Influence of Maternal Characteristics on Healthcare Seeking Behavior for Common Childhood Illnesses in Zambia: An analysis of data from the 2018 Zambia Demographic and Health Survey.

By

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DECLARATION

I, **Lubomba Nachilobe** hereby declare that this dissertation represents my work, and it has not been submitted for a degree at this or any other University.

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This dissertation of **Lubomba Nachilobe** has been approved as fulfilling part of the requirements for the award of the degree of Master of Arts in Population Studies at the University of Zambia.

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DEDICATION

I dedicate this paper to my mother, **Ireen Miyoba Kaumba** who has supported me throughout my life.

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First and foremost, I thank the Almighty God who has enabled me to achieve this. I also wish to acknowledge my supervisor, **Dr. Musonda Lemba** for his guidance, support, motivating advise and sparing time to technically review my work. I want to thank my mother for believing in me and supporting me financially and emotionally.

ABSTRACT

Common childhood illnesses remain a major challenge in developing countries. Therefore, acute response is vital to the survival of children below the age of five. Studies of healthcare seeking behavior in Zambia have barely explored the maternal factors associated with healthcare seeking behavior for common childhood illnesses. Thus, this study examined the maternal factors influencing the healthcare seeking behavior for common childhood illnesses in Zambia among children under the age of five.

The analyses were based on women who reported to have sought healthcare for the common childhood illnesses, diarrhea, fever and cough from the nationally representative 2018 Zambia Demographic and Health Survey (ZDHS) data. Cross-tabulations and chi-square tests were conducted to establish the crude relationships and finally multinomial logistic regression was employed to determine the major predictors of healthcare seeking behavior using STATA 16.0 with 5% level of significance.

The findings revealed that distant factors operate through proximate factors in order to influence healthcare seeking behavior for common childhood illnesses. Multivariate analysis revealed that women in urban areas had higher odds of seeking healthcare at a government hospital [OR=2.932; 95% CI: (1.685-5.101)] and lower odds of seeking healthcare at a private health facility as compared to those in rural areas [OR=0.804; 95% CI: (0.476-1.360)]. Additionally, women with insurance had higher odds of seeking healthcare at both government and private health facilities.

The study concluded that the factors likely to influence healthcare seeking behavior include, birth order, sex of household head, region, residence, wealth status, maternal education, occupation, health insurance coverage, ownership of bank account, ownership of mobile telephone and place of delivery. This study recommends development of programs that spread awareness on causes of childhood illnesses and importance of consulting health facilities so as to improve the healthcare seeking behavior for common childhood illnesses and ultimately reduce child mortality.

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LIST OF ACRONYMS

ARI	Acute Respiratory Infection
GPPD	Integrated Global action plan for pneumonia and diarrhea
IMCI	Integrated Management of Childhood Illnesses
MLR	Multinomial Logistic Regression
NGO	Non-governmental Organization
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WHO	World Health Organization
ZDHS	Zambia Demographic and Health Survey

CHAPTER ONE: INTRODUCTION

1.1 Background

Health care seeking behavior is an action taken by an individual to an internal and external stimulus to find a suitable solution after the child has a health problem (Bahrami et al., 2014). Diarrhea, malaria (fever) and acute respiratory infection (ARI) are among the leading causes of child mortality worldwide, with the greatest burden concentrated in developing countries. Ensuring prompt diagnosis and appropriate management of diarrhea, malaria (fever) and ARI is crucial for reducing morbidity and mortality among young children.

Despite being entirely preventable and treatable, common infectious diseases are still killing young children in large numbers. Pneumonia, diarrhea and malaria were responsible for approximately 29 percent of the global deaths among children under the age of 5 in 2018. Children in the world's poorest regions are disproportionately affected, with infectious diseases prevalent in sub-Saharan Africa (UNICEF, 2019).

Pneumonia is the leading infectious cause of death among children under 5, killing approximately 800,000 children a year. Pneumonia kills more children than any other infectious disease, claiming the lives of around 2,200 children every day. Comparatively in 2018, 437,000 children under five died due to diarrhea and 272,000 to malaria. Globally, there are over 1,400 cases of pneumonia per 100,000 children or 1 case per 71 children every year, with the greatest incidence occurring in South Asia (2,500 cases per 100,000 children) and West and Central Africa (1,620 cases per 100,000 children). In many parts of the world, a child dies from pneumonia every 39 seconds, even though the disease is entirely preventable and can be easily managed with antibiotics. Pneumonia is a disease of inequality as it is one concentrated within the poorest populations around the globe. Child deaths caused by pneumonia are strongly linked to undernutrition, lack of safe water and sanitation, indoor air pollution and inadequate access to health care. All these factors are compounded by poverty, making pneumonia a disease of inequality. But simple and protective treatment solutions exist, which includes, administering of antibiotics which can be accessed at health centres and this is critical for treating pneumonia. UNICEF provided antibiotic treatment to over 6.8 million children in 63 countries (UNICEF, 2019).

In recent years, significant progress has been made reducing child deaths from diarrhea. But diarrhea remains a leading killer of young children, particularly in humanitarian settings. In 2017,

diarrhea killed approximately 480,000 young children across the globe, accounting for 8 percent of all deaths among children under the age of 5. Most deaths from diarrhea occur among children below the age of 2 living in South Asia or sub-Saharan Africa. After pneumonia, diarrhea is the second biggest cause of deaths of children under five years old, responsible for 15 percent of child deaths in low income countries in 2008 (WHO, 2012). Diarrhea accounts for nearly 760,000 deaths per year and only one third of children with diarrheal disease receive the recommended treatment (UNICEF, 2012). Diarrhea usually elapses within three or four days because too much liquid and nutrients from the body are lost through stools and vomiting which leaves the body dehydrated and malnourished if not treated. The most likely cause of deaths is therefore dehydration. These findings highlight the importance of ensuring that children receive adequate health care treatment (UNICEF, 2019).

Malaria is the world's third deadliest disease for young children between the ages of one month and 5 years, following pneumonia and diarrhea. In 2017, approximately 266,000 children under the age of 5 died of the disease, accounting for 61 percent of global malaria deaths. Every two minutes, a child dies from malaria. Eliminating malaria requires increased global investments, particularly in research and development. Insecticide-treated mosquito nets are known to provide an effective defense against malaria, while swift diagnosis has proven essential for treatment (UNICEF, 2019).

A large proportion of these deaths could be prevented through early appropriate and low-cost treatment. Children from the poorest families are significantly less likely to be brought to health facilities and may receive low quality care once they arrive. Despite clear evidence that large numbers of sick children have no contact with health facilities and that providing early treatment at the community level can lead to reduced mortality, few countries have made good quality care available (WHO, 2013).

The percentage of children with diarrhea, fever and symptoms of ARI who reach the health system remains low in many high childhood mortality settings. There have been no significant improvements in the level of healthcare seeking for fever or for symptoms of ARI from any source, private or public sources. An increase in health care seeking for diarrhea between 2000 and 2013 was observed in Western Africa, Eastern Africa, Southeast Asia and Western Africa. Western Africa has also recorded an increase in healthcare seeking for fever only (Bennet et al., 2015).

Healthcare seeking for diarrhea, however, has shown more widespread improvement. The greater gains in care seeking for children's diarrhea could be driven in part by the fact that levels of care seeking were initially lower for diarrhea than the other childhood illnesses. Other studies have found that lower baseline levels of child health intervention coverage were associated with greater annual improvements. The lack of increase for fever could be because care seeking for fever has been seen as less urgent because malaria prevalence has declined (Winter et al., 2015).

The world has made remarkable progress in child survival in the past few decades, and millions of children have better survival chances. Child mortality is the lowest it has ever been globally, from 12.6 million in 1990 to 5.4 million in 2017. Moreover, progress in reducing child mortality has been accelerated in the 2000-2018 period compared with the 1990s, with the annual rate of reduction in the global under-five mortality increasing 2.0 percent in the 1900-2000 to 3.8 percent in 2000-2018. Despite the global progress in reducing child mortality over the past few decades, an estimated 5.3 million children under age five died in 2018, roughly half of those deaths occurred in sub-Saharan Africa. In Africa, mortality rates among children under 5 decreased by 58 percent between 1990 and 2017, still over half of the world's 5.4 million under-five deaths in 2017 occurred in Africa. In 2016, pneumonia, malaria and diarrhea accounted for 36 percent of all under-five deaths in Africa (UNICEF, 2019).

Progress in reducing deaths due to pneumonia in children under-five has been significantly lower than for other infectious diseases. Since 2000, under-five deaths due to pneumonia have declined by 54%, while deaths due to diarrhea have decreased by 64 percent and are now almost half of pneumonia deaths (UNICEF, 2019).

Sustainable Development Goal 3.2 is to reduce the under-five mortality rate to at least as low as 2.5 percent in all countries by 2030. This would mean that more than 97.5 percent of all newborns would survive the first five years of their life no matter where they are born. We are currently far away from the goal for 2030. Globally, 3.9 percent of all children die before reaching the age of five, which means that on average 15,000 children die every day. And the data shows that while the child mortality rate declined around the world, there still many countries in which the mortality rate is higher than 2.5 percent (Roser et al., 2019). Zambia's under-five mortality rate is 61 deaths per 1000 births as indicated in the 2018 Zambia Demographic and Health Survey (Zambia

Statistics Agency et. al, 2019). This shows that the country needs to put in more effort in order to achieve the set goal.

Zambia is a society with high levels of poverty in which children and women face many health risks. For children, these include vaccine preventable diseases (e.g. tuberculosis, polio, measles, diphtheria, whooping cough and tetanus), HIV, malaria, pneumonia, diarrhea and malnutrition. Between 2007 and 2018, Zambia has seen a 50 percent reduction in under-five mortality. Inadequate infrastructure, access to services and quality of health care are the key factors hindering stronger progress for the health of children (UNICEF, 2019). Countries with weak and fragile health systems have not been able to provide effective child survival strategies that are crucial to reduce under-five child deaths. Basic health services have been lacking, as well as nutrition, water supplies and sanitation facilities (WHO, 2011).

These trends can be reversed. Health ministries, international partners and aid organizations have utilized numerous approaches in their attempts to reach all children. Specific efforts have targeted the poor, remote and hard to reach communities and with expanded access to preventative and curative care for childhood illnesses. UNICEF works around the world to protect and prevent children from dying of disease. They support countries to strengthen primary health care systems, especially at the community level and combat common infectious diseases such as malaria, pneumonia, diarrhea, HIV and tuberculosis. The WHO and UNICEF Integrated Global action plan for pneumonia and diarrhea (GPPD) aims to accelerate pneumonia control with a combination of interventions to protect, prevent and treat pneumonia in children. The SDG 3.2 has been translated into the Global Strategy for Women's, Children's and Adolescent's Health which calls for ending preventable child deaths while addressing emerging child health priorities. This has been through the goals and targets set by the global community for tackling the unfinished child survival agenda to achieve under-five mortality of 25 or fewer deaths per 1000 births by 2030 (WHO, 2020).

UNICEF Zambia developed a National Health Strategic Plan 2017-2021 which aims to keep mothers healthy and help provide a strong start to children's lives by expanding coverage in treatment of children affected by diarrhea, pneumonia and malaria. UNICEF Zambia's health programme is geared towards supporting an end to preventable maternal and child mortality. Their work is anchored in the National Health Strategic Plan 2017-2021 and the National Community Health Strategy 2019-2021 (UNICEF, 2019).

The Integrated Management of Childhood Illnesses (IMCI) was developed by WHO and UNICEF in the mid-1990s. IMCI has been implemented widely across low and middle-income countries. IMCI uses an integrated approach to the prevention and treatment of childhood illnesses that works at the family, community and health systems levels (UNICEF, 2012). Promotion of the private sector is another strategy that has been developed for increasing the reach of health systems. The USAID Strengthening Health Outcomes through the Private Sector (SHOPS) program, works with the non-governmental organizations (NGOs) and for-profit facilities to increase availability, improve quality and expand coverage of essential health products and services in the private health sector. The rationale suggests that increasing private sector involvement to serve those who can pay for private services, drugs and health products will free up public sector resources to better serve low-income populations (Winter et al., 2015).

Therefore, WHO calls on member states to address health equity through universal health coverage so that all children are able to access essential health services without undue financial hardship. Moving from business as usual to innovative, multiple and tailored approaches to increase access, coverage and quality of child health services will require strategic direction and an optimal mix of community and facility-based care. Health sector and multi-sectoral efforts are also needed to overcome the inequalities and the social determinants of health (WHO, 2019).

1.2 Problem Statement

According to the 2018 Zambia Demographic and Health Survey, advise or treatment was sought for 76 percent of children with ARI symptoms of which 40 percent were taken for advice on the same or following day. For children that had diarrhea two weeks before the survey, 69 percent sought for treatment of which 62 percent were taken for treatment two days after onset of the diarrhea and 25 percent did not receive any treatment. Furthermore, 77 percent of children with fever were taken for treatment of which 48 percent were taken the same or following day ((Zambia Statistics Agency et. al, 2019)). Delay in seeking healthcare may result in worsened situation and eventual loss of life of the child. Previous research has shown that decision making on whether to seek healthcare is influenced by various factors such as maternal educational attainment, age of the mother and daily activities of the mother. When treatment interventions are timely and appropriate, they can cure children and ensure survival. Availability and accessibility of treatment to all children, especially those in poor, rural and marginalized populations, could save the lives of hundreds of thousands additional children each year.

Studies in Zambia have focused on the level of healthcare seeking behavior and have barely explored the factors influencing healthcare seeking behavior for common childhood illnesses. Thus, research on the influence of maternal characteristics is needed as most interventions in reducing child morbidity and mortality are tailored towards women of childbearing age. Therefore, the purpose of this study was to establish the extent to which maternal characteristics influence the healthcare seeking behavior for common childhood illnesses in Zambia.

1.3 Research Objectives

1.3.1 General Objective

To establish the influence of maternal characteristics on the healthcare seeking behavior for common childhood illnesses in Zambia.

1.3.2 Specific Objectives

1. To establish the maternal demographic and socio-economic factors that are likely to influence the healthcare seeking behavior for common childhood illnesses in Zambia.

1.4 Research Questions

1.4.1 Main Research Question

What is the influence of maternal characteristics on the healthcare seeking behavior for common childhood illnesses in Zambia?

1.4.2 Specific Research Questions

1. What are the maternal demographic and socio-economic factors that are likely to influence the healthcare seeking behavior for common childhood illnesses in Zambia?

1.5 Rationale

Zambia did not meet the Millennium Development Goal 4 on child mortality despite a 30% reduction in child mortality as it was not sufficient to meet the target (US Embassy, 2016). Zambia may also not be on track with achieving the SDG 3.2 which is to reduce the under-five mortality rate to at least as low as 2.5 percent in all countries by 2030 as Zambia's under-five mortality rate is 61 deaths per 1000 births as indicated in the 2018 Zambia Demographic and Health Survey (Zambia Statistics Agency et. al, 2019). There is need to accelerate the progress required to achieve the Sustainable Development Goal 3.2 target on child survival. To improve chances of success for intervention programs, local content research is necessary to aid in understanding the health problems of interest and to serve as a basis for developing the intervention programs. A better understanding of ways in which maternal characteristics influence the healthcare seeking behavior for common childhood illnesses can contribute to policy response to reduce child deaths due to common childhood illnesses. Therefore, this study attempted to explore the maternal characteristics that are likely to influence the healthcare seeking behavior for common childhood illnesses to contribute to the body of knowledge.

CHAPTER TWO: LITERATURE REVIEW

2.1 Empirical Literature

2.1.1 Introduction

Children under five years in Zambia account for 20% of the population and account for 29% of all deaths each year. About 17 out of 100 children never live up to their fifth birthday as they are dying from the common childhood illnesses, pneumonia, malaria and diarrhea (UNICEF, 2019). Literature review on the influence of maternal characteristics on healthcare seeking behavior for common childhood illnesses will help uncover some information that will contribute to a better understanding of child health in relation to healthcare seeking behavior by care givers. A number of maternal factors have been identified to influence the healthcare seeking behavior for common childhood illnesses. These include socio-economic factors such as level of education, employment status and low or poor income. Demographic factors such as age of mother has also been identified to have an influence on healthcare seeking behavior for common childhood illnesses.

2.1.2 Influence of demographic factors on healthcare seeking behavior for common childhood illnesses

Age of Mother

Most studies have shown that young mothers are more likely to seek health care than older mothers. It is perceived that young mothers are more alert in detecting an illness in their children and have little experience in home treatment and therefore would rather seek professional health care. A study undertaken in rural district of Ethiopia (Sisay et al., 2017) established that the odds of seeking health care for childhood illness were higher when the mother's age is 20-24 and 25-29 years than age of mothers above 35 years (OR= 2.413, 95% CI: 1.384, 4.209) (OR= 1.888, 95% CI: 1.138, 3.130), respectively. A study in Nigeria also identified young mothers were more likely to seek health care (p= 0.001). This was so because young mothers were less likely to be socially independent compared to older mothers (Ogunlesi and Olanrewaju, 2010). Kante et al. (2015) identified that older mothers aged 35 and above were less likely to seek health care than young mothers. It is argued that caregivers age influences perception of illness. Bennett et al. (2015) established that young mothers were slightly more likely than older mothers (age 30 and older) to take their child for ARI symptoms, fever and diarrhea treatment in Eastern Africa, Southern Africa and Central Africa. This was attributed to the fact that the child of young mothers is more likely

to be the woman's first child and she would therefore be more likely to seek treatment. Additionally, older mothers may perceive themselves more adept at discerning whether an illness is severe enough to warrant medical attention.

2.1.3 Influence of socio-economic factors on healthcare seeking behavior for common childhood illnesses

Maternal Education

Studies have shown that educated women tend to provide better health care and are more likely to seek health care when a child is ill. Educated mothers are more likely to read comprehensively and thereby understand better the symptoms of illnesses and what appropriate actions should be taken. They are expected to understand health education messages printed in mass media and through other methods more than the less educated mothers or caregivers. Several studies have reported a positive relationship between level of education and health care seeking behavior for common childhood illnesses. A descriptive cross-sectional study was conducted among 439 mothers/caregivers in an urban slum of Dhaka City, India (Mahejabin et al.,2013-14). In this study, the relationship between maternal education and sought for health care was found to be a borderline statistically significant (p=0.055).

A facility based cross-sectional study was undertaken in selected health centers in Addis Ababa, Ethiopia (Abegaz et al., 2019). Multivariable logistic regression showed that maternal education was statistically significant with health care seeking behavior (AOR= 4.24, 95% CI: 1.32, 13.63). Mothers/caregivers with secondary school level had nearly four times more likelihood to seek health care compared to those with no education. This may be due to the fact that educated mothers are more likely to read and understand better and adopt practices that are preventive and curative for the child as promoted through health education in outreach programs or by health care providers. A study undertaken to establish the determinants of mothers'/caregivers health care seeking behavior also established that level of education, particularly secondary (P= 0.030) and tertiary (P= 0.009) education was associated with health care seeking behavior. Similar to other studies, it was attributed to educated mothers being able to make a decision to seek quality health care, better access to health service information and an improved perception of danger signs. Therefore, the probability of seeking health care increases with the increasing level of education (Adedokun et al., 2017).

A study conducted in India to determine the health care seeking behavior of mother towards their children (Chandwani and Pandor, 2015) identified education to be statistically significant (AOR= 11.34, P< 0.05). It was established that mothers with education were adequately equipped with knowledge to be able to perceive childhood illness serious enough to consult a health care provider. Educated caregivers are more likely to seek professional health care rather than home or no care (Kanté et al., 2015). These findings are in line with the findings by Winter et al. (2015) who established that mothers with no education or only primary education were consistently less likely to take their child for treatment when sick, compared to mothers with secondary education or higher, for all three common childhood illnesses. It is suggested that women with little or no education are less likely to recognize severe symptoms in their sick child, they are also more likely to seek treatment from a traditional healer and they are less likely to have financial and other resources to take the sick child for treatment at a health facility.

Marital Status

In a study conducted at Kenyatta National Hospital, Nairobi, Kenya (Wambui et al., 2018), the married mothers/caregivers were more likely to seek health care than the single (OR=2.19, 95% CI: 1.06 -4.52, P= 0.034). This could be because their motivation to seek early health care results from support and push from their partners and extended family. The support is in the form of emotional, financial, physical and material that is very critical during a family member's sickness. The suggestion is consistent with social network and closely knit family linkages common in African cultures where a family member is considered as part of the larger community playing a critical role in health care decisions. Additionally, men are the family head, principle care givers, and decision makers, and provide the financial resources to actualize the plans. In contrast, gender bias and discrimination are associated with women being deprived off power or role in decision making resulting in underutilization of health care as well as poor access to health services. A cross-national mixed effects analysis on household relationships and health care seeking behavior in sub-Saharan Africa (Akinyemi et al., 2019) established that children of the single women had the highest utilization of health services.

A study undertaken in Ethiopia to establish the health care seeking behavior for common childhood illnesses also identified marital status as a predictor of health care seeking behavior (Kolola et al.,

2016). Married caregivers were more likely to seek care from health facilities for their sick children than those who were not married (AOR= 2.84, 95% CI: 1.63-4.98).

Employment Status

Akinyemi et al. (2019) states that children with working mothers sought for health care compared to children with non-working mothers in sub-Saharan Africa. This may be attributed to the fact that working mothers have enough financial incentives to enable them access quality health care services. Results from a study conducted in Nigeria also found that working mothers utilized health services for their children more than non-working mothers. It is argued that not only do working mothers have more financial stability to seek health care but those who work in the formal sector especially, may enjoy a reasonable reduction in medical expenses through the health insurance scheme (Adedokun et.al., 2017).

Wealth Status

Poverty is a serious constraint on a family's choice about how to treat children's illnesses. Improved wealth status has the potential to improve healthcare seeking behavior. Studies have shown that mothers with high wealth status are more likely to seek health care for their children compared to mothers with low wealth status. This is because mothers with high wealth status have access to quality health services. Wealth status was found to be statistically significant in a study conducted in India (Chandwani and Pandor, 2015). A study conducted in Nigeria established that high wealth status was a predictor of healthcare seeking behavior ($p<0.035$). This was because mothers with high wealth status are better equipped for initiating and controlling decision making with regards to health (Ogunlesi and Olanrewaju, 2010).

Children from households with high wealth status are more likely to be taken to a health facility compared to children from low wealth status households (Kanté et al., 2015). Wealth quintile of the household is seen to significantly influence healthcare seeking behavior. Those from wealth quintile households were more likely to seek healthcare at a health facility than providing home care like in poor quantile households. This implies that financial readiness influences health care seeking behavior for common childhood illnesses. These findings are consistent with another study undertaken in Nigeria where mothers from rich households sought for healthcare than those from poor households (Adedokun et al., 2017). Poor families are often unable to obtain even the most

basic healthcare for their children. Poor or delayed care-seeking contributes to up to 70 percent of all under-five child deaths (WHO, 2011). Caregivers in poorer households are expected to face more barriers to accessing care for their sick children, who are expected to be more exposed and vulnerable to some infections (UNICEF, 2012). Women living in poorer households are less likely to seek treatment for their sick child than women living in more affluent households (Winter et al. 2015). They further argue that this is likely due to lack of money to pay user fees or medicine costs, transportation costs to and from the health facility and lastly, time lost from work or farming to take the child for treatment.

Type of Residence

Children in urban locations are generally expected to have better access to care and reduced exposure to some infections. However, the benefits of an urban residence depend on the economic resources of the household and community. Children in urban slums, for example are particularly vulnerable to childhood illness because of overcrowding, unhygienic surroundings, poverty and the absence of basic health infrastructure (Winter et al., 2015). Children in urban areas were significantly more likely to be taken for treatment for symptoms of ARI, fever and diarrhea in Northern Africa, Eastern Africa, Southern Africa and Southern Asia (Bennett, 2015). Another study also established that households from urban areas where more likely to seek health care than those in rural areas (OR: 9.513 95% CI:4.352, 20.979). This might be because those in urban areas have more access to health information and health facilities than rural population (Simieneh et al., 2019).

2.1.4 Influence of family factors on healthcare seeking behavior for common childhood illnesses

Number of under-five children in the household

A study undertaken in Ethiopia established that caregivers who had two or more under-five children are less likely to seek formal health care compared to those who had one (Gebretsadik et al., 2015). This is associated to availability of resources when there are less children in the household. Therefore, caregivers are able to seek formal health care when they have one child under the age of five in the household.

Family Size

In a study undertaken in Addis Ababa, Ethiopia family size less than or equal to five was four times more likely to seek healthcare for a sick child (AOR= 3.83, 95% CI: 1.06, 13.78) (Abegaz et al., 2019). Studies show that mothers with high load due to large family size tend to give less attention to a sick child. Financial restraints limit a large family size visiting a health facility. This finding is consistent with the study conducted in Northwest Ethiopia where households with family size of 2-5 were more likely to seek health care for a sick child than households with more than 5 family size (OR= 1.625 95% CI: 1.102, 2.395) (Simieneh et al., 2019).

2.1.5 Influence of health factors on healthcare seeking behavior for common childhood illnesses

Place of Delivery

Alene et al., 2019 states that women who give birth at a health facility are more likely to seek healthcare for childhood illnesses at the same health facility as compared to mothers who give birth at home. The possible explanation for this might be following antenatal care which enables mother to be aware of the advantages of seeking health care at the time of child illness.

This section presented an overview of literature on maternal characteristics that are likely to influence healthcare seeking behavior for common childhood illnesses. The maternal characteristics have been extensively researched in most parts of the world as evidenced by numerous published articles. However, little research has been undertaken in Zambia despite of the fact that it has a high infant and child mortality. Previous studies have focused on maternal characteristics such as education and wealth status. This study attempted to explore other factors like health insurance coverage, ownership of mobile telephone, ownership of bank account, frequency or listening to the radio, frequency of watching television and whether they listened or watched health-related programs to uncover new knowledge that will contribute to already existing knowledge.

However, most of the literature reviewed has shown that very little research on health care seeking behavior for common childhood illnesses has been undertaken in Zambia. Therefore, this study attempted to provide information on health care seeking behavior for common childhood illnesses in terms of the Zambian context.

2.2 Theoretical Framework

This study was guided by an analytical framework developed by Mosley and Chen (1984). This framework explains the mechanisms through which various determinants operate to affect infant and child mortality. The framework categorizes the determinants into two groups, indirect or facilities while the direct or proximate determinants include, immunization, child feeding practices. Proximate determinants have the most direct effect on mortality. Indirect factors, on the other hand are the distant factors and they operate through one or more proximate factors to affect mortality. The figure below summarizes the Mosley and Chen framework.

Figure 2.1 Summary of Mosley and Chen Framework

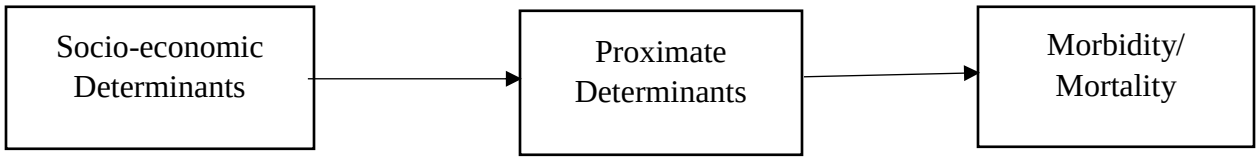


Figure 2.1 above shows how socio-economic determinants operate through proximate determinants that in turn influence the risk of diseases and the outcome of disease process.

Mosley and Chen (1984) group socioeconomic determinants into three broad categories of variables that are commonly followed in the science literature, these include;

- Individual level variables: individual productivity (fathers and mothers), traditions/norms/attitudes
- Household level variables: income/wealth
- Community level variables: ecological setting, political economy, health system

On the individual level, parents' skills, health and time are important determinants of child mortality. Skills are typically measured by formal educational achievement while the father's education may often work primarily through its effect on household income, that is, by affecting employment and income of the main income earner. It also plays an important role in household decision making and for the father's personal illness control. The mothers' characteristics are of primary importance to child survival. Mother's health and nutritional status, her reproductive behavior and knowledge of child health care practices (vaccination, hygiene, disease treatment) will be influenced by her educational attainment. The mother's time for health care, food

preparation, washing clothes, is important, but time for child care competes with other time uses, in particular income generating activities. Whether this competition for mother's time becomes a threat to child health, obviously depends on household income. For richer households, it may be easier to reallocate time to childcare. Not only with regard to time use, household income matters for child survival. Sufficient income allows the household to provide the child with food in adequate quantity and quality, drinking water, clothing, housing, energy, hygienic articles and childcare. Individual and household level factors interact with community level factors. The presence of a health facility as well as the availability of vaccines can be crucial for child survival. How far community health infrastructure is will eventually affect child survival. This however dependent on both the willingness and the ability to pay for child and mother health services (Lay and Robilliard, 2009).

Morbidity and mortality are considered as the outcome variable, that is, depending on the interaction of the factors in the model, the child might end up sick (morbidity) and eventually gets better and regains his/her health or the state of health might get worse which then leads to deaths (mortality).

The development of a proximate determinants approach to the study of child survival presented here is based on several premises:

1. In an optimal setting, over 97 percent of newborn infants can be expected to survive through the first five years of life.
2. Reduction in this survival probability in any society is due to the operation of social, economic, biological and environmental factors.
3. Socioeconomic determinants (independent variables) must operate through more basic proximate determinants that in turn influence the risk of disease and the outcome of disease processes.
4. Specific diseases and nutrient deficiencies observed in a surviving population may be viewed as biological indicators of the operations of the proximate determinants.
5. Growth faltering and ultimately mortality in children (the dependent variable) are the cumulative consequences of multiple disease processes (including their biosocial interactions). Only infrequently is a child's deaths the result of a single isolated disease episode.

The key to the model is the identification of a set of proximate determinants, or intermediate variables, that directly influence the risk of morbidity and mortality. The proximate determinants are grouped into five categories:

- **Maternal factors;** age at birth, parity, birth interval
- **Environmental contamination;** air, food/water/fingers, skin/soil/inanimate objects, insect vectors
- **Nutrient deficiency;** calories, protein, micronutrients (vitamins and minerals)
- **Injury:** accidental, intentional
- **Personal Illness Control;** personal preventive measure, medical treatment

Figure 2.2 Mosley and Chen Framework

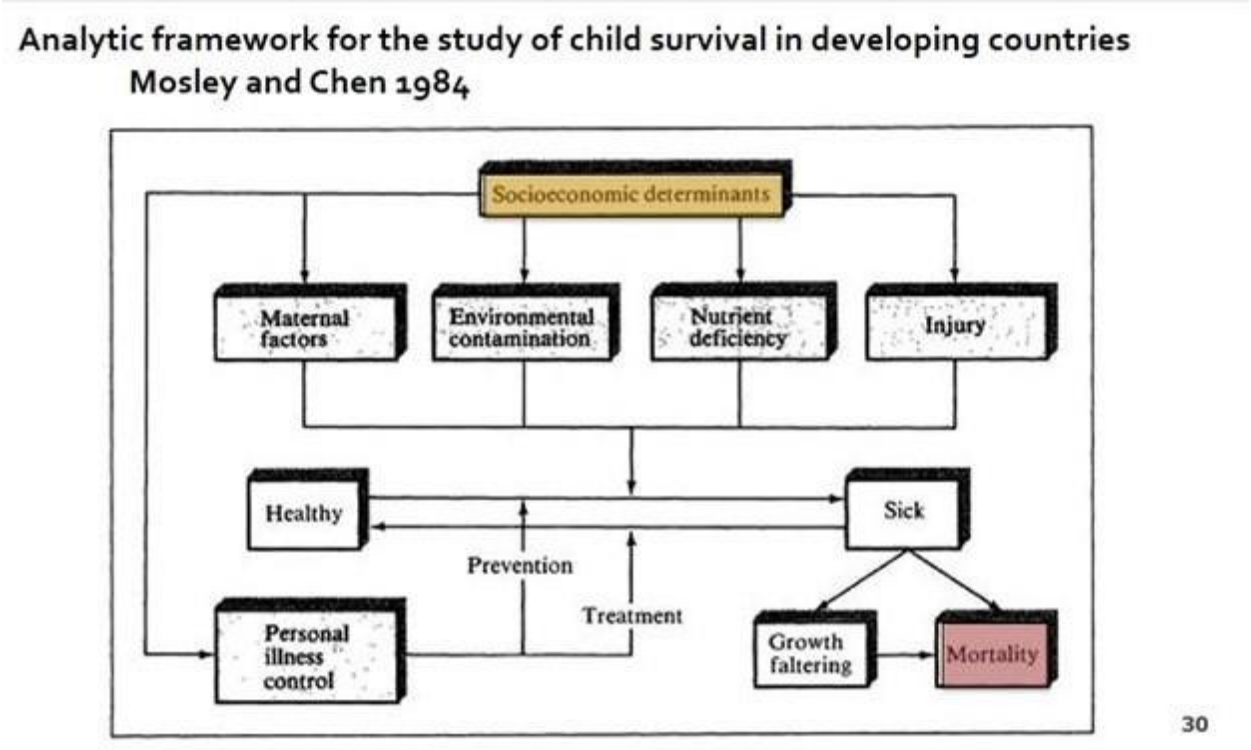


Figure 2.2 shows how the five groups of proximate determinants that operate on the health dynamics of a population. All proximate determinants in the first four groups influence the rate of shift of healthy individuals toward sickness. The personal illness control factors influence both the rate of illness (through prevention) and the rate of recovery (through treatment). Specific states of sickness (infection or nutrient deficiency) are basically transitory. Ultimately, there is either

complete recovery or irreversible consequences manifested by increasing degrees of permanent growth faltering (or other disability among the survivors) and or deaths.

The theoretical framework of child health in Zambia begins with most of the individual level variables in the proximate determinants framework. Proximate determinants operate through specific mechanisms to determine child health outcomes. Socioeconomic variables operate through the proximate determinants of child health. Among the individual factors are traditions and norms which also play an important role to influence the proximate determinants of child health in Zambia. These will not be looked at in this study. Maternal fertility is determined by longer birth intervals and contraception in Zambia. These operate through the biological mechanism of production of milk and through the social mechanism of less competition with sibling for mother's attention and household resources, children get better nutrition and better care, thus improving their survival chances.

Amongst the numerous factors that have been found to be associated with childhood mortality, maternal education has shown to have the greatest impact on children's survival chances. It is argued that educated mothers are more aware of the symptoms of illnesses, location of health care facilities and are more likely to use them. The majority of Zambians have either no formal education or only come primary education. Specifically, 60 percent of females and 54 percent of males aged 6 and over have no education or only some primary education. The percentage of females aged 6 and over with no education declined from 24 percent in 1992 to 16 percent in 2013-14 and remained at 16 percent in 2018. Men and women in the highest wealth quintile (18 and 14 percent, respectively) are more likely than their counterparts to attain a higher education (Zambia Statistics Agency et. al, 2019).

In Zambia, 72 percent of households have access to an improved water source, although access is more predominant in urban (92 percent) than rural (58 percent) households. The most common sources of drinking water in urban households are water piped into the household's dwelling, yard, or plot (41 percent), water from a public tap or standpipe (16 percent) and water piped to a neighbor (15 percent). Sixty-four percent of Zambia's population has basic drinking water service of which 65 percent do not treat their drinking water (Zambia Statistics Agency et. al, 2019). This implies that children in Zambian household are a high risk of contracting diarrheal diseases and this further lessens their chance of survival.

Only 33 percent of the population in Zambia has basic sanitation service (Zambia Statistics Agency et. al, 2019). This means that sanitation is a big problem faced by the country and poses a great risk to children. Improvements in hygienic sanitation facilities need to work through the mechanism of less exposure of children to contamination to make them less susceptible to disease and eventually lower mortality.

According to the Zambia Statistics Agency et. al (2019)., 35 percent of children under age 5 are stunted (short for their age), 4 percent are wasted (thin for their height), 12 percent are under weight (thin for their age) and 5 percent are over-weight (heavy for their height). One measure to improve nutrition in Zambia was the launch of the first 1,000 Most Critical Days Programme. This program is aimed at operationalizing the first strategic direction of the National Food and Nutrition Strategy, whose efforts prioritize the strengthening and expansion of interventions aimed at preventing stunting in children under age 2. Operating through the mechanism of decreased susceptibility to illness, improved nutrient availability leads to improvements in child health.

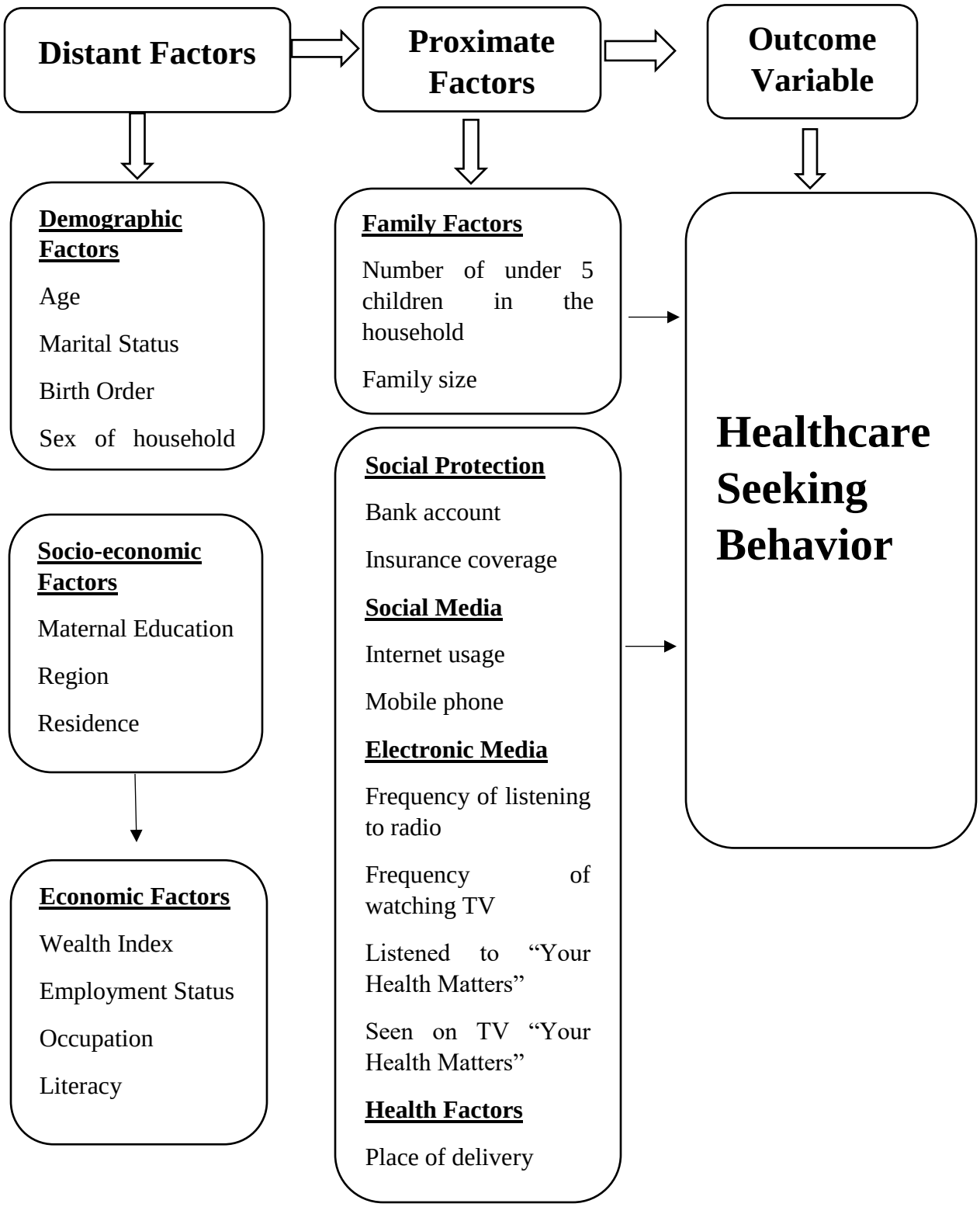
Personal illness control includes measures taken to treat or prevent an illness such as immunization. Universal immunization of children against common vaccine-preventable diseases is crucial to reducing infant and child mortality and morbidity. In Zambia, overall, 75 percent of children aged 12-23 months had received all basic vaccinations and 46 percent had received all age-appropriate vaccination. There have been improvements in basic vaccination coverage from 68 percent in 2007 and 2013-14 to 75 percent in 2018. The percent of children aged 12-23 months with no vaccinations decreased from 6 percent in 2007 to 2 percent in 2013-14 and 1 percent in 2018 (Zambia Statistics Agency et. al, 2019).

Therefore, there is need to encourage maternal education in order to increase child survival by improving knowledge among mothers. Living conditions also need to be improved with improved access to treated water to reduce exposure of children to contaminated water. Child nutrition needs to be a priority for the caregivers to reduce child stunting and malnutrition. Infrastructure improvement is also key to improving child health as it improves access to health services.

This study adopted this framework because of its appropriateness and relevance to this work. Its examination of the factors influencing child mortality will complement this study's objective to establish the maternal factors influencing health care seeking behavior for common childhood illnesses in Zambia.

2.3 Conceptual Framework

Figure 2.3 Conceptual Framework



Adapted from Mosley and Chen child survival framework (1984).

The conceptual framework in Figure 2.3, which also translates in the theoretical framework for this study shows the relationship between the distant, proximate and outcome variables. The framework shows that demographic factors are likely to influence family factors which in turn influence healthcare seeking behavior. Age is likely to influence the number of under five children in the household and family size. The older the woman, the higher the number of under five children in the household and family size which in turn influences preferred type of health facility. With regards to marital status, married women are more likely to have a higher number of under five children in the household and ultimately family size. A younger age at marriage may lead to a larger family size and more under five children in the household which influences the utilization and preferred type of health facility. The higher the birth order, the higher the number of under five children in the household and family size which influences the type of health facility. Male headed households are more likely to have more children under the age of five in the household and a larger family size as it is assumed that males have a higher financial power to provide for their families which in turn influences the type of health facility.

Socio-economic factors influence social protection, social media access and use and place of delivery through the economic factors. Maternal education influences one's wealth status, employment status, occupation and literacy. Those that are more educated are more likely to be employed with a high wealth quintile. This increases their likelihood of owning a bank account, having insurance and access to health-related media information. This in turn influences the type of health facility. A higher wealth quantile and being employed also influences place of delivery. Place of delivery is more likely to be the same facility where child healthcare is sought. Region and residence also operate through the economic factors to influence the likelihood of access to social protection, social media and place of delivery which in turn influence the type of facility. Those in rural areas are more likely to be of poor wealth quantile which results in limited access to bank account, insurance and social media which influences the type of health facility.

2.4 Research Hypotheses

The following hypotheses will be tested:

1. There is a relationship between maternal demographic and socio-economic characteristics and the healthcare seeking behavior for common childhood illnesses in Zambia.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter provides the details of the study methodology. It outlines the source of data, study population, study variables and their measurements, data analysis and ethical considerations.

3.2 Study Setting

Zambia is in the southern African region, it is bordered by the Democratic Republic of Congo in the north, Tanzania in the northeast, Malawi in the east, Mozambique, Zimbabwe, Botswana and Namibia in the south and Angola in the west. With a total land area of 752,612 square kilometers, Zambia is a land locked country in Southern Africa. As of 2010, the country was estimated at approximately 14 million. The population grew at an average annual rate of 2.8 percent during the 2000-2010 inter-censal period. Zambia is administratively divided into ten provinces namely, Central, Copperbelt, Eastern, Luapula, Lusaka, Muchinga, Northern, North Western, Southern and Western Provinces. Of the total population in 2010, 60.5 percent were residing in rural areas while 39.5 percent were residing in urban areas (Zambia Statistics Agency et. al, 2010).

Majority of Zambians have continued to live in poverty. Results from the 2006 and 2010 Living Conditions Monitory Surveys (LCMS), show that poverty levels have remained high despite recording a decline from 62.8 in 2006 to 60.5 percent in 2010 (Zambia Statistics Agency et. al, 2010). According to the 2018 ZDHS, total fertility rate in Zambia was 4.7 children per woman. HIV prevalence was 11.1 percent of women and men aged 15-49 (Zambia Statistics Agency et. al, 2019). Furthermore, the life expectancy for male and female in the country are 60.2 and 64.4 respectively (WHO, 2018).

3.3 Study Design

This is a cross-sectional, quantitative study which used data from the 2018 Zambia Demographic and Health Survey. A multinomial logistic regression model was used to explore and determine the maternal factors likely to influence healthcare seeking behavior for common childhood illnesses in Zambia.

3.4 Data Source

The ZDHS is a nationally representative survey that used the Census of Population and Housing sampling framework conducted in 2010 by ZamStats. This is the sixth in a series of Demographic

and Health Surveys in Zambia. Previous surveys were conducted in 1992, 1996, 2001-02, 2007 and 2013-14. The primary objective of the 2018 ZDHS was to provide up-to-date estimates of basic demographic and health indicators which included, fertility levels, nuptiality, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutritional status of children, early childhood and maternal mortality and child health, awareness and behaviors regarding HIV/AIDS and other sexually transmitted infections and prevalence of HIV. and preferences, child and maternal health including HIV and AIDS.

The 2018 ZDHS was the main source of information for this study for statistical analysis on the influence of maternal characteristics on healthcare seeking behavior for common childhood illnesses. However, for more details about the sample selection, size, stratification and data collection procedures, reference can be made to the 2018 ZDHS.

3.5 Study Sample Size

The study population was women who were aged 15-49 years at the time of the interview of the ZDHS 2018. A total of 13,683 answered the women questionnaire. Of these, 1,734 responded to a question on child health (healthcare seeking behavior). This was chosen as a target group because women are more knowledgeable about their children.

3.6 Research Instruments

The DHS uses standardized core questionnaires, which generally allow for comparison across countries and between time periods. Three types of questionnaires were used for the 2018 ZDHS, these include the household questionnaire, the women's questionnaire and the men's questionnaire. This study utilized data generated through the women's questionnaire. The women questionnaire was used to elicit information on the whole birth history of women aged 15-49 years. Thus, the criterion for inclusion in the analyses was that a woman had at least a live birth within the five years before the survey.

3.7 Measurement of variables

The dependent and independent variables for this study were obtained from the women data set, ZMIR71FL.DTA.

3.7.1 Dependent Variable

The dependent variable was healthcare seeking behavior for common childhood illnesses. Healthcare seeking behavior was operationally defined as preference for health facilities for treatment of common childhood illnesses. Childhood illnesses was limited to those that commonly afflict children, namely, diarrhea, cough and fever.

Although a myriad of health facilities was originally in the data set, through a process of recoding, these were reduced to three types:

1. Health centres
2. Government hospitals
3. Private hospitals

A full description of the recoding is given in Appendix 1.

3.7.2 Independent Variables

The independent variables are defined as below:

Table 3.1: Definition of variables

N	Variable	Definition	Coding
	Socio-economic factors		
1.	Maternal Education Level	Highest level of education attained by mothers.	Nominal No Education=0; Primary=1; Secondary=2; Higher=3
2.	Employment Status	Whether the mother is in employed.	Nominal No=0; Yes=1
3.	Occupation	Respondents occupation	Nominal
4.	Wealth Status	A proxy for standard of living of women.	Ordinal Poorest=1; Poorer=2; Middle=3; Richer=4; Richest=5

5.	Place of Residence	Where the mother lives with the child.	Nominal Urban=1; Rural=2
6.	Region	Province where mother lives with the child.	Nominal Central=1; Copperbelt=2; Eastern=3; Luapula=4; Lusaka=5; Muchinga=6; Northern=7; North Western=8; Southern=9; Western=10
7.	Family Size	Number of household members	Ratio
8.	Literacy	Whether mother can read or write	Nominal
	Demographic factors		
9.	Age of mother	Age of the mother at the time of the survey.	Nominal 15-19=1; 20-24=2; 25-29=3; 30-34=4; 35-39=5; 40-44=6; 45-49=7
10.	Marital status	Marital position of the mother.	Nominal Never in union=0; Married=1; Living in union=2; Widowed=3; Divorced=4; Separated=5
11.	Birth order	Order of birth of child	Ratio
12.	Sex of household head	Sex of head of house	Nominal

			Male=1 Female=2
	Other factors		
13.	Number of under-five children	Children <5 in the household	Ratio
14.	Place of delivery	Where the respondent gave birth to their last birth	Nominal
15.	Use of internet	Access to the internet	Nominal Never=0 Yes, last 12 months=1 Yes before last 12 months=3
16.	Mobile phone usage	Ownership of mobile phone	Nominal No=1 Yes=1
17.	Bank account	Ownership of bank account	Nominal No=1 Yes=1
18.	Health Insurance coverage	Registered with any insurance policy	Nominal No=1 Yes=1
19.	Frequency of listening to the radio	How often mother listens to the radio	Nominal
20.	Frequency of watching television	How often mother watched television	Nominal
21.	Listened to the radio last six months: Your Health Matters	Whether mother listened to Your Health Matters on radio	Nominal

22.	Seen on television last six months: Your Health Matters	Whether mother watched Your Health Matters on television	Nominal

3.8 Data Quality, Assessment and Analysis

According to Feeney (2003), in a perfect world, data would always be complete, accurate, current, pertinent and unambiguous. In the real world, data is generally flawed on some or all of these dimensions. Demographic data collection is not a completely scientific exercise in that the data is collected by individuals, on individuals. It is for this reason that the data to be used in this study must be assessed. Data assessment focuses on the assessment of completeness and accuracy of the data. Data is prone to errors which are categorized into two, coverage and content errors. Coverage errors may include omission of eligible participants who are in this case, women of reproductive age 15 to 49 years. Content errors may include, misreporting of age of the mother or child. These errors may affect the estimates and ultimately the interpretation of results. In order to avoid these errors, it is important to conduct data quality and assessment checks. In this study, indirect assessment through external consistency was used to conduct data quality and assessment checks.

Table 3.2: Distribution (N%) of the women aged 15-49 years according to 2010 Census and 2018 ZDHS

	2010 Census		2018 ZDHS	
Age	Number (n)	Percent (%)	Number (n)	Percent (%)
15-19	735,025	24	3,066	22
20-24	612,600	20	2,798	20
25-29	541,751	18	2,322	17
30-34	403,076	13	1,879	13
35-39	314,852	10	1,717	12
40-44	215,331	7	1,292	9
45-49	180,156	6	888	6
Total	3,002,791	100	13,962	100

The 2010 census data was used to check the 2018 ZDHS data using the data on women aged 15-49 years. From the table above, it can be observed that data from the ZDHS was consistent with that from the 2010 Census.

3.9 Data Collection Methods

This study did not undertake data collection as it was based on secondary data from the 2018 ZDHS. Nonetheless, to answer each of the three study objectives, data was processed as follows:

- Firstly, the 2018 ZDHS dataset was downloaded from the DHS server.
- The next step was to extract the women's dataset (ZMIR71FL.DTA) since it was the dataset of interest.

3.10 Data Analysis

Analysis was done using the Statistical and Data statistical software (STATA version 16.0 SE). This was used to perform the univariate, bivariate and multivariate analysis. Univariate analysis was used to produce frequency distributions on the background characteristics. Bivariate analysis was the next level of analysis which focused on examining the unadjusted effects of the independent variables on the dependent variable. Bivariate analysis was used to perform cross tabulations between the dependent variable and independent variables to determine whether their exits a relationship between them. To achieve this, chi-square tests were performed to establish the relationship between the dependent variable and independent variables. Multivariate analysis was performed using the multinomial logistic regression analysis to determine the strength of the relationship between the dependent variable and the independent variables. Multinomial logistic regression was used to determine the adjusted indirect effects of maternal factors on health care seeking behavior for common childhood illnesses.

3.11 Multinomial Logistic Regression

While the binary logistic regression analysis is used in social sciences when the number of dependent variable categories is two, multinomial logistic regression (MLR) is employed when dependent variables involve three or more categories. This explains the correlation between the dependent variable and the independent variable when their values are obtained with rating scales (Hosmer et al., 2013).

The MLR model can be used to predict a response variable on the basis of continuous and/or categorical explanatory variables to determine the percent of variance in the response variable explained by the explanatory variables, to rank the relative importance of independents, to assess interaction effects, and to understand the impact of covariate control variables. The MLR model

allows the simultaneous comparison of more than one contrast, that is, the log odds of three or more contrasts are estimated simultaneously (Garson, 2009).

If we have n independent observations with p-explanatory variables, and the qualitative response variable has k categories, to construct the logits in the multinomial case, one of the categories must be considered the base level and all the logits are constructed relative to it. Any category can be taken as the base level, so we will take category k as the base level. Since there is no ordering, it is apparent that any category may be labeled k. Let πj denote the multinomial probability of an observation falling in the jth category, to find the relationship between this probability and the p explanatory variables, x_1 , x_2,... x_p, the multiple logistic regression model then is

$$\log[\frac{\pi j\ (x_i)}{\pi k\ (x_i)}] = \alpha_{0i} + \beta_{1j} x_{1i} + \beta_{2j}\ x_{2i}, + \ldots . + \beta_{pj}\ x_p,$$

Where j= 1, 2, … , (k-1), i = 1, 2, … ,n. Since all the π 's adds to unity, this reduces to

$$\log(\ \pi j\ (x_i)) = \frac{\exp(\alpha_{0i} + \beta_{1j}\ x_{1i} + \beta_{2j} x_{2i} + \cdots . + \beta_{pj}\ x_p}{1 + \sum_{j=1}^{k-1} \exp(\alpha_{0i} + \beta_{1j}\ x_{1i} + \beta_{2j} x_{2i} + \cdots . + \beta_{pj}\ x_p)}$$

3.11.1 Justification for the use of Multinomial Logistic Regression

This study used multinomial logistic regression (MLR) because it has features that enable conclusions to be made about the problem of interest. One of them is that multinomial logistic regression explains the relationship between one nominal dependent variable and one or more independent variables. Tabachnick et al. (2001) argues that multinomial logistic regression technique is more robust to violations of assumptions of multivariate normality and equal variance-covariance matrices across groups. It is also similar to linear regression but produces more easily interpretable diagnostic statistics. Most importantly, MLR does not assume a linear relationship between the dependent and independent variables. Additionally, independent variables need not to be interval and MLR does not require that the independents be unbounded. Lastly, normally distributed error terms are not assumed in MLR analysis. MLR is widely used as a problem-solving tool, particularly in the fields of medicine, psychology, mathematics, finance and engineering as a result of the above advantages listed. This listed relevance attracted the present author's attention in the case for investigating the influence of maternal factors on the healthcare seeking behavior for common childhood illnesses among mothers or care givers in Zambia.

3.11.2 Assumptions of Logistic Regression

- Independence of observations: This entails that observations must be independent of each other. In order to ensure this assumption is not violated, the dependent variable healthcare seeking behavior was recreated in such a way as to eliminate overlapping observations so that only respondents exclusively using one facility independent of other facilities was retained. How this was done and achieved is described in Appendix 2.
- Scale of measurement: The dependent variable must be dichotomous. There should be one or more independent variables which can be continuous, interval, ratio or nominal.
- Random Sampling: Observations must have an equal and none zero chance of being selected from the population into the sample.
- Linearity: There needs to be a linear relationship between the continuous independent variables and the logit transformation of the dependent variable.
- Observations must be mutually exclusive. This may present a problem of multicollinearity which occurs when one or more of the independent variables in the model can be approximately determined by some of the other independent variables. When there is multicollinearity, the estimated regression coefficients of the fitted model can be highly unreliable.
- Outliers: There should be no significant outliers. This can reduce the predictive accuracy of the results as well as the statistical significance.

3.12 Statistical Models for Testing Relationships

The following statistical model was used to test the hypothesis stated in chapter two of this study:

1. There is a relationship between maternal demographic and socio-economic characteristics and health care seeking behavior for common childhood illnesses in Zambia.

3.13 Limitations

The main limitation of this study was that it used cross sectional data which is not ideal for analysis of behavior over a period of time. This is because the exposure and outcome are simultaneously assessed. Therefore, it is difficult to determine whether the outcome followed the exposure in time or exposure resulted from the outcome.

3.14 Ethical Considerations

This study did not need an approval on ethical grounds because it relied on secondary data from the 2018 ZDHS. Therefore, this study was be based on the same ethical considerations made during the primary data collection and processing.

3.15 Organization of Report

Chapter 1 provided Zambia's background pertaining to healthcare seeking behavior for common childhood illnesses. The chapter further provided details on the statement of the problem, rationale of the study and its objectives. Chapter 2 discussed the literature review of previous studies on maternal characteristics associated with healthcare seeking for common childhood illnesses, the theoretical framework guiding this study and conceptual framework. Chapter 3 presented the methodology of the study. The results of the study were be presented in chapter 4. Finally, chapter 5 presented the discussion of finding, conclusion and recommendations emanating from the research. The list of references are shown after chapter 5.

CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents the research findings based on the selected characteristics of women that may have an influence on healthcare seeking behavior for children under the age of five.

4.2 Bivariate Analysis

4.2.1 Influence of Distant Factors on Proximate Factors

4.2.1.1 Demographic Influences on Family Factors

Number of under-five children in the household

Table 4.1 and 4.2 below shows the influence of demographic factors on family factors, namely, the number of under-five children in the household and family size. The results in table 4.1 show that there was a significant relationship between the number of under-five children in the household and age of caregiver (p=0.024), birth order (p=0.000) and sex of household head (p=0.000). There was no significant relationship between the number of under-five children in the household and marital status (p=0.157). Table shows that 63% of women aged 40-44 were more likely to have 2-4 children under the age of five in the household. Furthermore, male headed households and women with childbirth order of 6 and above were more likely to have 2-4 children under the age of five in the household (59% and 70% respectively).

Table 4.1: Cross tabulation of demographic factors and number of under 5 children in the household

	Number of under5 children in the household				
Age in 5-year age groups	**No children**	**1**	**2-4**	**5 and above**	**P-value**
15-19	2.0	54.0	42.9	1.0	0.024
20-24	1.9	42.5	55.4	0.2	
25-29	1.6	35.6	62.1	0.8	
30-34	1.8	36.0	61.0	1.2	
35-39	0.9	40.7	57.6	0.9	
40-44	0.0	37.1	62.9	0.0	
45-49	0.0	50.0	50.0	0.0	
Marital Status					
Single	2.0	44.7	52.9	0.4	0.157
Married	1.5	41.1	56.7	0.7	

Divorced/Widowed /Separated	1.1	31.7	66.1	1.1	
Birth Order					
1	3.1	67.8	28.9	0.2	0.000
2-3	1.7	34.5	63.2	0.5	
4-5	0.3	32.8	65.9	1.0	
6 and above	0.9	26.6	71.4	1.2	
Sex of HH head					
Female	4.3	43.3	51.6	0.9	0.000
Male	0.9	39.9	58.6	0.7	

Family Size

Table 4.2 below shows the influence of demographic factors on family size. The results show that there was a significant relationship between family size and age of caregiver (p=0.000), marital status (p=0.000), birth order (p=0.000) and sex of household head (p=0.005). Eighty percent of women aged 30-34 were more likely to have a family size of 5-9. The results show that 62% of married women were more likely to have a family size of 5-9.

Table 4.2: Cross tabulation of demographic factors and family size

	Family Size			
Age in 5-year age groups	**1-4**	**5-9**	**10 and above**	**P-value**
15-19	38.9	43.4	17.7	0.000
20-24	49.1	37.7	13.3	
25-29	24.2	68.6	7.3	
30-34	11.9	80.1	8.0	
35-39	8.7	77.9	13.4	
40-44	5.6	66.3	28.1	
45-49	15.0	70.0	15.0	
Marital Status				
Single	17.6	54.9	27.5	0.000
Married	29.5	61.9	8.6	
Divorced/Widowed /Separated	22.8	58.9	18.3	
Birth Order				
1	47.5	37.2	15.3	0.000

2-3	39.7	51.0	9.3	
4-5	7.2	84.2	8.5	
6 and above	3.8	78.6	17.6	
Sex of HH Head				
Female	32.4	59.6	8.0	0.005
Male	25.9	60.9	13.3	

4.2.1.2 Demographic Influence on Social Protection

Ownership of bank account

The following tables below show the influence of demographic factors on social protection. Table 4.3 below shows the influence of demographic factors on ownership of bank account. The results show that there was a significant relationship between ownership of bank account and age of care giver (p=0.000), marital status (p=0.007) and birth order (p=0.001). There was no significant relationship between ownership of bank account and sex of the household head (p=0.779). The table shows that 100% of women aged 45-49 were less likely to own a bank account. It is further shown that 99% of divorced, widowed or separated women were less likely to own a bank account.

Table 4.3: Cross tabulation of demographic factors and ownership of bank account

Age in 5-year age groups	Bank Account		
	No	Yes	P-value
15-19	98.0	2.0	0.000
20-24	97.3	2.7	
25-29	91.9	8.0	
30-34	87.8	12.2	
35-39	91.8	8.2	
40-44	97.7	2.3	
45-49	100.0	0.0	
Marital Status			
Single	94.3	5.7	0.007
Married	92.8	7.2	
Divorced/Widowed/ Separated	98.9	1.1	
Birth Order			
1	92.8	7.2	0.001
2	91.4	8.6	

4	94.1	5.9	
6 and above	98.0	2.0	
Sex of HH Head			
Female	93.98	6.02	0.779
Male	93.57	6.43	

Health Insurance Coverage

Table 4.4 below shows the influence of demographic factors on insurance coverage. The results show that there was a significant relationship between insurance coverage and age of caregiver (p=0.000) and birth order (p=0.039). There was no significant relationship between insurance coverage and marital status (p=0.115) and sex of household head (p=0.097). The results show that 100% of women aged 45-49 were less likely to have health insurance coverage.

Table 4.4: Cross tabulation of demographic factors and health insurance coverage

Age in 5-year age groups	**Insurance Coverage**		
	No	**Yes**	**P-value**
15-19	99.5	0.5	0.000
20-24	99.8	0.2	
25-29	99.2	0.8	
30-34	96.1	3.9	
35-39	96.5	3.5	
40-44	98.9	1.1	
45-49	100.0	0.0	
Marital Status			
Single	99.5	0.5	0.115
Married	98.1	1.9	
Divorced/Widowed/ Separated	99.4	0.6	
Birth Order			
1	99.5	0.5	0.039
2	97.4	2.6	
4	98.2	1.8	
6 and above	99.1	0.9	
Sex of HH Head			
Female	99.4	0.9	0.097

Male	98.2	1.8

4.2.1.3 Demographic Influence on Social Media Access and Use

Use of internet

The following tables show the influence of demographic factors on social media access and use. Table 4.5 below shows the influence of demographic factors on the use of internet. The results show that there was a significant relationship between the use of internet and age of caregiver (p=0.019), marital status (p=0.013) and birth order (p=0.000). There was no significant relationship between use of internet and sex of household head (p=0.154). Results show that women aged 45-49 and those widowed, divorced or separated were most likely to never use the internet (100% and 98%, respectively). The table further shows that 99% of women with birth order of 6 and above were most likely to never use the internet.

Table 4.5: Cross tabulation of demographic factors and use of internet

Age in 5-year age groups	Use of internet			
	Never	Yes, before last 12 months	Yes, last 12 months	P-value
15-19	97.5	0.0	2.5	0.019
20-24	93.3	1.5	5.3	
25-29	91.4	1.3	7.3	
30-34	89.6	0.3	10.1	
35-39	92.6	1.3	6.1	
40-44	96.6	1.1	2.2	
45-49	100.0	0.0	0.0	
Marital Status				
Single	88.9	1.2	9.8	0.013
Married	92.8	1.1	6.1	
Divorced/Widowed/ Separated	97.8	0.0	2.2	
Birth Order				
1	88.5	1.9	9.6	0.000
2-3	90.7	1.0	8.3	
4-5	94.8	0.5	4.7	
6 and above	99.1	0.3	0.6	
Sex of HH Head				

Female	93.4	1.7	4.9	0.154
Male	92.6	0.8	6.6	

Ownership of mobile telephone

Table 4.6 below shows the influence of demographic factors on ownership of mobile telephone. The table shows that there was a significant relationship between age (p=0.000), birth order (p=0.007) and ownership of mobile telephone. There was no significant relationship between marital status (p=0.820), sex of household head (p=0.414). Additionally, the younger and older women were more likely to own a telephone.

Table 4.6: Cross tabulation of demographic factors and ownership of mobile telephone

Age in 5-year age groups	Mobile Telephone		
	No	Yes	P-value
15-19	76.8	23.2	0.000
20-24	63.6	36.4	
25-29	60.3	39.7	
30-34	52.1	47.9	
35-39	54.5	45.5	
40-44	57.3	42.7	
45-49	85.0	15.0	
Marital Status			
Single	59.0	41.0	0.820
Married	61.1	38.9	
Divorced/Widowed/ Separated	61.1	38.9	
Birth Order			
1	60.9	39.1	0.007
2	56.2	43.8	
4	61.8	38.2	
6 and above	67.6	32.4	
Sex of HH Head			
Female	62.7	37.3	0.414
Male	60.4	39.6	

Frequency of listening to the radio

Table 4.7 below shows the influence of demographic factors on the frequency of listening to the radio. The results show that there was a significant relationship between frequency of listening to the radio and age of care giver (p=0.018), marital status (p=0.003), birth order (p=0.024) and sex of household head (p=0.002). Additionally, women who were not in union (single, divorced, widowed and separated) were not likely to listen to the radio at all. It is also shown that female headed households were not likely to listen to the radio at all.

Table 4.7: Cross tabulation of demographic factors and frequency of listening to radio

Age in 5-year age groups	Frequency of listening to radio				
	Almost everyday	At least once a week	Less than once a week	Not at all	P-value
15-19	11.1	12.6	10.6	65.7	0.018
20-24	16.6	14.9	10.5	57.9	
25-29	19.5	16.6	10.4	53.5	
30-34	19.9	12.8	13.4	53.9	
35-39	22.5	13.8	9.5	54.1	
40-44	31.5	7.9	6.7	53.9	
45-49	10.0	20.0	5.0	65.0	
Marital Status					
Single	10.2	16.0	11.1	62.7	0.003
Married	20.5	14.5	10.8	54.3	
Divorced/Widowed /Separated	17.8	9.4	9.4	63.3	
Birth Order					
1	13.1	17.4	12.2	57.3	0.024
2	20.1	14.4	11.3	54.1	
4	19.4	12.4	9.6	58.7	
6 and above	22.5	11.8	9.0	56.6	
Sex of HH Head					
Female	12.6	12.3	10.6	64.5	0.002
Male	20.3	14.7	10.7	54.4	

Frequency of watching television

Table 4.8 below shows the influence of demographic factors on the frequency of watching television. The results show that there was a significant relationship between the frequency of watching television and age of care giver (p=0.001), birth order (p=0.001) and sex of household head (p=0.018). There was no significant relationship between the frequency of watching television and marital status (p=0.042). Furthermore, 84% of women aged 40-44 were not likely to watch television at all. The results also show that women with a childbirth order of 2 were more likely to watch television almost every day.

Table 4.8: Cross tabulation of demographic factors and frequency of watching television

Age in 5-year age groups	Frequency of watching television				
	Almost everyday	At least once a week	Less than once a week	Not at all	P-value
15-19	7.07	4.5	5.0	83.3	0.001
20-24	14.5	5.7	5.0	74.7	
25-29	17.9	6.5	3.6	71.9	
30-34	23.5	5.9	3.9	66.7	
35-39	19.5	5.6	3.0	71.9	
40-44	13.5	1.1	1.1	84.3	
45-49	5.0	10.0	5.0	80.0	
Marital Status					
Single	14.3	5.7	6.6	73.4	0.042
Married	18.0	5.6	3.7	72.7	
Divorced/Widowed Separated	10.0	5.6	3.3	81.1	
Birth Order					
1	19.3	6.2	4.5	69.9	0.001
2	19.9	5.8	4.1	70.1	
4	16.3	5.2	4.1	74.4	
6 and above	8.4	4.9	3.2	83.5	
Sex of HH Head					
Female	11.5	6.0	5.4	77.1	0.018
Male	18.0	5.5	3.7	72.8	

Listened to "Your Health Matters" in the last six months

Table 4.9 below shows the influence of demographic factors on listening to "Your Health Matters" in the last six months. The results show that there was a significant relationship between listening to "Your Health Matters" in the last six months and age of care giver (p=0.039). There was no significant relationship between listening to "Your Health Matters" in the last six months and marital status (p=0.099), birth order (p=0.201) and sex of household head (p=0.139). Additionally, younger women were less likely to listen to "Your Health Matters" in the last six months as compared to older women.

Table 4.9: Cross tabulation of demographic factors and listened on radio last six months: Your Health Matters

Age in 5-year age groups	Listened on radio last six months: Your Health Matters		
	No	Yes	P-value
15-19	89.4	10.6	0.039
20-24	86.9	13.0	
25-29	83.6	16.4	
30-34	81.2	18.7	
35-39	80.5	19.5	
40-44	85.4	14.6	
45-49	95.0	5.0	
Marital Status			
Single	84.43	15.57	0.099
Married	83.82	16.18	
Divorced/Widowed/ Separated	90.00	10.00	
Birth Order			
1	84.5	15.5	0.201
2	83.3	16.7	
4	83.2	16.8	
6 and above	88.1	11.8	
Sex of HH Head			
Female	87.1	12.9	0.139
Male	83.9	16.1	

Seen on television "Your Health Matters" in the last six months

Table 4.10 below shows the influence of demographic factors on watching "Your Health matters" in the last six months. There was a significant relationship between watching "Your Health matters" in the last six months and age of caregiver (p=0.001) and birth order (p=0.011). There was no significant relationship between watching "Your Health matters" in the last six months and marital status (p=0.192) and sex of household head (p=0.065). Table 4.10 shows that younger women are less likely to watch "Your Health matters" in the last six months. It is also shown that the higher the birth order, the less likely it was to watch "Your Health matters" in the last six months.

Table 4.10: Cross tabulation of demographic factors and seen on television last six months: Your Health Matters

Age in 5-year age groups	Seen on television last six months: Your Health Matters		
	No	Yes	P-value
15-19	97.5	2.5	0.001
20-24	93.3	6.7	
25-29	90.9	9.1	
30-34	86.6	13.4	
35-39	90.9	9.1	
40-44	89.9	10.1	
Marital Status			
Single	91.8	8.2	0.192
Married	91.0	9.0	
Divorced/Widowed/ Separated	95.0	5.0	
Birth Order			
1	89.3	10.7	0.011
2-3	90.5	9.4	
4-5	91.7	8.3	
6 and above	95.7	4.3	
Sex of HH Head			
Female	94.0	6.0	0.065
Male	90.9	9.1	

Place of Delivery

The following table shows the influence of demographic factors on place of delivery. The results show that there was a significant relationship between place of delivery and age of caregiver (p=0.000) and birth order (p=0.000). There was no significant relationship between place of delivery and marital status (p=0.202) and sex of household head (p=0.237). Furthermore, results show that 83% of women aged 20-24 were more likely to deliver at a government health facility. It is also interesting to note that women with childbirth order of 6 and above were more likely to deliver at home.

Table 4.11: Cross tabulation of demographic factors and place of delivery

Age in 5-year age groups	Place of Delivery					
	Government	Private	Mission	Home	Miscellaneous	P-value
15-19	78.3	0.0	11.1	10.1	0.5	0.000
20-24	83.4	0.0	6.7	7.6	2.3	
25-29	84.4	0.8	4.4	8.6	1.8	
30-34	74.4	2.7	8.0	13.7	1.2	
35-39	78.8	1.3	4.8	12.6	2.6	
40-44	69.7	0.0	13.5	13.5	3.4	
45-49	80.0	0.0	10.0	10.0	0.0	
Marital Status						
Single	80.7	0.0	9.0	9.8	0.4	0.202
Married	80.1	1.2	6.7	10.1	2.0	
Divorced/Widowed/Separated	77.8	0.0	7.2	12.2	2.8	
Birth Order						
1	82.1	0.5	8.8	7.9	0.7	0.000
2-3	83.3	1.0	5.7	8.1	1.9	
4-5	80.4	1.6	6.2	10.3	1.6	
6 and above	71.1	0.3	8.4	16.8	3.5	
Sex of HH Head						
Female	79.4	0.0	7.2	12.0	1.4	0.237
Male	80.1	1.1	7.1	9.8	2.0	

4.2.2 Influence of Socio-economic Factors on Proximate Factors

4.2.2.1 Socio-economic influence on Family Factors

Number of under-five children in the household

The following tables show the influence of socio-economic factors on family factors. Table 4.12 below shows the influence of socio-economic factors on the number of under-five children in the household. There was a significant relationship between number of under-five children in the household and maternal education (p=0.000), region (p=0.003), residence (p=0.000), wealth status (p=0.000), occupation (p=0.000) and literacy (p=0.003). There was no significant relationship between number of under-five children in the household and employment status (p=0.081). Table 4.12 shows that 53% of women with tertiary level of education were more likely to have one child under the age of five in the household. Additionally, 68% of women with no education were more likely to have 2-4 children under the age of five in the household. Women that belonged to the North-Western region and those that couldn't read at all were more likely to have 2-4 children under the age of five in the household.

Table 4.12: Cross tabulation of socioeconomic factors and number of under 5 children in the household

Maternal education	Number of under5 children in the household				
	No children	1	2-4	5 and above	P-value
No education	1.7	29.5	68.2	0.6	0.000
Primary	1.4	35.6	61.9	1.2	
Secondary	1.3	51.3	47.4	0.0	
Tertiary	7.3	52.7	40.0	0.0	
Region					
Central	1.6	41.5	53.7	3.25	0.003
Copperbelt	2.7	44.4	52.9	0.00	
Eastern	1.6	36.9	60.9	0.41	
Luapula	1.9	32.4	64.1	1.62	
Lusaka	2.7	52.2	45.0	0.00	
Muchinga	1.3	47.8	50.9	0.00	
North Western	0.0	35.2	64.7	0.00	
Northern	0.6	39.5	59.3	0.62	
Southern	1.6	43.7	53.9	0.78	
Western	1.5	44.7	53.9	0.00	

Residence					
Rural	1.2	35.7	62.1	1.0	0.000
Urban	2.5	53.3	44.1	0.0	
Wealth Status					
Poorest	0.9	35.8	62.2	1.1	0.000
Poorer	1.4	31.9	66.7	0.0	
Middle	1.2	42.4	54.9	1.5	
Richer	1.9	55.4	42.2	0.5	
Richest	4.2	`54.7	41.1	0.0	
Employment Status					
No	1.0	40.6	58.1	0.3	0.081
Yes	2.1	40.6	56.2	1.0	
Occupation					
Professional, Manager	6.7	55.6	37.8	0.0	0.000
Sales and Clerical	2.4	45.4	51.4	0.8	
Services	4.9	55.7	39.3	0.0	
Agricultural	1.3	33.0	64.3	1.3	
Production	1.5	41.3	57.1	0.0	
Literacy					
Able to read only paragraph	1.4	41.5	56.7	0.5	0.003
Able to read whole sentence	1.6	45.1	53.4	0.0	
Cannot read at all	1.6	36.6	60.5	1.3	

Family size

Table 4.13 below shows the influence of socio-economic factors on family size. There was a significant relationship between family size and maternal education (p=0.000), region (=0.013), residence (p=0.034), wealth status (p=0.000), employment status (p=0.005) and literacy (p=0.007). There was no significant relationship between family size and occupation (p=0.072). Table 4.13 shows that women of middle wealth status were more likely to have a larger family size.

Table 4.13: Cross tabulation of socioeconomic factors and family size

Maternal education	Family Size			
	1-4	5-9	10 and above	P-value
No education	19.7	75.1	5.2	0.000
Primary	25.2	61.5	13.3	
Secondary	33.5	53.5	13.0	
Tertiary	20.0	72.7	7.3	
Region				
Central	21.1	65.8	13.0	0.013
Copperbelt	27.1	61.6	11.3	
Eastern	30.1	55.3	14.6	
Luapula	21.7	67.6	10.7	
Lusaka	41.4	48.6	9.9	
Muchinga	30.8	55.9	13.2	
North Western	28.8	53.2	18.0	
Northern	23.5	66.7	9.9	
Southern	25.0	64.8	10.2	
Western	28.2	60.2	11.7	
Residence				
Rural	25.5	61.8	12.7	0.034
Urban	31.6	57.5	10.9	
Wealth Status				
Poorest	31.5	60.2	8.3	0.000
Poorer	23.5	63.3	13.2	
Middle	23.1	59.3	17.5	
Richer	33.8	52.1	14.1	
Richest	22.9	67.2	9.9	
Employment Status				
No	30.5	57.2	12.4	0.005
Yes	23.8	64.2	12.1	
Occupation				
Professional, Manager	22.2	71.1	6.7	0.072
Sales and Clerical	24.1	62.4	13.4	
Services	34.4	52.5	13.1	
Agricultural	24.6	63.4	12.0	
Production	21.0	68.4	10.5	

Literacy				
Able to read only paragraph	30.4	53.5	16.1	0.007
Able to read whole sentence	27.3	58.7	14.0	
Cannot read at all	26.2	64.2	9.7	

4.2.2.2 Socio-economic Factors on Social Protection

Bank Account

The following tables shows the influence of socio-economic factors on social protection. Table 4.14 below shows the influence of socio-economic factors on ownership of bank account. There was a significant relationship between ownership of bank account and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), employment status (p=0.001), occupation (p=0.000) and literacy (p=0.000). Additionally, 84% of women with tertiary education were more likely to own a bank account. Table 4.14 also shows that 98% of women from the Luapula region were less likely to own a bank account. Furthermore, 99% of women who could not read at all were also less likely to own a bank account.

Table 4.14: Cross tabulation of socioeconomic factors and ownership of bank account

Maternal education	**Bank Account**		
	No	**Yes**	**P-value**
No education	98.4	1.7	0.000
Primary	99.4	0.6	
Secondary	90.2	9.8	
Tertiary	16.4	83.6	
Region			
Central	95.1	4.9	0.000
Copperbelt	89.4	10.6	
Eastern	95.5	4.5	
Luapula	96.1	3.9	
Lusaka	78.4	21.6	
Muchinga	98.1	1.9	
North Western	95.7	4.3	
Northern	96.3	3.7	
Southern	89.8	10.2	
Western	93.7	6.3	

Residence			
Rural	97.6	2.4	0.000
Urban	83.3	16.7	
Wealth Status			
Poorest	99.5	0.5	0.000
Poorer	99.1	0.9	
Middle	98.8	1.2	
Richer	90.6	9.4	
Richest	58.8	41.2	
Employment Status			
No	95.6	4.4	0.001
Yes	91.7	8.3	
Occupation			
Professional, Manager	24.4	75.6	0.000
Sales and Clerical	92.5	7.5	
Services	78.7	21.3	
Agricultural	99.6	0.4	
Production	92.5	7.5	
Literacy			
Able to read only paragraph	95.4	4.6	0.000
Able to read whole sentence	86.7	13.3	
Cannot read at all	99.1	0.9	

Health Insurance Coverage

Table 4.15 below shows the influence of socio-economic factors on insurance coverage. There was a significant relationship between insurance coverage and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), occupation (p=0.000) and literacy (p=0.000). There was no significant relationship between insurance coverage and employment status (p=0.068). Table 4.15 also shows that women with no education were less likely to have health insurance coverage. Furthermore, women from the Central and Northern region were also less likely to have health insurance coverage. Women who were able to read a whole sentence were more likely to have health insurance coverage.

Table 4.15: Cross tabulation of socioeconomic factors and health insurance coverage

Maternal education	Insurance Coverage		
	No	Yes	P-value
No education	100.0	0.0	0.000
Primary	99.8	0.2	
Secondary	98.4	1.6	
Tertiary	70.9	29.1	
Region			
Central	100.0	0.0	0.000
Copperbelt	98.7	1.3	
Eastern	98.8	1.2	
Luapula	99.0	1.0	
Lusaka	92.8	7.2	
Muchinga	99.4	0.6	
North Western	97.8	2.2	
Northern	100.0	0.0	
Southern	96.9	3.1	
Western	98.5	1.5	
Residence			
Rural	99.7	0.3	0.000
Urban	95.2	4.8	
Wealth Status			
Poorest	100.0	0.0	0.000
Poorer	100.0	0.0	
Middle	100.0	0.0	
Richer	99.5	0.5	
Richest	86.5	13.5	
Employment Status			
No	99.0	1.0	0.068
Yes	97.9	2.1	
Occupation			
Professional, Manager	75.6	24.4	0.000
Sales and Clerical	99.2	0.8	
Services	95.1	4.9	
Agricultural	100.0	0.0	
Production	96.2	3.8	

Literacy			
Able to read only paragraph	100.0	0.0	0.000
Able to read whole sentence	96.1	3.9	
Cannot read at all	100.0	0.0	

4.2.2.3 Socio-economic influence on Social Media Access and Use

Use of Internet

The following tables show the influence of socio-economic factors on social media access and use. Table 4.16 below shows the influence of socio-economic factors on use of internet. There was a significant relationship between use of internet and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), employment status (p=0.000), occupation (p=0.000) and literacy (p=0.000). It is shown that women with no education were more likely to never use the internet. As expected, 22% of women from Lusaka were more likely to use the internet in the last 12 months. It is also shown that women of rich wealth status more likely to use the internet in the last 12 months

Table 4.16: Cross tabulation of socioeconomic factors and use of internet

Maternal education	**Use of internet**			
	Never	**Yes, before last 12 months**	**Yes, last 12 months**	**P-value**
Higher	10.9	5.4	83.6	0.000
No education	100.0	0.0	0.0	
Primary	99.5	0.2	0.3	
Secondary	87.3	2.1	10.5	
Region				
Central	93.5	0.0	6.5	0.000
Copperbelt	85.4	2.0	12.6	
Eastern	96.3	0.8	2.9	
Luapula	95.8	0.7	3.6	
Lusaka	77.5	0.9	21.6	
Muchinga	95.6	0.6	3.8	
North Western	94.2	0.0	5.8	
Northern	96.3	2.5	1.2	
Southern	91.4	0.0	8.6	

Western	92.2	1.9	5.8	
Residence				
Rural	97.8	0.7	1.5	0.000
Urban	79.7	1.7	18.6	
Wealth Status				
Poorest	99.5	0.2	0.3	0.000
Poorer	98.9	0.7	0.5	
Middle	97.6	0.3	2.1	
Richer	90.1	1.4	8.4	
Richest	54.2	4.7	41.1	
Employment Status				
No	94.9	0.9	4.2	0.002
Yes	90.6	1.0	8.3	
Occupation				
Professional, Manager	17.8	6.7	75.6	0.000
Sales and Clerical	89.3	2.0	8.7	
Services	82.0	0.0	18.0	
Agricultural	99.1	0.2	0.7	
Production	92.5	0.0	7.5	
Literacy				
Able to read only paragraph	96.3	0.5	3.2	0.000
Able to read whole sentence	84.3	1.9	13.9	
Cannot read at all	99.1	0.4	0.5	

Ownership of mobile telephone

Table 4.17 below shows the influence of socio-economic factors on ownership of mobile telephone. There was a significant relationship between ownership of mobile telephone and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), employment status (p-0.002), occupation (p=0.000) and literacy (p=0.000). Additionally, 73% of women that lived in rural areas were less likely to own a mobile telephone. It is also shows that 78% of women that could not read at all were less likely to own a mobile telephone.

Table 4.17: Cross tabulation of socioeconomic factors and ownership of mobile telephone

Maternal education	Mobile telephone		
	No	Yes	P-value
No education	86.1	13.9	0.000
Primary	74.7	25.3	
Secondary	35.6	64.3	
Tertiary	0.0	100.0	
Region			
Central	55.3	44.7	0.000
Copperbelt	40.4	59.6	
Eastern	68.3	31.7	
Luapula	73.8	26.2	
Lusaka	19.8	80.2	
Muchinga	70.4	29.6	
North Western	62.6	37.4	
Northern	69.7	30.3	
Southern	51.6	48.4	
Western	63.1	36.9	
Residence			
Rural	73.2	26.8	0.000
Urban	28.4	71.6	
Wealth Status			
Poorest	87.5	12.5	0.000
Poorer	76.5	23.5	
Middle	49.3	50.7	
Richer	25.3	74.7	
Richest	7.8	92.2	
Employment Status			
No	64.4	35.6	0.002
Yes	57.1	42.9	
Occupation			
Professional, Manager	4.4	95.6	0.000
Sales and Clerical	40.3	59.7	
Services	24.6	75.4	
Agricultural	77.3	22.7	
Production	59.4	40.6	

Literacy			
Able to read only paragraph	56.2	43.8	0.000
Able to read whole sentence	42.2	57.8	
Cannot read at all	78.0	22.0	

Frequency of listening to the radio

Table 4.18 below shows the influence of socio-economic factors on frequency of listening to radio. There was a significant relationship between frequency of listening to radio and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), employment status (p=0.000), occupation (p=0.000) and literacy (p=0.000). Furthermore, the results show that 69% of women with no education were less likely to listen to the radio. Women that could not read at all were also less likely to listen to the radio.

Table 4.18: Cross tabulation of socioeconomic factors and frequency of listening to radio

Maternal education	**Frequency of listening to radio**				
	Almost everyday	**At least once a week**	**Less than once a week**	**Not at all**	**P-value**
No education	13.9	9.8	6.9	69.4	0.000
Primary	16.7	12.1	10.3	60.9	
Secondary	21.9	17.8	11.8	48.5	
Tertiary	36.4	27.3	18.2	18.2	
Region					
Central	22.8	20.3	12.2	44.7	0.000
Copperbelt	18.5	19.2	11.3	51.0	
Eastern	19.1	15.0	12.2	53.7	
Luapula	30.4	19.7	8.7	41.1	
Lusaka	21.6	16.2	12.6	49.5	
Muchinga	13.2	14.5	10.7	61.6	
North Western	7.2	4.3	7.2	81.3	
Northern	20.4	11.1	12.3	56.2	
Southern	15.6	6.2	7.8	70.3	
Western	9.7	10.2	12.1	68.0	
Residence					
Rural	16.3	11.6	10.2	61.9	0.000

Urban	25.1	20.9	11.9	42.0	
Wealth Status					
Poorest	9.5	12.1	10.5	67.8	0.000
Poorer	16.7	10.7	10.7	61.7	
Middle	22.8	13.6	9.5	54.0	
Richer	27.7	16.0	8.4	47.9	
Richest	32.3	27.1	15.6	25.0	
Employment Status					
No	15.3	13.6	9.4	61.6	0.000
Yes	22.2	14.7	11.9	51.0	
Occupation					
Professional,					0.000
Manager	28.9	26.7	20.0	24.4	
Sales and Clerical	27.7	15.8	11.1	45.4	
Services	27.8	21.3	8.2	42.6	
Agricultural	16.1	13.5	10.3	60.0	
Production	21.8	11.3	15.8	51.1	
Literacy					
Able to read only					0.000
paragraph	16.1	16.6	10.1	57.1	
Able to read whole					
sentence	22.6	16.9	12.9	47.6	
Cannot read at all	16.1	11.2	8.9	63.7	

Frequency of watching television

Table 4.19 below shows the influence of socio-economic factors on frequency of watching television. There was a significant relationship between frequency of watching television and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), occupation (p=0.000) and literacy (p=0.000). There was no relationship between frequency of watching television and employment status (p=0.404). Furthermore, 91% of women with tertiary level education were more likely to watch television every day. Women from the southern region were less likely to watch television at all.

Table 4.19: Cross tabulation of socioeconomic factors and frequency of watching television

Maternal education	Frequency of watching television				P-value
	Almost everyday	At least once a week	Less than once a week	Not at all	
No education	5.20	5.20	5.78	83.82	0.000
Primary	6.88	5.08	3.49	84.55	
Secondary	29.41	6.95	4.81	58.82	
Tertiary	90.91	1.82	0.00	7.27	
Region					
Central	17.9	6.5	2.4	73.2	0.000
Copperbelt	35.8	5.3	4.0	55.0	
Eastern	8.9	5.3	5.7	80.1	
Luapula	7.4	10.4	5.5	76.7	
Lusaka	65.8	5.4	0.0	28.8	
Muchinga	10.1	4.4	3.8	81.8	
North Western	16.5	2.2	1.4	79.9	
Northern	10.5	6.2	5.6	77.8	
Southern	12.5	1.6	1.7	84.4	
Western	11.2	3.9	5.3	79.6	
Residence					
Rural	6.0	4.5	4.0	85.5	0.000
Urban	44.6	8.6	4.2	42.7	
Wealth Status					
Poorest	0.9	4.0	3.6	91.5	
Poorer	1.1	4.3	4.8	89.7	0.000
Middle	5.6	7.1	5.3	81.9	
Richer	43.7	10.3	3.8	42.2	
Richest	87.0	5.2	1.6	6.2	
Employment Status					
No	16.2	5.7	3.3	74.8	0.404
Yes	17.1	5.5	4.8	72.6	
Occupation					
Professional, Manager	84.4	2.2	2.2	11.1	0.000
Sales and Clerical	23.7	7.5	4.7	64.0	

Services	42.6	3.3	8.2	45.9	
Agricultural	3.6	4.9	3.0	88.6	
Production	21.8	3.8	9.0	65.4	
Literacy					
Able to read only paragraph	17.5	4.6	5.1	72.8	0.000
Able to read whole sentence	29.6	5.6	4.1	60.7	
Cannot read at all	5.4	5.9	3.7	85.1	

Listened to "Your Health Matters" in the last six months

Table 4.20 below shows the influence of socio-economic factors on listening to "Your Health Matters" on radio in the last six months. There was a significant relationship between listening to "Your Health Matters" on radio in the last six months and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), employment status (p=0.001), occupation (p=0.000) and literacy (p=0.000). Additionally, 95% of women from the southern region were less likely to listen to "Your Health Matters" on radio. Results also show that 42% of women of richest wealth status were more likely to listen to "Your Health Matters" on radio. Women that could not read at all were less likely to listen to "Your Health Matters" on radio.

Table 4.20: Cross tabulation of socioeconomic factors and listened on radio in the last six months: Your Health Matters

Maternal education	Listened on radio in the last six months: Your Health Matters		
	No	Yes	P-value
No education	91.9	8.1	0.000
Primary	89.2	10.8	
Secondary	77.9	22.1	
Tertiary	49.1	50.9	
Region			
Central	90.2	9.8	0.000
Copperbelt	78.1	21.8	
Eastern	76.4	23.6	
Luapula	80.6	19.4	
Lusaka	79.3	20.7	
Muchinga	89.3	10.7	
North Western	91.4	8.6	

Northern	88.3	11.7	
Southern	95.3	4.7	
Western	86.4	13.6	
Residence			
Rural	90.0	10.0	0.000
Urban	70.1	29.9	
Wealth Status			
Poorest	93.5	6.5	
Poorer	88.6	11.4	0.000
Middle	83.7	16.3	
Richer	77.9	22.1	
Richest	58.3	41.7	
Employment Status			
No	87.5	12.5	0.001
Yes	81.5	18.5	
Occupation			
Professional, Manager	51.1	48.9	0.000
Sales and Clerical	76.3	23.7	
Services	72.1	27.9	
Agricultural	89.5	10.5	
Production	79.0	21.0	
Literacy			
Able to read only paragraph	86.2	13.8	0.000
Able to read whole sentence	77.1	22.9	
Cannot read at all	90.5	9.5	

Seen on television "Your Health Matters" in the last six months

Table 4.21 below shows the influence of socio-economic factors on watching on television "Your Health Matters" in the last six months. There was a significant relationship between watching on television "Your Health Matters" in the last six months and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), occupation (p=0.000) and literacy (p=0.000). There was no relationship between watching on television "Your Health Matters" in

the last six months and employment status (p=0.255). Results also show that 62% of women with tertiary level education were more likely to watch "Your Health Matters" on television. Furthermore, 98% of women that could not read were less likely to watch "Your Health Matters" on television.

Table 4.21: Cross tabulation of socioeconomic factors and seen on television last six months: Your Health Matters

Maternal education	Seen on television in the last six months: Your Health Matters		
	No	Yes	P-value
No education	97.7	2.3	0.000
Primary	98.5	1.5	
Secondary	83.1	16.9	
Higher	38.2	61.8	
Region			
Central	94.3	5.7	0.000
Copperbelt	81.5	18.5	
Eastern	96.3	3.7	
Luapula	94.5	5.5	
Lusaka	73.0	27.0	
Muchinga	94.3	5.7	
North Western	92.1	7.9	
Northern	95.7	4.3	
Southern	92.2	7.8	
Western	90.8	9.2	
Residence			
Rural	97.8	2.2	0.000
Urban	74.9	25.1	
Wealth Status			
Poorest	99.6	0.4	
Poorer	99.3	0.7	0.000
Middle	97.3	2.7	
Richer	81.2	18.8	
Richest	51.6	48.4	
Employment Status			
No	92.3	7.7	0.255
Yes	90.7	9.3	

Occupation			
Professional, Manager	46.7	53.3	0.000
Sales and Clerical	86.6	13.5	
Services	75.4	24.6	
Agricultural	98.7	1.3	
Production	88.0	12.0	
Literacy			
Able to read only paragraph	93.1	6.9	0.000
Able to read whole sentence	83.3	16.7	
Cannot read at all	98.2	1.8	

Place of Delivery

The table below shows the influence of socio-economic factors on place of delivery. There was a significant relationship between place of delivery and maternal education (p=0.000), region (p=0.000), residence (p=0.000), wealth status (p=0.000), employment status (p=0.024) and literacy (p=0.000). Additionally, 88% of women with secondary level education were more likely to seek delivery at a government facility. Women with tertiary education were more likely to deliver at a private facility. Women that belonged to the eastern region were more likely to deliver at a mission hospital. Surprisingly, 93% of women that were classified as belonging to the richer wealth status were more likely to deliver at a government facility.

Table 4.22: Cross tabulation of socioeconomic factors and place of delivery

Maternal education	**Place of Delivery**					
	Government	**Private**	**Mission**	**Home**	**Miscellaneous**	**P-value**
Tertiary	76.4	14.6	7.3	1.8	0.0	0.000
No education	67.1	0.0	7.5	21.4	4.1	
Primary	77.5	0.3	7.4	12.5	2.3	
Secondary	88.4	0.7	6.4	3.9	0.5	
Region						
Central	74.8	0.00	0.00	24.4	0.8	0.000
Copperbelt	89.4	1.99	1.99	6.0	0.7	
Eastern	74.8	0.41	17.89	3.3	3.7	
Luapula	82.9	0.65	8.09	7.8	0.7	
Lusaka	88.3	3.60	1.80	6.3	0.0	

Muchinga	80.5	0.00	6.92	10.7	1.9	
North Western	71.9	3.60	16.55	6.5	1.4	
Northern	82.1	0.00	0.62	14.8	2.5	
Southern	77.3	0.00	6.25	14.1	2.3	
Western	78.2	0.00	2.91	15.5	3.4	
Residence						
Rural	76.6	0.32	7.72	12.9	2.5	0.000
Urban	88.7	2.30	5.44	3.4	0.2	
Wealth Status						
Poorest	70.7	0.0	7.2	18.3	3.8	
Poorer	78.8	0.5	11.2	8.4	1.1	0.000
Middle	84.0	0.3	5.0	8.9	1.8	
Richer	93.0	0.0	3.8	3.3	0.0	
Richest	87.5	6.2	4.7	1.6	0.0	
Employment Status						
No	79.1	0.5	8.2	9.8	2.5	0.024
Yes	80.8	1.3	6.0	10.8	1.2	
Occupation						
Professional, Manager	75.6	13.3	8.9	2.2	0.0	0.000
Sales and Clerical	86.2	0.4	5.5	6.7	1.2	
Services	95.1	0.0	0.0	4.9	0.0	
Agricultural	76.5	0.2	8.3	13.1	1.9	
Production	79.7	3.0	3.8	12.0	1.5	
Literacy						
Able to read only paragraph	83.0	0.0	7.4	8.8	0.9	0.000
Able to read whole sentence	83.1	1.9	7.4	6.7	0.9	
Cannot read at all	76.4	0.2	6.7	13.7	2.9	

4.2.3 Influence of Distant Factors on Healthcare Seeking Behavior

4.2.3.1 Influence of Demographic factors on Healthcare Seeking Behavior

The following table shows the influence of demographic factors on healthcare seeking behavior. The results show that there was a significant relationship between age (p=0.029), marital status (p=0.002), birth order (p=0.004), sex of household head (p=0.005) and healthcare seeking behavior. The table shows that women that are married. divorced, widowed and separated were more likely to seek health care at a health centre as well as a private health facility (82% and 12%, respectively).

Table 4.23: Cross tabulation of demographic factors and healthcare seeking behavior

Age in 5-year age groups	Health Centres	Government Hospitals	Private	P-value
15-19	80.3	9.1	10.6	0.029
20-24	83.8	6.9	9.3	
25-29	85.2	4.4	10.4	
30-34	75.0	7.4	17.6	
35-39	81.8	7.8	10.4	
40-44	77.5	6.7	15.7	
45-49	85.0	5.0	10.0	
Marital Status				
Single	77.9	12.7	9.4	0.002
Married	82.0	5.9	12.1	
Divorced/Widowed/Separated	82.2	5.0	12.8	
Birth Order				
1	78.3	11.2	10.5	0.004
2-3	83.5	5.0	11.2	
4-5	81.4	5.2	13.4	
6+	81.2	6.4	12.4	
Sex of HH Head				
Male	76.8	10.6	12.6	0.005
Female	82.6	5.8	11.8	

4.2.3.2 Influence of Socio-economic Factors on Healthcare Seeking Behavior

The following table shows the influence of socio-economic factors on healthcare seeking behavior. There was a significant relationship between health seeking behavior and region (p=0.000), residence (p=0.000), maternal education (p=0.000), literacy (p=0.017), wealth status (p=0.000) and occupation (p=0.007). There was no significant relationship between healthcare seeking behavior and employment status (p=0.081). Additionally, women in rural areas were more likely to seek health care at a health centre and private health facility (84% and 12%, respectively). On the other hand, those from urban areas were more likely to seek health care at government hospitals. As expected, women with tertiary education were more likely to seek health care at private health facilities.

Table 4.24: Cross tabulation of socioeconomic factors and healthcare seeking behavior

	Health Centres	Government Hospitals	Private	P-value
Region				
Central	84.5	4.1	11.4	0.000
Copperbelt	82.8	7.9	9.3	
Eastern	87.0	3.7	9.3	
Luapula	80.3	1.9	17.8	
Lusaka	69.4	14.4	16.2	
Muchinga	74.8	7.5	17.6	
Northern	87.0	6.8	6.2	
North Western	71.2	15.1	13.7	
Southern	86.7	5.5	7.8	
Western	84.5	9.2	6.3	
Residence				
Rural	83.7	4.2	12.1	0.000
Urban	75.5	13.6	10.9	
Maternal Education				
No education	84.4	4.6	11.0	0.000
Primary	82.0	5.9	12.1	
Secondary	81.5	8.7	9.8	

Tertiary	61.8	9.1	29.1	
Literacy				
Cannot read at all	80.6	9.2	10.1	0.017
Able to read only paragraph	78.5	8.3	13.2	
Able to read whole sentence	84.1	4.9	11.0	
Wealth Status				
Poorest	86.6	2.7	10.7	
Poorer	80.6	4.6	14.8	0.000
Middle	77.4	12.5	10.1	
Richer	83.1	8.9	8.0	
Richest	73.4	11.5	15.1	
Employment Status				
No	82.6	7.3	10.1	0.081
Yes	80.2	6.3	13.5	
Occupation				
Professional, Manager	68.9	13.3	17.8	0.007
Sales and Clerical	79.8	7.9	12.2	
Services	77.1	9.8	13.1	
Agricultural	82.5	3.6	13.9	
Production	80.4	6.0	13.5	

4.2.3.3 Influence of Proximate Factors on Healthcare Seeking Behavior

Table 4.25 below shows the influence of proximate factors on healthcare seeking behavior. There was a significant relationship between health seeking behavior and ownership of mobile telephone (p=0.000), ownership of bank account (p=0.001), use of internet (p=0.037), health insurance coverage (p=0.000) and place of delivery (p=0.000). There was no significant relationship between frequency of listening to the radio (p=0.226), frequency of watching television (p=0.441), number of children under the age of five in the household (p=0.136), family size (p=0.606), listened to "Your Health Matters" on radio in the last six months (p=0.914), seen on television "Your Health Matters" in the last six months (p=0.054) and healthcare seeking behavior. Additionally, women

that did not own a mobile telephone were more likely to seek health care at a health centre. Women that owned a bank account were more likely to seek health care at a private facility. The results show that 53% of women that delivered at a private health facility were more likely to seek health care at a private facility.

Table 4.25: Cross tabulation of proximate factors and healthcare seeking behavior

Frequency of listening to the radio	**Health Centres**	**Government Hospitals**	**Private**	**P-value**
Not at all	80.9	4.9	14.1	0.226
Less than once a week	83.3	7.3	9.3	
At least once a week	82.7	4.3	13.0	
Almost every day	80.9	7.8	11.3	
Frequency of watching Television				
Not at all	78.5	8.3	13.1	0.441
Less than once a week	81.4	10.3	8.2	
At least once a week	80.0	8.6	11.4	
Almost every day	82.2	6.1	11.7	
Ownership of mobile telephone				
No	83.8	4.7	11.5	0.000
Yes	77.8	10.0	12.2	
Ownership of Bank Account				
No	82.3	6.6	11.1	0.001
Yes	69.1	9.1	21.8	
Use of Internet				
Never	82.1	6.5	11.4	0.037
Yes, before last 12 m	88.2	5.9	5.9	
Yes, last12 m	70.4	12.0	17.6	

Health Insurance Coverage				
No	82.0	6.6	11.5	0.000
Yes	48.1	22.2	29.6	
Number of children under 5				
No children	81.5	11.1	7.4	0.136
1	80.1	8.5	11.4	
2-4	82.4	5.4	12.2	
5 and above	75.0	16.7	8.3	
Family Size				
1-4	80.9	7.4	11.7	0.606
5-9	82.1	6.1	11.8	
10 and above	79.2	9.0	11.8	
Listened on radio last 6 months:				
Your Health Matter				
No	81.4	6.9	11.7	0.914
Yes	81.3	6.3	12.3	
Seen on television last six months:				
Your Health Matters				
No	82.1	6.5	11.4	0.054
Yes	74.1	10.2	15.6	
Place of Delivery				
Home	80.3	5.1	14.6	0.000
Government facility	83.8	7.6	8.7	
Private facility	33.3	13.3	53.3	
Mission	59.3	1.6	39.0	
Miscellaneous	80.3	5.1	14.6	0.000

4.3 Multivariate Analysis

Table 4.26 below presents results from multinomial logistic regression. The model estimates presented are the net effects of maternal characteristics on healthcare seeking behavior. This model included all the variables in the conceptual framework.

4.3.1 Influence of demographic factors on healthcare seeking behavior

4.3.1.1 Influence of birth order on healthcare seeking behavior

The results show that women with a child of birth order 2-3 had lower odds of seeking health care at a government hospital relative to health centres as compared to those with birth order of 1 [OR=0.412; 95% CI: (0.205-0.830)]. Though not statistically significant, those with birth order 4-5 and 6 and above also had lower odds of seeking health care at a government hospital relative to health centres as compared to those with birth order of 1 ([OR=0.391; 95% CI: (0.146-1.045)] [OR=0.514; 95% CI: (0.165-1.606)]). Similarly, even though not statistically significant, results further show that women had lower odds of seeking healthcare at a private facility relative to health centres.

4.3.1.2 Influence of sex of household head on healthcare seeking behavior

Women from male headed households were 49% less likely to seek health care at a government hospital relative to health centres as compared to female headed households. The differences were statistically significant ($p<0.05$).

4.3.2 Influence of Socio-economic Factors on healthcare seeking behavior

Influence of region on healthcare seeking behavior

Women from Lusaka and North-Western province had significantly higher odds of seeking healthcare at a government hospital relative to health centres as compared to those from Central province ([OR=3.477; 95% CI: (1.035-11.682)] [OR=5.637; 95% CI: (1.755-18.103)]). Given that Luapula province is one of the poorest provinces in Zambia, the results show that the province had lower odds of seeking healthcare at a government hospital relative to health centres [OR=0.641; 95% CI: (0.172-2.393)].

Influence of residence on healthcare seeking behavior

Women from urban areas had higher odds of seeking health care at a government hospital than a health centre as compared those from rural areas [OR=2.932; 95% CI: (1.685-5.101)]. Even though not statistically significant, women in urban areas were 80% less likely to seek healthcare at a private health facility relative to health centres as compared to those in rural areas [OR=0.804; 95% CI: (0.476-1.360)]

Influence of wealth status on healthcare seeking behavior

Findings reveal that irrespective of wealth status, women had lower odds of seeking health care at a government hospital relative to health centres as compared those with middle wealth status. However, the significant difference is only observed among those with poorer, poorest and richer wealth status ([OR=0.383; 95% CI: (0.198-0.739)] [OR=0.254; 95% CI: (0.118-0.546)] [OR=0.451; 95% CI: (0.212-0.959)]). It is interesting to note that women with poorer wealth status had higher odds of seeking healthcare at a private facility relative to health centres. This difference was not statistically significant.

Influence of occupation on healthcare seeking behavior

The results show that women whose occupation was production had the highest odds of seeking healthcare at a private facility relative to health centres as compared to professionals or managers [OR=6.643; 95% CI: (1.619-27.263)]. Even though not statistically significant, women had lower odds of seeking healthcare at a government facility relative to health centres.

Influence of maternal education on healthcare seeking behavior

Women with secondary level of education had statistically significant lower odds of seeking healthcare at a private facility relative to health centres as compared to those with tertiary education [OR=0.195; 95% CI: (0.053-0.698)]. Though not statistically significant, women with no education, primary and secondary education had higher odds of seeking health care at a hospital relative to health centres as compared those with tertiary education [OR=2.537, 2.327, 1.515; 95% CI: (0.323-19.952), (0.356-15.186), (0.255-9.023)].

4.3.3 Influence of Social Protection on healthcare seeking behavior

Influence of health insurance coverage on healthcare seeking behavior

With regards to health insurance, women with insurance had 6 times higher odds of seeking health care at a hospital relative to health centres as compared to those without insurance. The differences were statistically significant ($p<0.05$). On the other hand, women with insurance had 2 times higher odds of seeking healthcare at a private facility relative to health centres. However, this difference was not statistically significant.

Influence of ownership of bank account on healthcare seeking behavior

The table below shows that women that owned a bank account had higher odds of seeking healthcare at a private facility relative to health centres as compared to those without bank accounts [OR=2.360; 95% CI: (1.011-5.505)]. On the other hand, women that owned a bank account had lower odds of seeking healthcare at a hospital relative to health centres.

4.3.4 Influence of Social Media Access on healthcare seeking behavior

Influence of ownership of mobile telephone on healthcare seeking behavior

The results show that women that owned a mobile telephone had higher odds of seeking healthcare at a hospital relative to health centres as compared to those that did not own a mobile telephone [OR=1.682; 95% CI: (1.019-2.775)]. Similarly, women that owned a mobile telephone had non-significant higher odds of seeking healthcare at a private facility relative to health centres [OR=1.134; 95% CI: (0.739-1.741)].

4.3.5 Influence of Health Factors

Influence of place of delivery on healthcare seeking behavior

On the other hand, findings reveal that women that delivered at a private facility, mission and home had higher odds of seeking health care at a private facility than a health centre as compared to those that delivered at a government facility. The differences were statistically significant ($p<0.05$).

Table 4.26: Results from multinomial logistic regression model on the effect of maternal factors on healthcare seeking behavior

Covariate	Category	Odds Ratio	Sig	Confidence Interval
Health Centres	**(base outcome)**			
Hospitals				
Age	**15-19 (RC)**			
	20-24	1.206	0.606	[0.592-2.456]
	25-29	1.246	0.648	[0.484-3.210]
	30-34	1.982	0.195	[0.704-5.576]
	35-39	1.724	0.350	[0.550-5.408]
	40-44	1.869	0.396	[0.440-7.937]
	45-49	1.203	0.881	[0.108-13.446]
Marital Status	**Single (RC)**			
	Married	1.003	0.994	[0.475-2.118]
	Divorced/Widowed/Separated	0.493	0.145	[0.191-1.277]
Birth Order	**1 (RC)**			
	2-3	0.412	0.013	[0.205-0.830]
	4-5	0.391	0.061	[0.146-1.045]
	6 and above	0.514	0.252	[0.165-1.606]
Sex of HH Head	**Female (RC)**			
	Male	0.490	0.020	[0.269-0.892]
Maternal Education	**Tertiary (RC)**			
	No education	2.537	0.376	[0.323-19.952]
	Primary	2.327	0.378	[0.356-15.186]
	Secondary	1.515	0.648	[0.255-9.023]
Region	**Central (RC)**			
	Copperbelt	1.770	0.350	[0.535-5.854]
	Eastern	1.329	0.654	[0.384-4.594]
	Luapula	0.641	0.508	[0.172-2.393]
	Lusaka	3.477	0.044	[1.035-11.682]
	Muchinga	2.992	0.075	[0.896-9.990]
	North Western	5.637	0.004	[1.755-18.103]
	Northern	1.933	0.289	[0.572-6.532]
	Southern	1.401	0.611	[0.382-5.138]

	Western	2.369	0.144	[0.744-7.539]
Residence	**Rural (RC)**			
	Urban	2.932	0.000	[1.685-5.101]
Wealth Status	**Middle (RC)**			
	Poorer	0.383	0.004	[0.198-0.739]
	Poorest	0.254	0.000	[0.118-0.546]
	Richer	0.451	0.039	[0.212-0.959]
	Richest	0.625	0.374	[0.222-1.761]
Employment Status	**No (RC)**			
	Yes	1.997	0.189	[0.712-5.603]
Occupation				
	Professional, Manager (RC)			
	Sales and Clerical	0.388	0.269	[0.072-2.082]
	Services	0.303	0.187	[0.050-1.794]
	Agricultural	0.384	0.276	[0.069-2.144]
	Production	0.295	0.182	[0.049-1.772]
Literacy	**Able to read only paragraph (RC)**			
	Able to read whole sentence	0.934	0.828	[0.505-1.727]
	Cannot read at all	0.692	0.279	[0.355-1.349]
Number of children under 5	**No children (RC)**			
	1	0.897	0.880	[0.219-3.674]
	2-4	0.760	0.707	[0.1818-3.189]
	5 and above	5.630	0.143	[0.556-57.005]
Family Size	**1-4 (RC)**			
	5-9	1.073	0.810	[0.603-1.912]
	10 and above	1.325	0.493	[0.593-2.963]
Bank Account	**No (RC)**			
	Yes	0.731	0.576	[0.243-2.196]
Insurance Coverage	**No (RC)**			
	Yes	6.298	0.009	[1.578-25.128]
Use of Internet	**Never (RC)**			
	Yes, before last 12 months	0.618	0.666	[0.069-5.506]

	Yes, last 12 months	1.164	0.769	[0.423-3.203]
Mobile Phone	**No (RC)**			
	Yes	1.682	0.042	[1.019-2.775]
Frequency of listening to the radio	**Not at all (RC)**			
	At least once a week	1.248	0.579	[0.571-2.724]
	Less than once a week	0.637	0.363	[0.241-1.683]
	Not at all	1.484	0.258	[0.749-2.941]
Frequency of watching TV	**Not at all (RC)**			
	At least once a week	2.143	0.115	[0.831-5.530]
	Less than once a week	2.426	0.149	[0.728-8.081]
	Not at all	1.696	0.201	[0.755-3.810]
Listened on radio in the last 6 months: Your Health Matters	**No (RC)**			
	Yes	0.660	0.265	[0.318-1.370]
Seen on TV in the last 6 months: Your Health Matters	**No (RC)**			
	Yes	1.369	0.494	[0.556-3.370]
Place of Delivery	**Government (RC)**			
	Private	0.944	0.956	[0.122-7.328]
	Mission	0.252	0.067	[0.058-1.100]
	Home	0.924	0.843	[0.422-2.021]
	Miscellaneous	0.000	0.979	[0.000-0.000]
Constant		**0.030**	**0.018**	**[0.001-0.550]**
Private				
Age	**15-19 (RC)**			
	20-24	0.904	0.763	[0.468-1.744]
	25-29	1.149	0.733	[0.517-2.556]
	30-34	2.035	0.118	[0.836-4.956]
	35-39	1.416	0.494	[0.522-3.839]
	40-44	1.880	0.272	[0.610-5.794]
	45-49	1.321	0.760	[0.220-7.919]

Marital Status	**Single (RC)**			
	Married	1.252	0.514	[0.638-2.456]
	Divorced/Widowed/Separated	0.966	0.931	[0.440-2.121]
Birth Order	**1 (RC)**			
	2-3	0.854	0.605	[0.469-1.554]
	4-5	0.694	0.372	[0.311-1.549]
	6 and above	0.515	0.164	[0.203-1.310]
Sex of HH Head	**Female (RC)**			
	Male	0.738	0.240	[0.445-1.225]
Maternal Education	**Tertiary (RC)**			
	No education	0.265	0.080	[0.060-1.174]
	Primary	0.291	0.079	[0.074-1.151]
	Secondary	0.193	0.012	[0.053-0.698]
Region	**Central (RC)**			
	Copperbelt	0.899	0.811	[0.376-2.151]
	Eastern	0.501	0.091	[0.224-1.116]
	Luapula	1.611	0.181	[0.801-3.241]
	Lusaka	1.795	0.198	[0.737-4.371]
	Muchinga	1.835	0.119	[0.855-3.936]
	North Western	0.859	0.726	[0.368-2.008]
	Northern	0.624	0.306	[0.253-1.539]
	Southern	0.462	0.114	[0.177-1.204]
	Western	0.520	0.135	[0.221-1.227]
Residence	**Rural (RC)**			
	Urban	0.804	0.417	[0.476-1.360]
Wealth Status	**Middle (RC)**			
	Poorer	1.182	0.524	[0.706-1.978]
	Poorest	0.853	0.576	[0.489-1.488]
	Richer	0.734	0.435	[0.338-1.595]
	Richest	0.652	0.408	[0.237-1.796]
Employment Status	**No (RC)**			
	Yes	0.931	0.797	[0.540-1.605]
Occupation				
	Professional, Manager (RC)			
	Sales and Clerical	5.699	0.011	[1.483-21.897]

	Services	6.240	0.019	[1.351-28.813]
	Agricultural	5.837	0.011	[1.496-22.780]
	Production	6.643	0.009	[1.619-27.263]
Literacy	**Able to read only paragraph (RC)**			
	Able to read whole sentence	1.581	0.121	[0.887-2.820]
	Cannot read at all	1.133	0.669	[0.639-2.011]
Number of children under 5	**No children (RC)**			
	1	2.409	0.279	[0.490-11.840]
	2-4	2.424	0.277	[0.491-11.962]
	5 and above	1.076	0.958	[0.068-17.065]
Family Size	**1-4 (RC)**			
	5-9	0.810	0.364	[0.514-1.277]
	10 and above	0.931	0.828	[0.486-1.782]
Bank Account	**No (RC)**			
	Yes	2.360	0.047	[1.011-5.505]
Insurance Coverage	**No (RC)**			
	Yes	1.555	0.505	[0.425-5.688]
Use of Internet	**Never (RC)**			
	Yes, before last 12 months	0.609	0.658	[0.068-5.480]
	Yes, last 12 months	0.635	0.369	[0.235-1.713]
Mobile Phone	**No (RC)**			
	Yes	1.134	0.565	[0.739-1.741]
Frequency of listening to the radio	**Not at all (RC)**			
	At least once a week	0.735	0.309	[0.406-1.330]
	Less than once a week	1.027	0.932	[0.564-1.869]
	Not at all	0.897	0.647	[0.563-1.428]
Frequency of watching TV	**Not at all (RC)**			
	At least once a week	0.850	0.748	[0.316-2.290]
	Less than once a week	1.203	0.733	[0.416-3.472]
	Not at all	1.091	0.815	[0.525-2.270]

Listened on radio in the last 6 months: Your Health Matters	**No (RC)**			
	Yes	0.796	0.410	[0.463-1.369]
Seen on TV in the last 6 months: Your Health Matters	**No (RC)**			
	Yes	1.433	0.353	[0.671-3.058]
Place of Delivery	**Government (RC)**			
	Private	7.779	0.004	[1.913-31.633]
	Mission	7.958	0.000	[4.911-12.894]
	Home	1.898	0.014	[1.138-3.166]
	Miscellaneous	0.986	0.986	[0.224-4.351]
Constant		**0.041**	**0.014**	**[0.003-0.525]**

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

This study examined how maternal demographic and socioeconomic factors influence the healthcare seeking behavior for common childhood illnesses by identifying some other more direct factors (i.e., proximate determinants) through which they operate in order to influence child health utilization in Zambia. As previously mentioned in an earlier chapter, most studies in Zambia have focused on the level of health care seeking behavior and few have explored the factors influencing healthcare seeking behavior for common childhood illnesses. This study tried to bridge that gap by not only identifying the maternal factors influencing health care seeking behavior for common childhood illnesses but examining the link that exists between the distant factors and proximate factors in Zambia

5.2 Discussion of findings

5.2.1 Distant factors that influence healthcare seeking behavior for common childhood illnesses in Zambia

The findings show that birth order, sex of household head, region, residence, maternal education, wealth status and occupation were the distant predictors of healthcare seeking.

Birth order effects

Birth order had a statistically significant relationship with proximate factors which include, the number of under five children in the household ($p=0.000$), family size ($p=0.000$), ownership of bank account ($p=0.001$), health insurance coverage (0.039), use of internet ($p=0.000$), ownership of mobile telephone ($p=0.007$), frequency of listening to the radio ($p=0.024$), frequency of watching television ($p=0.001$), seen on television in the last six months “Your Health Matters” ($p=0.011$) and place of delivery ($p=0.000$). This entails that the variables listed are intervening variables through which birth order operates to influence healthcare seeking behavior. Furthermore, women with a birth order of one were more likely to have one child below the age of five in the household. Results also show that they were more likely to have a family size of 1-4. Women with a birth order of 2-3 and 4-5 were more likely to have 2-4 children under the age of five in the household and a family size of 5-9. There was a significant relationship between birth order and healthcare seeking behavior ($p<0.05$).

The multivariate results reveal that the higher the birth order, the less likely it was for mothers to seek health care at a government hospital. This could be associated with primiparity where women are more careful about their first child and believe they can get better health care at a government facility. Primiparous mothers, due to inexperience and less knowledge of newborn and infant illness, are prone to seek healthcare for their child compared with other mothers. Multiparous mothers are less likely to leave their home than primiparous mothers and rely more on home medication and traditional medicine. On the other hand, the findings of Adedokun and Yaya (2020) revealed that women with children of second and third birth order or more were more likely to seek health care for common childhood illnesses.

Sex of household head effects

Sex of household head had a significant relationship with proximate factors which included, the number of under five children in the household (p=0.000), family size (p=0.005), frequency of listening to the radio (p=0.002) and frequency of watching television (p=0.018). Findings reveal that both male and female headed households were more likely to have 2-4 children under the age of five in the household and a family size of 5-9. These results are aligned with the conceptual framework which showed that sex of household head operates through the number of under five children in the household, family size, listening to the radio and frequency of watching television in order to influence healthcare seeking behavior (p=0.005). Multivariate analysis shows that male headed households were less likely to seek health care at government hospitals and private facilities. This could be because most male headed households are assumed to be more financially stable, and they can afford to seek health care from a private health personnel. In some cases, they are more likely to have health insurance coverage. It could also be because men are assumed to be less caring and do not feel the need to rush to the health centre when a child is sick. In a study conducted by Akinyemi et.al (2019), it was discovered that having a mother who is the head of the household was significantly associated with higher odds of seeking healthcare for children. This is because women are not risk takers and would rather take the required action to prevent loss of life. Additionally, the mother is the primary care giver of the child and has a better understanding of child health.

Region effects

According to the findings, region operates through number of children under the age of five in the household, family size, bank account, health insurance coverage, use of internet, ownership of mobile telephone, frequency of listening to the radio, frequency of watching television, listened in the last 6 months "Your Health Matters", seen on TV in the last 6 months "Your Health Matters" and place of delivery in order to influence healthcare seeking behavior. This aligns with the conceptual framework which showed that region operates through these proximate factors to influence health seeking behavior. Multivariate analysis showed that women in Lusaka and Northwestern province were significantly more likely to seek healthcare at a government hospital. This maybe because Lusaka is the capital and has more development in the health sector. Residents can choose from a wide range of hospitals to visit. Even though not statistically significant, women in Lusaka were also more likely to seek healthcare at a private facility because Lusaka residents are believed to have more resources at hand to enable them access healthcare at a private facility.

Residence effects

With regards to residence, it had a significant influence on proximate factors which included, the number of under five children in the household (p=0.000), family size (p=0.034), ownership of bank account (p=0.000), health insurance coverage (p=0.000), use of internet (p=0.000), ownership of mobile telephone (p=0.000), frequency of listening to the radio (p=0.000), frequency of watching television (p=0.000), listened on radio in the last six months "Your Health Matters" (p=0.000), seen on television in the last six months "Your Health Matters" (p=0.000) and place of delivery (p=0.000). Residence operates through these factors to influence healthcare seeking behavior. These findings are in line with the conceptual framework outlined in chapter two. Multivariate analysis shows that women in urban areas had a higher likelihood to seek health care at a government hospital. This is expected as majority of hospitals are found in urban areas in Zambia. Therefore, children in urban areas would benefit more from health care because of the availability of health facilities. Poverty in rural areas makes seeking health care a choice rather than a necessity. Hence, it is important for the government to strengthen the accessibility of adequate health care services in rural areas and increase awareness on the need for and importance of prompt health care seeking for common childhood illnesses. The results show that women in

urban areas had lower odds of seeking healthcare at a private facility. This could be because they have more access to government hospitals which provide reliable and affordable healthcare.

These findings are similar to those of Bennett (2015), who states that children in urban areas were significantly more likely to be taken for treatment for symptoms of ARI, fever and diarrhea in Northern Africa, Eastern Africa, Southern Africa and Southern Asia. Another study also established that households from urban areas where more likely to seek health care than those in rural areas (OR: 9.513 95% CI:4.352, 20.979) (Simieneh et al., 2019)..

Maternal education effects

The results showed that maternal education operates through the proximate variables, the number of children under the age of five in the household, family size, bank account, health insurance coverage, use of internet, ownership of mobile telephone, frequency of listening to the radio, frequency of watching television, listened in the last 6 months "Your Health Matters", seen on TV in the last 6 months "Your Health Matters" and place of delivery in order to influence healthcare seeking behavior. This finding aligns with the conceptual framework which outlined these variables as the proximate variables through which maternal education functions through to influence healthcare seeking behavior.

Multivariate analysis shows that those with no education, primary and secondary level of education had lower odds of seeking healthcare at a private facility. This could be because use of private facilities is highly associated with high income. An individual who doesn't have much education is highly likely to earn a limited income that may not enable them have access to private health facilities.

The above findings are in line with a facility based cross-sectional study which was undertaken in selected health centers in Addis Ababa, Ethiopia. Mothers/caregivers with secondary school level had nearly four times more likelihood to seek health care compared to those with no education. This may be due to the fact that educated mothers are more likely to read and understand better and adopt practices that are preventive and curative for the child as promoted through health education in outreach programs or by health care providers (Abegaz et al., 2019).

Wealth status effects

The results confirms the conceptual framework by indicating that wealth status operates through a number of proximate factors which included, the number of under five children in the household, family size, ownership of bank account, health insurance, use of internet, ownership of mobile telephone, frequency of listening to the radio, frequency of watching television, listened on radio in the last six months "Your Health Matters", seen on television in the last six months "Your Health Matters" and place of delivery with p=0.000 each, respectively. Multivariate analysis revealed that women with poorer, poorest, richer and richest wealth status had lower odds of seeking healthcare at a government hospital. This may be linked to the fact that children from rich households may have alternative medical care such as home treatment by medical personnel and the poor households may have no access to healthcare at all. These findings are in line with a study conducted in India by Chandwani and Pandor (2015) where wealth status was found to be statistically significant. A study conducted in Nigeria established that high wealth status was a predictor of healthcare seeking behavior ($p<0.035$). This was because mothers with high wealth status variables are better equipped for initiating and controlling decision making with regards to health (Ogunlesi and Olanrewaju, 2010).

Occupation effects

The findings show that occupation operates through the number of under-five children in the households, ownership of bank account, health insurance coverage, use of internet, ownership of mobile telephone, frequency of listening to the radio, frequency of watching television, listened to "Your Health Matters", seen on television "Your Health Matters" and place of delivery. Multivariate analysis shows that irrespective of the occupation, women had higher odds of seeking healthcare at a private health facility. This could be because of their access to income. Access to income entails that they are able to access health insurance and ultimately private health services.

5.2.2 Proximate factors that influence health seeking behavior for common childhood illnesses in Zambia

Health insurance coverage effects

Health insurance coverage is a factor that has not been explored in other studies. Multivariate analysis revealed that women with insurance had a higher likelihood of seeking health care at a

government hospital. Even though not statistically significant, it was also found that women with insurance also had higher odds of seeking health care at a private health facility. Hospitals and private health facilities in most cases require one to have sufficient financial resources to access services, therefore, insurance coverage makes health services easily accessible. The incapacity of a woman without insurance to meet the direct and indirect costs of visiting a hospital may eventually results in resorting to unconventional means of health care such as self-medication. This increases the risk of health complications for the child and ultimately mortality. This finding confirms the assumption of the conceptual framework that health insurance coverage influences the preference on type of health facility.

Ownership of mobile phone effects

Ownership of mobile telephone was significantly associated with healthcare seeking behavior. Multivariate analysis shows that women that owned mobile telephones were more likely to seek healthcare at both government hospital and private facilities. This could be associated with the fact that the mobile telephone exposed them to a wide range of health-related information that could create a positive impact on their preference of healthcare. This is aligned with the conceptual framework which assumed that ownership of a phone aids access to social media which has abundant information on health which eventually influences the preference of health facility.

Ownership of bank account effects

Ownership of bank account was significantly associated with healthcare seeking behavior. Multivariate analysis shows that those with bank accounts were more likely to seek healthcare at a private facility. This could be associated with their access to resources. The conceptual framework assumed that ownership of bank account is influenced by education which influences employment status and thereby wealth status of an individual which enables them to own a bank account and ultimately the financial power to seek healthcare at a private facility.

Place of delivery effects

Place of delivery is a proximate factor that presented a significant relationship with health seeking behavior. Multivariate analysis revealed that women who delivered at a private facility, mission and home had higher odds of seeking health care at a private facility. Mothers who deliver at a private facility are more likely to go back to the same facility to seek health care for the child

because they are already familiar with private health services. Alene et al., 2019 states that women who give birth at a health facility are more likely to seek healthcare for childhood illnesses at the same health facility as compared to mothers who give birth at home.

5.3 Limitation

The findings were based on ZDHS data which is a cross sectional study. The outcomes occurred before the date of the survey, but household characteristics are assessed at the date of the survey which makes it difficult to determine association between study variables. The other limitation was lack of qualitative data to support the evidence as DHS is limited to quantitative data.

5.4 Conclusion

The results show that distant factors operate through the proximate factors to influence the healthcare seeking behavior for common childhood illnesses. The bivariate analysis showed clearly, those proximate factors through which the distant factors operate to influence the healthcare seeking behavior for common childhood illnesses. Based on the findings of this study, the major predictors of health care seeking include birth order, sex of household head, region, residence, maternal education, wealth status, occupation, health insurance coverage, ownership of mobile telephone, ownership of bank account and place of delivery.

5.5 Recommendations

- Based on the findings of the study which established that male headed households were less likely to seek healthcare at either government or private facilities. Measures can be directed at developing programs that involve fathers so as to improve their awareness and perception of common childhood illnesses and ultimately their child healthcare seeking behavior.
- Given that ownership of a mobile telephone was a predictor of child healthcare seeking behavior, there is need to boost access to health-related information to all regions of the country. This could be done through dissemination of child health-related information by way of sending regular text messages (not only when there is an epidemic) and internet-based articles.
- The findings showed that health insurance was a predictor of child healthcare seeking behavior. Therefore, measures can be directed at extending National Health Insurance Management Authority (NHIMA) services to every Zambian by introducing different

packages with lower prices of monthly contributions which can be more affordable even for those in rural areas.

- Development of programs that spread awareness on causes of childhood illnesses and importance of consulting health facilities.
- Further studies can focus on why caregivers prefer certain health facilities as compared to others. This information can bring to light measures that need to be taken to improve child health systems in Zambia

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APPENDIX

Appendix 1: Dependent variable recoding

Full description of dependent variable recoding is shown in the table below:

Health Centres	**Hospitals**	**Private Facilities**
Government health centre	Government hospital	Shop
Government health post	Mobile hospital/clinic	Community field worker
	Other public sector	Mission
		Other private medical
		Private community clinic
		Private doctor
		Private hospital/clinic
		Private pharmacy
		Traditional practitioner
		Market

Appendix 2: Assumptions of multinomial logistic regression

In order to ensure the assumption independence of observations is not violated. The following steps were taken in generating the dependent variable.

The dependent variable comprised seven categories, namely, government health facility, private health facility, mission hospital, community field worker, pharmacy, shop/market and traditional. Question on where a caregiver sought health care for their sick child, with the responses 1= government health facility, 2= private health facility, 3= mission hospital, 4= community field worker, 5= pharmacy, 6= shop/market and 7= traditional will represent the dependent variable in the data set. The dependent variable (Facility) was generated as follows:

1. In the original ZDHS data file, each record had twenty-six separate variables for diarrhea and another twenty-six for fever/cough. This resulted in a situation where each record had a total of fifty-two variables.
2. Each variable represented a health facility such as a hospital or a private clinic where a child was taken for treatment. In cases, where a mother took the same child to two different health facilities, this would result in two variables.
3. Our goal was to create only one variable for utilization of health facilities for both diarrhea/fever/cough. This therefore required combining, for example, mothers who took a child for either or all diarrhea/fever/cough to a government hospital together. By so doing, the result would be twenty-six variables, with each variable representing a health facility.
4. These twenty-six variables then had to be combined into one single variable, with each health facility being a response category of the newly created variable.
5. A frequency command in SPSS for the twenty-six variables revealed that several mothers were taking their sick children to more than one facility. It was further observed that some of the 26 twenty-six health facilities had no observations and had to be removed.
6. To avoid overlaps across facilities, and thus ensure independence of observations which is requirement for multinomial logistic regression, it was decided that only those using one facility should be retained in the final data set.
7. The count command in SPSS was used to verify that that each mother only used one facility for fever and/. Diarrhea.

Then, the recode command in SPSS was used where those with more than one facility were assigned a code of 0; and those with only one facility, a code of 1.

8. After this the compute and if commands were used to create a new variable, with each health facilities appearing as response categories.
9. Thereafter, a frequency distribution of the new health seeking variable was run.