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Eight out of every twenty-five married women have an unmet need for family planning in Meyu Muluke District, Eastern Ethiopia

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Unmet family planning needs are a critical public health problem in developing countries, particularly in Sub-Saharan Africa. An estimated 225 million women in developing countries who want to postpone, space, or avoid becoming pregnant do not use effective contraception methods, resulting in over 75 million unintended pregnancies each year, accounting for 84% of unintended pregnancies in developing countries. Thus, this study aimed to assess the determinants of the unmet need for family planning in Meyu Muluke District, Eastern Ethiopia. A community-based cross-sectional study was conducted from February 1 to 28, 2018, among 436 randomly selected currently married women of the reproductive age group in Meyu Muluke district, Eastern Ethiopia. Data were entered using Epidata version 3.1 and analyzed using Statistical Package for the Social Sciences (SPSS) version 25. Multivariate logistic regression was used to identify factors associated with the outcome variable, and a 95% confidence interval was used to declare statistical significance at a p-value of < 0.05. Overall, the magnitude of unmet need for family planning among currently married women was 36.02% (95% confidence interval (CI) 32.5–39.2%). Ages 25 to 29 years old [adjusted odds ratio (AOR) = 1.95, 95% CI (1.09–7.35), no formal education [AOR = 1.91, 95% CI (1.11–4.57)], middle wealth quintiles [AOR = 1.50, 95% CI (1.54–12.26)], some living children [0–1 and 2–3] [AOR = 1.47, 95% CI (1.33–8.83 [AOR = 0.67, 95% CI (1.26–18.80)], respectively], intending to use family planning in the future [AOR = 6.55, 95% CI (5.49–18.59)], and less than ten minutes to get to the family planning source [AOR = 2.33, 95% CI (1.15–4.72–2.92)] statistically significant to the unmet need for family planning. The study's findings suggested that eight out of every twenty-five married women in Meyu Muluke District, Eastern Ethiopia, have unmet family planning needs. Age, education, children, intention, and time taken were significantly associated with the unmet need for family planning. Focusing on strategies that allow intervention in these factors is helpful to women because they, directly and indirectly, affect women's health and educational achievement.

Keywords Unmet need, Magnitude, Family planning, Associated factors, Ethiopia

Unmet family planning needs are a critical public health problem in developing countries, notably in Sub-Saharan Africa[1]. An estimated 225 million women in developing countries who want to postpone, space, or avoid becoming pregnant do not use effective contraception methods, resulting in over 75 million unintended pregnancies each year, accounting for 84% of unintended pregnancies in developing countries. Furthermore, 57% of women in Sub-Saharan Africa and Southern Asia have an unmet need for modern contraception[2,3]. The unmet need for family planning is a measure of the proportion of sexually active women who want to postpone their next childbearing (spacers) or cease childbirth (limiters) but are not using any form of contraception[4,5].

According to Sully et al., unintended pregnancy, unsafe abortions, and maternal mortality would be decreased by approximately two-thirds of all women in low- and middle-income countries (LMICs) who want to avoid pregnancy. They utilized modern contraception, and all pregnant women got treatment that matched international standards[6]. Furthermore, minimizing women's exposure to the risks of pregnancy, unwanted, closely spaced pregnancies, infant and child mortality, expanding women's education, work, and productivity, and improving women's social position were all agreed-upon benefits of family planning for women[7,8].

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Global and regional initiatives have attempted to boost contraceptive use. Contraceptive prevalence and unmet demand for family planning are critical indicators for monitoring progress in reproductive health access, as stated in the 2030 Agenda for Sustainable Development under Objective 3.7[9]. Family Planning 2020 is a global coalition that was founded in 2012 to increase the use of modern contraception by 120 million people in the 69 poorest nations in the world by the year 2020[2].

Religion, women's age, number of living children, respondent's place of residence, respondent's education, knowledge of family planning, respondent's work status, partner discussion, age at marriage of women, being visited by a family planning worker, parity, and the number of children at the time of first contraceptive use were all factors associated with unmet need for family planning, according to studies conducted around the world[10–17].

The major consequences of unmet demand for family planning (FP) are high fertility, unexpected pregnancy, and unsafe abortion[12]. Every year, nearly 80 million unplanned pregnancies occur throughout the world, affecting mothers, children, and society as a whole[18]. Women in low- and middle-income nations continue to experience unplanned pregnancies despite numerous efforts to avoid unwanted pregnancies[19,20].

Despite Ethiopia's overall fertility rate of 4.6 children per woman and the availability of family planning services in practically all public and private institutions, only 41% of married Ethiopian women use contraception, and the unmet demand for family planning in Ethiopia remains significant, with a magnitude of 22%[21,22]. The prevalence and drivers of unmet family planning needs support each country in resolving its issues[23]. By minimizing the unmet demand for FP, it is possible to save over a million infant deaths and 54 million unintended pregnancies[2]. Furthermore, it improves women's health, autonomy, and educational achievement. This study contributes to the area of family planning in Ethiopia by identifying determinants of unmet demand for FP at both the personal and social levels. This finding is crucial for policymakers and program planners to understand the importance of family planning for women in developing countries. Therefore, the goal of this study was to evaluate the factors that contribute to the unmet demand for family planning among married women in the Meyu Muluke district, Eastern Ethiopia.

Methods and materials
Study design
A community-based cross-sectional study.

Study period
A study was conducted from February 1 to 28, 2018.

Study setting
Mayu Muluke is situated in eastern Ethiopia, 557 km from the capital city of Ethiopia, Addis Ababa. Meyu Muluke woreda (district) is one of the 19 woredas in East Hararghe province in the Oromia Zone (region with 180 woredas) of Ethiopia. Meyu Muluke woreda comprises approximately 124 villages (divided into 19 kebeles). It is composed of approximately 124 villages (divided into 19 kebeles). According to the data from the 2016 EDHS, the total population for this woreda was 54,496, of whom 23,400 were men and 22,810 were women; 3,186, or 6.9%, of its population were urban dwellers. The Dinkas and Luo tribes are the predominant ethnic group inhabiting Meyu Muluke woreda. Pastoral and agro-pastoral communities continue to face food insecurity from reoccurring drought and subsequent livestock losses. Regarding the health facility of Meyu Muluke Woreda, all kebeles have HP, and at each HP there are two health extension workers (HEWs), so in Meyu Muluke Woreda there are 19 HP and 5 health centers (HC). Most residents make their living through farming and small-scale trading. The study was conducted in one urban and two rural kebeles in Mayu Muluke, Ifa-bas, and Finta-bas. Of these, reproductive age groups account for a total population of 8174[24].

Population
Source population: All currently married reproductive-age women in Meyu Muluke District.

Study population: Randomly selected in the reproductive age group women who were in Meyu Muluke District using the sampling technique who were available during the data collection period. We used the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) cross-sectional checklist when writing our report[25].

Eligibility criteria
All childbearing-age women who were urban and rural dwellers in the Meyu Muluke district were the source population, whereas the study population consisted of randomly selected currently married women of childbearing age (15–49). Reproductive age group women were not living in union and not fecund, and if they were married 5 + years ago, had no children in the past 5 years, and never used contraception, those who were critically ill and unable to provide the required information during data collection were excluded from the study.

Data collection methods
An interviewer-administered, pretested, structured questionnaire adapted from related published literature contextualized the study objectives[3,14,20,26–30]. It includes information about the research participants' knowledge, attitudes, and sociodemographic characteristics, as well as reproductive and socioeconomic backgrounds. Seven BSc Nurse Health professionals who speak Afaan Oromo fluently gathered the data. The lead investigator and two public health specialists were acquainted with the study's environment and oversaw the work. Using data collection protocols, supervisors and data collectors received 4 days of training. We translated it with the intention of the questions and the goal of the survey in mind. Members of the group who are fluent in both

languages translated it. The questionnaire was translated back into English by a person who was not familiar with the original text and the context of the questions in order to guarantee the correctness of the translation. The back-translated version is then compared to the original, and any meaning differences are corrected. We then attempted to interview a group of respondents in English and a second group in the local tongue, such as Afaan Oromo, in order to assure cross-validity. Then, discrepancies in their comprehension were found by comparing their responses. Lastly, pretesting was done to find questions that are unclear, difficult to understand, or cause unfavorable or other unwelcome answers.

We attempted to conduct a pretest using the already-translated questionnaire. We made an effort to carry out every stage of the pretesting process, including getting a questionnaire's assessment and putting the updated version to the test on friends, coworkers, and other individuals. Furthermore, validity and reliability must be considered while selecting a tool. Reliability is the degree to which an instrument consistently yields the same outcomes during several trials. Validity is the extent to which an instrument measures what it was intended to measure. We calculated Cronbach's alpha statistically, which is a metric used to evaluate the calibre of the equipment we utilized. The result was 0.89, which was within an acceptable range.

Variables and their measurements
Outcome variables
Unmet need for family planning (Yes, No).

Independent variables
Socio-demographic variables were the age of the woman (recoded as 15–19, 20–24, 25–29, 30–34, and 35 and above), place of residence (urban and rural), ethnicity (Oromo and Amhara), religion (Muslim and Christian), education level of the respondent (recoded as none formal education, primary school, secondary school, and above), respondent's occupation (housewife, farmer, daily laborer, government employee, and merchant), wealth index (categorized as low, middle, and high), and family size (2–3, 4–5, and 6 and above). Reproductive variables were age at first marriage, number of living children, age at first pregnancy, current pregnancy status, and pregnancy type. Knowledge and attitude variables were hearing any contraceptive, knowledge of any method of contraceptive, source of information on contraceptives, Reason for use of contraceptives, Women's attitude toward contraceptives, Discussion with health extension worker: who decides for you to use contraceptives? Does your husband know whether you use contraceptives or not? Discuss with your partner how to use contraceptives. Frequency of discussion with a partner and time taken to space birth of one child to another. In terms of wealth index as a factor in this study, this was computed data that includes ownership of certain consumer items, which ranges from ownership of a car or bicycle to television, availability of clean drinking water, type of material used in building houses, especially the floor material, the type of and availability of sanitation facilities, and other dwelling characteristics[31]. The household score for each member of the respective household was formed using the national-level wealth quintiles (that is, from lowest wealth to highest wealth) after the index was computed. Each person in the population was ranked with that score, while the ranking was divided into five categories comprising of 20% each[31]. However, the wealth index was further considered as low (poorest + second category), middle (middle category alone), and high (fourth + richest category) based on the specifications earlier highlighted and also cited in some previous studies[32,33]. The data file succinctly reported both limiting of children bearing and unmet need for spacing, including some other related variables. The unaddressed need to restrict childbearing and spacing was added such that the total unmet need for FP was obtained. The other related variables of the said category were summed up to form the total number of met needs category[32–34].

Currently married reproductive age group women: women of reproductive age group (15–49 years) who are married.

Unmet need refers to those women who are fecund and sexually active but are not using any method of contraception and report not wanting any more children or wanting to delay the birth of the next child (WHO, 2018).

Current users are women who were using contraception at the time of the interview.

Met need for contraception refers to those currently married women who want to space births or limit the number of children and are using contraceptive methods to avoid unwanted or mistimed pregnancies[9].

Infecund women who are considered fecund if they were married 5 + years ago, had no child in the past 5 years and never used contraception; or said "can't get pregnant" on the wanting of future children; or said "menopause/ hysterectomy" on reason for not using contraception; or response time since last period is ≥ 6 months or "never menstruated; or response to time since last period is "last period was before last birth" and last birth 5 + years ago.

Fecund women refers to women who have been reported as capable of reproducing or who have no infecundity criteria.

Postpartum amenorrhea: refers to the interval between childbirth and resumption of menstruation up to 0–23 months, a period during which a woman is temporarily infecund.

Knowledge of contraception: awareness of at least one method of contraception (mention at least the name of one modern contraception method).

Favorable attitude: A woman whose cumulative sum value for 11 attitudinal statement responses was lower than the summed mean score values of all women.

Unfavorable attitude: A woman whose cumulative sum value for 11 attitudinal statement responses was greater than or equal to the summed mean score value of all women.

Bias

Although certain biases were present during the study process, the researcher took specific precautions to prevent them. The researcher tried to prevent social desirability and recall bias by rephrasing the questions in a way that was not acceptable to society and by trying to hint at the intended question that needed to be answered.

Sample size determination

The sample size was determined by using a single population proportion formula, considering the following assumptions: $n = (z \,(alpha/2)^2 * p * (1 - p))/d^2$.

Where n = minimum sample size required for the study, Z = standard normal distribution ($Z = 1.96$), with a confidence interval of 95% and $\alpha = 0.05$, P = proportion of unmet need for family planning (22%) from the previous study[26], d = maximum acceptable margin of sampling error $(d) = 5\% = 0.05$, and design effect = 1.5. Then, after adding contingency (10%) for the non-respondent rate, the minimum total sample size for the study became 436.

Sampling technique and procedure

A multistage sampling technique was used to sample the study participants. Meyu Muluke district has one urban and 18 rural kebeles. Then, considering the homogeneity of the rural kebeles, two rural kebeles were selected using a simple random sampling technique, and only one urban kebele was included in the study by default. The data collectors numbered all the households in the chosen kebeles; there were 3270 households. For every chosen kebele, households were distributed proportionately. A systematic random selection procedure with a k value of 6 was used to choose each family. The lottery method was used to select the first household, and the eligible individual inside that household was then enrolled in the research. In cases where no eligible respondent was found in the selected household, the data collectors have gone to the next household. By using this method, 436 homes' worth of research participants were identified (Fig. 1).

Data quality control

The questionnaire was prepared in English and then translated into the local language by a bilingual expert (Afaan Oromo). Then, it was translated back into an English version to ensure consistency. The data collectors and supervisor received training on the data collection tool and procedures. Before the study data collection, a pretest was conducted among 10% of the study participants in similar settings. The investigators and experienced research supervisors provided regular supervision.
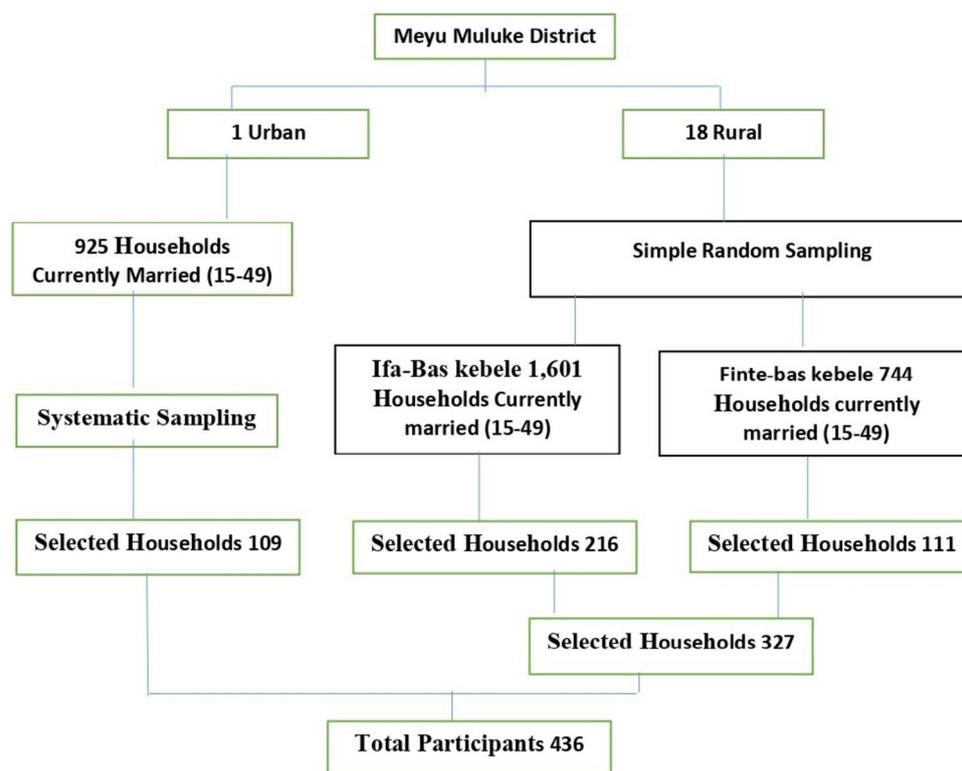

Fig. 1. Schematic presentation of sample selection procedure of reproductive characteristics among currently married women in respondents in Meyu Muluke District, Eastern Ethiopia, 2018.

Data processing and analysis

The collected data were coded and entered into Epi-data 3.1 and then exported to SPSS version 25 for analysis. We conducted and reported descriptive and summary statistics using frequency tables and figures. Bivariable variable logistic regression was carried out to select a candidate for multivariate logistic regression analysis with a p-value < 0.25[35] at a 95% confidence level. Then, a candidate variable was entered into a multivariable logistic regression model to identify the statistically significant factors for the unmet need for family planning. With all regression assumptions fulfilled [i.e., model prediction of variables improved from the beginning block (from 66.7 to 72.5%), better prediction of variables than constant-only model (omnibus test of coefficients at p < 0.001)], the dependent variable is well explained by the independent variables in the model summary. The goodness-of-fit of the model was assessed using the Hosmer–Lemeshow. It is Hosmer–Lemeshow test with a non-significant (p-value = 0.344), representing a good-fit model. Thus, the value of the variance inflation factor (VIF) was 0.951. The degree of association between dependent and independent variables was assessed using an adjusted odds ratio, and statistically significant factors were declared at 95% of a confidence interval and a p-value of less than 0.05. Multi-collinearity was checked for all variables entered into the model.

Results

Socio-demographic characteristics

A study shows that a total of 436 married reproductive-age women were involved, yielding a response rate of 100%. The mean (± SD) ages of the study participants were 24.5 (± 5.557). More than a quarter of the study participants, 117 (26.8%) and 115 (26.4%), were in the age range of 20–24 and 25–29, respectively. Three-quarters of the respondents, 327 (75%), came from rural areas. Most of the respondents, 425 (97.5%), were Oromo by ethnicity, and 420 (96.3%) were Muslims. In terms of educational status, 283 (64.9%) of the respondents attended formal education, and 260 (59.6%) were housewives. In terms of family size, 191 (43.8%) had six or more children (Table 1).

Reproductive history of study participants

More than a quarter of the respondents, 117 (26.6%) and 115 (26.4%), were married between the ages of 20–24, and 25–30, respectively. The mean age of women at marriage was 21.5 ± 2.4 SD years. More than half of the respondents, 247 (56.7%), got pregnant at ages 19–24. The mean age for the first pregnancy was 26.47 ± 2.57 SD years. Regarding the number of living children, 166 (38%) respondents had two or three children. Regarding current pregnancy status, forty-six (10.6%) study participants were pregnant, of which 20 (4.6%) were intended (Table 2).

Variables	Categories	Frequency	Percentage
Age	15–19	47	10.8
	20–24	117	26.8
	25–29	115	26.4
	30–34	104	23.9
	≥ 35	53	12.2
Residence	Urban	109	25
	Rural	327	75
Ethnicity	Oromo	425	97.5
	Amhara	11	2.5
Religion	Muslim	420	96.3
	Christian	16	3.7
Education	No formal education	283	64.9
	Primary school	84	19.3
	Secondary school and above	69	15.8
Occupational status	Housewife	260	59.6
	Farmer	49	11.2
	Daily laborer	9	2.1
	Government employee	35	8
	Merchant	83	19
Wealth quintiles	Low	47	10.77
	Middle	124	28.46
	High	265	60.77
Family size	2–3	144	33
	4–5	101	23.2
	6 and above	191	43.8

Table 1. Distribution of socio-demographic characteristics among currently married women in respondents in Meyu Muluke District, Eastern Ethiopia, 2018 (n = 436).

Variables	Categories	Frequency	Percentage
Age at first marriage	15–19	47	10.8
	20- 24	117	26.8
	25- 30	115	26.4
Number of living children	0–1	125	28.7
	2–3	166	38
	4–5	117	26.8
	Six and above	110	25.2
Age at first pregnancy	< 18	118	27.1
	19–24	247	56.7
	25–30	71	16.3
Current pregnancy status	Yes	46	10.6
	No	390	89.4
Pregnancy type (46)	Intended	20	4.6
	Mistimed	18	4.1
	No response	8	2.1

Table 2. Distribution of Reproductive characteristics among currently married women in respondents in Meyu Muluke District, Eastern Ethiopia, 2018 (n = 436).

Knowledge and attitudes to contraceptives

Regarding information about any kind of contraception, 340 (78%) study participants reported hearing information about contraceptives, and of those, over three-fifths (59.4%) replied hearing it from healthcare professionals. Out of those who knew about contraceptives, 167 (38.3%) replied that they knew about pills. Interims of reasons for contraceptive use 197 (45.1%) study participants mentioned that they used it for spacing births. According to this study, 159 (36.5%) study participants have had a discussion with partners to use contraceptives, and of those, 71 (16.3%) had a discussion only once. Regarding the decision-making role, 43 (9.9%) respondents replied that they had a joint decision for the use of contraceptives (Table 3).

Reasons that hinder to use contraceptives

As shown in the figure below, 70 (16.1%) did not use it because of fear of side effects, whereas 12 (2.8%) did not use it due to a perceived risk of pregnancy and a lack of knowledge (Fig. 2).

Unmet need for family planning

The level of unmet demand for family planning was further examined among married women between the ages of 15 and 49 using the West off model[36]. In the Meyu Muluke district, there are 157 (36.02%) unmet contraceptive needs in total, of which 86 (19.72%) are for spacing and 71 (16.28%) are for limiting (see Fig. 1). The combined demand for contraception was 80.32% (current usage 44.3% + unmet need 36.02%). Of those, 64.1% had used contemporary contraceptives to meet demand. For modern methods, there was a 44.3% unmet need (Fig. 3).

Factors associated with unmet need for family planning

A multivariable logistic regression analysis revealed that the unmet need for family planning was significantly correlated with the age of the women, who ranged from 25 to 29 years old; the number of living children; the women's lack of formal education; and the time spent traveling to the family planning source, which was between 11 and 30 min and less than 10 min. Study participants in the age range of 25–29 years old 1.95 times [AOR = 1.95, 95% CI (1.09–7.35)] had higher odds of unmet need for family planning than those whose age was greater than or equal to 35 years. Likewise, women with no formal education 1.91 times [AOR = 1.91, 95% CI (1.11–4.57)] had a greater likelihood of experiencing an unmet need for family planning compared to those who were in secondary and above education. Furthermore, women who had a middle wealth quintile were 1.5 times more likely to experience an unmet need for family planning than those who had a high wealth quintile [AOR = 1.50, 95% CI 1.54–12.26].

Those women who had some living children were found to be statistically significant in terms of the unmet need for family planning. Hence, women who did not have children and had one child 1.47 times [AOR = 1.47, 95% CI (1.33–0.83)] were more likely to experience an unmet need for family planning compared to those who had six and above living children. Similarly, women who had two or three living children were 33% less likely to encounter an unmet need for family planning than those who had six or more living children [AOR = 0.67, 95% CI 1.26–18.80].

Women who had a future intention to use family planning were 6.55 times more likely to experience an unmet need for family planning compared to their counterparts [AOR = 6.55, 95% CI 5.49–18.59]. The time taken to arrive at the source of family planning was found to be statistically significant for the outcome variables. Thus, those women whose travel distance was less than or equal to 10 min have a 2.33 times greater likelihood of experiencing an unmet need for family planning than those who travel greater than 1 h [AOR = 2.33, 95% CI 1.15–4.72]. Likewise, those women whose travel distance was 11–30 min were 25% less likely to experience

Variables	Categories	Frequency	Percentage
Ever heard about FP?	Yes	340	78
	No	96	22
Knowledge of any method of contraceptive (n = 340)	Pill	167	38.3
	IUCD	17	3.9
	Injectables	151	33
	Implant	84	18.1
	Natural method	17	3.9
	Others*	24	5.5
Source of information of contraceptive	Health extension worker	259	59.4
	Media	68	15.6
	Friend	9	2.1
	Husband	13	3
	Other**	38	8.7
Reason for use of contraceptive	To space b/n birth	197	45.1
	To regulation of period	16	3.7
	To limit family size	127	29.1
	To avoid STD	9	2.1
Women's attitude toward contraceptive	Favorable	247	56.7
	Un favorable	189	43.3
Discussion on FP with Health workers	Yes	272	62.4
	No	146	33.5
Who decide for you to use FP	My self	47	10.8
	My husband decision	77	17.7
	Joint decision	43	9.9
	Neighbor suggestion	26	6
	Not decided	243	55.7
Does your husband know whether you use or not FP	Yes	120	27.5
	No	316	72.5
Discussion on FP with spouse/partner	Yes	159	36.5
	No	247	56.7
Frequency of discussion with partner	Once	71	16.3
	Twice	28	6.4
	≥ Three times	60	13.8
Time taken to space birth of one children to another	< 2 years	74	17
	2–3 years	51	11.7
	4–5 years	34	7.8
	More than five years	20	4.6
	Do not know	14	3.2

Table 3. Distribution of Knowledge and attitude toward contraceptives among currently married women in respondents in Meyu Muluke District, Eastern Ethiopia, 2018 (n = 436). *Condoms and permanent methods; **Community, Schools/Teachers.

an unmet need for family planning than those who traveled for more than 1 h [AOR = 0.75, 95% CI 0.57–2.92] (Table 4).

Discussion

This study was conducted to identify the prevalence of unmet needs for family planning and associated factors among reproductive-age women in the Meyu Muluke District, Eastern Ethiopia. The findings of this study revealed that the prevalence of unmet needs for family planning was 36.02% (95% CI 32.5–39.2%) in the study area. Thus, roughly more than one in every three childbearing-age women experienced an unmet need for family planning. Factors such as age of women whose range is between 25 and 29 years, women with no formal education, number of living children, those who have a future intention to use family planning, and time taken to the source of family planning less than 10 min and 11–30 min were significantly associated with an unmet need for family planning.

The prevalence of unmet needs for family planning in this study was in line with the study conducted in eastern Ethiopia, 34.6%[30], Saudi Arabia, 32.6%[37], and India, 39%[38]. On the other hand, the magnitude during the present study was lower compared to the previous studies conducted in Cameroon 46.6%[39], and Angola
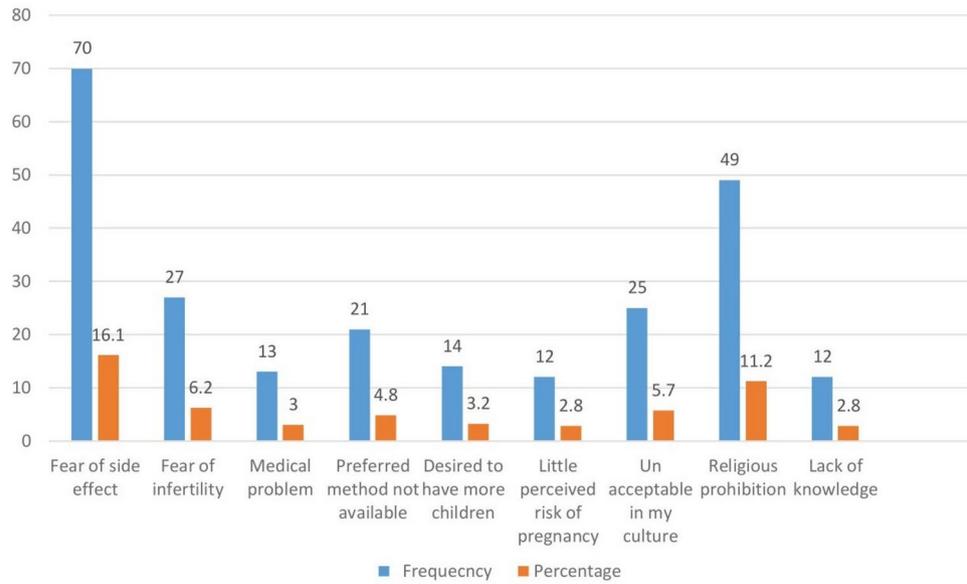
Fig. 2. Showing the reasons that hinder to use contraceptives services among currently married women in respondents in Meyu Muluke District, Eastern Ethiopia, 2018.
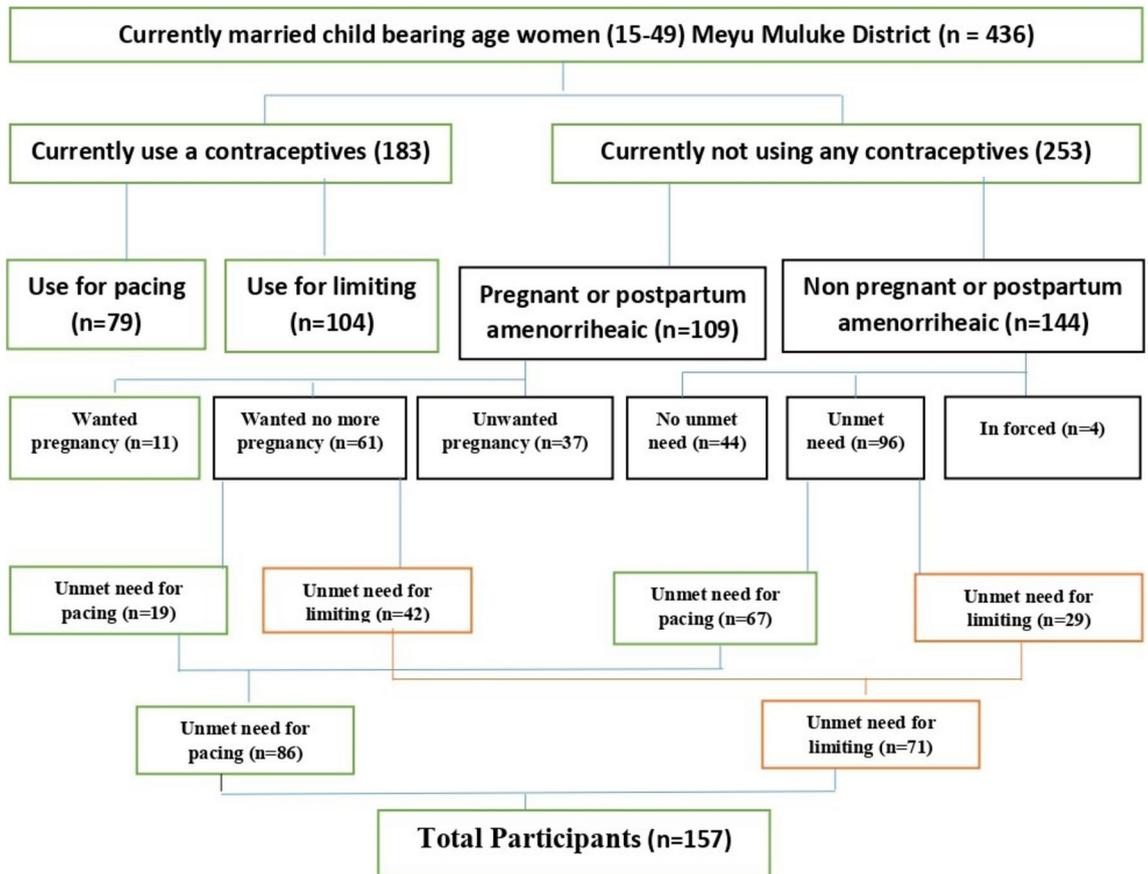

Fig. 3. Unmet need for family planning among currently married women in respondents in Meyu Muluke District, Eastern Ethiopia, 2018.

Factors	Categories	Unmet need of family planning		COR (95% CI)	AOR (95% CI)
		Yes (%)	No (%)		
Age	15–19 years	23(48.9%)	24(51.1%)	1.82(0.53–2.06)	1.86(0.15–12.31)
	20–24 years	34(29.1%)	83(70.9%)	1.42(1.17–4.70)*	1.62(0.79–9.58)
	25–29 years	55(47.8%)	60(52.2%)	1.68(1.53–2.06)*	**1.95(1.09–7.35)****
	30–34 years	30(29.7%)	71(70.3%)	1.10(1.11–4.63)*	1.12(0.74–504)
	35 and above	15(26.8%)	41(73.2%)	1	1
Educational status of the women	No formal education	11(39.2%)	172(60.8%)	1.97(1.09–3.59)*	**1.91(1.11–4.57)****
	Primary school	29(34.5%)	55(65.5%)	1.22(0.74–2.04)	1.58(0.67–3.72)
	Secondary and above	17(24.6%)	52(75.4%)	1	1
Wealth quintiles	Low	14(24.6%)	33(75.4%)	1	1
	Middle	39(34.2%)	75(65.8%)	1.24(0.78–1.97)	**1.50(1.54–12.26)****
	High	104(39.2%)	161(60.8%)	1.62(1.03–3.81)**	1.23(0.77–2.93)
Number of living children	0–1	48(38.4%)	77(61.6%)	1.37(0.26–1.25)	**1.47(1.33–8.83)****
	2–3	5(10.2%)	44(89.8%)	1.47(1.27–0.81)*	**0.67(1.26–18.80)***
	4–5	56(47.9%)	61(52.1%)	3.77(1.37–10.36)	3.78(0.28–2.87)
	Six and above	48(42.9%)	97(57.1%)	1	1
Future intension to use family planning	Yes	151(42.5%)	204(5.5%)	6.25(3.92–21.82)*	**6.55(5.49–18.59)*****
	No	6(7.4%)	75(92.6%)	1	1
Time taken to travel to the source of contraceptive	≤ 10 min	57(43.8%)	73(56.2%)	1.25(1.65–2.39)	**2.33(1.15–4.72)****
	11–30 min	41(33.3%)	82(66.7%)	0.70(0.38–1.32)	**0.75(0.57–2.92)***
	31 min–1 h	37(30.6%)	84(69.4%)	0.750(0.58–2.09)	0.76(1.14–4.44)
	> 1 h	22(35.5%)	40(64.5%)	1	1

Table 4. Bivariate and multivariable logistic regression analysis for factors associated with unmet need of Family planning among currently married women in Meyu Muluke District, Eastern Ethiopia, 2018 (n = 436).

51.7%[40]. On the contrary, the findings of this study were higher than those of the studies carried out in Eastern Sudan 15.8%[14], Ethiopia 16.2%[11], Gambia 17.68%[41], Hawella, Ethiopia 18.1%[3], Mozambique 20.79%[41], Zambia 21%[42], Malawi 21%[43], Bangladesh 22.4%[44], Pakistan 23.5%[45] and Indonesia 24%[46]. This disparity may be caused by variations in the accessibility of healthcare, knowledge of and attitudes toward family planning services, as well as sociodemographic and cultural factors. In addition, a difference in sample size may cause a significant difference in the report. Moreover, the larger prevalence of unmet needs for family planning in our study area was possibly explained by the residence of the participants, where 75% of the population resides in rural areas. This is because the composition of the sample size could have an enormous effect on the prevalence of the study outcome[17,47,48].

The results of this study indicated a substantial correlation between the women's age and their unmet demand for family planning. Thus, women aged between 25 and 29 years old have 1.95 times higher odds of having an unmet need for family planning than those whose age is greater than or equal to 35 years. This finding is consistent with studies carried out in different parts of the world, such as Nigeria[49], Pakistan[17], and Burundi[16]. The fact that, in comparison to their peers, this age group may have a strong intention and desire to utilize family planning to either limit or space out the pregnancy might be one of the probable explanations.

According to this study, the educational status of women has a significant association with an unmet need for family planning. The odds of no formal education for women with an unmet need for family planning were 1.91 times higher than those attending secondary or higher education. This finding was supported by the previous studies conducted in Hawella City, Ethiopia[3], Enemay District, Northwest Ethiopia[29], Toke Kutaye District, Ethiopia[50], Nepal[51], Pakistan[17,45], and Ethiopia[27]. This might be explained by married women without formal education, who may not have a significant part in determining their FP requirements and who may lack the required level of financial independence due to their frequent unemployment. Furthermore, educated women explicitly have far better knowledge of the importance and use of family planning services, which in turn inevitably enable and boost their use of this pivotal service. Moreover, in addition to having fewer access to healthcare facilities, women without formal education may not be able to read and comprehend the majority of family planning messages found in print and on social media, which would expand their knowledge and expose them to new information sources.

Our study explicitly pointed out that wealth quintiles were one of the determinants of the unmet need for family planning. The odds of an unmet need for family planning were 1.50 times higher among those in the middle wealth quintile than those in the high wealth quintile. This finding contradicts the study conducted in Ethiopia[52]. Similar findings were found in a comparison of demographic health surveys conducted in 34 developing nations in 2014, which revealed that young married women in the highest wealth quintile had a significant unmet demand for contraception[29]. This shows that having a high wealth index does not ensure that family planning needs are addressed.

Findings from this study showed that the number of living children had a statistically significant association with an unmet need for family planning. Hence, women who did not have children and had one child were 1.47 times more likely to experience an unmet need for family planning compared to those who had six or more living children. This study contradicts the study conducted in certain parts of southwest Ethiopia[28]. Furthermore, women who had two or three living children were 33% less likely to encounter an unmet need for family planning than those who had six or more living children. Findings from this study are in agreement with those conducted in different parts of Ethiopia[28,53], Uganda[54], and middle-income countries[55]. This might be because, as women have a high number of living children, their likelihood of using contraceptives may soar.

Furthermore, our study revealed that women who had a future intention of using family planning 6.55 times were more likely to experience an unmet need for family planning compared to their counterparts. This is supported by the study conducted in different parts of Ethiopia[56]. This is because the decision to use family planning in the future creates a supportive and conducive atmosphere for women to utilize contraceptives and pursue their goals for fertility. Finally, this study vividly pointed out that the time taken to arrive at the source of family planning was statistically significant for the outcome variables. Thus, those women whose travel distance was less than or equal to 10 min have a 2.33 times greater likelihood of experiencing family planning needs than those who traveled for more than 1 h. In a similar vein, women who traveled between 11 and 30 min had a 25% lower chance of having their family planning requirements unfulfilled compared to those who traveled more than an hour. This is explicitly because the further away the health facilities are from the user, the less likely the customer is to utilize the services[57–59].

Strength and limitations of the study

It is important to use caution when interpreting the survey's results. This survey's cross-sectional design prevents the straightforward establishment of cause-and-effect linkages. We did not measure the unmet demand for family planning among single men and women in our study. This is significant since our findings indicated that the male partner has a significant influence on a woman's decision to use contraception. Additionally, our study did not assess family planning practitioners' expertise or the availability of contraceptive options among this demographic. The results, however, are in complete agreement with earlier study findings and were achieved following accepted scientific research standards and with sufficient methodology. Our study serves as a gauge for the local family planning requirements and supports the proper distribution of resources for the sector.

Conclusions

The study's findings suggested that eight out of every twenty-five married women in Meyu Muluke District, Eastern Ethiopia, have unmet family planning needs. Age, education, children, intention, and time taken were significantly associated with the unmet need for family planning. Focusing on strategies that allow intervention in these factors is helpful to women because they directly and indirectly affect women's health and educational achievement.

Data availability

All data generated and analyzed during this study are available from the corresponding author upon reasonable request.

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Competing interests

The authors declare no competing interests.

Ethical approval

Ethical approval was obtained from the Institutional Health Research Ethics Review Committee (IHRERC) of Haramaya University, College of Health Sciences, by formal letter with a reference number. IHRERC/04/2018. Support letters from the College of Health Sciences were submitted to the selected kebeles where the study was conducted. After getting all permission letters from the responsible body and being informed, voluntarily, written informed consent was signed by study participants. Confidentiality was maintained by using codes instead of the participant's name. Participants were also informed that they had the full right to refuse participation or withdraw at any time from the research. All methods were performed following relevant guidelines and regulations in the Declaration of Helsinki.

Additional information

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