Correlates of Unmet Need for Contraception in Ethiopia: Evidence from 2011 Ethiopian Demographic and Health Survey

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Abstract

The highest proportion of unmet need for contraception is found in sub-Saharan Africa. Although unmet need for contraception declined from 36% in 2000 to 25% in 2011 in Ethiopia, it is still far from satisfying the demand. The data for this study is obtained from the 2011 Ethiopian Demographic and Health Survey (EDHS). Multinomial logistic regression was used to identify correlates of unmet need for contraception. Accordingly, 18% of women have unmet need for spacing and 9.6% for limiting. Age, educational level, number of children and religion were significant correlates of unmet needs for spacing and limiting. In addition, place of residence was significant correlate for spacing while age at marriage and knowledge of contraceptives were significant correlates for limiting. Expanding contraceptive accessibility and methods mix in rural areas; empowering women; and engaging religious and community leaders in educating the community about family planning (FP) are recommendations to satisfy the demand of contraception.

   Keywords: contraceptives; unmet need; spacing; limiting

Résumé

La plus forte proportion de besoins non satisfaits en matière de contraception se trouve en Afrique sub-saharienne. Bien que les besoins non satisfaits en matière de contraception est passée de 36 % en 2000 à 25% en 2011 en Ethiopie, il est encore loin de satisfaire la demande. Les données de cette étude sont obtenues à partir de la éthiopienne démographique 2011 et Enquête sur la santé (EDHS). Régression logistique multinomiale a été utilisé pour identifier les corrélats de besoins non satisfaits en matière de contraception. En conséquence, 18 % des femmes ont des besoins non satisfaits pour l'espacement et de 9,6% pour limiter. Âge, niveau d'éducation, le nombre d'enfants et la religion étaient des corrélats importants de besoins non satisfaits pour l'espacement et la limitation. En outre, le lieu de résidence était en corrélation significative pour l'espacement tandis que l'âge au mariage et la connaissance des contraceptifs étaient des corrélats importants pour limiter. Élargir l'accès à la contraception et les méthodes mélange dans les zones rurales ; l'autonomisation des femmes ; et les chefs religieux et communautaires et les mettre dans l'éducation de la communauté sur la planification familiale (PF) sont des recommandations pour satisfaire la demande de contraception.

   Mots clé: contraceptifs; les besoins non satisfaits; espacement; limitant.

Introduction

Women with unmet need includes all fecund women who are married or living in union and thus presumed to be sexually active who are not using any method of contraception and who either do not want to have any more children (unmet need for limiting) or want to postpone their next birth for at least two years (unmet need for spacing). Married pregnant women whose pregnancies are unwanted or mistimed and who became pregnant because they were not using contraception as well as those who recently gave birth but are not yet at risk of becoming pregnant because they are pregnant or amenorrhoeic and their pregnancies were unintended are also considered to have unmet need (CSA and ICF International 2012).

An estimated 645 million women in developing world use modern contraceptive methods to space or limit future pregnancies (Singh and Darroch 2012). However, the need for contraception has increased as the number of women of reproductive age; and the need to have smaller families and control over the timing of births continue to grow. For instance, in 2012 about 222 million women in developing world had unmet need for modern contraception. The highest proportion of married

women (about 31%) with unmet need is found in sub-Saharan Africa (Singh and Darroch 2012). Despite the recent increase in contraceptive use in sub-Saharan Africa, the region is still characterized by high levels of fertility and considerable unmet need for contraception.

Meeting unmet need for contraception would prevent unintended pregnancies and thus avert unplanned and high-risk births, abortions, miscarriages, and reduce maternal deaths. For instance, 79% of unintended pregnancies in developing countries occur among women with an unmet need for modern contraception (Singh and Darroch 2012); and 50% of the estimated 80 million annual unintended pregnancies in developing countries end up in abortion (Saifuddin et.al. 2012). A study by Singh and Darroch (2012) further depicted that 79,000 maternal deaths and 1.1 million infant deaths in developing countries would be prevented if unmet need for contraception were met. Besides, satisfying unmet need for contraception would save cost for achieving five of the Millennium Development Goals (MDGs) – achieve universal primary education; reduce child mortality; improve maternal health; ensure environmental sustainability and combat HIV/AIDS, malaria, and other diseases (USAID 2009).

Even though unmet need for contraception in Ethiopia declined from 36% in 2000 (CSA and ORC Macro 2001) to 25% in 2011 (CSA and ICF International 2012), it is still far from satisfying the demand. In Ethiopia, satisfying unmet need for contraception by 2015 would save the lives of about 13,000 mothers and more than one million children (USAID 2009). In addition to preventing unplanned pregnancies and reducing maternal deaths, meeting the contraceptive demand in Ethiopia is crucial to achieve - one of the national population policy objectives of reducing the total fertility rate to 4 children per woman in 2015 (Office of the Prime Minster 1993) thereby reduce - poverty.

Thus, identifying the underlying correlates of unmet need for contraception is important to design effective programs to reduce the existing high level of unmet need; estimate the future demand of contraception; and allow the estimation of the impact on fertility if this additional demand is met (Casterline and Steven 2000). Besides, it has important implications for future population growth.

Similar studies have been conducted using the EDHS data set. For instance, Assefa and Fikrewold (2011), and Bizuneh, Solomon and Yilma (2008) assessed unmet need for FP. Both studies used EDHS 2000 and 2005. Assefa and Fikrewold (2011) focused only on one region of the country, southern part of Ethiopia, whereas Bizuneh, Solomon and Yilma (2008) looked at the whole country. But huge improvement has been seen in contraception uptake in Ethiopia since 2005. Between EDHS 2005 and 2011, the contraceptive prevalence rate has doubled from 15% to 29% and unmet need for contraception has declined from 34% to 25%. This big improvement could be attributable to different socio-economic and attitude changes among the society. Thus, it is important to update the existing knowledge of factors affecting unmet need for contraception using the new EDHS 2011 data set.

Data and Methods
Study area and data source
The study area, Ethiopia, is the second most populous country in Africa with a total population of more than 84 million (50.5% - male and 49.5% - female) (CSA 2011), and a total fertility rate of 4.8 children per women (CSA and ICF International 2012). According to the 2007 Population and Housing Census, women of reproductive age (15-49) make up almost a quarter (24% -) of the total population (CSA 2008).

The data for the study is extracted from the 2011 EDHS data set. The 2011 EDHS is the third comprehensive population and health survey conducted in Ethiopia as part of the worldwide DHS project with nationally representative sample of 17,817 households. The DHS collect data on fertility, FP, maternal and child health, mortality, nutritional status, and knowledge and prevalence of HIV among others. A stratified two-stage cluster design was used to select the sample households (CSA and ICF International 2012).

The data analysis of this study is based on 8561 women of reproductive age group who are currently married or living with partner. Infecund and menopausal women and those who never had sex are excluded from the analysis.

Variables and categorizations
Response variable
The response variable of this study is - unmet need - for modern contraception. It was derived from a variable in the data set labeled as "unmet need". It is categorized in to three as unmet need for spacing; unmet need for limiting; and met need (i.e., using contraceptives for spacing or limiting).

Explanatory variables
Since the aim of the study is to update the existing knowledge of factors affecting unmet need for

contraception using the new EDHS 2011 data set, most of the explanatory variables included in the study are similar to that used in the previous studies (Bizuneh, Solomon and Yilma -2008; Assefa and Fikrewold 2011; Kisaakye 2013). Thus, the explanatory variables included in the study are age of women (15-24, 25-34 and 35+ years); age at marriage (<18 and 18+ years); working status (working and not working); number of living children (No child, 1-2 child(ren), 3-4 children and 5+ children); place of residence (urban/rural); religion (Ethiopian Orthodox Christian, Muslim, Protestant and others); knowledge of modern contraceptives (yes/no); visited by FP worker (yes/no); and educational level of both women and partner (no education, primary education, and secondary and above level of education). Further, media exposure is composed of three variables – reading a newspaper/magazine at least once a week, listening to radio at least once a week, and watching television at least once a week - and re-categorized as (yes/no). -

Methods of data analysis

Before analysis, the data has been merged and recoded. Then the sample description was made using mean and standard deviation (SD) or median and inter-quartile range (IQR) for quantitative variables; and proportions for categorical variables.

The expected frequencies of each cells of a two-way tables was checked. Then, Pearson's chi-square test was used to measure the association between unmet need and characteristics of the study participants. Multicollinearity, a model adequacy test, was checked using variance inflation factor (VIF). Besides, standardized residuals were plotted against the predicted probabilities to detect the presence of outliers and influential values; and the independence of irrelevant alternatives (IIA) assumption was addressed by making the outcome categories distinct and independent. Then, multinomial logistic regression was fitted to identify the -correlates (adjusted effect) of unmet need for contraception (both spacing and limiting).

Age of women, age at marriage, working status, number of living children, media exposure, place of residence, religion, knowledge of modern contraceptives, visited by FP workers, and educational level of both women and partner were included in the model. Then backward stepwise procedure based on likelihood ratio was used to select the variables included in the final model. The significance for variable removal and entry was set to 0.10 and 0.05, respectively. Finally, the relative risk ratios (RRR) and 95% confidence intervals (CI) were reported for each variable in the final model. The statistical analysis was performed using STATA/IC 12.1 for Window and SPSS version 19.

Results

Description of the sample characteristics

Table 1 shows the characteristics of the sampled respondents. The mean age of the respondents was 28.9 with SD of 7.3 years; and most of them (more than 80%) were in the age range of 20-39 years. Adolescents constitute 8.5% and the rest 10.5% were older women. More than six in ten (62%) of women were illiterate and less than a tenth (9.5%) have secondary and above level of education. The average number of children a single woman has was 3.16; a tenth of the women have no child and almost a third have five or more children. Large share of respondents (about 76%) were rural residents; 68% of the respondents had no job; and 59% of them had media exposure. The median age at marriage was 16.4 years, and most of them (62%) married at early age. More than two in five of the respondents were Muslims, a third were Orthodox Christians, and a tenth were Protestants. The majority of - respondents (95%) have knowledge of contraceptive methods; but 81% of respondents were not visited by FP workers. Regarding the educational level of partners, about 47% were illiterate.

Table 1: The characteristics of women currently married or living with partner, EDHS 2011

Variables	Number of women	%	Mean (SD) or Median $(Q_1\text{-}Q_2\text{-})$ [1]
Age (years)	8561		28.9 (7.3)
15-19		8.5	
20-24		20.1	
25-29		27.2	
30-34		18.4	
35-39		15.3	
40+		10.5	
Educational level	8561		
No education		61.9	
Primary		28.6	
Secondary & Higher		9.5	
Number of living children	8561		3.16 (2.3)
No child		10.2	
1-2		35.3	
3-4		27.4	
5+		27.1	
Working status	8553		
Yes		32.2	
No		67.8	
Place of residence	8561		
Urban		24.1	
Rural		75.9	
Media exposure	8561		
Yes		58.9	
No		41.1	
Religion	8561		
Muslim		41.6	
Orthodox		36.6	
Protestant		19.0	
Catholic & Others		2.8	
Age at marriage (years)	8561		16.4 (14.4 – 18.9) [1]
<18		62.2	
18+		37.8	
Knowledge of contraception	8561		
Yes		94.8	
No		5.2	
Visited by FP worker	8558		
Yes		19.2	
No		80.8	
Educational level of partners	8561		
No education		46.9	
Primary		37.1	
Secondary & Higher		16.1	

[1] -Q_1 - 25th percentile and Q_2 - 75th percentile

Trends in Unmet Need for Contraception

Figure 1 shows the trends in unmet need for contraception from 2000 to 2011. Unmet need forcontraception has dropped from around 36% in 2000 to 25% in 2011, specifically for spacing the drop was from 22% to 16% and for limiting it was from 14% to 9%. The large decline in unmet need has observed between 2005 and 2011, which is about 9% reduction (4% for spacing and 5% for limiting).
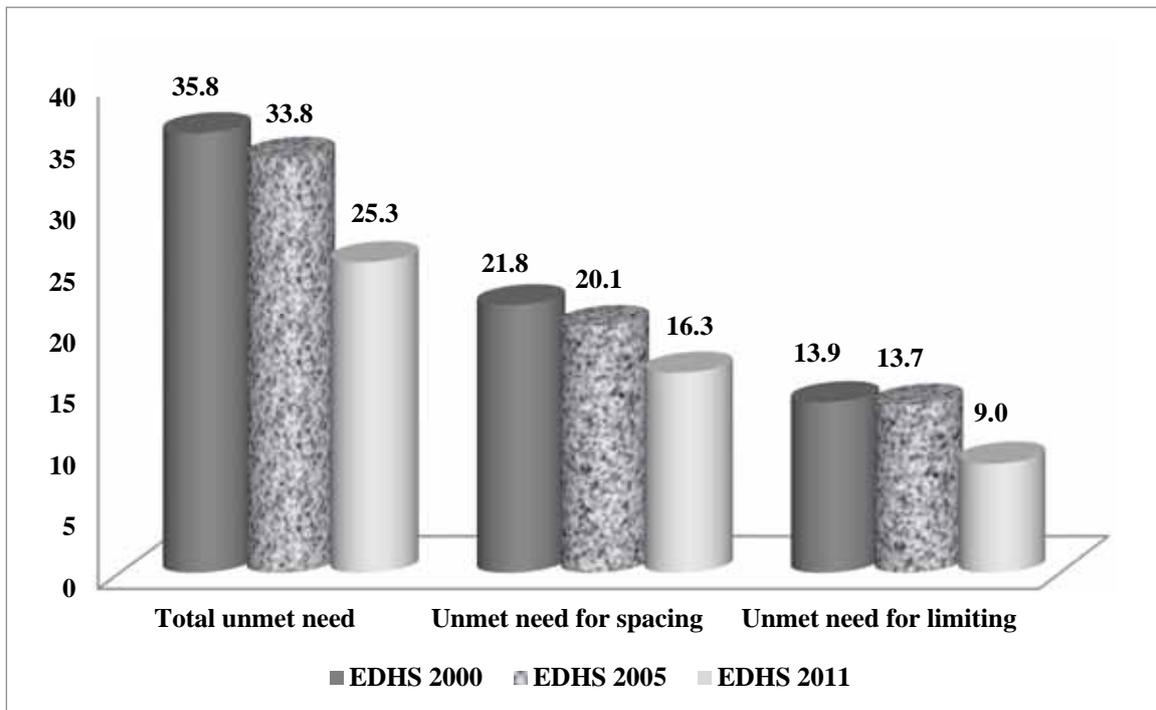
Figure 1: Trends in unmet need for contraception in Ethiopia, 2000 – 2011.

Women with unmet need by selected background characteristics

Unmet need for spacing among women currently married or living with partners was 18.1% and it was 9.6% for limiting (see Table 2). Unmet need for spacing decreases as the age of the women increase, whereas unmet need for limiting increases as age increase. Both women's and partners' education positively affect unmet need for contraception (i.e. with increasing level of education, the unmet need for contraception declines). As per the number of living children concerned, unmet need for limiting increases as the number of living children a woman has increase, whereas unmet need for spacing does not show much difference as the number of living children increase. Unmet need is higher among women residing in rural areas (20.6% for spacing and 10.6% for limiting); have no media exposure (20.4% for spacing and 11.5% for limiting); and married at early age (18.6% for spacing and 11.3% for limiting). Muslims have slightly higher unmet need for spacing (22%) followed by Protestant and other religion followers (18%). Conversely, Muslims have lower unmet need for limiting (8.4%). Unmet need for spacing is higher (23%) among those with no knowledge about contraceptives; however, unmet need for limiting is lower (7%) among that group.

Table 2: Percentage distribution of women currently married or living with partner with unmet needs for spacing and for limiting by selected background characteristics, EDHS 2011

Variables	Number of women	% of women with unmet need		P-value
		Spacing	Limiting	
Age				
15-24	2453	22.5	2.0	
25-34	3900	18.6	7.2	
35+	2208	12.2	22.2	<0.001
Educational level				
No education	5300	19.2	11.3	
Primary	2449	18.9	8.2	
Secondary & Higher	812	8.9	3.0	<0.001
Number of living children				
No child	876	20.1	1.1	
1-2	3021	18.0	2.8	
3-4	2346	19.8	8.5	
5+	2318	15.7	22.8	<0.001
Place of residence				
Urban	2067	10.1	6.5	
Rural	6494	20.6	10.6	<0.001
Media exposure				
Yes	5039	16.5	8.3	
No	3522	20.4	11.5	<0.001
Religion				
Muslim	3564	21.9	8.4	
Orthodox	3133	13.8	9.6	
Protestant and others	1864	18.1	9.6	<0.001
Age at marriage				
<18	5324	18.6	11.3	
18+	3237	17.4	6.8	<0.001
Knowledge of contraception				
Yes	8120	17.8	9.8	
No	441	23.4	6.8	0.004
Educational level of partners				
No education	4011	19.2	11.6	
Primary	3173	19.3	8.9	
Secondary & Higher	1377	12.1	5.7	<0.001
Total	**8561**	**18.1**	**9.6**	

Not significant variables: working status; and visited by family planning workers

Determinants of unmet need for contraception

Table 3 gives the RRR and 95% CI from multinomial logistic regression model. Among the variables included in the model, age, educational level, number of living children and religion are found to be statistically significant determinants of unmet need for spacing and for limiting. However, place of residence is significant determinant for spacing while age at marriage and knowledge of contraceptives are significant for limiting. -

Accordingly, unmet need for spacing is higher among women in the age range between 15-24 (RRR=1.96; p <0.001) and 25-34 (RRR=1.48; p <0.001) than older women (35+ years of age); it is also higher for those who have primary level education (RRR=1.47; p =0.013) compared to those with secondary or higher level of education as well as women who reside in rural areas (RRR=2.02; p <0.001). Similarly, it is higher for Orthodox Christian religion followers (RRR=1.28; p =0.002) than protestant or other religion

followers. In contrast, it is lower among women who have one or two children compared to those with five or more children (RRR=0.74; p =0.004).

On the other hand, unmet need for limiting is higher among non-educated women (RRR=1.73; p =0.038) and women who have primary level education (RRR=2.04; p =0.005) compared to those with secondary or higher level of education. Moreover, it is higher for women who married at early age (before 18 years) (RRR=1.40; p <0.001);

and for those who have knowledge of contraception (RRR=1.68; p =0.012). However, unmet need for limiting is lower among women in the age 15-24 (RRR=0.28; p <0.001) and 25-34 (RRR=0.47; p <0.001) compared to older women; as well as women who have four or less children (RRR<0.47; p <0.001). Furthermore, it is lower for Orthodox religion followers (RRR=0.70; p =0.001) compared to Protestant and other religion followers.

Table 3: Adjusted RRR and 95% CI from the multinomial logistic regression model for unmet need for spacing and limiting.

Variables	Spacing vs No unmet need (n = 8550; unmet need for spacing = -1500)		Limiting vs No unmet need (n = -8550; unmet need for limiting = -774)	
	RRR (95% CI)	P-value	RRR (95% CI)	P-value
Age (years)				
15-24	1.96 (1.56; 2.47)	<0.001	0.28 (0.19; 0.42)	<0.001
25-34	1.48 (1.25; 1.77)	<0.001	0.47 (0.39; 0.57)	<0.001
35+	1.00		1.00	
Educational level				
No education	1.34 (0.97; 1.86)	0.072	1.73 (1.03; 2.90)	0.038
Primary	1.47 (1.09; 2.00)	0.013	2.04 (1.24; 3.36)	0.005
Secondary & Higher	1.00		1.00	
Number of living children				
No child	0.77 (0.59; 1.01)	0.060	0.11 (0.05; 0.22)	<0.001
1 – 2	0.74 (0.60; 0.91)	0.004	0.21 (0.15; 0.28)	<0.001
3 – 4	0.94 (0.79; 1.12)	0.518	0.47 (0.38; 0.57)	<0.001
5+	1.00		1.00	
Religion				
Orthodox	1.28 (1.09; 1.50)	0.002	0.70 (0.57; 0.86)	0.001
Muslim	0.85 (0.72; 1.00)	0.064	0.84 (0.68; 1.04)	0.106
Protestant and Others	1.00		1.00	
Place of residence				
Rural	2.02 (1.68; 2.44)	<0.001		
Urban	1.00			
Age at marriage (years)				
<18			1.40 (1.16; 1.66)	<0.001
18+			1.00	
Knowledge of contraception				
Yes			1.68 (1.12; 2.52)	0.012
No			1.00	

Not significant: work status, media exposure, visit by FP worker & educational level of partner.

Discussion

Unmet need for contraception has declined for both spacing and limiting; and the large decline has been observed between 2005 and 2011 which is about 9%. This is due to the emphasis given by the government towards FP as a key intervention for achieving MDGs and overall socioeconomic development. Accordingly, the government has made great effort to expand FP methods and information through its static health facilities; and by deploying health extension workers in rural areas to provide FP information and short term FP methods. Moreover, different international and local non-governmental organizations have contributed their part in the reduction of unmet need for contraception. Even though unmet need for contraception is declining, it is still far from satisfying the demand. This is because of accessibility problems; and the high discontinuation rate of short term methods (the widely used methods in Ethiopia) due to side-effects or health concerns and shortage of alternative long term methods (Ali, Cleland and Shah 2012).

Women in the age of 15-34 years are more likely to have unmet need for spacing while they are less likely to have unmet need for limiting than older women. This is because women in the younger age are less likely to reach their desired family size as a result they want to space childbirth, whereas women in the older age have more likely achieved their desired family size and therefore they want to limit child bearing. This finding is consistent with the finding of Assefa and Fikrewold (2011).

Women who have primary education are more likely to have unmet need for limiting and spacing, but women with no education have only unmet need for limiting. In essence, women with lower educational level are more likely to have unmet need for contraception. The higher the level of education a woman has, the more knowledge she acquires for the use of FP methods (CSA and ORC Macro 2006); will have increased desire to limit or space births and the use of and the intention to use contraceptives (Hogan, Betemariam and Assefa 1999); and be able to prefer the most convenient methods taking the side effects in to consideration. Besides, women's education provides them with more opportunity to participate in the process of modernization and enable them to bring about changes in the economic and social situation. This, in turn, improves their knowledge and practice of contraception. This finding is in accordance with a study result of Westoff (2012) and Adebowale and Martin (2014), which concluded that women with unmet need are less educated than women using a modern contraception.

Number of living children a woman had has significantly affected their contraceptive need status. Accordingly, women who have four or less children are less likely to have unmet need for limiting than women who have five or more children; and those with one or two children are less likely to have unmet need for spacing than women who have five or more children. Thus, the prevalence of unmet need for limiting increases with the number of children. This result is in agreement with other studies conducted using DHS (Assefa and Fikrewold 2011; Kisaakye 2013; Adebowale and Martin 2014).

Women who resides in rural areas are more likely to have unmet need for spacing. This can be explained by the fact that availability (including the method mix) and accessibility of contraception is limited in rural areas. Besides, rural women have less education and media usage. This could also limit their information accessibility and knowledge about FP. As a result, rural women are less likely to utilize health services compared to their urban counterparts. Several studies also showed similar result (Westoff 2006; Bizuneh, Solomon and Yilma 2008; Assefa and Fikrewold 2011). As per religion is concerned, Orthodox religion followers are more likely to have unmet need for spacing and less likely to have unmet need for limiting compared to Protestant and other religion followers.

Those women who married at early age are more likely to have unmet need for limiting. The possible explanation for this result may be the lower bargaining power of women who marry at early age. The women are most likely younger in age than their partners; have lower educational level and do not have their own income. Consequently, their awareness about reproductive issues will be low; and their participation in making decisions about reproductive –health service utilization in general and contraceptive use in particular will also be limited.

It- is interesting to observe that knowledge of contraception is negatively associated with unmet need for limiting. That is, women who have knowledge of contraception are more likely to have unmet need for limiting. This shows that knowledge by itself does not guarantee for the usage of contraception unless there is availability of

contraceptives. This can be substantiated by the fact that 75% of women who have knowledge of contraception reside in rural areas, where contraceptive methods for limiting (long term and permanent methods) are limited (CSA and ICF International 2012).

Conclusion

The study identified correlates of unmet need for contraception in Ethiopia using - data from EDHS 2011. In the last 10 years, 2000 – 2011, unmet need for contraception showed over 10% decline. However, it is still far from satisfying the demand. Given the increasing population and desire to have smaller family size, the government, non-governmental organizations and other concerned stakeholders should work hard to satisfy the need for modern contraception.

Age, educational level, number of living children and religion are significant correlates of unmet need for spacing and for limiting. Place of residence is significant correlates for spacing, whereas age at marriage and knowledge of contraceptives are correlates of unmet need for limiting. Thus, women's empowerment through education and job creation; expanding accessibility and availability of contraceptive methods, especially long term and permanent methods in rural areas; advocacy of FP through Information, Education, and Communication (IEC), especially among the rural women; and engaging the community and religious leaders to educate the community about FP are recommended to reduce unmet need for contraception. On top of that, FP programs should take in to account the needs for spacing and limiting differently, since the characteristics of women in need of spacing are different from those in need of limiting. Moreover, the researcher recommends more in-depth studies in order to explore the relationship between unmet need and knowledge of contraception, which is negatively associated in this study.

Acknowledgement:

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