

Determinants of unmet need for family planning among married women in Zambia

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Abstract

Unmet need for family planning remains a major family planning problem in most countries around the world. It presents serious consequences for the women, their families and society at large. This study was undertaken to establish the factors that affect total unmet needs for family planning and its components in Zambia. This study used the 2013/14 Zambia Demographic Health Survey (ZDHS) dataset focusing on currently married women aged 15 to 49. Data analysis took the form of descriptive, binary logistic and multinomial logistic regressions. The study shows that, although there has been a substantial increase in the use of contraceptives, combined unmet need for family planning has only decreased slightly over time, and currently stand at 21%, made up of 14% limiters and 7% spacers. Various factors were identified as determinants of unmet need for spacing, limiting or total unmet need for family planning. These included age, partner's level of education, contraceptive side effects, husband opposition to contraceptives and number of living children. To enhance utilization, policy should not be blind to the respective factors that influence combined unmet needs for spacing and limiting.

Introduction

Family planning has proven benefits for individuals and society at large as it prevents unintended pregnancies, limits the number of children, and controls the birth intervals and timing.^{1,2} As a consequence, family planning improves the mothers' health and reduces unsafe abortions. In order to achieve these benefits, contraceptives have to be used correctly and consistently. Despite the aforementioned benefits of the use of contraceptives, there is usually

a gap between women's reproductive desire to avoid pregnancy and their contraceptive behavior. The gap is referred to as the *unmet need* for family planning and it is categorized into unmet need for spacing and unmet need for limiting.³ Women with an unmet need for limiting are those who desire no additional children but are not currently using a contraceptive method, while women with an unmet need for spacing are those who desire to postpone their next birth by a specified length of time and who do not currently use a contraceptive method.⁴ The sum of those under the met and unmet categories equal to total demand for family planning services.

According to the United Nation, 12% of married or in-union women were estimated to have had an unmet need for family planning; that is, they wanted to stop or delay childbearing, but were not using any method of contraception.⁵ Although the proportion of women with unmet need seems low, percentages vary by region, with the sub-Saharan Africa recording unmet need of 24%. Studies^{6,7} have estimated that 214 million women of reproductive age in developing countries who want to avoid pregnancy are not using a modern contraceptive method and these account for 84% of unintended pregnancies in developing countries. The studies⁷ further estimates that if all unmet need for modern contraception were satisfied in developing regions, there would be approximately a three-quarters decline in unintended pregnancies. Similarly, the 2013/14 Zambia Demographic Health Survey (ZDHS) predicts that if all currently married women in Zambia, experiencing unmet need for family planning were to use a family planning method, the contraceptive prevalence rate would increase to 70%.⁴

Generally, it has been observed that unmet need for family planning is inversely related to contraceptive prevalence,^{8,9} with a few exceptions. As contraceptive uptake increases, the level of unmet need reduces. Globally, the contraceptive prevalence has increased,^{5,10} and in turn unmet need for contraceptive use has reduced. Although, Sub-Saharan African (SSA) countries have experienced an increase in modern contraceptive use, the reduction in unmet need has not been substantial.^{8,9} In 2017, the median contraceptive prevalence in SSA countries stood at 31% and the unmet need at 23% (according to median projection).⁵

According to the 2013-14 ZDHS, 21% of currently married women in Zambia have an unmet need for family planning services, with 14% having an unmet need for spacing births and 7% having an unmet need for Informed consent has been approved. them.⁴

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According to Figure 1 modern contraceptive use is inversely related to total unmet need in Zambia. The figure shows that generally, as modern contraceptive use increases, the total unmet need reduces, showing an inverse relationship between the two. This is because contraceptive use can be used to regulate the number of children (for spacing children and stopping having children). However, we notice that modern contraceptive use has increased at a fast pace, total unmet need has only reduced at a slow pace (Figure 1).

The Government of the Republic of Zambia (GRZ) has placed great importance on family planning and to enhance access has implemented programmes such as the National Family Planning Programme. In a bid to increase contraceptives use, the Integrated Family Planning Scale-up Plan 2013-2020 aims to reduce unmet need for contraception to 19% in 2015 and 14% by 2020.¹¹ Despite significant improvement in the use of modern contraceptives, which went from 34.2% in 2001 to 49% in 2014, the prevalence of unmet need, which consistently stood at 27% from 1996 to 2008, only decreased by 6%, to 21%, in 2014.^{4,12} These trends mimic those of SSA countries.

This backdrop raises concerns and begs for answers as to why the unmet need for contraceptives has remained high despite

various government efforts and subsequent improvements in the prevalence of contraceptive uptake among women in Zambia. It is for this reason that this study was undertaken to provide evidence on the factors that influence unmet need for contraceptives. Studying unmet need for family planning is crucial for reproductive health policies and helps measure the progress and effectiveness of family planning programmes. Thus, the aim of this paper is to determine the factors associated with unmet need for contraceptives in Zambia. Thus the paper is aimed at achieving the following objectives:

- (i) Identify the factors influencing unmet need for family planning among married women of child bearing age (15 – 49 years) in Zambia.
- (ii) Estimate the factors influencing unmet need for limiting and spacing among married women of child bearing age (15 – 49 years) in Zambia.

Literature review

There is a plethora of literature on factors that influence unmet need for family planning worldwide, particularly in developing countries. It should be noted that there are variations in factors that affect total unmet need and unmet need for limiting or spacing. Variations also exist in whether these factors have a positive or negative effect on unmet need and its components. A more recent study by Fagbamigbe *et al.*¹³ has established that women who live in rural areas, younger, belong to poor households and have no education had higher odds of unmet needs. Contrary to Fagbamigbe *et al.*¹³ a study by Khalil *et al.*¹⁴ found that unmet need was higher amongst the older women age group. In addition to these factors Gebre *et al.*¹⁵ showed that having more than five desired children, discussions with health care providers, previous use of modern family planning, were significantly associated with unmet need for family planning. Other studies^{16,17} also observed that total number of children was positively associated with total unmet need. The study also found that a woman's desired number of children compared to their partners was a determinant of unmet need for family planning. Further, a study by Genet *et al.*¹⁸ postulated that women who were housewives/farmers, who were not counseled about family planning by health workers, whose partners had non-supportive attitude for family planning use and who were from rural areas were more likely to have unmet need for family planning. Similar findings were also made by Westoff¹⁹ and Ajong *et al.*²⁰

A broad range of factors believed to drive unmet need have been highlighted in a

study by Muhoza *et al.*²¹ and these include: access, affordability, availability, cultural beliefs, and religious beliefs, side effects, health effects, and lack of knowledge. Added to these factors, other studies^{17,19} found that unmet need for spacing, limiting and total unmet need were influenced by marital status, employment status, region, wealth index and exposure to mass media communications.

In Zambia, a few studies have been done to establish factors that affect unmet need for contraceptive use. This study has identified two important studies, *i.e.* Westoff¹⁹ and Imasiku *et al.*²² which both used the 2007 ZDHS. The study by Westoff¹⁹ found that the number of living children, radio exposure, TV family planning messages, number of living children and number of child deaths had a significant effect on unmet need for family planning. Similarly, the study by Imasiku *et al.*²²

established that children ever born and region of residence were significant predictors of unmet need for spacing while age at first marriage and partner's desire for children were important predictors for unmet need for limiting.

Materials and Methods

This study made use of the data obtained from the 2013-14 Zambia Demographic and Health Survey. This study covered all the ten provinces in Zambia. The sample constituted men aged between 15 and 59 and women aged between 15 and 49 years. The sampling frame for this study was provided by the 2010 Zambia Population and Housing Census and a two-stage stratified cluster sample design was used to obtain a sample of 18,052 households. Each of the 10

Table 1. Percentage distribution of the characteristics of the sample of married women aged 15 – 49 in Zambia. Prevalence of Unmet Need.

	Percentage	Observations
Woman Age		
15-24	23.6	2,206
25-34	42.5	3,970
35+	33.9	3,167
Type of place of residence		
Urban	41.2	3,845
Rural	58.8	5,498
Educational level		
None	10.4	974
Primary	54.6	5,104
Secondary	30.2	2,819
Tertiary	4.8	445
Educational Level of Partner		
None	7.7	716
Primary	39.3	3,675
Secondary	43.9	4,100
Tertiary	9.1	851
Wealth Index		
Poor	38.6	3,608
Middle	19.8	1,848
Rich	41.6	3,887
Respondent's occupation		
Non-Agriculture	27.4	2,560
Agriculture	29.9	2,794
Not employed	42.7	3,989
Media exposure		
No Exposure	26.7	2,497
Exposed	73.3	6,846
Reason not using contraceptives: Husband/partner opposed		
No	22.3	2,08
Yes	1.9	174
Reason not using contraceptives: Side effects		
No	18.9	1,764
Yes	5.2	490
Husband's vs Wife's desire for children		
Both want same	41.8	3,823
Husband wants more	24.4	2,229
Husband wants fewer	6.4	582
Don't know	27.4	2,502

provinces of Zambia was stratified into urban and rural areas. From the sampled households, 16,411 women aged between 15 and 49 were interviewed of which the analysis focused only on the 9,343 married women. Questionnaires, which were translated into the seven major languages of Zambia, were used to collect the data.

Variables

Outcome variable

This study considered three outcome variables *unmet need for limiting*, *unmet need for spacing* and *combined unmet need*, which is composed of *unmet need for limiting* and *unmet need for spacing*. Thus three models were estimated. This study uses the revised standard definition for the unmet need variable as advanced by Bradley *et al.*²³

Independent variables

A range of independent variables were used for this study and were mainly selected based on recent empirical literature and their availability in the 2013-14 ZDHS. Thus the included variables were age of the woman (recoded as 15-24, 25-34 and 35 and above), preferred number of children, education level of respondent (recoded as none, primary, secondary and tertiary), education level of partner (recoded as none, primary, secondary and tertiary), wealth index (categorized as poor, middle and rich), place of residence (urban and rural), exposure to mass media (categorized as no exposure - if woman does not watch TV or listens to radio or reads a newspaper and exposed - if she watches TV and/or listens to radio and/or reads a newspaper), respondent's occupation (non-agriculture, agriculture and or not employed), Reason not using contraceptives: husband/partner opposed (yes or no), Reason not using contraceptives: side effects (yes or no), total number of children and husband's vs wife's desire for children (categorized as both want same, husband wants more, husband wants fewer, and don't know).

Statistical analysis

The analyses involved descriptive and inferential analyses. Under descriptive analysis frequencies were used to describe the distribution of the variables in the sample. Inferential analysis involved the use of logistic regression to establish the factors that influence unmet need, unmet need for limiting and unmet need for spacing. The regression analysis was undertaken using 95% confidence interval. These analyses were undertaken with the help of STATA 13 software.

Results

Description of the sample

Table 1 presents the description of the sample of the interviewed married women aged between 15 and 49. The table indicates that the majority of the married women interviewed were aged between 25 and 34 (43%). In terms of place of residence, 59% resided in the rural areas and the majority had primary level education (55%) while most of their partners had secondary education (44%). In addition, 42% of the interviewed married women belonged to households considered as rich and about 43% of them were unemployed. About 73% of these women had some form

of media exposure. A few of them cited husband's opposition (2%) and side effects (5%) as the reasons for not using contraceptives. In terms of desire for children, about 42% desired the same number.

Figure 2 shows the percentage of women with unmet need for family planning. Overall, 21% of the women had unmet need. Among the women with unmet need, 14% had unmet need for spacing while 7% had unmet need for limiting.

Adjusted logistic regression results for factors influencing unmet need for family planning

Table 2 presents the adjusted odds ratios of factors that have an influence on the unmet need for family planning among mar-

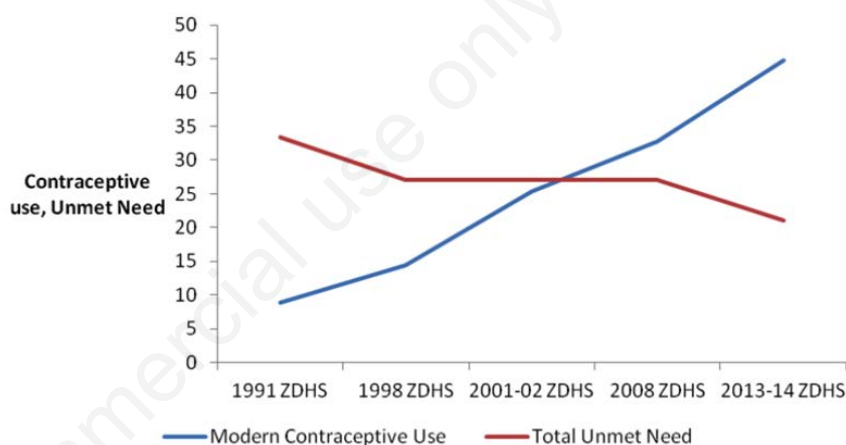


Figure 1. Trends in modern contraceptive method use and total unmet need among married women aged 15 to 49 in Zambia: 1992 to 2014.

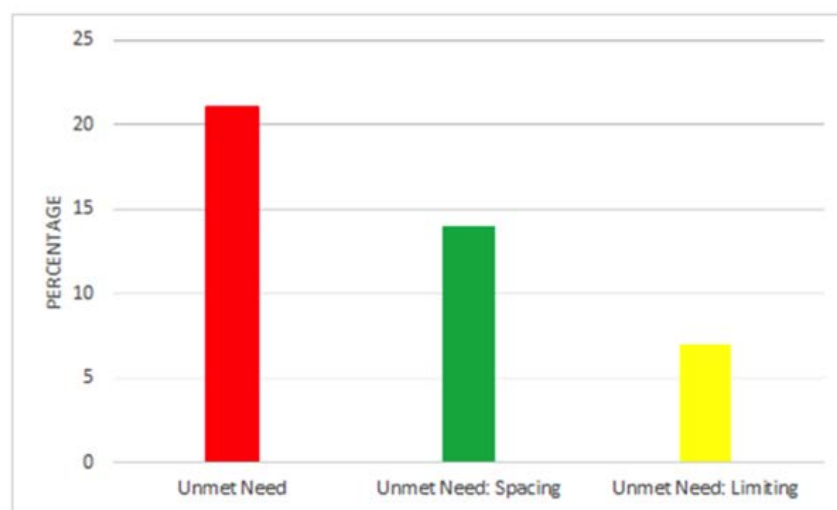


Figure 2. Unmet need for family planning among married women aged 15 – 49 in Zambia.

ried women aged 15 to 49. The results show that holding other variables constant, on average, as one advances in age, the odds of having unmet need (spacing and limiting) for family planning reduces. The odds for unmet need were 25% and 55% lower for women aged 25 to 34 and above 35, respectively, compared to those aged 15 to 24. Results also show that the odds for unmet need increased with the increase in the number of children born from a woman. Thus if the number of children ever born increase by one, the odds for unmet need increase by 9% on average, holding other variables constant. This study also revealed that women whose partners had tertiary education had 37% lower odds of unmet need for contraceptives. The study also found that women who discontinued contraceptives due husband's opposition had 242% higher odds for unmet need while those who discontinued due side effects had 218% higher odds for unmet need. The study further found that women who did not know their husband's desired number of children had 19% higher odds for unmet need compared to those who desired the same number of children as their husbands (Table 2).

Adjusted relative risk ratios (ARRR) results for factors influencing unmet need for spacing and limiting

Table 3 shows the adjusted relative risk ratios of the factors that influence unmet needs for spacing and limiting among the married women aged 15 to 49 in Zambia. The relative risk ratio for unmet need for spacing versus met need was 34% lower for those aged between 25 to 34 years and 79% lower for those aged more than 35 years compared to those aged between 15 and 24. Women whose partners had secondary education had 32% lower relative risk ratios while those with tertiary level education had 54% lower risks ratio of having unmet need for spacing compared to those whose partners had no education. The study also found the relative risk ratios for women who discontinued contraceptives due to husband's opposition was 303% higher for unmet need while those who discontinued due to side effects had 178% higher for unmet need. The study further found that women who did not know their husband's desired number of children had 28% higher risks for unmet need for spacing compared to those who desired the same number of children as their husbands.

Table 3 further shows that the relative risk for unmet need for limiting versus met need was 143% higher for those aged between 25 to 34 years and 324% higher for

those aged more than 35 years compared to those aged between 15 and 24. The relative risk for unmet need for limiting compared to met need for limiting were 153% and 245% higher for women who cited husband opposition and side effects, respectively as reasons for contraceptive discontinuation, relative to those who did not cite these reasons. The results show that the relative risk ratio for unmet need for limiting was 22% higher for every increase in the living child compared to those with met need.

Discussion of study results

The aim of this paper was to examine

the factors that are associated with unmet need as well as the two components of unmet need: spacing and limiting among married women in Zambia. The findings indicate that 21% of married women had unmet need for family planning and of these 14% had unmet need for spacing while 7% had unmet need for limiting. These results are consistent with the 2013-14 ZDHS.⁴ Generally, the levels of unmet need in Zambia mimic those of other SSA countries. Although slightly lower than the African average, the unmet need for family planning in Zambia is still high in comparison to its peers such as Zimbabwe with unmet need of 10%²³ and Malawi with 19%²⁴ unmet need for family planning.

Table 2. Adjusted logistic regression results for factors influencing unmet need for family planning.

Variables	Aor	Total unmet need Ci
Woman Age		
15-24	1	
25-34	0.75***	0.63 - 0.90
35+	0.45***	0.34 - 0.58
Type of place of residence		
Urban	1	
Rural	0.94	0.76 - 1.16
Total children ever born	1.09***	1.05 - 1.14
Educational level of Respondent		
None	1	
Primary	1.12	0.86 - 1.45
Secondary	1.22	0.89 - 1.66
Tertiary	1.10	0.64 - 1.89
Educational level of Partner		
None	1	
Primary	0.88	0.68 - 1.15
Secondary	0.82	0.62 - 1.08
Tertiary	0.63***	0.43 - 0.93
Wealth Index		
Poor	1	
Middle	1.04	0.86 - 1.24
Rich	0.91	0.71 - 1.15
Type of occupation		
Agriculture	1.08	0.87 - 1.34
None	1.11	0.92 - 1.34
Media exposure		
Not Exposed to media	1	
Exposed to media	1.06	0.91 - 1.25
Reason not using: Husband/partner opposed		
No	1	
Yes	3.42***	2.18 - 5.37
Reason not using: Side effects		
No	1	
Yes	3.18***	2.42 - 4.18
Husband's Vs Wife's desire for children		
Want the same	1	
Husband wants more	1.04	0.87 - 1.24
Husband wants fewer	1.19	0.89 - 1.60
Don't know	1.19***	1.00 - 1.42
Constant	0.92	0.60 - 1.40
Observations	8,928	

*** P<0.05

This study identified various factors as determinants of unmet need for spacing, limiting or total unmet need for family planning. Age, partner's level of education, contraceptive side effects, husband opposition to contraceptives and number of living children were found to be significantly associated with the unmet needs for contraceptive use among women aged 15 to 49 in Zambia.

Age was found to be a prominent variable in all the three models. With regard to total unmet need and unmet need for spacing, the results show that as a woman advances in age, the chances of having unmet need for family planning declines. This finding is consistent with Fagbamigbe *et al.*¹³ and Wulifan *et al.*,¹⁶ who found that woman's age was negatively associated with total unmet need for family planning, meaning that, as women get older the unmet need for family planning decreases. These results are at variance with those observed by Gebre *et al.*,¹⁵ who found that older women were more likely to have total unmet need as compared to women in the younger age group. However, with respect to unmet need for limiting, the present study found that unmet need increased with age. The increase in age with unmet need for limiting was also observed by Wulifan *et al.*,¹⁶ who observed that unmet need for limiting increased as women got older. It is argued that older women might be more inclined to limit rather than space.²⁶

The present study confirms the findings of many studies^{16,18,20,27} which have observed that women who cited fear of side effects/health concerns and husband/partner opposition as reasons for not using contraceptives were more likely to experience total unmet need, unmet need for spacing and unmet need for limiting. The current study also established that those who cited contraceptive side effects and husband opposition as reason for not using contraceptives had higher risks of unmet need for limiting. Concerns regarding health or side effects are partly based on misinformation and partly based on experience.⁹ Moreover, the influence of husbands/partners on contraceptive uptake is crucial as they are seen as the heads of households and women look up to them for a final decision.

With regard to the number of children ever born, the study found that as the number of children ever born increases the total unmet need and unmet need for limiting increase. This is consistent with the findings of Korra²⁸. A study by Nyauchi and Omedi¹⁷ made similar observations, that the greater the number of living children a woman has, the greater the likelihood of experiencing unmet need for family planning. These results are in line with Wulifan

*et al.*¹⁶ who made similar observations for a woman's total unmet need. In Zambia Westoff¹⁹ found that number of living children had a negative influence on unmet need, while Imasuki *et al.*²² also established that children ever born were significant predictors of unmet need for spacing.

Partner's discussion of family planning issues is important for the reduction of unmet need.²⁸ The study established that women who did not know their husband's desired number of children were more likely to experience unmet need for spacing. The observation is an indication that these women do not discuss issues related to family planning together. The finding is con-

trary to Wulifan *et al.*¹⁶ who observed that women who desired fewer children compared to their partner's preferred number of children were significantly more likely to experience unmet need for family planning. Partner's desire for children was found to be an important predictors for unmet need for limiting.²²

The importance of education as an explanatory factor for unmet need cannot be left behind. Although respondent's education level had no significant effect on their unmet needs, the education level of their partners was found to reduce the likelihood of total unmet need as well as unmet need for spacing. These results are consistent

Table 3. Adjusted relative risk ratios (RRR) results for factors influencing unmet need for spacing and limiting.

Variables	Unmet need			
	Unmet Need: Spacing ARRR	CI	Unmet Need: Limiting ARRR	CI
Woman Age				
15-24	1		1	
25-34	0.76***	0.63 - 0.93	2.43***	1.33 - 4.44
35+	0.21***	0.15 - 0.30	4.24***	2.28 - 7.88
Type of place of residence				
Urban	1		1	
Rural	1.00	0.79 - 1.26	0.81	0.58 - 1.14
Total children ever born	1.01	0.96 - 1.07	1.22***	1.14 - 1.30
Educational level of Respondent				
None	1		1	
Primary	1.07	0.80 - 1.44	1.24	0.85 - 1.81
Secondary	1.12	0.79 - 1.58	1.60	0.97 - 2.64
Tertiary	0.97	0.53 - 1.80	1.64	0.64 - 4.24
Educational level of Partner				
None	1		1	
Primary	0.80	0.60 - 1.07	1.15	0.72 - 1.83
Secondary	0.68***	0.50 - 0.93	1.31	0.80 - 2.16
Tertiary	0.46***	0.30 - 0.70	1.18	0.58 - 2.37
Wealth Index				
Poor	1		1	
Middle	1.02	0.82 - 1.26	1.14	0.85 - 1.54
Rich	0.88	0.67 - 1.17	0.98	0.67 - 1.43
Type of Occupation				
Non-Agriculture	1		1	
Agriculture	1.11	0.87 - 1.43	1.02	0.73 - 1.42
None	1.07	0.86 - 1.33	1.25	0.94 - 1.67
Media exposure				
Not Exposed to media	1		1	
Exposed to media	1.09	0.90 - 1.31	1.02	0.80 - 1.30
Reason not using: Husband/partner opposed				
No	1		1	
Yes	4.03***	2.53 - 6.44	2.53***	1.40 - 4.56
Reason not using: Side effects				
No	1		1	
Yes	2.78***	2.06 - 3.77	3.45***	2.44 - 4.88
Husband's Vs Wife's desire for children				
Want the same	1		1	
Husband wants more	0.99	0.82 - 1.21	1.14	0.85 - 1.54
Husband wants fewer	1.21	0.87 - 1.67	1.09	0.62 - 1.92
Don't know	1.25***	1.03 - 1.51	1.03	0.78 - 1.36
Constant	1.03	0.63 - 1.67	0.03***	0.01 - 0.06
Observations	8,928		8,928	

*** P<0.05.

with those found by Ayele *et al.*²⁹ in Ethiopia. According to Mekonnen and Worku³⁰ as men get more educated they get a better understand family planning methods and the importance of managing family size.

Conclusions

This study has established that although contraceptive use among the women aged 15 to 49 has increased, unmet need for contraceptive use is still high hence there is still more to be done to ensure that family planning programmes are effective and meet their intended objectives. To enhance utilization, policy should consider factors that influence non-utilization. This analysis has shown that the total unmet need and unmet need for limiting or spacing are driven by various factors, which include age, partner's level of education, contraceptive side effects, husband opposition to contraceptives and number of living children. Programmes targeted incorporating these factors would help address the currently high unmet need for family planning and enhance contraceptives uptake.

Policy recommendations

It should be noted that contraceptive availability does not guarantee utilization, and as such policy should consider underlying factors behind the non-utilization to enhance utilization. This study proposes that:

- (i) To address the male partner's opposition, programmes should involve sensitization of males on the importance of contraceptives. The programmes should encourage partners to discuss family planning matters together. In most households, men are usually influential when it comes to making important decisions in a household.
- (ii) Target contraceptive according to age group. Target younger women on contraceptives for spacing and elderly women on contraceptives for limiting. Provide a variety of short term, long term and permanent methods that meet the needs of the women at different phases of their lives and based on personal circumstances.
- (iii) Women and men should be sensitized on the side-effects of various contraceptives and how these can be addressed. Sensitisation to allay fears of the effect of certain contraceptives should also be part of the family planning programmes.
- (iv) Factors affecting unmet need are complex and cannot only be established

using qualitative studies. It would be imperative to undertake more detailed qualitative studies to complement the existing quantitative studies and to unravel the underlying factors behind the high unmet need. Qualitative studies provide greater explanatory detail to the phenomenon.

References

1. Chanda MM, Ortblad KF, Mwale M, et al. Contraceptive use and unplanned pregnancy among female sex workers in Zambia. *Contraception* 2017;96:196–202, Elsevier, <http://dx.doi.org/10.1016/j.contraception.2017.07.003>
2. Cleland J, Conde-Agudelo A, Peterson H, et al. Contraception and health. *Lancet* 2012; 380: 149–56, [http://dx.doi.org/10.1016/S0140-6736\(12\)60609-6](http://dx.doi.org/10.1016/S0140-6736(12)60609-6)
3. Prusty RK. Use of contraceptives and unmet need for family planning among tribal women in india and selected hilly states. *J Health Popul Nutr* 2014;32: 342–55.
4. Central Statistical Office (CSO) [Zambia], Ministry of Health (MOH), and ICF International. Zambia Demographic and Health Survey 2013–14. Rockville, Maryland, USA; 2014.
5. United Nations. World Family Planning 2017 – Highlights. Department of Economic and Social Affairs, Population Division; 2017. (ST/ESA/SER.A/414).
6. World Health Organization. Family planning/Contraception. Fact sheet N°351. Available at <http://www.who.int/mediacentre/factsheets/fs351/en/>. Accessed on 26/12/2017.
7. Guttmacher Institute. Adding It Up: Investing in Contraception and Maternal and Newborn Health, New York; 2017. <https://www.guttmacher.org/fact-sheet/adding-it-up-contraception-mnh-2017>
8. United Nations. Trends in Contraceptive Use Worldwide. Department of Economic and Social Affairs, Population Division; 2015 (ST/ESA/SER.A/349).
9. Cleland J, Harbison S, Shah IH. Unmet need for contraception: Issues and challenges. *Stud Fam Plann* 2014;45:105–122. <https://doi.org/10.1111/j.1728-4465.2014.00380.x>
10. Wang W, Sarah S, Rebecca W, Courtney A. Women's Marital Status, Contraceptive Use, and Unmet Need in Sub-Saharan Africa, Latin America, and the Caribbean. DHS Comparative Reports No. 44. Rockville, Maryland, USA: ICF; 2017.
11. Government of the Republic of Zambia. Family Planning Services: Integrated Family Planning Scale-up Plan 2013–2020. The Ministry of Community Development, Mother and Child Health (MCDMCH). GRZ. Zambia.
12. Central Statistical Office [CSO-Zambia], Central Board of Health [Zambia], and ORC Macro. Zambia Demographic and Health Survey 2001–2002. Calverton, Maryland, USA; 2003.
13. Fagbamigbe AF, Afolabi RF, Idemudia ES. Demand and Unmet Needs of Contraception Among Sexually Active In-Union Women in Nigeria: Distribution, Associated Characteristics, Barriers, and Program Implications. *SAGE Open* 2018;8. DOI: 10.1177/2158244017754023.
14. Khalil SN, Al-zahrani MM, Siddiqui AF. Unmet need and demand for family planning among married women of Abha, Aseer Region in Saudi Arabia. *Middle East Fertil Soc J* 2017;23:31–36. <http://dx.doi.org/10.1016/j.mefs.2017.07.004>
15. Gebre G, Birhan N, Gebreslasie K. Prevalence and factors associated with unmet need for family planning among the currently married reproductive age women in Shire-Enda- Slassie, northern west of Tigray, Ethiopia 2015: a community based cross-sectional study. *Pan Afr Med J* 2016;23:195. <https://doi.org/10.11604/pamj.2016.23.195.8386>
16. Wulifan JK, Jahn A, Hien H, et al. Determinants of unmet need for family planning in rural Burkina Faso: a multi-level logistic regression analysis, *BMC Pregnancy and Childbirth* 2017; 17:426 DOI 10.1186/s12884-017-1614-z
17. Nyauchi B, Omedi G. Determinants of Unmet Need for Family Planning among Women in Rural Kenya. *Afr Popul Stud* 2014;28: 999–1008.
18. Genet E, Abeje G, Ejigu T. Determinants of unmet need for family planning among currently married women in Dangila town administration, Awi Zone, Amhara regional state; a cross-sectional study. *Reprod Health* 2015;12:42. DOI 10.1186/s12978-015-0038-3
19. Westoff CF. Unmet Need for Modern Contraceptive Methods. DHS Analytical Studies No. 28. Calverton, Maryland, USA: ICF International; 2012.
20. Ajong AB, Njotang PN, Yakum MN, et al. Determinants of Unmet Need for

- Family Planning among Women in Urban Cameroon: A Cross Sectional Survey in the Biyem-Assi Health District, Yaounde. *BMC Womens Health*. 2016;16:4. DOI 10.1186/s12905-016-0283-9
21. Muhoza DN, Rutayisire PC, Umubyeyi, A. Measuring the Success of Family Planning Initiatives in Rwanda: A Multivariate Decomposition Analysis. *DHS Working Papers*. Calverton, MD: ICF International; 2013.
 22. Imasiku E, Odimegwu C, Adedini S, Ononokpono D. Variations in unmet need for contraception in Zambia. Does ethnicity play a role? *J Biosoc Sci* 2014; 46:294–315.
 23. Bradley SEK, Trevor NC, Fishel JD, Westoff CF. Revising Unmet Need for Family Planning. *DHS Analytical Studies No. 25*. Calverton, Maryland, USA: ICF International; 2012.
 24. Zimbabwe National Statistics Agency, ICF International. *Zimbabwe Demographic and Health Survey 2015: Final Report*. Rockville, Maryland, USA; 2016.
 25. National Statistical Office [Malawi], ICF International. *Malawi Demographic and Health Survey 2015-16*. Zomba, Malawi, and Rockville, Maryland, USA. NSO and ICF; 2017.
 26. Adebawale SA, Palamuleni ME. Determinants of Unmet Need for Modern Contraception and Reasons for Non-use among Married Women in Rural Areas of Burkina Faso. *Afr Popul Stud* 2014;28:499–514.
 27. Ndaruhuye MD, Broekhuis A, Hooimeijer P. Demand and Unmet Need for Means of Family Limitation in Rwanda *International Perspectives on Sexual and Reproductive Health*; 2009;35:122–30
 28. Korra A. Attitudes toward Family Planning, and Reasons for Nonuse among Women with Unmet Need for Family Planning in Ethiopia. Calverton, Maryland USA: ORC Macro; 2012.
 29. Ayele W, Tesfaye H, Gebreyes R, Gebreselassie T. Trends and Determinants of Unmet Need for Family Planning and Programme Options, Ethiopia: Further Analysis of the 2000, 2005, and 2011 Demographic and Health Surveys. *DHS Further Analysis Reports No. 81*. Calverton, Maryland, USA: ICF International; 2013.
 30. Mekonnen W, Worku A. Determinants of low family planning use and high unmet need in Butajira District, South Central Ethiopia. *Reprod Heal*. 2011; 8:37-10. doi:10.1186/1742-4755-8-37.