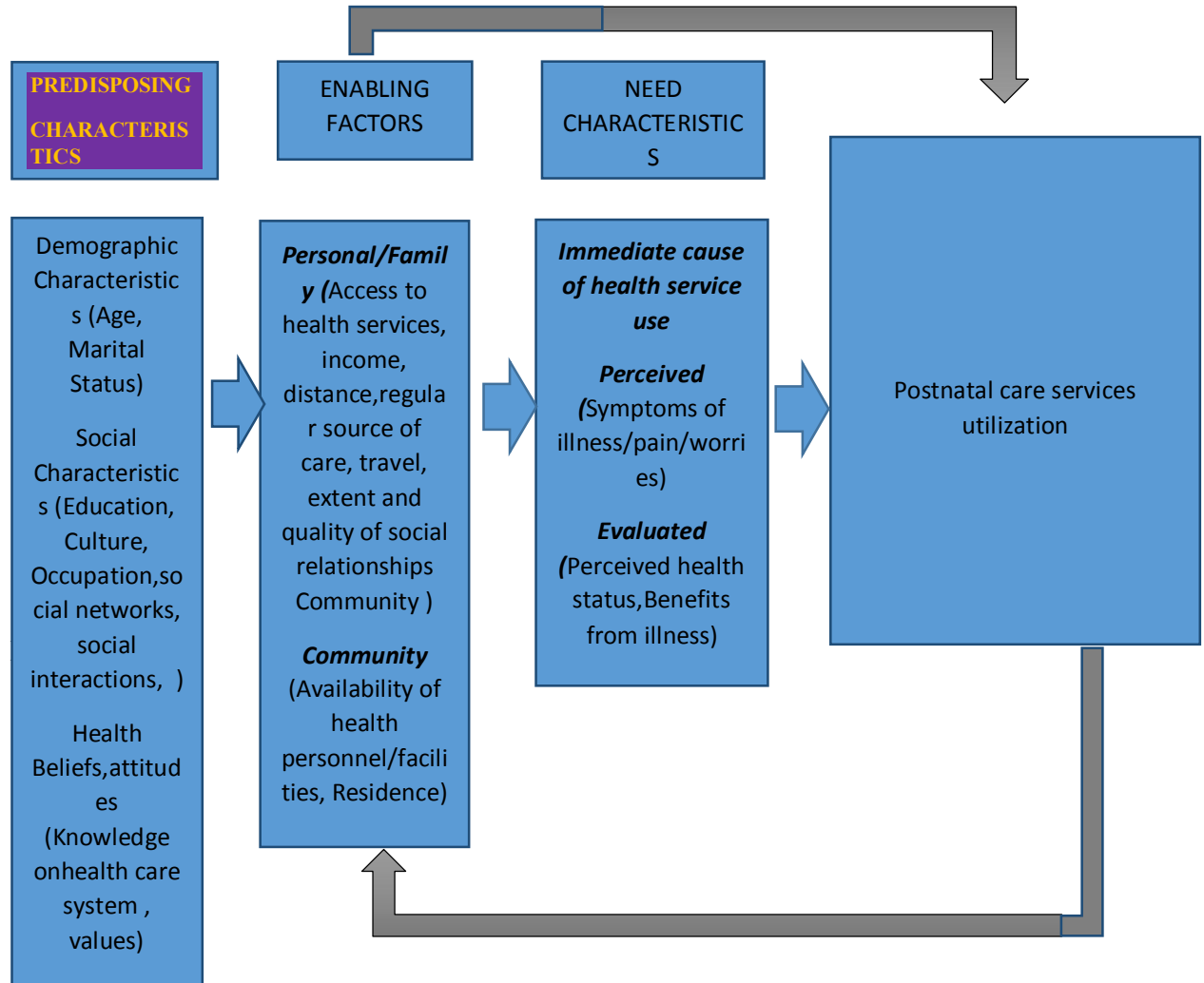


Figure 1.1: An emerging model of health seeking behaviour phase 4 (Andersen, 1995).

The model explains how individual characteristics such as the residential areas of individuals, their Education levels, knowledge of postnatal services, individuals accessibility to health facilities and medical personnel, their incomes and perceptions amongst others and how these factors would affect their utilization of postnatal care services;

**Predisposing characteristics (factors):** Predisposing factors focus on the Socio-cultural characteristics of individuals that exist prior to their illness. It looks at Social structures such as Education, occupation, ethnicity, social networks, social interactions, and culture. Health beliefs also include factors such as attitudes, values, and knowledge that people have concerning and towards the health care system. On the other hand demographic factors include age and gender.

**Enabling characteristics (factors):** The logistical aspects of obtaining care, these include amongst others income, characteristics of health care system and accesses, and availability of health facilities. Personal/Family: The means and know how to access health services, income, health insurance, a regular source of care, travel, extent and quality of social relationships Community: Available health personnel and facilities, and waiting time. Possible additions: Genetic factors and psychological characteristics.

**Need characteristics (factors),** include; The most immediate cause of health service use, from functional and health problems that generate the need for health care services. "Perceived need will better help to understand care-seeking and adherence to a medical regimen, while evaluated need will be more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider." (Andersen, 1995).

#### 1.4: Justification of the Study.

The study seeks to identify factors that affect utilisation of postnatal care among adolescent women (15-19). Non-utilization of postnatal has many consequences especially in young women and can result indisability such as Fistula, increased morbidity and mortality in both mothers and the child. Knowing the magnitude and identifying factors associated with non-utilization of postnatal care services among young women could help in providing solutions that would contribute to the utilization of postnatal care services, especially by adolescents in Zambia. By identifying the magnitude and determinants, this study could also add to the body of knowledge especially on the utilisation of postnatal care services by adolescent mothers (15-19).

## Chapter Two: Literature Review

### 2.1 Socio-demographic Characteristics

Rajesh et al. conducted a study in 2008 (Rai et al., 2012). The study examined the factors associated with selected maternity services of married adolescent women who have had at least four antenatal care (ANC) visits, those who have undergone safe delivery care, and those who received postnatal care within 42 days of delivery. Data from Nigeria Demographic and Health Survey, 2008, were used. An eligible sample of 2,434 married adolescent (aged 15-19 years) women were included in the analysis.

The study revealed that about 35% of adolescent women had at least four ANC visits, a little over 25% had undergone safe delivery care, and nearly 32% received postnatal care within 42 days of delivery. Women's education, husband's education, wealth quintile, and region of residence were documented as the most important factors associated with maternal healthcare service utilization. The ANC visit was found to be vital in the utilization of safe delivery and postnatal care. The Findings of the study indicate that programs to improve maternal healthcare have not succeeded in overcoming the socioeconomic obstacles in the way of adolescents utilizing maternity services.

In 2008, Aditya Singh conducted a study to identify factors that affect service utilization (Singh et al., 2013). The study examined factors associated with the utilization of maternal healthcare services among urban Indian married adolescent women (aged 13-19 years) who had given live/still births during last three years preceding the survey. The study revealed that about 22.9% of mothers had received full ANC, 65.1% of mothers had at least one postnatal check-up within 42 days of pregnancy. Findings indicated that there was considerable amount of variation in use of maternity care by educational attainment, household wealth, religion, parity and region of residence. The study showed that several socioeconomic and demographic factors affect the utilization of maternal healthcare services among urban adolescent women in India.

Utilization of health care services is affected by a multitude of factors. Several studies have attempted to identify and measure the effects of factors that contribute to differentiation in the utilization of health care services (Sugathan et al., 2001). Review of literature across the globe suggests that these factors can be identified as cultural beliefs, socio-demographic status, women's autonomy, economic conditions, demographic and socio-economic factors, physical and financial accessibility, and health service issues (Shaikh and Hatcher, 2005).



## 2.2: Women's Education

The issue of women's education has been discussed at length in the context of health care seeking behaviour, and it would be reasonable to assume that it would have a positive effect on their own health. Studies show that maternal health education is consistently and strongly associated with all types of health behaviour and we expect use of maternal health care services to be higher among more educated mothers. Put differently, educated mothers are more likely to seek health care services than less educated women (Rosenzweig and Schultz, 1982).

Parity, the number of children ever born, is strongly associated with health seeking behaviour. Studies show that primiparous women are consistently more likely to deliver with the assistance of a health professional than any other parity group. High parity women are the least likely to seek maternity care services due to greater confidence and cumulative experience. On the other hand, nulliparous women seek early maternity care services and postnatal care services than primiparous women (Kalizer and Kidd, 1981).

A study was conducted between 1992-1993 by the Bangladesh Institute of Research for Promotion of Essential and Reproductive Health and Technologies (BIRPERHT). The paper examined the factors that influence the use of maternal health care services in Bangladesh by using the prospective data obtained from the survey on Maternal Morbidity in Bangladesh (Chakraborty et al., 2003).

The results from this study also supported the positive association between the level of mother's Education and health care utilization. It also showed that there was no substantial difference in utilization of health care services for complications according to how far respondents lived from health facilities. The results from bivariate analysis suggest that older women are more likely to seek maternal health-care and postnatal care services than younger women. About 42% of older (age 35 years) respondents sought care for any current complication from a doctor or nurse, compared with 28.5% of younger women (age 20 years). The study further showed that women whose husbands worked in business or services were most likely to be users of both modern health and postnatal care services to treat complications during and after pregnancy (Chakraborty et al., 2003).

In 2006, Dhakal et al conducted a study on the utilisation of postnatal care services among rural women in Nepal (Dhakal et al., 2007). A descriptive, cross-sectional study was carried out in two neighbouring villages and a total of 150 women who had delivered in the previous 24 months were asked to participate in the study using a semi-structured questionnaire. The study reviewed that the proportion of women who had received postnatal care after delivery was low (34%). Less than one in five women (19%) received care within 48 hours of giving birth. It was also established that lack of awareness was the main barrier to the utilisation of

postnatal care. The woman's own occupation and ethnicity, the number of pregnancies and children and the husband's socio-economic status, occupation and education were significantly associated with the utilisation of postnatal care.

### 2.3: Residence

A study was done in 2005 by the Ethiopian society of population studies on the maternal health care seeking behaviour in Ethiopia (Hiluf and Fantahun, 2008). The general objective of the study was to explore the influences of underlying factors on women's health seeking behaviour. The data used in this study came from the 2005 Ethiopian Demographic and Health Survey. The EDHS collected data on reproductive health issues from women aged 15-49 years. The population base was non-pregnant and non-lactating women aged 15-49 years at the time of the survey.

The results of the study revealed that various factors influence utilization of health care services among women. The study established that Rural women (23.7 percent) were less likely than their urban counterparts (69.0 percent) to get antenatal care services from health professionals and more likely to get no care at all while the comparable percentages for postnatal care revealed 35.5 percent (urban) and 3.5 percent (rural) respectively. The study also revealed that both antenatal and postnatal care coverage were also associated with women's education, wealth, household decision autonomy and religion. The results also showed that younger women are more likely than older women to seek both delivery and postnatal care services; most of the time they seek the services for the first birth than other higher birth orders.

Another study was conducted on the determinants of use of maternal health services in Nigeria by Stella Babalola in 2009 (Babalola and Fatusi, 2009). Data from the 2005 National HIV/AIDS and Reproductive Health Survey was used. The results of the study showed that approximately three-fifths (60.3%) of the mothers used antenatal services at least once during their most recent pregnancy, while 43.5% had skilled attendants at delivery and 41.2% received postnatal care services. There were commonalities and differences in the predictors of the three indicators of maternal health service utilization. Education was the only individual-level variable that was consistently a significant predictor of service utilization, while socio-economic level is a consistent significant predictor at the household level. At the community level, urban residence and community media saturation were consistently strong predictors.

The Central Statistical Agency (Ethiopia) and Society of Population Studies in 2008 conducted a study on the maternal health care seeking behaviour in Ethiopia using the findings from EDHS 2005. The study examined the prevalence and factors associated with antenatal Care (ANC) and Postnatal Care (PNC) service utilizations.

#### 2.4: Exposure to Media

The study employed a cross-sectional population based study undertaken in 10 rural villages of the Sidama zone, southern Ethiopia. The data were collected from a representative sample of 1,094 households drawn from the study population using a combination of simple random and multistage sampling techniques. The study revealed that the level of ANC and PNC service utilizations is 77.4 % and 37.2% respectively. The predicted probabilities, using logistic regression, showed that women who were literate, had exposure to media, and women with low parity were more likely to use both ANC and PNC services.

#### 2.5: Conclusion

In Zambia, the results of the ZDHS 2007 revealed that more than half (51 percent) of the women (new mothers) did not receive any postnatal care; however, 39 percent received a postnatal check-up within two days of delivery and also that nine percent of the women had a check-up 3 to 41 days after delivery. The ZDHS 2007 also showed that women in rural areas were more likely to not have a postnatal check-up than women in urban areas (29 and 61 percent, respectively) (CSO, 2007).

An intensive review of the literature has established that there are few studies that have been done on the utilization of postnatal care services in Zambia, especially on factors determining the utilization of postnatal care services among adolescent mothers. Hence, this study will add to the body of knowledge especially on the utilization of postnatal care services.

#### 2.6: Research Questions

What are the determinants of postnatal care service utilization among adolescents (15-19) in Zambia?

#### 2.7 Objectives

##### 2.7.1: General Objective

To determine the factors affecting adolescent women's (15-19) utilization of postnatal services in Zambia.

### 2.7.2: Specific Objectives

- ✚ To determine the proportion of utilization of postnatal care utilization among adolescent mothers (15-19) in Zambia
- ✚ To compare differential residential patterns in the utilization of postnatal care practices for rural and urban adolescents (15-19) in Zambia.
- ✚ To determine the influence of socio-economic and demographic characteristics on postnatal care utilization among adolescent mothers.

## Chapter Three : Methodology

### 3.1 Conceptual Framework of Variables and Measurements

This section highlights the variables, indicators and measurements that were used by the study. The indicators were operationalised, indicators outlined and the scale of measurements were categorically stated.

Table 1: Shows a list of variables, indicators and measurements

Type of variable	Variable Type	Operational definitions	Indicator	Scale of measurements
Dependent variable	Utilization of postnatal care services among adolescents (15-19)	Using postnatal care services	Proportion of adolescents accessing postnatal care services	Percent
Independent variable	Demographic Characteristics	Factors that relate to age, sex, death and births	1. Age 2. sex	Nominal
	Age	Age at last birthday	Age in years	Numerical
	Employment status	Adolescent's wealth index (Poor, Middle and Richer);	1. Employed 2. Unemployed 3. Self employed	Nominal
	Level of Education	School attendance in completed years	1. No Education 2. Primary 3. Secondary 4. Tertiary	Nominal
	Marital status	The state of being single, married or divorced in a person's life time	1. Single 2. Married 3. Divorced 4. Widowhood 5. Remarried	Nominal
	Residence	Area in which people reside	1. Rural 2. Urban	Nominal
	Accessibility/Distance to health services	The opportunity or the right to reach, find or use	Distance in kilometres to Health Facility of 5km radius	Ordinal: Near (5km) Medium(6-

				10km) Far(above 10km)
	Availability of Health personnel	Easiness to find health personnel at the facility. How readily/freely/public/generally found health personnel are at the facility.	1.Presence of health personnel at the facility 2,Number of health personnel available 3.Type of tasks performed	Nominal
	Level of knowledge	The information, skill and understanding that you have acquired through learning and Experience.	Knowledge of postnatal care services Response to question of PNC rated into high, average or low	Ordinal  Ratio Scale

### 3.2 Study Setting

The study was based on ZDHS data for 2013/2014 which was nationally representative. ZDHS is conducted throughout the country. The Zambian population in 2010 was at 13,092,666 of which 49.3 percent (6,454,647) were males and 50.7 percent (6,638,019) were females (Central Statistical Office (CSO), 2015). The Zambian map below shows the areas in which the Demographic and Health Survey was conducted.

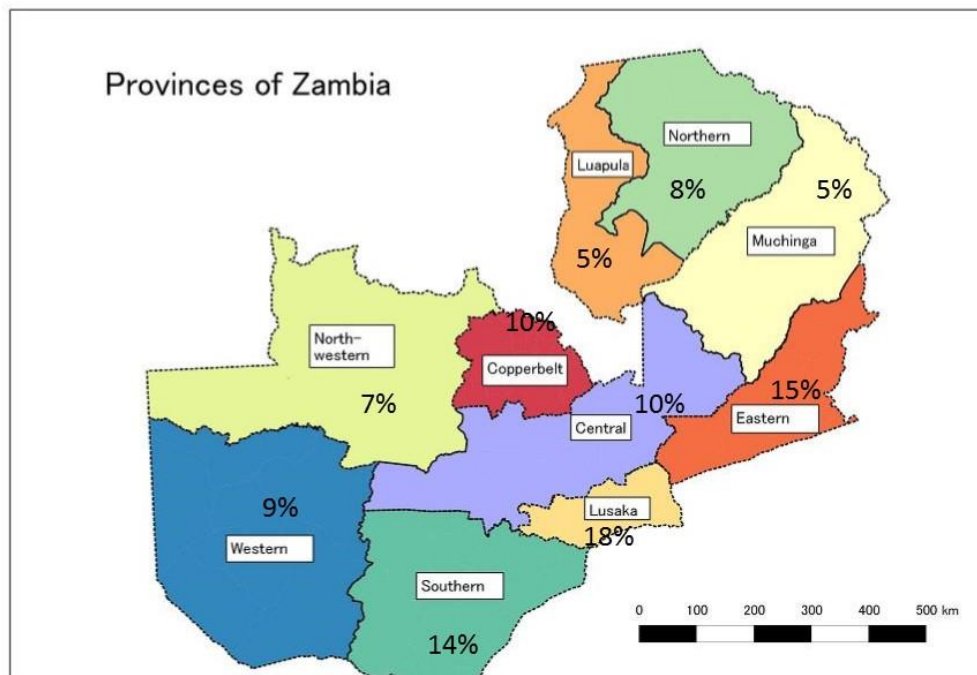


Figure 2.1: Map of Zambia

The map of Zambia above shows the coverage of postnatal care utilization as conducted by Zambia Demographic and Health Survey 2013/2014. The figures inserted in the map show that Lusaka province (18%) had the majority of postnatal care users, followed by eastern province with 15% and southern province having 14% of adolescent mothers utilizing the service. Copperbelt and Central province had 10% of adolescent users, while Western, Northern, North western had 9%, 8% and 7% respectively. On the other hand, Luapula and Muchinga province had 5% of the users each. It implies that the survey was conducted throughout the country and was very representative of the Zambian population.

### 3.3: Study Population

The study focused on the postnatal care utilization of adolescents (15-19) in Zambia. This was because, the ZDHS collected data from age 15-49. In this case, only adolescent data for those aged 15-19 were analysed. The ZDHS 2013/14 collected data on 16,411 women aged 15-49. However, this study focused on the 3,625 adolescent women (15-19) that were sampled and interviewed during the 2013/2014 ZDHS.

### 3.4: Inclusion/ Exclusion Criteria

**Inclusion-** included in this analysis were all the adolescent women sampled in the survey aged between 15-19 years and also complete responses in the data set

**Exclusion-** All women not in the age group 15-19 and those that did not complete the questionnaire.

### 3.5: Sampling

The study employed the sampling procedure/method based on the 2013/14 ZDHS. The ZDHS used the cluster stratified sample of 3,625 adolescent women (15-19).

### 3.6: Sample Design

#### 3.6.1 A) ZDHS Study Design

The ZDHS was cross sectional study. The sample for the 2013-14 Zambia DHS was designed to provide estimates at national and provincial levels, as well as rural and urban (ZDHS, 2014: *ibid*). The survey used a two-stage stratified cluster sample design with EAs (or clusters) selected during the first stage and households selected during the second stage. At the first stage, 722 EAs were selected with probability proportional to size, 305 in urban areas and 417 in rural areas. At the second stage, a complete list of households in selected Enumeration Areas (EAs) served as the sampling frame from which households were selected for enumeration. An average of 25 households were selected in every selected EA. At the second stage of selection, a representative sample of 18,052 households was selected (ZDHS, 2014: 2). A total of 17,064 women age 15-49 were identified as eligible for individual interviews, and 96 percent were successfully interviewed (ZDHS, 2014: 4).

#### 3.6.2 B) The postnatal care utilization study design

This study was cross sectional study that used secondary data which was extracted from the 2013-2014 ZDHS focusing on postnatal care utilization data for adolescent women of 15-19 years old. The study was designed to identify demographic characteristics of the adolescents in relation to economic status, marital status, occupations and education levels and also



comparing differential residential patterns in the utilization of postnatal care practices for rural and urban adolescents (15-19) in Zambia.

The data set comprised of women who had used postnatal care services in the five years preceding the 2013-2014 ZDHS. The study was specifically looking at the utilization of postnatal care services after delivery. The data for analysis was extracted from the women's questionnaire used during the 2013-2014 ZDHS. The results pertained to those women who answered 'YES' to the question asking on whether or not they had received any checks on their health after delivery.

### 3.6.3: Data Extraction

The dataset was collected from the data base at Central Statistical Office (CSO). Data were extracted for women who had used postnatal care services five years preceding the 2013-14 ZDHS.

### 3.7: Data Analysis

Data was analysed using STATA version 13.0 software. Data was cleaned to ensure that all incomplete and inconsistent entries were not included in the analysis. Descriptive statistics were produced. Bivariate analysis was carried out to understand the relationships between the dependant variable and independent variables by using cross tabulations/associations. Chi-square tests were conducted and the results were accordingly interpreted. Multivariate analysis of the data was also carried out in determining the best fit model or determinants that have significant influence on postnatal care utilization.

### 3.8: Ethical Consideration

Permission to use secondary data was sought from Central Statistical Office (CSO) and submitted to UNZABREC for approval. The DHS protocol was approved by DHS Program. Confidentiality of data was observed. Anonymity of the information that was maintained, by not identifying data by names. There was no contact with the participants since the study involved using secondary data. The study therefore did not anticipate having any risks to participants. Instead, the study brought out maximum benefits as information obtained and analyzed will be used for decision making in those factors especially on the utilization of postnatal care services.

### 3.9: Dissemination Plan

Results will only be disseminated to the relevant stake holders which include UNZA library, Central Statistical Office (CSO), Ministry of Health (MOH), and publication in a scientific journal.

### Limitation

The study used secondary data, which asked closed ended questions therefore we could not get information on the attitudes and perceptions of the respondents. The Zambia Demographic and Health Survey did not provide many questions on postnatal care utilization. We also established that some records in the dataset were missing, which resulted in them not being used.

## **Chapter Four: Findings**

The purpose of the study was to determine the factors affecting adolescent women's (15-19) utilization of postnatal services. Specific objectives were determining the proportion of postnatal care utilization, comparing differential residential patterns and determining the influence of socio-economic and demographic characteristics on postnatal care utilization among adolescent mothers.

In the first section, Univariate analysis was performed to help in describing every single variable in relation to postnatal care service utilization. This included the use of numbers and percentages to describe postnatal care utilization with regards to all the variables. Following the univariate and bivariate analysis, multivariate analysis was applied, specifically the use of Logistic Regression to determine the relationships between the dependant variable (postnatal care utilization) and the independent variables. Finally, a detailed discussion of the findings was done linking the literature to the findings of the study.

The findings of the study was presented by firstly highlighting the socio-economic and demographic characteristics of the study population. The utilization of postnatal care services was presented with analytical tables and figures. Thereafter the residential patterns in the utilization of postnatal care services and influence of socio-economic and demographic characteristics on postnatal care utilization was presented. Lastly multivariate logistic regression analysis and the determinants of postnatal care services were presented.

#### 4.1 Socio-Economic and demographic characteristics of the study population

The table below shows the respondents socio-economic and demographic characteristics. Each characteristic indicated in the table was explained by focusing on the study samples and percentages.

Table 2.0 Socio-demographic characteristics of the study population

Characteristics	Study Sample (839)	Percentage
Age years		
15	18	2
16	55	7
17	111	13
18	276	33
<b>19</b>	<b>379</b>	<b>45</b>
<b>Total</b>	<b>839</b>	<b>100</b>
Children Ever Born (C.E.B)		
1	738	88
2	90	11
3	11	1
<b>Total</b>	<b>839</b>	<b>100</b>
Residence		
urban	283	34
rural	556	66
<b>Total</b>	<b>839</b>	<b>100</b>
Education level		
No Education	30	4
Primary	416	50
Secondary	391	46
Tertiary	1	0
<b>Total</b>	<b>838</b>	<b>100</b>
Wealth Index		
Poorer	381	45
Middle	193	23
Richer	264	32
<b>Total</b>	<b>838</b>	<b>100</b>
Media Exposure		
Not exposed to media	293	35
Exposed to media	546	65
<b>Total</b>	<b>839</b>	<b>100</b>
Religion		
Catholic	134	16
Protestants	698	83
Other	5	1
<b>Total</b>	<b>837</b>	<b>100</b>

Table 2.0 above depicts the socio-economic characteristics of the respondents. The table presents findings that have weighted data. This is because the study focused on analysing weighted data. Each characteristic was separately explained below.

#### **4.1.1: Age**

The table above shows that the age group of respondents was from 15 to 19 years. It shows that the majority of postnatal care users were those aged 19, this is because 379 representing 45% of the 839 adolescent women utilized the service in Zambia. Adolescent women aged 15 were represented by (18) 2% of all women who utilized postnatal care services.

#### **4.1.2: Children Ever Born (C.E.B)**

Table 2.0 shows that 739 adolescent women representing 88% of adolescent women who had utilized postnatal care services had one child and 11 adolescent women had three (3) children representing 1% of the postnatal care users.

#### **4.1.3: Residence**

The respondents of the study were categorised according to their residential areas. This was important in establishing the differential residential patterns were the adolescent mothers came from. Table 2.0 above shows that the majority of the adolescent respondents 556 representing 66% were from the rural areas while 283 adolescent women representing 34% of adolescent mothers.

#### **4.1.4: Education levels**

Educational levels of adolescent women is an important socio-economic characteristic that is vital in our study. The study showed that the majority 416 representing 50% of the adolescent women had attained primary education, 391 representing 47% of the adolescent women had attained secondary education while 30 representing 3% of the adolescent women had no education and 1 out of the 839 adolescent women had attained tertiary education.

#### **4.1.5: Wealth index**

The wealth index of the adolescent women is an important economic factor that tends to influence the utilization of postnatal care services. The study revealed that the majority of the respondents were poor 381 (45%), 264 (32%) were rich and 193 (23%) of the adolescent women were of the middle wealth class.

#### 4.1.6: Media Exposure

Exposure to media is also another factor that was taken into account in determining utilization of postnatal care services. The findings revealed that the majority 546 representing 65% of the adolescent women had exposure to a type of media while 393 representing 35% of the adolescent women who participated in the study were from urban areas.

#### 4.1.7: Religion

Religious and denomination affiliation is another characteristic that is important in the utilization of health services, postnatal care inclusive. The study findings revealed that all the respondents in the study were Christians with the majority 698 (83%) being protestants, 134 (16%) being Catholics while others 5 (1%) were from other denominations.

#### 4.2 Utilization of postnatal care services

This section looks at the actual utilization of postnatal care services by adolescent women in Zambia. The figure below shows that the adolescent women who were utilizing postnatal care services were 76% while those that were not utilizing the services were 24%.s

Figure 3.0: Utilization of Postnatal care services

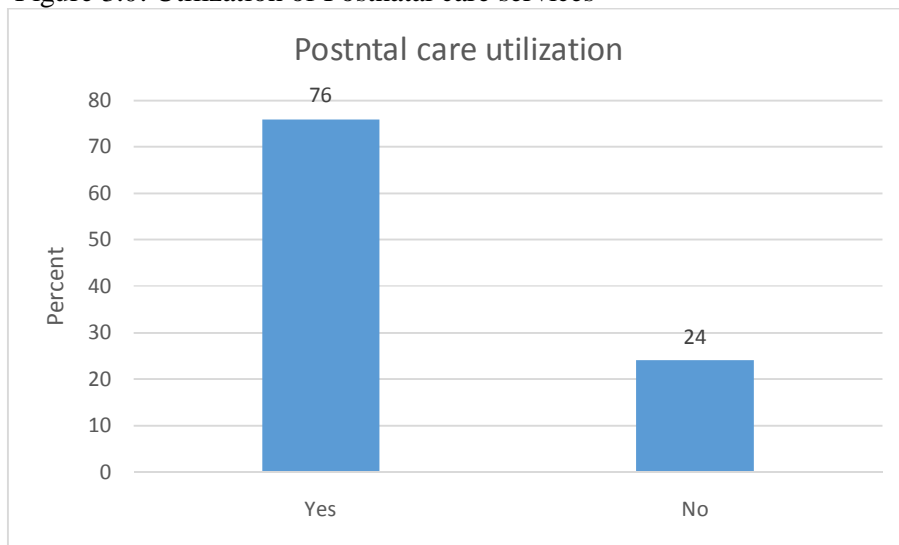
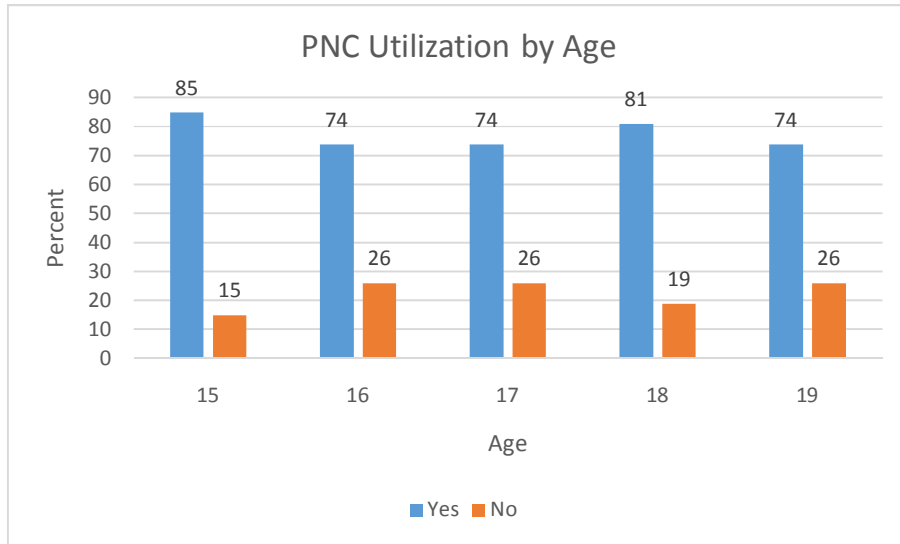


Figure 3.0 above shows the postnatal care services utilization by adolescent women in Zambia. It points out that the majority (76%) of the women were utilizing postnatal care services while the other 24% reported not utilizing the service (See Table 2, Annex 2).

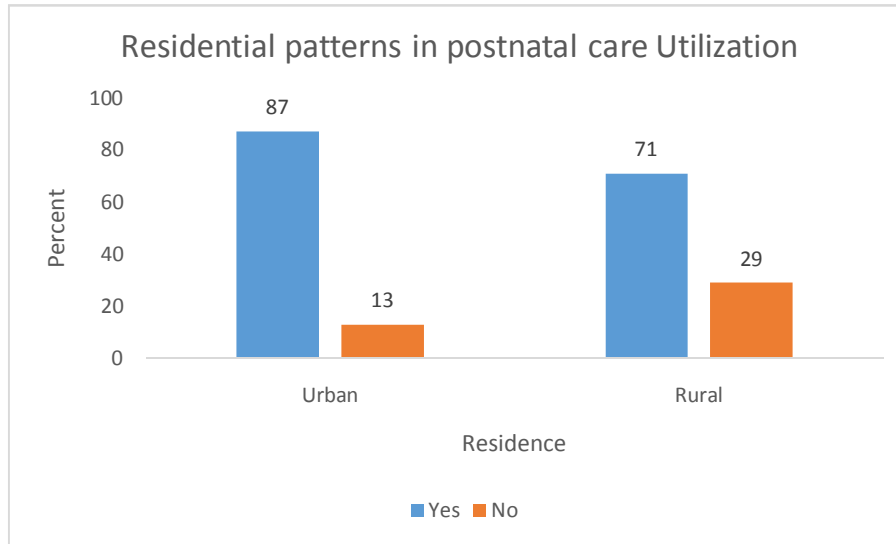
Figure 4.0 below shows the differential utilizations of postnatal care services by respondents' age group. It shows that there are differentials in the utilization of postnatal care services according to age. The majority (85%) of the adolescent women who utilized more of the service were those aged 15.

Figure 4.0 Utilization of postnatal care services by age of respondents



#### 4.3: Residential patterns in the utilization of postnatal care services

Figure 5.0: Residential patterns in the utilization of postnatal care services



The figure above shows the differential residential patterns in the utilization of postnatal care services. The majority (87%) of urban adolescent women utilized postnatal care services as compared to 71% of rural women who utilized the service. There is a significant relationship between postnatal care utilization and the type of residence, with the obtained P-value of 0.0001 showing a strong relationship between the two variables (postnatal care utilization and place of residence). This shows that there is a likelihood of more women from urban areas to utilize postnatal care services than those in rural areas. The postnatal care utilization and place of residence was statistically significant at 95% CI, ( $P < 0.0001$ ). The study, therefore contentedly concludes that women's utilization of postnatal care services was affected by place of residence (See Table 1, Annex2).

#### 5. Influence of Socio-Economic and Demographic characteristics on Postnatal care utilization

This section uses simple logistic regression in order to examine the influence of each of the predictors on postnatal care utilization. In this model, the postnatal care utilization was regressed with each independent variable at a time in order to examine the influence of the specific independent variable on the outcome of postnatal care utilization.

Table 3.0 below shows the influence or contribution of each of the independent variables on postnatal care utilization. It highlights that, the main determinants or predictors that



significantly influenced postnatal care utilization included children ever born, wealth index, Education levels, residence and exposure to media while Age and Religion did not significantly influence postnatal care utilization.

4.5: Table 3.0: Influence of socio-economic and demographic characteristics of postnatal care utilization

Determinants	Odds ratio	Proportional Odds ratio CI(95%)	P-value
Age group			0.439
15	1		
16	0.477	0.114-1.998	0.310
17	0.478	0.127-1.804	0.276
18	0.709	0.204-2.460	0.587
19	0.485	0.136-1.729	0.264
Children Ever Born (C.E.B)			0.002
1			
2	0.381	0.223-0.652	0.001
3	0.671	0.161-2.798	0.583
Residence			0.001
urban	1		
rural	0.370	0.226-0.606	0.001
Education level			0.001
No Education	1		
Primary	1.512	0.758-3.014	0.24
Secondary	3.482	1.705-7.107	0.001
Tertiary	1		
Wealth Index			0.001
Poorer	1		
Middle	1.863	1.147-3.027	0.012
Richer	2.838	1.724-4.674	0.001
Media Exposure			0.013
Not exposed to media	1		
Exposed to media	1.665	1.116-2.484	
Religion			0.166
Catholic	1		0.117
Protestants	0.707	0.405-1.234	
Other	0.185	0.023-1.146	
Birth Order			0.002
1	739	88	
2	90	11	0.001
3	11	1	0.583

Table 3.0 shows that, 1.0 was the proportional odds of the reference group. Therefore, for instance the odds of utilising postnatal care services was Proportional Odds Ratio (POR) times greater ( $POR > 1$ ) or times less ( $POR < 1$ ) for the women not in the reference group compared to those in the reference group. It follows that the odds for all the background characteristics were greater ( $POM > 1$ ) except for Age, region and residence.

On wealth index, the table above shows that the likelihood of utilising postnatal care services for women in the middle class was 1.86 times more than the women who were poor. While women in the rich group were 2.84 times more likely to utilize postnatal care services as compared to the women classified as poor. It was also observed that all the categories (Poor, Middle and Rich) of the wealth index were statistically significant at 95% CI. This implies that wealth index has significant influence on the utilization of postnatal care services.

Women with primary education were 1.51 more likely to utilize postnatal care services as compared to those with no education. On the other hand, women with secondary education were 3.48 times more likely to use postnatal care services as compared to those with no education while those with tertiary education were as likely to use the service as those with no education. This could be due the very few (two) adolescent women had reached tertiary education. However, the category of women with primary education had the P-value 0.240 which was not statistically significant at 95% CI whilst others in the education category were statistically significant.

With respect to exposure, it was observed that, women who were exposed to any type of media were 1.67 time more likely to utilize postnatal care services compared to those who had no exposure to the media. The result was statistically significant at 95% CI. On the other hand, religion revealed that Protestants were 0.707 less likely to utilize postnatal care services as compared to Catholics. While other denomination were 0.012 less likely to utilize postnatal care services as compared to Catholics. However, the results for the two categories (Protestants and Other denominations) were not statistically significant at 95% CI.

Age variables revealed that women aged 16 were 0.477 less likely to utilize postnatal care services compared to women aged 15. While those aged 17 were 0.478 less likely to utilize postnatal care services compared to those aged 15. On the other hand. Women aged 18 and 19 were 0.709 and 0.485 less likely to utilize the service compared to those aged 15.

## 5.6: Multivariate logistic regression analysis

In the previous section (Bivariate analysis), the analysis considered the influence and relationship of each independent variables with regard to postnatal care utilization by regressing each of the independent variables on postnatal care utilization. This section of multivariate logistic regression examined the influence of all the independent variables on postnatal care utilization by using the stepwise (backward) method in coming up with the final model. The analysis further made use of the odds ratios, though in this case with an attempt to identify any possible underlying factors that explain the contribution of the other independent variables to postnatal care utilization.

Initially, all background variables regardless of their statistical significance were fitted. However, the final model whose results are presented below only comprised of the variables that were statistically significant or were direct determinants of postnatal care services.

## 4.7: Determinants of Postnatal care services

Table 5: Determinants of postnatal care services

Determinants	Odds ratio	Proportional Odds ratio CI(95%)	P-value
Children Ever Born (V201)			0.002
1			
2	0.373	0.209-0.663	0.001
3	0.667	0.158-2.807	0.58
Residence (V025)			0.001
urban	1		
rural	0.426	0.257-0.706	0.001
Education (V106)			0.001
No Education	1		
Primary	1.239	0.579-2.65	0.58
Secondary	2.341	1.031-5.314	0.042
Tertiary	1		
Religion (V130)			0.166
Catholic	1		
Protestants	0.621	0.345-1.119	0.113
Other	0.138	0.027-.709	0.018

The results based on multivariate analysis showed that secondary education, second born child, rural residence and other denominations were the direct or major determinants of

postnatal care utilisation. This is because only the above mentioned variables are statistically significant at 95% CI. This implies that these variables have a significant influence on adolescent women's utilization of postnatal care services.

## Chapter Five: Discussion of Findings

### 5.1: Utilization of postnatal care services

The study was aimed at determining the utilization of adolescent women aged 15-19 in Zambia. The findings of the study revealed that the majority of the adolescent mothers in Zambia were utilizing postnatal care services this is because 76% of all adolescent mothers were utilizing the services according to the ZDHS. There was an observed difference in the pattern of utilization of health services, this is because the utilization of postnatal care services by women in the reproductive ages in Zambia was at 63% while that of adolescent women was found to be at 76%. This implies that there are more adolescent women who were utilizing postnatal care services in Zambia.

The general expectations of postnatal care utilization among adolescents is that they utilize much all health services, this is because these are young mothers who do not have the experience in handling babies and taking care of their children. These mothers are expected to attend postnatal care services so that they can learn the kinds of food they should give their children, the kinds of foods they are expected to eat and also how to avoid the risks that come with postpartum. However, there are some reasons that hinder some of them from accessing health services. Some of these include the discomfort that adolescent women have in attending postnatal care services as they get to be victimised or looked upon by many people as being young and having children at a younger age. The attitude by health workers and people in communities generally get to discourage adolescent women from accessing these vital health services. These findings therefore, have provided a picture of postnatal care utilization by adolescents in Zambia.

Rajesh 2008 conducted a study that examined the factors associated with selected maternity services of married adolescent women who have had at least four antenatal care (ANC) visits. The study included those who have undergone safe delivery care, and those who received postnatal care within 42 days of delivery. His study which used data from Nigeria Demographic and Health Survey revealed that nearly 32% of adolescent women received postnatal care within 42 days of delivery. The results from Rajesh's study contradicts the findings of this study, in that this study established that utilization of postnatal care services among adolescent Zambian women is 76% which is much higher than the 32% that was found in Nigeria. The disparity between Rajesh's findings and our findings could be the increased shunning of utilising the services in Nigeria, which could be due to factors such as health workers attitudes and the fear of being victimised.

Another study by Singh 2008 in India, examined factors associated with the utilization of maternal healthcare services among urban Indian married adolescent women (aged 13-19 years) who had given live/still births during last three years preceding the survey. The findings of the study showed 65.1% of adolescent mothers had at least one postnatal check-up within 42 days of pregnancy. The findings by Singh are almost consistent with our findings as they reveal that the adolescent utilization was 65% which is not very different from the 76% we established in Zambia.

Our findings are very close with the general expectations on the utilization of postnatal care services by adolescent women. This is because, adolescent women are expected to access much of health services, due to their lack of experience in handling new born babies and their maternal conditions. This explains 76% of the adolescent women accessing postnatal service in Zambia.

#### 5.2: Residential patterns in the utilization of postnatal care services

The study was also aimed at determining the residential patterns in the Utilization of postnatal care services. This is due to the variations that may occur due to the disparities and differences in the availability and access to social amenities, health facilities and also the availability of trained health personnel in health facilities.

It is generally expected that women in urban areas are expected to utilize much of postnatal care services compared to their counterparts in rural areas. This could be due to the improved and increased availability and accessibility to social amenities. The availability of trained health providers, a lot of health facilities both private and Government would contribute to the increased utilization in urban areas compared to rural areas. Whereas in rural areas the health facilities are distant with very few health providers who in most instances are overwhelmed with work. These constraints in most instances makes the rural people not to utilize health services.

Our findings reveal that in urban areas the majority (87%) of the adolescent women are utilized postnatal care services. This is consistent with the general expectations for women in urban areas. This is because of the available health providers, more health facilities and other social amenities that motivate women to access health services. In urban areas adolescent women even access private health facilities if they fear being victimised or talked about by other people, this is because few people go to private facilities.

As mentioned earlier, Singh in 2008 conducted a study in rural India on factors associated with the utilization of maternal healthcare services among urban Indian married adolescent women (aged 13-19 years) who had given live/still births during last three years preceding the survey. The findings of the study showed 65.1% of adolescent mothers had at least one postnatal check-up within 42 days of pregnancy. The findings of Singh's study show the postnatal care utilization in urban India (65.1%) was less than that of urban Zambia (76%).

In rural Zambia, the postnatal care utilization was 71%. This implies that 29% of the adolescent women in Zambia did not utilize postnatal care services. Some of the reasons that could have contributed to the non-utilization of the services would include distance to health facilities, few and overwhelmed health providers and also the fear of being victimised by other people.

Other studies had also been done on rural postnatal care utilization. In 2006, Dhakal et al conducted a study on the utilisation of postnatal care services among rural women in Nepal (Dhakal et al., 2007). The study reviewed that the proportion of women who had received postnatal care after delivery was low (34%). The findings of this study is not consistent with our findings, this is because the rural postnatal care utilization in Nepal (34%) was lower than the Zambian findings that showed 71% of postnatal care utilization. The disparity in the utilization rates could be attributed to different factors such the opening up new health facilities in rural areas.

Another study was done in 2005 by the Ethiopian society of population studies on the maternal health care seeking behaviour in Ethiopia. The study established that Rural women (23.7 percent) were less likely than their urban counterparts (69.0 percent) to get antenatal care services from health professionals and more likely to get no care at all. Comparable percentages for postnatal care revealed 35.5 percent (urban) and 3.5 percent (rural) respectively. The above mentioned study points out the differences in the utilization of postnatal care services by residential areas. It shows that there were more of postnatal care service utilization in urban areas compared to rural areas. This is the exact case for Zambia where the Utilization of these services is higher in urban areas compared to rural areas.

### 5.3: Influence of Socio-Economic and Demographic characteristics on Postnatal care utilization

The study was also focused on determining the influence of Socio-economic and Demographic characteristics on postnatal care services. The Socio-economic and demographic characteristics of individuals can either enable them to utilize and also not utilize Postnatal care services. The general expectation is that the following categories of women are more likely to use postnatal services, namely the middle and rich classes are more likely to utilize postnatal care services, those with higher levels of Education, Urban residents, those exposed to media, particular religion, and younger age group and also those with fewer children.

The findings of this study revealed that there were differences in the utilization of postnatal care services among Socio-economic and Demographic characteristics. For instance, on Wealth index our findings show that the likelihood of utilizing postnatal care services for women in the middle class was 1.86 times more than the women who were poor. While women in the rich group were 2.84 times more likely to utilize postnatal care services as compared to the women classified as poor. It was also observed that all the categories or brackets (Poor, Middle and Rich) according to the wealth index were statistically significant at 95% CI. This analysis reveals that women in the middle and rich brackets of the wealth index are more likely to utilize postnatal care services as compared to those who are in the poor bracket. Hence, the poor were not likely to utilize postnatal care services. This could be attributed to factors such as lack of transport to access health facilities, lack of financial resources to pay for health facilities and also due to the limited financial resources to allocate to health care provision when there are other things such as buying food for the household. They would rather spend money on the basic needs than to spend money on health care service provision such as postnatal care provision.

Our findings also revealed that the Education levels of women influence their utilization of health care services such as postnatal care services. This is because Women with Primary education were 1.51 more likely to utilize postnatal care services as compared to those with no education. On the other hand, women with secondary education were 3.48 times more likely to use postnatal care services as compared to those with no education. Paradoxically, the likelihood of utilizing postnatal care services by women with no Education was the same as that of those with Tertiary Education. The probable reason for this paradox could be that there were very few if any of the adolescent women who participated in the study that would



have reached tertiary Education. This is because, women who have reached secondary and higher were expected to be knowledgeable about utilization of health services which includes postnatal care services.

The study also established that women of urban residence were more likely to utilise postnatal care services compared to the ones in rural areas. This is attributed to the exposure that those in urban areas have to different social amenities, availability of both health providers and facilities.

On the other hand, the study also explored the influence of exposure to media had on their utilization of postnatal care services. The general expectation is that women who are exposed to media are likely to utilize health care services. Seemingly our findings revealed that women who were exposed to media were more likely to utilize postnatal care services compared to those who were not. This is because, those that were exposed to media had the privilege to get information about the importance of seeking health services, which include postnatal care services whilst the others who were not exposed to media lacked the vital information that could have made them not to utilise postnatal care services.

Other background factors revealed that protestant were more likely to utilize postnatal care services as compared to Catholics and other denominations. This could be attributed to the messages that Protestants could have been preaching that encouraged adolescent women in seeking postnatal care services.

#### 5.4: Factors influencing postnatal care utilization

The study findings showed that Secondary education levels, second born child, rural residence and religion are the direct or major determinants or factors that influence postnatal care services. These determinants were arrived at after fitting all the background variables using the using stepwise (backward) regression. All the P-values for the above factors were statistically significant at 95% CI which implies that they had significant influence on postnatal care services.

## **Chapter Six: Recommendation and Conclusion**

### **6.1: Conclusion**

The major findings of the study show that there is a high utilization of postnatal care services among adolescent women in Zambia. The high rates of utilization could be attributed to the lack of experience that adolescent women have in handling newborns and the fear of losing their children and also causing health problems on themselves. On the other hand, it was established that there were differential patterns in the utilization of postnatal care services among different residential areas. This is because, the majority of adolescents from urban areas (87%) utilized more postnatal care services compared to adolescents in rural areas (71%). It was also established that despite all background characteristics such as age, children ever born, residence, education, wealth index, exposure to media, religion and birth order. Only secondary education, second born child, rural residence and religion have significant influence on postnatal care utilization.

### **6.2: Recommendations**

The study has showed that 24% of adolescent women are not utilizing postnatal care services despite 96% of all women utilizing antenatal care services. We therefore recommend that the Government and other stakeholders should come up with or design sensitisation campaigns that will enable more women to have access to postnatal care services. Due to the lower utilization of postnatal care services in rural areas as compared to urban areas, the Government should employ more health providers and send them in rural areas where they are few health facilities and health providers. This is because the few health providers who are there are overwhelmed with work and tend to exhibit negative attitudes to patients, thereby discouraging many from accessing the service.

There should also be national campaigns that should focus on the elimination of adolescent pregnancies and also promote the use of contraceptives in schools, as most of the adolescents are in secondary schools. This will contribute to the elimination of adolescent pregnancies. Health facilities should also institute adolescent women's friendly corners where adolescent women could go and get information and be taught on how to take good care of themselves and their children. This will encourage many adolescent mothers to access postnatal care and other health services. They will be freer amongst their peers or people of the same age group and could freely ask questions without feeling shy or intimidated.

## ANNEXES

### Annex 1: Analytical table of postnatal care utilization

This analytical table depicts the utilization of postnatal care services by adolescent women.

This information is showed by figure 3.0.

respondent's check up after delivery	respondent's current age					Total
	15	16	17	18	19	
no	3	14	29	53	99	199
	15	26	26	19	26	24
yes	16	40	82	222	281	640
	85	74	74	81	74	76
Total	18	55	111	275	379	839
	100	100	100	100	100	100

Key: weighted counts  
column percentages

Pearson:

Uncorrected  $\chi^2(4) = 5.4914$   
Design-based  $F(3.77, 1697.42) = 1.1496$      $P = 0.3310$

**Annex 2: Residential patterns in utilization of postnatal care services**

This analytical table depicts the residential patterns in the utilization of postnatal care services. It is represented by figure 5.0

Survey: Logistic regression

Number of strata	=	20	Number of obs	=	852
Number of PSUs	=	470	Population size	=	838.84178
			Design df	=	450
			F( 1, 450)	=	15.70
			Prob > F	=	0.0001

m50_1	Linearized					
	Odds Ratio	Std. Err.	t	P> t	[95% Conf. Interval]	
v025						
rural	.3700801	.0928467	-3.96	0.000	.2260311	.6059312
_cons	6.604843	1.488244	8.38	0.000	4.241771	10.28437

Annex 3: Study Timeline

Year	2015											2016		
Month	Ma	Ap	Ma	Ju	Jul	Au	S	Oc	No	De	Jan	Fe	Ma	Ap
Activity	r	r	y	n		g	e	t	v	c		b	r	r
<b>Proposal Development</b>														
<b>Submission to Ethics Committee</b>														
<b>Data Collection/Cleaning</b>														
<b>Data analysis</b>														
<b>Report writing</b>														
<b>Submission and dissemination of findings</b>														
<b>Graduation</b>														

Annex 4: Budget

ITEM	QUANTITY	UNIT COST	TOTAL (in Kwacha)
Printer	1	2,000	2,000
Software (STATA)	1	1,500	1,500
Toner	1	1,200	1,200
Ream of Paper	3	40	1,20
Transport	1	1,000	1,000
Proposal binding	5	250	1,250
The University of Zambia Research Ethics Committee fees	1	1,000	1,000
External Hard disc	1	1,200	1,200
Grand Total			10,320

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