Determinants of Modern Contraceptive Use among Women of Reproductive Age Living in Rural Areas in Awi Zone, Ethiopia

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Abstract

The use of modern contraceptives contributes to reducing population growth, saving mothers' lives, preventing unwanted pregnancy, and unsafe abortions. The objective of the study is to assess factors affecting the use of modern contraceptives among married women of reproductive age. The study applied mixed research design. The sample population of the study is composed of 157 married women in the reproductive age living in three randomly selected rural kebeles. Data was collected through survey questionnaire, focus group discussion, in-depth and key-informant interviews, and the data was analyzed both by using descriptive and inferential techniques. The result has shown that the rate of women who were using modern contraceptive have decreased by 0.37 odds ratio for the age group 35-39 than age for group 40-44. The use of modern contraceptive methods by illiterate women has increased by a factor of 2.002 when compared to those who have elementary education. Hence, attention should be given to women education, improving economic status of women, raising community awareness of modern contraceptive methods facilitating peer and spousal discussion for the better use of modern contraceptive methods.

Keywords: Awi zone, Contraceptive prevalence rate, Determinant of family planning

Family planning

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1. Introduction

Access to modern contraceptive methods is a health and human rights issue and it helps women to enjoy independence, gender equity and their sexual and reproductive health (Vlugt, 2018). The increased use of contraceptive methods will reduce maternal mortality and infant mortality (Hubacher, 2015). In developing countries, two hundred twenty-two million women who want to delay or avoid pregnancy are not using any method of family planning (Semere et al., 2017). In the past three decades, the use of family planning methods has increased dramatically in the developing world, leading to a fall in fertility rates. Yet there are still significant levels of demand for family planning that are unmet (Tilahun, 2013). In sub-Sahara Africa young people who are aged between 15 to 24 have low family planning utilization rates and limited knowledge about reproductive health and services (CSA, 2016). About 23 percent of married women used family planning that is 18 percent with a modern method and 5 percent with a traditional method. In Western Africa, for example, more than 14 percent of women in Ghana used modern contraceptive methods, compared with less than 5 percent of women in Sierra Leone (Gribble and Haffey, 2008). With a population of 105 million and annual growth rate of 2.4% in 2017, Ethiopia is the second most populous nation in sub-Saharan Africa. Ethiopia is still among countries with low contraceptive utilization rates even though considerable improvements have been made in the last decades (Debebe et al., 2020). In Ethiopia in 1990, only 3.9% of all women (4.8 percent currently married) of childbearing age were using a modern method of family planning. A report on an in-depth analysis of the EDHS 2000-2016 revealed that significant improvement has been observed in Ethiopia in contraceptive prevalence rate (CPR) between 2000-2016 from a low of 8.2% in 2000 to 14.7% in 2005 and 28.6% in 2011 and 36 percent in 2016 (UNFPA, 2017). This showed 13.9 and 20.5 percentage point increments in the period from 2005 to 2011 and from 2000 to 2011, respectively. In Ethiopia, both knowledge and use of modern family planning methods have increased significantly since the inception of the population policy in 1993 and global information about family planning (Debebe et al., 2020). However, using modern contraceptive methods has a geographical variation between urban and rural areas. For example, women living in urban areas were four times higher than women living in the rural areas of Ethiopia to use a modern contraceptive method (CSA/ORC Macro, 2005). In 2000 the rate of use of modern contraceptive methods in rural areas in Ethiopia was 4.3%, and five

years later it reached 10.9% and by 2011 the rate reached 23.4%. However, in urban areas the rate was 35.8% in 2000, and by 2011 it reached 52.5 percent (UNFPA, 2012). In Ethiopia, the total fertility rate in rural areas (5.5 children per woman) is higher than urban areas (2.6 children per woman) by almost three children per woman (Lakew et al., 2013). If all unmet needs for modern contraceptive methods were satisfied, maternal mortality would drop by almost one-third from current levels, and unplanned births and unsafe abortions would decline by 89-92 percent (Sundaram et al., 2010).

Using contraceptives has a significant contribution towards saving mothers' lives. As estimated by Rahel (2008) that contraceptive use can reduce maternal mortality and improve women's health, economic status and quality of life. In addition to spacing and limiting the number of children contraceptive use improves maternal and child health, empowers women and enhances economic development and promotes sustainable socio-economic development and protection of the environment (Wubegzier & Alemayehu, 2011). To facilitate the family planning provision services, the Ethiopian government introduced different packages like expanding the Health Extension Program (HEP), which is a package of family health, disease prevention and control, personal hygiene, environmental health, health education, and family planning services provided by health extension workers (HEW) (MOH, 2006). As a component of the National Population Policy, the Ethiopian Reproductive Health Strategy identifies six priority areas: social and cultural determinants of women's reproductive health; fertility and family planning; maternal and newborn health; HIV/AIDS, reproductive health of young people, and reproductive organ cancers (MOH, 2006; Wondimu et al., 2013). However, the actual contraceptive practice among women of the reproductive age group has remained very low. In this regard, a number of studies were conducted on determinants of modern contraceptive use among women in the reproductive age 15 to 49 years in different parts of Ethiopia (Abdurahman et al., 2014; Gizat, Alemayehu & Besufekad, 2014). However, these studies focused on socioeconomic and demographic factors that affected modern contraceptive use among married women in the reproductive age. The above studies also indicated that there were women who had not been using modern contraceptive methods in rural areas in Ethiopia. Hence, producing information on women's decision making power on family planning use has a paramount importance for designing an appropriate program. Hence, the objective of the study is to assess the practices of modern

contraceptive use among married women of the reproductive age in rural areas in Awi Zone. Therefore, this study is conducted to address this through (1) describing the current status of contraceptive use by rural women, (2) examining the differences in spousal agreement and rural women's ability to use contraceptives, and (3) examining the barriers to women's influence on joint decision-making for contraceptives use.

2. Research Methodology

2.1. Description of the study area

Awi Zone is located in the western part of the Amhara region, Ethiopia, and it is bordered to the west by Benishangul-Gumuz region, to the north by West Gondar Zone and to the east by West Gojjam Zone. The zone is located at a distance of 114 km from Bahir Dar, the regional capital and 449 km from Addis Ababa, the nation's capital. Based on the estimates of the Central Statistical Agency, the zone has a total population of 1,220,316, of whom 598,880 (49.1%) are men and 621,436 (50.9%) are women (CSA, 2016). The potential health service coverage by public health facilities of the zone was 98%. A total of 215,564 households were counted in this zone, which shows an average of 4.56 persons in a household, and 209,555 housing units. The two largest ethnic groups reported in Awi Zone were the Awi (59.82%) a subgroup of the Agaw, and the Amhara (38.44%); all other ethnic groups made up 1.74% of the population (CSA, 2016).

2.2 Research design, sampling and data analysis

The study applied mixed research approach composed of both quantitative and qualitative data. Quantitative method is used to decide the prevalence rate of modern contraceptive use, types of contraceptives used by women, socioeconomic and demographic factors that affect current use of contraceptives in the study area. Qualitative data is helpful to generate detailed data that is not captured by quantitative techniques and choice of contraceptive methods. The target population of the study consists of married women in the reproductive age of 15-49 years living in the three randomly selected rural *kebeles* (the smallest administrative unit) in Awi Zone. The study established earlier contact with health extension workers of randomly selected *kebeles* to obtain a list of users and non-users of modern contraceptives that served as a sample frame. From these *kebeles* (Mangua, Ambera and Wondyta) a sample size of 157 respondents were drawn randomly by using Kothari (2004) employed to determine the sample size for large populations.

Primary data collected through survey questionnaire, focus group discussions (FGD), in-depth and key-informant interviews and secondary data were obtained from the review of different sources. The questionnaires were designed to collect quantitative data related to socio-economic and demographic variables determining use of modern contraceptive use. It was also used to identify types of contraceptives used by women and factors affecting the use of contraceptives in the rural *kebeles* of Awi Zone. In-depth interviews were conducted with four women who did not use modern contraceptive methods in order to glean information on factors affecting use of modern contraceptives. Key-informant interviews were conducted with three female health extension workers of each *kebele* to generate qualitative data on factors influencing contraceptive use among women in the reproductive age. Focus group discussion (FGD) was conducted to collect qualitative data facilitated by nine women health extension workers.

The data collected was analyzed and summarized by using descriptive and inferential statistical techniques with SPSS version 20. The univariate, bivariate and multivariate techniques were used to analyze the existence of significance relationship between the dependent and independent variables. Variables having p-value of less than 0.05 were considered as significantly associated with the dependent variables. Logistic regression model was employed to predict the presence or absence of a characteristic based on values of a set of predictor variables. Logistic regression allows one to predict a discrete outcome from a set of predictor variables that may be continuous, discrete, dichotomous, or a mix of any of these. The model of the logistic regression equation used in the analysis is of the form:

$$\text{Log } [P / 1\text{-}P] = b_0 + b_1X_1 + b_2X_2 + \ldots + b_kX_k \text{----- (1)}$$

Where X_1, X_2,…X_k are a set of independent variables, b_0 is a constant while b's are regression coefficients. The dependent variable, modern contraceptive use in this context, could be influenced by different factors of independent variables expressed by using modern contraceptive methods or not using modern contraceptive methods. Independent variables such as age, level of education and number of living children, are continuous and are expected to influence positively the use of modern contraceptive methods. Knowledge about modern contraceptives and attitudes to modern contraceptives are dummy variables anticipated influencing modern contraceptive use positively. However,

religious beliefs and household influences are dummy variables anticipated to influence modern contraceptive use negatively. Income of respondents and sex preference are dichotomous variables anticipated to influence modern contraceptive use negatively. The qualitative data obtained through in-depth interview, key-informant interview and FGD were coded and categorized based on their contents and similarity in themes. Descriptive methods of data analysis were used to analyze the qualitative data and presented alongside the quantitative data.

3. Ethical Considerations

Throughout the study process the researchers considered the following ethical issues. The objective of the study was explained to the respondents to get their informed consent. Respondents participated in the study willingly. The questionnaires and interview guides did not contain any degrading, discriminating or any other unacceptable language that could be offensive to any members of the sample respondents. Anonymity of respondents and confidentiality of the data were ensured. Qualitative data was aggregated and described. In the description of qualitative data pseudonyms were used to maintain anonymity of women who participated in the interviews.

4. Results and Discussion

4.1. Age of respondents

The mean age of the women who participated in this study was 30.92 years with standard deviation of 6.179. The majority of the respondents (35%) were found within the age range of 30-34 years, and the age range of 15-19 accounted only for 1.91% (Table1). This shows that the middle age group has more chance of reproducing than the other older ages. When the women get older the percentage of modern contraceptive use decreased compared to younger women. The age of women using modern contraceptive methods decreased by 0.37 in the age range of 35-39 years compared to those women in the age range of 40-44 years. The age of a woman increases by one unit for the age group 15-19 years compared to those women in the age group 20-24 years (*appendix 1*). Similarly, the qualitative data generated through in-depth interviews, key informant interviews and FGD showed that some women who were in their mid-40s tended to discontinue using modern contraceptives. Similar to this study result, there is empirical evidence that identifies age as a factor influencing modern contraceptive use among women in

the reproductive age (UNFPA, 2012; Nibret, 2010). Amaha and Fikre (2006) reported that in Ethiopia women in the age group 25-34 years were 14% more likely than adolescents aged 15-24 years to use contraceptives. On the other hand, older women (35-49 years) were not different than the adolescents in their probability of using contraception. This shows that age is one factor that contributes to the use of modern contraceptive methods. The study also indicated that women in the middle reproductive ages were demanding more modern contraceptive than women in other age groups.

Table 1: Age distribution of sample respondents

Age (in year)	Frequency	Percentage
15-19	3	1.91
20-24	20	12.74
25-29	32	20.38
30-34	55	35.03
35-39	33	21.02
40-44	8	5.1
45-49	6	3.82
Mean		30.92
Std. Deviation		6.179

4.2. Number of living children and education

From among 157 respondents, 115 (73.2%) said that the number of living children is taken into consideration by women in the reproductive ages to decide the use of modern contraceptive methods (MCM). However, 42 (26.8%) of the respondents did not agree with the association between number of living children and usage of level of contraceptive methods (Table 2). The odds ratio of women not using modern contraceptive methods compared to those who use a method decreased by a factor of 0.080 for having fewer number of children rather than those who had more number of children (*appendix1*). According to FGD participants, many parents in rural areas wanted on average to have four children and they did not want to use and interrupt the modern contraceptive again. A similar study in Egypt showed that out of those women with no living children, only three percent were in need of family planning while 35 percent of the women with seven or more living children were in need (Hubacher, 2015). For African and Asian countries, some studies have found relatively highest contraceptive use mostly among women with four or more children (Amaha and

Fikre, 2006). In Ethiopia, the study also indicated that the number of living children had a significant relationship with contraceptive use (Nibret, 2010). Women who experienced the death of a child were less likely to adopt contraception compared to women who have not experienced the death of a child. Using contraceptives increased by 36 percent among women who did not experience the death of a child as compared to women who experienced the deaths of two or more children (UNFPA, 2012). Similarly, a study in Sodo Zuria confirmed that couples who had a history of the death of a child were less likely to be current contraception users than couples who had no history of the death of a child (Simeon, 2002). Therefore, we can conclude that number of living children had a significant effect on using modern contraceptive methods.

Education level is also another factor that affects modern contraceptive use. In this study the majority (43.9%) of the respondents were illiterate; 22.3% of the respondents were able to read and write; 17.8 % of the respondents attended elementary school (Grades 1 to 8); 15.3% attended secondary school (Grades 9 to12), and one woman (0.6%) completed higher education (Table 2). The odds ratio of education status of women using the modern contraceptive methods that were illiterate compared to those who had elementary education increased by a factor of 2.002 when compared to those who could read and write (*appendix 1*). The key informants who were health extension workers explained that in most cases women who had higher educational level had the capacity to understand and practice lessons of health education programs including MCMs than illiterate women.

Consistent with this, many studies (Rahel, 2008; Amaha and Fikre, 2006; UNPFA, 2010; Mussie et al., 2014) have confirmed that the influence of contraceptive use is positively correlated with educational level. A study on contraceptive knowledge and practice in sub-Saharan African countries found that higher socio-economic status, i.e. either or both spouses' better level of education is correlated with higher contraceptive use (Simeon, 2002). Having better educational attainment has a contribution to increasing women's autonomy in modern contraceptive use. Education has a significant effect on couples' contraception use (Simeon, 2002; Binyam, 2011). Hence, it is possible to deduce that educational level has an influence on the rate of modern contraceptive use among the respondents.

Table 2: Influence of living children and education on modern contraceptive use

Questions		Freque	Percent
The influence of living children on decision to use or not to use MCMs?	No	42	26.8
	Yes	115	73.2
	Total	157	100
Pearson's Chi-square		42.722	P=< .000
Educational Level	**Frequency**		**Percent**
Illiterate	69		43.9
Read and Write	35		22.3
Primary School	28		17.8
Secondary School	24		15.3
Higher Education	1		.6
Total	157		100

3.3. Knowledge of modern contraceptive

Knowledge is basic to modern contraceptive use, maternal and other reproductive health matters. From among 157 respondents, 110 (70.1%) were users of MCMs; and 47 (29.9%) were non-users (Table 3). Of 110 respondents who used MCMs, the majority 64 (58.7%) used injectable (Depo-Provera), 39 (35.8%) women used Norplant, and the remaining 6 (5.5%) respondents used oral pills. The majority of the respondents (97.5%) in the research area replied that they understood the possibility of controlling birth rate while the rest (2.5 %) of the respondents did not know about the possibility of controlling birth rates and they believed that only *God* gave permission for couples about the number of children (Table 3). The vast majority (99.4%) of the respondents had adequate information about modern contraceptive methods (Table3). However, during the survey 110 (70%) respondents were using MCMs, while 47 (30%) respondents were not using MCMs irrespective of their knowledge. Many (64.3%) of the respondents got information about modern contraceptive methods from health posts and health centers through health practitioners. The respondents obtained information about MCM from teachers, neighbors, their spouses, and their friends, with 0.6%, 1.9%, 2.5% and 3.2%, respectively. The odds ratio of women's knowledge about modern contraceptive methods has increased by a factor of 0.968 compared with those who didn't have knowledge of contraceptive methods (*appendix1*). Many studies have indicated that there is a wide gap between knowledge and modern contraception use.

Table 3: Knowledge of modern contraceptive methods

Awareness about MCMs	Responses	Number of participants	Percentage
Do you think that births can be controlled?	No	4	2.5
	Yes	153	97.5
Have you ever heard about MCMs?	No	1	0.6
	Yes	156	99.4
Do you get information about MCMs?	No	1	.6
	Yes	155	98.7
Where do you get information about MCMs?	From my husband	4	2.5
	From my friend	5	3.2
	From my neighbors	3	1.9
	From health practitioners	101	64.3
	From teachers	1	.6
	From TV / radio	37	23.6
	From written documents	4	2.5
Which of the following are MCMs that you know?	Pills	19	12.1
	Norplant	25	15.9
	males condom	1	.6
	Loop	12	7.6
	by injection	47	29.9
	All	51	32.5
Where did you get the contraceptive methods?	from health centers	152	96.8
	drug store	3	1.9
What is the importance knowledge of the contraceptive methods?	Creating a gap in giving birth	116	73.9
	deciding birth rate	19	12.1
	preventing unwanted pregnancy	5	3.2
	family planning	13	8.3
	All	3	1.9
Which of the following are MCMs that you know?	Pills	19	12.1
	Norplant	25	15.9
	Males condom	1	.6
	Loop	12	7.6
	Injection	47	29.9
	All	51	32.5
	Total	155	98.7
Which type of MCMs are you currently using?	Oral pills	65	59.1
	Norplant	39	35.5
	Injectable	6	5.4

Better knowledge, fear of partner's opposition or negligence, involvement in decisions about child and economic affairs were statistically significant factors for better decision making power of women in the use of modern contraceptive methods (Getachew et al., 2014).

A study in Jinka, southern Ethiopia, indicated that knowledge of contraceptives and age of women had significant association with long-lasting use of contraceptive methods (Daniels, Mosher & Jones, 2013). Knowledge about modern contraception alone could not guarantee utilization of contraceptive methods (Sara, 1999). This shows that both knowledge and other factors play a role in the decision of contraceptive use.

4.4. Religious beliefs and attitude
The religious background of the sample respondents had a significant effect on the rate of modern contraceptive usage. About 84 (53.5%) of the respondents believed that using modern contraceptive methods were absolutely forbidden by their religion while the rest 73 (46.5%) of the respondents replied that their religious background had no influence on their use of MCMs (Table 4). From among 157 respondents, 79 (50.3%) respondents had an attitude that using modern contraceptive methods for the purpose of limiting or spacing birth rate was a sinful act in the orthodox Christian religion. However, for 78 (49.7%) of the respondents using MCMs was not a sinful act, and they did not consider religion as a determinant factor for decision making to use or not to use MCMs (Table 4). Religious influence was found to be a significant factor where the odds ratio of women who believed that modern contraceptive methods were not prevented by the Christian religion decreased on their status of using modern contraceptive methods by a factor of 0.482 than those who believed modern contraceptive methods were prohibited by their religion (*appendix1*). In the FGD, in-depth and key informant interviews participants mentioned that, although they were few in number, there were women in the reproductive age that did not use MCMs for religious reasons.

A similar study in the US showed that the association of religious affiliation with contraceptive use, and differences in the use of particular methods by religious affiliation (Sara, 1999). The major religions in Ethiopia, orthodox Christianity and Islam, do not openly approve the use of family planning; however, there is higher contraceptive use among orthodox Christians than any other religious groups. Compared to Muslims, women following orthodox Christianity were found 57% more likely to use contraception. However, there was

no significant difference in the likelihood of using contraception between Protestants and Muslims. Followers of other religions (other than the three predominant religions) were 22% less likely to use contraception than their Muslim counterparts (UNFPA, 2012). The survey results also revealed that 152 (96.8%) respondents agreed to know about modern contraceptive methods. It was only 5 (3.2%) respondents who disagreed to know about contraceptive methods. However, the need to know and using modern contraceptive methods had no positive association. In addition, 153 (97.5%) respondents agreed to discuss contraceptive methods, while 4 (2.5%) respondents were not interested to discuss contraceptive methods (Table 4). The odds ratio of women who were not inclined to know about modern contraceptive methods and who did not use modern contraceptive methods decreased by a factor of 0.044 compared with those who had a positive inclination to know about modern contraceptive methods. The odds ratio of women who did not need to use modern contraceptive methods decreased by a factor of 0.266 compared with those who needed to use modern contraceptive methods (*appendix 1*). Therefore, it is possible to argue that the attitude of married women in the study area had a higher opportunity for success in family planning and had safer family planning in the study area. The increasing number of women using MCMs encouraged non-users to start using contraception.

Table 4: Religious beliefs and attitudes

Questions	Response	Frequency	Percent
Is there any prohibited contraceptive method due to religion in your locality?	No	84	53.5
	Yes	73	46.5
Do you think that using modern contraceptives is sinful?	No	79	50.3
	Yes	78	49.7
	Total	157	100
Do you want to know about the modern contraceptive methods?	Disagree	5	3.2
	Agree	152	96.8
Do you want to discuss the modern contraceptive methods?	Disagree	4	2.5
	Agree	153	97.5
Do you want to use the modern contraceptive methods?	No	14	8.9
	Yes	143	91.1
Are you encouraging others to use modern contraceptive methods?	No	14	8.9
	Yes	143	91.1
Does using modern contraceptive methods reduce sexual satisfaction?	Disagree	30	19.1
	Agree	3	1.9
	No response	124	79.0

4.5. Husband's influence and participation in use of MCMs

Husbands' support or opposition to their wives' use of modern contraceptives had a strong impact on contraceptive use in the study area. From among157 respondents, 139 (88.5%) women revealed that their husbands had a positive influence on the use of modern contraceptives, but 18 (11.5%) women responded that their husbands had no positive attitude towards modern contraceptives and they did not discuss MCMs with their husbands. Many (79.6 %) respondents reported about the type of MCMs they used with their husbands. However, 20.4% respondents did not discuss the type of MCMs they used with their husbands (Table 5). When we see the responses of women in the study area on the decision making process of termination of using modern contraceptive use, 77.7% of the respondents discussed freely with their husbands. Only 19.7% of the respondents made decision on termination of contraceptive use by themselves without the interference of their husbands, and 2.5% of the respondents noted that decisions were made by their husbands only without their involvement in the decision (Table 5). The number of children that married couples wanted to have in the future had been decided through consensus (91.1%) between husband and wife and that was encouraging. A considerable number (22.9%) of husbands opposed their wives on modern contraceptive usage. This had a great influence on modern contraceptive use in the study area. Most husbands (77.1%) supported women's use of modern contraceptives. The odds ratio of women who did not discuss with their husbands on family planning decreased by a factor of 0.254 in using modern contraceptive methods compared with those who discussed with their husbands on family planning and using modern contraceptive methods. The odds ratio of women who did not have discussion with their husbands on the number of children decreased in their use of modern contraceptive methods by a factor of 0.232 compared with those who discussed freely with their husbands on the number of their children (*appendix 1*). In the FGD and in-depth interview participants forwarded that husbands were developing a positive attitude towards women's use of MCMs. These changes were the result of continuous community awareness raising programs on MCM organized by health extension workers at the *kebele* level.

The studies by Sara (1999) and Tamrat and Zerihun (2020) found that men's support or opposition to their partners' practice of family planning had a strong impact on contraceptive

use in many parts of the world including Africa. In Ethiopia, most men have negative attitudes about family planning. Some men fear that family planning will make their wives independent of their control. They fear that their wives will have sex with other men if they are no longer at risk of pregnancy (Tamrat and Zerihun, 2020). Most men may be unwilling to have their wives adopt family planning; they themselves know little about it. Traditional, social norms often have required men to maintain the honor and position of their extended family (Alemayehu, 2012). Decision making on family planning between husbands and wives play a great role in modern contraceptive use. Women in developing countries, including Ethiopia are either under collective decision making with their partners or completely rely on the male partner's decision on issues that affect their contraceptive use (Binyam et al., 2011).

Table 5: Husband's influence and participation

Question	Response	Frequency	Percent
Does your husband have a positive attitude towards use of MCMs?	No	18	11.5
	Yes	139	88.5
Have you ever discussed family planning with your husband?	No	19	13.4
	Yes	136	86.6
Have you discussed the contraceptive methods you are using with your husband?	No	32	20.4
	Yes	125	79.6
Who is deciding on termination of using contraceptive methods?	Only me	31	19.74
	My Husband and I	122	77.7
	My Husband only	4	2.5
Who makes decisions on using or not using contraceptive methods?	Only me	29	18.5
	My Husband and I	123	78.3
	My Husband only	5	3.2
Who decides the number of children to be delivered?	Only me	11	7.0
	My Husband and I	143	91.1
	My Husband only	3	1.9
Are you discussing the number of children to be delivered with your Husband?	No	19	12.1
	Yes	138	87.9
Does your husband oppose you when you want to use modern contraceptive methods?	No	121	77.1
	Yes	36	22.9

In rural areas, better knowledge, fear of partner's opposition or negligence, involvement in decisions about child and economic affairs were statistically significant factors for better decision making power of women in the use of modern contraceptive methods (Getachew et al., 2014).

4.6. Influence of income and sex preference

Studies have generally found that higher income leads to higher contraceptive use, after controlling for other factors (Feyisetan & Ainsworth, 1994). Sex preference is an important barrier to increasing contraceptive use and declining of fertility. Its impact becomes greater as desired family size declines (Tiziana et al., 2003). Influence of income on modern contraceptive methods usage level had a great influence. About 118 (75.2%) respondents indicated that income was a significant determinant factor to make decision on contraceptive use, whereas 39 (24.8%) respondents said that income had no influence to make decision on contraceptive use (Table 6). Income of respondents is also contributed to the status of using modern contraceptive methods; women who did not have good income tended to avoid using modern contraceptives by a factor of 0.43 compared with those who had good income (*appendix 1*). This result implies that as families' income increases their need of having more children increases that leads women to decide not to use MCMs, and when the income level of the family is small the opposite will be practiced. The study illustrated that about 70 (44.6%) of the respondents preferred to have additional children both females and males; while 30 (19.1%) and 25 (15.9%) respondents preferred to have additional female and male children, respectively. The rest 32 (20.4%) of the respondents did not want to have additional children (Table 6). The odds ratio of women who did not have preference of child sex showed an increase in using modern contraceptive methods by a factor of 6.362 compared with those who had preference of their child sex. The odds ratio of women who did not need to have additional children showed a decrease in using modern contraceptive methods by a factor of 0.110 compared with those who needed to have additional children (*appendix 1*). The qualitative data revealed that many families considered their income to make decision on contraceptive use and to limit the number of children. On the one hand, some families considered their economic potentials, size of farmland, number of oxen, cows, sheep, goats and the amount of money they owned to decide on contraceptive use and limit the number of children born. On the other hand, there were conditions that families did not consider their

income to decide to use or not to use MCMs. Based on the data it is possible to conclude that sex preference among married women of age 15-49 had a great influence on using modern contraceptive methods.

Table 6: Influence of income and sex preference

Questions	Response	Frequency		Percent
Does family income influence decision on using or not using contraceptive methods?	No	39		24.8
	Yes	118		75.2
Pearson's chi-square		62.5		P= .000
Sex preference	**Freq.**	**Percent**	**X^2**	**P= value**
Female children	30	19.1	8.438	P= .038
Male Children	25	15.9		
Both Male and female children	70	44.6		
Don't want additional children	32	20.4		
Is the need of having female or male children the reason for not using contraceptive methods?	No	100		63.7
	Yes	57		36.3
Pearson's chi-square			25.906	P= .000

5. Conclusion

The study attempted to identify determinants of modern contraceptive use among women of the reproductive age and the relationship between those variables and modern contraceptive use. The study identified that among the influential factors husbands' opposition to modern contraceptive methods, couples' sex preference, education status of women and age of women especially in the age group 20-24 were the most determinant factors for using MCMs among women in the reproductive ages of 15-49 in the study area. Attention should be given to women education, improving economic status of women, raising community awareness on modern contraceptive methods facilitating peer and spousal discussion for the better use of modern contraceptive methods. Policy formulation and planners should consider the adoption of family planning services based on socio-economic and demographic conditions for couples who are living in rural areas of Ethiopia.

References

Abdurahman, M., Desalegn, W, Amsalu, F., & Berihun, M. (2014). Determinants of modern contraceptive utilization among married women of reproductive age group in North Shoa, Ethiopia. *Reproductive Health*, 11(13).

Alemayehu B. (2012). Assessment of male involvement in family planning use among men in south eastern zone of Tigray, Ethiopia. *Scholarly Journal of Medicine*, 2(2), 1-10.

Amaha, H. & Fikre, E. (2006). Influence of women's autonomy on couple's contraception using Jimma town, Ethiopia. *Ethiopian Journal of Health and Development*, 20(3), 1-7.

Beekle A.& Mccabe, C. (2006). Awareness and determinants of family planning practice in Jimma, Ethiopia. *International Nursing Review*, 53, 269–276.

Binyam,B., Mekitie,W., Tizta,T.& Eshetu,G.(2011). Married women's decision making power on modern contraceptive use in urban and rural southern Ethiopia.Public Health, 11, 342.

Central Statistical Authority and ORC Macro (2005).Ethiopia Demographic and Health Survey 2005.Central Statistical Authority and ORC Macro.Addis Ababa Ethiopia and Calverton, Maryland, USA.

Central Statistical Agency (2007). *Population and Housing census of Ethiopia: administrative Report.* 2012:1–117.

Central Statistical Authority and ICF International (2012).Ethiopia Demographic and Health Survey 2011.Central Statistical Authority and ICF International.Addis Ababa Ethiopia and Calverton, Maryland, USA.

Central Statistical Agency (2016).Ethiopia Mini Demographic and Health Survey2014. Addis Ababa: Central Statistical Agency.

Central Statistical Authority and ICF International (2012).Ethiopia Demographic and Health Survey 2011.Central Statistical Authority and ICF International.Addis Ababa Ethiopia and Calverton, Maryland, USA.

Daniels, K., Mosher, W.D., & Jones, J. (2013). Contraceptive methods women have ever used: United States, 1982–2010: National health statistics reports. No 62.

Debebe S., Limenih M.A, Biadgo B. (2020).Modern contraceptive methods utilization and associated factors among reproductive-aged women in rural Dembia District, northwest Ethiopia: Community based cross-sectional study. *Int J Reprod BioMed*, 15(6),367–74.

Fasil, H.G. (2006). Assessment of Factors Influencing the Utilization of modern Contraceptive Methods among Women in the Reproductive Age Group in Angolela and Tera District, Thesis. Ethiopia

Federal Democratic Republic of Ethiopia Ministry of Health. (2006). National Reproductive Health Strategy 2006–2015. FDRE: Addis Ababa.

Feyisetan, B., & Ainsworth, M. (1994). Contraceptive Use and the Quality, Price and Availability of Family Planning in Nigeria. Living Standards Measurement Study Working Paper No. 108. World Bank, Washington DC.

Getachew, M., Fikre, E., Gezahegn, T. & Agumasie, S. (2014). Prevalence and factors affecting use of long acting and permanent contraceptive methods in Jinka town, Ethiopia: a cross sectional study. *Pan African Medical Journal*, 18(98).

Gribble, J. & Haffey, J. (2008).Reproductive health in Sub-Saharan Africa. Washington DC. Population Reference Bureau.

Gizat, M., Alemayehu, L. & Besufekad, A. (2014).Assessments of patterns and determinants of contraceptive use among females of reproductive age in Kelala Town, Ethiopia. *The Experiment*, 22(1), 1503-1510.

Hubacher,D,Trussell.J. (2015).A definition of modern contraceptive methods. *Contraception,* 92(5),420–1.

Kothari, C.R. (2004). Research methodology: methods & techniques 2nd Edition.New Delhi, India. New Age International (P) Limited.

Lakew Y, Reda A, Tamene H, Benedict S, Deribe K.(2013). Geographical variation and factors influencing modern contraceptive use among married women in Ethiopia: evidence from a national population based survey. Reprod. *Health*, 10 (52).

Mengistu, A. &Yilma, M. (2006).Improving the range of contraceptive choices in rural Ethiopia. *Ethiopian Journal of Health and Development*, 20(2), 74-79.

Mussie, A., Kiday, H., Gebrezgabiher, B., Gebremedhin, G., Fitwi, T. Abadi, K. &Yemane, B. (2014). Married women's autonomy and associated factors on modern contraceptive use in Adwa Town, Ethiopia. *Science Journal of Public Health*, 2(4), 297-304.

Nibret, A. (2010). Determinants of family planning practice in Ethiopia. A Master's Thesis Addis Ababa University, Statistics.

Rahel, D. (2008). Factors influencing contraceptive method mix among married women of reproductive age group in rural East Hararge Zone. Addis Ababa University, M.A. Thesis.

Sara, J. (1999). Male involvement in family planning: A review of selected program initiatives in Africa.

Semere Sileshi Belda, Mekonnen Tegegn Haile, Abulie Takele Melku & Abdurehaman Kalu Tololu (2017). Modern contraceptive utilization and associated factors among married pastoralist women in Bale eco-region. *BMC Health Serv Res*, 17 (194), 1–12.

Simeon, E. (2002). A Geographic study of factors affecting an adoption of family planning services: The case of Soddo ZuriaWoreda,Ethiopia . MA Thesis, Addis Ababa University, Department of Geography and Environmental Studies.

Sundaram R. A., Vlassoff M., Bankole A., Remez L. & Gebrehiwot Y. (2010). Benefits of meeting the contraceptive needs of Ethiopian women.Issues in brief.

Tamrat Shaweno & Zerihun Kura (2020). Determinants of modern contraceptive use among sexually active men in Ethiopia;using EDHS 2016 national survey. *Contraception and Reproductive Medicine, 5(5).*

Tilahun, F. (2013). Multilevel modeling of modern contraceptive use among rural and urban population of Ethiopia. *American Journal of Mathematics and Statistics*, 3(1):1-16.

Tiziana, L., Matthews, Z. & Zuanaa, G. (2003). Impact and determinants of Sex Preference in Nepal. *International Family Planning Perspectives*, 9(2): 69-75

UNPFA.(2010). Nigeria family planning analysis: Selected demographic and socioeconomic variables. Lagos.

UNFPA (2012). A decade of change in contraceptive use in Ethiopia: In-depth analysis of the EDHS United Nations (2014). The World Population Situation in 2014: A Concise Report. United Nations: New York.

UNFPA (2017).Audit of the UNFPA country office in Ethiopia. 2000-2011. UNFPA: Addis Ababa.

Vlugt, V. D. (2018) . Contraceptives Knowledge file Index.

Wondimu, A., Habtamu, T., Roman, G. & Tesfayi, G. (2013).Trends and determinants of unmet need for family planning and options, Ethiopia. Further analysis of the 2000, 2005 and 2011 demographic and health surveys. Reports no. 81.Calverton, Maryland.

Wubegzier, M. & Alemayehu, W. (2011).Determinants of low family planning use and high unmet need in Butajira District, Ethiopia. *Reproductive Health*, 8(37), 1-10.

Appendix.1.Odds Ratio predicting using modern contraceptive methods among different variables

Covariates	B	S.E.(B)	Wald	df	p-value	Exp(B)
Age of women			102.841	5	.000*	
15-19	-.325	.197	2.708	1	0.100	.723
20-24	.845	.107	62.255	1	.000*	2.327
25-29	.047	.137	.120	1	.729	.954
30-34	.125	.057	4.752	1	.029*	1.133
35-39	-.993	.449	4.886	1	.027*	.370
40-44(ref.)						1.000
Education Status of women			37.477	4	.000*	
Illiterate	-.717	.252	8.075	1	.004*	.488
Read and write	-.698	.360	3.761	1	.052	.498
Elementary	.694	.251	7.643	1	.006*	2.002
Secondary and higher(ref.)						1.000
Number of Living Children						
No	-2.526	.424	35.475	1	.000*	.080
Yes(ref.)						1.000
Knowledge of women						

on MCM						
No	- 3.427	.773	19.660	1	.000*	.032
Yes(ref.)						1.000
Orthodox Religion influence on MCM						
No	-.729	.354	4.250	1	.039*	.482
Yes(ref.)						1.000
Attitude of respondents						
Thinking using MCM as committing sin						
No	-.680	.351	3.744	1	.053*	.507
Yes(ref.)						1.000
Inclination to know about MCM						
No	- 3.131	.787	15.839	1	.000*	.044
Yes(ref.)						1.000
Need to discuss on MCM	- 3.131	.787	15.839	1	.000*	.044
No						1.000
Yes(ref.)						
Husbands' Influence						
Discussion with husbands on FP						
No	- 1.372	.596	5.318	1	.021*	.254
Yes(ref.)						1.000
Discussion with husbands on MCM						
No	- 1.367	.603	5.135	1	0.23*	.255
Yes(ref.)						1.000
Discussion with husbands on Number of Children						
No	- 1.462	.543	7.245	1	.007*	.232
Yes(ref.)						1.000
Husbands opposition on MCM						
No	1.049	.478	4.813	1	.028*	2.856
Yes(ref.)						1.000
Influence of Income						
No	3.148	.596	27.859	1	.000*	0.43
Yes(ref.)						1.000
Influence of sex preference						
No	1.850	.535	11.945	1	.001*	6.362
Yes(ref.)						1.000

Need to have additional children						
No	-	.554	15.816	1	.000*	.110
Yes(ref.)	2.203					1.000

* Statistically Significant at (p<0.05) ref. = reference category   S.E= standard error