1. Introduction

Zambia, like many other countries in Sub-Sahara Africa, has one of the highest fertility rates in the world. It stands at total fertility rate (TFR) of 5.9 as of 2001-2002 Demographics and Health Survey (ZDHS, 2001-2002).

Many factors could attribute to these high fertility levels. Most of these factors are cultural factors and the value of children, as stipulated by Caldwell in his studies, that having many children is advantageous as children are a source of labour in family farming fields. Caldwell called this advantageous factor as the flow of wealth from children to parents, in his wealth-flow theory. (Caldwell, 1990)

However, high fertility levels can also be attributed to low contraceptive use (UNICEF, 2006). According to the UNICEF (2006), worldwide, fertility rates have been declining and contraceptive use has been increasing for decades. Nevertheless, many women, especially in developing countries, who want to stop having children or to delay their next birth, are not using contraception. In Zambia, the contraceptive prevalence rate is only 25 percent for modern methods of contraception and about 34 percent for any method of contraception, which includes traditional and folkloric methods (ZDHS, 2001-2002). The rate is much lower in rural areas than in urban areas (Dodoo, 2002).

In comparison to other countries in Sub-Saharan Africa, Zambia is slightly above the average of 23 percent prevalence rate of modern contraception. However, Sub-Saharan Africa as a whole has the lowest contraceptive prevalence rates compared to other regions of the world, which have 54 percent in Middle East and North Africa, 84 percent in East Asia and the Pacific, 48 percent in South Asia, 73 percent in Latin America and the Caribbean and 78 percent in the industrialised countries. (United Nation, 2001)

Research shows that in most developing countries, especially in Sub-Saharan Africa, male role contributes to the shortfall in women's fertility behaviour vis-à-vis contraceptive use (Bongaarts, 1994), and that spouses are a major reason for the non- use of contraception among women who would consider contraception (Doodo, 1997). Research also shows that in many African societies, gender inequality in decision-making, which reflect entrenched male dominance in reproductive decisions, influence negatively on women's reproductive behaviours including contraceptive use (Dodoo, 2002).

This study aims at looking at how gender relations at household level would explain the shortfall in women's contraceptive use in Zambia. Therefore, in trying to understand the low contraceptive prevalence among women in Zambia, this study tried to find out whether a gender system that that prevail in the Zambia societies influence women's decision making on the use or non-use of contraception.

1.1 Gender Relations in Zambia

In a Zambian traditional set-up, men and women hold different statuses. Women's status is mainly inferior to that of men. A woman's position within marriage and the family is closely linked to familial perspectives concerning women's roles and responsibilities.(Caldwell, 1987) Therefore, the woman's role is to bear and raise children and provide her labour for cultivation in the family fields, while the man remains as the overall decision maker in all issues of the household. Thus, through bride-wealth payments, a woman and her children become the property of the husband and his family. (Caldwell, 1990)

Indeed, male dominance and power is an important aspect of gender relations in households in Zambia. Despite major legal reforms to empower women and constitutional guarantees of equality, customary law tends to determine women's rights in different settings (Rakodi, 2005). As such, women are in the main treated as dependants and have limited independent property and inheritance rights which are not contingent on marriage and familial ties. With these gender inequalities in marriage, women may fear to use or discuss family planning with their husbands in case it leads to quarrels. (Dodoo, 1998) This jeopardises their reproductive rights in meeting their fertility desires.

Based on the cultural nature of gender relations in Zambia, as well as the low contraceptive prevalence rates, it would seem that men play a substantial role in determining the fertility- related behaviour within couples. Since it's normative for men to have the final say over decisions in this society, men may have a great influence in their wives' use or non-use of contraception.

1.2 Research Objective

The main objective of this research is to assess the relationship between household gender relations and women's contraceptive use in Zambia. This research wants to assess whether gender relations in household decision making, between men and women, influence women's use of contraception.

1.3 Research Questions

This study has seven research questions.

1. Does the role of men in household decision-making influence the women's use of contraception?
2. Does women's labour force participation influence their contraceptive behaviour?
3. Are there any rural-urban differences on the relationship between household decision-making and women's use of contraception?
4. Does the relationship between household decision-making and women's contraceptive use differ by women's education attainments?

5. How does parity explain the relationship between household decision-making and women's contraceptive use?

6. Is there any difference between men's and women's fertility preferences in influencing contraceptive behavior?

7. Do husbands' views of contraceptive use influence their wives contraceptive behavior?

1.4 Presentation of the Thesis

The thesis has been organised into six chapters. The first chapter, the introduction, begins by stating the research problem by bringing out the overview of the contraceptive use situation in Zambia, as well as the prevailing gender relations. The research objective and the research questions are also stated in this chapter. The second chapter deals with the review of literature by presenting relevant information from some studies that have been done on the subject. The third chapter looks at the theoretical framework and the conceptual model. The theories considered include the Coleman (1990) macro-micro model of sociological explanation, theory of Reasoned Action by Ajzen and Fishbein (1975, 1980), and the gender theories. The conceptual model, which is constructed from the theoretical framework, is also discussed in this chapter, including the definitions of all the concepts in the conceptual framework. Research hypotheses are also stated in the third chapter. The fourth chapter elaborates on the data sources and the measures employed by the study. The firth chapter gives the results of the study, presented in tables and graphs, including their interpretations. The sixth and final chapter concludes the study with a detailed discussion of the results and gives the study's recommendations.

2. Review of Literature

Some studies in developing countries show that male role contributes to the shortfall in women's fertility behaviour (Bongaarts, 1994). This may be because of the considerable power men wield in reproductive decisions (Bankole 1995). A study by Amoo Dodoo on the additive and interactive gendered preferences and reproductive behaviour in Kenya indicate that male family members, including spouses, are a major reason for the non- use of contraception among females who would consider contracepting. This is because men enjoy considerable power in sexual and fertility decisions as a result of marriage transactions and prevailing gender relations. (Dodoo, 1997) Cultural set-up may be the underlying reasons for these male roles. Therefore, this perspective not only contributes to an understanding of fertility change; it also underscores the fundamental matter of reproductive rights and, specifically, women's power to determine their fertility (Ezeh, 1993).

In many developing countries, men are the primary decision-makers about sexual activities, fertility and contraception. Women have very little say even on the fertility (Doodo 1998). According to Caldwell, in African set-up men have the authority to make decisions regarding the number and timing of children leaving the women with very little say over their own fertility behaviour (Caldwell, 1990). This is an indication of the presence of gender inequality between men and women in reproductive decision making.

According to Dodoo (1994), men are generally more pronatalist than women in Sub-Saharan Africa .This may be because a large number of children are advantageous to men as children are a source of labour in family farming fields. Caldwell (1990) calls it the flow of wealth from children to parents, in his wealth-flow theory. Also in some African societies, children are a sign of wealth and prestige. For these reasons men may not encourage their wives to regulate their fertility (Caldwell, 1990).

According to Blanc (1996), gender has a powerful influence on reproductive decision-making and behaviour. As gender roles are influenced by the cultural setting of a society, Caldwell (1990) found that the core of African society is the ancestral lineage and descent, which emphasize the lineage bond over the conjugal tie and help explain why women and men may not operate as a unified entity in marriage. The marriage contract is centred on the payment of bride-wealth from the groom's family to the bride's family that compensates the bride's family for her future births who become a part of the groom's lineage (Caldwell, 1990). In this case the bride-wealth payment also transfers to men the authority to make-decisions regarding the number and timing of children leaving the women with very little say over their own fertility behaviour (Doodo 1998). According to Bawah (1999), these women may not even feel free to discuss family planning with husbands even when they wanted to practice the family planning.

A Study by Riley (1997) on several developing countries about gender, power and population change, found that increase in women's education and labour force participation can enhance women's status vis-à-vis men, by offering women opportunities to control their own resources as well as their power to make decisions

about demographic outcomes such as fertility . Castrol (1994), in their study in Mexico, found that female education plays an important role in fertility decline. According to them, education can influence women's reproduction in several ways; by increasing knowledge of fertility, increasing socio-economic status, and changing attitudes about fertility control (contraceptive use) (Castrol, 1994).

Education may also affect the distribution of authority within households, whereby women may increase their authority with husbands, and affect fertility and use of family planning (Bertrand, 1996). According to Bawah (1999), these women may even freely discuss family planning with their husbands when ever they want to practice it. Caldwell sees education as a vehicle by which people learn more western views about family, which leads to a more child centred parenting approach, and to different definitions of acceptable child care (Caldwell, 1982). This may lead to a demand for fewer children, and consequently, the use of contraceptive to prevent or to space childbirth (Robey, 1992).

Supporters for improving women's status have emphasised that education is the most significant instrument for changing women's position in society. On the other hand, research of the United Nations shows that age is a much more important determinant of women's status than education (UN, 1993).

According to Grady (1996), men control over reproductive decision-making may be weakening, particularly among younger generations and in certain cultures. In many societies, as social, economic, and educational opportunities for women increase, traditional gender roles are starting to change. As a result, power is being redistributed between men and women (Grady, 1996). Evidence from several countries, including urban areas of some African countries, demonstrates that, increasingly, reproductive decisions are being made jointly by couples, not by men alone (Renne, 1993).

Recent work by Dodoo on gender, power and reproduction in Kenya, found that reproductive decisions in rural areas reflect entrenched male dominance than in urban areas, such that the gender inequality in decision making must be redressed if rural women are to realize their fertility goals as fully as urban women (Dodoo, 2002). Generally, rural fertility exceeds urban fertility across Africa (Kayongo-Male, 1984). According to Dodoo, adherence to traditional values varies between rural and urban settings; this implies that levels of male influence in reproductive decisions also are likely to differ (Dodoo, 1998). Because rural areas are more steeped in traditions than urban areas, it is reasonable to expect that rural women have less bargaining power than men by which to implement their fertility desires or preferences. Also because of differences in education levels between rural and urban women, it is reasonable to expect differences in fertility desires or preferences between urban and rural women.

Bankole in his study of male's role in fertility behavior, questions whether male dominance is as given because he finds a relative male advantage only at lower parities. For instance, he shows that men dominate decisions about fertility when there are fewer than five children, whereas women's preferences overshadow men's at higher parities

(Bankole, 1995). This may remain plausible that by the time couples reach higher parities, men are satisfied with the number of children and thus are willing to follow women's preferences (Dodoo 1998). It is therefore reasonable to expect that women with higher parities are more likely to use contraception than women with low parities.

In summary, the considerable power that men enjoy in sexual and fertility decisions, in most developing countries, contributes to women's non-use of contraception. The cultural set-up in most of these societies allow men to be the primary decision makers in almost everything, leaving women without any say, even on the fertility that comes out of their bodies. Therefore, gender roles that demonstrate male dominance in reproductive decision making in the society, contribute to the shortfall in women's contraceptive behaviour.

The male dominance in reproductive decision making is found to be much more profound in the rural areas than in the urban areas. Men's fertility preferences are also found to overshadow those of women's especially in rural areas, which are more steeped in traditional, gender imbalanced, values than the urban areas. However, increase in women's education and labour force participation enhances women's status in society as well as increases their participation in decision making along side with the men. Also increase in parity diminishes the male dominance in reproductive decisions as male dominance is only seen at lower parities.

3. Theoretical Framework and Conceptual Model

This chapter is divided into three main sections. Section 3.1 deals with the theoretical framework, section 3.2 deals with the conceptual model, while section 3.3 looks at the research hypotheses.

3.1 Theoretical Framework

In this section, the theoretical framework presented, looks at three main theories, the Coleman (1990) macro-micro model of sociological explanation, the theory of Reasoned Action by Ajzen and Fishbein (1975, 1980) and the gender theories, based on some findings from studies on gender, household decision-making and reproduction. These theories are in line with the research objective and attempt to study the research questions stated in chapter 1. They also act as the base for the construction of the conceptual framework covered in section 3.2.

In studying the influence of the gender relations on contraceptive use of women, it is essential to look at the influence of these gender relations at individual households from the general societal perspective. The principle of methodological individualism is often illustrated by the Coleman (macro-micro) model of sociological explanation, as shown in figure 3.1 below. Developed by Coleman (1990), this model states that the connection between two macro phenomena must be explained by going down to the level of motivated human beings and their activities, the micro level. At the micro level, individuals' backgrounds are linked to the individuals' behaviour. (Little, 1991)

Figure 3.1:

**Explanation of social phenomena:
Methodological individualism (Coleman 1990)**

Source:De Bruijn, 1999

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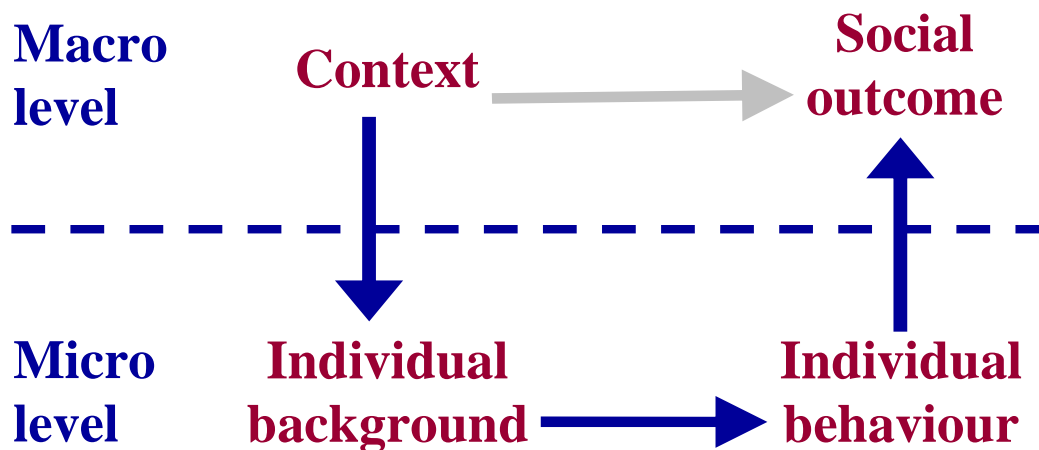
Coleman argues that to explain social systems, the relationship of the two phenomena at macro level breaks up into three. The first states the independent variable characterising the society and the dependent the individual; the second with both the independent and dependent variables characterising the individual and the third with the independent variable characterising the society (cited by De Bruijn 1999: 19).

According to Coleman (1990), it is through the interaction between the elements in the societal and the individual level that the characteristics of each element changes. In the first relationship, the individual's characteristics are influenced by the societal context. In the second relationship, the individual's behaviour is influenced by the individual characteristics and in the third relationship the individuals' behaviour collectively determines the societal outcome. Therefore, Coleman's theory implies that individual behaviour is influenced by individual background characteristics, which are in turn influenced by the societal context in which one lives. This can explain the context to have a greater influence on the individual behaviour (De Bruijn, 1999).

According to Little (1991), the relationship at the micro level, between the individual characteristics and the individual behaviour, can be understood by... "a theory of action, whether perceived in terms of rational choice or in terms of interpretive social science" (Little 1991:p. 11). This theory of action can be explained by the Ajzen and Fishbein's value –expectancy model of reasoned action; linking the individual background characteristics and individual behaviour at the micro-level of the Coleman's model (Little, 1991).

The theory of Reasoned Action by Ajzen and Fishbein suggests that an individual's behaviour is determined by his/her intention to perform the behaviour and that this intention is, in turn, a function of his/her attitude toward the behaviour and his/her subjective norm(Ajzen, 1996). According to the theory, the best predictor of behaviour is intention. Intention is the cognitive representation of a person's readiness to perform a given behaviour, and it is considered to be the immediate antecedent of behaviour. This intention is determined by two things: their attitude toward the specific behaviour and their subjective norms. (Ajzen, 1998)
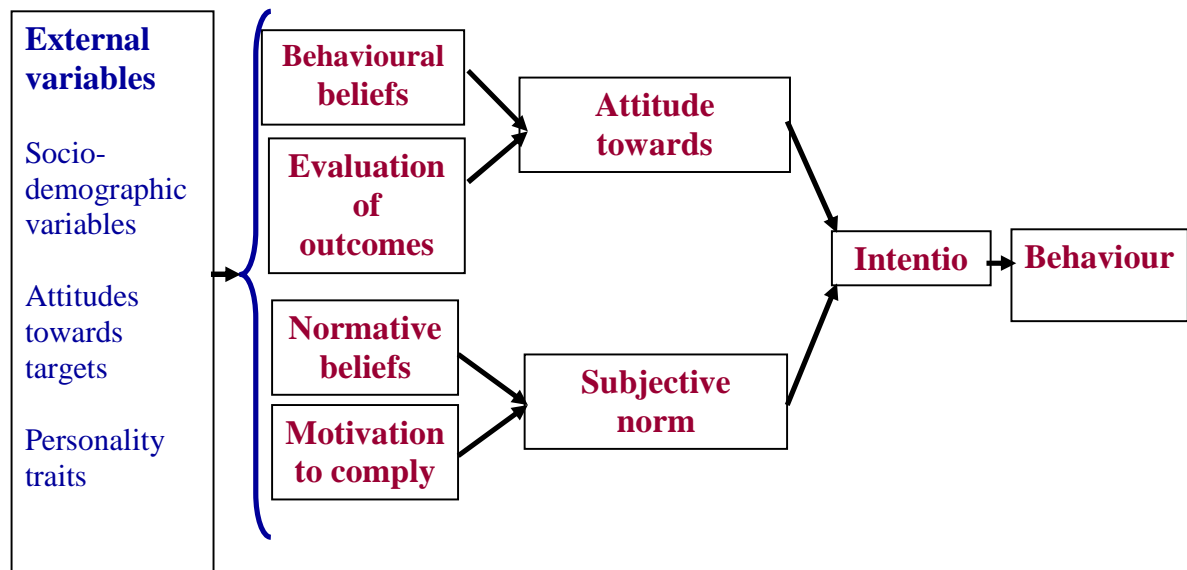
The attitude toward the behaviour is a personal factor that considers the degree to which a person has about positive or negatively evaluating a specific behaviour. The subjective norm is a social factor that refers to the apprehended social pressure to either perform or not to perform the behaviour in question. (Fishbein & Ajzen, 1975; Ajzen & Madden, 1986) Thus subjective norm refers to an individual's perception about his/her peers, family or friends' opinions and how this perception influences him/her to whether or not perform a specific behaviour (Ajzen, 1996).

If a person perceives that the outcome from performing behaviour is positive, she/he will have a positive attitude forward performing that behaviour. The opposite can also be stated if the behaviour is thought to be negative. If relevant others see performing the

behaviour as positive and the individual is motivated to meet the exceptions of relevant others, then a positive subjective norm is expected. If relevant others see the behaviour as negative and the individual wants to meet the expectations of these "others", then the experience is likely to be a negative subjective norm for the individual.

Figure 1 below illustrates the theory of Reasoned Action as described above.

Figure 3.2: **Ajzen & Fishbein (1975, 1980):**
Theory of Reasoned Action (TRA)

source (de Bruijn, 1999)

From the figure above, the attitude towards the behaviour is influenced by the behavioural beliefs and evaluation of outcomes; while subjective norm is as an influence of the normative beliefs and motivation to comply. All these are influenced by the individual's external variables (De Bruijn, 1999).

From the two theories, the theory of reasoned action explains the relationship, at micro level, between individual background characteristics and individual behaviour; while the Coleman's theory looks at individual behaviour as influenced by the individual background characteristics, which are in turn influenced by the societal context in which one lives. Therefore, in understanding women's contraceptive behaviour and how this behaviour is influenced by household decision-making, mainly reproductive decisions, at micro level, (whether men or women making these decisions would influence the contraceptive behaviour of women) a macro level societal context that looks at gender

relations in the society is important to consider as according to De Bruijn (1999) this societal context is considered to have great influence on the individual's characteristics, in this case household gender relations.

Gender relations are therefore, a key element of the social context of reproductive health. Research shows that couples often disagree about the desirability of pregnancy and the use of contraceptives (Speizer, 1999). When this discordance occurs in a situation of male authority, men's opinions about these issues may overrule women's, even though the women often must implement the decisions made on these matters. In some cases, husbands fear that if they approve of family planning and allow their wife to use it, they will lose their role as head of the family, their wife may be unfaithful or they may lose face in their community (Watkins, 1997). Even when men approve of family planning in theory, they may disapprove of their partners' practicing contraception and may be unwilling to use male condoms (Blanc, 2001). As a result, women may sacrifice their own wishes to those of their partners—or their perception of their partners' wishes (Speizer, 1999). Alternatively, women may practice contraception covertly, potentially exposing themselves to financial vulnerability or emotional or physical violence if discovered (Population Council, 2001). Conversely, women who have some decision-making power and autonomy often are better able than other women to meet their reproductive health goals (Kishor, 2000).

3.2 Conceptual Model

The conceptual model is structured by the conceptual framework in section 3.2.1 and the definition of different concepts that have been used in the conceptual framework in section 3.2.2. The conceptual model also gives a link to the theoretical framework through the construction of the conceptual framework as the theories use in the theoretical framework act as the foundation for the construction of the conceptual framework.
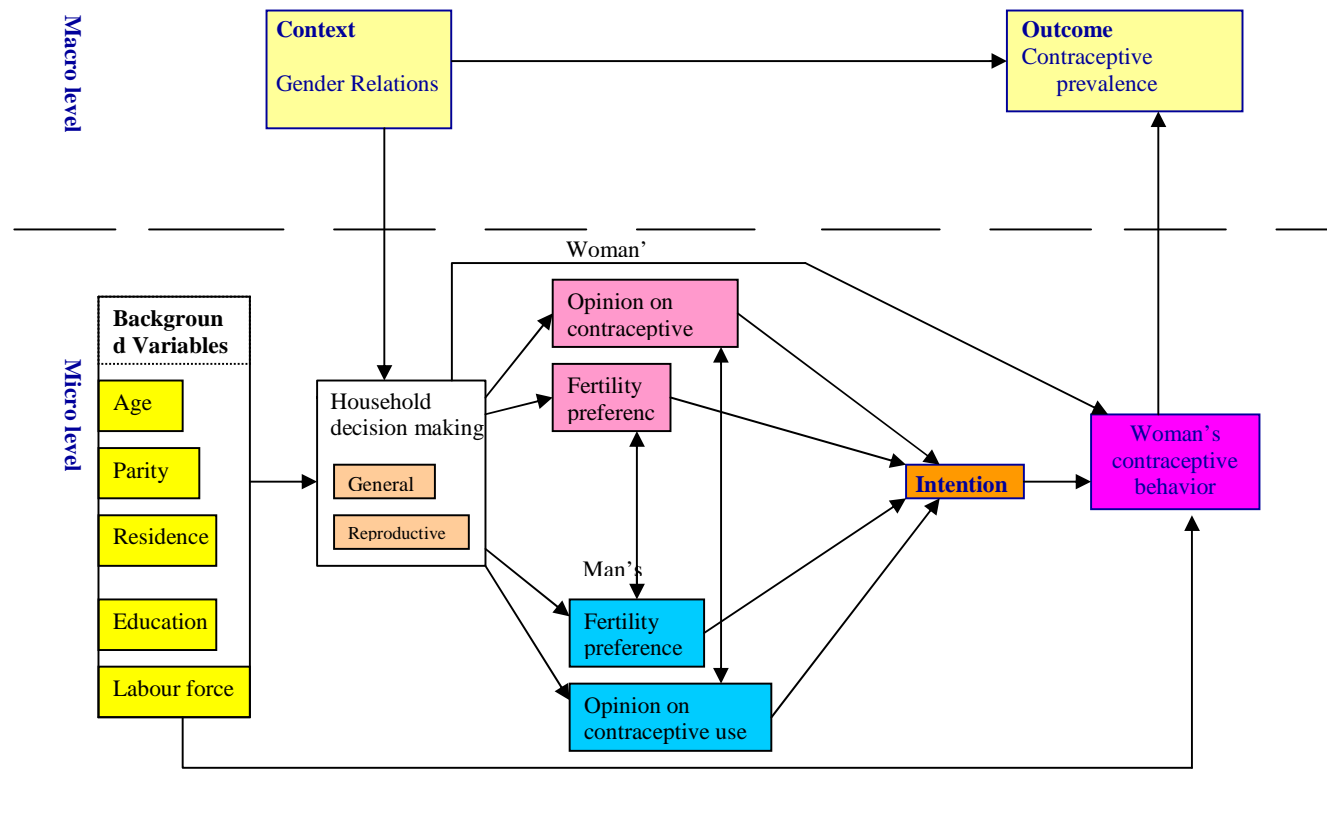
3.2.1 Conceptual Framework

The conceptual framework is built up on the theoretical framework, which is the foundation of the study. The framework is structured by the Coleman's (macro-micro) model of sociological explanation and the theory of reasoned action at the micro level. Gender relations are considered at the societal context, at macro level and at the micro level through household decision making. Figure 3.2 gives the conceptual framework on which this study is based. The conceptual framework takes the structure of the Coleman's model with the theory of reasoned action linking the two micro level variables. The macro level takes gender relations for the social contexts and contraceptive prevalence as the outcome. At micro level household decision making, as individual household

characteristic, is link to women's contraceptive use, as individual behaviour, through the theory of reasoned action.

The theory of reasoned action is theorised that intentions, which determine behaviour are a function of two basic determinants: attitude toward behaviour and subjective norms of behaviour (Ajzen, 1996). As attitude toward behaviour is an individual's positive or negative belief about performing a specific behaviour; this study looks at women's fertility preferences and their opinions on contraceptive use as their attitudes towards using contraception. Subjective norms also assumed to be a function of beliefs that specific individuals approve or disapprove of performing the behaviour; this study looks at men's fertility preferences and men's opinions on contraceptive use as the subjective norms influencing women's contraceptive behaviour. These attitudes and subjective norms are influenced by the individual household gender characteristics in terms of household decision making, which are either general decision making or reproductive decision making.

The external variables also known as the background variables, which in the theory of reasoned action include socio-demographic variables and personal traits, include in this study, women's variables such as age, parity, residence, education and labour force participation, as the background variables. All these variables are shown in the conceptual framework in figure 3.2.

Fig. 3.3 **Conceptual Framework**

The conceptual framework shows links of the macro level and micro level variables in trying to explain women's contraceptive use, which in turn determines the contraceptive prevalence rate. At micro level, men and women's fertility preferences and opinions on contraception all read to intentions to perform behaviour. These intentions may lead to use or non-use of contraception, which has a bearing on the contraceptive prevalence rate of a country (at macro level). The measures of household decision making are influenced by background variables, which may also indirectly influence the behavior (contraceptive use). The household decision making variables, which are a measure of gender relations at household level may influence men and women's fertility preferences and their views about contraceptive use, as to whether they would approve or disapprove the use of contraception.

It should be noted that not all intentions lead to a certain behavior. In the above issue, not all intentions caused by different factors lead to contraceptive use. Some women may have strong intentions to use the contraception but do not use them, while other women's intentions lead them to use the contraception.

3.2.2 Conceptual Definitions

This section gives definitions of all concepts that have been used in the conceptual framework. Following from the figure 3.3 above, the conceptual framework is divided into two parts; the macro level that is on the society level and the micro level that is on the household level. The definitions of the concepts are also given in accordance to the layout of the conceptual framework.

The Micro Level

This is the main focus of the research and the major part of the conceptual framework. The following the definitions of its concepts, except intention, as it is not used in this study because of lack of information to measure it:

Contraceptive use

This is the practice of any form of fertility regulation, also known as family planning (PRB, 2005). It is use of a regimen of one or more actions, devices, or medications in order to deliberately prevent or reduce the likelihood of a woman becoming pregnant ('Birth Control', August, 2006: http://en.wikipedia.org/wiki/).

Fertility Preference

According to the ZDHS (2001-2002), fertility preference is the desire to have a/another child or to have the desired number of children.

Household Decision-making

This is the act of reaching a conclusion or making up one's mind on what should be done in a household. It may include decisions on making purchases for the household or decisions on the daily chores in the household (general decision-making): And decisions on when and how many children the have (reproductive decision-making).

Education

Education is the knowledge or skill obtained or developed by a learning process. It may be determined by the number of years that one has spend in the learning process.

Residence

A residence is a place in which one lives or dwells.

Opinion of contraception

This is a perception, judgement or interpretation of contraception that a person may have.

Age

Age is the length of time that one has existed, since their birth day. It is usually measured in years.

Labour force participation

The labour force participation is a measure of an economy's working-age population that is economically active. All people age 15- 64 years who are working or employed are participating in the labour force. (Samuelson, 1992)

Macro Level

The macro level which has no much focus in this study is presented in the conceptual framework as a process that occurs on a societal level. The following are the definitions of its concepts:

Gender Relations

Gender relations pertain to all aspects that relate of men and women in terms of their roles in the society. These may include relationships between men and women in marriage, political rights, gender roles, and sexual division of labour, masculinity and sexualities. (Shoemaker, 1998)

Contraceptive prevalence

According to the WHO (2006), contraceptive prevalence rate is the percentage of women between 15-49 years who are practising, or whose sexual partners are practising, any form of contraception.

3.3 Hypotheses

Based on the relevant knowledge from literature, the study yielded the following hypotheses for the research questions:

- Male dominance in household decision-making has a negative influence on the women's contraceptive behaviour.
- Women's labour force participation has a positive influence on their contraceptive behaviour.
- Women in urban areas are more likely to be involved in household decision making and are also more likely to use contraception than women in rural areas.
- Women with higher education attainments are more likely to participate in their reproductive decision-making and are also more likely to use contraception than women with low education attainments.
- The higher the parity the more likely for a woman to participate in reproductive decision-making and the more likely to use contraception.
- Men's negative view on contraceptive use has a negative influence on the woman's contraceptive behaviour.
- Men's desire to have (a/another) child has a negative influence on the woman's contraceptive behaviour.

4. Data and Methods

4.1 Data Sources

Data for this research came from the 2001-2002 Zambia Demographic and Health Survey (ZDHS), which collected data from 7, 658 female respondents aged 15–49 and 2, 145 men aged 15–59. The data was requested from MeasureDHS, the organizers of Demographic Health Surveys in most developing countries.

The survey collected nationally-representative data of women and men of reproductive age designed to provide information on fertility, family-planning, child survival and health of children. A representative probability sample of approximately 8,000 households was selected for the Survey. All women aged 15-49 who were either permanent residents of the households in the ZDHS sample or visitors present in the household on the night before the survey were eligible to be interviewed in the survey. In addition, in a sub sample of one-third of all the households selected for the ZDHS, all men aged 15-59 were eligible to be interviewed if they were either permanent residents or visitors present in the household on the night before the survey. (ZDHS, 2001-2002)

Because the study was on gender relations in a household, only respondents living with a partner would be eligible for this study. Thus, the research used a couples' file, from the ZDHS data file, which included only identified couples from the sample. A total of 1120 couples were recorded in this couple data file, representing 1120 men and 1120 women.

4.2 Software used

As the data that was requested from MeasureDHS was already in Statistical Package for Social Scientists (SPSS) software format, all the data processing and analyses for this study where done with Spss.

4.3 Data handling

The couple's file obtained from the MeasureDHS consisted of 2136 variables, which pertained to all demographic and health issues like fertility, family-planning, child survival and health of children. For such a huge file, the most important task was to select only variables necessary for the analysis. These variables were selected on the basis of them giving a good measure of the concepts in the conceptual framework and also as good measures of the operational definitions in section 7.3.2.

Despite the knowledge that data from MeasureDHS had already been checked for errors ('Data Quality and Use', 2005, http://www.measuredhs.com/accesssurveys/Data_quality_use.cfm), having a quality checks performed on all the data for completeness and consistency was imperative in case of incompleteness and/or inconsistencies. Quality checks were also considerable for the purpose of having a feel of the data.

Frequencies were run for all variables in the analysis file and missing variables were cautiously checked. Cross tabulations of all variables were run and associations between the variables were noted. The data showed no flawed values and was found to be more than perfect to be used for further analysis.

4.4 Identification of Variables

The variables from the conceptual framework were classified into dependent, independent and antecedent variables as follows:

Dependent variable

- Women's contraceptive use

Independent variables

- Household decision-making (general and reproductive)
- Men and women's fertility preferences
- Men and women's views of family planning

Antecedent variables: the variables which precede the independent variables and determine them.

- Residence
- Education
- Parity
- Age
- Labour force participation

4.5 Operationalisation of the Variables

From the Figure 3.3, which is the conceptual framework, as earlier stated, only the micro-level is of focus in this research. Therefore, the operationalisation of the variables is only for those variables in the micro level. As also already mentioned, this study did not analyse the variable intention as no information was available from the ZDHS data about intentions for current contraceptive use of women. Only women's current contraceptive use was used as the behaviour to be considered.

Women's contraceptive use

This variable is measured by finding out if a woman is currently using any contraceptive method. According to the ZDHS (2001-2002), women respondents were asked if they were currently using any method to delay or avoid getting pregnant.

Fertility preference

This was measured by respondents asked if they desired to have (a/another) child.

Household decision-making

This variable was split into two; reproductive decision-making and general decision-making. Key questions from the ZDHS questionnaire were: 'who in your family usually makes decisions on;-

- Making large household purchases?
- How many children to have and when?'

The former question measured general decision-making, while the latter one measured reproductive decision-making.

Women's labour force participation

A question was asked to respondents if 'aside from housework, they were currently working' (ZDHS, 2001-2002). This yielded a yes/no binary response.

Opinion of contraception

In measuring men and women's opinions of contraception, key questions from the ZDHS questionnaire were selected, that tried to find out if respondents approved or disapproved of couples using a contraceptive method to avoid getting pregnant. Female respondents were further asked to give the opinions of the husbands on contraceptive use.

Residence

The ZDHS (2001-2002) measured residence as the place where one lived; either the rural or the urban area.

Education

Education was measured as the highest level of school one had attended; which was either primary education, secondary education or higher (tertiary) education.

Age

This was measured as the age of the respondent at the last birthday.

4.6 Data Processing

The data processing mainly involved re-categorizing variables in the analysis file to create categories suitable for the planned analysis. Variables were re-categorized through computing and recoding processes from spss for easy analysis. For instance, 'current contraceptive use' by women, which was the only dependent variable was recoded from a four response variable of 'non-use'=0, 'folkloric method'=1, 'traditional method'=2 and 'modern method'=3 to just two categorical responses of 'non- use'=0 and 'use'=1, making it a binary dependent variable. This was facilitated by the need to use logistic regression analysis as logistic regression analysis requires that the dependent variable be a binary. This is discussed later in the paper. The other variables that were recoded include women's age, women's participation in household decisions and men and women's fertility preferences.

The women's age variable was categorized from a continuous variable, ranging from 15 years to 49 years, to a categorical variable with three categories, '15-24'= 1, '25-34'= 2 and '35-49'= 3.

The reasons for categorising age in these three groups is that in reproductive health, people who fall in the reproductive age group of 15 to 49 can be grouped as 'young people, those in the ages between 15 to 24, 'young adults' those in the ages 25 to 34 and 'adults' those in the ages 35 and above (WHO, 1996) . Thus it was interesting to study if the use of contraception was different among these groups.

 The variable 'Women's participation in household decision-making' was created from the household decision-making variable. This variable was created for the purpose of addressing one hypothesis that looked at women's participation in decision-making in influencing their contraceptive behaviour. This was achieved through re-recoding the household (general and reproductive) decision-making variables into two categorical responses of 'woman participates' and 'husband alone' in decision-making ,by combining responses "wife alone" and "Joint husband and wife". This new variable did not distinguish between women who had sole decision-making powers and women who shared such powers equally with their husbands or partners. The rationale for taking this approach in measuring women's participation rather than the one that distinguishes joint decision-making and wife alone was that in a strongly patriarchal society such as Zambia, the belief is that women should have decision-making powers at least equal to their husbands. Nonetheless, a significantly strong indication of women's sole decision-making is a better indicator of women taking part in household decision-making, especially in reproductive decision-making, which affect their bodies.

4.7 Methods of Analysis

Quantitative analysis methods were used for this study, which involved the production and interpretation of frequencies and tables that described the data. The analysis was divided into three parts, univariate analysis, examining interactions and relationships and multivariate analysis.

Univariate analysis applied frequencies, cross-tabulations and logistic regression analysis, to test the relationship between two variables, the dependent variable (contraceptive use) and any other independent variable.

Examining interactions and relationships we used log linear analysis (using model selection-log linear analysis). This was used in order to find and explain any possible associations among variables to be used in a multivariate analysis.

Multivariate analysis applied logistic regression analysis to understand the relationship between dependent variable and any other two or more covariates.

We began by examining the relationships between the dependent variable and all the other variables in the analysis data file. The differences in the categories of the other variables by women's contraceptive use were examined. For instance, differences in women's contraceptive use by rural-urban, educational attainment, age, parity, labour force participation, and by who makes household decisions and by fertility preference were all examined. The results gave possible explanations of the relationships between the two variables.

We used log-linear analysis to examine the possible interactions and relationships that existed among the variables in the research questions. Thus log-linear analysis was used to examine if there was any difference in the relationship between household decision-making and women's contraceptive use by residence, educational attainment, parity or age of women. It was also used to examine if there was any difference in men and women's fertility preferences in influencing women's contraceptive behaviour.

Logistic regression analysis was used to ascertain how women's contraceptive use differed by categories of all the other variables in the analysis file. As a multivariate analysis method, logistic regression was used for further analyses of the results from the log-linear analyses, in order to further understand the relationships found. For instance, logistic regression would examine how the relationship between household decision-making and contraceptive use, differed by residence, educational attainment, parity or age of women.

4.8 Application of Logistic Regression

According to Nurusis (1997) 'logistic regression is useful for situations in which you want to be able to predict the presence or absence of a characteristic or outcome based on values of a set of predictor variables… where the dependent variable is dichotomous' (Nurusis, 1997, p1). Logistic regression is similar to linear regression but is suited in models where the dependent variable is dichotomous. For this study the dependent variable is dichotomous with two categorical responses of 'yes' and 'no' to using contraception by women. It is coded as 'yes' =1 and 'no' =0.

The equation for logistic regression analysis used in this study is;

$$\frac{p}{1-p} = ExpBo * ExpB1x$$

Where (P/1-P) is the odds, that is, the probability of success (an event happening) divided by the probability of no success (an event not happening).

$ExpB_1$ (Exponential B) is the odds ratio, which measures the change in the odds for every one unit change in the X variable. $ExpB_0$ is the constant of the equation.

For this study, the odds is the probability of a woman currently using contraception divided by the probability of a woman currently not using contraception. Odds can take any integer value from negative infinite to positive infinite. Therefore, the higher the odds value, the higher the likelihood of a woman to be using contraception.

When $ExpB_1$, which is the change in the odds of contraceptive use by change in the independent variable, is less than one, then there is a negative change in the odds and the likelihood of women's contraceptive use is reduced. When it is equal to one, then there is no change in the likelihood of women using contraception by the influence of the change in the independent variables. If the $ExpB_1$ is greater than one, then the likelihood or probability of a woman to use contraception increases due to the influence of the change in the independent variable.

The chosen significance level in all the analyses is 0.05.

5. Results

The presentation of the data results is given in three parts. The first part gives the descriptive statistics of the sample and the cross-tabulation of all the variables in the analysis file, against the dependent variable; while the second part presents the research results by research questions and hypotheses. The third part presents a model, which shows how all the covariates, combined together, influence women's contraceptive use.

5.1 Description of the sample

Below is the histogram chart that shows the age distribution of the women in the sample. Age values are on the horizontal axis and frequencies are on the vertical axis

*Figure5.1.*Current age Distribution of Women staying with partners, (couples)
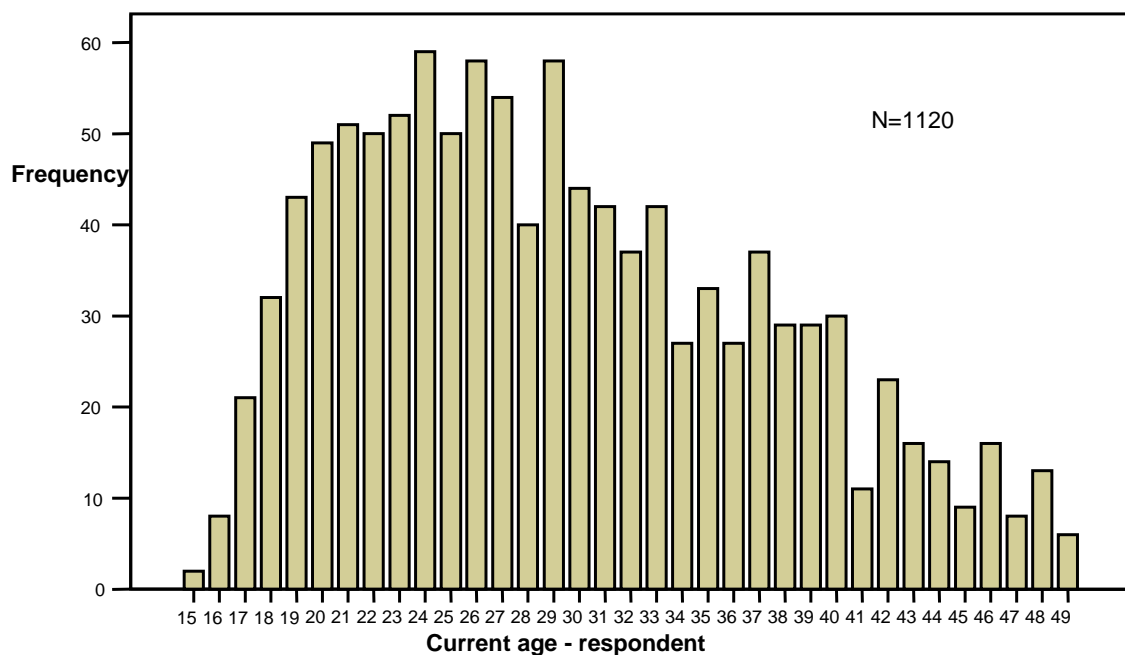
The women in the sample have the mean age of 29.36 years, which is the average age of the distribution. The median age, that is, the age that is greater than half of the whole sample and less than the other half is 28 years. The age with the highest frequency or mode is 24 years.

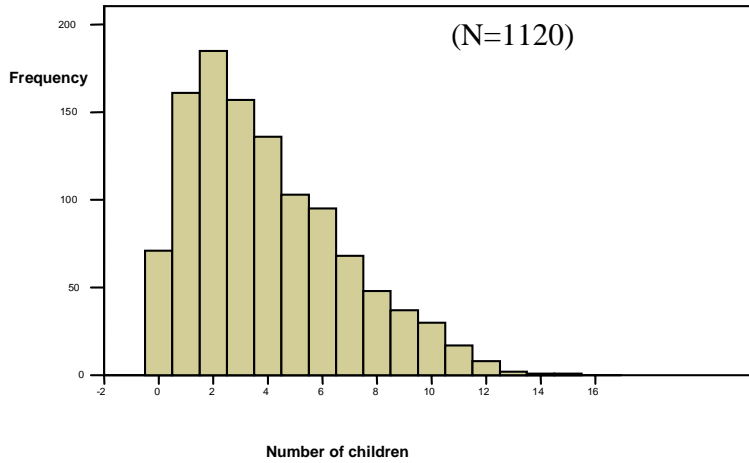**Figure 5.2.Total children ever born (Parity) to women in the sample**

Figure 2 shows the number of children ever born to women in the sample. The chart shows two children as the parity with the highest frequency and 15 children as the lowest frequency. The mean parity is 3.98 children, while the median parity is 3 children.

The study found that 65.3 percent of the women reported not using any form of contraception while 37.7 percent where using at least one method of contraception.

Figure 3 below shows a pie-chart of current contraceptive use by method.

Figure5. 3. Percentage of women's current use of contraceptive by method type
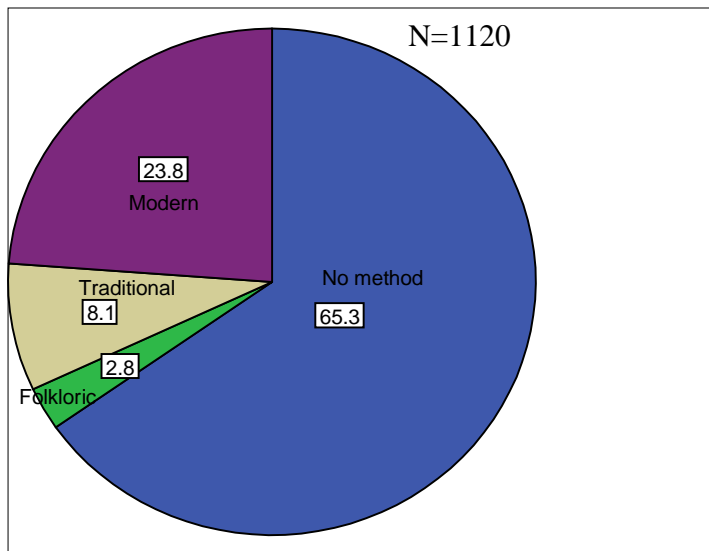
The figure shows that of the whole sample only 23.8 percent were using modern methods of contraception and 8.1 percent were using traditional methods. 2.8 percent were using folkloric methods. Folkloric methods are those contraceptive methods that are practiced by people based on their traditional beliefs or myths whose effectiveness is mainly unfounded (Arustamyan et al, 2000).

Table 1 below shows frequencies of all those women currently using any contraception by the actual method used.

Table 5.1: **Percentage and frequency of contraception methods used by women (N=1120)**

Contraceptive method	Frequency	Percentage
Modern		
Pill	124	46.44
IUD	3	1.12
Injections	50	18.73
Diaphragm, foam, jelly	3	1.12
Condom	40	14.98
Female Sterilization	17	6.37
Female condom	1	0.37
Lactational amenorrhea	29	10.86
Total	**267**	**100**
Traditional		
Periodic Abstinence	18	19.78
Withdrawal	73	80.22
Total	**91**	**100**
Folkloric methods		
Other	20	64.52
Herbs, roots, strings, beads	11	35.48
Total	**31**	**100**

The table shows that among all the women who use modern contraceptives, the majority of them use the pill, which counts to 46.4 percent. Injections are the second most used modern contraceptive methods at 18.7 percent while female condoms are the least used type of modern contraception. Withdrawal is the most practiced traditional kind of contraception accounting for 80 percent of all that use traditional kind of contraception to regulate their fertility. A least 11 people from the sample reported to have been using herbs, roots, strings or beads as a fertility regulator, and 20 used any other kind of folk methods.

The frequency distributions of the remaining variables in the analysis file are presented in table 2 below. The table also shows cross-tabulations of all the variables with the dependent variable 'women's current contraceptive use' that examines the relationship between the dependent variable and the independent variables.

Table5. 2 Descriptive Statistics for all Variables in the Analyses and thier Relationship with Contr. Use

		Women's contraceptive use	
	Frequency	YES	NO
Age		%	%
15- 24	367	32.7	67.3
25- 34	452	36.7	63.3
35- 49	301	34.2	65.8
Parity			
0-2	417	29.5	70.5
3-5	396	37.6	62.4
6+	307	38.1	61.9
Residence			
Urban	299	48.2	51.8
Rural	821	29.8	70.2
Education			
No education	150	26.7	73.3
Primary	735	30.7	69.3
Secondary	209	49.8	50.2
Higher	26	73.1	26.9
Labour Force			
Employed	688	34.9	65.1
Unemployed	431	34.3	65.7
Missing	1		
General decision-making			
Wife alone	116	36.2	63.8
Joint wife and husband	311	39.9	60.1
Husband alone	683	32.4	67.6
Missing	10		
Reproductive decision-making			
Wife alone	80	31.3	68.8
Joint wife and husband	530	40.9	59.1
Husband alone	495	28.7	71.3
Missing	15		
Husband Approves FP			
Disapproves	166	18.7	81.3
Approves	753	44.5	55.5
Don't know	201	11.4	88.6
Wife Approves FP			
Disapprove	109	11	89
Approve	954	38.9	61.1
Don't know	57	10.5	89.5
Women's Fertility Preference			
No (more) children	349	41.3	58.7
Otherwise	768	31.8	68.2
Missing	3		
Men's Fertility Preference			
No (more) children	293	47.4	52.6
Otherwise	827	30.2	69.8
Total	**1120**	**37.7**	**65.3**

From the table 5.2 above, there is not much difference shown in contraceptive use by different age groups of women; even though age group 25-34 years shows a higher percentage of 36.7 percent compared to the age group with the lowest percentage 15- 24 years at 32.7 percent.

The table shows that the higher the parity, the higher the proportion of contraceptive use by women. Only 29.5 percent of women with parity less than three reported to be currently using any contraceptive method. The percentage is higher at 37.6 percent for those women with parity between three and five and is further higher at 38.1 percent for parities six and above.

By residence the table shows that about 73 percent of the sample was from rural areas compared to only 27 percent from urban areas. The percentage of contraceptive use was higher in urban areas at 48.2 percent compared to only 29.8 percent among rural women.

By education level, the results show that the highest proportion of women, (735/1120) about 66 percent, only had primary education and a very small proportion (26/1120) about 2.3 percent had higher education levels .Contraceptive use was highest among the highly educated women at 73 percent and lowest among the women with no education, at 26.7 percent.

About 61.5 percent of the women in the sample reported to have been working in any form of employment, but there was no clear difference noted between the employed and the unemployed by their contraceptive behavior. The employed women had a slightly higher percentage of contraceptive use than the unemployed at 34.9 and 34.3 percent respectively.

Table 5.2 also shows the highest proportion of general decision-making in households by 'husbands alone' (683/1110) about 62 percent; while the highest proportion of reproductive decision-making is by 'joint husband and wife' (530/1105) about 48 percent. Contraceptive use is highest among women from households where decisions (both general and reproductive) are made by wife and husband jointly. About 39.9 percent of the women from households where general decisions are made by wife and husband jointly were currently using contraception and 40.9 percent of women in households where reproductive decisions are also made by both partner were currently using contraception.

As to whether a husband or wife approved family planning, about 85.2 percent of the women in the sample expressed their approval for family planning compared to 67.2 percent approval by their husbands. Contraceptive use was highest where family planning was approved for both husbands and wives. It was higher where husbands gave their approval, at 44.5 percent, compared to 38.9 percent where wives approved.

From the table, a higher proportion of women than men wanted no (more) children, and women's contraceptive use was higher where women and men expressed their fertility

preferences of wanting no (more) children. However, women's contraceptive use was higher for men's fertility preference of not wanting any (more) children than for women's preference.

5.2 The role of men in household decision-making and women's contraceptive behavior

The first research question aimed at finding out if the role of men in household decision-making influenced the women's use of contraception. From literature it was hypothesised that male dominance in household decision-making had a negative influence on the women's contraceptive behaviour.

The cross-tabulations in table 2 suggest that in households where general decisions are predominantly made by husbands alone, women's contraceptive use is lowest and it is highest where the decisions are jointly made by both partners. A similar phenomenon occurs to reproductive decision-making; women's contraceptive use is lowest at 28.7 percent where husbands alone make reproductive decisions and highest at 40.9 percent where decisions are jointly made.

Table 5.3 below shows the results for household decision-making and women's contraceptive use. This logistic model tried to predict women's contraceptive use using general and reproductive decision-making variables as predictor variables.

Table 5.3 :Results for Household Decision-making and Women's contraceptive use

General Decisions	Exp(B)	Sig. (0.05)
Husband alone		
Wife alone	1,2051	0,3807
Joint husband and wife	1,3754	0,0267
Reproductive Decisions		
Husband alone		
Joint husband and wife	1,7070	0,0001
Wife alone	1,1176	0,6712

From table 5.3, the log odds of currently using any contraception by women are regressed by the two dummy variables in both general and reproductive decision-making variables. Using response 'husband alone' as the reference, it is found that, in both variables, 'wife alone' and 'joint husband and wife' have higher log odds of women currently using any contraception than 'husband alone'. In other words, women are less likely to be currently using any contraception where husbands alone are making household decisions, either general or reproductive, than where decisions are jointly made or made by wives alone. However in both variables, 'wife alone' is not significant, which implies that there is no convincing difference between households in which husbands alone or wives alone make household decision in influencing women's contraceptive behavior. Therefore, only 'joint

husband and wife', which is significant is concentrated on. Thus, the odds of women currently using any contraception is about 1.4 times as large where general decisions are made jointly by partners than where they are made by husbands alone; and about 1.7 times as large where reproductive decisions are made jointly by partners than where they are made by husbands alone.

5.3 Women's labour force participation and contraceptive use

The second research question tried to find out whether women's labour force participation influences their contraceptive behaviour. The stated hypothesis suggested that women's labour force participation had a positive influence on their contraceptive behaviour.

The cross-tabulation in table 5.2 shows not much difference in the percentages of the women currently using any contraception by their employment status. The employed and the unemployed stand at 34.9 percent and 34.3 percent respectively in current contraceptive use

Table 5.4;Results of the relationship between labor force participation and Women's contraceptive Use

Labour Force Participation	Exp(B)	Sig.(0.05)
Unemployed	0,98	0,85
Employed		

The log odds of women currently using any contraception regressed against labour force participation as shown in table 5.4, where 'employed' as the reference, shows non-significance in contraceptive use between the employed and the unemployed women. The odds ratio of the unemployed to the employed, which is 0.98, suggests that the odds of a woman currently using any contraception is about 0.02 (2 percent) lesser for the unemployed than for the employed; and it is not significant at 0.05 significance level, implying that there is no difference in women's current contraceptive use between the employed and the unemployed.

5.4 Household decision making and women's contraceptive behaviour by residence (rural-urban)

Research question three looked at whether there are any rural-urban differences in the relationship between household decision-making and women's use of contraception. The stated hypothesis is that women in urban areas are more likely to be involved in household decision making and are also more likely to use contraception than women in rural areas. The results of the cross tabulation of household decision-making and women's current contraceptive behaviour by residence are shown in the tables 5.5 and 5.6 below.

Table 5.5: **Percentage of women reporting general household decision-making and contraceptive use by urban and rural**

Residence	General decision making	Frequency	Women's Current contraceptive use	
			YES (%)	NO (%)
Urban	'Wife alone'	45	48.9	51.1
	'Joint wife and husband'	100	49	51
	'Husband alone'	152	48	52
Rural	'Wife alone'	71	28.2	71.8
	'Joint wife and husband'	211	35.5	64.5
	'Husband alone'	531	27.9	72.1

Table 5.6: **Percentage of women reporting reproductive decision-making and contraceptive use by urban and rural**

Residence	Reproductive decision making	Frequency	Women's Current contraceptive use	
			YES (%)	NO (%)
Urban	Wife alone	102	33.3	66.7
	Joint wife and husband	172	57	43
	Husband alone	20	50	50
Rural	Wife alone	393	27.5	72.5
	Joint wife and husband	358	33.2	66.8
	Husband alone	60	25	75

Table 5.5 shows that in the rural areas, contraceptive use is lowest where husbands alone make general household decisions (27.9 percent) and highest where general decisions are made jointly by partners (35.5 percent). In urban areas there seem to be not much difference in contraceptive uses by type of general decision making household. Contraceptive use stands almost the same in 'joint wife and husband' and 'wife alone' households at about 49 percent and slightly lower in 'husband alone' households at 48 percent.

Table 5.6 shows that in urban areas, contraceptive use is lowest where 'wife alone' make reproductive decisions (33.3 percent) and highest where both husband and wife make 'joint' decisions (57 percent). However, in rural areas, contraceptive use it is lowest where 'husband alone' make reproductive decisions (25 percent), but also highest where the decisions are made jointly (33.2 percent).

Using log-linear analysis method to examine interactions between variables 'general decision-making', 'women's contraceptive use' and 'residence', the method yielded a model of conditional independence of 'general decision-making' and 'women's contraceptive use', given 'residence'; meaning that the method found associations between 'general decision-making' and 'residence' and between 'residence' and 'women's contraceptive use', but no association was found between 'general decision-making' and 'women's contraceptive use'. With reproductive decision-making in place of general decision-making, the method yielded dependence (associations) between 'residence' and 'women's contraceptive use', between 'residence' and 'reproductive decision-making' and also between 'reproductive decision-making' and 'women's contraceptive use'.

Therefore, from the log linear results, it could be stated that there are no rural-urban differences in the relationship between general decision-making and women's use of contraception. However, there were differences in general decision-making by residence and women's contraceptive use by residence. Similarly, there were not differences in the relationship between reproductive decision-making and women's contraceptive use by residence. However, there were differences in women's contraceptive use between rural and urban areas, differences between women's contraceptive use and reproductive decision-making, and differences in reproductive decision-making by residence.

The logistic regression of contraceptive use with residence and general decision-making did not prove any significance at significant level of 0.05, while that of reproductive decision-making and residence is shown in the table below.

Table 5.7: **Results of the relationships between women's contraceptive use and reproductive decision-making by the women's residence**

Residence	Exp(B)	Sig.
Rural		
Urban	2,0965	0,0000
Reproductive decision-making		
Husband alone		
Joint	1,6097	0,0005
Wife alone	1,0946	0,7325

Taking 'rural' and 'husband alone' as references for residence and reproductive decision-making respectively, table 5.7 shows that women where reproductive decisions are jointly made have a higher significant log odds of using a contraception compared to women where husbands alone make these decisions and that urban women have a significantly higher odds of using a contraception than rural women and their odds is about 2.1 times higher than for their counterparts in the rural areas.

5.5 Reproductive decision-making and women's contraceptive behavior by educational attainments

The fourth research question aimed at finding out whether the relationship between reproductive decision-making and women's contraceptive use differs by women's education attainments. Previous literature has helped to yield a hypothesis that states that women with higher education attainments are more likely to participate in their reproductive decision-making and are also more likely to use contraception than women with low education attainments. The relationship between reproductive decision-making and women's current contraceptive behaviour by education attainment is shown in table 5.8 below.

Table 5.8: **Percentage of women participating in reproductive decision-making and using contraception by their education attainment**

Education Level	Reproductive decision maker	Freq	Women's contraceptive use	
			YES (%)	NO (%)
No education	Wife's participation	57	24.6	75.4
	Husband alone	87	27.6	72.4
Primary	Wife's participation	384	32.8	67.2
	Husband alone	346	28.6	71.4
Secondary	Wife's participation	145	57.2	42.8
	Husband alone	60	31.7	68.3
Higher	Wife's participation	24	79.2	20.8
	Husband alone	2	0.0	100

The table shows categorically that the proportion of women's participation in reproductive decision-making increases by education attainment of women. For instance at 'no education' level, there are more 'husbands alone' than 'wife's participation' (87 versus 57) in making reproductive decisions, but as women's education attainment raises, more women are participating in their reproduction, at higher education level 24 wives participate compared two husbands alone make reproductive decisions. The table also shows that contraceptive use is higher among highly educated women, who participate in their reproductive decisions than lowly educated ones.

The table further confirms that the relationship between reproductive decision-making and contraceptive use differs by education attainment of women. It shows that the higher the education attainment the higher the percentage of women who participate in reproductive decision-making and are currently using any contraception.

The log-linear model selection analysis of reproductive decision-making, women's contraceptive use and education attainment yields a three-way dependence (association) model, which gives an interaction between reproductive decision-making and education for women's contraceptive use. This three-way interaction can be interpreted that the

contraceptive behavior of women by their education statuses is different by the household reproductive decision-makers. The testing of this interaction on the odds of women's contraceptive behavior is given in table 5.9 below.

Table 5.9: **Results of the interaction between education and reproductive decision-making**

Interaction variables	Exp(B)	Sig.(0.05)
Husband alone * No education	0.5281	0.0400
Husband alone * Primary	0.5557	0.0109
Husband alone * Secondary	0.6425	0.1942
Joint * No education	0.3899	0.0270
Joint * Primary	0.6869	0.1023
Joint * Secondary	1.9458	0.0114
Wife alone * Higher education		

Taking 'wife alone' and 'higher' education attainment as the reference categories, the table shows that in households where husbands alone make decisions,the odds of women's use of contraception increases by increase in the education attainment of women. The odds are significantly lower for women with no education and women with primary education by 47 percent and 44 percent respectively compared to women with higher education attainments: While women with secondary education are not significantly different (in contraceptive use) to women with higher education in households where husbands alone make reproductive decisions.

In households where reproductive decisions are made jointly, women with no education and those with primary education have lower odds of using contraception than women with higher education. However, those with primary education show no significance to those with higher education. Meanwhile women with secondary education, coming from households where reproductive decisions are made jointly, show that they are more likely to use contraception (odds of 1.9 times higher) than their counterparts with higher education also from households where decisions are made jointly.

5.6 Household decision-making and women's contraceptive behavior by parity

Question five looked at how parity explains the relationship between household decision-making and women's contraceptive use. It is hypothesized that the higher the parity the more likely for a woman to participate in reproductive decision-making and the more likely to use contraception.

When log-linear analysis was applied to find the relationship between parity, women's contraceptive behavior and household decision-making, the three variables yielded a result of conditional independence between parity and reproductive decision-making given contraceptive use. This means that there is a difference in contraceptive behavior of women by the number of children they have had, but there exists no relationship between parity and reproductive decision-making.

Table 5.10: **Results of the relationship between women's parity and contraceptive use**

	Exp(B)	Sig.
Parity	1.0488	0.0290

The table confirms that parity has a positive relationship with women's contraceptive behavior. It shows that when parity of a woman increases by one, the odds ratio increases by 1.0488, that is, a woman who has an additional child has a 1.0488 odds ratio higher or has a high chance of using contraception.

5.7 Fertility preference and women's contraceptive behavior

The sixth research question investigated the difference between men's and women's fertility preferences in influencing contraceptive behavior. The hypothesis is stated that men's desire to have (a/another) child has a negative influence on the women's contraceptive behaviour.

The investigation of the relationship of the three variables, men's fertility preferences, women's fertility preferences and women's contraceptive use resulted into a model that gave a conditional independence of women's fertility preference and women's contraceptive use, given men's fertility preference. The associations found were only between men and women's fertility preferences and between men's fertility preference and women's contraceptive behavior. There was no association between women's fertility preferences and their contraceptive behavior. Thus women's fertility preference influencing their contraceptive behavior could only be explained through men's fertility preferences.

Table 5.11: **Results of the relationship of women's contraceptive use by husbands' and wives' fertility preferences**

Fertility Preference	Exp(B)	Sig.
Husband		
Otherwise		
No (more) Child(ren)	1.9522	0.000
Wife		
Otherwise		
No (more) Child(ren)	1.1515	0.3441

From the table, wife's fertility preference is not significant to contraceptive use, meaning any preference a woman may have, either not to have any more children or otherwise, has no influence on her contraceptive behaviour; whereas men's fertility preference is very significant to their wives' contraceptive behaviour. Men who prefer no more children are

much more likely, or have a log of odds which is 1.95 times larger, to have their wives using a contraception.

5.8 Opinions of family planning and their use

The seventh research question aimed at assessing whether husbands' views of contraceptive use influence their wives contraceptive behavior. The hypothesis to be investigated is that men's negative view on family planning has a negative influence on the women's contraceptive behaviour.

As already seen in table two above, contraceptive use of women was found to be higher where family planning was approved by their husbands, at 44.5 percent, compared to 38.9 percent where wives approved family. It was lowest where women did not know whether they approved or did not approve family planning. Taking into account only men and women who knew their opinion of family planning yields table 5.12 below which equally shows that women's contraceptive use is highest where husbands approve family planning and lowest where wives' disapprove it.

Table 5.12: **Percentages of husbands and wives who approved or disapproved family planning and the women's use of the family planning methods**

| Husband Approves FP | Frequency | Women's contraceptive use | |
| | | YES | NO |
		%	%
Disapprove	166	**18.7**	**81.3**
Approve	753	**44.5**	**55.5**
Wife Approves FP			
Disapprove	109	**11**	**89**
Approve	954	**38.9**	**61.1**

The table also shows that disapproval by women leads to much lower use that that of their husbands. To verify whether the disapproval of family planning by wives is more likely to cause non-use of contraception, table 5.13 shows it below.

Table 5.13: **Results of the relationship of women's contraceptive use by men's and women's opinions of family planning**

Approve Family Planning	Exp(B)	Sig.
Husband		
Disapprove	0.4370	0.000
Approve		
Wife		
Disapprove	0.2800	0.0010
Approve		

According to the table above, both husbands' and wives' disapproval of family planning leads to low use of contraception by women as shown by the odds ratios (ExpB) less than one, which are significant. It is shown the wife's disapproval of family planning is more likely to cause non-use of contraception than the husband's disapproval, as the odds ratio for the wives is smaller than that for the husbands. On the other hand, husband's approval of family planning was more likely to cause women's use of contraception than wife's approval.

5.9 Final Model

The final model takes all the relevant independent variables that proved significant with the dependent variable in the previous analyses, in order to estimate their overall impact on the dependent variable. The variables 'reproductive decision-making' and 'education' showed a three-way interaction effect with the dependent variable; thus they were entered as a pair variable in the final model. Table 5.14 below shows the results of the final model.

Table 5.14: **Results of the Final Model of the Log odds of Women's use of contraceptive by the relevant variables.**

	Variables	Exp(B)	Sig.(0.05)
	Intercept	0.4279	0.0000
Women's fertility preference	No (more) child(ren)	0.7466	0.1263
Men's fertility preferences	No (more) child(ren)	1.3330	0.1271
Women's Approval of FP	(disapproves)	0.3328	0.0055
Men's Approval of FP	(disapproves)	0.5098	0.0073
General HH decision-making			0.6597
	(Wife alone)	1.2407	0.3924
	(joint husband and wife)	1.0863	0.6132
Total No of Children	(Parity)	1.0712	0.0507
Residence	(Urban)	1.5097	0.0144
Reproductive decision-making* Education			0.0021
	Joint* Primary	1.0879	0.6195
	Joint* Secondary	2.0272	0.0013
	Joint* Higher	9.1310	0.0007
	Wife alone*Primary	0.9797	0.9534
	Wife alone*Secondary	1.8896	0.4364
	Wife alone*Higher	0.0000	0.9996

The final model of women's contraceptive use shows that only variables men and women's approval of family planning, parity, residence and the interaction of reproductive decision-making and education are significant.

If we are interested in examining the estimated impact of women's and men's approval of family planning on women's contraceptive use, table 5.14 shows that women who disapprove to family planning have odds (1-0.3328) 0.6672 lower than women who

approve family planning. It also shows that men who do not approve of family planning have odds of women's contraceptive use (1-5098) 0.4902 lower than men who approve family planning. These odds are higher compared to table 13 as they are influenced by the inclusion of other variables in the model.

The estimated impact of parity on women's contraceptive use is that an increase of a women's parity by one live birth increases the probability of using contraception by 0.0665 or 6.6 percent (where P = odds/1+odds) and where P is the probability (DeMaris, 1995).

The impact of residence is that urban women are more likely to use contraception than rural women. Urban women are 33.7 percent more likely to use contraception than rural women.

The table shows that among households where reproductive decisions are made jointly, the odds or probability of women's use of contraception increases by education attainment of women. It is about 9.1 times higher for women with higher education compared to women with no education and about twice higher and 1.09 times higher for women with secondary and primary education, respectively. However, 'joint and primary' is not significant meaning that women with primary education are not significantly different from women with no education, both coming from households where reproductive decisions are jointly made.

6. Conclusion and Discussion

6.1 Summary of the results

The objective of this study was to assess how household gender relations influence women's contraceptive use in Zambia. One clear answer to this question is that in households where general and reproductive decisions are predominantly made by husbands alone, women's contraceptive use is low and it is high where the reproductive decisions are made jointly by both partners. The results also show that women are more likely to use contraception in households where reproductive decisions are made jointly by husbands and wives than where they are made by husbands alone.

The study also shows that the relationship between reproductive decision-making and women's contraceptive use differs by residence. It was found that contraceptive use was higher among women in urban areas than women in rural areas. Particularly, contraceptive use was highest among urban women in households where reproductive decisions were made jointly by both partners and lowest among rural women where reproductive decisions were made by husbands alone.

The results further show that the relationship between reproductive decision-making and women's contraceptive use differs by women's educational attainments. It was found that women with higher educational attainments were more likely to participate in reproductive decision-making and were also more likely to use contraception than women with low educational attainments. Women's contraceptive use was found to increase by women's educational attainment and that as women's educational attainment raised, more women were participating in their reproductive decisions.

The study found an association between men's fertility preference and women's contraceptive use, and no association was found between women's fertility preference and women's contraceptive use. While there existed an association between men and women's fertility preferences, the results showed that the relationship between women's fertility preference and their contraceptive behavior could only be explained through men's fertility preference. Thus men's fertility preference had a higher impact on the women's contraceptive behavior than the women's fertility preference on their own fertility behavior.

Contraceptive use was found to be higher where family planning was approved by a husband than where it was approved by a wife.

6.2 Conclusion of the summary

In summary, women's contraceptive use is not just lower in rural areas than in urban areas, but is lowest in rural households where reproductive decision are predominantly made by husbands alone and highest in urban areas where the decisions are made jointly by both partners. Contraceptive use is also highest among highly educated women from households where reproductive decisions are reported to be made jointly by both

partners. Men's fertility preferences dominate women's preferences as contraceptive use is found to be higher where husbands prefer no more children than where wives prefer not wanting any more children. Similarly, men's opinions about contraceptive use are found to overrule women's, as where family planning is approved by men, women's contraceptive use is higher than where family planning is approved by women.

6.3 Discussion of the results

The results above give clear indications of male dominance in decision making and fertility behaviour of women in the Zambian society. They give confirmation to the literature showing that male dominant role in household decisions contributes to the shortfall in women's fertility behaviour vis-à-vis contraceptive use in most African societies (Bongaarts, 1994). The results that contraception use is higher in households where reproductive decisions are made jointly by both partners than where they are made by husbands alone, show that when women and men operate as a unified entity in reproductive decision making, women are more likely to regulate their fertility by using more contraception.

The study shows that contraceptive use is higher among households where decisions are made jointly by couples than where they are made by husbands alone, in both rural and urban areas. It however shows that contraceptive use is higher in the urban than in the rural areas. These results reflect rural-urban difference in contraceptive behaviour as well as in cultural setup. The study found a higher proportion of households, where husbands alone make reproductive decisions, in the rural areas than in the urban areas. About 35 percent of the households in the urban areas reported that husbands alone made reproductive decisions, compared to 50 percent in the rural areas. Thus male dominance is more in rural areas than in urban areas. Therefore, as gender roles are influenced by the cultural setting of a society (Caldwell, 1990), reproductive decisions in rural areas reflect entrenched male dominance than in urban areas, which influence the women's fertility behaviour (Doodo, 2002).

The study confirmed a stated hypothesis that women with higher education attainments were more likely to participate in their reproductive decision-making and were also more likely to use contraception than women with low education attainments. The study showed that women's contraceptive use increased by their educational attainment and that as women's educational attainment raised, more women were participating in their reproductive decisions .This confirms with the findings from studies by Castrol and Juarez that concluded that education influence women's reproduction by increasing their knowledge of fertility, increasing their socio-economic status, and changing their attitudes about fertility control (contraceptive use) (Castrol, 1994). Bertrand's also concluded that education affected the distribution of authority within households, whereby women increased their authority with husbands, and affected their fertility and use of family planning (Bertrand, 1996).

In investigating the relationship of men and women's fertility preferences and women's contraceptive use, the main focus was to confirm whether there was a difference in the way men and women's fertility preferences influenced women's contraceptive behaviour. The findings showed gender imbalances, in that men's fertility preferences seemed to matter more than the women's fertility preferences in influencing contraceptive use. These findings confirm with Dodoo's conclusions in his study on gender, power and reproduction that in many developing countries, men's fertility preferences outweighed women's preferences on reproduction, thus women had very little say even on the fertility that came out of their own bodies (Doodo, 1998).

The study's finding of contraceptive use being higher where family planning is approved by a husband than where it was approved by a wife is a further confirmation of the men's superiority on the women's fertility behaviour. It shows, according to Ezeh, underscores of women's reproductive rights and, specifically, their power to determine their own fertility (Ezeh, 1995).

6.4 Policy Recommendations

Our results provide important information about reproductive decision making in Zambia for subsequent development of programs targeting men's participation. The results clearly showed male dominance in reproductive decision-making and influence of women's fertility behavior vis-à-vis contraceptive use. The results recognize power imbalances and gender inequities, especially among those categories of women and men, where husbands alone were reported to be making reproductive decisions (rural residents and those with relatively little education).Telling women to talk with their husbands about reproductive decision making would probably be unhelpful in places where prevailing gender norms do not encourage this type of communication (Speizer, 2005). Thus, programs need to target men directly with strategies that encourage them to communicate with their wives about reproductive decisions, thus promoting joint decision-making. These strategies could include using community outreach workers in social places where men congregate in rural areas; mass media campaigns that show a group of men discussing the usefulness of having discussed reproductive decisions with their wives; and working in schools to encourage more balanced relationship dynamics between males and females from an early age.

The promotion of girl child education is essential, as a highly educated woman is more likely to have a say on her reproduction, and more likely to use a contraception (Riley, 1997). In Zambia, where society does not see much importance in educating a girl child, the Government should come up with a policy of compulsory education for all children. These types of efforts would improve women's ability to meet their fertility desires and increase their use of contraception to regulate their fertility (lowering the number of children they can have and in turn reduce the total fertility rates).

6.5 Recommendations for further research

Although numerous societal and individual circumstances are thought to influence gender-relative norms and behavior, the data used in this study limited our examination to gender relations and indicators of social class, education and residential area that influence these gender relations. A clearer understanding of power and bargaining processes in sexual relationships requires an examination of partners' influence relative to one another regarding decision making on intra-household and extra-household matters and should take into account how the broader political, social and economic contexts shape partners' decision-making power. (Blanc, 2001) The 2001-2002 ZDHS used single measures to assess respondents' decision-making attitudes, their fertility preference and opinions on family planning. These survey items could not fully capture the complex dynamics behind the processes of gender relations in influencing contraceptive behavior.

Further research could be taken in order to address the above shortcomings. The methodologies necessary for the evaluation of these societal and individual circumstances that are thought to influence the gender relative norms and behavior are qualitative methods. The qualitative research could be used in order to elaborate how social and individual factors influence the gender relations.

Qualitative research may also give an in-depth understanding of the power and bargaining processes behind the reproductive decision making and the contraceptive behavior of women, both at the societal and household level.

Future research should also take into account to find out how these household gender relations influence the use of different methods of contraceptive, like the modern and the traditional methods.

Further qualitative research is also necessary to understand women's intentions to perform the contraceptive behavior, as this study could not fully apply its derived conceptual framework due to lack of information to measure the intention to by women to use contraception, from the ZDHS data.

Finally, we could not establish causal relationships between associated variables because of the survey's cross-sectional design.

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