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UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HUMANITIES

SCHOOL OF SOCIAL SCIENCES

Family Structure and modern contraceptive use among women in Malawi

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473525

A RESEARCH REPORT SUBMITTED TO THE SCHOOL OF SOCIAL SCIENCE, UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN THE FIELD OF DEMOGRAPHY AND POPULATION STUDIES FOR THE YEAR 2015

OCTOBER 2015

SUPERVISOR: PROFESSOR CLIFFORD ODIMEGWU

Declaration I, **Ng'andwe Chibuye** hereby declare that this research report is my own original work. It is being submitted to the Faculty of Humanities and Social Sciences, University of the Witwatersrand, Johannesburg. It is submitted in partial fulfilment of the requirement for the degree of Master of Arts in the field of Demography and Population Studies. I declare that to the best of my knowledge it has not been submitted before in part or in full for any degree or examination at this or any other university.

…….. day of ……. 2015

Abstract

Background

Contraceptive prevalence in sub-Saharan Africa is low compared to other regions of the world. Despite this, some countries within the sub-Saharan African region, such as Malawi, have been identified as champions of contraceptive use within the region but still face many reproductive health challenges, such as a high total fertility rate of 5.7 births per woman (Malawi Demographic and Health Survey (MDHS), 2011). The purpose of the study is to examine the prevalence of the use of modern contraception given different dimensions of family structure and what significant relevance this may have in creating contextually appropriate family planning interventions. A literature search of studies on family structure in Africa shows little evidence of such a study in Malawi.

Methodology

The study was cross-sectional and made use of the 2010 Malawi Demographic and Health Survey (MDHS). It focused on women of reproductive ages (15-49 years). A total of 12, 490 women made the sample of the study. In order to address the objectives, descriptive statistics and chi-square tests were conducted to assess the levels and patterns of modern contraceptive use in Malawi. Lastly, binary logistic regression was carried out in order to test the association between different dimensions of family structure and modern contraceptive use.

Results

The study established that the prevalence of modern contraceptive use in women of reproductive age (15-49) in Malawi was estimated at 48%. The study showed that family structure did have an influence on modern contraceptive use. Specifically the likelihood of modern contraceptive use was higher among women with larger family sizes. The association between sex composition of children and modern contraceptives was also significant. Findings further showed that women in female-headed households were less likely to use modern contraceptives compared to women in male-headed households.

Conclusion

Family structure was found to have an influence on modern contraceptive use in Malawi. The study findings have implications towards achieving the reproductive goals of the Malawi Growth and Development Strategy (2011-2016) and the Malawi Health Sector Strategy Plan of (2011-2016) or future policies which have important reproductive health goals for women.

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I would like to express my sincere gratitude to my supervisor Professor Clifford Odimegwu for his patience and prompt and critical feedback through the research process. I would also like to thank all the people in the Demography family. Finally I would like to thank my parents, I am also grateful to the Mugala's, my sisters and my whole family for all their support and encouragement none of this would have been possible without you. To my friends, you know yourselves thank you for the love and support not to forget, the long nights and the coffee runs.

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Dedication

To my family & friends

Chapter 1: INTRODUCTION

1.1. Background

Contraceptive use remains an important component in the reduction of fertility, maternal, infant and child mortality (Canning & Schultz, 2012). The use of contraceptives gives couples the ability to space child births, thus improving infant and child survival. This allows couples to fulfil their fertility desires (Saha & van Soest, 2013). Furthermore, contraceptive use prevents unintended pregnancies which may lead to unsafe abortions that usually have negative health consequences for women such as maternal deaths (Stover & Ross, 2010). Social and economic gains as a result of contraceptive use include; the empowerment of women by allowing them "to engage fully in socio-economic development and providing them with reproductive choices" (Mbizvo & Phillips, 2014, p.1). Alleviating poverty and environmental sustainability are among other benefits (Cleland et al., 2006).

Contraceptive prevalence rates among developed countries have been estimated at 72% compared to 62% for developing countries. However, contraceptive use levels of least developed nations are very low at 34% which is a cause for concern (Alkema, Kantorova, Menozzi & Biddlecom, 2013). The modern contraceptive prevalence rate in Africa stands at 31% which is substantially lower than other regions of the world such as Asia, Europe, Northern America, Latin America and the Caribbean; whose prevalence rates range between 59% - 76%, (Clifton & Kaneda, 2013). Unfortunately, contraceptive prevalence in sub-Saharan Africa is low; with a rate of only 25% for both modern and traditional use (Clifton & Kaneda, 2013). Within sub-Saharan Africa, geographical variations are

evident among sub-regions, for example countries in West Africa have contraceptive prevalence rates lower than 20% such as Senegal at 7.5%. Some countries in Central Africa have contraceptive prevalence rates as low as 5.5% (Chad). Southern Africa has the highest level of contraceptive use at 62%, with some countries such as South Africa (63.7%) and Swaziland (62.6%) peaking at over 60% (Alkema et al., 2013).

With regards to contraceptive use in the sub-Saharan African region, Malawi is considered to be a success story, by being able to increase their contraceptive prevalence rate in the past two decades from 11.6% in 1990 to its current levels of 46.1% (Alkema, et al., 2013; Clifton & Kaneda, 2013). The increase in contraceptive use was achieved despite being constrained by finances and human resources (Jacobstein, Curtis, Spieler & Radloff, 2013).

Malawi's modern contraceptive prevalence was 42.2% in 2010. Unfortunately the country's total fertility rate is still high at 5.7 births per woman (MDHS, 2011). This is an improvement but not enough compared to some of its counterparts within the Southern African region such as Zimbabwe and Swaziland that have contraceptive prevalence levels greater than 50% (Clifton & Kaneda, 2013). Hence attempting to understand the determining factors of contraceptive use would be critical in order to inform policies.

In an attempt to increase contraceptive use in Malawi, family planning programmes were introduced in 1984 with the National Child Spacing program that was integrated into the Ministry of Health's Maternal and Child Program (Chimbwete, Watkins & Zulu, 2005). This occurred after family planning was previously banned by the government in the late 1960's (Cohen, 2000; Chimbwete et al., 2005).

In 1994, the new Malawian government created a more favourable environment for the implementation of family planning programmes that saw the adoption of a national population policy, with the underlying idea that family planning was essential for development (Chimbwete et al., 2005). The national population policy's main aims were to decrease total fertility rates and increase contraceptive prevalence among other things (Solo, Jacobstein & Malema, 2005). In Malawi the public sector is the main provider of contraceptives through hospitals and clinics (Jacobstein et al., 2013). Non-governmental organizations have also contributed to the cause to increase family planning in Malawi. Organizations such as Banja La Mtsongolo (BLM), an affiliate of Marie Stopes International, the Family Planning Association of Malawi (FPAM) formed in 1994, as well as the Christian Health Association of Malawi (CHAM), FHI360 and Population Services International (PSI) are among the stakeholders in family planning that manage and facilitate community-based distribution programs (Solo et al., 2005). BLM contributes to national efforts as it manages many clinics specifically 31 clinics in 27 states and outreach programmes with the use of mobile clinics (Jacobstein et al., 2013).

Other policies that have been put in place to improve family planning are the Sexual and Reproductive Health Policy of 2010. It recommended the provision of guidelines on how to carry through family planning including different reproductive programmes (Government of Malawi, 2012). In 2012, the second National Population Policy was released which was an updated version of the 1994 policy. Its specific policy objectives were aimed at promoting having fewer children, reducing barriers to access and use of family planning, such as cultural and religious practices and increasing male engagement in reproductive health issues, to mention a few (Government of Malawi, 2012).

1.2. Problem Statement

The aforementioned programmatic efforts by government and other stakeholders, contributed to the swift increase in contraceptive use in the past two decades in Malawi.

It is within this context of improving family planning programmes that a considerable amount of research has examined different demographic and socio-economic variables in order to identify factors that have had an influence on women's contraceptive use (Lutaloet al., 2000; Oyedukun, 2007; Stephenson et al., 2007; Elfstrom & Stephenson, 2010; Nketiah-Amponsah, 2012; Nonvignon & Nonvignon, 2014). Of the most important predictors that were found to apply to Malawi are the female's age, level of education, and their approval and discussion of family planning which all increase contraceptive use (Palamuleni, 2014).

However, one aspect of demographics that has not been paid much attention to in the literature is the influence of family structure on contraceptive use.

As a result of modernization family patterns in sub-Saharan Africa are slowly being altered (Ekane, 2013). The changing face of family structure in sub-Saharan Africa sees a divergence from the traditional nuclear family to the prevalence of single parenthood particularly female-headed households (Bigombe & Khadiagala, 2003). Single parent households come about through divorce, premarital fertility and widowhood (Clark & Hamplova, 2013). In this way the marital dyad is affected through the disintegration of the traditional nuclear family with the father as the breadwinner (Ekane, 2013). Other changes noticed are that of a movement from larger families to smaller family sizes due to increased urbanization and the provision of contraceptives and the education of women (Ekane, 2013). Modernization has created opportunities for women to realize that they

have control over their reproduction which should be considered as another factor in the reduction of family size (Bigombe & Khadiagala, 2003).

Family structure is likely to have an effect on contraceptive use, as it is within this social setting of the family where reproductive decisions occur; for example decisions on family size (Veleti, 2001).

In Malawi, the family is considered as "a social structure within a household" (Chimbiri, 2006, p, 230). Family relations differ between different ethnic groups that belong to one of two social systems; the patrilineal or matrilineal systems (Chimbiri, 2006). The patrilineal system has their "lineage traced through the father and son" while the matrilineal system has their family lineage traced through the mother and daughters (Chimbiri, 2006:229). According to Chimbiri (2006), social change due to urbanization and development has slowly brought about the disintegration of traditional Malawian family structure particularly the circle of elders that had full decision making powers on economic and reproductive issues.

The power over decision-making especially with regards to reproduction is now left exclusively in the domain of the couples and individuals. These decisions are made in their own self-interest and not of the lineage heads (Chimbiri, 2006). The shift indicates that the neo-nuclear family is now the focus of economic and reproductive decision making (Chimbiri, 2006). Furthermore, polygamy is still a common practice in some parts in Malawi and exists hand in hand with monogamy (Chimbiri, 2006). Power remaining with the couple in making reproductive decisions, makes Malawi a good place to test for family structure.

The purpose of the research is to examine the likelihood that a woman would use modern contraception given different dimensions of family structure. Literature research of the studies in Africa shows little evidence of such a study in Malawi.

1.3. Research Question

Does family structure affect female modern contraceptive use in Malawi?

General Objective:

To examine the relationship between family structure and modern contraceptive use in Malawi.

Specific Objectives:

- To measure the levels and patterns of modern contraceptive use in Malawi.
- To examine the association between different dimensions of family structure and modern contraceptive use in Malawi.

1.4. Justification

Contraception has been researched quite extensively in order to determine the factors that affect its use (Audu, et al., 2007; Emina et al., 2014; Worku et al., 2015). Existing studies that have examined the effect of family structure on contraceptive use have been focused in Asia and fewer in Africa (Jayaraman et al., 2009; Calhoun et al., 2013).

This study looks at all women of reproductive age (15-49 years) that are sexually active regardless of marital status. This allows the investigation to target groups considered to be neglected such as the female youth, women from poor resource backgrounds and unmarried women who face even greater difficulties than married women in accessing contraception (Creanga, 2011; Mbivzo & Phillips, 2014). Given the benefits of contraceptive use, this makes it an important topic for research. The research will inform programs seeking to increase modern contraceptive use uptake in Malawi and subsequently the rest of sub-Saharan Africa. Increasing contraceptive use especially modern contraceptive use will help the Malawian government in achieving some of the goals of its Growth and Development Strategy 2011-2016. This national development strategy stipulates the country's long-term development goals and priorities and is the second of its kind following the previous development strategy from 2006-2010 (World Bank, 2012). It directly addresses goals to manage population growth, in order to sustain socio-economic development and furthering other goals such as the promotion of the small family concept and improving access to sexual and reproductive health for the youth (World Bank, 2012).

The research will contribute towards the goals of the Malawi Health Sector Strategy Plan (HSSP) of 2011 to 2016, which is a national plan with the hope of improving the health status of people in Malawi (MDHS, 2011). Specifically it will inform strategies that will be used to tackle goals on reducing maternal mortality from its current level of 675 deaths per 100,000 births to 155 deaths per 100,000 births and raising modern contraceptive prevalence from its current level of 42% to 60% by 2015-2016 (MDHS, 2011).

Malawi like many countries in sub-Saharan Africa is still faced with many reproductive health challenges (Jacobstein et al., 2013). These challenges include issues such as high

fertility rates, high HIV prevalence, maternal mortality and teenage pregnancy. These challenges can be remedied by effective use and access to contraceptive use. Among them is maternal mortality which is still high at 675 deaths per 100,000 births (Colbourn et al., 2013). Malawi's population growth is projected to increase to 41 million by 2050 from 16 million in 2013 which is more than double the current levels. HIV prevalence is 10.8% (Haub & Kaneda, 2013). Lastly the country's total fertility rate is still high at 5.7 births per woman which still needs to be addressed (Jacobstein et al., 2013). Furthermore, Malawi has issues of unintended pregnancies; for example in 2013 it was estimated that 54% of pregnancies were unintended (Vlassoff & Tsoka, 2014). The study will contribute to the body of existing literature on contraceptive use, specifically understanding different family structure dimensions and their influence on women's contraceptive use in Malawi. Furthermore, it has an implication for family planning programs in the country as it will help enhance strategies to improve women's access to family planning services, if family structure is seen to have contributed to the increase in contraceptive use in Malawi.

1.5. Definitions

Contraceptive use: Measures taken in order to avoid pregnancy and sexually transmitted diseases

Modern Methods of Contraceptive use: This includes methods such as the pill, intrauterine device (IUD), injection, condom, sterilization, diaphragm, foam/jelly, implants, and female condom**.**

Family Structure: Family structure refers to "the diversity of types of family unit and composition" (Turagabeci et al., 2007:2). These include features such as head of the household, type of marital union, the family type; nuclear or extended, family size, sex composition of the family.

Chapter 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Introduction

This section reviews relevant literature on the determinants of contraceptive use; including literature on family structure and contraceptive use; the theoretical framework; conceptual framework and the research hypotheses that guided the study. The literature review is sub-divided into three sections; global reviews, sub-Saharan African reviews and an overview at the country level.

2.1.1 Global Reviews

Globally contraceptive use has increased in the last 2 decades from 54.8% in 1990 to 63.3% in 2010 (Alkema et al., 2013). In developing countries contraceptive use increased from 51.8% in 1990 to 62% in 2010. Incidentally there are substantial regional variations in contraceptive use; sub-Saharan Africa has the lowest prevalence at 25% compared to other regions that have contraceptive prevalence rates above 50% to as high as 78% (Clifton & Kaneda, 2013). Previous research on the determinants of contraceptive use has looked at various factors at individual, household and community levels.

A study on Qatari women by Arbab, Bener & Abdulmalik (2011), established that illiterate women were less likely to use a family planning method than more educated women. A study conducted by Koc (2000), in Turkey among married women, using the 1993 Turkish Demographic and Health Survey (DHS), found a positive association

between the educational level of a woman and the use of contraceptives. Within the study women's education was a stronger predictor of contraceptive method use and choice than the level of education of her spouse (Koc, 2000).

An association between the age of women and contraceptive use has also been established. A study by Rasooly, Ali, Brown and Noormal (2015), found that at older ages the odds of using contraception were lower. Another study conducted in Canada by Black, Yang, Lalonde, Guilbert and Fisher (2009), found a similar association between age and contraceptive use.

Religion has been shown to have an effect on the use of contraception. A study by Heaton (2011), in developing nations in Africa, Asia and Latin America looked at how the norms of religions affect contraceptive use and subsequently fertility. Heaton (2011), highlighted that Muslims tend to have larger families than other religions, as this is a norm for them ideas such as birth control may be a bit hard to incorporate as this is not usually part of their culture.

The probability of contraceptive use has also been shown to increase with the number of living children that a woman has. Koc (2000) discovered that couples with 2 or more children were more likely to use contraceptives than couples with less than two children. Childless couples were also less likely to use contraception. A study by Jayaraman, Mishra and Arnold (2009), who looked at three South Asian countries, examined the relationship between family size and composition, on fertility desires, contraceptive adoption and method choice. It was found that of the four parity categories estimated for family size; the likelihood of contraceptive use increased with the number sons a woman had at each parity, peaking among women with two sons and declining among women with three or more sons (Jayaraman et al., 2009).

An association between the sex of a couple's living children and contraceptive use was established (Hussain et al. 2000; Koc, 2000; Calhoun et al. 2013; Akhter & Haque, 2014). Koc (2000), found that couples with only daughters are much less likely to use contraception. Calhoun, Nanda, Speizer and Jain (2013), looked at how family sex composition in urban Pradesh, India, affects fertility behaviours and family planning. The study suggested that a woman would only use family planning once she has the number of boys she desires and would be more likely to use a modern method (Calhoun et al., 2013). Women with no sons and one or more daughters were less likely to be modern family planning users than non-users compared to women that had both sons and daughters but more daughters (Calhoun et al., 2013). In addition women with both sons and daughters but had more sons were more likely to be modern family planning users than women with both sons and daughters but a greater number of daughters (Calhoun et al., 2013). Some studies have examined this relationship with a focus on determining gender preference for either daughters or sons (Hussain et al., 2000; Calhoun et al., 2013). Despite showing evidence of son preference these studies demonstrated women's fertility control behaviours when faced with different sex compositions of sons and daughters.

2.1.2 Sub-Saharan Africa Reviews

Studies in sub-Saharan have examined determinants of contraceptive use in order to establish factors that influence its adoption (Feyisetan, 2000; Stephenson et al., 2007; Audu et al., 2008; Okezie, et al., 2010; Nketiah-Amponsah et al., 2012; Emina, et al., 2014). Some studies highlighted the effect of education on contraceptive use; showing a positive association between women's education and contraceptive use (Okezie, et al., 2010; Emina, et al., 2014). Women with at least secondary education and higher, had a

greater use of modern contraceptives compared to their counterparts at lower levels of education (Stephenson et al., 2007; Emina et al., 2014). Other studies have also considered the influence of a husband's education on a woman's use of contraception. Feyisetan, (2000) established that a woman's educational level is a greater predictor of contraceptive use than that of her male counter-part. However Okezie, Ogbe and Okezie (2010), found that on the contrary - a husband's education actually increased the likelihood of contraceptive use.

A woman's age has also been associated with contraceptive use. A study by Lutalo et al. (2000), in Rakai District, Uganda, revealed that contraceptive use increased significantly between the ages of 20-29 and 30-39 years of age, then begins to decrease after 39 years.

Place of residence, either urban or rural, has been shown to have an effect on a woman's contraceptive use. Women in urban areas are more likely to use contraceptives than women in rural areas (Nketiah-Amponsah, Arthur & Abuosi et al., 2012).

Studies have established that marriage type, predominantly polygamy, has an effect on contraceptive use and consequently fertility. Audu et al. (2008) conducted a study in Nigeria and found that women in polygamous marriages were less likely to use contraceptives compared to women in monogamous marriages. The reason for the lower use of contraceptives by women in polygamous marriages is as a result of constant competition within the household. The more children a wife had, helped determine her control over household matters (Audu et al., 2008). The study also proved assumptions that women in polygamous marriages are less likely to use contraception if they had no male children or the majority of children were female (Audu et al., 2008).

In a study in Niger conducted by Peterson (1999), it was found that rural-urban differentials had a bearing on the association between the type of marriage and the use of contraception. As most women in polygamous marriages lived in rural areas, they were less likely to use contraceptives than women in monogamous marriages. Reasons for this were attributed to the poor provision of health services in rural areas (Audu et al., 2008).

Men have a crucial role to play in family planning, as in some societies their approval of family planning is necessary for use. Spousal approval and women's own approval of contraceptive use are seen to be major determinants of contraceptive use (Lutalo et al. 2000). Oyedekun (2007) in a study in Nigeria in Osun State among women of reproductive age found a different result. He suggested that approval of contraceptive use by the respondent did not always translate in actual use.

An association between the discussions of family planning between partners is expected to increase contraceptive use (Feyisetan, 2000; DeRose et al. 2004; Mohammed, et al. 2014). DeRose et al. (2004) in their Kenyan study found that couples who discussed family planning were 2-10 times more likely to use contraceptives than those that had not. Family planning discussion is also strongly associated with the adoption of modern contraception use (Feyisetan, 2000).

Women empowerment has increasingly become important in improving the reproductive health of females (Do & Kurimoto, 2012). It can be measured by women's status, autonomy, involvement in decision making and freedom of mobility (Al Riyami, Afifi & Mabry, 2004). Do & Kurimoto (2012), showed that women who are more involved in household decision making are more capable of handling their contraceptive use and consequently their own fertility.

Studies have established a link between the number of living children a woman has or her family size and her contraceptive use (Nketiah-Amponsah, 2012; Mohammed et al., 2014). A study conducted in Ethiopia by Mohammed, Woldeyohannes, Feleke and Megabiaw (2014) found that women who had one or more children were more likely to use contraceptives compared to women who had none (Mohammed et al., 2014). This implies that the increase in the number of living children increased the likelihood of the use of modern contraception (Mohammed et al., 2014). A study by Mtae & Mwageni (2014), found that family size and actual sex composition of children had an effect on contraceptive use. More specifically contraceptive use was lower for respondents who had no children and higher among women with larger family sizes. This was because most women with larger family sizes such as six children would have already reached their desired number of children (Mtae & Mwageni, 2014). The relationship between current family sex composition and the use of contraceptives was also dependent on ones desired family sex composition (Mtae & Mwageni, 2014).

Socio-cultural variables such as religion and ethnicity have also been shown to have an effect on current contraceptive use. Stephenson, Baschieri, Clements, Hennink and Madise (2007) found an association between religion and contraceptive in West Africa and East Africa. In Malawi, Muslims were less likely to use modern contraceptives than Catholic women. In the Ivory Coast, Protestants were less likely to use contraceptives compared to Catholic women (Stephenson et al., 2007).

It is assumed that the type of household, whether headed by a male or female may have an effect on women's contraceptive use (Makatjane, 1997). The study concluded that the sex of the household head did matter in the use of contraceptives although a woman's marital status and the type of method in use (modern or traditional) had a bearing on the association (Makatjane, 1997). With regards to modern contraceptive methods currently

married women residing in male-headed households were more likely to use modern contraceptives than their counterparts in female-headed households who were more likely to use traditional methods (Makatjane, 1997). On the other hand, for women who had never been married, of those residing in female-headed households were more likely to use modern contraceptives than their counterparts in male-headed households. For previously married women, their contraceptive use is not influenced by the sex of the household head (Makatjane, 1997).

2.1.3 Country-specific reviews: Malawi

Studies in Malawi have established education as a major predicator of contraceptive use (Cohen, 2000; Adebowale et al., 2014; Palamuleni, 2014). A study by Palamuleni (2014), in Malawi, using the 2000 and 2004 Malawi Demographic and Health Surveys, amongst married women of reproductive ages 15-49 years, showed that higher educational levels increased the likelihood of her using contraceptives. The rationale is that women with a better education can "appreciate the advantages of having fewer and better educated children" (Cohen, 2000, p.854). Women with no education were less likely to use contraception compared to women with secondary and higher education. Women with primary education were 0.61 and 0.70 times less likely to use contraceptives than women in secondary and higher education in 2000 and 2004 respectively (Palamuleni, 2014). Adebowale et al. (2014), found a similar result – that the current use of modern contraceptives increased with the level of education.

In Malawi it has been shown that contraceptive use increases with the number of children born and the number of living children a woman has (Palamuleni, 2014; Adebowale et al., 2014). For example, women with no children were less likely to use contraceptives than women with more than five children (Palamuleni, 2014).

Studies have established an association between wealth status and contraceptive use. A study by Adebowale, Adedini, Ibisomi & Palamuleni (2014) found that the current use of modern contraception was 1.66 times more likely among women within the richest wealth quintile compared to their counterparts in the poorest wealth quintile.

Studies based in Malawi have found an association between religion and contraceptive use (Yeatman & Trinitapoli, 2008; Adebowale et al., 2014). Adebowale et al. (2014) found that among religious groups the greater proportion of women currently using a modern contraceptive method were Christian compared to Islamic women. A study by Yeatman & Trinitapoli (2008), in rural Malawi discovered that of the different religious groupings, Catholics were more likely to use contraceptives while Muslims and Protestants were less likely. It went further than most studies on religion and found that congregational differences rather than denominational differences had a greater impact on contraceptive use.

2.2 THEORETICAL FRAMEWORK

The Rational Choice theory was used to explain how family structure may have an influence on modern contraceptive use. The theory postulates that social phenomena could be reduced to individual actions (Browning, Halcli & Webster, 2000). The main

assumption of the theory is that individuals are rational decision-makers and make decisions based on the calculated expected outcomes of each of their options and select the most beneficial one (Hechter & Kanazawa, 1997). "Action is rational and calculative…hence individuals are seen as motivated by their wants or goals that express their preferences" (Browning et al., 2000, p. 127). Individuals act within specific, given constraints and on the basis of the information that they have about the conditions under which they are acting. The theory can be used to explain how women make choices on using contraception; they evaluate their decisions according to their contexts and the conditions in which they are faced with. For example, if a woman with only daughters wants to have a son, her reproductive behaviour will be guided by this goal. To achieve this goal she would consider her options and evaluate each one according to her current situation and if there are any constraints involved. An option could be postponing the use of birth control in order to achieve her desired sex composition of children; hence, the chances of using contraceptives would be highly unlikely.

2.3 CONCEPTUAL FRAMEWORK

Figure 1 shows the conceptual framework adapted from the rational choice theory (Browning et al., 2000). As mentioned before women are aware of the conditions under which they act, and their decisions are based on these conditions and constraints. Hence, their decision-making is based on perceived costs and benefits of the actions they are considering. For example, the action to use modern contraceptives may yield the benefit of preventing pregnancy but a possible cost would be the financial burden placed on the individual if contraceptives available have a high cost attached to them and the individual is from a poor resource background. Hence, these costs and benefits would be weighed out in order to make a decision on further action.

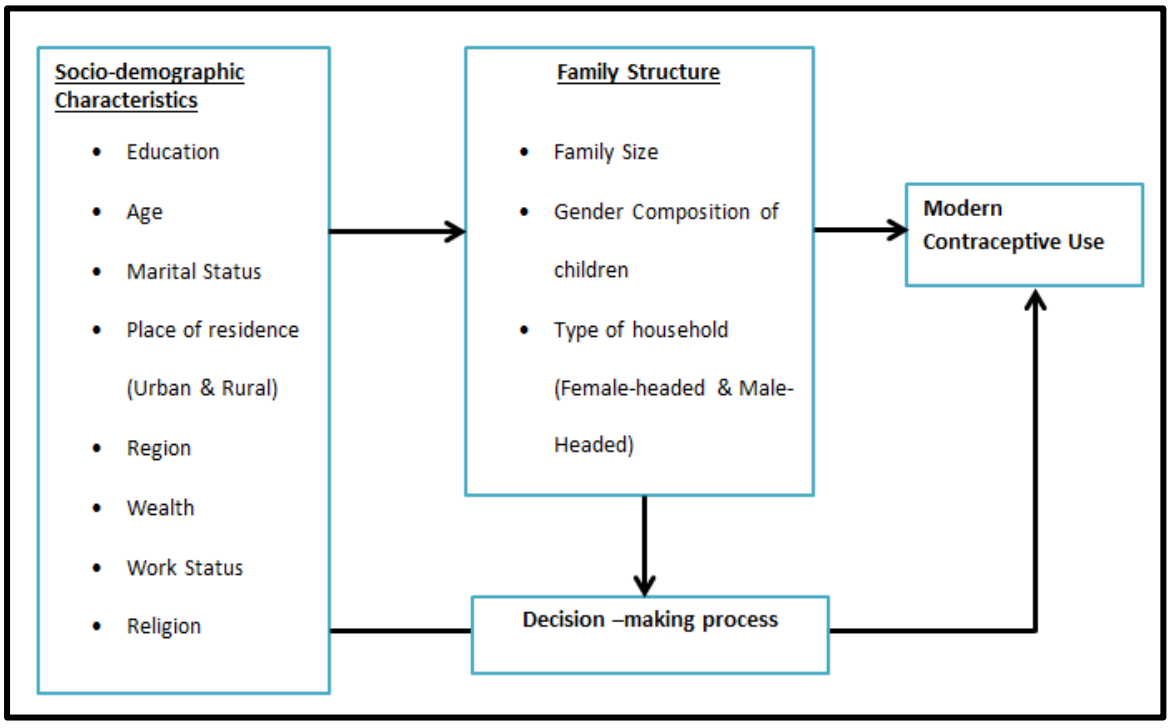


Figure 1: Adapted from the Rational Choice Theory

The arrows indicate the direction of the relationship between each set of the variables showing the pathway through which family structure has an influence on modern contraceptive use. It is anticipated that socio-demographic factors indicated above may affect contraceptive use directly but may also provide a favourable environment, in which family structure variables that act as control variables and may assist or hinder the use of modern contraceptives.

Hypotheses:

The hypotheses tested were:

H_0: There is no relationship between family size and modern contraceptive use

H_1: There is a relationship between family size and modern contraceptive use

H_0: There is no relationship between the sex composition of children and modern contraceptive use

H_1: There is a relationship between the sex composition of children and modern contraceptive use

H_0: There is no relationship between the sex of the household head and modern contraceptive use

H_1: There is a relationship between the sex of the household head and modern contraceptive use

Chapter 3 – METHODOLOGY

3.1 Introduction

This chapter describes the setting and methods of the study. It gives a detailed explanation of the study setting, survey design, population and sample, instruments, variable identification, steps in data analysis, statistical analysis, ethics and limitations that were considered in this study**.**

3.2 Study Setting

The study is set in Malawi, a landlocked country located in Southern Africa. Its neighbours are Tanzania to the North and North East, Zambia to the West and North West and Mozambique to the East, South and South West. The total population is 13,077, 160 according to the 2008 Census (National Statistics Office, 2008). It is sub-divided into three regions, Northern, Central and Southern. A greater proportion of its economy is based on the agricultural sector. Its GNI per capita is $805 and has a low human development index of 0.414 making it one of the poorest countries in the world (UNDP, 2014).

3.3 Survey Design

The study used secondary data from the 2010 Malawi Demographic and Health Survey (MDHS, 2011) for the analysis. It is a large, nationally representative sample survey providing information on particular health indicators such as; fertility, family planning, child and maternal mortality including their health services and HIV/AIDs statuses of men and women in the country. A stratified two stage cluster sampling design was used to determine the sample. The sample included 849 clusters in the first stage and the second stage comprised of 27, 345 households. And a total number of 24, 000 women and 7000 men were interviewed (MDHS, 2011).

3.4 Study Population and Sample

The study population included women of reproductive age (15-49 years) interviewed at the time of the survey in Malawi. The actual sample was a total of 23, 748 women. A total of 23, 020 women were interviewed indicating a 97% response rate. The analysis was limited to a sample of 12,490 women of reproductive age, who were sexually active, not pregnant, fecund, not menopausal and amenorrheic. This was because this group of women were more likely to use contraceptives (Nonvignon & Nonvignon, 2014).

Weighting was applied to the survey data "to correct for disproportionality of the sample with respect to the target population of interest" (Pfeffermann, 1993, p.317). It further accounts for unequal sample inclusion of the sampling frame and non-response of the

sample used (Pfeffermann, 1993). As the source data is a survey the prefix "svy" was placed in front of statistical commands in order to apply the weighting factor.

3.5 The instruments

The 2010 Malawi Demographic and Health Survey consists of three questionnaires; the household, women's and men's questionnaires. The women's questionnaire that was used included data on women of ages 15-49 which included questions on: background characteristics (education, residential history, media exposure, etc.), birth history and childhood mortality, knowledge and use of family planning method, fertility preferences, antenatal, delivery, postnatal care, breastfeeding and infant feeding practices, women's and children's nutritional status, vaccinations and childhood illnesses, marriage and sexual activity, women's work and husband's background characteristics, malaria prevention and treatment, awareness and behaviour regarding AIDS and other sexually transmitted infections (STIs), adult mortality, including maternal mortality and domestic violence (MDHS, 2011).

3.6 Variable Definition and Measurement

3.6.1 The Outcome variable

Current Contraceptive Use

The outcome variable was current use of modern contraceptives. Information on contraceptive use was obtained from a question in the survey schedule that asks whether a respondent is currently using any method of contraception with the following question, "Are you doing something or using any method to delay or avoid getting pregnant?" To obtain the specific method a follow-up question is asked "Which method are you using?" The variable was computed using the variable "current contraceptive use method" which has options of ("not using", pill, IUD, injections, condom, female sterilization, male sterilization, norplant and female condom, periodic abstinence, withdrawal and other). This variable was recoded to create a binary outcome indicating whether a woman was using a modern contraceptive method or not using any contraceptive at the time of the survey. "1" indicated "using modern contraception" which included all modern methods of contraception (pill, IUD, injections, condom, female sterilization, male sterilization, norplant and female condom) and "0" indicated "not using contraception" which included not using a contraceptive method and all traditional methods of contraception.

The Control Variables

Family Structure Variables

Family Size

Family size is a continuous variable describing the number of living children that a woman has. The number of living children above seven (7) was declared missing, as the total fertility of the country was 5.7 births per woman and a minimal number of women had children over seven (7) hence allowing for robust analysis.

Type of Household

Type of household is a categorical variable that describes the type of household in which a woman resides, whether male-headed or female-headed.

Sex composition of Children

Sex composition is a categorical variable that describes the sex composition of a woman's living children. It was grouped into three categories; respondents who had only boys, respondents who had only girls and respondents who had a combination of boys and girls.

3.6.2 The Independent variables

Each independent variable was selected based on its association with contraceptive use in previous contraceptive use studies.

Age

Age is a categorical variable describing the respondents age in single years which range from 15 to 49 years. This variable was categorized into the following age groups: 15-24 years the youth following 25-34, 35-44 and 45 years and older.

Marital Status

Marriage is a categorical variable describing self-reported marital status of respondents that had options; (never married, married, living together, widowed, divorced and not living together). The variable was categorized into "never married", married and living together were combined to form "Currently married" and Widowed, while Divorced and Not living together were combined to form "Formerly married".

Residence

Place of residence is a categorical variable describing the type of residence, either urban or rural.

Education

Education is a categorical variable describing the self-reported educational attainment of women into four categories - No education; Primary education; Secondary education; and Higher education).

Region

Region is a categorical variable that described the region of the country in which respondents resided, which was Northern region, Central region or Southern region.

Employment Status

Employment status is a categorical variable that describes the respondent's occupation The options included; not working, professional, technical, managerial, clerical, sales, agric-self-employed, household and domestic services, skilled manual and unskilled manual, for which a dummy variable was created, for those women who were either "working" or "not working".

Wealth Status

Wealth status is created from the wealth index variable which is a reflection of a household's socioeconomic status. It is a proxy measure of long-term standard of living. It is based on a series of factors such as "household's ownership of consumer goods; dwelling characteristics; type of drinking water source; toilet facilities and other characteristics related to a household's socioeconomic status" (MDHS, 2011, p.22). Wealth status is a categorical variable describing the wealth category of the household to which the respondent resided; given as: Poorest, Poorer, Middle, Richer, Richest, which was recoded into three categories of: Poor, Middle and Rich.

Religion

Religion is a categorical variable that describes respondent's self-reported religion, which had options of: Catholic, CCAP, Anglican, Seventh Day Advent/Baptist, Christian, Muslim, and No religion/Other. This was re-categorised into four categories, which were: Catholics. Other Christians (which comprised of CCAP, Anglicans, Seventh day Adventists/Baptists and other Christians) Muslims and other religious groups. This grouping was chosen, as Catholics and Muslims are distinctly known not to be in favour of the use of contraception (Hayford & Morgan, 2008; Palamuleni, 2014).

Table 1: Description and measurement of Dependent, Control and Independent Variables

Variable	Description	Measurement
Dependent Variable		
Contraceptive Use	Current contraceptive use	Categorical Yes=1 No=0
Control Variable		
Family Structure		
Family size	Number of living children	Continuous
Sex composition of children	Number of living sons and daughters	Categorical 1=Only Boys 2=Only Girls 3=Both Boys & Girls
Type of Household	Sex of household head	Categorical 1=Male-headed 2=Female-headed
Independent variables		
Variable	**Description**	**Measurement**
Age	Age of respondents in single ages 15-49 years	Categorical 15-24 25-34 35-44 45+
Marital Status		Categorical **Recoded** 1=Never Married 2=Currently Married 3=Formerly Married
Residence	Urban or Rural	Categorical 1=Urban 2=Rural
Education	Educational attainment	Categorical 1=No education 2=Primary 3=Secondary

		4=Higher
Region	Region of Residence	Categorical 1=Northern 2=Central 3=Southern
Independent variables		
Variable	**Description**	**Measurement**
Employment Status		Categorical 1=Not working 2=Working
Wealth Status		Categorical 1=Poor 2=Middle 3=Rich
Religion	Catholic, CCAP, Anglican, Seventh day advent/ Baptist, Other Christian, Muslim, No religion, other	Categorical **Recoded** 1=Catholics 2=Other Christians 3=Muslims 4=Other

3.7 Data management

The survey data was downloaded from the Demographic & Health Surveys Programs website. (http://dhsprogram.com/). The analysis was carried out using STATA Statistical Software version 12

3.8 Data & Statistical analysis

Analyses were conducted at three levels, namely: the univariate, bivariate and multivariate levels, in order to address the objectives of the research.

3.8.1 *Objective 1: To measure the levels and patterns of contraceptive use in Malawi.*

The level of contraceptive use was determined using frequencies and percentages of modern contraceptive use. It was further addressed by the use of a chi-square test in order to identify whether family structure had a significant association with current modern contraceptive use. Below is the chi-square formula.

$$\chi^2 = \sum \frac{(o-e)^2}{e}$$

Where:

$\boldsymbol{\chi^2}$ =chi-square value

o=Observed value

e=Expected value

3.8.2 Objective 2:To examine the association between different dimensions of family structure and contraceptive use in Malawi

This objective was addressed using binary logistic regression analysis as the dependent variable modern contraceptive use was dichotomous. Below is the multivariate logistic regression formula:

$$\text{logit}(p(x)) = \log\left(\frac{p(x)}{(1-p(x))}\right) = \alpha + \beta_1 x_1 + \beta_2 x_2 \ldots \beta_i x_i$$

Where: $\left(\frac{p(x)}{(1-p(x))}\right)$ is the probability that the event will occur dependent variable (contraceptive use); α = constant; βi = coefficients,

x_i = independent variables (Burns & Burns, 2008).

Three models were fitted to establish the association between family structure and current modern contraceptive use. These models were guided by the conceptual framework used within in the study. The probability of modern contraceptive use was expressed as odds ratios; these were reported from the analysis at the 5% level of significance. Categories were taken to be significant if the odds ratios that were less than 0.05 and confidence interval at 95%.

Below are the models carried out in the regression analysis:

Model 1

The first model examined the independent association between socio-demographic variables and modern contraceptive use as the conceptual framework indicated that these have a direct effect on modern contraceptive use.

Model 2

The second model examined the gross association of family structure on modern contraceptive use.

Model 3

Forward stepwise regression at the 5% level was conducted in order to identify critical variables which were then included in Model 3. Model 3 examined the net effect of family structure on modern contraceptive use controlling for socio-demographic factors.

3.9 Ethical Issues

The study used secondary data from the 2010 Malawi Demographic and Health Survey. According to procedures of research, consent and ethics clearance were obtained prior to the survey. Hence the respondents were not placed in any danger and the study posed no threat to them.

Chapter 4: RESULTS

4.1 Introduction

This chapter describes the results of the study.

4.2 Distribution of characteristics of study population

Table 2: Frequency and Percentage Distribution of the study population (15-49 years), Source: MDHS, 2010

Characteristics of the study Population		
	Frequency	**Percentage**
Mean Family Size : 2.8		
No Children	1583	13.44
1	2016	17.14
2	2083	17.75
3	2047	16.90
4	1667	13.55
5	1256	10.35
6	912	6.82
7	531	4.06
Total	**12095**	**100**
Type of household		
Male-Headed	8851	71.30
Female- Headed	3639	28.70
Total	**12490**	**100**
Sex Composition of children		
Only Sons	1915	15.69
Only Daughters	3516	28.68
Both Sons & Daughters	7059	55.62
Total	**12490**	**100**
Age		
15-24	3625	29.59
25-34	4555	36.92
35-44	3100	24.51
45+	1210	8.98
Total	**12490**	**100.00**
Education		
No education	2062	16.75
Primary Education	8067	62.80
Secondary Education	2145	18.30
Higher Education	216	2.16
Total	**12490**	**100.00**
Marital Status		
Never Married	1172	9.70
Married	8983	72.54
Formerly Married	2335	17.76

Total	**12490**	**100.00**
Region		
Northern	2238	11.50
Central	4077	41.20
Southern	6175	47.29
Total	**12490**	**100.00**
Residence		
Urban	1876	20.53
Rural	10614	79.47
Total	**12490**	**100.00**
Wealth Status		
Poor	4615	35.06
Middle	2467	18.69
Rich	5408	46.25
Total	**12490**	**100.00**
Religion		
Catholic	2524	20.42
Other Christians	8500	66.21
Muslims	1350	12.91
Other	28	0.45
Total	**12402**	**100.00**
Employment Status		
Not working	2750	22.61
Working	9740	77.39
Total	**12490**	**100.00**

Table 2 describes the distribution of the characteristics of the study population. The majority of women in the sample had a family size of 2 children (18%). Women who have only one child made up 13% of the total study population. Of the respondents, 13% had no children, 17% had a family size of 3 children, 14% had a family size of 4 children, 10% had a family size of 5 children, 7% had a family size of 6 children, and the remaining 4% had a family size of 7 children.

The majority of respondents resided in male-head households (71%) while 29% resided in female-headed households. The majority of respondents had both sons and daughters (56%) while 16% only had sons and 29% only had daughters.

The mean age of respondents in the sample was approximately 31 years. The majority of the respondents were within the age range 25 to 34 years (37%), 30% between 15 to 24 years, 25% between 35 to 44 years and the remaining 9% were 45 years and over.

The majority of the respondents had attained primary education (63%), while 18% had attained secondary education, 17% had no education while 2% of had attained tertiary education. This indicates the poor literacy levels among women in Malawi.

A larger proportion of respondents were married (73%), whereas 18% were formerly married and the remaining 10% had never been married. Geographically the highest percentage of respondents came from the Southern region (47%), followed by the Central region (41%) and then the Northern region (12%).

The majority of respondents lived in rural areas (79%) while 21% lived in urban areas. About 46% of respondents were within the richest wealth quintile, 35% within the poorest wealth quintile and 19% within the middle wealth quintile. The majority of the respondents belonged to other Christian denominations (66%), followed by Roman Catholics (20%), Muslims (13%) and about 0.5% of the respondents belonged to other religious groups. Respondents in employment were 77% and 23% were currently unemployed.

4.3 Levels and patterns of modern contraceptive use among women in Malawi

Table 3: Contraceptive prevalence of women of reproductive age (15-49 years) in Malawi, 2010

Dependent Variable	Frequency	Percentage (%)
Modern contraceptive use		
Using	6009	47.92
Not Using	6481	52.08
Total	**12490**	**100**

Table 3 and figure 2 show the level of modern contraceptive use among women of reproductive age (15-49 years) which was 48% while the remaining 52% were not using modern contraceptives.

Figure 2: Percentage distribution of modern contraceptive use among women (15-49 years) in Malawi, 2010

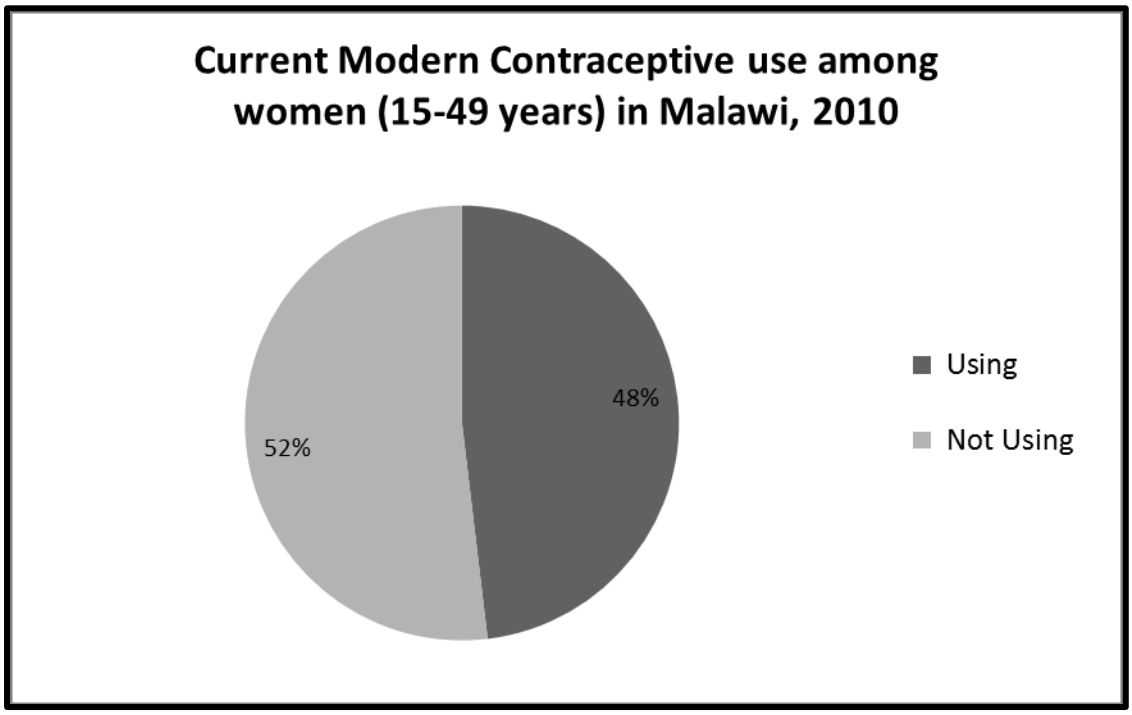


Table 4: Results showing the modern contraceptive prevalence of women of reproductive age (15-49 years) by family structure and socio-demographic characteristics in Malawi, 2010

	Current contraceptive use (%)			
Variable	**Yes**	**No**	**Chi-Square value**	**P-value**
Family Size				
0	12.32(173)	87.68(1410)	1128.4798*	**0.0000**
1	42.05(826)	57.95(1190)		
2	49.70(1033)	50.30(1050)		
3	52.71(1110)	47.29(937)		
4	58.10(970)	41.90(697)		
5	62.45(788)	37.55(468)		
6	60.35(550)	39.65(362)		
7	59.82(317)	40.18(214)		
Type of household				
Male-Headed	55.11(4900)	44.89(3951)	642.2792*	**0.0000**
Female- Headed	30.06(1109)	69.94(2530)		

Sex composition of children				
Only Sons	46.30(900)	53.70(1015)	693.9146*	**0.0000**
Only Daughters	30.39(1045)	69.61(2471)		
Both Sons & Daughters	57.41(4046)	42.59(2995)		
Marital Status				
Never Married	18.74(196)	81.26(976)	1149.4799*****	**0.0000**
Married	57.17(5208)	42.83(3775)		
Formerly Married	26.05(605)	73.95(1730)		
Age				
15-24	39.62(1439)	60.38(2186)	182.5831*	**0.0000**
25-34	53.53(2471)	46.47(2084)		
35-44	51.17(1581)	48.83(1519)		
45+	43.33(518)	56.67(692)		
Place of Residence				
Urban	51.88(963)	48.12(913)	20.2963*	**0.0108**
Rural	46.89(5046)	53.11(5568)		
Region				
Northern	47.31(1129)	52.69(1109)	29.4856*	**0.0071**
Central	50.75(1986)	49.25(2091)		
Southern	45.60(2894)	54.40(3281)		
Educational Attainment				
No Education	43.54(913)	56.46(1149)	20.1766*	**0.0057**
Primary	48.82(3964)	51.18(4103)		
Secondary	49.04(1039)	50.96(1106)		
Higher	46.05(93)	53.95(123)		
Employment Status				
Not Working	42.09(1195)	57.91(1555)	49.6652*	**0.0000**
Working	49.62(4814)	50.38(4926)		
Wealth Status				
Poor	42.67(2004)	57.33(2611)	74.5121*	**0.0000**
Middle	50.39(1225)	49.61(1242)		
Rich	50.89(2780)	49.11(2628)		
Religion				
Catholic	48.61(1245)	51.39(1279)	110.4697*	**0.0000**
Other Christians	50.03(4220)	49.97(4280)		
Muslim	35.86(496)	64.14(854)		
Other	57.22(11)	42.78(17)		

Note: * - relationship is significant ay the 5% level

Table 4 presents the chi square association of contraceptive use by family structure and selected socio-demographic characteristics in Malawi in 2010, the asterisk against the figures indicates that the particular variable was significant.

Results showed that there was a significant association between family size, sex composition of children, type of household and modern contraceptive use. Specifically 12% of women that had no children were using contraceptives, 42% of those that had one child, 50% of those that had a family size of 2 children, 53% of women with family size of 3 children, and 58% of women with a family size of 4 children. For women with a family size of 5, 62% were using contraceptives, 60% of those with a family size of 6 and lastly 60% of those with a family size of 7 children.

Modern contraceptive use significantly varied by the type of household. Contraceptive prevalence was higher among respondents that resided in male-headed households at 55% in comparison to those that resided in female-headed households (30%). Modern contraceptive use was highest among respondents who had both sons and daughters at 57%, respondents who had only sons had a contraceptive prevalence of 46% and respondents had only daughters had a prevalence of 30%.

Contraceptive prevalence was highest among married women (57%), followed by formerly married women (26%) and never married women (19%).

Among women were using modern contraception 40% were 15-24 years, 54% were 25-34 years, 51% were 35-44 years and 43% were 45 years and above. About 52% of respondents who lived in urban areas were using modern contraceptives compared to 47% that lived in rural areas.

According to the regions, modern contraceptive use was highest in the Central Region at 51% followed by the Northern Region at 47% and the Southern Region at 46%

Respondents that had attained primary and secondary education had the highest prevalence rate at 49% each. While women that had attained higher education had a

contraceptive prevalence of 46% and the lowest was among respondents that had no education (44%).

Modern contraceptive prevalence was higher among respondents who were working (50%) compared to respondents who were not working at (42%). Women within the rich wealth quintile had the highest contraceptive prevalence of 51%, followed by respondents from the middle wealth quintile (50%) and then respondents from the poor wealth quintile (43%).

Modern contraceptive use was highest among other religious groups (57%) followed by other Christian denominations (50%), then Catholics (49%) and Muslims (36%).

4.4 Determinants of modern contraceptive use of women of reproductive age 15-49 years

Four models have been used to examine the association between different dimensions of family structure on modern contraceptive use in Malawi.

4.4.1 Independent effects of socio-demographic variables on modern contraceptive use

Table 5: Logistic Regression results showing the adjusted odds ratios, 95% confidence interval and associated p-values of socio-demographic variables and modern contraceptive use in Malawi, 2010

Characteristics		
	Odds Ratios	**Confidence Intervals**
Marital Status		
Never Married **(RC)**	1.00	
Married	5.72*	4.51 -7.24
Formerly Married	1.47*	1.15-1.88
Age		
15-24	1.00	
25-34	1.30*	1.15-1.48
35-44	1.31*	1.14-1.50

45+	1.02	0.84-1.24
Place of Residence		
Urban**(RC)**	1.00	
Rural	0.83	0.69-1.00
Region		
Northern**(RC)**	1.00	
Central	1.26*	1.01-1.56
Southern	1.13	0.91-1.41
Educational Attainment		
No Education **(RC)**	1.00	
Primary	1.28*	1.12-1.46
Secondary	1.50*	1.23-1.83
Higher	1.55*	1.05-2.31
Employment Status		
Not Working**(RC)**	1.00	
Working	1.22*	1.08-1.38
Wealth Status		
Poor **(RC)**	1.00	
Middle	1.21*	1.06-1.39
Rich	1.20*	1.06-1.36
Religion		
Catholic**(RC)**	1.00	
Other Christians	1.04	0.92-1.19
Muslim	0.60*	0.49-0.75
Other	1.34	0.40-4.29

Note: RC: Reference category, Level of significance p<0.05, CI 95% Confidence Interval

Table 5 shows the results of the odds ratios and confidence intervals of the association between socio-demographic variables and modern contraceptive use.

Marital status was found to be significant with modern contraceptive use. Respondents who were married were 5.7 times more likely to use modern contraceptives compared to respondents who had never been married. Respondents who were formerly married were 1.5 times more likely to use modern contraceptives compared to never married respondents.

Women 25-34 years (1.3) had higher odds of using modern contraception than women 15-24 years. Women 35-44 years were also 1.3 times more likely to use modern contraceptives than women 15-24 years. Women 45 years and above had even odds of using modern contraceptives compared to women 15-24 years.

The results also showed a significant association between place of residence and modern contraceptive use. Rural respondents were 0.8 times less likely to use modern contraception compared to urban respondents.

Women in the Central region were 1.3 times more likely to use modern contraceptives than respondents in the Northern region.

Education was significantly associated with modern contraceptive use. Women with primary (1.3), secondary (1.5) and higher education (1.6) all had higher odds of using modern contraception compared to women with no education.

Employment status was significantly associated with modern contraceptive use as working respondents were 1.2 times more likely to use modern contraceptives than respondents who were not working.

Wealth status was significantly associated with modern contraceptive use. Respondents within the middle and rich wealth quintiles were both 1.2 times more likely to use modern contraceptives than women within the poor wealth quintile.

With regards to religion, there was a significant difference between Muslim respondents who were 0.6 times less likely to use modern contraceptives compared to Catholic respondents.

4.4.2 Independent effects of family structure on modern contraceptive use

Table 6: Logistic Regression Analysis showing the odds ratios, 95% confidence interval ad associated p-values of family structure and modern contraceptive use in Malawi, 2010

Characteristics		
	Odds Ratios	**Confidence Intervals**
Family Size		
	1.22*	1.18-1.27
Type of household		
Male-Headed (**RC)**	1.00	
Female-Headed	0.35*	0.31-0.39
Sex composition of children		
Only Sons	1.00	0.86-1.17
Only Daughters	0.59*	0.51-0.69
Both Sons and Daughters **(RC)**	1.00	

Note: RC: Reference category, Level of significance p<0.05, CI 95% Confidence Interval

Table 6 shows the odds ratios of the association between family structure and modern contraceptive use. The results showed that family size was significantly associated with modern contraceptive use. With every one unit increase of family size there is a 1.2 unit increase in the odds of using modern contraceptives. Women in female-headed households were 0.35 time less likely to use modern contraceptives than women in male-headed households. Women with only daughters were 0.59 times less likely to use modern contraceptives compared to women with a combination of sons and daughters.

4.4.3 Adjusted effects of family structure controlling for socio-demographic variables on modern contraceptive use

Table 7: Odds ratios and confidence intervals of contraceptive use by family structure and socio-demographic characteristics of women of reproductive age (15-49 years), Malawi, 2010.

Characteristics		
	Odds Ratios	**Confidence Intervals**
Family Structure		
Family Size		
	1.51*	1.43-1.59
Type of household		
Male-Headed (**RC)**	1.00	
Female-Headed	0.38*	0.34-0.43
Sex composition of children		
Only Boys	0.99	0.84-1.16
Only Girls	0.60*	0.51-0.71
Both Boys and Girls **(RC)**	1.00	
Age		
15-24(RC)	1.00	
25-34	0.71*	0.62-0.82
35-44	0.38*	0.31-0.45
45+	0.23*	0.18-0.30
Place of Residence		
Urban**(RC)**	1.00	
Rural	0.80*	0.66-0.97
Region		
Northern**(RC)**	1.00	
Central	1.27*	1.01-1.58
Southern	1.22	0.98-1.52
Educational Attainment		
No Education **(RC)**	1.00	
Primary	3.88*	1.12-1.46
Secondary	5.09*	1.23-1.83
Higher	5.42*	1.05-2.31
Employment Status		
Not Working**(RC)**	1.00	
Working	1.22*	1.08-1.38
Wealth Status		
Poor **(RC)**	1.00	
Middle	1.26*	1.09-1.45
Rich	1.24*	1.09-1.42
Religion		
Catholic**(RC)**	1.00	
Other Christians	1.02	0.90-1.17

Muslim	0.62*	0.50-0.78
Other	1.82	0.49-6.75

Note: RC: Reference category, Level of significance p<0.05, CI 95% Confidence Interval

Table 7 shows the results of the multivariate logistic regression analysis of the association between family structure and controlling for other socio-demographic factors that were significant in the stepwise regression on modern contraceptive use

As family size increased the likelihood of modern contraceptive use increased as well. For every one unit increase of in family size there is a 1.51 unit increase in the use of modern contraception.

Women in female-headed households were 0.38 times less likely to use modern contraceptives than women in male-headed households.

According to the sex composition of children, the likelihood of modern contraceptive use increased after controlling for socio-demographic variables. Respondents with only daughters were 0.6 times less likely to use modern contraceptives than women with both sons and daughters.

Women aged 25-34 years were 0.7 times less likely to use modern contraceptives compared to women aged 15 - 24 years. Women 35-44 were 0.4 times less likely to use modern contraceptives than women aged 15 – 24 years. Lastly women 45 years and over were 0.2 times less likely to use modern contraceptives compared to women who were 15 -24 years.

Women in rural areas were 0.8 times less likely to use modern contraception than women in urban areas.

Central region (1.3) has higher odds of modern contraceptive use compared to counterparts in the Northern region.

Women with primary education were 3.9 times more likely to use modern contraceptives than women with no education. Women with secondary education were 5.1 times more likely while those in higher education were 5.4 times more likely to use modern contraceptives than women with no education.

Women who were working were 1.2 times more likely to use modern contraceptives than women who were not working.

Women in the middle wealth quintile and the rich wealth quintile were both 1.2 times and more likely to use modern contraceptives than women in the poor wealth quintile.

Muslim women were 0.6 times less likely to use modern contraceptives compared to Catholic women.

4.5 Hypothesis Testing

The following hypotheses were tested:

4.5.1 Hypothesis 1: The relationship between family size and modern contraceptive use

The results support the hypothesis that family size has a significant influence on modern contraceptive use. The likelihood of modern contraceptive use increased as the family size increased. Therefore we reject the null hypothesis and conclude that the alternative hypothesis is true at the 95% confidence interval.

4.5.2 Hypothesis 2: The relationship between sex composition of children and modern contraceptive use

The results support the hypothesis that sex composition of children has a significant influence on modern contraceptive use. Therefore we reject the null hypothesis and conclude that there is a relationship between sex composition of children and modern contraceptive use.

4.5.3 Hypothesis 3: The relationship between the sex of the household head and modern contraceptive use

The results support the hypothesis that the sex of the household head has a significant influence on modern contraceptive use, as respondents in female headed households were less likely to use modern contraceptives than respondents in male-headed households. Therefore we reject the null hypothesis and conclude that the alternative hypothesis is true at the 95% confidence level.

Chapter 5: DISCUSSION

5.1 Introduction

This chapter presents the discussion of the results of the study, with reference to the objectives outlined, including a comparison of the results with findings from related studies.

The aim of the study was to examine the influence of family structure on womens' modern contraceptive use in Malawi. It included women of reproductive age (15-49) regardless of their marital status. The first objective of the study was to measure the levels and patterns of modern contraceptive use in Malawi. Among the major findings of the study modern contraceptive prevalence of women of reproductive age (15-49) in Malawi in 2010 was estimated at 52% while the remaining 48% were not using modern contraception. . This percentage of users is larger than the country specified modern contraceptive prevalence which stands at 42% in 2010 calculated for married women of reproductive age. Hence the larger study population used in this study including women of all reproductive ages tends to bias the contraceptive prevalence rate upwards compared to other studies that only considered married woman (Chinsantya, 2013; Palamuleni, 2014). The results of the study confirmed well known determinants of modern contraceptive use such as age, place of residence, region of residence, educational level, marital status, wealth status and religion.

Results at the bivariate level showed that the observed percentage of contraceptive users increased with family size. This is consistent with a study by Palamuleni (2014) conducted in Malawi on the socioeconomic and demographic factors affecting contraceptive use. He also found a similar result as women with larger family sizes had a

higher contraceptive prevalence compared to women with smaller family sizes (Palamuleni, 2014).

The study found that women in urban areas had a higher contraceptive prevalence compared to women in rural areas. This is consistent with studies by White & Speizer, (2007) and Matthews et al. (2010) who found that contraceptive use levels are usually higher in urban areas than rural areas due to different factors such as proximity to services, accessibility and cultural norms to mention a few.

Contraceptive prevalence increased with age 15-24 years peaking at ages 25 to 34 years and then begins to drop from 35-44 years till 45 years and over. Contraceptive use is lowest amongst the age group 45 years and over and highest among the age group 25-34. This is due to the fact that women 45 years and above are going towards the end of their reproductive period and are assumed to have less coital frequency hence the low use of contraceptives (Palamuleni, 2014).Women between the age of 25-34 are probably married and are more sexually active as it has the highest use of modern contraception within the age category (Nonvignon & Nonvignon, 2014). Kimani et al. (2013) who conducted a study in Kenya found a similar result within the 25-34 year age group , as contraceptive use was highest amongst them. Early exposure to childbearing due to early child at marriage may be a reason for the low contraceptive use by the age group 25-34 years. According to the 2010 Malawi Demographic & Health Survey the median age at first marriage for women 20 to 49 years in Malawi is 17.9 years (MDHS, 2011).

The results at the multivariate level showed significant differences in modern contraceptive use across different dimensions of family structure. Among the major findings of the study contraceptive prevalence of women of reproductive age (15-49) in

Malawi in 2010 was estimated at 48% while the remaining 52% were not using modern contraceptives.

Results showed that the odds of being a modern contraceptive user increased with family size. As marriage is the indication of initial exposure to childbearing the young age at first marriage indicates that childbearing amongst these women starts very early. It also shows that their reproductive period stretches over a longer period of time giving rise to rather large family sizes and consequently high fertility.

This result was consistent with studies conducted in other countries that established that as family size increases, the use of modern contraceptives increased as well (Mohammed et al., 2014). A country based study by Palamuleni (2014) in Malawi on the correlates of contraceptive use among currently married women using the 2000 and 2004 Demographic and Health Surveys found a similar result. He reported that in 2000 contraceptive use increased with the number of living children particularly that women with 1 to 2 children and 3 to 4 children were 0.4 and 0.3 less likely to use contraceptives compared to women with 5 or more children. The same was found in 2004 with women who had 1 to 2 children and 3 to 4 children were 0.7 and 0.6 times less likely to use contraceptives than women who had 5 or more children (Palamuleni, 2014). This is an indication of the reduction of the desired family size of women in Malawi as the fertility rate continues to reduce further (Vlassoff & Tsoka, 2014). According to the rational choice theory decision makers are faced with situational and institutional constraints (Ferejohn, 2002). Like in many societies culture is one of these constraints. The primary role of women in Malawi is childbearing and raising children (Kishindo, 1994). Women are socialised into these roles and marriage is the approved platform for this activity. Hence married women are faced with many cultural constraints of the need to reproduce and would refrain from using contraceptives. Mohammed et al. (2014) also found that

the likelihood of using modern contraceptives increased with the number of living children a women had. Women who had children were significantly more likely to use modern contraception than women with no children. Although he found a contrary result to this study that women with a greater number of children (5 and above) were less likely to use modern contraceptives than women with no children. Mohammed et al.'s (2014) assumption was that women are getting older hence they perceive that their risk of pregnancy is substantially lower. Alternately, it may be due to reduced or infrequent practice of sex.

The results of the study also showed that there was a relationship between a woman's current sex composition of children and the use of modern contraception. Women with only daughters (0.60) had lower odds of using modern contraception than women with a combination of sons and daughters. Despite not being significant, women with only sons showed even odds of contraception with women with a combination of sons and daughters. This is different as the likelihood of using contraceptives for this group should have been higher if a preference for males was present. A possible reason for such a result is the fact that the majority of countries in sub-Saharan Africa have been shown to have a balanced gender preference except for countries in North Africa that are predominantly Muslim (Fuse, 2012). This shows that the postponement and low use of contraceptives is as a result that couples may not be satisfied with their current composition and would prefer at least a son as both sexes have their own advantages. Women with boys only as well as women with girls only are less likely to use modern contraceptives in the hope that they may have a child of their desired sex.

This study's finding are similar to a study by Kamal & Hassan (2013) in Bangladesh who found that ethnic tribal women who had a combination of both sons and daughters had a higher contraceptive prevalence than both women who had only sons and those who had

only daughters. The risk of being a contraceptive user was 44.1 % lower for women who had only daughters. Hussain, Fikree and Berendes (2000) who conducted a study in Karachi, Pakistan found that the only combination of sex of surviving children that was statistically significant included a combination of at least one surviving son and three or more surviving daughters. Another study by Calhoun (2013) conducted in Uttar Pradesh, India among married women found out those women who had no sons but one or more daughters were less likely to be modern contraceptive users than non-users. These findings support the hypothesis that a woman's sex composition of children does have an effect on modern contraceptive use.

The findings of the study also showed that the type of household that a woman resided, significantly affected modern contraception. The analysis suggests that women in female-headed households were 0.38 times less likely to use modern contraceptives compared to their counterparts who resided in male-headed households. As women residing in the same household may have different relationships with the head of the household hence their contraceptive use is not expected to be the same. Hence other factors may influence the effect of the type of household on a woman's contraceptive use.

The lower odds ratios were probably due to lower coital frequency by women in female-headed households due to the absence of their partner if the women were married (Makatjane, 1997). If a woman is a widow and the head of a household she may not have a need for contraception if she has no partner. Another possible reason for low usage in female-headed households particularly for never married women at younger ages is their relationship with the head of the house. These women's contraceptive use maybe affected by the monitoring of the head of the house, depending on how involved they are in communicating about sexual behaviour (Biddlecom, Awusabo-Asare & Bankole, 2009).

The findings of the study were consistent with a study conducted by Makatjane (1997) in Lesotho using the Lesotho Demographic and Health Survey 1991. It was found that contraceptive use among women in female-headed households was significantly lower than their counterparts in male-headed households. However a study conducted by Anasel & Mlinga, (2014) in Tanzania found a different result that the sex of the household head had no significant relationship with contraceptive use.

Findings show that the different dimensions of family structure from a woman's family size, the sex composition of her children and the type of household in which she resides showed a significant relationship with modern contraceptive use. Other factors highlighted to be critical predictors increasing the likelihood of contraception when analysed with respect to family structure were, region, place of residence, education, wealth status, religion, age and employment status.

Chapter 6: CONCLUSION & RECOMMENDATIONS

6.1 Introduction

The study found that family structure does significantly affect modern contraceptive use in Malawi. The study focuses on a major reproductive health issue whose success has a great bearing on many factors such as poverty reduction, health benefits for mother and child, environmental benefits and social benefits in the form of promoting human rights and gender equality (Cleland et al., 2006). Hence the study findings are important not only in addressing reproductive health issues that surround women by contributing to the possible revisions of current family planning programmes and the formation of new ones. It also contributes to the knowledge on the influence of family structure on contraceptive use in Africa.

The study suggests different dimensions of family structure contribute to contraceptive use in Malawi. Notable findings such as women with larger family sizes, women with a combination of sons and daughters and those who resided in a male-headed household increased the odds of modern contraceptive use. When combined with sociodemographic variables were included increased the likelihood of contraceptive use at each family size increased and contraceptive use was less likely among women who resided in female-headed households and women who had only daughters.

Malawi was considered as an adequate study area as it is a developing country and managed to increase levels of contraceptive use with minor resources. Hence it was important to see whether family structure could have contributed to this increase in uptake. So that hopefully other countries with similar socioeconomic conditions could consider looking into family structure as well to help reposition their family planning programmes.

Regarding the theoretical framework used, the rational choice theory is satisfactory in explaining the effect of family structure on modern contraceptive use in Malawi. By including the socioeconomic and demographic controls some factors that may have an effect on the relationship between family structure and contraceptive use have been considered such as the region of residence, place of residence, age, educational attainment, employment status, wealth status and religion.

The findings of this study will contribute to knowledge on research on family structure and modern contraceptive use in Malawi and countries within sub-Saharan Africa that have similar health system structures. It will also contribute to the revision of programmes within the country notably the Malawi Growth and Development Strategy (2011-2016) and the Malawi Health Sector Strategy Plan of (2011-2016) that have similar goals towards the increase of contraceptive use and improving the health status of women.

6.2 Implications and Recommendations

6.1.1 Research & Policy Implications

Further research, possibly in the form of qualitative research, may gain greater results in analysing modern contraceptive use especially in female-headed houses, as their use is considerably lower than women in male-headed households.

The study only focused on specific dimensions of family structure and further research may profit at looking at other dimensions of family structure. For example the effect extended families may have on an individual's contraceptive use or having a lone male or lone female as the head of the house. Other examples would be the influence of monogamous and polygamous households and skip generation households on an individuals' modern contraceptive use.

Further research may gain from analysing sociocultural factors not only religion. Especially the customs and practices of the two groupings Matriarchy and Patriarchy as some of these may have an influence on family structure and its effect on modern contraceptive use.

Further research may also benefit from including partners information. Men have been documented to have a strong influence on a woman's contraceptive use and consequently family planning in the society (Shattuck et al., 2011). Research should focus on vulnerable groups highlighted in the study such as the youth, unmarried women, rural women, those at lower wealth quintiles and those with no formal employment. And further monitoring and evaluation of programmes should be done in order to strengthen them as many of them are sexually active and have very low levels of modern contraceptive use.

The study should provide a focus area to contribute to achieving the reproductive goals of the Malawi Growth and Development Strategy (2011-2016) and the Malawi Health Sector Strategy Plan of (2011-2016) or future policies which have important reproductive health goals for women.

It is important to constantly improve female education in Malawi as this would considerably enhance the use of modern contraceptive use in the country. Improvements should be made on the existing policies in place such as the National Education Sector Plan 2008-2017 implemented in 2008 to possibly have a greater bias towards women and find more inventive ways to encourage their enrolment. This would also improve women empowerment in Malawi giving women an alternative to early marriage and childbearing.

6.1.2 Research Limitations

Under-reporting

Despite the growing use of modern contraceptives, their use may still be under-reported. A qualitative study conducted in the Southern Region of Malawi by Chipeta, Chimwaza & Kalilani-Phiri (2010) found that despite people's intentions to use different contraceptive methods, they were influenced by a number of factors. These factors included the perceived gains from using contraceptives, the manner in which the side effects of contraception may affect them on a daily basis and how the use of particular methods may affect the state of their relationship with their spouse. Hence in the same way that these factors may hinder intentions of use, they may also hinder the reporting actual use.

Temporality

As the study made use of cross-sectional data, causal conclusions on the relationship between family structure and contraceptive use could not be made due to the nature of this data. As cross-sectional data only gives a snapshot of the situation, hence measuring contraceptive use at different points in time could create different results (Levin, 2006). Despite this, the study was able to determine associations between the two.

Reference List

Adebowale, S. A., Adedini, S. A., Ibisomi, L. D., &Palamuleni, M. E. (2014). Differential effect of wealth quintile on modern contraceptive use and fertility: evidence from Malawian women. *BMC women's health*, *14*(1), 40.

Akhter, H., & Haque, M. E. (2014) The role of son preference on modern contraceptive use in Bangladesh. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS*) 19(7) Ver. I (July. 2014), 89-96

Alkema, L., Kantorova, V., Menozzi, C., & Biddlecom, A. (2013). National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *The Lancet*, *381*(9878), 1642-1652.

Al Riyami, A., Afifi, M., & Mabry, R. M. (2004).Women's autonomy, education and employment in Oman and their influence on contraceptive use.*Reproductive health matters*, *12*(23), 144-154.

Anasel, M. G., & Mlinga, U. J. (2014). Determinants of contraceptive use among married women in Tanzania: Policy implication. *African Population Studies*, *28*(2s), 978-988.

Arbab, A. A., Bener, A., &Abdulmalik, M. (2011).Prevalence awareness and determinants of contraceptive use in Qatari women. *Eastern Mediterranean Health Journal*, *17*(1), 11-18.

Audu, B., Yahya, S., Geidam, A., Abdussalam, H., Takai, I., &Kyari, O. (2008).Polygamy and the use of contraceptives. *International Journal of Gynecology & Obstetrics*, *101*(1), 88-92.

Baschieri, A., Cleland, J., Floyd, S., Dube, A., Msona, A., Molesworth, A. & French, N. (2013). Reproductive preferences and contraceptive use: a comparison of monogamous and polygamous couples in northern Malawi.*Journal of biosocial science*, *45*(02), 145-166

Bigombe, B., &Khadiagala, G. M. (2003).Major trends affecting families in Sub-Saharan Africa. *UN (ed.), Major Trends Affecting Families: A Background Document*, 164-87.

Biddlecom, A., Awusabo-Asare, K., &Bankole, A. (2009).Role of parents in adolescent sexual activity and contraceptive use in four African countries.*International Perspectives on Sexual and Reproductive Health*, 72-81.

Black, A., Yang, Q., Lalonde, A. B., Guilbert, E., & Fisher, W. (2009). Contraceptive use among canadian women of reproductive age: results of a national survey. *Journal of Obstetrics and Gynaecology Canada*, *31*(7), 627-640.

Bongaarts, J., &Casterline, J. (2013). Fertility Transition: Is sub-Saharan Africa Different?. *Population and development review*, *38*(s1), 153-168.

Browning, G., Halcli, A., & Webster, F. (Eds.). (1999). *Understanding contemporary society: Theories of the present*. Sage.

Burns, R. P. & Burns, R. (2008).Additional Advanced Chapters; Chapter 24 Logistic Regression in Business Research Methods and Statistics Using SPSS. SAGE Publishers Los Angeles, pp 568-588.

Calhoun, L. M., Nanda, P., Speizer, I. S., & Jain, M. (2013).The effect of family sex composition on fertility desires and family planning behaviors in urban Uttar Pradesh, India. *Reproductive health*, *10*(1), 48.

Canning, D., & Schultz, T. P. (2012).The economic consequences of reproductive health and family planning. *The Lancet*, *380*(9837), 165-171.

Chimbiri, A.(2006) Development, Family Change and Community Empowerment in Malawi in Y. Oheneba-Sakyi& B.K. Takyi (Eds.), African families at the turn of the 21st century, Westport, United States of America.

Chimbwete, C., Watkins, S. C., & Zulu, E. M. (2005).The evolution of population policies in Kenya and Malawi. *Population Research and Policy Review, 24*(1), 85-106.

Chintsanya, J. (2013). Trends and Correlates of Contraceptive Use among Married Women in Malawi: Evidence from 2000-2010 Malawi Demographic and Health Surveys DHS WORKING PAPERS

Chipeta, E. K., Chimwaza, W., & Kalilani-Phiri, L. (2010). Contraceptive knowledge, beliefs and attitudes in rural Malawi: misinformation, misbeliefs and misperceptions. *Malawi Medical Journal, 22*(2).

Chirwa, W. C. (2002). Social exclusion and inclusion: Challenges to orphan care in Malawi. *Nordic Journal of African Studies, 11*(1), 93-113.

Clark, S., & Hamplová, D. (2013). Single motherhood and child mortality in sub-Saharan Africa: a life course perspective. *Demography*, *50*(5), 1521-1549.

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

Clifton, D. & Kaneda, T. (2013)."Family Planning Worldwide 2013 Data Sheet." *Washington, DC: Population Reference Bureau*.

Cohen, B. (2000). Family planning programs, socioeconomic characteristics, and contraceptive use in Malawi. *World Development, 28*(5), 843-860.

Colbourn, T., Lewycka, S., Nambiar, B., Anwar, I., Phoya, A., &Mhango, C. (2012).Maternal mortality in Malawi, 1977-2012. *BMJ open*, *3*(12), e004150-e004150.

Creanga, A. A., Gillespie, D., Karklins, S., &Tsui, A. O. (2011). Low use of contraception among poor women in Africa: an equity issue. *Bulletin of the World Health Organization, 89*(4), 258-266.

DeRose, L. F., Dodoo, F. N. A., Ezeh, A. C., &Owuor, T. O. (2004). Does discussion of family planning improve knowledge of partner's attitude toward contraceptives?. *International Family Planning Perspectives*, 87-93.

Do, M., & Kurimoto, N. (2012). Women's empowerment and choice of contraceptive methods in selected African countries. *International perspectives on sexual and reproductive health*, 23-33.

Ekane, D. (2013) Fertility trends in sub Saharan Africa.http://www.divaportal.org/smash/get/diva2:602495/FULLTEXT01.pdf

Elfstrom, K. M., & Stephenson, R. (2012).The role of place in shaping contraceptive use among women in Africa. *PloS one*, *7*(7), e40670.

Emina, J. B., Chirwa, T., &Kandala, N. B. (2014). Trend in the use of modern contraception in sub-Saharan Africa: does women's education matter?.*Contraception*, *90*(2), 154-161.

Ferejohn, J. (2002). Symposium on explanations and social ontology 1: rational choice theory and social explanation. *Economics and Philosophy*, *18*(02), 211-234.

Feyisetan, B.J. (2000) Spousal Communication and Contraceptive use among the Yoruba of Nigeria, Population Research and Policy Review, 19(1): 29-45

Fuse, K. (2010). Variations in attitudinal gender preferences for children across 50 less-developed countries. *Demographic Research*, *23*(36), 1031-1048.

Government of Malawi, 2012. National Population Policy, *Ministry of Economic Planning and Development*, Lilongwe, 2012

Haub, C. & Kaneda, T. (2013) 2013 World Population Datasheet, Washington DC: Population Reference Bureau

Hayford, S. R., & Morgan, S. P. (2008). Religiosity and fertility in the United States: The role of fertility intentions. *Social Forces*, *86*(3), 1163-1188.

Hechter, M., & Kanazawa, S. (1997).Sociological rational choice theory. *Annual review of sociology*, 191-214.

Heaton, T. B. (2011). Does religion influence fertility in developing countries. *Population Research and Policy Review*, *30*(3), 449-465.

Hussain, R., Fikree, F. F., & Berendes, H. W. (2000).The role of son preference in reproductive behaviour in Pakistan. *Bulletin of the World Health Organization*, *78*(3), 379-388.

Kimani, M., Njeru, M., & Ndirangu, G. (2013). Regional variations in contraceptive use in Kenya: comparison of Nyanza, Coast and Central Provinces. *African Population Studies*, *27*(1), 43-52

Jacobstein, R. (2013). Lessons from the recent rise in use of female sterilization in Malawi. *Studies in family planning*, *44*(1), 85-95.

Jacobstein, R., Curtis, C., Spieler, J., & Radloff, S. (2013). Meeting the need for modern contraception: Effective solutions to a pressing global challenge.*International Journal of Gynaecology& Obstetrics*, *121*, S9-S15.

Jayaraman, A., Mishra, V., & Arnold, F. (2009). The relationship of family size and composition to fertility desires, contraceptive adoption and method choice in South Asia. *International perspectives on sexual and reproductive health*, 29-38.

Jones, J., Mosher, W., & Daniels, K. (2012).Current contraceptive use in the United States, 2006–2010, and changes in patterns of use since 1995. *National health statistics reports*, *60*, 1-25.

Kamal, S. M., & Hassan, C. H. (2013). Socioeconomic Correlates of Contraceptive Use among the Ethnic Tribal Women of Bangladesh: Does Sex Preference Matter?. *Journal of family & reproductive health*, *7*(2), 73.

Kinoshita, R. (2003). Women's domestic decision-making power and contraceptive use in rural Malawi. *International health*, (14).

Koc, I. (2000). Determinants of contraceptive use and method choice in Turkey. *Journal of biosocial science*, *32*(03), 329-342.

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

Lutalo, T., Kidugavu, M., Wawer, M. J., Serwadda, D., Zabin, L. S., & Gray, R. H. (2000).Trends and determinants of contraceptive use in Rakai District, Uganda, 1995–98. *Studies in family planning*, *31*(3), 217-227.

Makatjane, T. (1997). Contraceptive Prevalence in Lesotho: Does the Sex of the Household Head Matter?. *African Population Studies*, *12*(2).http://bioline.org.br/request?ep97010

Matthews, Z., Channon, A., Neal, S., Osrin, D., Madise, N., & Stones, W. (2010). Examining the "urban advantage" in maternal health care in developing countries. *PLoS medicine*, *7*(9), e1000327

Mbizvo, M. T., & Phillips, S. J. (2014). Family planning: Choices and challenges for developing countries. *Best Practice & Research Clinical Obstetrics &Gynaecology*, *28*(6), 931-943.

Mohammed, A., Woldeyohannes, D., Feleke, A., &Megabiaw, B. (2014). Determinants of modern contraceptive utilization among married women of reproductive age group in North Shoa Zone, Amhara Region, Ethiopia.*Reproductive Health*, *11*(1), 1-7.

Mtae, H., & Mwageni, E. (2014). Effect of Family Size and Sex Preference on Contraceptive Use Among Married Women in Morogoro Municipality. *Huria: Journal of the Open University of Tanzania*, *10*(1), 102-111.

Nketiah-Amponsah, E., Arthur, E., & Abuosi, A. (2012).Correlates of Contraceptive use among Ghanaian women of Reproductive Age (15-49 Years).*African Journal of Reproductive Health*, *16*(3), 154-169.

Nonvignon, J., &Novignon, J. (2014).Trend and determinants of contraceptive use among women of reproductive age in Ghana. *African Population Studies*,*28*(2s), 956-967.

National Statistics Office (2008): Malawi Population and Housing Census 2008. National Statistics office of Malawi, Report of Final Census Results; 2009

Okezie, C. A., Ogbe, A. O., & Okezie, C. R. (2010).Socio-economic determinants of contraceptive use among rural women in Ikwuano Local Government Area of Abia State, Nigeria. *Int NGO J*, *5*(4), 74-77.

Oyedekun, A.O. (2007). Determinants of Contraceptive Usage: Lessons from Women in Osun State, Nigeria. Journal of Humanities and Social Sciences, 1(2):1-1

Palamuleni, M. E. (2014). Demographic and Socio-economic Factors Affecting Contraceptive Use in Malawi. *Journal of Human Ecology*, *46*(3), 331-341.

Peterson, S. A. (1999). Marriage structure and contraception in Niger. *Journal of biosocial science*, *31*(01), 93-104.

Pfeffermann, D. (1993). The role of sampling weights when modelling survey data. *International Statistical Review/Revue Internationale de Statistique*, 317-337.

Rasooly, M. H., Ali, M. M., Brown, N. J., &Noormal, B. (2015).Uptake and predictors of contraceptive use in Afghan women. *BMC Women's Health*, *15*(1), 9.

Saha, U. R., & van Soest, A. (2013). Contraceptive use, birth spacing, and child survival in Matlab, Bangladesh. *Studies in family planning*, *44*(1), 45-66.

Scott, J. (2000). Rational choice theory. *Understanding contemporary society: Theories of the present*, *129*.

Shattuck, D., Kerner, B., Gilles, K., Hartmann, M., Ng'ombe, T., & Guest, G. (2011). Encouraging contraceptive uptake by motivating men to communicate about family planning: the Malawi Male Motivator project. American journal of public health, 101(6), 1089-1095

Solo, J., Jacobstein, R., & Malema, D. (2005). Repositioning family planning–Malawi case study: Choice, not chance. *New York: The ACQUIRE Project/EngenderHealth*.

Stephenson, R., Baschieri, A., Clements, S., Hennink, M., & Madise, N. (2007). Contextual influences on modern contraceptive use in sub-Saharan Africa. *American journal of public health*, *97*(7), 1233-1240.

Stover, J., & Ross, J. (2010). How increased contraceptive use has reduced maternal mortality. *Maternal and Child Health Journal*, *14*(5), 687-695.

Turagabeci, A. R., Nakamura, K., Kizuki, M., & Takano, T. (2007).Family structure and health, how companionship acts as a buffer against ill health. *Health and Quality of Life Outcomes*, *5*(1), 1-9.

Veleti, K. (2001). Family Structure and its Effective Influence on Fertility.Journal of Human Ecology. 12(5): 387-390

Vlassoff, M &Tsoka, M. (2014) Benefits of meeting the contraceptive needs of Malawian women, In Brief, New York: Guttmacher Institute, 2014(2).

White, J. S., &Speizer, I. S. (2007). Can family planning outreach bridge the urban-rural divide in Zambia?. BMC Health Services Research, 7(1), 1-9.

World Bank Group (Ed.). (2012). World Development Indicators 2012.World Bank Publications.

Worku, A. G., Tessema, G. A., &Zeleke, A. A. (2014). Trends of Modern Contraceptive Use among Young Married Women Based on the 2000, 2005, and 2011 Ethiopian Demographic and Health Surveys: A Multivariate Decomposition Analysis. *PloS one*, *10*(1), e0116525-e0116525.

Yeatman, S., & Trinitapoli, J. (2008). Beyond denomination: The relationship between religion and family planning in rural Malawi. *Demographic Research,19*(55), 1851-1882.