Why Unmet Need for Family Planning Remains High in Bangladesh: A Community Level Analysis

Jalandhar Pradhan[1]* and Rinshu Dwivedi[2]

[1]Department of Humanities and Social Sciences, National Institute of Technology, India
[2]Department of Humanities and Social Sciences, National Institute of Technology, India

Abstract

Background: Improving reproductive health (RH) is widely recognized as a key component of social and economic development. Interaction of different factors such as individual, household and community level covariates plays an important role in determining the level of unmet need for family planning.

Objectives: The objective of the study is to examine the association between individual, household and community level covariates with the level of unmet need for family planning in Bangladesh.

Methodology: For the core, analysis data has been extracted from Bangladesh Demographic Health Survey (BDHS), 2011. Multilevel regression analyses have been employed to explore the relative effects of community, household level and individual level factors on unmet need for family planning among currently married women.

Results: Results shows that unmet need for contraception marginally declined from 16.8% in 2007 to 13.5% in 2011. Surprisingly the impact of education and wealth index is marginal in determining the level of unmet need. On the other hand, three community level variables (% women exposed to family planning, % women with ideal number of children and % women with primary and higher education) significantly associated with the level of unmet need for family planning in Bangladesh.

Conclusion: Since unmet needs for family planning has multiple advantages for both the individual and society, it is necessary for the governments to come up with strategies, which can reduce unmet needs.

Keywords: Family planning; Women; Contraceptive use; Bangladesh; Reproductive age

Introduction

Improvements in the Reproductive health (RH) aspects are of utmost importance for the socio-economic development of any country. The International Conference on Population and Development (ICPD) held in Cairo (1994) presented a Program of Action (PoA), which also highlights the importance of RH. This conference focuses on achieving the universal access to RH services throughout the countries till 2015 [1,2]. About 200 million women in the reproductive age group in under developing countries, who are not interested in having any more children and want birth spacing, are not using contraceptives [3,4]. Unmet need does not necessarily mean that Family Planning (FP) services are not available. It may also mean that women lack information regarding the availability of the services, not have sufficient inspiration or confidence and not empowered enough for taking decision regarding using these services [5,6].

Though there has been a drop in the proportion of married women with the unmet needs for the contraception, still the number of women with unmet needs has remained more or less constant as there has been simultaneous growth in the population. The continuous growth in the population is causing further increase in the unmet needs and failure of FP program [3,7]. FP helps in reducing the number of children, which have a positive impact on the level of education of the child, overall survival and prevention from the death due to severe diseases. Women's who uses contraceptives can manage better child spacing and limiting. Women who do not use any contraceptive have higher risk to unwanted pregnancies and faces hindrances in the education and employment [8]. If there is spacing among births of children, it can help the women to breastfeed for a longer time and can help in providing better care for the child and women [2].

FP is considered to be a way to achieve the fifth goal of Millennium Development Goals (MDGs) and reduce the unmet needs for FP. It is considered the key in achieving Millennium Development Goals (MDGs) and reducing the unmet needs for FP. Reduction in the unmet needs for FP can improve upon the Reproductive, Maternal, New-Born and Child, Health (RMNCH) services [9]. Literature also highlights on the importance of FP and its associationship with unmet needs in FP. Some studies have made a case for FP by showing how each MDGs are linked with FP [10,11]. These studies significantly highlights that achieving MDG is dependent upon reducing the unmet needs among the women and can positively contribute in reducing the maternal mortality and can promote gender equality [12].

Government of Bangladesh has also signed both the ICPD's PoA and MDGs program and set out to achieve the ambitious agendas for improving RH services until 2015. Demographically also reducing the unmet needs in Bangladesh can help in lowering the fertility level and provide a probable solution to cope up with the rapid population growth. Despite various FP initiatives undertaken by the government of Bangladesh, the unmet needs remain still high among the women [13]. During the last decade, contraceptive prevalence rate in Bangladesh has increased 21 percentage points (from 45 percent in 1994 to 61 percent in 2011), whereas the proportion of currently married women who wish to regulate childbearing has also increased 8 percentage point (66% in 1994 to 74% in 2011). The unmet need has declined from 22

percent in 1994 to 14 percent in 2011. However, there were not many changes in the FP limiting as it was 11 percent in 1994 but declined marginally to 8 percent in 2011. Birth spacing has improved as it was 11 percent in 1994 but in 2011, it was 5 percent [5].

Since unmet needs for FP has multiple advantages for both the individual and society, it is necessary for the governments to come up with strategies, which can reduce unmet needs. For reducing, the unmet there should be proper understanding if different covariates associated with unmet needs. There have been a number of studies, which focuses upon the number of factors determining unmet needs, according to differences in the area [14-16]. Though these studies have provided useful information on correlates of unmet needs for the contraception and FP among married women, the focus of all these studies was on factors operating at individual level and household level. Maximum of the studies on unmet needs for FP on Bangladesh focuses upon the rural women at individual and household level. Thus the community factors have been largely ignored which were more applicable for reducing the overall unmet needs. For the better policy formulation and program implementation there is a huge need to integrate all the factors. Studies dealing with the issue of unmet needs for FP should incorporate all factors such as individual, household and community level, as all these factors are highly correlated with each other [17-19].

As per our knowledge, limited number of studies has examined the dynamics of unmet needs for the contraceptives by taking into consideration of community level factors and integration of individual, household and community level covariates in Bangladesh. Understanding that these factors are highly correlated with each other and influences the unmet needs for the FP for women, there is a crucial need to address them. The objective of the study is to examine the association between individual, household and community level covariates with the level of unmet need for FP in Bangladesh.

Unmet Need

Basically women's who are in the reproductive age group (15-49 years) and are sexually active would prefer to use FP methods for avoiding unwanted pregnancy but are unable to or not using any method of contraception, are considered to have an "unmet need" for FP [20]. This concept highlights towards the existing gaps between reproductive intensions of the women's and their current behaviour regarding the use of contraceptive. This standard formula also include all fecund women who are married, living in union and sexually active, wants spacing (want to postpone their next birth for at least two more years) or limiting (who either do not want to have any more children) the birth of child but are not using any methods of FP. The unmet need group also includes all pregnant married women whose pregnancies are mistimed or unwanted [21].

Materials and Methods

Data sources

The study uses data from the Bangladesh Demographic and Health Survey (DHS), 2011. This is a most recent nationally representative sample survey of women of reproductive age 15-49. It was designed to provide information on levels and trends in fertility and use of FP methods among women in Bangladesh. The sample of 16635 currently married women aged 15-49 were considered for detailed analysis.

Dependent variable

The outcome variable of this study was the unmet needs of FP in Bangladesh. The measure was generated from a constructed DHS survey, which employed different variables to explain the condition of women who are married or ever in union. They are not interested for more number of children or want to delay their next birth for at least two years but are not using any types of contraception. The variables are dichotomous and were categorised as unmet need=1, otherwise=0.

Independent variables

The independent variables at the individual and household level include age of women, number of ideal children, region, ethnicity, education, education of partner, wealth index, residence and desire for children and regions. Community level factors categorized as

i) Percentage of women exposed to FP in the PSU

ii) Percentage of women with high socio-economic status in the PSU

iii) Percentage of women with ideal number of children and

iv) Percentage of women with primary or higher education in the PSU.

Methodology

Multilevel analysis

DHS data clearly indicates towards the hierarchical structure, i.e., Village, Households and Individuals. The multilevel model makes it possible to split variations into different components as per the level of hierarchy and provides a feasibility to explore not only the individual characteristics but also to explore the differences which are caused by the external factors such as the environment in which they are living. On an average, one woman was interviewed per household; so variations within the household level are ignored in the present analysis. Random effects analysis explains variations between villages, within a village, between individuals, and a two level model has been constructed. As a special case of the general framework, this study used multilevel logistic regression [22] to estimate the individual or household (level I) and community factors (level II) which influences the unmet need for FP. The model is defined as:

$$Log\left[P_{ij} / 1 - P_{ij} \right] = x_{ij}a + w_{j}b + u_{j} + e_{ij}$$

Where,

P_{ij} is the probability that women i in community (PSU) j is having unmet need for FP; x_{ij} and w_{j} are vectors of individual and community level characteristics respectively; a and b are vectors of estimated parameter coefficients; and $u_{j}(\sim N(0,\sigma u2))$ is an error at community level and eij ($\sim N(0,\sigma 2)$) is an error term at individual level. This model is called a two-level logistic model where children (level I) are nested within a PSU (level II). The purpose of this approach is to control the correlation between individual characteristics in a particular community. The community error term uj in the model gives an indication of the variation after controlling for the individual characteristics [23].

Results and Findings

Continuous efforts have been made by the government of Bangladesh to achieve the MDGs by 2015 [24,25]. Table 1 gives an overview of the MDG 5 shows the base, current and targeted growth in terms of achieving these targets by 2015. Results suggest that the progress is very slow in terms of achieving the MDG 5 goals by 2015. Table 2 shows the percentage of unmet needs by selected socio-economic covariates among the sampled population. Results shows

Goals , targets and indicators (as revised)	Base year 1990/1991	Current status (source)	Target (2015)
Goal 5: Improve Maternal Health			
Goal 5.A: Reduced by three quarters, between 1990 and 2015, the maternal mortality ratio			
Target 5.1: maternal mortality ratio (per 100, 000 live births)	574	194 (BMMS 2010) 209 (SVRS 2011) 218 (Sample census, 2011 BBS)	143
5.2: proportion of births attended by skilled health personnel (%)	5.0	31.7 (BDHS 2011)	50
Target 5.B: achieve by 2015, universal access to reproductive health			
5.3: Contraceptive prevalence rate (%)	39.7	61.2 (BDHS 2011) 58.4 (SVRS 2011)	72
5.4: Adolescent birth rate (per 1000 women)	77	118 (BDHS 2011) 59 (SVRS 2010)	-
5.5: Antenatal care coverage (at least one visit and at least four visits) (%)			
5.5a: Antenatal care coverage (at least one visit), (%)	27.5 (1993-94)	67.7 (BDHS 2011)	100
5.5b: Antenatal care coverage (at least four visits), (%)	5.5 (1993-94)	25.5 (BDHS 2011)	50

Table 1: Improve Maternal and Reproductive Health (RH).

that the unmet need for FP has increased over the period of time. Unmet needs are higher among younger women age group 15-19 years (17%), and lower among the older women i.e. from 40-49 years. In each age group, the level of unmet need among rural women is higher than that of urban women [26].

There is significance difference in the unmet needs for FP between urban and rural areas, rural women are more likely to have unmet need than urban women (14.3%). Based on region, Chittagong has highest unmet needs i.e., 20% followed by Sylhet (17.3%) while it is lowest in Khulna and Rangpur (9.7%). Education of women's is also an important determinant of the unmet needs. But in the case of Bangladesh this factor is exhibiting different trends as those women's who do not have any formal education or are uneducated have minimum unmet needs (12%). Women's who have completed primary level of education but were not able to complete their secondary level education have highest unmet needs (15.6%).

Religion affiliation indicates that Muslims have higher likelihood of unmet need than the other religious communities such as Hindus and Buddhist (though Buddhist having highest unmet needs i.e., 17.5, but very less in population, followed by Muslims 14.1). Muslim women have more unmet need (space and limit) for FP than their non-Muslim counterparts both in the urban and rural area. Christians have least unmet needs for the FP and use of contraceptives. Unmet needs have been more in the women who have never used any contraceptive for FP (19.6%). Partner's desire for children was also highly responsible for the unmet needs of FP as either they want more children (17.6%) or they don't know (22.2%). Unmet needs were lower if both the partners have similar preferences for the children (13.5%).

It was surprising to note that level of education and economic status do not plays a significant role in the FP among women's, as highest unmet need was among the richer wealth quintiles (15.1%) followed by the poorest (13.8%). Similarly level of education was also

unable to reduce the unmet needs for FP as uneducated people have minimum unmet needs (12%) while people who are above primary and secondary incomplete have highest unmet needs (15.6%). Females who have completed primary or above have higher unmet needs (14.3%), and partners education was also not contributing in the reduction of unmet needs for FP, as highest unmet needs were among women's whose husband/partners were secondary educated (15%). Unmet need

Background Characteristics	N	Unmet Needs (%)
Age		
15-19	1926	17
20-24	3397	15.3
25-29	3263	15.2
30-34	2533	13.5
35-39	2081	11.5
40-44	1937	10.3
45-49	1500	7.7
Residence		
Urban	4291	11
Rural	12343	14.3
Region		
Barisal	953	12.2
Chittagong	3014	20.7
Dhaka	5334	13
Khulna	1997	9.7
Rajshahi	2527	11
Rangpur	1927	9.7
Sylhet	884	17.3
Women's education		
No Education	4379	12
Primary Incomplete	3056	12.9
Primary Complete	1964	12.9
Secondary Incomplete	5176	15.6
Secondary Complete	795	12.7
Higher	1266	12.4
Religion		
Islam	14971	14.1
Hinduism	1591	8
Buddhism	40	17.5
Christianity	33	6.1
Wealth Quintile		
Poorest	2975	13.8
Poorer	3267	12.4
Middle	3373	13.4
Richer	3456	15.1
Richest	3565	12.6
Partners Desire For Children		
Both Wants Same	12572	13.5
Husband Wants More	1515	17.6
Husbands Wants Fewer	1078	16.5
Don't Know	409	22.2
Husband's education		
No Education	4996	12.6
Primary	4576	13.5
Secondary	4740	15
Higher	2316	12.1
Total	16656	13.5

Table 2: Percentage of Unmet Needs by Selected socio-economic covariates, BDHS, 2011.

for contraception is significantly low among women who are aged 25 years and above.

Figures 1 and 2 shows the trends in the contraceptive use by different types and unmet needs for the FP in Bangladesh. In 1994, nearly 44.9 percent people were using any method of contraceptives, while use of modern contraceptives was 36.6 percent. There has been and increasing trend in the use of contraceptives as in 2011 nearly 61.2 percent people were using at least any method of contraceptives while use of modern contraceptives was 52.1 percent. Trends in unmet needs for the FP shows that in 1994 total unmet needs was 21.6 percent while spacing was 10.7 and limiting was 10.9 while in 2011 the total unmet needs has declined to 13.5 percent while spacing has declined tremendously to 5.4, there has been also decline in the limiting as it has also dropped up to 8.1 percent. Both the figures reveal that there has been improvement in the FP and unmet needs has declined. During the last decade, contraceptive prevalence in Bangladesh has increased 11 percentage point (from 49 percent in 1994 to 61% in 2011) (Figure 1), whereas the proportion of currently married women who wish to regulate childbearing has increased 8 percentage point (66% in 1994 to 74% in 2011).

Effects of Various Demographic, Socio-Economic and Community Level Variables on Level of Unmet Need For FP among Women

The study used multinomial logistic regression because the dependent variable i.e., unmet need for contraception is categorical. Since many individual characteristics are interrelated, the study investigates specific effects of independent variables on different categories of unmet needs through a regression model. The regression coefficient shows that age, sex compositions level of education, wealth quintile, division, place of residence, and sex composition are important correlates of poor contraception. Table 3 shows the Effects of various demographic, socio-economic and community level variables on level of unmet need for FP among women drawn from the BDHS, 2011 [5] data. Age of women shows that the unmet needs are higher in the youngest age group of women as compared to the old age women aged between 45-49 years. Unmet needs for the contraceptives were more among the younger age women specifically belongs to the age group of 20. It was evident from the result that as age increases the unmet needs gradually starts to decline among the women.

Multilevel analysis shows that there is no significant relationship between educational status of the mothers and their unmet need to FP. Those women who were educated have more unmet needs than their illiterate counterparts. Women with primary schooling and above have significantly higher level of unmet needs for the birth spacing (p<0.001). Similarly, if there is better interaction between the partners i.e., husband and wife in that case the unmet needs were significantly lower than other counterparts (p<0.001). Where both husbands and wife have discussed about FP method and wants same number of children, unmet needs declines. In addition, unmet needs were also lower among those who ever have used any FP or contraceptives (p<0.001).

In the rural areas of Bangladesh, unmet needs were higher in comparison to their urban counterparts. Significant differences have been also observed on the basis of geographical location of a region. The areas of Sylhet and Chittagong have higher unmet needs. It was very interesting to note that wealth quintile has not much to do with the unmet needs as the richer class have highest unmet needs in comparison
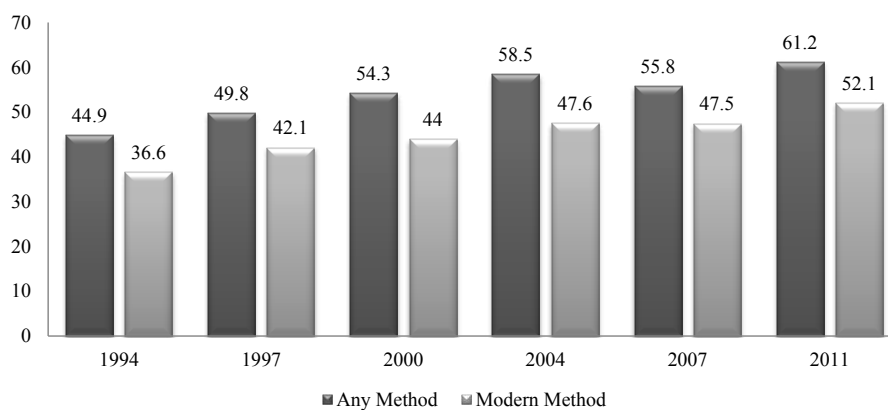

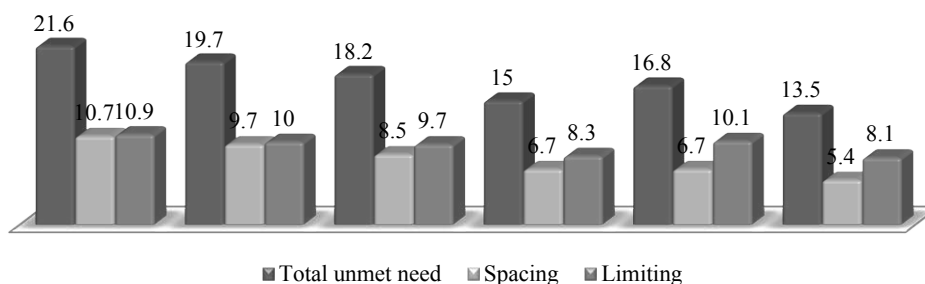**Figure 1:** Trends in contraceptive use by type, Bangladesh.

Figure 2: Trends in unmet need for family planning, Bangladesh.

Covariates	Model 1			Model 2		
	Coef.	[95% interval]		Coef.	[95% interval]	
Age of women						
15-19®						
20-24	-0.018	-0.038	0.001	-0.018	-0.038	0.001
25-29	-0.015	-0.035	0.005	-0.015	-0.035	0.005
30-34	-0.030**	-0.052	-0.009	-0.030**	-0.052	-0.008
35-39	-0.045***	-0.068	-0.021	-0.044***	-0.068	-0.021
40-44	-0.059***	-0.083	-0.034	-0.059***	-0.084	-0.034
45-49	-0.090***	-0.117	-0.063	-0.091***	-0.119	-0.064
Residence						
Urban®						
Rural	0.035***	0.022	0.048	0.021**	0.006	0.037
Regions						
Barisal®						
Chittagong	0.080***	0.059	0.101	0.060***	0.038	0.082
Dhaka	0.017	-0.003	0.038	0.025*	0.004	0.047
Khulna	-0.021*	-0.042	0	-0.007	-0.028	0.015
Rajshahi	-0.006	-0.027	0.015	0.011	-0.011	0.033
Rangpur	-0.021*	-0.042	0.001	-0.008	-0.03	0.014
Sylhet	0.046***	0.024	0.069	0.01	-0.017	0.037
Women's education						
No Education®						
Primary	0.004	-0.012	0.02	0.001	-0.015	0.017
Secondary	0.021*	0.002	0.039	0.011	-0.008	0.031
Higher	0.018	-0.01	0.047	0.01	-0.019	0.039
Husband's desire for children						
Both Wants Same®						
Husband Wants More	0.035***	0.017	0.053	0.034***	0.016	0.052
Husbands Wants Fewer	0.030**	0.009	0.051	0.031**	0.01	0.052
Don't Know	0.094***	0.062	0.127	0.089***	0.056	0.121
Wealth quintile						
Poorest®						
Poorer	-0.016	-0.035	0.002	-0.015	-0.034	0.003
Middle	-0.012	-0.031	0.007	-0.012	-0.031	0.007
Richer	0.004	-0.015	0.024	0.006	-0.014	0.026
Richest	-0.004	-0.027	0.018	0.003	-0.021	0.028
Husband's education						
No Education®						
Primary	0	-0.015	0.016	0	-0.016	0.015
Secondary	0.009	-0.008	0.026	0.009	-0.008	0.026
Higher	-0.007	-0.031	0.016	-0.008	-0.032	0.016
Community level covariates						
% of women using contraception at the PSU level				-0.191***	-0.253	-0.13
% of women with high socio-economic status in the PSU				-0.03	-0.066	0.005
% of women with ideal number of children and				-0.111***	-0.169	-0.052
% of women with primary or Higher education in the PSU.				0.100***	0.06	0.141
Constant	0.128***	0.077	0.179	0.332***	0.257	0.407

Note: ® Reference category
*<0.10; **<0.05; ***<0.01

Table 3: Effects of various demographic, socio-economic and community level variables on level of unmet need for FP among women, BDHS, 2011.

to the others. Multilevel analysis suggests that three community level variables (% women exposed to FP, % women with ideal number of children and % women with primary and higher education in the PSU) were significantly associated with the level of unmet need for FP in Bangladesh. Therefore, community level educational status plays a crucial role in determining the level of unmet need for FP compared to the individual level of education.

Discussion

An attempt has been made in this study to examine the proportion of women who are not practicing contraception and having unmet needs for the FP and are also at the risk of unwanted pregnancy. Findings of the study indicate that currently in Bangladesh, nearly 14% of the married women of reproductive age have an unmet need for contraceptives. Out of total married women with unmet needs for family planning (14%), 6% have an unmet need for spacing birth and 8% were having unmet needs for limiting birth in 2011. It was also observed from the study that statistics do not reveals true picture of unmet needs and is providing an underestimation of the true demand for FP resulting into demand and supply side gaps.

Whenever the question of the unmet needs comes into picture, only married women are considered for the study purpose. It, s stated that collecting reliable data would be a tedious job regarding the unmarried women's. According to studies, unmarried young people face unlimited hurdles to FP services and may have higher levels of unmet need than their married counterparts [20,27]. Only 61 percent women are able to have access to contraceptives and only 52 percent women's are using modern contraceptives in Bangladesh. The unmet needs are higher among the younger women's as they are highly productive and also among the women's who have faced problems in terms of survival of their children. If the numbers of living children are fewer in that case the issue of unmet needs are also higher [28]. Socio-economic indicators show that the percentage of total need was higher among the rural women than urban counterparts [29]. Muslim women and women with no exposure to mass media have also experienced higher unmet needs in FP [30,31]. Similarly, unmet need for spacing varies considerably by age and number of living children. The desire for more children is significantly associated with the unmet need for contraception [32].

DHS 2011 shows that although 61% currently married women want to limit child bearing, but only 8% are using permanent methods. In Bangladesh, new program strategies are required to fulfil the conventional demand for FP. Although there are attempts to fulfil the conventional unmet need in Bangladesh, but choice of method is an important issue that should be taken into consideration while fulfilling the demand for conventional unmet need for contraception [33]. If it is

not brought into the policy, the goal of reaching replacement level fertility will not be achieved. This is because women may experience unwanted and mistimed pregnancy, which is comparatively high in Bangladesh. At the community level analysis the percentage of women's using contraceptives at the PSU level was found to be significantly associated, similarly the percentage of women with high socio economic status in the PSU also shows that with the increase in the socio economic status of the women there is no significant improvement in the unmet needs for the use of contraceptives. Improvement in the educational status of the women's at the community level is also positively associated with use of FP methods [34].

Conclusion

In order to improve the use of FP program in Bangladesh, more stress should be laid on the guidance and awareness programmes. Therefore, focus should be laid on in motivating "drop-outs" to continue the use of contraception as it can help in reducing unmet needs. The FP program can be encouraged via appropriate IEC (Information, Education and Communication) measures, supervision and analysing the major reasons for the dropping out the use of contraceptives. The programmes and policies should assign a high propriety to addressing the unmet needs among the women's. IEC should also promote a healthier and better awareness among the male counterparts also as their decision regarding the use of contraceptives is also an important determinant in FP. Personal home visits can be also encouraged by the health workers who can counsel and guide people regarding the use of FP.

There should be also emphasis on the better counselling regarding the probable fear of the people regarding potential side effects, as well as better management of side effects. The program certainly needs to give due consideration to improvements in the quality of care being offered to acceptors. This issue can be better addressed under the new service delivery strategy of providing services from healthcare providers. The medical staff especially paramedics and field workers and other related key stakeholders should be trained appropriately to cater the needs of the SFP [35,36]. Communication between husbands and wives on FP matters is an important intermediate step along with other ways of promoting the sustained use of FP methods [37].

More focus is required among the women who are younger and highly productive, residing in the rural and geographically inaccessible areas, where the issue of unmet needs was higher. Young married women (15-19 years age group or less than 20 years of age) deserve special consideration because unmet need is highest among them, and their fertility is high. The FP programmes should strengthen its efforts in the rural areas of the country in order to enhance accessibility and availability of FP methods. Community stakeholders should be involved more actively in the program and more emphasis should be given to longer acting methods in order to solve the issue of unmet needs among the high parity women. Target should be the high parity women who are either using any temporary FP methods or not at all practicing contraception. They can be encouraged as potential candidates for using permanent methods of FP. The healthcare providers and stakeholders should motivate women with unmet needs to adopt permanent methods of FP, by explain them the related benefits of using these methods rather than using any sort of temporary or traditional methods.

References

1. Zlatunich NM (2012) Telling your father that he's wrong: the politics of sexual and reproductive health and rights in Uganda. Doctoral dissertation, university of California Santa Cruz.

2. Cates W, Karim Q, El-Sadr A, Haffner WM, Kalema-Zikusoka DWG, et al. (2010) Family planning and the millennium development goals. Science 329: 1603.

3. Ross JA, Winfrey WL (2002) Unmet need for contraception in the developing world and the former soviet union: an updated estimate. International Family Planning Perspectives 28: 3.

4. Singh S, Sedgh G, Hussain R (2010) Unintended pregnancy: worldwide levels, trends, and outcomes. Studies in family planning 41: 241-250.

5. BDHS (2011) Bangladesh demographic and health survey, 2011.

6. Peter, Kisaakye (2013) Determinants of unmet need for contraception among married women in uganda. Doctoral dissertation, University of Ghana.

7. Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, et al. (2006) Family planning: the unfinished agenda. The Lancet 368: 1810-1827.

8. Hussain R, Bankole A, Singh S (2007) Women with an unmet need for contraception in developing countries and their reasons for not using a method. Alan Guttmacher Institute.

9. Singh S, Darroch JE (2012) Adding it up: Costs and benefits of contraceptive services. Guttmacher Institute and UNFPA.

10. Gaffey MF, Das JK, Bhutta ZA (2015) Millennium development goals 4 and 5: past and future progress. In seminars in fetal and neonatal medicine 20: 285-292.

11. Peterson HB, Darmstadt GL, Bongaarts J (2013) Meeting the unmet need for family planning: now is the time. The Lancet 381(9879):1696-1699.

12. Moreland S, Talbird S (2006) Achieving the millennium development goals: the contribution of fulfilling the unmet need for family planning.

13. Koblinsky M, Anwar I, Mridha MK, Chowdhury ME, Botlero R (2008) Reducing maternal mortality and improving maternal health: Bangladesh and MDG 5. Journal of health, population, and nutrition 26: 280.

14. Bongaarts J, Bruce J (1995) The causes of unmet need for contraception and the social content of services. Studies in Family Planning 26: 57-75.

15. Short ES, Kiros G (2002) Husbands, wives, sons and daughters fertility preferences and the demand for contraception in ethiopia. Population Research and Policy Review 21: 377-402.

16. Paudel IS, Budhathoki SS (2011) Unmet needs for family planning in Sunsari, eastern Nepal. Health Renaissance 9: 148-151.

17. Skiles MP, Cunningham M, Inglis A, Wilkes B, Hatch B, et al. (2015) The effect of access to contraceptive services on injectable use and demand for family planning in malawi. International perspectives on sexual and reproductive health 41: 20-30.

18. Weaver EH, Frankenberg E, Fried BJ, Thomas D, Wheeler SB, et al. (2013) Contraception in Indonesia: Village midwives facilitate switching to injectable methods.

19. Zafar S, Shaikh BT (2014) Only systems thinking can improve family planning program in Pakistan': A descriptive qualitative study. International journal of health policy and management 3: 393.

20. Casterline JB, Sinding SW (2000) Unmet Need for Family Planning in Developing Countries and Implications for Population Policy. Population and Development Review 26: 4 691–723.

21. Islam R, Islam AZ, Rahman M (2013) Unmet need for family planning: experience from urban and rural areas in bangladesh. Public Health Research 3: 37-42.

22. Foote C, Clayton PA, Johnson DW, Jardine M, Snelling P, et al. (2014) Impact of estimated GFR reporting on late referral rates and practice patterns for end-stage kidney disease patients: a multilevel logistic regression analysis using the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA). American Journal of Kidney Diseases 64: 359-366.

23. Sahu D, Pradhan J, Jayachandran V, Khan N (2010) Why immunization coverage fails to catch up in India? A community-based analysis. Child: care, health and development 1:332-9.

24. Khanna A, Pradhan J, Beekink E, Gupta M, Sharma A (2013) Financing reproductive health in Bangladesh. Journal of Health Management 15: 177-201.

25. Requejo JH, Bryce J, Barros AJ, Berman P, Bhutta Z, et al. (2015) Countdown

to 2015 and beyond: fulfilling the health agenda for women and children. The Lancet 6: 466-476.

26. Ngome E, Odimegwu C (2014) The social context of adolescent women's use of modern contraceptives in Zimbabwe: a multilevel analysis. Reproductive health 11: 64.

27. Westoff CF (2006) New estimates of unmet need and the demand for family planning. DHS (Demographic and Health Surveys) comparative reports No. 14. Calverton, MD: Macro International Inc.

28. Riyami A, Afifi M, Mabry RM (2004) Women's autonomy, education and employment in Oman and their influence on contraceptive use. Reproductive health matters 12: 144-154.

29. Mekonnen W, Worku A (2011) Determinants of low family planning use and high unmet need in Butajira District, South Central Ethiopia. Reproductive Health 8:1-8.

30. Moulasha K, Rao GR (1999) Religion-specific differentials in fertility and family planning. Economic and Political Weekly 3047-3051.

31. Adair T (2009) Unmet need for contraception among HIV-positive women in Lesotho and implications for mother-to-child transmission. Journal of biosocial science 41: 269-278.

32. Sharan M, Valente TW (2002) Spousal communication and family planning adoption: effects of a radio drama serial in Nepal. International Family Planning Perspectives 16-25.

33. Baird DT, Evers JLH, Gemzell-Danielsson K, Glasier A, Killick SR, et al. (2012) Family planning 2011: better use of existing methods, new strategies and more informed choices for female contraception. Human reproduction update, dms021.

34. Riley NE (2013) Introduction Springer Netherlands 1-13.

35. Ciccone MM, Aquilino A, Cortese F, Scicchitano P, Sassara M (2010) Feasibility and effectiveness of a disease and care management model in the primary health care system for patients with heart failure and diabetes (Project Leonardo).Vascular Health and Risk Management 6: 297-305.

36. Tuoane M, Madise NJ, Diamond I (2004) Provision of family planning services in Lesotho, International Family Planning Perspectives 30: 77-86.

37. Haque MN (2010) Unmet need for contraceptive: the case of married adolescent women in bangladesh, International Journal of Current Research 9: 29-35.