

# Knowledge, Attitude and Associated Factors Towards Vasectomy Among Married Men in Arba Minch Town, Southern Ethiopia, 2021; A Cross-Sectional Study

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**Background:** Vasectomy is a safe and effective permanent contraceptive method. In Ethiopia, this method underutilized since the focus has been on contraceptive methods available for women rather than men. Few studies have examined this method in Ethiopia so far, so it is important to note that there is a lack of data about the method in the study area regarding married men's knowledge and attitudes toward vasectomy.

**Methods:** A community-based cross-sectional study conducted from May 2 to June 2, 2021, at Arba Minch town. A simple random sampling technique used to select 624 study participants. Data collected via the face-to-face interview technique using a semi-structured and pretested questionnaire. Data entered in EpiData 3.1, cleaned, and analyzed using SPSS for Windows version 25.0. Descriptive statistics and bivariable and multivariable logistic regression analyses were performed. An adjusted odds ratio (AOR) with 95% CI and a p-value < 0.05 estimated to identify statistically significant variables associated with knowledge and attitude towards vasectomy.

**Results:** From the total of 624 study subjects, 600 had completed the questionnaire, giving a response rate of 96.2%. From those who heard about vasectomy (36.8%), only 60.6% of men had good knowledge, and 48.4% had a positive attitude towards vasectomy. Men's knowledge of vasectomy was significantly associated with college or university attendance (AOR = 4.05, 95% CI: 1.720–9.521), age 31–40 years (AOR = 2.308, 95% CI: 1.081–4.929), and age ≥41 years (AOR = 2.671, 95% CI: 1.159–6.156). Age ≥41 years (AOR=4.735 95% CI 2.015–11.129), age of last child (AOR=3.868 CI 1.554–9.632) and discussing family planning with wife (AOR=2.821 95% CI 1.559–5.105) were significantly associated with attitude of men towards vasectomy.

**Conclusion:** In this study area, six out of ten and half of the married men had good knowledge and a positive attitude towards vasectomy, respectively.

**Keywords:** vasectomy, knowledge, Arba Minch

## Introduction

A vasectomy (male sterilization) is a surgical procedure to cut or seal the tubes that carry a man's sperm to prevent pregnancy permanently. It's usually carried out under local anesthesia and takes about 15 minutes.<sup>1</sup> There are numerous and plausible reasons to involve males in family planning activities and services. Males are breadwinners in most families, decision-makers at all levels, remain fertile for a longer period of life, are more involved in polygamous relationships, and are more mobile and risk-takers. However, the burden of FP is on females, including Ethiopia.<sup>2–4</sup>

In Africa, short-term and reversible contraceptive methods are more common than long-acting and permanent methods (LAPM), like vasectomy family planning.<sup>5</sup> In another study, a low level of knowledge is cited as a cause of the low level of acceptance in Nigeria.<sup>6</sup> In Nigeria, only 13.2% had high knowledge about vasectomy, and most of them showed a negative attitude towards vasectomy and assumed that vasectomy should not be done by men and that females should be responsible for family planning but the decision on the method to use should be demanded from them as the head of the family.<sup>7</sup>

According to the 2016 EDHS, the utilization of long-acting and permanent methods is extremely low, including vasectomy. The most significant increase has been in injectables use, which has increased from 3% of women in 2000 to 23% in 2016, followed by implant use, which has increased from less than 1% of women in 2000 to 8% in 2016.<sup>8</sup>

In Ethiopia, according to the EDHS 2016, only 23.5% of married men heard about vasectomy.<sup>8</sup> Knowledge about vasectomy was high among married men in Dangila Town and Debre Tabor, where 44.8% and 38.5% of men were knowledgeable about vasectomy, respectively.<sup>9,10</sup> In Gondar, more than two-thirds (70.2%) of the respondents were not aware of vasectomy as a form of male family planning method.<sup>11</sup>

The studies carried out previously in other regions of Ethiopia did not evaluate some potential risk factors, so in this study, having children, the age of the last children, and having more than one wife will be assessed for their association with knowledge about vasectomy and attitude. To our best knowledge, there is no information regarding men's knowledge of and attitudes toward vasectomy in Arba Minch town. Therefore, the findings of this study will serve to identify the impacts of socio-demographic factors and reproductive health factors that increase the knowledge of males about vasectomy and their attitudes towards vasectomy in Arba Minch town.

## Methodology

### Study Area and Period

The study was conducted from May 2 to June 2, 2021. Arba Minch town is located in the Southern Nations, Nationalities, and People's regional state of Ethiopia. Arba Minch has a total population of 118,040, out of which 58,784 are male and 59,256 are female. According to the information obtained from the Arba Minch town health office, there are two hospitals, two health centers, and 11 health posts that provide health services for the community. Arba Minch has a total population of 118,040, out of which 58,784 are male and 59,256 are female. According to the information obtained from the Arba Minch town health office, there are two hospitals, two health centers, and 11 health posts that provide health services for the community.<sup>12</sup>

### Study Design

A community based cross-sectional study designed was used.

### Source Population

All married men who live in Arba Minch town.

### Study Population

Married men in the selected household during the data collection period in Arba Minch town.

### Study Unit

Individual Married man.

### Inclusion Criteria

Married men who had lived in Arba Minch for more than six months were included.

### Exclusion Criteria

A respondent who was unable to give a response due to serious illness at the time of data collection was excluded.

## Sample Size Determination

The sample size was determined using a single population proportion formula, with the following assumptions: p-value 38.5%<sup>10</sup> and 15.9%<sup>11</sup> men knowledge and attitude respectively, 95% confidence level, 4% margin of error, and 10% non-response rate. The largest sample size from objectives one and two was 568 with a 10% non-response rate the total sample size becomes 624.

## Sampling Technique

A simple random sampling technique was applied to select 624 married men for the study. Samples were allocated proportionally to each kebele based on their total household. The number of households with married men in each kebele was found in the kebele registration book. The registration book from each kebele was used as a sample frame. The first household was selected in each kebele by using the lottery method.

## Operational Definitions

### Knowledge

It refers to the understanding and awareness of married men regarding vasectomy. Knowledge about vasectomy was determined using ten questions. Each correct question is worth 1 point, so there are a total of 10 points for the ten questions. Respondents were considered to have good knowledge if they scored 60% or above (a respondent who answered six or more of the knowledge questions was considered to have good knowledge). They are considered to have poor knowledge if they score less than 6 out of 10.<sup>11</sup>

### Attitude

A predisposition or a tendency to respond positively or negatively towards vasectomy. It refers to the opinions and feelings of married men regarding vasectomy. Their attitudes were measured using 12 items rated on a three-point Likert scale as agreeing, neutral, or disagreeing. Men who scored above the mean on the attitude items were perceived to have a positive attitude, while those who scored below the mean were perceived to have a negative attitude.<sup>10</sup>

## Study Variables

### Dependent Variable

Knowledge about vasectomy and attitude towards vasectomy.

### Independent Variable

Socio-demographic factors and reproductive health factors.

## Data Collection Tool and Procedure

A semi-structured questionnaire was used to collect the data by interviewing technique which was developed from relevant literature<sup>5,6,8–11,13,14</sup> and modified to the local context in such a way that all the variables to be assessed were included. The questionnaire consists of 4 sections with a total of 46 quantitative items. Section I was designed to collect data on socio-demographic characteristics, Section II was designed to collect questions about reproductive health, Section III was designed to collect information about knowledge of vasectomy, and values of 1 and 0 were given for each correct and incorrect answer, respectively, and Section IV was designed to collect information about attitude toward vasectomy using a likert categorization method (agree, neutral, disagree). Questionnaires were first prepared in the English language, then translated into Amharic by an individual who had a good ability in both languages, then retranslated back to English by other individuals to check for any inconsistencies.

## Data Collectors

Four BSc midwife data collectors who spoke Amharic and Gamogna, as well as one MSc maternity student supervisor, were recruited and took part in the data collection.

## Data Processing and Analysis

Data were entered into a computer using Epi data 3.1, cleaned, and analyzed using SPSS for windows version 25.0. Descriptive statistics, bivariate and multivariable logistic regression analyses were performed. Bivariate analysis was performed to identify the association between each independent variable with the dependent variable. On bivariate analysis  $P\text{-value} < 0.20$ ,<sup>10</sup> variables was considered for multivariable analysis. The adjusted odds ratio along with 95% CI was used to identify the factors associated with knowledge and attitude towards vasectomy multivariable logistic regression analysis. All tests were two-sided and the level of statistical significance was declared at a  $p\text{-value}$  less than 0.05.

Multi-collinearity was checked to see the linear correlation among the independent variables. The fitness of the model was tested by Hosmer-Lemeshow's goodness-of-fit test model. Data presentation was done using frequency, percentage, and mean, and tables, graphs, and texts were used for data presentation.

## Data Quality Control

The questionnaire was prepared first in English by the investigator and then translated to Amharic by other individuals who are native to the Amharic language. The questionnaire was translated back to English by another individual to maintain its consistency. The data were collected by trained data collectors. A pre-test of the survey questionnaire was done before the actual data collection period among 5% of the study subjects in Merab Abaya town.

The trained supervisor was supervising the data collector on a daily basis to ensure that the questionnaires were complete and consistent. Data was entered using Epidata 3.1 and then exported to SPSS version 25.0 for analysis. During analysis, the data was cleaned carefully.

## Ethical Considerations

Ethical clearance was obtained from the AMU College of Medicine and Health Sciences' institutional research ethics board with the reference number of RB/1073/21. A formal letter from the research ethics board was submitted to the Arba Minch health office and concerned bodies to obtain their cooperation. Then a letter of permission and support was written to each respective kebele. Study subjects were informed about the study's purpose. At the time of data collection, written consent is taken from the participants to confirm whether they are willing to participate. Those unwilling to participate were given the opportunity to do so. The confidentiality of responses was also ensured throughout the research process. The study performed in accordance with the ethical standards of the Helsinki Declaration.

## Results

### Socio-Demographic Characteristics of Respondents

From the total of 624 study subjects, 600 had completed the questionnaire, giving a response rate of 96.2%. More than half (336, or 56%) were between the ages of 31 and 40, with a mean age and standard deviation of 35.98 (SD 6.73) years (Table 1).

### Reproductive Characteristics of the Participant

Among participants, five hundred forty-eight (91.3%) have children; of those, 306 (54.8%) have one to two children, and 461 (84.1%) have children less than three years old. 534 (89%) of participants did not achieve their desired family size; 309 (57.9%) had a desired number of children aged four and older for their future lives. Three hundred twenty-three (53.8%) couples lived with their wives for 5–10 years; five hundred ninety-seven (99.5%) participants were monogamous. The majority of participants in the study (363, or 74.2%) had not discussed family planning with their wives (Table 2).

Accordingly, four hundred eighty-nine (81.5%) of the participants were aware of methods of contraception. Regarding method specifics, there are 468 (95.7%) about injectable (Depo-Provera), 445 (91%) about oral contraceptive pills, 210 (42.9%) about implants, 440 (90%) about condoms, 71 (32.77%) about IUCD, 218 (44.6%) about tubectomy, 221 (36.2%) about vasectomy, and 56 (11.5%) about others (calendar methods, Lactational amenorrhea

**Table 1** Socio-Demographic Characteristics of Study Participants Arba Minch Town, South Ethiopia 2021 (n=600)

Variables	Category	Frequency	Percent
Age	21–30 year	119	19.8%
	31–40 year	336	56%
	≥41 year	145	24.2%
Religion	Orthodox	314	52.3%
	Protestant	172	28.7%
	Catholic	45	7.5%
	Muslim	57	9.5%
	Others(Adventist, Jehovah witnesses)	12	2%
Ethnicity	Gamo	260	43.3%
	Wolaita	126	21%
	Konso	36	6%
	Amara	94	15.7%
	Gofa	56	9.3%
	Others(Kembata, Silte, Derashe, Hadeya)	28	4.7%
Husband education	No formal education	142	23.7%
	Primary education (grade 1–8)	94	15.7%
	Secondary education(grade 9–12)	148	24.7%
	College/university and above	216	36%
Wife education	No formal education	238	39.7%
	Primary education (grade 1–8)	156	26%
	Secondary education (grade 9–12)	132	22%
	College/university and above	74	12.3%
Husband occupation	Unemployed	7	1.2%
	Government employee	243	40.5%
	Private business	131	21.8%
	Farmer	10	1.7%
	Daily laborer	122	20.3%
	Private sector employee	77	12.8%
	Other (waiter, driver)	10	1.7%
Wife occupation	House wife	254	42.3%
	Government employee	81	13.5%
	Private business	109	18.2%
	Daily laborer	96	16%
	Private sector employee	23	3.8%
	Other (student, waiters, farmer)	37	6.2%

(Continued)

**Table 1** (Continued).

Variables	Category	Frequency	Percent
Income	<500 birr	1	0.2%
	500–1000 birr	9	1.5%
	1001–2000 birr	13	2.2%
	2001–3000 birr	73	12.2%
	>3000 birr	504	84%

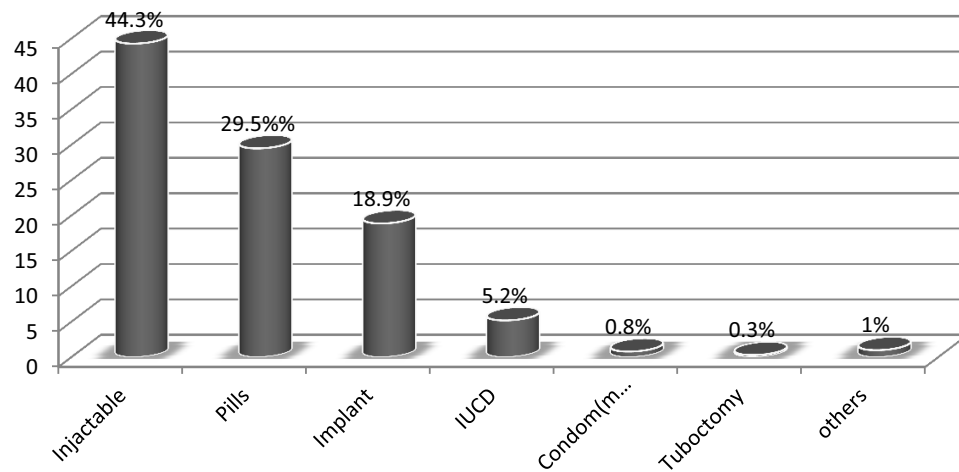
**Table 2** Reproductive Characteristics of the Study Participants Arba Minch Town, South Ethiopia 2021 (n=600)

Variables	Category	Frequency	Percent
Having a child or children	Yes	548	91.3%
	No	52	8.7%
Number of children	1–2	306	55.8%
	3–4	180	32.8%
	≥5	62	11.4%
Age of last child	<3 year	461	84.1%
	≥3 year	87	15.9%
Completed Family	Yes	66	11%
	No	534	89%
Future desire number of children	<3 children	225	42.1%
	≥4 children	309	57.9%
Marriage duration	<5 years	226	37.7%
	5–10 years	323	53.8%
	>10 years	51	8.5%
Have more than one wife	Yes	3	0.5%
	No	597	99.5%
Discuss about FP with partner	Yes	126	25.8%
	No	363	74.2%

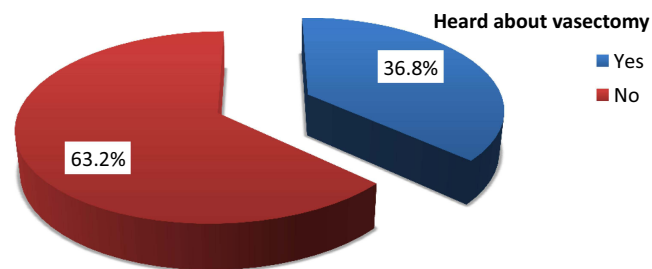
methods). The prevalence of contraceptive utilization by the participant or their wife was 386 (78.9%). The injectable contraceptive method (171) (44.3%) was the most commonly used modern contraceptive method, followed by pills (114 (29.5%)) (Figure 1).

## Knowledge of Study Participants About Vasectomy

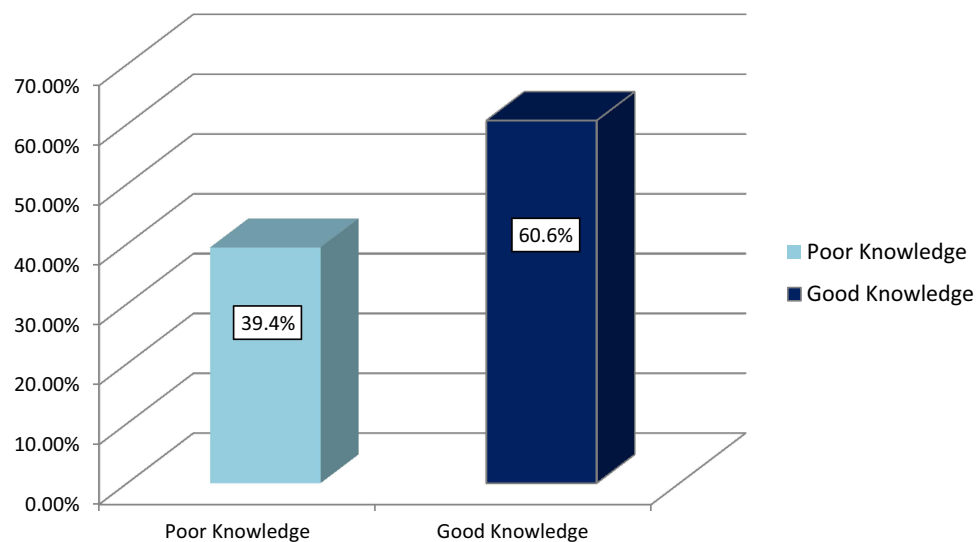
About 221 (36.8%) of married men reported that they had ever heard about vasectomy. Of those who had ever heard about vasectomy 102 (43.03%) heard from mass media (TV 29.5%, Internet 54.9%, and Radio 23.6%), 49 (20.8%) heard from wife, 58 (24.5%) heard from a health care provider and 28 (11.8%) heard from friends was the source of information (Figures 2 and 3).



**Figure 1** Current contraceptive methods used by respondents or their wife in Arba Minch town, south Ethiopia 2021.



**Figure 2** Respondent who had heard about vasectomy in Arba Minch town, south Ethiopia 2021.



**Figure 3** Knowledge of married men among those who heard about vasectomy in Arba Minch town, south Ethiopia 2021.

The vast majority of respondents (89.6%) were aware that vasectomy was a permanent procedure. A few, 56 (25.3%), knew that sexual function remained normal after vasectomy. 24 (10.9%) of the respondents reported that after vasectomy, a man still has the ability to impregnate his partner, while 160 (72.4% of them) did not agree to this. Sexually transmitted

**Table 3** Knowledge Question Responses About Vasectomy by Study Participants; Arba Minch Town, South Ethiopia, 2021 (n=221)

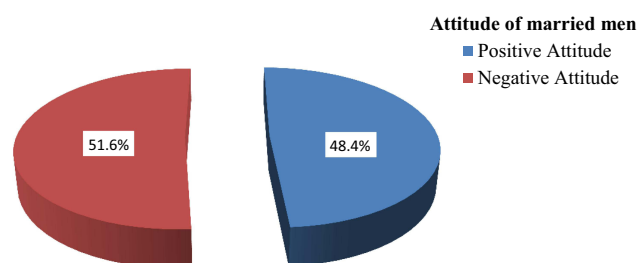
Knowledge Questions		Frequency	Percent
What type of FP method is vasectomy	Permanent	198	89.6%
	Temporary	23	10.4%
Vasectomy is a contraceptive method by ligating the vas-difference?	Yes	127	57.5%
	No	14	6.3%
	I do not know	80	36.2%
Who can use vasectomy as a FP method?	Any married men of reproductive	19	8.6%
	Married men who complete their family	192	86.9%
	Other	10	4.5%
What type of surgery vasectomy requires?	Minor surgery	29	13.1%
	Major surgery	192	86.9%
When vasectomy is effective?	Immediately after operation	26	11.8%
	Days later operation	24	10.9%
	Two to three months of operation	171	77.4%
A man can ejaculate after vasectomy	Yes	137	62%
	No	33	14.9%
	I do not know	51	23.1%
A man is able to impregnate his partner after vasectomy	Yes	24	10.9%
	No	160	72.4%
	I do not know	37	16.7%
Vasectomy prevent STI	Yes	16	7.2%
	No	122	55.2%
	I do not know	83	37.6%
Sexual function stay normal after vasectomy	Yes	56	25.3%
	No	28	12.7%
	I do not know	137	62%
Vasectomy done in Ethiopia without charge	Yes	30	13.6%
	No	13	5.9%
	I do not know	178	80.5%

infection cannot be avoided after vasectomy, according to 122 (55.2%) of respondents. 13.6% of participants are aware that vasectomy is free of charge in Ethiopia (Table 3).

## Attitude of Study Participants Towards Vasectomy

In this study, for those who heard about vasectomy, the mean score of answers to questions used to assess the attitude of married men towards vasectomy was 21.72 (SD 4.213) out of 36, and about 107 (48.4%) of the respondents had a





**Figure 4** Attitude towards vasectomy among the study participants those who had heard about vasectomy in Arba Minch town, south Ethiopia 2021.

positive attitude towards vasectomy (Figure 4). The proportion of men who respond to the attitude question, more than one hundred thirty nine (62.9%) of the respondents disagreed on the involvement of men in family planning. The majority of respondents believed that vasectomy would increase promiscuity among men, is not an effective method of family planning and they disapprove the use of vasectomy (Table 4).

## Factors Affecting Knowledge About Vasectomy Among Study Participants

In bivariate logistic regression, respondent age, religion, and Educational status of the respondent, wife's education, occupation, income, Having children, number of children, desire to have more children, Age of last child, duration of marriage, There was a discussion with the wife about FP, spouse support, having more than one wife, and total family size. Age, educational status, and completed family size were found to have a significant relationship with knowledge of vasectomy among married men in Arba Minch town. In multivariable logistic regression, both age from 31 to 40 years (AOR = 2.308, 95% CI: 1.081–4.929), age  $\geq 41$  years (AOR = 2.671, 95% CI: 1.159–6.156), and educational status (AOR = 4.047, 95% CI: 1.720–9.521) were statistically significant (Table 5).

**Table 4** Attitude Question Responses Towards Vasectomy by Study Participants; Arba Minch Town, South Ethiopia, 2021(n=221)

Attitude Questions	Agree	Neutral	Disagree
Men should not involve on FP	139 (62.9%)	51 (23.1%)	31 (14%)
Permanent sterilization only for female	40 (18.1%)	52(23.5%)	129 (58.4%)
Disapprove vasectomy as a FP	144 (65.2%)	53(24%)	24 (10.9%)
Vasectomy is Unacceptable in my religion	163 (73.8%)	43 (19.5%)	15 (6.8%)
Vasectomy is Unacceptable in my culture	110 (49.8%)	82 (37.1%)	29 (13.1%)
Vasectomy is not effective method of FP	90 (40.7%)	87(39.4%)	44 (19.9%)
Vasectomy is equivalent to castration	63 (28.5%)	119 (53.8%)	39 (17.6%)
Vasectomy makes more promiscuous	73 (33%)	113 (51.1%)	35 (15.8%)
Vasectomy influence self-confidence and masculinity	86 (38.9%)	88 (39.8%)	47 (21.3%)
Vasectomy cause physical weakness and not to do hard work	54 (24.4%)	101 (45.7%)	66 (29.9%)
Vasectomy has negative effect on marriage	55 (24.9%)	131 (59.3%)	35 (15.8%)
Vasectomy negatively affect sexual performance/desire	52 (23.5%)	97 (43.9%)	72 (32.6%)

**Table 5** Factors Associated with Knowledge of Married Men About Vasectomy in Arba Minch Town, South Ethiopia 2021 (n=221)

Variables	Category	Knowledge		COR (95% CI)	AOR(95% CI)	P-value
		Good	Poor			
Age (in year)	21–30 years	19 (42.2%)	26 (57.8%)	I		
	31–40 years	70 (64.2%)	39 (35.8%)	2.456 (1.208–4.993)	2.308 (1.081–4.929)	0.031*
	≥41 years	45 (67.2%)	22 (32.8%)	2.799 (1.282–6.112)	2.671 (1.159–6.156)	0.021*
Education	No formal education	16 (48.5%)	17 (51.5%)	I		
	Primary education	18 (38.3%)	29 (61.7%)	0.659 (0.268–1.624)	0.686 (0.274–1.717)	0.421
	Secondary education	24 (53.3%)	21 (46.7%)	1.214 (0.494–2.985)	1.234 (0.492–3.093)	0.654
	College/university education	76 (79.2%)	20 (20.8%)	4.037 (1.740–9.369)	4.047 (1.720–9.521)	0.001*
Completed family size	Yes	10 (45.5%)	12 (54.5%)	0.504 (0.206–1.223)	0.472 (0.179–1.241)	0.128
	No	124 (62.3%)	75 (37.7%)	I		

Notes: \*Statistically significant (p-value <0.05); I=constant.

Abbreviations: AOR, adjusted odd ratio; CI, confidence interval; COR, crude odd ratio.

## Factors Affecting Attitude Towards Vasectomy Among Study Participants

In bivariate logistic regression age of the respondent, religion, Educational status of the respondent, wife's education, occupation, income, Having children, number of children, Desire to have more children, age of last child, duration of marriage, Discussions with the wife about FP, spouse support, having more than one wife, and family size were interred. There was a significant relationship between those ages, age of last child, marriage duration, and discussing FP with wife and attitude toward vasectomy among married men in Arba Minch town. In multivariable logistic regression analysis, three of them are statistically significant: age ≥41 years (AOR = 4.735 95% CI 2.015–11.129), age of last child (AOR = 3.868 CI 1.554–9.632), and discussing family planning with the wife (AOR = 2.821 95% CI 1.559–5.105) (Table 6).

**Table 6** Factors Associated with Attitude Towards Vasectomy Among Married Men in Arba Minch Town, South Ethiopia 2021 (n=221)

Variables	Category	Attitude		COR 95% CI	AOR 95% CI	P- value
		Positive	Negative			
Age (in year)	21–30year	14 (31.1%)	31 (68.9%)	I		
	31–40year	49 (45%)	60 (55%)	1.808 (0.867–3.773)	1.693 (0.789–3.631)	0.177
	≥41year	44 (65.7%)	23 (34.3%)	4.236 (1.888–9.502)	4.735 (2.015–11.129)	0.000 1*
Age of last children (in year)	<3 year	99 (51.8%)	92 (48.2%)	2.959 (1.255–6.976)	3.868 (1.554–9.632)	0.004*
	≥3 year	8 (26.7%)	22 (73.3%)	I		
Marriage duration	<5 years	32 (39.5%)	49 (60.5%)	I		
	5–10 years	65 (55.1%)	53 (44.9%)	1.878 (1.057–3.336)	0.956 (0.468–1.953)	0.902
	>10 years	10 (45.4%)	12 (45.5%)	1.276 (0.493–3.300)	0.559 (0.179–1.742)	0.316
Discus about FP with wife	Yes	55 (63.2%)	32 (36.8%)	2.710 (1.552–4.732)	2.821 (1.559–5.105)	0.001*
	No	52 (38.8%)	82 (61.2%)	I		

Note: \*Statistically significant (p-value <0.05); I= constant.

Abbreviations: AOR, adjusted odd ratio; CI, confidence interval; COR, crude odd ratio.

## Discussion

In this study, 36.8% (95% CI: 32.8–40.8%) of men reported that they had ever heard about vasectomy. This finding was higher than the study done in Dashen Brewery and EDHS 2016, where only 17.1% and 23.5% heard about vasectomy, respectively.<sup>8,15</sup> This could be because of the time change since 2013, but the research in Dashen Brewery was done 8 years ago, and the participants were factory workers. The EDHS study includes rural areas and was done six years ago. It also reflects the increased effort of governmental and non-governmental organizations to increase acceptance of long-acting and permanent family planning methods. The other reason may be due to the sociocultural differences in the population.

Among those who had ever heard about vasectomy, 60.6% (95% CI 56.6–64.6%) of the married men had good knowledge about vasectomy; this finding is higher than studies conducted in Edo state, Nigeria, Gonder, Dangila, Western Nepal, and Debre Tabor.<sup>9–11,18</sup> This may be due to differences in study participants' socio-demographic characteristics, year of study, and sample size.

In this study, 48.4% (95% CI 44.4–52.4%) of married men who had ever heard about vasectomy had a positive attitude towards vasectomy, which was higher than the studies conducted in Nigeria, Addis Ababa, and Gonder (18%, 23.2%, and 15.9%, respectively).<sup>7,11,18</sup> In Iran, only 21.2% had good attitudes toward vasectomy, and about 44% had weak attitudes toward vasectomy.<sup>16</sup> The reason may be due to the study year and area. However, respondents were less positive than in studies conducted in Western Nepal, where the percentage was 60%, and Malaysia's private medical college, where the percentage was 60.9%.<sup>17,19</sup> This might be due to the difference in study participants; the current study was among married men, whereas the previous study was done on any adult men (married or unmarried), and medical students might have a better view and attitude towards vasectomy.

In this study, the age of married men was significantly associated with their level of knowledge. A married man between the ages of 31 and 40 is 2.3 times more likely to have good knowledge than a man between the ages of 21 and 30. Adults aged 41 and up are 2.67 times more likely to have good knowledge than those aged 21 to 30. In western Nepal, a study also revealed that an interesting improvement in knowledge score is an increase among the 41–49 year olds, followed by the 36–40 year.<sup>17</sup> The possible explanation for this finding might be that married men in this age category (41 years and older) might have easy access to information and be educated by the younger ones, and as their educational status increases, their knowledge might also scale up in the same fashion.

This study identified that educational status is significantly associated with knowledge about vasectomy. When compared to those who did not attend formal education, married men who were college or university graduates or higher were 4.1 times more likely to have good knowledge about vasectomy. The study done in Gonder revealed that those who were college/university and above educated were 7.37 times more likely to have good knowledge than those who did not attend formal education, and in another study, married men who completed college/university and above education were 5.73 times more likely to be knowledgeable about vasectomy compared to those who did not attend formal education.<sup>9,11</sup> It could be that educated men are more likely to be exposed to reproductive health information, and they are also more likely to comprehend the information they obtain.

The result of this study showed that there was a positive relationship between attitudes towards and vasectomy and age of the married men. Married men 41 years and above were 4.7 times more likely to have a positive attitude towards vasectomy compared to those who were between 21–30 years old. The study done in Western Nepal, among the age group of 41–49 years, there were positive attitudes towards vasectomy.<sup>17</sup> It might be due to the increase in awareness and information with age. The other reason might be that men in the age category of 41 years and older may have a greater number of living children and a more stable family life than younger ones.

In this study, men who discussed FP with their wives were 2.8 times more likely to be positive about vasectomy than those who did not. But this was not significant in the studies done in Gonder town and Debre Tabor.<sup>10,11</sup> This indicates that discussion will improve the likelihood of sharing and interpreting information.

The result of the study shows that the age of the last child is significantly associated with attitude. Those whose last child age is less than 3 years are 3.9 times more likely to have a positive attitude than those whose last child age

is 3 years and above. This is consistent with the study done in Nepal.<sup>17</sup> This could be due to their commitment to providing adequate resources for their child's upbringing by maintaining their economy or the cost of raising a child.

## Conclusion and Recommendation

In this study area, six out of ten and half of the married men had good knowledge and a positive attitude towards vasectomy, respectively. Variables like educational status and age were associated with knowledge about vasectomy. Age, discussion about family planning with the wife, and the ages of the last child, on the other hand, were all predictors of men's positive attitude toward vasectomy. Based on the findings of the study, the following recommendations are forwarded:

### At Health System Levels

- Collaborates with the Ministry of Education to design specific educational and sensitization programs to improve knowledge of contraceptive methods, especially vasectomy, and an education session should be provided on vasectomy for couples when they arrive for family planning services.
- Prepare a health education program at the health facility to increase men's level of knowledge about vasectomy.

### At House Hold/Community Levels

- Encourage couples to improve the culture of family planning discussion.
- Establish community education sessions for married men about vasectomy.
- Use men who have positive attitudes as role models to improve the attitudes of others.

## Disclosure

The authors report no conflicts of interest in this work.

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