ORIGINAL ARTICLE

Women's Empowerment, Socioeconomic Status and Demographic Factors of Contraception in Amhara National Regional State, Ethiopia: A Sequential Analysis

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Abstract

The direct measures of women's empowerment are recently emerged as a key factor influencing utilization of family planning services in developing countries. Women's education and employment used as proxy measures of women's empowerment, however, not sufficient to capture gender power relations and the way in which reproductive behaviours are governed. The purpose of the study was to examine the potential importance of women's empowerment, socioeconomic status, and demographic factors in contraceptive utilization in Amhara National Regional State, Ethiopia. The study employed community-based cross-sectional study design and used the total of 2,214 currently married women of reproductive age selected by a four-stage cluster selection. Data management and analysis was carried out using STATA 12. A sequential of Binary Logistic Regression model was used to analyze the data. The findings illustrated all women's empowerment indices that remain significant after controlling for socioeconomic status and demographic indicators. The odds of modern contraception was higher for mobility freedom (OR = 1.30, 95% CI = 1.09-1.55); financial autonomy (OR = 1.99, 95% CI = 1.85-2.33); access to resources (OR = 1.74, 95% CI = 1.58-1.94); and free from spousal violence (OR = 1.45, 95% CI = 1.16-1.73). In addition, the odds of modern contraception was higher for secondary and above education (OR = 3.15, 95% CI = 2.38-3.89) and employed for cash (OR = 3.26, 95% CI = 2.65-3.99). In conclusion, women's empowerment influences modern contraception independent of socioeconomic and demographic factors. Therefore, initiatives to improve women's position, both to attain gender equality and to promote empowerment in contraceptive use is required. In addition, improving women's education and employment play a dual role in enhancing empowerment in utilization of family planning services.

Keywords: *Women, empowerment, contraception, socioeconomic status*

Introduction

The Beijing Conference in 1995 stressed that empowerment of women enhances their decision-making capacity at all levels and spheres of life, helping sustainable development and the realization of human rights for all (United Nations, 2008). Women's empowerment can be expressed as the capacity and freedom to act independently with the ability to formulate strategic choices, control resources, and participate in decision-making (Eyben et al., 2008; World Bank, 2006).

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The direct measures of women's empowerment are recently emerged as a key factor in influencing family planning utilization in developing countries. The direct measures of women's empowerment includes access to resources, participation in economic decision making, self-esteem, mobility, weight of opinion, and perceived risk and frequency of domestic violence (Kishor & Subaiya, 2008; Mason & Smith, 2000). However, women's education, employment, age at first marriage, and spousal age difference are used as proxy measures of women's empowerment (Hindin, 2000; Upadhyay & Karasek, 2010). Although these and other socioeconomic proxy indicators are important, it has been suggested that they may not capture all aspects of empowerment and also may understate issues related to power, conflict, and negotiation within the household (Bloom et al., 2001; Kishor, 2005).

In societies where gender stratification is commonly observed, decisions on contraceptive use and limiting fertility depend on the husband's or partner's decision (Bawah, 2002; Mason & Smith, 2000). Women in developing countries are either under collective decision-making with their partners or completely rely on the male partner's decision on issues that affect their contraceptive use (United Nations, 2012; World Health Organization, 2015). However, it has not been set as a prerequisite for widespread adoption of contraceptives (Dodoo & Landewijk, 2006; Mai & Kurimoto, 2012). In addition, it is still unclear which aspects of female empowerment affect contraceptive use and to what degree (Bloom et al., 2001; Furuta & Salway, 2006).

One of the major strategies of the Population Policy is to expand diversity and coverage of family planning service delivery through clinical and community-based outreach services and creating conditions that permit users the widest possible choice of contraceptives by diversifying the method-mix available in the country (Transitional Government of Ethiopia, 1993a). The Health Policy emphasizes the need to improve the coverage and quality of family planning services in the country (Transitional Government of Ethiopia, 1993b). The Women Policy acknowledge the need to ensure women's access to family planning and other reproductive health services as one of the strategies to empower women (Transitional Government of Ethiopia, 1993c). The Nation¬al Reproductive Health Strategy stipulates the reduction of unwanted pregnancies and enable individuals to achieve their desired family size (Ministry of Health, 2006). The Health Extension Program involves the delivery of family planning information and services to the community through home visits (Ministry of Health, 2007). Despite adopting such policies and programs what really affects the reproductive health and family planning services in Amhara National Regional State of Ethiopia is not well known.

The available studies on women's empowerment and contraception in Ethiopia were carried out at a high level of aggregation based on survey data usually provide limited information (Bogale, et al., 2011; Mekonnen et al., 2013). However, the results might have been affected by problems of aggregation bias since the relationship between women's empowerment and utilization of family planning services vary from area to area, macro-level analysis rarely take into consideration of region-specific factors. Although some of the studies had not explicitly addressed the rural areas where 84% of the population lived in, a very low prevalence of contraceptive rate, and commonly observed gender stratification (Amaha & Fikre, 2006; Mussie et al., 2014). Moreover, the results of both studies were inconclusive because of the exclusion of appropriate women's empowerment variables in their models and many questions remain about the pathways through which the relationships operate.

Therefore, the purpose of the study was to examine the potential importance of women's empowerment, socioeconomic status, and demographic factors in contraceptive utiliza-

tion in Amhara National Regional State, Ethiopia. The study helps to promote attitudes and practices that favour gender equality in order to attain wider use of family planning services. In addition, a major input for planning, implementation, and evaluation of health, population, and women policies and reproductive health/family planning programs and multi-sectoral strategies are needed. Moreover, a basis for future projection of changes on the overall level of contraception is expected as a result of changing women's empowerment, socioeconomic, demographic, health, cultural, psychological, and institutional realms.

Methods
Study Design

The study used a community-based cross-sectional design of quantitative method. The quantitative data is designed to establish the direction and extent of relationship between women's empowerment, socioeconomic status, demographic characteristics, and contraceptive utilization.

Sample Method and Size

Sampling procedure

The sample points were selected purposively proportional to the size, independently from each sampling stratum using four-stages cluster selection in the region. In the first-stage, four Zones were selected purposively as a primary sampling unit proportional to the size with independent selection depending on specific conditions of the Zone such as socio-culture (i.e. dominant ethnic group according to the 2007 Population and Housing Census). East Gojjam, North Shewa, Oromiya, and Waghimera Zones were selected in the region (Table 1). In the second-stage, eight Weredas (two Weredas in each sample Zone) were selected randomly in the region. Debre Alias, Enarji Enawga, Merhabete, Menze Mama Midir, Jille Timuga, Dawa Chefa, Sekota, and Dahina Weredas were selected in each sample Zone (Table 1). In the third-stage, one urban and two rural Kebeles were selected randomly in each sample Wereda. Finally, the households were selected using systematic sampling in each sample Kebele as the ultimate sampling units in the fourth-stage.

Sample size determination

The number of households required for the study was determined based on the following formula (United Nations, 2005).

$$n_h = \frac{(z^2)(r)(1-r)(f)(k)}{(p)(h)(e^2)}$$

Where,
nh is the parameter to be calculated and is the sample size in terms of number of households to be selected;

z is the standard 95% confidence desire (1.96);

r is an estimate of a key indicator to be measured by the study (47% prevalence of current modern contraceptives among currently married women of reproductive age in Amhara National Regional State according to 2016 Ethiopia Demographic and Health Survey);

f is the sample design effect, deff, the standard surveys were conducted using a two-stage stratified sample selection (2.0);

k is a multiplier to account for the anticipated rate of non-response, since gender-based powers are not accurately reported (10%);

Therefore, the total sample size was estimated to be 2,214 households. Table 1 shows the sample allocation of households by Wereda, according to residence. The sample size was determined based on the total households in each respective Wereda as per the 2007 Population and Housing Census. Among the 2,214 selected households, 525 are in urban areas and 1,689 are in rural areas. The sampling frame of households was obtained from each sampled Kebele Administrative Office. The inclusive criteria were currently married non-pregnant women of reproductive age, lived in consensual union at least one year, and primary wife if one or more co-wives in the household.

Table 1. Sample size distribution of households by Wereda and residence in Amhara National Regional State of Ethiopia, 2019

Dominant ethnic*	Zone	Wereda	Total households*		Sample size	
			Urban	Rural	Urban	Rural
Amhara	East Gojjam	Debre Alias	2,810	18,802	72	183
		Enarji Enawga	4,438	26,713	103	260
	North Shewa	Merhabete	1,332	21,028	34	205
		Menze Mama Midir	2,308	19,213	59	187
Oromo	Oromiya	Jille Timuga	1,792	16,850	46	164
		Dawa Chefa	1,450	22,611	37	220
Agew	Waghimera	Sekota	4,351	25,316	111	246
		Dahina	2,587	22,994	66	224
		Total	21,068	173,527	525	1,689

*Source is the Central Statistical Agency of Ethiopia, 2010.

Data collection instrument

The required data was collected using structured questionnaire. The questionnaire was first prepared in English then translated into Amharic, local language. Pre-test was done to assure data quality on similar group of population who were residing out of the sample Kebeles. Twenty-four female data collectors and eight supervisors were recruited and trained.

Model Variables and Measurements

Table 2 shows the description of model variables and measurements in Amhara National Regional State of Ethiopia. A composite index for each of the empowerment domain was constructed by categorizing women into women who have any say as empowered and women who do not have any say as non-empowered. Based on the summative score, women scored above the mean were considered as having mobility freedom, financial autonomy, access to resources, and free from spousal violence.

Table 2. Description of model variables and measurements in Amhara National Regional State, 2019		
Variables & categories	**Descriptions**	**Measurements**
I. Response variable Current contraception	A measure of actual modern contraceptive practice at the time of the interview	Dichotomous (1 = User and 2 = Non-user)
II. Explanatory variables	Earn income, own saving, spending cash earnings, and control husband income	Nominal (1 = Yes and 2 = No)
a) Women's empowerment Mobility freedom	Decision to visit families/relatives, healthcare, and social affairs	Nominal (1 = Yes and 2 = No)
Financial autonomy	Earn income, own saving, spending cash earnings, and control husband income	Nominal (1 = Yes and 2 = No)
Access to resources	Ownership of major durable items, land, and house	Nominal (1 = Yes and 2 = No)
Free from spousal violence	Ever physical, emotional, economic, and sexual violence	Nominal (1 = Yes and 2 = No)
b) Socioeconomic status Educational attainment	Level of education attended	Ordinal (1 = No education, 2 = Primary, and 3 = Secondary+)
Current employment	Working status and form of earnings during 12 months prior to the survey	Ordinal (1 = Unemployed, 2 = Unpaid-worker, and 3 = Paid-employee)
Couple age difference	Age difference of wife and husband to describe the extent of gap	Ordinal (1 = 0-4, 2 = 5-9, 3 = 10-14, and 4 = 15+)
c) Demographic characteristics		
Age	Current age in completed years to differentiate youth, adult, and older	Ordinal (1 = 15-24, 2 = 25-34, and 3 = 35+)
Place	Living residence to indicate socioeconomic development	Nominal (1 = Urban and 2 = Rural)
Parity	Number of survived children to explain none, replacement level, low risk at birth, and high fertility practices	Ordinal (1 = 0, 2 = 1-2, 3 = 3-4, and 4 = 5+)

Statistical Analysis

Modelling strategy

Data management and analysis were carried out using STATA 12. In univariate analysis, the distribution of study population by background characteristics, empowerment indices, and current contraceptive use were analyzed. In bivariate analysis, the significant difference between socioeconomic and demographic variables, measures of empowerment, and contraceptive use were determined. In multivariate analysis, Sequential of Binary Logistic Regression Model was used to examine the relative effects of women's empowerment, socioeconomic status, and demographic factors on contraceptive utilization.

Model building

The three fitted models were the baseline models that contained empowerment indices only; the second model considers empowerment and socioeconomic status indicators; and the final model includes empowerment, socioeconomic status, and demographic controls. The likelihood-ratio test was used to check the overall fit of the models by comparing both models. Odds ratio and 95% confidence intervals were calculated for each model.

Ethical Considerations

Ethical clearance was obtained from University of Gondar Institutional Review Board. Officials at different administrative levels in the region were communicated through formal letter. Participants were informed about the purpose and objective of the study. Participants were also informed that, they have the right to discontinue or refuse to participate in the study. Verbal consent was obtained from each study participants. Confidentiality of information and privacy was fully maintained.

Results

Socioeconomic and Demographic Characteristics of Respondents
Table 3 shows the percentage of currently married women of reproductive age according to socioeconomic and demographic characteristics in Amhara National Regional State. About 76.3% and 23.7% of currently married women are sampled from the rural and urban areas, respectively.

Three in four women have never been to school, 18.3% attended primary education, and 9.6% secondary and higher education. With regard to employment status, 7.5% and 75.3% of the women reported that they are employed for cash and unemployed, respectively.
One-fourth of the women are age 15-24, 39.4% age 25-34, and the remaining 34.7% are above age 35. In addition, the wife is 0-4 years younger than her husband among 1 in 10 couples, 10-14 years younger among 3 in 10 couples, and 5-9 and more than 15 years younger than her husband among 1 in 4 couples. On the other hand, 31.7% of currently married women reported to have high parity and 12.9% none of parity.

Table 3. Percentage of currently married women age 15-49 according to socioeconomic and demographic characteristics, 2019

Variables & categories	Percent
Residence	
Urban	23.7
Rural	76.3
Education No education	72.1
Primary	18.3
Secondary+	9.6
Age difference 0-4	10.1
5-9	28.7
10-14	34.4
15+	26.8
Employment Unemployed	75.3
Unpaid-worker	17.2
Paid-employee	7.5
Age 15-24	25.4
25-34	39.9
35+	34.7
Parity None	12.9
1-2	24.5
3-4	30.9
5+	31.7
Total (%)	100.0
Number	2,214

Source: Primary data of field survey, 2019.

Measures of Empowerment

Table 4 indicates the percentage of currently married women of reproductive age by indices of empowerment in Amhara National Regional State. The proportion of currently married women by empowerment indices indicate 43.2% mobility freedom, 29.1% financial autonomy, 31.5% access to resources, and 34.4% free from spousal violence.

Table 4. Percentage of currently married women age 15-49 by empowerment indices, 2019

Empowerment indices	Percent
Mobility freedom Yes	43.2
No	56.8
Financial autonomy Yes	29.1
No	70.9
Access to resources Yes	31.5
No	68.5
Free from spousal violence Yes	34.4
No	65.6
Total (%)	100.0
Number	2,214

Source: Primary data of field survey, 2019.

Measures of Empowerment and Socioeconomic and Demographic Backgrounds

Table 5 reveals the percentage of currently married women empowered according to so-cioeconomic and demographic backgrounds in Amhara National Regional State. About 43.2% of women participated in mobility freedom in average. The proportion varies with women's socioeconomic and demographic backgrounds such as secondary and higher education (66.5%), urban areas (64.8%), employed (61.0%), and age above 34 (50.8%) are more likely than others to participate in freedom of movement.

Only 29.1% of women empowered in financial autonomy and the lowest compared to other measures of empowerment. However, higher for women with secondary and above education (43.6%), urban residents (45.4%), employed (39.5%), and age above 34 (25.0%). About 31.5% of women access to resources with the highest proportion of women with secondary and above education (46.7%). Again, urban areas (37.3%), paid-employee (33.9%), and age above 34 (37.8%) are more likely than others access to resources.

Overall, 34.4% of women are free from spousal violence. The high proportion of women with a secondary and higher education (48.8%), urban residents (38.5%), employed for cash (35.6%), and age above 34 (39.5%) are reported to have free from spousal violence.

Table 5. Percentage of currently married women empowered according to socioeconomic and demographic backgrounds, 2019

Background character-istics	Empowerment indices			
	Mobility freedom	Financial autonomy	Access to re-sources	Free from spousal violence
Residence Urban	64.8	45.4	37.3	38.5
Rural	41.0	16.9	12.5	15.7

Education				
No education	41.5	14.5	12.9	13.4
Primary	45.1	17.8	19.2	23.6
Secondary+	66.5	43.6	46.7	48.8
Employment				
Unemployed	35.8	16.2	13.1	17.4
Unpaid-worker	39.5	24.9	19.6	21.8
Paid-employee	61.0	39.5	33.9	35.6
Age				
15-24	40.3	16.7	30.2	29.1
25-34	42.6	17.5	33.7	35.9
35+	50.8	25.0	37.8	39.5
Total (%)	43.2	29.1	31.5	34.4
Number	2,214			

Source: Primary data of field survey, 2019.

Determinants of Family Planning Utilization

The association between modern contraception among currently married women of reproductive age and socioeconomic and demographic characteristics in Amhara National Regional State is shown in Table 6. In the region, the prevalence of modern contraception is about 53.7% among currently married women age of 15-49. Place of residence (P<0.001), educational attainment (P<0.001), spousal age difference (P<0.001), employment status (P<0.001), current age (P<0.01), and parity (P<0.01) are statistically associated with modern contraception.

The proportion of women currently used modern contraception is much higher in urban than rural areas, 54.2% and 32.6%, respectively. On the other hand, the gap between women with never attended any type of schooling and attended secondary and above education is 26.9% and 58.7%, respectively.

The relationship between women's current employment status and modern contraception indicates a higher proportion of women employed for cash used modern methods than those unemployed, 57.6% and 25.8%, respectively. The level of current modern contraception has increased with the number of parities, 30.4% for none of parity and 51.2% for high parity.

The proportion of currently married women who use modern contraception has declined with age, [age 15-24 (40.6%) and age 35 and above (29.2%)]. In addition, the level of current modern contraception is low for larger spousal age difference as compared to the smaller, 27.3% and 50.3%, respectively.

Table 6. Bivariate analysis of modern contraceptive prevalence rate among currently married women age 15-49 by socio-economic and demographic characteristics, 2019

Variables & categories	Percent	P-value
Residence Urban	54.2	P<0.001
Rural	31.6	
Education No education	26.9	P<0.001
Primary	38.5	
Secondary+	58.7	
Age Difference 0-4	50.3	P<0.001
5-9	40.6	
10-14	31.4	
15+	27.3	
Employment Unemployed	25.8	P<0.001
Unpaid Worker	33.4	
Paid Employee	57.6	
Age 15-34	40.6	P<0.01
25-34	52.5	
35+	29.2	
Parity None	30.4	P<0.01
1-2	38.8	
3-4	43.9	
5+	51.2	
Total (%)	53.7	
Number	2,214	

Source: Primary data of field survey, 2019.

Table 7 shows the association of currently married women age 15-49 who currently use modern contraceptives with empowerment indices in Amhara National Regional State. The composite measures of women's empowerment indices to current modern contraception are higher for mobility freedom (30.6%), financial autonomy (37.7%), access to resources (36.1%), and free from spousal violence (33.5%). Mobility freedom (P<0.01), financial autonomy (P<0.001), access to resources (P<0.001), and free from spousal violence (P<0.001) are statistically associated with current modern contraception.

Table 7. Bivariate analysis of currently married women age 15-49 used modern contraceptives by empowerment indices, 2019

Empowerment indices	Percent	P-value
Mobility freedom Yes	30.6	P<0.01
No	23.1	
Financial autonomy Yes	37.7	P<0.001
No	16.0	
Access to resources Yes	36.1	P<0.001
No	17.6	
Free from spousal violence Yes	33.5	P<0.001
No	20.2	
Total (%)	53.7	
Number	2,214	

Source: Primary data of field survey, 2019.

Table 8 depicts the odds ratios for factors associated with current family planning utilization among currently married women of reproductive age in Amhara National Regional State. In Model I, all four empowerment variables are significantly associated with modern contraception. The likelihood of current contraceptive use is 85% greater for mobility freedom (OR = 1.85, 95% CI = 1.46-2.29); 2.5 times higher for financial autonomy (OR = 2.49, 95% CI = 2.00-3.01); 2.3 times higher for access to resources (OR = 2.26, 95% CI = 1.64-3.15); and 94% greater for free from spousal violence (OR = 1.94, 95% CI = 1.71-2.20) compared to non-empowered.

In Model II, educational attainment shows to have a substantial impact on the utilization of contraception after controlling for the demographic variables (residence, age, and parity), 97% greater for primary education (OR = 1.97, 95% CI = 1.57-2.46) and 3.4 times higher for secondary and above education (OR = 3.41, 95% CI = 2.13-4.67) compared with never attended any type of schooling. On the other hand, employed for cash have 3.8 times higher chance to use modern contraception method than unemployed (OR = 3.79, 95% CI = 2.28-6.22). When considering spousal age difference, above 14 years is 66% less likely to use modern contraception method (OR = 0.34, 95% CI = 0.18-0.65); 59% less likely for 10-14 years (OR = 0.41, 95% CI = 0.20-0.82); and 45% less likely for 5-9 years (OR = 0.55, 95% CI = 0.36-0.90) as compared to 0-4 years. With regard to women's empowerment indices, the likelihood of current contraceptive use is 38% greater for mobility freedom (OR = 1.38, 95% CI = 1.13-1.67); 2.1 times higher for financial autonomy (OR = 2.08, 95% CI = 1.94-2.41); 81% greater for access to resources (OR = 1.81, 95% CI = 1.65-2.05); and 48% greater for free from spousal violence (OR = 1.48, 95% CI = 1.32-1.86).

In the final model (Model III), all of the women's empowerment indices remain significant including demographic controls (residence, age, and parity) and women's status variables (education, employment, and spousal age difference). The odds of current contraceptive use is 30% greater for mobility freedom (OR = 1.30, 95% CI = 1.09-1.55); 2 times for financial autonomy (OR = 1.99, 95% CI = 1.85-2.33); 74% greater for access to resources (OR

= 1.74, 95% CI = 1.58-1.94); and 45% greater for free from spousal violence (OR = 1.45, 95% CI = 1.16-1.73).

In the final model (Model III), all of the women's empowerment indices remain significant including demographic controls (residence, age, and parity) and women's status variables (education, employment, and spousal age difference). The odds of current contraceptive use is 30% greater for mobility freedom (OR = 1.30, 95% CI = 1.09-1.55); 2 times for financial autonomy (OR = 1.99, 95% CI = 1.85-2.33); 74% greater for access to resources (OR = 1.74, 95% CI = 1.58-1.94); and 45% greater for free from spousal violence (OR = 1.45, 95% CI = 1.16-1.73).

The indicators of women's status such as education, employment and spousal age difference are stronger predictors of modern contraception in the final model (Model III). The likelihood of current contraceptive use increases with education level, 86% greater for primary education (OR = 1.86, 95% CI = 1.49-2.31) and 3.2 times higher for secondary and above education (OR = 3.15, 95% CI = 2.38-3.79). Similarly, the odds of contraceptive use is 3.3 times higher for paid-employee (OR = 3.26, 95% CI = 2.65-3.99). On the contrary, the odds of current contraceptive use declines as the husband-wife age difference increases, 69% less likely to use contraceptives for above 14 years (OR = 0.31, 95% CI = 0.13-0.60); 62% less likely for 10-14 years (OR = 0.38, 95% CI = 0.17-0.79); and 53% less likely for 5-9 years (OR = 0.47, 95% CI = 0.26-0.83).

Among the demographic variables, place of residence, current age, and parity are associated with modern contraceptive utilization in the final model (Model III). The odds of modern contraception are 2 times higher for urban (OR = 1.99, 95% CI = 1.74-2.29) and 68% greater for high parity (OR = 1.68, 95% CI = 1.32-2.19). The likelihood of contraceptive use declined as an increasing of age, 43% less likely to use contraceptives for older (OR = 0.57, 95% CI = 0.28-0.93) compared to youths.

Table 8. Odds ratios for factors associated with family planning utilization among currently married women of reproductive age, 2019						
Variables & categories	**Model I**		**Model III**		**Model II**	
	OR	**95% CI**	**OR CI**	**95%**	**OR**	**95% CI**
I. Empowerment indices						
Mobility freedom	1.85	[1.46-2.29]**	1.38	[1.13-1.67]**	1.30	[1.09-1.55]*
Financial autonomy	2.49	[2.00-3.01]**	2.08	[1.94-2.41]**	1.99	[1.85-2.33]**
Access to resources	2.26	[1.64-3.15]**	1.81	[1.65-2.05]**	1.74	[1.58-1.94]**
Free from spousal violence	1.94	[1.71-2.20]**	1.48	[1.32-1.86]**	1.45	[1.16-1.73]**
II. Women's status indicators						
Education No education (RC)						
Primary			1.97	[1.67-2.46]**	1.86	[1.49-2.31]**
Secondary+			3.41	[2.13-4.67]**	3.15	[2.38-3.79]**
Employment Unemployed (RC)						

Unpaid-worker			1.36	[1.12-1.64]**	1.24	[1.05-1.47]*
Paid-employee			3.79	[2.28-6.22]**	3.26	[2.65-3.99]**
Age difference 0-4 (RC)						
5-9			0.55	[0.36-0.90]*	0.47	[0.26-0.83]**
10-14			0.41	[0.20-0.82]*	0.38	[0.17-0.79]**
15+			0.34	[0.18-0.65]**	0.31	[0.13-0.60]**
III. Demographic variables						
Residence Rural (RC)						
Urban					1.99	[1.74-2.29] **
Age 15-24 (RC)						
25-34					1.22	[1.01-1.42]*
35+					0.57	[0.28-0.93]**
Parity None (RC)						
1-2					1.36	[1.16-1.64]*
3-4					1.49	[1.27-1.90]*
5+					1.68	[1.32-2.19]**

Significant level: *P<0.05, **P<0.01.
Note: RC = Reference Category, CI = Confidence Interval, OR = Odds Ratio.

Discussions

The direct measures of women's empowerment have recently emerged as a key factor influencing utilization of family planning services in developing countries. Women's empowerment is fundamentally about the enhancement of capabilities, the freedom to act independently, and the ability to formulate strategic life choices (Jejeebhoy, 2010; Kabeer, 2001; Malhotra et al., 2002). The empowerment index reflects the degree of decision-making control that women are able to exercise in areas that affect their own lives and environment. In Amhara National Regional State of Ethiopia, the prevalence of current modern contraception was about 53.7% among currently married women of reproductive age. Overall, 3 in 10 women had financial autonomy and access to resources, one-third are free from spousal violence as 2 in 5 have freedom of mobility in the region.

In this study, the direct measures of women's empowerment are important determinants of utilization of family planning services. In most studies, women's education and employment are used as proxy measures of women's empowerment, however, they cannot capture all aspects of gender power relations and the way in which reproductive behaviours are governed (Beegle et al., 2001; Kishor, 2005; Upadhyay & Karasek, 2010). Furthermore, education and employment are strongly linked with household socioeconomic conditions and, therefore, are not totally independent determinants of women's status (Ghuman, et al., 2004; Jejeebhoy & Sathar, 2011).

The findings of this study revealed that the Amhara National Regional State is the lowest women's financial decision-making power as compared to the country value of about 40% in 2016 (Central Statistical Agency & ICF International, 2016). In this study, financial autonomy is significantly associated with contraceptive. Several researches found strong association between financial autonomy and contraception (Furuta & Salway, 2006; Kamiya, 2011; Woldemicael, 2009). However, Amaha Haile and Fikre Enqueselassie (2006) found that women's autonomy statistically insignificant effect on couple's contraceptive use in Jimma town, Ethiopia.

The findings show the significant differences in proportion of women access to resources in comparison with the national level. According to Demographic and Health Survey, the proportion of women control resources in the country is about 47% in 2016 (Central Statistical Agency & ICF International, 2016). Access to resources seems to have a significant impact on the outcome of interest in the region. Studies in developing countries documented the fertility regulation enhances the effect of access to resources (Friedberg & Webb, 2006; Stevenson, 2015; Yilmazer & Lyons, 2010).

The results indicate intimate partner violence in the study area is significantly higher than the national value of about 53% (Central Statistical Agency & ICF International, 2016). Spousal violence found to have an important influence on women's use of contraceptives in the region. Increasing evidence points that husband's violence is associated with a reduced likelihood of current contraceptive use (Stephenson et al., 2008; Tuladhar et al., 2013).

The magnitude of mobility in the region is lower than that of the national average. The proportion of women never experienced marital control exercises in the country is 61% (Central Statistical Agency & ICF International, 2016). Freedom of mobility reported to be strongly associated with family planning utilization among women in the region. This could be explained by the fact that constraints on mobility and decision-making power restrict their ability to make independent decisions about contraception (Beegle et al., 2001; Upadhyay & Hindin, 2005). However, Mussie Alemayehu et al. (2014) found that insignificant impact of physical movement on contraceptive use in Ethiopia even in the study conducted in urban setup where women freedom of mobility is relatively more common.

The findings indicate that the conventional measures of women's status, education and employment, remain important factors associated with contraceptive utilization. Women's participation in paid jobs showed a particularly strong association with modern contraception. Increases in women's education and labour force participation enhance women's status by offering women the opportunities to control their own resources as well as their power to make decisions about reproductive behaviour including contraceptive use (Mumtaz & Salway, 2007; Yilmazer, & Lyons, 2010).

In the study area, couple's age difference is higher than the country level due to universality of girl's child marriage in the region. In Ethiopia, the average spousal age difference is about seven years (Central Statistical Agency & ICF International, 2016). The influence of couple's age difference does not have any consistent relationship with family planning utilization in Ethiopia (Bogale, et al., 2011). However, in this study husband-wife age difference is a very important variable to predict a woman's level of decision-making power and the use of modern contraceptive methods and services. Moreover, the greater age difference between couples can confine inter-spousal communication about reproductive health decisions as well as women's access to family planning services (Kamal & Islam, 2012; Ogunjuyigbe, 2009).

The women of age 25-34 are more likely to use family planning method than women age 19-24 in the region. Besides, the lower probability of modern method use among the elder women may be attributed to their attitudes regarding modern contraception. Several studies in developing countries documented varying contraceptive utilization based on women's age (Acharya et al., 2010; Bloom et al., 2001). Nonetheless, Mekonnen Tadesse et al. (2013) found insignificant relationship between women's age and family planning services in Ethiopia.

The results also shed light on the behavioural and lifestyle changes that accompanies urbaniza¬tion that are believed to be responsible for increased desire for small family and adoption of contracep¬tion. As well, urban women are exposed to access family planning information and services that reinforce their receptiveness of birth control (Hakim et al., 2003; Kamal & Islam, 2012).

The findings showed that whenever parents have high parity, they are more likely to use family planning method to achieve fertility desires. The women with large number of children have highly achieved their reproductive goal and might have decided to stop childbearing by practicing fertility regulations (Rina, 2004; United Nations, 2012) with multi-sectoral strategies.

Conclusions

The restrictions given by patriarchal social system and the male supremacy in the household campus and the society at large limit women's involvement in decision-making process resulting in the observed low level of empowerment in Amhara National Regional State. In the baseline model, which contains only women's empowerment indices such as mobility freedom, financial autonomy, access to resources, and free from spousal violence were significantly associated with modern contraception. In the second model, women's empowerment shows to have a substantial impact on the utilization of contraception after controlling for the socioeconomic status variables. After adjusting for the socioeconomic status and demographic variables, all four empowerment indicators were significantly associated with modern contraception in the full model. The empowerment index created for financial autonomy and access to resources were found to be the most influential of contraceptive use than those of movement freedom and free from spousal violence.

The direct measures of women's empowerment influence modern contraception independent of socioeconomic and demographic factors. Thus, a complete explanation of the relationship between women's empowerment and family planning use must recognize the effects of both proxy and direct indicators of women's empowerment. Therefore, need for initiative to improve women's position, both to attain gender equality and to promote women's empowerment in contraceptive utilization.

Improving women's educational attainment and employment status play a dual role in enhancing women's empowerment in contraceptive utilization. The population, health, and women policies and reproductive health/family planning programs must incorporate both direct and proxies' measures of women's empowerment for a wider use of family planning services. Therefore, disparities in the use of reproductive healthcare and family planning services should be addressed by increasing access to basic health services among the illiterate, rural, and poor sections of the society.

This study had some limitations. In particular, understanding the role of women's em-

powerment in contraceptive utilization and decisions may be problematic because of the difficulty in formulating an appropriate empowerment construct. Moreover, the meaning of the word empowerment is hardly ever understood by women interviewed in surveys and translations of the word always carry a negative connotation. This suggests a need to explore perceived women's empowerment and contraception at the society level through qualitative data. In addition, longitudinal designs are needed to better reflect the process of women's empowerment and to determine the causal mechanisms that facilitate or hinder women's empowerment.

Despite the limitations, the study had a number of strengths. First, the study utilized large population-based sample, representativeness, high response rate, well-tested validated questionnaire, and high quality of data due to extensive training of data collectors and support during the fieldwork, with concurrent data entry and editing with feedback during fieldwork. Second, the sequential analysis was applied to understand the relative contributions of direct and proxy indicators of women empowerment in contraceptive utilization. Finally, the study provides comprehensive information for a greater extent in devising more concrete evidence-based population, health, women policies and reproductive health/family planning programs direction.

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