SOCIO-DEMOGRAPHIC AND ECONOMIC FACTORS INFLUENCING MALE INVOLVEMENT DURING PREGNANCY OF THEIR SPOUSES IN ZAMBIA: EVIDENCE FROM THE ZDHS 2007-2013/14

BY

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DECLARATION

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

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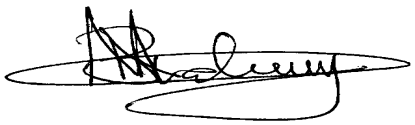
Signature **:** 

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CERTIFICATE OF APPROVAL

The Board of Examiners has approved the dissertation of **SUSAN SUZIKA CHIMA** as partial fulfillment of the requirements for the award of the Degree of Master of Population Studies at the University of Zambia.

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DEDICATION

Dedicated To my father, Rodney Chima, my mother, Modester Mvula and my Son, Emmanuel Tembo Junior a.k.a EJ

ACKNOWLEDGEMENTS

I wish to take this opportunity to thank the almighty God. My heartfelt gratitude goes to my supervisor Prof. J. R. S. Malungo for his sustained guidance and diligent supervision offered throughout the study. I also wish to thank my friend Miss Mwewa Kasonde for the technical assistance rendered to me. I can only wish her God's blessings as she was always there to assist me when I needed her. I am highly thankful to MEASURE DHS for providing me with the datasets. I extend my special thanks to my miracle child, my son Emmanuel Tembo Junior a.k.a EJ, he has been my inspiration to pursue and complete this study. I also wish to thank my Husband P.L.J, family and friends for their exertion during the study. Lastly, I thank all those who offered help direct, indirectly and graciously to the success of the research.

ABSTRACT

Men's presence at antenatal care meetings has positive effect on the health of women during pregnancy and delivery (Iluyasu et al., 2010) which in turn will help to further reduce maternal and neonatal deaths. To this effect the Ministry of Health in Zambia has since embarked on a massive sensitization of male involvement In spite of these incentives, the level of male involvement and its influencing factors is unclear, it is for this reason that this thesis attempted to examine the socio-demographic and economic factors influencing male involvement during pregnancy in Zambia. The study also determined the level of male involvement in Zambia.

The findings of the study will help to come up with appropriate programmes or build on existing programmes that encourage male involvement during pregnancy to enable yield benefits such as reduced delay in seeking health services. The study will also provide a basis for further research of the problem. The Zambia Demographic and Health Survey (ZDHS) datasets of 2007 and 2013-14 and Stata Version 11.0 were used for the analysis which included; descriptive, bivariate and multivariate analysis using the Binary Logistic regression to produce odds ratios of involvement. The sample included all men who reported that during their partner/wife's last pregnancy she had an antenatal visit.

The findings of this study show that; men who are in the age group 25-34, are from rural areas and Eastern province were significantly more involved, also men who are married, protestant and had one partner were significantly more involved during pregnancy. Also the majority of the men who were involved were from the Bemba ethnic group. Furthermore men who work in the agricultural sector, are poor and have primary education were significantly more involved during pregnancy. The study revealed that there was an increase in male involvement in 2013/2014 (70.7 per cent) from 17.5 per cent from 2007. The findings from the final model have also shown that men from all other provinces are more involved during pregnancy compared to men from Lusaka. Also men from all other ethnic groups are more involved compared to men from the Bemba ethnic group. Men in the middle wealth quintile and those who are rich are also more involved compared to the poor. Furthermore, married men and those formally married are more involved during pregnancy compared to the never married. Region, ethnicity, wealth and marital status had the highest variations in explaining male involvement.

It can be concluded that socio-demographic and economic variables namely; age, residence, marital status, region, religion, number of partners, ethnicity, education, employment and wealth are the factors influencing male involvement during pregnancy in Zambia. Limitations of the study were that since the study used already collected data, some variables of interest such as intentionality of pregnancy, if helped partner with house chores etc. where missing as the intended purpose for which they were collected was not in line with that of the researcher. From the findings of this study, it is recommended that, providing an enabling environment for the attainment of at least primary education by men is vital if high levels of male involvement are to be achieved. In addition, there is need for continued promotion of male involvement in both the public and private health facilities and also encourage child birth within marriage unions and harness resources for the couples.

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ACRONYMS

ANC	Antenatal Care/Check-up
CPH	Census of Population and Housing
CSO	Central Statistical Office
DHS	Demographic and Health Survey
ICPD	International Conference on Population and Development
IEC	Information, Education and Communication
MDGs	Millennium Development Goals
SEA	Standard Enumeration Area
USAID	United States Agency for International Development
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNZA	University of Zambia
WHO	World Health Organization
ZDHS	Zambia and Demographic Health Survey

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CHAPTER ONE

1.0 Background

Women have long been the almost exclusive focus of international sexual and reproductive health forums and programmes. Focus on men has been relatively limited and far between, as have efforts to include them as partners in sexual and reproductive services for women (UNFPA, 2003). However, the picture changed and focus also shifted to men after the International Conference on Population and Development (ICPD) held in Cairo in 1994. The outcome of the conference enlightened people that good sexual and reproductive health is the right of all people, men and women alike, and that together they share responsibility of making decisions about sexual and reproductive health matters. The concern that emerged from the 1994 ICPD was that neither women nor men are likely to enjoy good sexual and reproductive health until they are able to discuss such matters and make decisions together (Ibid:2003). It was after this conference that sexual and reproductive health activists, population researchers and policy makers realized the important role that men can play as supportive partners in achieving good health for women and new-borns.

Men are key players in influencing, both positively and negatively the sexual and reproductive health outcomes of their partners, wives, and children (Dudgeon et al., 2004). This is because; in most cases they are the sole decision makers and financial providers in households. Thus, ensuring men's involvement in sexual and reproductive health can promote a better partnership between men and women in the household and community at large.

Furthermore, it is evidenced that male involvement can yield positive health benefits for women through added social support (Carter et al., 2002). This entails men becoming partners and beginning to take responsibility for their own sexual and reproductive health and that of their partners. From this new perspective, men are potential partners and advocates for good sexual and reproductive health rather than bystanders, barriers, or adversaries (Stycos, 1996).

Pregnancy care is a key component of sexual and reproductive health, which consists of different stages of pregnancy outcomes: antenatal, delivery and postnatal care. Good care during pregnancy is important for the health of the mother and the development of the unborn baby.

Pregnancy is a crucial time to promote healthy behaviours and parenting skills. Pregnancy health is the physical, mental and social wellbeing of women immediately, before and during pregnancy as well as after childbirth (WHO, 2000). Therefore, pregnancy care means the provision of essential care of pregnant women to ensure safe delivery including postnatal care and treatment of complications of mother and new-borns.

Complications during pregnancy and childbirth are leading causes of death and disability among women of the reproductive age in developing countries (Ibid, 2000).These complications, which can occur at any time during pregnancy and childbirth without signs, require prompt access to proper obstetric services. Most of the deaths and disabilities due to childbirth are avoidable because the medical interventions are well known and inexpensive. Urgent and effective care before, during and after childbirth can make the difference between life and death for women as well as her new-born child. Thus, pregnancy care can prevent unpleasant outcomes when it is sought in time. The wellbeing of a mother and new-born depends on the pregnancy care that a mother receives during her pregnancy. This is because they are educated on what kind of foods to eat and the activities/house chores to engage in, signs of pregnancy complication and others (Carter et al, 2002).

New-born health and survival are closely linked to the care the mother receives before and during pregnancy, childbirth, and the postnatal period. Throughout the continuum of care, the period with the highest risk of death and disability for both mothers and new-borns is labour, birth, and the first few hours after birth. Complications and lack of care at this crucial time has consequences for mothers and babies (Kalunya et al., 2012). A large proportion of maternal and neonatal deaths occur during the first 24 hours after delivery. It is recommended that all women receive a check on their health within three days of delivery (2007 ZDHS; Ibid, 2006).

Inspite of the importance of ANC during pregnancy such as early detection of complications, some women still do not go for antenatal checkups when they are pregnant. According to the 2013-14 ZDHS, only 56 percent of pregnant women made four or more antenatal care visits during their pregnancy. Results further show that, 24 percent of women had their first antenatal visit in the first trimester of pregnancy (before the 4th month). The median duration of pregnancy at the first ANC visit was 4.8 months. A quarter of women continue to delay the initiation of antenatal care until after their sixth month of pregnancy, thus missing out on potential benefits of early antenatal care services. Not having anyone to accompany them on these visits was one of

the most cited reasons as to why these women did not go for ANC. Further, they also stated that it is not safe for a pregnant woman to be walking long distances all by herself especially in the rural areas. Thus if men are involved during pregnancy they would accompany their wives or partner for their antenatal checkups and they would also gain adequate information on how to take care of their pregnant wives or partners for example help with house chores so she can have enough rest, encourage her to take iron tablets and provide food to eat with the necessary micronutrients during pregnancy (2013-14 ZDHS).

Two indicators commonly used to assess care during pregnancy and deliveries are antenatal care (ANC) and skilled birth attendance during delivery. However, for maximal benefit at least four ANC visits are recommended. In the literature evidence indicates that ANC visits directly reduce the Maternal Mortality Ratio (Berjsjø 2001; McDonalgh 1996; Rooney 1992). Additionally, it is evidenced that involving husbands in antenatal care counseling significantly increases the frequency and number of antenatal care visits and significantly lowers perinatal and neonatal mortality and pays dividends even among uneducated and low socio-economic groups (Bhalerao et al., 1984).

Although men play a key role in the family as the main decision-makers, many studies on determinants of the number of antenatal visits and utilization of skilled birth attendants have focused largely on socio-demographic and maternal characteristics. Additionally, most of the efforts to address these determinants and thus to increase uptake of maternal health services have mainly addressed women. Little has been done to involve the male partner in maternal health. Studies on male involvement in family planning have shown that men play a key role in family planning decisions, either through their direct participation or by enabling their partners to utilize maternal health services (Drennan 1998; Terefe et al 1993; Varkey et al. 2004). Thus, an understanding of the socio-demographic and economic factors influencing male involvement is a critical aspect to ensuring that the benefits of male involvement during pregnancy are yielded.

1.1 Statement of the Problem

Maternal mortality ratio for Zambia 2014 was estimated at 398 maternal deaths per 100,000 live births, which is a reduction from 591 per 100,000 live births recorded in 2007(ZDHS, 2013-14). All over the world there is an increasing interest in mainstreaming male participation in reproductive health, since men usually are the key decision-makers in the home and often control household finances. In reducing maternal mortality, the value of direct male involvement in maternal health care cannot be underestimated. Referring to MDG 5 which is now incorporated in Sustainable Development Goal 3 which is good health and wellbeing, an article in Frontlines, a monthly publication of the United States Agency for International Development (USAID), noted, "Reducing maternal deaths by 75 percent throughout the world by 2015 will take the involvement of men in countries where it matters most" (USAID 2010). Studies in South Asia have found that women whose husbands show concern in pregnancy are more likely to utilize reproductive health services (Greene et al. 1991; Mpembeni et al. 2007). Further, some studies have shown that, when men know the danger signs of pregnancy and delivery, they may act as life-saving agents, ensuring that their wives get appropriate attention in obstetric emergencies (Chowdhury et al. 2007; Rahman et al. 2011).

In addition, neonatal mortality has only reduced by 17 percent over a period of 15years, i.e. from 29 to 24 deaths per 1000 live births and a 44 percent decline in the past two decades (1992 to 2014). Increased antenatal care and improved delivery care are likely to improve early neonatal survival, and newborn care. Improvements in these indicators impact neonatal health (2013/14 ZDHS). It is evident that male involvement during pregnancy increases the frequency and number of antenatal visits (Bhalerao et al. 1984). Furthermore, other factors credited with the decline in the neonatal mortality include improved care during pregnancy and delivery, skilled birth attendance at delivery and timely emergency obstetric care. Therefore, a shift in the place of delivery from home to a health facility is seen as an important strategy for improving neonatal outcomes. The 2013-14 ZDHS shows that mothers who did not deliver in a health facility, were asked why they chose not to do so. Among the various reasons cited for not delivering at the health facility, distance or lack of transportation was the mostly cited reason. This entails that if men are involved during pregnancy, they could plan for such things as they are the sole decision makers and financial providers in most households in Zambia.

Furthermore, an understanding of the three delays model developed by Thaddeus and Maine in 1994 also helps us to understand the benefits of male involvement during pregnancy. The 3 delays model backs up the need for men's involvement during pregnancy in order to reduce maternal deaths, neonatal deaths, pregnancy complications and disability. This model identifies three delays which can affect access to effective interventions to prevent pregnancy related disability and death; **1.**Delay in making the decision to seek care when complications arise; **2.**Delay in reaching obstetric medical facility once the decision to seek care has been made; **3.** Delay in receiving adequate and appropriate care once a medical facility has been reached. However, for this study the focus is on delays 1 and 2. This is because an individual has control on delays 1 and 2 as compared to delay 3. In delay 1, if an individual has knowledge of the signs of complication, they can make the decision on time to seek medical care. In delay 2, if an individual can put in place money for transportation or have a mode of transportation readily available in case a complication arises, they can reach the health facility on time. However in delay 3 even though one can take the spouse to a better facility, an individual has little or no control on the promptness of the health personnel to attend to the patient or the type of care or treatment to give the patient.

According to Abouzahr et al., (2003), about 75 percent of maternal deaths are a result of direct causes such as: hemorrhage, obstructed labour, sepsis and eclampsia and abortion complications. Most of these deaths are preventable with prompt and adequate medical interventions. Therefore, delays in reaching adequate care are prominent factors contributing to maternal deaths. According to Thaddeus and Maine (1994) not getting adequate care in time is the overwhelming reason why women die in developing countries like Zambia. According to the model, delay in the decision to seek medical care may be influenced by various factors such as the actors involved in the decision making process which include men who are usually the sole decision makers in most households, illness characteristics, and experience with the health system or distance to the health facility. It is evident that in contrast to men who do not participate in antenatal care counseling, men participating in antenatal care counseling tend to know more about family planning, nutrition and health of their wives during pregnancy and the ways and means of preventing complications during pregnancy, at delivery, or during an abortion (Sternberg et al., 2004). Hence if men are involved during pregnancy, delay one can be prevented.

In addition, delay in reaching an appropriate medical facility is affected by the distribution of health facilities, availability of transportation, road conditions or cost of transportation. According to Dudgeon, et al., (2004) when men get fully involved during pregnancy and childbirth delays alluded to in the model which normally results into maternal death, disability or negative sexual and reproductive health outcomes could be reduced. It is highly believed that there could be focused attention to preparation for childbirth by the pregnant woman and partner or spouse such as selecting a birth location, identifying a skilled attendant and companion for birth. Also, planning for costs, transportation and supplies for care of the women and the care of new-born could be done in advance (Ibid, 2004). McDonough (1996) adds that with men involved during pregnancy and childbirth, plans for both normal birth and emergency birth in case of complications could be established way in advance. The emergency plan could include transportation, money, blood donors, designation of a person to make decisions on the woman's behalf and a person to care for her family while she is away (WHO 2003).

Moreover, with full involvement men could make prompt decisions on the woman's behalf and even take care of the house and children in case there are any while she is away. A study by the World Health Organization (1996) shows that because 15 percent of all pregnant women develop a life threatening complication and most of these complications cannot be predicted, every man, woman and their family must be ready to respond in case a problem occurs. The model helps to identify community and health services factors contributing to maternal deaths and as such it is useful in devising interventions and strategies and one such intervention is male involvement during pregnancy.

Therefore, reducing maternal mortality and disability due to pregnancy-related complications as well as neonatal mortality will depend on identifying and improving those services that are critical to the health of Zambian women and girls such as antenatal care and adequate postpartum care for mothers and their babies.

To this effect the Ministry of Health in Zambia has since embarked on a massive sensitization of male involvement. This is done during antenatal, postnatal and outreach visits. The Ministry of Health has also put up incentives to encourage male involvement (PPAZ, 2000) e.g. if women come with their partner for antenatal or postnatal visit, they do not follow the queue but are attended to as priority. In spite of these incentives, the level of male involvement and its

influencing factors is unclear, it is for this gap in information that this thesis attempts to examine the socio-demographic and economic factors influencing male involvement during pregnancy in Zambia.

1.3 Study Objectives and Questions

1.3.1 General Objective

To examine the factors that influence men's involvement during pregnancy in Zambia.

1.3.2 Specific Objectives

- To establish the changes of male involvement during pregnancy over the years.
- To examine the socio-demographic factors that influence men's involvement during pregnancy.
- To establish the economic factors that influence male involvement during pregnancy.

1.3.3 Research Questions

- What are the changes in male involvement during pregnancy over the years?
- What socio-demographic factors influence male involvement during pregnancy?
- What economic factors influence male involvement during pregnancy?

1.2 Rationale of the Study

Male involvement in reproductive health especially during pregnancy is a promising strategy to addressing some of Zambia's pressing reproductive health problems that will save the lives of women and babies. Mullany et al., (2007) provide evidence that educating pregnant women and their male partners yields a greater positive impact on maternal health behaviours compared with education of women alone.

Similarly, Sternberg et al., (2004) adds that empowerment of women without the involvement of men in sexual and reproductive health is at best a partial solution and at worst could create conflict and result in more problems by increasing men's feelings of alienation. Further, in contrast to men who do not participate in antenatal care counseling, men participating in antenatal care counseling tend to know more about family planning, nutrition and health of their wives during pregnancy and the ways and means of preventing complications during pregnancy, at delivery, or during an abortion.

A study by Bhalerao et al., (1984) found that involving men during pregnancy has a positive effect on the outcome of the pregnancy. Further, a study conducted by the United Nations Population Fund (UNFPA) in Kenya found that husbands greatly influence women's decisions to use reproductive health services such as family planning (UNFPA 2009). With regard to maternity care, various studies emphasize how men's role can contribute to better outcomes for their pregnant wives (Drennan, 1998; USAID 2010; Varkey et al. 2004).

Hence, this study is not only relevant to understanding the factors influencing male involvement during pregnancy but also necessary for the successful implementation of male involvement programmes and services. Furthermore, the study findings will broaden the existing knowledge and will act as a building base for further research on male involvement during pregnancy. This dissertation will serve as a reference for health policy formulation or amending and for improving strategies on effective programme interventions by relevant Government Ministries and relevant stakeholders.

CHAPTER TWO

2.0 Literature review

2.1 Empirical review

2.1.1 Introduction

This chapter looks at studies that researchers have conducted in different countries over the past years on the levels, benefits and determinants of male involvement in reproductive and maternal health issues. These studies have found that, male involvement has a positive impact on maternal health hence has an influence on both maternal and neonatal mortality. In addition, male involvement may be low or high depending on a society and the socio-economic development. The literature reviewed in this chapter will then provide a basis for discussion of findings for this study.

2.1.2 Levels of male involvement

In a study among men in Osun state in Nigeria, male involvement was found to be 93.9 percent (Odimegwu, C. et al., 2005) and in another related study in Oyo states in south west of Nigeria male involvement was found at 72.5 percent (Olayemi, O. et al. 2009) and in a study done in India, male involvement was found at 98.2 percent. In another study in Nepal (South Asia) the participation rate of men during pregnancy was found to be 40 percent (Vikashi K. et al., 2009) and in El Salvador male involvement was found to be 90 percent (Carter et al., 2005).

2.1.3 Benefits of male involvement during pregnancy

There are very few studies that have looked at factors influencing men's involvement during pregnancy of their partners and wives (Abdel-Tawab 1997; Hallgren et al. 1999; Carter et al., 2002; Ekeus et al., 2003; Singh et al., 2009). Most of these studies examined the positive health benefits of men's involvement for wives and children.

Men deserve attention and encouragement for their own sake, for women's sake, and for the health of their families and communities (Althaus, 1998). Men are key players in influencing, both positively and negatively the sexual and reproductive health outcomes of their partners, wives, and children (Dudgeon et al., 2004). Thus, ensuring men's involvement in sexual and reproductive health can promote a better partnership between men and women in the household

and community at large. Furthermore, it is viewed that male involvement can yield positive health benefits for women through added social support (Carter et al., 2002). This entails men becoming partners and beginning to take responsibility for their own sexual and reproductive health and that of their partners. From this new perspective, men are potential partners in and advocates for good sexual and reproductive health rather than bystanders, barriers, or adversaries (Stycos, 1996).

Men's involvement during pregnancy and childbirth could be interpreted in terms of physical involvement during antenatal, childbirth and postnatal check-up. Furthermore, it could also entail helping partners indirectly: for instance, men can help in domestic work, give advice on immunization and consumption of iron and folic acid tablets, advice on appropriate nutrition and rest during the time of pregnancy. In addition, they can support their partners to buy vitamins and special foods (ZDHS, 2007). Oropesa et al. (2000) in their study among Puerto Ricans in the US have shown that husband's psychological support is positively associated with good pregnancy output. Likewise, husbands not only support their partners by accompanying and providing financial resources during medical check-up when they seek care but also play important role in decision making in various stages of pregnancy health.

All over the world there is an increasing interest in mainstreaming male participation in reproductive health, since men usually are the key decision-makers in the home and often control household finances. In reducing maternal mortality, the value of direct male involvement in maternal health care cannot be underestimated. Referring to MDG 5, an article in Frontlines, a monthly publication of the United States Agency for International Development (USAID), noted, "Reducing maternal deaths by 75 percent throughout the world by 2015 will take the involvement of men in countries where it matters most" (USAID 2010). Studies in South Asia have found that women whose husbands show concern in pregnancy are more likely to utilize reproductive health services (Greene et al. 1991; Mpembeni et al. 2007). Further, some studies have shown that, when men know the danger signs of pregnancy and delivery, they may act as life-saving agents, ensuring that their wives get appropriate attention in obstetric emergencies (Chowdhury et al. 2007; Rahman et al. 2011).

Varkey et al. (2004) added that an intervention during prenatal consultations to increase men's involvement in their partners' maternal care increased couple's discussion and use of contraception and improved knowledge about pregnancy and family planning. Another study by

Mullany et al. (2007) provides evidence that educating pregnant women and their male partners yields a greater positive impact on maternal health behaviours compared with education of women alone. They also found that male involvement is directly link to the pregnancy out and health of the woman. Similarly, Sternberg et al. (2004) add that empowerment of women without the involvement of men in sexual and reproductive health is at best a partial solution and at worst could create conflict and result in more problems by increasing men's feelings of alienation. To this end, Westoff et al., (1995) found that, although women consistently preferred to delay, limit or cease childbearing at some point, they failed to do so because of the objections of their husbands. Things changed if their partners were involved from the beginning because the men were taught the benefits of family planning. Olayemi et al., (2009) in their study of male participation in pregnancy and delivery in Nigeria found that nearly all husbands (97.4%) encouraged their wives to attend antenatal clinic- paying antenatal service bills (96.5%), paying for transport to the clinic (94.6%) and reminding them of their clinic visits (83.3%). They found that male participation was satisfactory in some aspects, but increased attendance at antenatal services and delivery would be desirable.

Male involvement in pregnancy and childbirth influences pregnancy outcomes. It reduces negative maternal health behaviors, risk of preterm birth, low birth weight, fetal growth restriction and infant mortality. There is epidemiological and physiological evidence that male involvement reduces maternal stress (by emotional, logistical and financial support), increases uptake of prenatal care, leads to cessation of risk behaviors (such as smoking), and ensures men's involvement in their future parental roles from an early stage (Mpembeni, 2007). In another related study by Conhen et al.,(2000) found that men's involvement during pregnancy and childbirth plays a vital role in the safety of their female partners' pregnancy and childbirth, by ensuring access to care and provision of emotional and financial support and guarantying women's access to reproductive health services in general.

Men play a key role in decisions integral to maternal and newborn health. For example, family planning, including delaying first pregnancy, adequate birth spacing, reducing unplanned pregnancies and limiting the total number of pregnancies, positively impacts maternal health and reduces maternal deaths. Men are often responsible for decision-making about family planning and use of contraceptives and program experience suggests that male involvement can be a more effective strategy than including women alone. Men also play a key role in determining women's

access to critical health services, including antenatal and intrapartum care, through such mechanisms as determining the availability of transport for women to reach a clinic and decisions that affect whether a woman can be successfully referred to a higher-level facility if required (Chowdhury, 2007).

A longitudinal study conducted in the United States in 2002 with a sample size of 5404 women and their partners explored the effect of father involvement during pregnancy on receipt of prenatal care and maternal smoking. The findings of the study indicated that women whose partners were involved in their pregnancy care were 1.5 times likely to attend prenatal care in the first trimester and smokers reduced smoking by 36% as opposed to those whose partners were not involved in their pregnancy care (Martine et al., 2007). A similar study conducted in two rural clinics in Tanzania in 2007, aimed to describe the prevalence and predictors of male partner participation in HIV voluntary counseling and testing and the effect of partner participation and uptake of HIV prenatal intervention. The findings of this study indicate that sero-positive mothers whose partners attended voluntary counseling and testing after being encouraged to inform and invite their partners were 3 times more likely to use Nivarapine prophylaxis, 4 times more likely to avoid breast feeding and 6 times more likely to adhere to the feeding method selected than those whose partners did not attend (Msuya et al., 2008). Many intervention studies conducted in Pakistan between 1985 and 1993 funded by Canadian Development Agency CIDA and Path Finder International (A United States based organization) involved men after the request of women in implementation of projects on safe motherhood, as they are regarded as key decision makers in the family. Men were involved by educating them on the danger signs of the two main causes of maternal deaths (eclampsia and hemorrhage) through seminars and film shows as well as encouraging their partnership care and support. Findings in these studies indicated a positive influence on the two of the three delays of maternal deaths, the delay to make a decision to seek health care and delay in accessing health care, but there were limitations to assess impact on maternal mortality (Kamal et al., 2001).

Furthermore, good ANC links the woman and her family with the formal healthy system, increases the chance of using a skilled birth attendant at birth and contributes to good health through the life cycle. Since, the major objective of antenatal care is to achieve the optimal health outcome for the mother and the baby. Specifically, the following could be accomplished by a skilled health worker: 1) early detection of complications and prompt treatment (i.e.,

detection and treatment of sexually transmitted infections); 2) prevention of diseases through immunization and micronutrient supplementation; 3) birth preparedness and complication readiness; and 4) health promotion and disease prevention by providing health messages and counselling to pregnant women (ZDHS, 2007). It is evident that men's presence at antenatal clinics tends to increase the frequency and number of antenatal visit a woman will have before delivery (Iluyasu et al., 2010), hence it cannot be over emphasised that men's involvement during pregnancy is an important aspect to maternal health.

In addition, in most families the men are empowered financially and are the main decision-makers in all issues including reproductive health. They may use this opportunity to ensure that their pregnant wives seek maternity services or arrange for skilled care during delivery, if delivery takes place at home. For men to make the right decision for their wives regarding place of delivery and professional attention, they need to understand the importance of maternal health care (Bhalerao et al. 1984; Mullany et al. 2007). There is a general agreement that men who know the danger signs of pregnancy are more likely to act fast to save the lives of their wives (Bhalerao et al. 1984; Cohen et al., 2000). In Zambia most of this education is given to the mother and her spouse, if he accompanies her during ANC. With this it is important to assess the level of male involvement during pregnancy in Zambia. Nevertheless, it is even more important to study and understand the determinants predicting men's involvement during pregnancy in Zambia.

2.1.4 Factors influencing male involvement during pregnancy

From the literature review, one study done in rural India by Singh et al., (2009) has provided evidence on the factors predicting men's involvement during pregnancy. In this study, Singh found that age of the respondent, number of living children, education, and standard of living, type of household, religion, mass media exposure, gender attitudes and social networks were the factors predicting men's involvement during pregnancy in rural India. This study has outlined the factors influencing male involvement; however its focus was only on men from rural areas.

Furthermore, Varkey et al., (2004) in their study on men's involvement in maternity care in India found that men with better education and high exposure to mass media are more likely to participate in maternity care. This is so because these men are likely to be aware about the positive benefits of their involvement. On the other hand, Sharma (2003) looked at the

association between information, education and communication (IEC) and husband's participation in pregnancy care. He adds that IEC is one of the influential factors encouraging men to participate in partner's pregnancy care in India. In the same vein, Odimegwu et al.,(2005) conducted a study in Nigeria on the men's role in emergency obstetric care and found that age, education, religion and mass media exposure (especially television) and number of wives show a statistically significant association with husband's involvement in obstetric care. They concluded that the older and educated men are more likely to know the danger signs than the younger and uneducated ones. This could be due to the fact that the older men have also learnt through experience.

This is contrary to what Iluyasu et al., (2010) found in a study conducted in a northern Nigerian community on birth preparedness, complication readiness and father's participation in maternity care. They observed that participation was high among the educated and young husbands. They argued that younger men are more adventurous and likely to challenge cultural norms. For instance older men view it as a taboo to watch a woman give birth, something that the younger generation has challenged. Furthermore, they stated that education was known to positively influence health seeking behaviour. Additionally, Carter et al., (2005) in their study of Salvadoran father's attendance at prenatal care, delivery, and postpartum care also found that education and place of residence were significant predictors. They stated that men with more than primary school education were more likely than their less educated counterparts to participate in one or more of the birth-related activities.

Furthermore, they argued that educated fathers are more likely to be of higher socio-economic status, have more free time or more flexible work schedules, ascribe to norms about fatherhood that facilitate involvement in family health, or to use health care providers who facilitate their attendance during prenatal care and delivery. However, with regards to place of residence, Carter found that rural residence was associated with a lower likelihood of men's participating in prenatal care visits. Additionally, men from rural areas were more likely to have participated in one or two of the health care activities as opposed to all three. Among the possible reasons for this included a relatively weak health care infrastructure in rural areas, long distances between rural residences and health care facilities, and economic and labour practices in rural settings that may limit men's ability to participate in many health care activities with their wives or partners (Ibid, 2005).

In the same study, results of multivariate analysis showed that men's pregnancy intention and their relationship with the partner were both strongly associated with their participation in birth related health care activities. The study found that men with an unwanted or mistimed pregnancies and not married were much less likely to participate in these activities. Carter argued that reporting a pregnancy and having a causal relationship to the mother of the child may represent men's lower commitment to and interest in the mother and child. On the other hand, birth order, father's age at around the time of birth contrary to what Iluyasu et al. (2010) and Odimegwu et al., (2005) found and male authority attitudes were not significantly associated with prenatal care participation, well-baby care participation and attendance at delivery.

Similarly, Oropesa et al., (2000) in the study of Puerto Rican women in the US about male involvement in prenatal care found that pregnancy wantedness, type of relationship, age of the mother, education and number of children were strong predictors of adequate prenatal care. They argued, in the case of type of relationship that social relationships characterized by mutual obligations and trust serve as resources that can assist the individual. They are the conduits along which support and information flow. As such, social relationships facilitate action. For example, marriage typically reflects more extensive and more stable obligations between partners than alternative types of intimate relationships. The obligations that form the basis of the marital bond are multifaceted and include monetary and non-monetary support. This could explain why married women are more likely than unmarried women to secure prenatal care.

However, in the case of education and age they argued that prenatal care is also linked to human capital skills and expertise acquired through experience. Schools increase endowments of human capital by exposing students to health related programmes and courses. Education also facilitates prenatal care utilization by increasing the capacity to process information through mastery of both the spoken and written word. In addition, individuals accumulate experience outside of institutions and learn about proper behaviours during pregnancy as they grow older. This is why prenatal care utilization is associated with both education and age among the general population (McDonalgh et al., 1988).

Additionally, Vikashi K. et al (2009) in their study of husband's participation in pregnancy care in Nepal found that the a large proportion of husbands (more than 40.0 percent) accompanied their partners at ANC and were involved in various components of birth preparedness.

Multivariate analyses from the same study indicate that education and socioeconomic status (wealth index) were positively associated with husband's participation. For example, they found that men with above secondary education were 2.3 times more likely to be involved in birth preparedness than their uneducated counterparts.

However, none of the studies conducted in Zambia and elsewhere have provided full evidence on the factors predicting men's involvement during pregnancy in both urban and rural settings at the same time. It is therefore important to examine and understand the involvement of men during pregnancy in an African country setting like Zambia. Given that Zambia's maternal and neonatal mortality rates continue at an unacceptably high level. Approximately 4,000 women and girls die each year due to pregnancy related complications. Additionally, another 80,000 to 120,000 Zambian women and girls will suffer from disabilities caused by pregnancy complications during pregnancy and childbirth each year.

Furthermore, Zambia's perinatal and neonatal mortality rates are 38 deaths per 1000 live births and 34 deaths per 1000 live births respectively (USAID, 2000; ZDHS , 2007). The Maternal Mortality Estimation Inter-agency Group (WHO, 2014) estimated that, from 1990 to 2013, the global maternal mortality ratio (MMR) declined by 45 percent, from 380 deaths to 210 deaths per 100,000 live births. This translates into an average annual rate of 2.6 percent reduction. While impressive, this was less than half of the 5.5 percent rate that was needed to achieve the three-quarters reduction in maternal mortality targeted for 2015 in Millennium Development Goal 5 (Ibid:2014). The number of women and girls who died each year from complications of pregnancy and childbirth declined from 523,000 in 1990 to 289,000 in 2013. Almost all of these deaths (99 percent) occur in developing countries like Zambia. Most of these deaths can be prevented with cost effective health care services.

The above literature has given an overview of the level of male involvement, its benefits and factors influencing male involvement in different countries. The review has also provided some lessons of how male involvement during pregnancy has a potential to reduce or stall the rate of decline of maternal and neonatal mortality and fertility, this is so because when men are involved learn the benefits of family planning and also get to know about the danger signs during pregnancy hence can help to seek medical care on time. Nonetheless, the literature does not specifically indicate the factors that influence male involvement specifically during pregnancy and in both rural and urban setting. It is with this gap in knowledge that this study sought to

examine the socio-demographic and economic factors influencing male involvement during pregnancy in Zambia.

2.2 Theoretical Framework

This paper adapted the Reasoned Action Model (TRA) developed by Ajzen, Albarracin and Hornik in 2007. Because we are dealing with human beings, we need to understand that they always aim to do something that will yield them the highest benefits; hence the Reasoned Action Model helps us to understand the influencing factors of male involvement during pregnancy.

2.2.1 Reasoned Action Model

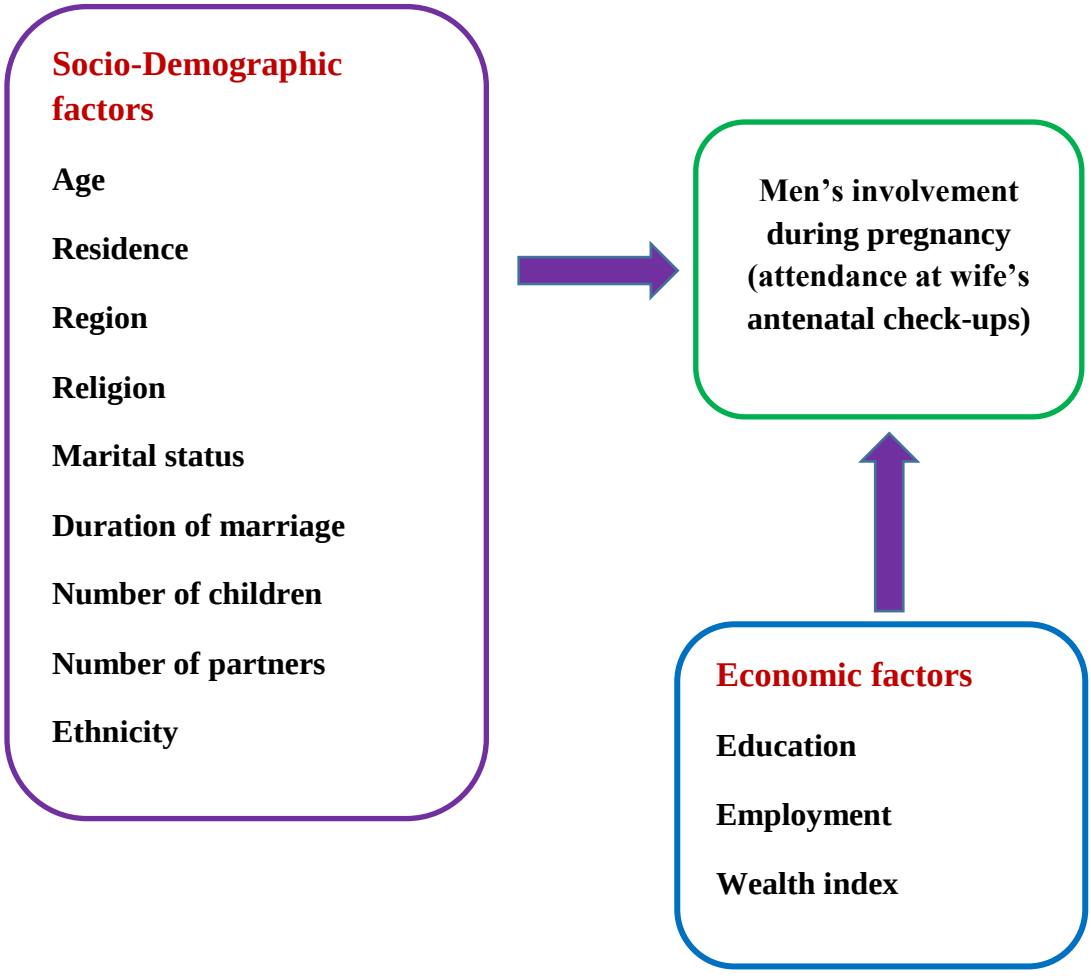
The Reasoned Action Model (TRA) aims at explaining the relationship between attitudes and behaviours within human action. TRA is used to predict how individuals will behave based on their pre-existing attitudes and behavioural intentions. An individual's decision to engage in a particular behaviour is based on the outcomes the individual expects will come as a result of performing the behaviour. This theory posits that the most important determinant of human behaviour is intention, which in turn is influenced by three "psychological antecedents": (1) behavioural beliefs/attitudes-represented by individual beliefs and attitudes toward a specified behaviour, (2) normative beliefs-constituting group social norms and (3) perceived control beliefs-operating as the belief in one's ability to perform specific behaviours. Normative beliefs are individuals beliefs about the extent to which other people important to them think they should or should not perform particular behaviours. The theory also points out that all possible influences on behaviour that are not in the model are treated as background variables and are supposed to be mediated by the determinants in the model.

For the purpose of this study, only the background variables were adapted from the model which included; the socio-demographic variables (age, residence, marital status, region, religion, number of children, number of partners and ethnicity) and economic variables (education, employment and wealth).

2.3 Conceptual Model

Figure 2.1: Socio-Demographic and Economic Factors Influencing Male Involvement during Pregnancy

The conceptual framework in Figure 2.1 shows how the socio-demographic and economic variables influence male involvement during pregnancy. The figure shows that the economic variables (education, wealth index and employment) and the socio-demographic variables (age, residence, marital status, region, religion, number of partners, number of children and ethnicity) influence the dependent variable male involvement which was measured by the man's presence at wife's/partners antenatal visit.



2.5 Zambian Study Context

Zambia has a population of about 13.1 million people, and administratively, the country is divided into ten provinces and 72 districts. Of the ten provinces, two are predominantly urban, namely Lusaka and Copperbelt provinces however the remaining provinces namely Central, Eastern, Northern, Luapula, North-Western, Western, Muchinga and Southern are predominantly rural provinces. According to the 2013-14 ZDHS, ninety-six percent of mothers received antenatal care from a skilled provider (a doctor, clinical officer, nurse, or midwife) for their most recent birth in the five years preceding the survey. Less than 1 percent of women received antenatal care from a community health worker. There were no major variations in ANC coverage by age or birth order.

Ninety-nine percent of urban mothers received antenatal care from a skilled provider at least one, as compared with 94 percent of rural mothers. The proportion of women who received antenatal care from a skilled provider was lowest in Western (90 percent) and highest in Lusaka (99 percent). The use of antenatal care services from a skilled provider is strongly related to mother's level of education. Women with more than a secondary education are more likely to receive antenatal care from a skilled provider (99 percent) than women with no education (91 percent). Similarly, women in the highest wealth quintile (99 percent) are more likely than women in the lowest wealth quintile (92 percent) to receive care from a skilled provider. The findings show that 56 percent of pregnant women make four or more antenatal care visits during their pregnancy. It further shows that 24 percent of women had their first antenatal visit in the first trimester of pregnancy (before the 4th month). The median duration of pregnancy at the first ANC visit was 4.8 months. A quarter of women continue to delay the initiation of antenatal care until after their sixth month of pregnancy, thus missing out on potential benefits of early antenatal care services. Differentials do not vary much by urban and rural residence and the national caesarean rate in 2007 was estimated at 4.4 percent. (ZDHS, 2013-14)

CHAPTER THREE

3.0 Data and Methodology

3.1 Study Setting

This study was conducted in Zambia's ten provinces. These ten provinces are Central, Copperbelt, Lusaka, Southern, Eastern, Muchinga, Luapula, Northern, Western and North-western Province.

3.2 Study Design

The research design used was non-experimental; this is because there was no control or experimental group for comparison. As described by Bbabie (2010), this study is explanatory based on the positivist approach of understanding social reality. This was a quantitative research that aimed at determining the level of men's involvement during pregnancy in Zambia and the factors influencing it. The study used the ZDHS 2007 and 2013-14 which is a cross sectional study to explain the socio-demographic and economic factors influencing men's involvement during pregnancy in Zambia

3.3 Data Source

The study was based on secondary data obtained from the Zambia Demographic and Health Survey (ZDHS) conducted in 2007 and 2013-14. The earlier surveys could not be used as they did not contain the required data. The ZDHS is a nationally representative population based cross-sectional survey of men aged 15-59 years and women aged 15-49 years. However the focus of this study is only the male dataset. The data was collected by the Zambia Central Statistical Office (CSO) in partnership with the Ministry of Health. The sampling frame used for the 2013-14 ZDHS was adopted from the Census of Population Housing (CPH) of the Republic of Zambia conducted in 2010, provided by the CSO. The sample for the 2013-14 ZDHS was designed to provide estimates of population and health indicators at the national and provincial levels including rural and urban. This information provides a strong source of data that was relevant for this study.

3.4 Description of the Dataset

The ZDHS dataset provides demographic estimates of the country based on men aged 15-59 and therefore provide good estimates of data on male involvement and the factors that might be

influencing it. The target population for the study was males in the age group 15-59 years for the 2007 and 2013-14 ZDHS. The sample of the study was all men who reported having at least 1 child in their life time. Men with children were chosen because they have had a pregnant partner before regardless of their marital status hence would help us understand the factors influencing male involvement during pregnancy. Furthermore the sample focused on men whose youngest child was aged 5 or below at the time of the survey this is to reduce on errors of memory lapses in the information collected. The ZDHS provides good quality data as it adhered to the standard quality control protocols as stipulated by Measure DHS.

3.4.1 Inclusion and Exclusion Criteria

Men who reported having at least 1 child in their life time regardless of their marital status were included in the sample. Subsequently men who reported not to have any child where excluded from the sample. Men who reported that their partners/wives' had an antenatal visit during her most recent pregnancy were also included in the sample. Those who reported that their partner or wife did not have any antenatal visit or they did not know if their partner or wife had any antennal check visit were excluded from the sample. Men whose youngest child was aged above 5 at the time of the survey were also excluded.

3.5 Sample Size

The 2013-14 ZDHS sampling frame was adopted from the Census of Population and Housing (CPH) of the Republic of Zambia conducted in 2010, provided by the Central Statistical Office (CSO). Consisting of 25,631 enumeration areas (SEA) created for the CPH 2010. The 2013-14 ZDHS used a stratified sample and selection was done at two stages from the 2010 CPH sampling frame. The stratification was achieved by separating every province into urban and rural areas. Therefore, the 10 provinces were stratified into 20 sampling strata. Then the samples were selected independently in every stratum by a two-stage selection. A representative sample of 18,052 households was drawn for the 2013-14 ZDHS survey. And this sample included 17,064 women aged 15-49, 16,209 men aged 15-59 from urban and rural areas. From the identified samples of males and females who were eligible, 96 percent was successfully interviewed for females and 91 percent was successfully interviewed for males. From a total 14 773 men captured in the survey 2013-14 ZDHS, only 8,892 men who had one or more children

were selected from the sample. Furthermore, the children had to be born 5 years or less preceding the survey which left 6,943. Finally in the sample we only needed men who reported that their partner had an antenatal visit during her last pregnancy which left a total sample of (4,708) men. The same criterion was used to arrive at the sample for the 2007 ZDHS dataset and the total sample was 2506.

3.6 Definition of Variables

3.6.1 Dependent Variable (Men's involvement)

There is no single widely used indicator for measuring male involvement. The DHS provide various data related to male involvement, including spouse's attendance at ANC. Hence to measure men's involvement during pregnancy, this study utilized men's attendance at the time of partner or wife's antenatal check-ups. To measure husband's or men's presence at ANC, the men in the ZDHS who reported to have had a pregnant wife or partner were asked whether she had gone for any antenatal check-ups and whether they were ever present at any antenatal check-ups of these. If the men's response was "Yes", they were considered as having been involved during pregnancy. Conversely, if the men's response was "No" on the second question they were considered not having been involved during pregnancy.

3.6.2 Independent Variables

Socio-demographic and economic Factors: These were defined as age, residence, marital status, region, religion, number of children, number of partners, ethnicity, education, wealth quintile and employment status of the men interviewed in the survey.

Age is measured by a man's age at last birthday in years. Age is classified into four groups: 15-24, 25-34, 35-44 and 45 years and above. Educational attainment refers to the highest level of education attained and was classified into four groups: no education, primary (1-7), secondary (8-12) and tertiary education (A levels, college and University).

Wealth index is a summary measure of the socio-economic status of a man. The survey data categorizes wealth index into five categories (poorest, poor, middle, rich and richest), but this study had three categories: poor (combining poorest and poor), moderate and rich (combining rich and richest). In this study, employment refers to whether a man is currently working or not.

It encompasses three groups: not working, working in agriculture and non-agriculture sectors. Place of residence is a usual place of living at the time of the survey, categorized as rural and urban. Children living refer to the total number of children born a man has had who are still alive. Furthermore, the man's relationship status has been coded as never married, married and formally married (combining the divorced, widowed and separated)

Religion is quantified by means of respondents' possession of particular religious belief. Although the survey has collected information on various religious groups (Catholic, Protestant, Muslim and others), it is grouped as Catholic, Protestant and others, firstly, because the majority of the population in Zambia is Christian (catholic and protestant) and secondly, for analytical purposes.

Men's number of partners or wives is also measured and is coded as either having 1 wife or 2-3 wives or 4+ wives. Region is taken as the various provinces in which the men lived at the time of the survey. Ethnicity is measured and coded as Bemba, Tonga, North-western, Baroste and Nyanja.

3.6.3 Operational definition and measurement of variables

Table 3.1: Operational Framework

Variable	Question	Indicator	Scale of measurement
Dependent variable			
Present at wife's antenatal visit	Did your wife have antenatal visit in her recent pregnancy? Where you present at any of the visits?	Yes No	Nominal
Independent Variables			
Age	How old were you last birthday?	15-24 25-34 35-44 45+	Ordinal
Residence	Based on where the respondent resides.	Urban Rural	Nominal
Marital status	Have you ever been married? Are you currently married? What is your marital status now? (Divorced, widowed or separated)	Never-married Married Formally married	Nominal
Region	Based on where the respondent resides.	Central Copper belt	Nominal

		Eastern Luapula Lusaka Muchinga Northern North-Western Southern Western	
Religion	What is your religion?	Catholic Protestant Other	Nominal
Number of partners	Do you have another wife? Altogether how many wives do you have?	1 2-3 4+	Ordinal
Number of children	In total how many children do you have?	1-2 3-4 5+	Ordinal
Education	Have you ever attended school? What is the highest level you have attended?	No education Primary Secondary Higher	Ordinal
Employment	Are you currently employed? What is your occupation?	Not working Working in non agric Working in agric	Nominal
Wealth		Poor Middle Rich	Ordinal
Ethnicity	What tribe do you belong to?	Bemba Tonga North-western Baroste Nyanja	Nominal

3.7 Data Analysis

The analysis of data in this study was done using the statistical software Stata 11. The type of analysis involved univariate analysis, bivariate analysis and multivariate regression analysis using binary logistic regression. Univariate analysis was used to describe the characteristics of the study participants and variable outputs. The percentages are based on weighted survey figures. Bivariate analysis was used to test for association between independent variables and the dependent variable. Secondly, Bivariate and multivariate analysis were performed using Binary logistic regression. Multivariate analysis was also performed using Binary logistic regression in order to determine how the independent variables interact with each other to influence or determine male involvement during pregnancy in Zambia. The stepwise (forward) elimination method was used in order to eliminate variables that were not significant in the model, based on the p-value (less than 0.05 means significant and greater than 0.05 means non-significant). The R^2 (coefficient of determination) was also used to measure the variation. The R^2 is a number that indicates the proportion of the variance in the dependent variable that is predictable from the independent variable. The Akaike's (AIC) and Schwarz's Bayesian information criterion (BIC) was used to compare between models for the goodness of fit. Contingency tables were used to facilitate the presentation of study findings. Microsoft-Excel was used to enhance graphs and make tables for easy interpretation of findings and Microsoft Word for report writing.

3.7.1 Model Building using Binary Logistic Regression

In order to measure the extent of the effect of each independent variable on the dependent variable, logistic regression analysis was performed. In this analysis, the dependent variable, male involvement, was recoded into a binary form with 0 representing "not involved" and 1 representing "involved". Reference categories among the explanatory variables were selected in order to compare the odds of male involvement within respective explanatory variables. The reference categories were selected based on the category which is on the top or likely to have low male involvement. The model fitting was based on the following logit model function:

$$\text{Prob } (y=1/x) = \hat{} \ (x\beta) = \frac{\exp(x\beta)}{1+\exp(x\beta)}$$

$$p = \frac{e^{\beta o+\beta 1X1+\beta 2X2+\cdots+\beta nXn}}{1+e^{\beta o+\beta 1X1+\beta 2X2+\cdots+\beta nXn}}$$

Assuming that the P is a linear combination of variables of interest, the function can be presented as:

$$logit(P) = \beta 0 + \beta 1X1 + \beta 2X2 + \cdots + \beta nXn$$

Where P= the dichotomous dependent variable called logit and defined in this study as:

1=Involved
0=Not involved

Others are:

β_0=Intercept
β_1, β_2, β_n=Logistic Regression coefficient of X_1, X_2, X_n
X_1, X_2, X_n= Independent variables
Exp=Exponential Value
n=the number of predictors (independent variables)

In this study, odds ratios were adopted for interpretation. These (Odds ratios) represent a constant effect of a predictor X (independent variable) on the likelihood that one outcome will occur. In other words, the exponential function of the regression coefficient (e^{b1}) is the odds ratio associated with a one-unit increase in the exposure (independent variable).

3.7.2 Multivariate Logistic Regression

Multivariate logistic regression involved building a model on how male involvement is influenced by the socio-demographic and economic characteristics; age, place of residence, marital status, religion, region, number of children, number of partners, ethnicity, education level, employment status and wealth index. In building the models, stepwise forward elimination method was used and two final models were developed to help explain which of the socio-demographic and economic variables influence male involvement during pregnancy in Zambia. The log likelihood ratio statistics and Akaike's (AIC) and Schwarz's Bayesian information criterion (BIC) was used to compare between models for the goodness of fit.

The following models were developed:

Model 1; Socio-Demographic Variables

1. $logit(male\ involvement) = \beta 0 + \beta 1age$
2. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence$
3. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status$
4. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region$
5. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion$
6. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion + \beta 6number\ of\ partners$
7. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion + \beta 6number\ of\ partner + \beta 7ethnicity$

Model 2; Economic Variables

1. $logit(male\ involvement) = \beta 0 + \beta 1education$
2. $logit(male\ involvement) = \beta 0 + \beta 1education + \beta 2employment$
3. $logit(male\ involvement) = \beta 0 + \beta 1education + \beta 2employment + \beta 3wealth$

Model 3; Socio-Demographic and Economic Variables combined

1. $logit(male\ involvement) = \beta 0 + \beta 1age$
2. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence$
3. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status$
4. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region$
5. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion$
6. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion + \beta 6number\ of\ partners$
7. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion + \beta 6number\ of\ partner + \beta 7ethnicity$
8. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion + \beta 6number\ of\ partner + \beta 7ethnicity + \beta 8education$
9. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion + \beta 6number\ of\ partner + \beta 7ethnicity + \beta 8eduction + \beta 9employment$
10. $logit(male\ involvement) = \beta 0 + \beta 1age + \beta 2residence + \beta 3marital\ status + \beta 4region + \beta 5religion + \beta 6number\ of\ partner + \beta 7ethnicity + \beta 8education + \beta 9employment + \beta 10wealth$

3.8 Ethical Consideration

Since this study is based on the 2007 and 2013-14ZDHS data, consent for using the data sets was obtained from Measure DHS, which is the main funder and custodian of the data sets, hence, the recognized relevant authority. Furthermore, analysis and reporting will be precisely and accurately done in accordance with the goal of Measure DHS of maintaining high standards in terms of data quality and accuracy. The study output will be published in aggregated data and therefore, confidentiality of individual respondents will be completely maintained.

3.9 Study Limitations

Some of the limitations of the study were that since the study used already collected data some variables of interest such as intentionality of last birth or if helped partner with house chores etc. where missing as the intended purpose for which they were collected was not in line with that of the researcher. Also for those not involved, reasons are not known as to whether they did not want to be involved or maybe were sick, busy or away from home.

CHAPTER FOUR

4.0 Results and Findings

The objective of this chapter is to present the findings of the study. The frequency and percent distribution of men in the study sample is by socio-demographic and economic characteristics. The chapter also presents results of cross tabulations of all selected independent variables against the dependent variable. Furthermore, using the logistic models, results are shown, discussed and interpreted.

4.1 Descriptive Analysis of the Results

4.1.1 Percent and Frequency Distributions of Men by Socio-Demographic characteristics, 2013/14 ZDHS

Table 4.1 below shows the percent distribution of men by the socio-demographic characteristics (age, type of place of residence, marital status, region, religion, number of children, number of partners and ethnicity) based on the 2013/14 ZDHS men's dataset. The percentages are based on weighted survey figures.

Table 4.1: Percent Distribution of Respondents by Socio-Demographic Variables

Socio-Demographic variables	Frequency	Percentage
Age		
15-24	510	11.1
25-34	2,027	44.2
35-44	1,517	33.1
45+	531	11.6
Residence		
Urban	1,499	32.7
Rural	3,086	67.3
Marital status		
Never-married	177	3.9
Married	4,294	93.7
Formally married	114	2.5
Region		
Central	423	9.2
Copper belt	564	12.3
Eastern	670	14.6
Luapula	367	8.0
Lusaka	652	14.2
Muchinga	272	5.9
Northern	447	9.7
North-Western	223	4.9

Southern	676	14.7
Western	291	6.3
Religion		
Catholic	824	18.0
Protestant	3,646	79.5
Other	116	2.5
Number of partners		
1	3,907	91.0
2-3	379	8.8
4+	8	0.2
Number of children		
1-2	1,542	33.6
3-4	1,227	26.8
5+	1,817	39.6
Ethnicity		
Bemba	1,770	38.6
Tonga	895	19.5
North-western	391	8.5
Baroste	290	6.3
Nyanja	1110	24.2
Others	128	2.8

Source: 2013/14 ZDHS Dataset

The findings of the descriptive analysis show that more men (44.2 percent) are in the age group 25-34 compared with other age groups. With respect to marriage, the majority of men (96.1 percent) are married. In terms of number of partners, the majority of men (91.0 percent) have one partner.

Likewise, the majority of men (79.5 percent) are protestant followed by Catholics (18 percent). The sample comprises a higher percentage of men from rural areas (67.3 percent) while only 32.7 percent of the men are from urban areas. Likewise, the largest proportions (39.6 percent) of men have five children or more. With respect to region, most of the men were from Southern province, Eastern province and Lusaka province. Northwestern province and Muchinga province had the least representation. Furthermore, most men were from the Bemba ethnic group followed by those from the Nyanja and Tonga ethnic groups.

4.1.2 Percent and Frequency Distributions of Men by Economic characteristics 2013/14 ZDHS

Table 4.2 below shows the percent distribution of men by the economic characteristics (education, employment and wealth) based on the 2013/14 ZDHS men's dataset. The percentages are based on weighted survey figures.

Table 4.2: Percent Distribution of Respondents by Economic Variables

Economic and Cultural variables		
	Frequency	**Percentage**
Education		
No education	266	5.8
Primary	2,212	48.2
Secondary	1,782	38.9
Higher	325	7.1
Employment		
Not working	158	3.4
Working in non agric	2,007	43.8
Working in agric	2,420	52.8
Wealth		
Poor	2,178	47.5
Middle	927	20.2
Rich	1,481	32.3

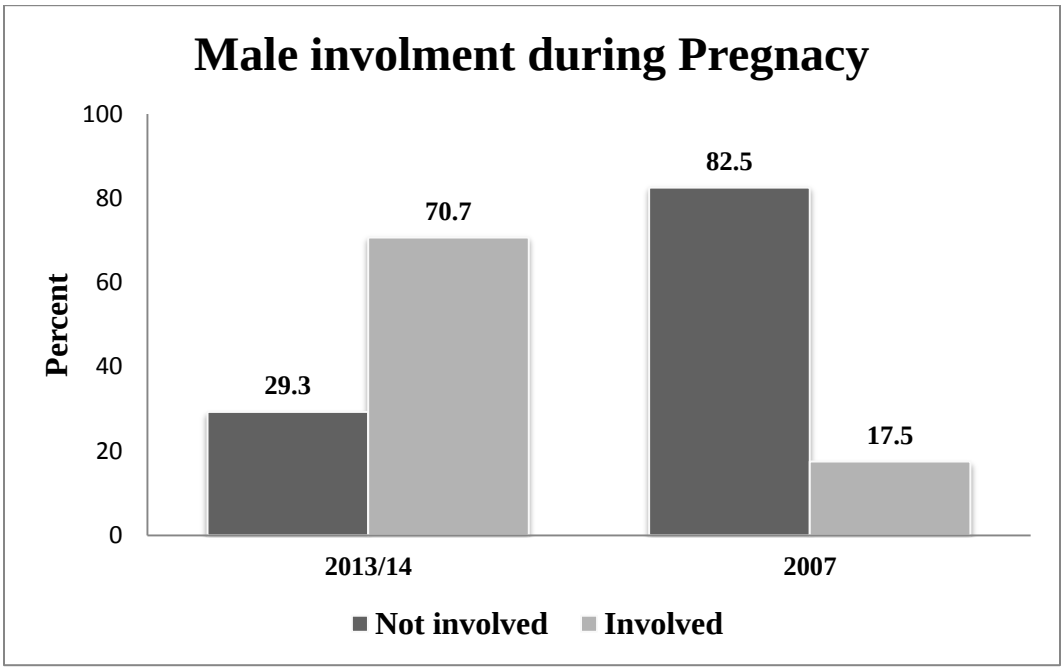
Source: 2013/14 ZDHS Dataset

According to Table 4.4 above, the findings have shown that a large proportion (52.8 percent) of the men are working in the agricultural sector and the least (3.4 percent) are those who are not working. In terms of wealth index, most men (47.5 percent) are in the poor category. Additionally, the largest proportions of men (48.0 percent) have had some primary education followed by those with secondary education.

4.1.3 Men's Involvement during Pregnancy in Zambia in 2007 and 2013-14

Figure 4.1 above shows that the majority of the men (70.7 percent) were involved during pregnancy in 2014. This shows an increase of 53.2 percent from 17.5 percent of men involved during pregnancy in Zambia in 2007. A trend could not be generated as only the 2013/14 and 2007 ZDHS had information on male involvement.

Figure 4.1 Percent Distribution of Male Involvement during Pregnancy



Source: 2007 and 2013/14 ZDHS Dataset

4.2 Cross Tabulations

4.2.1 Socio-Demographic Determinants of Men's Involvement during Pregnancy

In this section, the chi-square test of independence is used to examine the relationship between the dependent and independent variables. Selected background characteristics were cross-tabulated for men's involvement during pregnancy to determine which socio-demographic and economic factors are significantly associated with male involvement during pregnancy.

Table 4.3: Socio-Demographic Variables Influencing Men's Involvement during Pregnancy

Chi - square test Asymp. Sig. (2-sided)

Socio-Demographic variables	Percent Involved	Number involved	Pearson X^2	P<0.05
Age			**45.7**	**0.004**
15-24	11	510		
25-34	44.7	2,027		
35-44	32.9	1,517		
45+	11.4	531		
Residence			**22.1**	**0.000**
Urban	32.7	1,499		
Rural	67.3	3,086		
Marital status			**46.9**	**0.000**
Never-married	4.4	177		

Married	93.2	4,294		
Formally married	2.5	114		
Region			**258.0**	**0.000**
Central	7.6	423		
Copper belt	7	564		
Eastern	16	670		
Luapula	13	367		
Lusaka	6.1	652		
Muchinga	9.4	272		
Northern	12.4	447		
North-Western	9.9	223		
Southern	12.9	676		
Western	5.9	291		
Religion			**30.7**	**0.001**
Catholic	18.1	824		
Protestant	79.3	3,646		
Other	2.6	116		
Number of partners			**41.7**	**0.018**
1	91.4	3,907		
2-3	8.4	379		
4+	0.2	8		
Number of children			**2.6**	**0.273**
1-2	32.7	1,542		
3-4	26.4	1,227		
5+	40.9	1,817		
Ethnicity			**32.6**	**0.000**
Bemba	41.4	1,770		
Tonga	15.9	895		
North-western	12.7	391		
Baroste	6.5	290		
Nyanja	20.9	1110		
Others	2.6	128		

Source: 20013/14 ZDHS Dataset

Findings from the study in Table 4.3 above shows that men in the age group 25-34 are significantly more involved during pregnancy followed by men in the age group 35-44. Men from rural areas are significantly more involved during pregnancy compared to those in urban areas. With respect to marital status, men who are married are significantly more involved during pregnancy as compared to men who have never married before and men who are formally married. The findings have also shown a significant relationship between region and men's involvement during pregnancy. Most of the men (16.0 percent) who are involved during pregnancy are from Eastern province followed by Luapula, Southern and Northern at 13.0, 12.9

and 12.4 percent respectively. Western and Lusaka have the lowest proportions of male involvement during pregnancy.

Table 4.3 also shows that men who are Protestants are significantly more involved during pregnancy compared to Catholics and others. Likewise, men who have one partner are significantly more involved during pregnancy compared to those with more than one partner. The findings have also shown that men with five children or more are more involved during pregnancy compared to those with fewer children however this difference is not statistically significance. Furthermore, men from the Bemba ethnic group are significantly more involved during pregnancy followed by men from the Nyanja, Tonga and North-Western ethnic groups respectively.

4.2.2 Economic Determinants of Men's Involvement during Pregnancy

Table 4.4: Economic Variables Influencing Men's Involvement during Pregnancy
Chi - square test Asymp. Sig. (2-sided)

Economic and Cultural variables	Percent Involved	Number Involved	Pearson X^2	P<0.05
Education			**9.3**	**0.002**
No education	5.8	266		
Primary	49	2,212		
Secondary	38.4	1,782		
Higher	6.9	325		
Employment			**25.3**	**0.000**
Not working	3.3	158		
Working in non agric sector	40.8	2,007		
Working in agric sector	55.9	2,420		
Wealth			**45.9**	**0.000**
Poor	50.1	2,178		
Middle	22.7	927		
Rich	27.2	1,481		

Source: 20013/14 ZDHS Dataset

Table 4.4 shows that men with primary education are significantly more involved during pregnancy followed by men with secondary. There is also enough statistical evidence that employment and men's involvement during pregnancy are associated. The involvement is highest for men who are working in the agricultural sector. Men who are not working are the

least involved. With regard to wealth quintile, men who are poor are significantly more involved during pregnancy.

4.3 Binary Logistic Regression Models

Determinants of Men's Involvement during Pregnancy

This section will exclusively look at models with only one independent variable (bivariate). Further, it will proceed to include all the independent variables that will show significance at bivariate in one model (multivariate).

4.3.1 Men's Socio-Demographic characteristics by Individual Models (Bivariate)

Table 4.5 shows the odds ratios from logistic regression models of men's involvement during pregnancy by men's socio-demographic characteristics.

Table 4.5: Odds Ratios by Men's Socio-Demographic Variables

Socio-Demographic Variables	Odds Ratios	P-values	R^2
Age			0.78%
15-24	RC (1.00)	RC	
25-34	1.15	0.735	
35-44	1.09	0.010	
45+	0.94	0.044	
Residence			0.98%
Urban	RC (1.00)	'RC	
Rural	1.36	0.000	
Marital status			4.05%
Never-married	RC (1.00)	RC	
Married	2.46	0.000	
Formally married	1.52	0.000	
Region			9.58%
Central	2.11	0.000	
Copperbelt	1.59	0.001	
Eastern	5.46	0.000	
Luapula	6.37	0.000	
Lusaka	RC(100)	RC	
Muchinga	2.86	0.000	
Northern	2.73	0.000	
North-Western	2.42	0.000	
Southern	3	0.000	
Western	1.51	0.005	

Religion			0.77%
Catholic	RC (1.00)	RC	
Protestant	1	0.080	
Other	1.19	0.034	
Number of partners			2.73%
1	RC (1.00)	RC	
2-3	0.06	0.061	
4+	0.18	0.002	
Number of children			0.95%
1-2	RC (1.00)	RC	
3-4	1.04	0.629	
5+	1.13	0.114	
Ethnicity			
Bemba	RC (1.00)	RC	5.08%
Tonga	0.91	0.306	
North-western	0.77	0.009	
Baroste	0.67	0.002	
Nyanja	2.60	0.000	
Others	0.84	0.396	

* Significant at P<0.05. Source: 2014/14 ZDHS Dataset

Table 4.5 above shows that men in the age groups 25-34 and 35-44 are more involved during pregnancy compared to men in the age group 15-24 (reference age group). The findings have also shown that men aged 45 and above are less involved during pregnancy in Zambia compared to the reference age group. However, the relationship between age and male involvement is partially statistically significant as not all categories are significant. Only 0.78 percent variation (R^2) in male involved during pregnancy can be explained by age. With regards to residence, Table 4.5 shows that the odds of men being involved during pregnancy in rural areas are 1.36 with reference to urban areas. This implies that those in rural areas are significantly 36 percent more likely to be involved than those in the urban areas. The variation (R^2) in male involvement during pregnancy due to residence is 0.98 percent.

The table further shows that men who are married are 2.46 times more likely to be involved during pregnancy with reference to men who have never been married. This entails that men who have are married are significantly 3times more likely to be involved during pregnancy with reference to those never married. Men who are formally married are also significantly more involved during pregnancy than the never married. The variation (R^2) in men's involvement during pregnancy due to marital status accounts for 4.05 percent. In relation to region, Table 4.5 shows that men coming from all other provinces are significantly more likely to be involved

during pregnancy with reference to men coming from Lusaka province. The variation ($R^{2)}$ in men's involvement during pregnancy that can be explained by region is 9.58 percent. With regards to religion, Table 4.5 shows that men who are Protestants are equally likely to be involved during pregnancy with reference to men who are Catholics; this relationship however is not statistically significant. On the other hand, men who are in the other category of religion (i.e. Muslim, Hindus etc.) are significantly more likely to be involved during pregnancy with reference to the Catholics. The variation (R^2) in men's involvement during pregnancy due to religion accounts for 0.77 percent.

The findings in Table 4.5 also show that men with 2 or more partners are less likely to be involved during pregnancy with reference to those with one partner. However, the relationship between religion and male involvement is partially statistically significant. The variation (R^2) in men's involvement during pregnancy can be explained by the number of partners is 2.73 percent. Furthermore, the findings have also shown that men who have more than 2 children are more likely to be involved during pregnancy with reference to those with 1-2 children. The findings have also shown that those with 3-4 and 5+ children are 4 and 13 percent respectively more likely to be involved than those with 1-2 children. However, the relationship between male involvement and number of children living is not statistically significant as the p-values are greater than 0.05. The variation (R^2) in men's involvement during pregnancy due to number of children is 0.95 percent. The study findings have also shown that men who are from the Nyanja ethnic group are significantly more involved during pregnancy compared to men from the Bemba ethnic group. They are actually almost three times more likely to be involved compared to men from the Bemba ethnic group. The findings further indicate that men from all other ethnic groups are less involved during pregnancy in Zambia. However, the relationship between ethnicity and male involvement is partially statistically significant. The variation (R^2) in men's involvement during pregnancy that can be explained by ethnicity is 5.08 percent.

4.3.2 Men's Economic characteristics by Individual Models (Bivariate)

Table 4.6 shows the odds ratios from logistic regression models of men's involvement during pregnancy by men's economic characteristics.

Table 4.6: Odds Ratios by Men's Economic and Cultural Variables

Economic and Cultural Variables	Odds Ratios	P-values	R^2
Education			0.86%
No education	RC (1.00)	RC	
Primary	0.95	0.000	
Secondary	0.83	0.000	
Higher	0.69	0.000	
Employment			1.44%
Not working	RC (1.00)	RC	
Working in non agric	0.84	0.069	
Working in agric	1.16	0.014	
Wealth			4.79%
Poor	RC (1.00)	RC	
Middle	0.97	0.000	
Rich	0.63	0.000	

Table 4.6 above shows that men with any form of education are significantly less likely to be involved during pregnancy with reference to men with no education. The variation (R^2) in men's involvement during pregnancy that can be explained by education is 0.86 percent. In addition, the table shows that the odds of being involved during pregnancy for men who are working in the agricultural sector are1.16 with reference to men who are not working. This indicates that men who are working in the agricultural sector are significantly 16 percent more likely to be involved during pregnancy than those who are not working. Men who are working in non-agricultural sector are less likely to be involved with reference to those who are not working. This relationship however is not statistically significant. The variation (R^2) in men's involvement during pregnancy that can be explained by employment is 1.44 percent.

Furthermore, regarding wealth quintile, results have shown that men in both the middle and rich categories are significantly less involved during pregnancy with reference to the poorest category. Variation in men's involvement during pregnancy due to wealth quintile is 4.79 percent (R^2).

4.4 Multivariate Logistic Regression

4.4.1 Men's Socio-Demographic and Economic characteristics by combined Model (Multivariate)

Table 4.4 shows the odds ratios from multivariate logistic regression models of men's involvement during pregnancy by selected men's characteristics combined.

In this section, results from a logistic regression analysis are presented where, all variables were entered into the model and variables tested for significance at $p<0.05$ (5.0 percent) level in all the categories. This was done by first categorizing independent variables into social-demographic variables (age, residence, marital status, region, religion, number of partners and ethnicity) and economic variables (education, employment and wealth), based on the conceptual framework used in the study. Demographic and social variables were firstly fitted into model 1 then the economic variables fitted into model 2 and lastly Model 3 which is a combination of model 1 and model 2 and observations based on the behaviour of the variables were made. The log likelihood ratio statistics were also observed in model fitting.

Model 1: Socio-Demographic Variables

The following are the socio-demographic variables identified to influence men's involvement during pregnancy; age residence, marital status, region, religion, number of partners and ethnicity fitted into model 1.

Table 4.7: Adjusted Odds Ratios by Men's Socio-Demographic Variables

Variables							Model 1
Age							
15-24	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
25-34	1.150	1.159	0.889	0.889	0.888	0.924	**1.027**
35-44	1.090*	1.088	0.807	0.827	0.824	0.859	**1.004**
45+	0.941*	0.919	0.682*	0.700*	0.700*	0.725*	**0.727***
Residence							
Urban		RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
Rural		1.377*	1.307*	1.082*	1.079*	1.079*	**1.069***
Marital status							
Never-married			RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
Married			2.622*	2.612*	2.594*	2.594*	**2.594***
Formally married			1.593*	1.664*	1.650*	1.650*	**1.650***
Region							

Central	RC(100)	RC(100)	RC(100)	**RC(100)**
Copperbelt	1.585*	1.584*	1.648*	**1.765***
Eastern	5.247*	5.296*	5.658*	**5.437***
Luapula	6.217*	6.296*	6.417*	**7.350***
Lusaka	2.042*	2.034*	2.029*	**2.102***
Muchinga	2.733*	2.731*	2.597*	**2.793***
Northern	2.636*	2.683*	2.648*	**3.117***
North-Western	2.422*	2.408*	2.460*	**2.436***
Southern	2.955*	2.929*	2.874*	**2.715***
Western	1.549*	1.529*	1.422*	**1.244***
Religion				
Catholic		RC(100)	RC(100)	**RC(100)**
Protestant		1.132*	1.148*	**1.154***
Other		1.239*	1.191*	**1.195***
Number of partners				
1			RC(100)	**RC(100)**
2-3			0.929	**0.913**
4+			1.235	**1.147**
Ethnicity				
Bemba				**RC(100)**
Tonga				**1.243**
North-western				**1.185***
Baroste				**1.410***
Nyanja				**3.100***
Others				**1.275**

* Significant at P<0.05; Source: 2014-14 ZDHS Dataset; Coefficient of determination (R^2) 24.92 percent

Table 4.7 above shows logistic regression of demographic variables and how they influence each other with regard to male involvement during pregnancy. The table shows that the odds of involvement during pregnancy for all men in the older ages in comparison with the reference age 15-24 decrease as other variables are added in the model. It is also clearly observed in the table above that, the odds of male involvement in rural areas decreases with reference to urban areas when marital status is introduced. Similarly, the odds in marital status have also decreased compared to when regressed as a single variable with male involvement (refer to Table 4.3). This simply implies that, residence explains the influence of marital status on male involvement and vice versa. In the above table, both variables are significant at $p<0.05$.

When region is introduced, the odds of men being involved increases for all the provinces. This shows that region can be used to explain variability in male involvement due to residence. Both

variables are still statistically significant hence residence explains the influence of region on male involvement and vice versa. With regard to marital status, there is a very slight change in odds for those ever married with reference to those never married. However, the odds of men being involved increases for those ever married with reference to those never married. Therefore, region enhances the influence of marital status on male involvement. Nevertheless, both residence and marital status enhance the influence of region on male involvement. This is because the odds of region in most provinces increase when the variable is regressed with the two former variables (refer to table 4.7) compared to when it is regressed (refer to table 4.5) as a single variable.

When religion is introduced, there is a slight change in the odds of residence, marital status and region. The odds of marital status and region have reduced slightly and the odds of residence have increased slightly. The odds of religion in all categories have increased drastically after it is regressed with residence, marital status and region as compared to when it is regressed as a single variable. This implies that religion can be used to explain the differences in male involvement in terms of marital status and region. It also enhances the influence of residence on male involvement. The same happens when number of partners and ethnicity are added to the model. In the final model (model 1), the variables, age, residence, marital status, region, religion, number of partners and ethnicity account for 24.92 percent (R^2) variation in male involvement.

Model 2: Economic Variables

The following are the economic variables identified to influence men's involvement during pregnancy; education employment and wealth fitted into model 2.

Table 4.8: Adjusted Odds Ratios by Men's Economic Variables

Variables			Model 2
Education			
No education	RC(100)	RC(100)	**RC(100)**
Primary	0.950*	0.969*	**1.994***
Secondary	0.830*	0.917*	**1.021***
Higher	0.693*	0.856*	**1.110***
Employment			
Not working		RC(100)	**RC(100)**
Working in non agric		0.851*	**0.939***
Working in agric		1.144*	**1.183***

Wealth	
Poor	**RC(100)**
Middle	**1.004***
Rich	**0.665***

* Significant at p<0.05; Source: 2013-14 ZDHS Dataset; Coefficient of determination (R^2) 7.09 percent

Table 4.8 above shows logistic regression of economic variables and how they influence each other with regard to male involvement. As observed, the odds of men being involved increases for those with any level of education with reference to those without education, when employment and wealth is introduced in the regression. The odds of men working in the agricultural sector and non-agricultural sector increase. Also the odds of men being involved for those who are in the middle wealth quintile and those who are rich both increases in the table above when regressed with education and employment; therefore, education and employment explains the influence of wealth on male involvement and vice-versa. Both the variables are still statistically significant. The variables in model 2; education, employment and wealth account for 7.09 percent (R^2) variation in male involvement.

Model 3: Socio-Demographic and Economic Variables

Table 4.9 shows the results obtained. The statistical significance of the exponentiated odds was established based on the observed p-value. Two models were fitted. Model 3 comprised of variables significant at univariate plus those categorical variables with some categories that were significant (Not wholly significant) while model 4 comprised of only variables wholly significant at univariate. Using the Akaike's (AIC) and Schwarz's Bayesian information criterion (BIC) to compare between models the goodness of fit, the AIC and BIC for model 3 was lower than that for model 4. Therefore, model 3 was the best model to explain factors influencing male involvement during pregnancy.

Using stepwise forward elimination method to explain variations in men's involvement during pregnancy, the variations in involvement can be elucidated by model 3. The final model in model 3 reveals that men's involvement during pregnancy was influenced by factors such as; age, residence, marital status, region, religion, number of partners, ethnicity, education, employment and wealth.

Table 4.9: Adjusted Odds Ratios by Men's Socio-Demographic and Economic Variables

Variables										Model 3
Age										
15-24	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
25-34	1.150	1.159	0.889	0.889	0.888	0.924	1.027	1.028	1.031	**1.152**
35-44	1.090*	1.088*	0.807	0.827	0.824	0.859	1.004	1.005	1.011	**1.092**
45+	0.941*	0.919*	0.682*	0.700*	0.700*	0.725*	0.727*	0.736*	0.742*	**0.887***
Residence										
Urban		RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
Rural		1.377*	1.307*	1.082*	1.079*	1.079*	1.069*	1.080*	1.090*	**1.091***
Marital status										
Never-married			RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
Married			2.622*	2.612*	2.594*	2.594*	2.594*	2.600*	2.610*	**2.620***
Formally married			1.593*	1.664*	1.650*	1.650*	1.650*	1.651*	1.651*	**1.653***
Region										
Central				RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
Copperbelt				1.585*	1.584*	1.648*	1.765*	1.767*	1.722*	**1.675***
Eastern				5.247*	5.296*	5.658*	5.437*	5.472*	5.272*	**5.092***
Luapula				6.217*	6.296*	6.417*	7.350*	7.394*	6.959*	**6.628***
Lusaka				2.042*	2.034*	2.029*	2.102*	2.117*	2.069*	**1.987***
Muchinga				2.733*	2.731*	2.597*	2.793*	2.814*	2.6699*	**2.582***
Northern				2.636*	2.683*	2.648*	3.117*	3.132*	2.989*	**2.860***
North-Western				2.422*	2.408*	2.460*	2.436*	2.443*	2.383*	**2.311***
Southern				2.955*	2.929*	2.874*	2.715*	2.729*	2.718*	**2.639***
Western				1.549	1.529	1.422	1.244	1.254	1.229	**1.192***
Religion										
Catholic					RC(100)	RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
Protestant					1.132*	1.148*	1.134*	1.135*	1.127*	**1.126***

Other	1.239*	1.191*	1.150*	1.153*	1.155*	**1.159***
Number of partners						
1		RC(100)	RC(100)	RC(100)	RC(100)	**RC(100)**
2-3		0.929	0.913	0.913	0.915	**0.917**
4+		1.235*	1.147*	1.134*	1.090*	**0.991***
Ethnicity						
Bemba			RC(100)	RC(100)	RC(100)	**RC(100)**
Tonga			1.243	1.241	1.225	**1.211**
North-western			1.185*	1.183*	1.180*	**1.163***
Baroste			1.410*	1.408*	1.392*	**1.383***
Nyanja			3.100*	2.650*	2.642*	**2.643***
Others			1.275	1.278	1.278	**1.272**
Education						
No education				RC(100)	RC(100)	**RC(100)**
Primary				0.993*	1.003*	**1.005***
Secondary				1.043*	1.074*	**1.091***
Higher				0.997*	1.064*	**1.146***
Employment						
Not working					RC(100)	**RC(100)**
Working in non agric					1.441*	**1.501***
Working in agric					1.005*	**1.006***
Wealth						
Poor						**RC(100)**
Middle						**1.105***
Rich						**1.002***

*Significance at P<0.05; Source; 2013/14 ZDHS Dataset; Coefficient of determination (R^2) 32.01 percent

Table 4.6 above shows the regression of all independent variables with male involvement. The third model (model 3) shows the change in odds of the socio-demographic variables when the economic variables (education, employment and wealth index) are added to the regression. The economic variables; education, employment and wealth index can be used to explain the influence of demographic variables on male involvement. With regards to age, residence and marital status, the odds have increased in the last model. Both residence and marital status are still statistically significant. Age on the other hand is partially statistically significant.

Regarding education, the odds ratios have increased among the different education categories when all the demographic variables are put in the model and the rise in the odds ratios is significant. When wealth index is added, Table 4.9 shows that the likelihood of involvement for education and employment both increase. It is also noted that the odds increased for religion, number of partners and for all the provinces in terms of region when the economic variables are introduced. However, the odds for ethnicity reduced. This entails that the economic variables cannot be used to explain the influence of ethnicity on male involvement. Table 4.9 also shows that odds of involvement for men who are in the middle and rich wealth index and those who are rich have increased after all other variables are added.

The final results for model three are shown in the last column of Table 4.9 with all variables added to the regression model. This shows the influence of individual variables controlling for other variables within the model. The results in the model show that both the socio-demographic and economic factors are direct contributors to the variations in male involvement as they are all significant. However the variations in male involvement in terms of education are due to wealth. This could explain the increase in the odds of education when wealth was added. Similarly, the influence of residence on male involvement can be explained using wealth. The table shows that there is almost no difference in male involvement between urban and rural areas given wealth. The final model (model 1) explains 32.01 percent (R^2) variations in male involvement.

CHAPTER FIVE

5.0 Discussion, Conclusion and Recommendations

In this chapter, the findings of the study are presented and discussed. Finally the conclusion and the implications of the study are presented.

5.1 Description of Research Questions

The main objective of this study was to examine the factors influencing the involvement of men during pregnancy in Zambia. In order to achieve this objective, the study endeavored to answer the following research questions: What are the changes in male involvement during pregnancy over the years in Zambia? What are the socio-demographic and economic determinants of men's involvement during pregnancy?

5.2 Level and Trend of Male Involvement during Pregnancy

In patriarchal society, as well as in many cultures in Zambia, men are considered to be superior to women and most of all the decisions are made by them. Men not only influence wife's or partner's health outcomes but also other aspects of life. On the other hand, the social construction of masculinity also helps men to be more powerful than their counterparts (Kumar and Adhikari, 2009). From the results obtained, it is evident that males are involved during pregnancy in Zambia and there has been an increase of male involvement over the years. The majority of the men (70.7 percent) were involved during pregnancy in 2013-14. This shows an increase from 17.5 per cent of men involved during pregnancy in 2007. This entails that in a period of about 6 years there has been over 50 percent increase in male involvement. In a related study conducted in Osun states in south west of Nigeria (Odimegwu et al., 2009) found male involvement during prenatal care at 93.9 percent and in another study conducted in India found male involvement during prenatal care at 98.2 percent. However, a trend could not be generated as only the 2007 and 2013/14 ZDHS had information on male involvement.

5.3. Socio-Demographic Factors that Influence Male Involvement during Pregnancy

The social and demographic factors that were investigated include age, residence, marital status, region, religion, number of partners and ethnicity. The findings of the study have shown that there is a statistically significant relationship between age and male involvement. Men in the age groups 25-34 and 35-44 are more likely to be involved during pregnancy compared to men in the age group 15-24. Findings have also shown that men aged 45 and above are significantly less involved during pregnancy. This is in line with what Iluyasu et al., (2010) found in a study conducted in a northern Nigerian community on birth preparedness, complication readiness and father's participation in maternity care. They observed that participation was high among the young husbands. They argued that younger men are more adventurous and likely to challenge cultural norms. For instance older men view it as a taboo to watch a woman give birth, something that the younger generation has challenged. This also explains why in our study men in the age group 25-44 are more involved while those aged 65 and above are less involved.

Furthermore, from both bivariate and multivariate logistic regression analyses, results show that type of place of residence was strongly associated with men's involvement during pregnancy in Zambia. Men in rural areas are more involved during pregnancy in Zambia as compared to urban men. This could be due to long distances to get to the nearest health facilities that pregnant women have to walk in rural areas. Therefore, these women are more likely to be accompanied by their husbands or partners when going for antenatal care. The low male involvement observed in the study for the urban areas could be because most men in urban areas are working outside the agricultural sector where it is difficult to get permission. In addition men in urban areas have higher incomes hence men who don't want to be involved simply send their partners to private clinics where they may not be mandated to accompany their spouses for antenatal check-ups. This is contrary to the findings in a similar study conducted in El Salvador by Carter et al., 2005 where they found that rural residence was associated with a lower likelihood of men's participating in prenatal care visits. They also stated that men from rural areas were more likely to have participated in one or two of the health care activities as opposed to all three (prenatal care, delivery, and well-baby care). They argued that possible reasons for this could include relatively weak health care infrastructure in rural areas and economic and labour practices in rural settings that may limit men's ability to participate in many health care activities with their partners.

Findings from the study have also shown that marital status is strongly associated with men's involvement during pregnancy in Zambia. Men who are married and those formally married (separated, divorced and widowed) are more likely to be involved during pregnancy as compared to men who have never been married in Zambia. This could be due to the possibility that men who are married tend to be more responsible for their wife's or partner's wellbeing than those who are not married, hence accompanying them for antenatal visits. This is in line with the Theory of Reasoned Action which states that human behaviour is a result of normative beliefs-constituting group social norms e.g. marriage. This is also in agreement with a similar study by Oropesa et al., (2000) in the US where it was found that type of relationship was a strong predictor of adequate prenatal care. They argued, in the case of type of relationship that social relationships characterized by mutual obligations and trust serve as resources that can assist the individual. They are the conduits along which support and information flow. As such, social relationships facilitate action. For example, marriage typically reflects more extensive and more stable obligations between partners than alternative types of intimate relationships. The obligations that form the basis of the marital bond are multifaceted and include monetary and non-monetary support. This could explain why married women are more likely than unmarried women to secure prenatal care. In another study by Carter et al., they found that a man's relationship with the partner was strongly associated with their participation in birth related health care activities. The study found that men not married were much less likely to participate in these activities. Carter argued that reporting a pregnancy and having a causal relationship to the mother of the child may represent men's lower commitment to the pregnancy and interest in the mother and child.

Results have also shown that religion is significantly associated with men's involvement during pregnancy in Zambia at both bivariate and multivariate level of analysis. Men who are Protestants and those from other religions such as Muslims and Hindus are all more likely to be involved during pregnancy than their counterparts who are Catholics. Another study done in rural India by Singh et al., (2009) has provided evidence that religion was one of the factors predicting men's involvement during pregnancy in rural India.

On the other hand, the results have shown that region was significantly associated with men's involvement during pregnancy in Zambia at both bivariate and multivariate level of analyses. Men from all provinces are more likely to be involved during pregnancy compared to those from

Lusaka province.This could be because most of the incentives that have been put in place by the Ministry of Health to promote male involvement are being implemented in public health facilities. For example, women who visit a health facility with their partner are served first. Unlike Lusaka, these other provinces, except Copperbelt, are largely rural meaning they mostly only have access to public health facilities as there are no private health facilities in their areas hence they have to abide by the rules and accompany their spouses. In urban areas like Lusaka on the other hand, men who do not want to accompany their spouses, can simply send them to private clinics. This is in line with the type of place of residence outcome which states that men from rural areas are more involved than those from urban areas. Hence fourth this can be attributed to the fact that most of these provinces are largely rural and Lusaka is largely urban. The Copperbelt Province is also urban but has had daunting economic conditions in the recent past that would have waned men's incomes, thereby their abilities to send their spouses to private health facilities.

Findings have also shown that number of partners is a predictor of male involvement during pregnancy. The findings indicate that men with more than one wife/partner are less likely to be involved during pregnancy compared to those with one wife/partner. This could be because the love, care and attention a man could give that has one wife/partner would not be the same if a man has 4 or 5 wives/partners more especially if 2 or 3 are pregnant at the same time.

Last but not the least, the findings have also shown a statistically significant relationship between male involvement and ethnicity. Men from all other ethnic groups are more likely to be involved during pregnancy compared to men from the Bemba ethnic group. This could be due to the differences in culture and traditions between the Bemba ethnic group and the other ethnic groups. Perhaps the culture and traditions under the Bemba ethnic group hinder men from being involved in maternal matters.

5.4. Economic Factors that influence Male Involvement during Pregnancy

The economic factors considered in this study include: education, employment and wealth index. Results of the study found that education of men was statistically significant at both bivariate and multivariate analyses. Men with any level of education are more likely to be involved during pregnancy compared to the ones with no education. This is so perhaps because educated men are more likely to understand the importance of antenatal care hence accompanying their partners.

This is also in line with reducing delay one which is delay to make the decision to seek medical help, because men who are educated will be able to understand the importance of seeking medical care for the pregnant women. It is further in agreement with the findings of Carter et al., (2005), in their study of Salvadoran father's attendance at prenatal care, delivery, and postpartum care they found that education was a significant predictor. They stated that men with more than a primary school education were more likely than their less educated counterparts to participate in one or more of the birth-related activities. Furthermore, they argued that educated fathers may be more likely to be of higher socio-economic status, to have more free time or more flexible work schedules, to ascribe to norms about fatherhood that facilitate involvement in family health. In another related study by McDonalgh et al., (1988) they found that education and age are predictors of male involvement in maternal health. They argued that prenatal care is also linked to human capital skills and expertise acquired through experience. Schools increase endowments of human capital by exposing students to health related programmes and courses. Education also facilitates prenatal care utilization by increasing the capacity to process information through mastery of both the spoken and written word. In addition, individuals accumulate experience outside of institutions and learn about proper behaviours during pregnancy as they grow older. This is why prenatal care utilization is associated with both education and age among the general population.

Employment was also found to be strongly significant at both bivariate and multivariate analyses. Men working in the agricultural sector are more likely to be involved compared to those who are not working. This could be due to the fact that these men working in the agricultural sector have flexible work schedules at the same time have some form of income hence are able to organize transport and accompany their spouses to the health facility for antenatal check-ups. Those working in non-agricultural sector are also more likely to be involved during pregnancy with reference to those not working.

Last but not the least, from the same analysis wealth index was found to be statistically significant at both bivariate and multivariate analyses. Men who are in the middle wealth index and those that are rich are both more likely to be involved during pregnancy than those who are poor. This is in line with reducing delay two which is delay to reach the health facility once the decision to seek medical care has been made. Since the men have the income, they are able to organize transportation for their pregnant partners on time. This could also be attributed to the

possibility that people with high socio-economic status are likely to use health care providers who facilitate their attendance at prenatal care, delivery, and well-baby care. Results from a similar study by Vikashi et al., (2009) also found that education and socioeconomic status (wealth index) were positively associated with husband's participation.

The results show that much variation in men's involvement in this study can be attributed to region, ethnicity, marital status and wealth.

Conclusion

This study has established the level of men's involvement during pregnancy in Zambia. The study also examined the socio-demographic and economic factors associated with men's involvement during pregnancy in Zambia using data obtained in the 2013-14 Zambia Demographic Health and Survey. The conceptual framework developed for this study stated that socio-demographic variables (age, residence, marital status, region, religion, number of children, number of partners and ethnicity) and economic variables which are (education, employment and wealth quintile) influence men's involvement during pregnancy. The findings in this study reveal that ten variables are important explanatory variables in men's involvement, these are: age, residence, marital status, region and religion, number of partners, ethnicity, education, employment and wealth quintile. Among these, region, marital status, ethnicity and wealth are the main variables that can be used to explain variation in men's involvement during pregnancy.

The results have also shown that men's involvement increases as education level of men increases. This could be due to the fact that educated men are more likely to be aware of the benefits of their involvement at the same time are aware of the benefits of antenatal check-ups However, variation in men's involvement is due to wealth rather than education. These findings imply that education is a basic variable that works through wealth quintile. The analysis also shows strong associations between wealth and men's involvement, indicating that economic empowerment of men significantly affects men's involvement. Marital status was also found to influence male involvement. Men who are married or formally married are more involved during pregnancy implying that encouraging couples to have children only when they are in stable sexual unions would be a step forward to increase male involvement. Another important conclusion is with reference to region and ethnicity which indicates that men's involvement

during pregnancy varies by province and ethnicity hence provides the province and ethnic group that requires effective interventions.

The findings also show that there is a strong relationship between ethnicity and men's involvement compared to other variables as the variations due to ethnicity is 5.08 percent. This means that ethnicity has the second strongest relationship after region which accounts for 9.58 percent. The third is wealth which accounts for 4.79 percent of variation in male involvement and fourth is marital status which accounts for 4.05 percent of variation in male involvement. Nevertheless, most of the variables have been proven to influence male involvement as they are statistically significant in the regression model.

Recommendations

In light of the findings in this study, the following are the recommendations:

- It is important that government ensures that all men attain at least primary level of education, as one effective way of increasing male involvement during pregnancy in Zambia. This is because the results show that men with any level of education are more likely to be involved during pregnancy. Therefore, already existing programs aimed at improving education levels should be enhanced and strengthened in both rural and urban areas. This will enable more men to be knowledgeable about the importance of their involvement during pregnancy in Zambia.
- In modern times, childbirth is not confined to married couples hence the government and stakeholders should ensure that sensitization is not just tailored towards married men but should also encompass the single. This is because low male involvement was observed among the never married. Also encouraging couples to only have children when they are in stable sexual unions like marriage might improve male involvement.
- It would be important to develop policy that helps integrate men into existing maternal health services, especially through attendance at ANC visits.
- The government and other partners should aim at developing and implementing policies that emphasize on the benefit and the need for male involvement during pregnancy. This could be done through radio programmes, newspapers/letters, community drama etc. not just at the health facilities so as to reach out to men who do not come to the health facilities with their spouses.
- The government and relevant stakeholders need to empower both men and women economically so that they are able to afford to seek appropriate medical care when pregnant.
- The government and relevant stake holders also need to understand the reasons for low male involvement in some provinces and ethnic groups before putting up interventions. This is because pregnancy being a maternal issue may have different cultural norms and traditions in different provinces or ethnic groups which can either encourage or hinder male involvement hence an understanding of this could help put up appropriate interventions to encourage male involvement during pregnancy.

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