

ORIGINAL ARTICLE

Determinants of Women's Use of Contraceptive Methods in Ethiopia: Evidence from 2016 Ethiopian Demographic and Health Survey

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Abstract

Providing women with quality and affordable family planning services is one of the major challenges in developing countries including Ethiopia. Various studies showed that migration and other socio-demographic factors are responsible for the low prevalence of contraceptive use in Ethiopia. The overall objective of the study was to examine the migration types, and socio-demographic factors associated with women's use of contraceptive methods. A cross-sectional analysis of secondary data from 2016 Ethiopian Demographic and Health Survey (EDHS) was conducted in order to achieve this objective. The 2016 EDHS interviewed a total of 15,683 women, aged 15 to 49 years, both in rural and urban areas. Out of the 15,683 interviewed, only 10223 married women were study participants. Binary logistic model was used to analyze the multivariate analysis of the study. The multivariate results show that rural to urban migrant women were 1.32 times more likely to use contraceptive methods than those from urban natives. In relation to socio-demographic factors, women who live in rural areas, women with no education, women with no work, younger women, women with low birth-order and women in the poorest wealth index were less likely to use contraceptive methods. Therefore, attention should be paid to women with no education, women with no work, younger women, rural women and women in the poorest households to access and use of contraceptive methods.

Keywords: Migration types, contraceptive use, socio-demographic, and Demographic and Health Survey

Introduction

Providing women with quality and feasible family planning services is one of the major challenges in developing countries like Ethiopia. According to World Health Organization (2018), Family planning (FP) is defined as a voluntary and informed decision making by an individual or couple on the number of children to have and when to have them. Quality of family planning services has a strong effect on women's behavior to use contraceptive methods (Islam, 2018; Kallner et al, 2015). The use of contraceptive methods refers to the percentage of women in the reproductive age (15-49 years) who were using, or whose sexual partner was using, at least one contraceptive method, regardless of a particular method used (Palamuleni,2014; Sabawoon et al, 2018; Gakidou and Vayena, 2007; Kallner et al, 2015). Although contraceptive use has many advantages such as preventing pregnancy-related health risks in women, reducing infant mortality, helping to prevent HIV/AIDS, empowering people and enhancing education, reducing adolescent pregnancies, and slowing population growth (WHO, 2018; Medhanyie et al, 2017), the use of contraceptive methods over time is very low in Ethiopia. It slightly increased from 29% in 2011 to 35.9% in 2016 (CSA, 2012; CSA, 2017). There is also a disparity in the use of contraceptive methods across the different regions of the country. For instance, the lowest use of contraceptive methods was observed in Somali region (1%), followed by Afar (12%). The highest use of contraceptive methods was observed in Addis Ababa (50%) followed by Amhara (47%) (CSA, 2017).

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Although, efforts have been made by the Ethiopian government to improve family planning service utilization by deploying health extension workers (HEWs) who provide family planning services, women's access to contraceptive services remains low with little improvement over the last fifteen years in the country (CSA, 2017). According to the Ethiopian Demographic and Health Survey, socio-cultural, economic and demographic factors are responsible for low contraceptive prevalence in the country (CSA, 2012). Moreover, the studies indicated that migration types (urban and rural natives and rural to urban migration), duration of migration in the current place of residence since migration, poverty, level of education, place of residence, and working status are the major determinants of the use of contraceptive methods in a country (Islam et al, 2016; Al-Balushi et al, 2015). Although, Ethiopia started to fight against poverty through the implementation of comprehensive poverty reduction strategy, 29.2 percent of the population still lives under poverty line (CSA, 2017). Apart from poverty, the levels of education in Ethiopia are also very low. Various studies in relation to education showed that there is a positive relationship between the level of education and the use of contraceptive methods (Mutumba et al, 2018; Andi et al, 2014; Sabawoon et al, 2018; Nonvignon, and Novignon, 2014). Investments in education, especially for women are more likely increased the use of contraceptive methods.

In addition to socio-economic problems, financial and human resources constraints are the major problems in implementing family planning programs and the use of contraceptive methods (Palamuleni, 2014; Asimwe et al, 2014; Kidayi, 2015). Even though there are demands for rapid expansion of family planning services, the resources to satisfy the demands are not proportionally increasing (CSA, 2006). There are also other barriers that affect the implementation of the family planning programs in Ethiopia. These constraints discourage women's access to various contraceptive methods. For instance, a woman in Ethiopia takes long time to get family planning services from centers (CSA, 2012) because she has to consult with her husband and other family members about using or not using family planning services (CSA, 2017). It is after a lot of discussion and negotiation that she finally decides to see a health facility for her family planning needs. In order to get the services, she also travels long distances and give up her household chores for the day. An exposure to mass media such as radio or television is highly scare in rural areas (Pandey and Karki, 2010). The vast majority of women who live in rural areas have limited access to media induced information. As a result, information, communication and education in relation to family planning programs do not reach majority of women. Furthermore, the cultural and institutional factors affect women's use of contraceptive methods. In addition, health systems often suffer from weak infrastructure, lack of human resource, poor management system, and low financing (Thapa et al, 2018; Al-Balushi et al, 2015; Kibria et al, 2016; Palamuleni, 2014).

The health care system of the country is not evenly distributed across regions and rural-urban areas. There is a rural-urban disparity in terms of family planning services due to differential access to and use of family planning services between rural and urban areas (CSA, 2017). People from rural areas want to move to urban areas to access adequate family planning services. This results in high rural to urban migration in Ethiopia. Although rural to urban migration exposes women to a new social environment characterized by new ideas, social norms, social support, and access to resources that enable them to access family planning services, very little is known how migration types and other socio-demographic factors affect women's access to and use of contraceptive methods in developing countries, particularity in Ethiopia. A number of studies have tried to investigate the effect of migration types and other socio-demographic factors on women's use

of contraceptive methods (Rahman et al, 2010; Thwin et al, 2008; Wei et al, 2010; White and Speizer, 2007). However, some of the previous studies were conducted in limited area having small sample sizes that produced inconsistent findings (Wilson, 2009; Omondi, and Ayiamba, 2003; Ama and Ouch, 2007; Chen and Xie. 2010). This paper, however, sought to fill the gap by using a large data set collected all over the country from both rural and urban areas to answer the following research questions:

- 1) Which migration types are associated with contraceptive use among currently married women in Ethiopia?
- (2) What are the demographic factors associated with contraceptive use among currently married women in Ethiopia?
- (3) What are the socioeconomic factors associated with contraceptive use among currently married women in Ethiopia?

Data and Methodology

The data for the study came from 2016 Ethiopian Demographic and Health Surveys (EDHS). These data were freely accessed after obtaining permission through online registration. EDHS is one of the largest demographics and health surveys that have been carried out every five years (CSA, 2017). The survey adopted a multi-stage stratified sampling design – covering all the 9 Regional States and two city administrations. The survey has three types of questionnaires: the household questionnaire, the woman’s questionnaire, and the man’s questionnaire (CSA, 2017). The household survey included questions on household composition, basic demographic characteristics of the household members, and socio-economic characteristics of the households. The individual woman’s questionnaire focused on demographic and reproductive health characteristics such as family planning, contraceptive use, and unmet need for family planning, maternal health care service, birth histories, births within the last five years preceding the survey, antenatal care, place of delivery, delivery assistance and postnatal care. A total of 15,683 women aged 15 to 49 years were interviewed in 2016 EDHS (CSA, 20017).

Table1: Migration and socio-demographic variables used in modeling women’s contraceptive use in Ethiopia

Variable name	Operational definition of Variables	Types of variables	Coding of variables
Contraceptive use	Self reported use of contraception at the time of the survey	Dichotomous	0= not using contraception 1=using contraception
Migration types	Women’s migration status at the time of the survey	Categorical	1=urban natives 2=rural natives 3=rural to urban migrants
Duration of migration	Duration of migrants in the current place of residence since migration	Categorical	0=non-migrants 1=0-5 years 2=6-9 years 3=10 years and more
Residence	Current place of residence at the of the survey	Dichotomous	1=urban 2=rural

Variable name	Operational definition of Variables	Types of variables	Coding of variables
Age	Self reported age of respondent at the time of the survey	Categorical	1=15 to 24 years 2=25 to 34 years 3=35 to 49 years
Religious affiliation	Self reported religious affiliation at the time of the survey	Categorical	1=orthodox Christian 2= Muslim 3=Protestant 4=others
Parity	Self reported number of children a woman had at the time of the survey	Categorical	0=one 1=1 to 2 children 2=3 to 4 children 3=5 and more
Regions	Administrative region that the respondent lived at the time of the survey	Categorical	1=Tigray; 2=Afar; 3=Amhara; 4=Oromia; 5=Somalia; 6= Benishangul Gumiz; 7=SNNPR; 8=Gambella; 9 Harari; 10=Addis Ababa, and 11=Dire Dawa
Women' education	Level of women's education reported at the time of the survey	Categorical	0=no education 1=primary education 2=secondary educ and higher
Husband's educational level	Level of husband's education reported at the time of the survey	Categorical	0=no education 1=primary education 2=secondary educ and higher
Household wealth index	A composite index of household possessions, assets and amenities	Categorical	1=poorest 2=poorer 3=middle 4=richer 5=richest
Working status	Women's working status at the time of the survey	Dichotomous	0= not working 1=working
Marital duration	Self reported marital duration of respondents at the time of the survey	Categorical	1=0-5 years 2=6-10 years 3=11-20 years 4=21 and more years

Method of Analysis

Before the analysis of the data, data accessing, data cleaning and management were carried out. The data cleaning or processing included, identifying the missing variables or values, coding or recoding of variables, keeping or dropping of variables, and weighting of

the data set to handle biases that may result from over or under sampled respondents. After the data were cleaned, the data analysis was carried out using SPSS Version 25. The data analysis was done at three levels: Univariate/descriptive, bivariate and multivariate. The descriptive statistics was used to summarize the socio-demographic variables of the study participants and the results were presented using frequency tables and percentages. The bivariate analysis was conducted using the chi-square test ($p < 0.05$) to identify the socio-demographic variables that were significantly associated with the current use of contraceptive methods among married women aged 15 to 49 years. The multivariate analysis was carried out using the binary logistic regression because the outcome variable was dichotomous (non-user vs. user). Under binary logistic regression, the analyses were conducted using the standard logistic regression method. The standard logistic regression was used to both the unadjusted and adjusted models using the odds ratios with 95% confidence intervals. The unadjusted odds ratio used to estimate the gross effect of each independent variable on the outcome variable. The independent variables that had an association of a p-value less than 0.05 with the outcome variable were taken for the multiple or adjusted analysis. A number of models were fitted until the significant variables were screened for the final model. The final model was fitted using the following variables: migration types, duration of migration, marital duration, religion, number of living children, administrative region, women and husband's educational levels, wealth status and women's working status.

Results

In the following sections, results of the study are presented using the univariate, bivariate and multivariate.

Descriptive (Univariate) Presentation

Table 2 summarizes the background characteristics of the study participants. Of the 10223 married women who were interviewed in the 2016 EDHS, the majority were rural natives (80.6%), followed by urban natives (14.3%, and rural to urban migrants (5.5%). Out of the migrants, 11.5%, 5.8% and 19.6%, have lived for 0 to 5, 6 to 9 and 10 years and more in the current place of residence since migration, respectively. In relation to age, those from 25-34 years comprised 43.5%, followed by women aged 35-49 and 15 -24 years with 34.0% and 22.5%, respectively. In relation to the number of living children, 30.9%, and 27.7% 34.5%, of the respondents who had 1 to 2, 3 to 4, 5 children and more, respectively. The survey results also indicate that 39.0%, of respondents followed by 23.6% were from Oromia and Amhara, respectively. The educational levels of the study population were very low. Only 10.5% women had secondary education or higher. Similarly, the distribution of respondents by their husbands' levels of education show that close to 17%, and 37% of women's husbands had secondary or more and primary education, respectively. The distribution of women by their household wealth status also indicates that 20.9% and 19.6 of women in the richest and richer households, respectively. In relation to women's marital status, the data show that majority of respondents (35.5%) had 11-20 years of marital duration.

Table 2: Socio-demographic characteristics of currently married women age 15-49, Ethiopian 2016 DHS

	EDHS2016 (N=10223)	
Migration Status		
Urban Natives	1465	14.3
Rural Natives	8243	80.6
Rural to Urban migrants	515	5.5
Duration of residence since migration		
Non-migrants	6449	63.1
0-5 yrs	1176	11.5
6-9 yrs	593	5.8
10 and more yrs	2005	19.6
Place of residence		
Urban	1658	16.2
Rural	8565	83.8
Age of women		
15 to 24	2298	22.5
25 to 34	4451	43.5
35 to 49	3475	34.0
Religion		
Orthodox Christian	4139	40.5
Muslim	3540	34.6
Protestant	2289	22.4
Others	255	2.5
# of Living Children		
None	709	6.9
1 to 2	3157	30.9
3 to 4	2829	27.7
5 and more	3529	34.5
Administrative regions		
Tigray	658	6.4
Afar	96	0.9
Amhara	2414	23.6
Oromia	3987	39.0
Somali	324	3.2
Benishangul	114	1.1
SNNPR	2173	21.3
Gambela	29	0.3
Harari	25	0.2
Addis Adaba	355	3.5
Dire Dawa	50	0.5
Women's education		
No education	6253	61.2
Primary education	2895	28.3
Secondary educ+	1075	10.5

Characteristics	Number/Percentage	
	Weighted Number	Percentage
Husband's education		
No education	4763	46.6
Primary education	3772	36.9
Secondary and higher	1688	16.5
Wealth status		
Poorest	1953	19.1
Poorer	2074	20.3
Middle	2057	20.1
Richer	1999	19.6
Richest	2140	20.9
Women's working status		
Not working	5275	51.6
Working	4948	48.4
Marital duration		
0-5 yrs	2218	21.7
6-10 yrs	2046	20.0
11-20 yrs	3626	35.5
21 and more yrs	2334	22.8

Source: 2016 EDHS

Bivariate Analysis

As discussed above, the study summarized the background characteristics of respondents. In this section, the paper summarizes the bivariate analysis that was conducted to test the association between current contraceptive use among the married women and various socio-demographic factors. The test was conducted using the Chi-square test at 5% level of significance and the results are presented in Table 3.

Migration status was significantly associated with the use of contraceptive methods ($p < 0.001$). It can be seen from Table 3 that the prevalence of contraceptive use was 56.1%, 47.5% and 32.6% among rural to urban migrant, urban residents and rural natives, respectively. The prevalence of contraceptive use was 45.7%, 37.1%, and 38.5%, among women who lived in the current place of residence from 0 -5, 6-9 and 10 years and more since migration, respectively.

Table 3: Contraceptive use among currently married women aged 15 - 49 by socio-demographic characteristics, Ethiopian, 2016 DHS

characteristics	Contraceptive use		Chi-square Test	
	No N(%)	Yes N(%)	Chi-square value	P-value
Migration Status				
Urban Natives	769(52.5)	695(47.5)	2.16	P<0.001
Rural Natives	5559(67.4)	2684(32.6)		
Rural to Urban migrants	226(43.9)	289(56.1)		

characteristics	Contraceptive use		Chi-square Test	
	No N(%)	Yes N(%)	Chi-square value	P-value
Duration of residence since migration				P<0.001
Non-migrants	4309(66.9)	2139(33.7)	76.46	
0-5 yrs	1234(61.5)	771(38.5)		
6-9 yrs	373(62.9)	220(37.1)		
10 and more yrs	638(54.3)	538(45.7)		
Place of residence				P<0.001
Urban	796(48.0)	862(52.0)	2.23	
Rural	5758(67.2)	2806(32.8)		
Age of women				P<0.001
15 to 24	1447(63.0)	850(37.0)	63.96	
25 to 34	2701(60.7)	1750(39.3)		
35 to 49	2406(69.3)	1068(30.7)		
Religion				P<0.001
Orthodox Christian	2262(54.7)	1877(45.3)	5.34	
Muslim	2772(78.3)	768(21.7)		
Protestant	1321(57.7)	968(42.3)		
Others	199(78.3)	55(21.7)		
# of Living Children				P<0.001
None	430(60.7)	278(39.3)	1.92	
1 to 2	2568(72.8)	961(27.2)		
3 to 4	1756(62.1)	1073(37.9)		
5 and more	1800(57.0)	1357(43.0)		
Administrative regions				P<0.001
Tigray	419(63.7)	239(36.3)	5.00	
Afar	85(88.5)	11(11.5)		
Amhara	1272(57.7)	1142(47.3)		
Oromia	2846(71.4)	1141(28.6)		
Somali	319(98.5)	5(1.5)		
Benishangul	81(71.7)	32(28.3)		
SNNPR	1306(60.1)	867(39.9)		
Gambela	19(65.5)	10(34.5)		
Harari	17(70.8)	7(29.2)		
Addis Adaba	156(44.1)	198(55.9)		
Dire Dawa	35(70.0)	15(30.0)		
Women's education				P<0.001
No education	4305(68.8)	1948(31.2)	2.21	
Primary education	1749(60.4)	1146(39.6)		
Secondary educ+	501(46.6)	574(53.4)		
Husband's education				P<0.001
No education	769(52.5)	695(47.5)	1.76	
Primary education	5559(67.4)	2684(32.6)		
Secondary and higher	226(43.9)	289(56.1)		

characteristics	Contraceptive use		Chi-square Test	
	No N(%)	Yes N(%)	Chi-square value	P-value
Wealth status				
Poorest	1570(80.4)	382(19.6)	4.40	P<0.001
Poorer	1429(68.9)	645(31.1)		
Middle	1292(62.8)	765(37.2)		
Richer	1181(59.1)	818(40.9)		
Richest	1082(50.6)	1058(49.4)		
Women's working status			97.22	P<0.001
Not working	3621(68.6)	1654(31.4)		
Working	2934(59.3)	2015(40.7)		
Marital duration				P<0.001
0-5 yrs	1342(60.5)	875(39.5)	65.52	
6-10 yrs	1298(61.4)	7480(38.6)		
11-20 yrs	2258(62.3)	1368(37.7)		
21 and more yrs	1656(71.0)	678(29.0)		

Source: 2016 EDHS

It was also statistically significant at $p<0.001$. It can be observed from the table that the prevalence of contraceptive use was 52.0% and 32.8% among women who were living in urban and rural areas, respectively ($p<0.00$). The prevalence of contraceptive use was 37.0% among women aged 15 to 24, 39.3% for those aged from 25 to 34, and 30.7% among women aged 35 to 49 years ($p<0.001$).

The results show that the use of contraceptives was 45.3%, 21.7%, and 42.3% among currently married Orthodox Christian, Muslim, and Protestant women, respectively with the statistical significance of ($P<0.001$). It can be observed from the Table above that the prevalence of contraceptive use was 43.0%, 37.9%, and 27.2% among women who had 1-2, 3-4 and 5 children and more, respectively ($p<0.001$). The prevalence of contraceptive use was relatively high among women who live in Addis Ababa (55.9%), Amhara Region (47.3%), SNNP (39.9%), followed by women who lived in Tigray Region (36.3%) compared to other regions ($p<0.001$). Education was significantly associated with contraceptive use among women and the results show that the use of contraceptives was 31.2%, 39.6%, and 53.4% among currently married women with no education, primary education and secondary education and above, respectively.

The prevalence of contraceptive use was 19.6%, 31.1%, 37.2%, 40.9%, and 49.4% among women who live in the poorest, poorer, middle, richer and richest household correspondingly ($p<0.001$).

The working status of the woman was significantly associated with current use of contraceptive methods ($p<0.001$). One can see from the Table 3 that the prevalence of contraceptive use was 59.3% among women who were working at the time of the survey.

Multivariate Analysis

In the following sections, the unadjusted and adjusted analyses of determinants of women's use of contraceptive methods are presented. According to the unadjusted results, rural natives were less likely to use contraceptives while rural to urban migrants were more likely to use contraceptives. After adjustment, however, the odds of using contraceptives for rural natives was statistically insignificant and rural to urban migrant women's

odds of using contraceptives slightly dropped from 1.41 unadjusted odds ratios (95%CI, 1.15 to 1.73) to 1.32 adjusted odds ratios (95%CI, 1.06 to 1.64). Duration of residence of migrant women in the current place of residence since migration was found to be a significant predictor of women's use of contraceptives. Women who lived 0-5 year (UOR, 1.70, 95%CI: 1.50- 1.93), 6-9 years (UOR, 1.19, 95%CI: 1.01-1.42), and 10 years and more (UOR, 1.26, 95%CI: 1.13 - 1.40) were more likely to use contraceptive methods than non-migrant women. However, after adjustment only women who lived 6-9 and 10 years and more were 1.18 and 1.19 times more likely to use contraceptive methods compared to non-migrant women.

A demographic variable such as marital duration and number of living children had also significant predictors on women's use of contraceptive methods. Women with marriage duration from 6 to 10 years were less likely to use contraceptive methods (UOR 0.88 95%CI, 0.78 to 1.00) compared to women whose marriage duration was from 0 to 5 years. Following adjustment, the likelihood of the use of contraceptives was 1.21 (95%CI, 1.32 to 2.42) times more likely to use contraceptive methods for women whose marriage duration was 11 to 20 years

Table 4. The Socio-demographic Determinants of Married Women's Contraceptive Use. Unadjusted and Adjusted Odds Ratios and 95% Confidence Interval, EDHS 2016 (N=10, 223)

characteristics	Contraceptive use	
	Unadjusted OR(95%CI)	Adjusted OR(95%CI)
Migration Status		
Urban Natives	1.00(Ref)	1.00(Ref)
Rural Natives	0.53(0.48-0.60)***	0.87(0.73-1.03)
Rural to Urban migrants	1.41(1.15-1.73)***	1.32(1.06-1.64)**
Duration of residence since migration		
Non-migrants	1.00(Ref)	1.00(Ref)
0-5 yrs	1.70(1.50-1.93)***	0.94(0.78-1.14)
6-9 yrs	1.19(1.01-1.42)**	1.18(1.02-1.37)**
10 and more yrs	1.26(1.13-1.40)***	1.19(1.09-1.23)**
Marital duration		
0-5 yrs	1.00(Ref)	1.00(Ref)
6-10 yrs	0.88(0.78-1.00)**	1.04(0.89-1.21)
11-20 yrs	0.93(0.83-1.04)	1.23(1.04-1.46)**
21 and more yrs	0.63(0.56-0.71)***	0.81(0.67-0.99)**
Religion		
Orthodox	1.00(Ref)	1.00(Ref)
Muslim	0.45(0.41-0.93)***	0.54(0.48-0.62)***
Protestant	0.84(0.77-0.92)***	1.09(0.94-1.26)
Others	0.45(0.34-0.60)***	0.56(0.40-0.77)***
# of Living Children		
None	1.00(Ref)	1.00(Ref)
1 to 2	6.86(6.08-7.74)***	0.88(0.70-1.11)
3 to 4	6.10(5.39-6.91)***	1.16(0.93-1.43)
5 and more	3.86(3.41-4.38)***	1.30(1.08-1.56)**

characteristics	Contraceptive use	
	Unadjusted OR(95%CI)	Adjusted OR(95%CI)
Administrative regions		
Tigray	1.00(Ref)	1.00(Ref)
Afar	0.23(0.12-0.44)***	0.49(0.25-0.98)**
Amhara	1.58(1.32-1.88)***	1.72(1.43-2.08)***
Oromia	0.70(0.59-0.84)***	0.94(0.77-1.15)
Somali	0.03(0.01-0.07)***	0.07(0.03-0.17)***
Benishangul	0.70(0.45-1.08)	0.89(0.56-1.41)
SNNPR	1.17(0.97-1.40)	1.24(1.00-1.54)**
Gambela	0.94(0.43-2.05)	0.77(0.34-1.74)
Harari	0.73(0.30-1.77)	0.83(0.33-2.10)
Addis Adaba	2.23(1.72-2.90)***	1.80(1.21-2.45)**
Dire Dawa	0.77(0.41-1.42)	0.88(0.45-1.70)
Women's education		
No education	1.00(Ref)	1.00(Ref)
Primary education	1.45(1.32-1.59)***	1.10(1.21-1.45)**
Secondary educ+	2.53(2.22-2.89)***	1.27(1.04-1.54)**
Husband's education		
No education	1.00(Ref)	1.00(Ref)
Primary education	1.45(1.33-1.59)***	1.09(0.92-1.28)
Secondary and higher	2.09(1.86-2.34)***	1.21(1.09-1.35)***
Wealth status		
Poorest	1.00(Ref)	1.00(Ref)
Poorer	1.86(1.60-2.15)***	1.56(1.34-1.82)***
Middle	2.43(2.11-2.80)***	1.94(1.66-2.25)***
Richer	2.84(2.47-3.28)***	2.15(1.84-2.51)***
Richest	4.01(3.49-4.62)***	2.16(1.79-2.62)***
Women's working status		
Not working	1.00(Ref)	1.00(Ref)
working	1.50(1.39-1.63)***	1.17(1.07-1.28)***

Source: 2016 EDHS; Ref= reference category; **p<0.05; ***p<0.001

compared to women whose marriage duration was from 0 to 5 years. In relation to the number of living children, women with 1 to 2 children (UOR, 6.86, 95%CI, 6.08 to 7.74), women with 3 to 4 children (UOR, 6.10, 95%CI, 5.39 to 6.91), and women with 5 children or more (UOR, 3.86, 95%CI, 3.41 to 4.38) were more likely to use contraceptives than women with no child. After adjustment, only women with 5 children and more were 1.30 times more likely to use contraceptive methods compared to women who had no child. In relation to religion, Muslim women were (AOR, 0.54, 95% CI: 0.48, 0.62) less likely to use a contraceptive method compared to Orthodox women. Concerning administrative regions, the women in Addis Ababa and Amhara region were 1.80 and 1.72 times more likely to use contraceptives (AOR, 1.80, 95%CI, 1.21 to 2.45; AOR, 1.72, 95%CI, 1.43 to 2.08) compared to women living in the Tigray region.

It is also evident from Table 4 above that the use of contraceptives was strongly associated with educational attainment of women and their husbands' level of education. For instance, women with secondary education or higher were two and a half times more likely to use contraceptives compared to women with no education (UOR, 2.53, 95%CI, 2.22 to 2.89). However, after adjustment, the association between the use of contraceptives and women's secondary education, was nearly by half reduced the odds of using contraceptives (AOR, 1.27, 95%CI, 1.04 to 1.54). Similarly, women with primary education were

1.10 times more likely to use contraception (AOR, 1.10, 95%CI, 1.21 to 1.45) compared with women with no education. The odds of using contraceptives of women whose husband's education were secondary and higher reduced from 2.09 unadjusted odds ratios (95%CI, 1.86 to 2.34) to 1.21 adjusted odds ratios (95%CI, 1.09 to 1.35) compared to women whose husband has no education. The household's wealth status was a strong predictor of women's contraceptive use in unadjusted results, but the effect was attenuated after adjustment for other socio-demographic factors (see Table 4). For instance, in the case of women in richest, richer and middle household, the odds of using contraceptive methods dropped substantially following adjustment, from 4.01 (UOR 95% 3.49 to 4.62) to 2.16 (AOR, 95%CI, 1.79 to 2.62), from 2.84 (UOR, 95%CI, 2.47 to 3.28) to 2.15 (AOR, 95%CI, 1.84 to 2.51) and from 2.43 (UOR, 95%CI, 2.11 to 2.80) to 1.94 (AOR, 95%CI, 1.66 to 2.25) compared to women from the poorest household, respectively. Contraceptive use of women also varies by their working status. Working women were more likely to use contraceptive (AOR, 1.17, 95%CI, 1.07 to 1.28), compared to non-working women.

Discussion

Using the 2016 Ethiopian Demographic and Health Survey, the study sought to examine the predictors of contraceptive method use in Ethiopia at the time of the survey. Migration related factors such as migration types, and duration of residence in the current place of residence since migration had shown to have a significant relationship with women's contraceptive method use. Socio-demographic factors such as place of residence, duration of marriage, number of living children, region, women's level of education, religion, wealth status, and women's working status, had also significant association with women's contraceptive use. The study showed that the contraceptive use of rural-urban migrants was higher than that of urban natives. This implies that rural-urban migrants were selected at their place of origin and after migration they adapted urban reproductive behaviors. The finding is consistent with the recent evidence from Indonesia (Lindstrom and Munoz-Franco, 2005) which indicated that the cultural approach in reproductive health studies, modern reproductive information spread first among urban community, and only later reached the rural areas. Therefore, migrants have an opportunity to access modern reproductive health information and they are more likely to adapt with it and utilize it. However, life in rural areas has remained more 'traditional' and there is a resistance of adaption of family planning ideas. Furthermore, rural populations tend to be very conservative and have a strong cultural resistance against the use of contraceptive methods. The effect of migration on women's use of contraceptive methods could also be explained by the duration of residence in a given place of residence after migration. The results of the multivariate analysis show that rural to urban migrants who lived 10 or more years in urban settings were more likely to use contraceptives than latter migrants (women who lived 0 to 5 years), suggesting that as duration of residence increases women's access and use of contraceptives also increases. Other studies have also underlined the importance of duration of residence on women's access to and use of contraceptive (Thapa, 2018; Kessler et al, 2010; Lerman, 1992). Long term migrants are exposed to the social and economic conditions of urban environment that have a positive effect on access and use of contraceptive methods compared to recent migrants. Another possible explanation is that as migrant's duration of stay increases their social networks and social integration to the host community also increases. In the course of adaption to urban culture and norm, their reproductive behavior will surely be influenced by the city's reproductive behavior and culture. However, new migrants who were not familiar with the government health system in the new urban environment were not entitled to most of the public-funded programs, such as employment, housing, education, and healthcare services. In addition to the lack of access to public-funded services, unfamiliarity with the new environment,

lack of a social support and network, and unawareness of where to get family planning services further complicated a late migrant woman's access to and use of contraceptive services. Women's low socio-economic status, lack of knowledge, and lack of access to quality family planning services were also important determinants of women's use of contraceptive methods (Kragelund et al, 2012; Khan and Shaikh, 2013).

The study also found that women from rural areas were less likely to use contraceptive services. Similar studies found that women from rural areas had limited access to and use of contraceptive methods (Moreno, 1994; Hassain, 2011). One reason for the findings could be the rural-urban gap in the distribution of family planning services, where those in urban areas are more likely to have access to contraceptive services compared to those in rural areas. Other reasons could be that women in rural areas may have low level of contraceptive knowledge compared to urban women because of differences in family planning services among rural and urban areas.

The number of living children women have, had an important factor in influencing their family planning behaviors. As the number of living children increases, the probability of women's use of contraceptive use also increases. For instance, the data showed that women who had 5 or more children were more likely to use contraceptives compared to women with no children. Studies in many developing countries have also found that women who have many children were more likely to use contraceptive methods than women with no child (Jain and Muralidhar, 2011; Do and Kurimoto, 2012; Cleland et al, 2010; Crissman et al, 2012). Women who had many children may reach the desired family size so that they may not want to have any more children. Moreover, women who have had more births may have the experiences to receive information regarding contraceptive methods. In contrast, women who have had no child may not know where to get the contraceptive information or they may not be interested to know about family planning methods because they have not yet achieved their desired family size.

Religious background has been identified as one of the factors that affect women's contraceptive use behavior because religion determines the social and personal behavior of women in their communities. A number of studies have shown that the influence of religious background on women's contraceptive use is the outcome of religious faiths as well as cultural values (Nketiah et al, 2012; Narzary, 2009). It is believed that the Ethiopian religious values and cultural norms discourage the use of family planning methods. Religious communities are highly resistant to modern family planning methods. Although both Orthodox and Moslem religions discourage the use of family planning, evidences from developing countries indicate that Moslem women are less likely to use contraceptive methods compared to Christian women (Worku et al, 2015; Tawiah, 1997).

Regional variation in women's use of contraceptive methods was also observed among women in the 11 regions of the country. Contraceptive use was higher among women in Amhara region and Addis Ababa, but lower among women in 'other' regions (Afar and Somali). The majority of the communities in Afar and Somali regions are nomads with no permanent residence, roaming from place to place in search of grazing land for their cattle and hence it is difficult for women to access contraceptive related information. Moreover, health infrastructures and health personnel are not equally distributed across the different regions of Ethiopia.

Apart from migration and demographic variables, socio-economic factors such as education, working status, household wealth and media exposure have been widely perceived as the most important determinants of women's use of contraceptive methods (Pand-

ey and Karki, 2010; Prata, 2007; Osemwenkba, 2004; Crissman et al, 2012). Among socio-economic factors, education is the most important one that affects women's use of contraceptive methods. Although women's educational level was limited, women with secondary and higher education were more likely to use contraceptives than women with no education. This may create the impression that efforts to increase maternal education and socio-economic status of the household will improve women's access to and use of contraceptive methods. For instance, education affects birth interval and age at birth through use of family planning or it can delay a start of childbearing due to the prolonged schooling.

Education not only transforms women's knowledge, but also empowers women and improves their self-esteem. It is expected that educated women are more likely to be aware of their health statuses. Furthermore, educated women may have a greater decision-making power on health-related matters. Therefore, education not only increases women's knowledge, but also increases their confidence and capability to make decisions regarding contraceptive use. Education also enables women to make informed choices and decision about contraceptive methods by encouraging overcoming cultural and religious barriers that deter using modern contraceptive methods. Similar findings were also reported elsewhere (Hagon, and Biratu, 2004).

It is believed that urban living relatively increases migrant women's opportunity to be employed in either the formal or informal sectors, which can result in improving women's financial capacity which in turn increase their access to contraceptive methods. This suggests that earning capacity could contribute to the use of family planning services by empowering women within the household. Again, income earning women have greater exposure to accessing relevant information and knowledge regarding contraceptive methods. It was also found that working women's likelihood of using contraceptive method was higher than non-working women. In addition, working women who were more likely educated had awareness and knowledge about the value of using contraceptive methods. Generally, female's labor force participation increased women's knowledge and the use of contraceptive methods.

Conclusion

The variations in use of contraceptive methods were accountable to migration types and socio-demographic characteristics of the study population. The study confirms that rural to urban migrants were more likely to use contraceptive methods compared to urban non-migrants. Moreover, migrant women's use of contraceptive methods depends on the relative number of years the migrant lived in the current place of residence after migration. The study found that as the duration of residence in current place increases, the likelihood of women's use of contraceptive methods also increases. As a result, long term migrants were more likely to use contraceptive methods than the late migrants. For instance, migrant women who lived 10 years or more in the current place of residence were more likely to use contraceptive methods compared to the short-term migrants. Therefore, based on the findings, the study can conclude that as duration of residence in the current place increases migrant women's use of contraceptive methods also increases.

The study also confirmed that there were differences in the use of contraceptive methods among currently married women in various socio-economic and demographic factors. Among the various socio-economic and demographic factors, the study identified the following socio-economic and demographic factors as the determinants of women's use of contraceptive methods: rural to urban migration, duration of residence after migration,

secondary education and above, number of living children, household wealth status, working at the time of the survey, place of residence, and region.

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