

SOCIOECONOMIC AND DEMOGRAPHIC DETERMINANTS OF THE USE OF MODERN CONTRACEPTIVES AND TRADITIONAL METHODS FOR LIMITING FAMILY SIZE IN BANGLADESH

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ABSTRACT: *Birth control, often known as contraception, is the deliberate reduction of live births using techniques that temporarily or permanently prevent conception by disrupting the ovulatory, fertilization, and implantation phases of a woman's reproductive cycle. Countries with rapid population growth are more likely to have a high prevalence of contraceptive use. For the sake of policy application in Bangladesh, knowledge of the socioeconomic and demographic variables that affect the prevalence of contraceptives is also valuable. For this purpose, the study extracted data from the national representative Bangladesh Demographic and Health Survey (BDHS) 2017–18. The study employed bivariate and multivariate logistic regression to identify the relationship of socio-demographic determinants with being satisfied with modern and traditional contraceptive methods for limiting family size. Educated women were more likely to use modern reversible methods (OR: 0.147–1.773) and less likely to use permanent contraception (OR: 0.574–0.831) for limiting family size than illiterate women in Bangladesh. Moreover, older women were more likely to use permanent and traditional contraception than women of a younger age. The other identified determinants of using modern methods are husbands' education, working status of women, age at first marriage, place of residence, division, socioeconomic status, parity, mass media, and the religion of women. This research provides evidence-based guidance for developing a pragmatic strategy to improve modern contraception (reversible and permanent) methods and usage among low socioeconomic status, older age, higher parity (two or more children), and rural women in Bangladesh.*

KEYWORDS: *modern contraceptive, traditional methods of family planning, socioeconomic and demographic variables, Bangladesh*

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INTRODUCTION

Family planning initiatives in Bangladesh have been successful despite the poor status of women. Bangladesh's population has significant growth potential due to high fertility and low mortality rates. For this reason and many others, population growth is a serious issue and a leading contributor to economic hardship. With this in mind, the Bangladesh government has revised its population strategy since 2004. Adopting a wider variety of contemporary, effective ways to provide family planning services is one of the most notable achievements of population management projects. As the cultural norms and practices of nations around the globe are distinct, the acceptance of birth before marriage varies significantly. In Bangladesh, where marriage is very close to universal and conception is only deemed legally permissible after marriage, there is a clear correlation between marriage and having more children (Zahangir et al. 2008). Women may postpone motherhood, space births, avoid unwanted pregnancies and abortions, and cease childbearing when they have attained the desired family size if effective contraceptives are available (Bremner et al. 2009).

Bangladesh's total fertility rate (TFR) dropped from 6.3 children per woman in 1975 to 2.3 in 2017. This fall has been primarily attributed to the significant growth in contraceptive use. The birth rate in Bangladesh is quite close to the replacement rate (2.1 children per woman). Massive demographic and socioeconomic shifts in the nation during the 1990s also impacted cultural norms and practices associated with reproduction. Child mortality rates have decreased, and improvements have been made in other areas, such as education, especially for girls and women, access to the media, the position of women in society, the rate of economic growth, the number of people working, the number of people climbing out of poverty, the proportion of women in the labor force, and the rate of urbanization (Barkat-e-Khuda et al. 2018).

Family planning is in high demand; therefore, those who wish to stop having children permanently must often wait two or more years before doing so (Ali–Okud 2013). Individuals' reproductive patterns and socioeconomic statuses are crucial in determining the level of demand. Bangladesh has a long history of family planning, which suggests that the country leans more toward birth control than child spacing, which could be achieved by increasing the rate of use of permanent contraceptives (Pradhan–Dwivedi 2019; Hoq et al. 2019). However, it is undeniable that modern contraceptives are necessary and practical for both men and women for preventing unintended pregnancies, helping parents choose the number of children to have, increasing birth spacing, and decreasing the rate of abortion. Although the contraceptive prevalence rate (CPR) in Bangladesh has been on the rise, recent years have seen a plateau; as a result, the falling trend in

TFR from 2011–2017 has now paused at 2.3 children per woman (NIPORT–ICF 2019). In less than fifty years, Bangladesh’s contraceptive prevalence rate has increased sevenfold, from 8% in 1975 to 62% in 2017. This growth occurred between the years 1975 and 2017. Despite these advancements, over one-third of births are still unexpected. This may be ascribed to the fact that the demand for family planning is not being met and that women stop using birth control or switch methods after they have begun using it.

While significant progress has been made in family planning, there are still obstacles to resolving the power inequalities within partnerships that typically contribute to the increase in unmet need for contraception (e.g., of women who are fecund and sexually active yet do not use contraception and desire no more children or wish to postpone having more) among young women and women with less education. Strategy that focuses on women or couples can address these power imbalances. Service delivery, mass media campaigns, social marketing, and an enhanced supply of contraceptives are all techniques aimed at supporting family planning while minimizing its financial and social costs. However, a woman-centered strategy has less power to overcome certain obstacles to contraception use. As married women in Bangladesh are very dependent on their husbands, the fear of divorce or abandonment deters action that would counter husband’s preferences. Evidence suggests that young women are less likely to adopt contraception if they believe their husbands oppose family planning, and men’s seeming indifference toward their wives’ contraceptive choices does nothing to allay these fears (Schuler et al. 1995). It is necessary to provide equal access to elementary and secondary education opportunities for both males and females to ensure the long-term growth of any society and to achieve gender equality and empower women (Chisamya et al. 2012).

Women and children’s medical and health situation has dramatically improved in the contemporary world, and many more children have matured. Also, many women can have children whenever they are ready, regardless of the social pressures. Therefore, the worldwide fertility rate has been falling over time. The quality of life in Bangladesh has increased in recent years due to its thriving economy and increased educational opportunities for its citizens. However, if population growth continues at its current pace, it might derail future social and economic progress. The pace of population growth (1.22%) may be efficiently modified via family planning, making it possible for the rise in population to be supported by the nation’s economic performance (BBS 2022).

The rising rate of unintended births is associated with various issues, including the withdrawal of birth control. Adverse outcomes associated with unintended pregnancies include maternal and infant illness, death, and undesired childbearing (Gipson et al. 2008). Elective abortion may end an undesirable

pregnancy, but it is not always easy to obtain, particularly in less developed nations. Worldwide, there were over 40 million abortions in 2008, about 22 million of which were unsafe (Sedgh et al. 2012).

Fertility-related behavior is governed by different religious norms and ideologies and world faiths. The concept of fertility may vary significantly from one religion and culture to another. Muslim women's strong desire to have sons may be one of the reasons why Bangladesh has a higher fertility rate than other countries. Another reason for the high fertility is the religious beliefs of Muslim women, who typically consider family planning unacceptable and against their beliefs (BBS 2015).

Amid the current COVID-19 epidemic, Bangladesh's once-exemplary family planning program is struggling mightily. According to data compiled by the International Planned Parenthood Federation (IPPF), the closure of 1,872 clinics and other outlets in the South Asian area is directly attributable to the epidemic (UNICEF 2020). In poor and middle-income countries, the COVID-19 pandemic led to a 10% drop in short- and long-acting reversible contraception (effective contraceptives that last for several years), leading to an extra 15 million unplanned births annually. Due to lockdowns and concerns about spreading COVID-19, many women did not get healthcare (UNFPA 2020).

Some research has explored the trends, patterns, and driving factors behind the unmet need for complete family planning in Bangladesh and worldwide (Khatun–Mallick 2020; Ferdousi et al. 2020; Roy et al. 2021). On the other hand, prior research has yet to investigate the socio-demographic determinants of needs that are met (demand satisfied by modern and traditional methods) by contraceptive methods for limiting family size in Bangladesh based on data from the 2017-2018 Bangladesh Demographic and Health Survey (BDHS).

PRIOR RESEARCH

The goal of developing modern methods of preventing pregnancy was to allow couples to act on their normal urges and wants while lessening the chance of pregnancy, whereas impairing a person's ability to conceive is the goal of permanent contraception. Oral pills, injections, and condoms predominate in the modern mix of techniques but are less effective than long-term and permanent approaches. Even if a woman has her ideal number of children by the time she is in her thirties, she still runs the chance of having an unwanted pregnancy if she uses such procedures. Statistically, the greater incidence of short-term methods and female sterilization indicates a greater focus on female

responsibility for birth control than a lower rate of using condoms and male sterilization (Huda et al. 2017). Modern contraceptives allow couples to control the number of children they have and the timing of pregnancies in an effortless and risk-free way (Hoq 2019). Some couples may want permanent techniques like male and female sterilization, while others prefer temporary methods like hormonal treatments (oral contraceptive pills, injectable hormones, and others) or barrier methods (condoms and diaphragms). However, all of these methods are relatively successful at reducing the probability of unwanted pregnancy and do not pose a significant threat to the user's health, especially when contrasted with the dangers inherent in pregnancy and delivery.

Education significantly affects the selection and proper and consistent use of contraception, demonstrating the need for contraceptive-related education. The efficiency of a contraceptive is a significant factor for many women. Long-acting reversible contraceptives (LARC) have meager failure rates in everyday usage; hence, expanding access to information about their efficacy is a priority (Stanwood–Bradley 2006; Steiner et al. 2006). Higher levels of education have been associated with higher rates of LARC usage, except for a subset of the population; empowering women via education, therefore, seems to be an effective method of increasing contraceptive use (Adedini et al. 2019; Gayatri 2020; Khan et al. 2012).

Many variables that influence LARC use have been established in studies around the world. Teenage mothers were found to be less likely to utilize contraception than their older counterparts (Adedini et al. 2019; Branum–Jones 2015). There is a connection between a couple's desire to have additional children and their usage of LARCs (Bhandari et al. 2019; Mboane–Bhatta 2015).

Since the adoption of LAPMs in South Asian and African nations has lagged behind that of short-acting methods, policymakers are concentrating on this issue. The proportion of Bangladeshi women who plan to use long-acting reversible contraception (LAPM) has been consistently low (5%) over the last three decades (MEASURE Evaluation 2014). Women from different regions of Bangladesh have exhibited significantly different levels of interest in and use of health and family planning services. The eastern area (Chittagong and Sylhet Divisions) has consistently been at a disadvantage in terms of developing programmatic strength and overcoming the socio-cultural hurdles concerning health and family planning (FP) in general and LAPM in particular. As a result, this region's health and FP indicators are the lowest in the country. When it comes to matters of health and FP practice, the residents of this area tend to take a more conventional and traditionalist stance. When it comes to health and family planning practice, the western area (Khulna, Rajshahi, and Rangpur Divisions) of Bangladesh has been the frontrunner (MEASURE Evaluation 2014). The observed decrease in fertility

in Bangladesh may be attributed to the increase in the use of modern contraception among women. The most crucial element in this shift was the introduction of contraception. Due to this, women in urban areas were more likely than those in rural areas to experience a decline in fertility. Married women of reproductive age in urban areas were more likely to use permanent or long-acting contraception than their rural counterparts (NIPORT–ICF 2019).

Efforts to limit population growth have been made since prehistoric times. Medical records show that our ancestors used traditional techniques to manageable family size when satisfied with the number of children (Alkema et al. 2013). Periodic abstinence, and sometimes the calendar technique (rhythm), have long been a popular choice among Bangladeshi couples as forms of traditional contraception (NIPORT–ICF 2019). Children are highly valued in developing countries because they not only help to reinforce men's masculinity but are an additional set of hands in communities where agriculture is the primary source of revenue. There is a reluctance to restrict births because children are responsible for caring for their elderly parents and other relatives.

In light of *Bangladesh's remarkable success with family planning initiatives*, numerous scholars have examined the factors that influence women's decisions to utilize contraception. *Women's age, education, employment, wealth, urban residence, husband's education, desire for smaller family size, geographical division, age at first marriage, number of living sons, and media exposure were all found to be positively correlated with contraception use in Bangladesh* (Hossain et al. 2018; Haq et al. 2017; Khan 1997; Kibria et al. 2017; Rahman et al. 2010; Hameed 2014; Hoq 2020). *Factors linked with method satisfaction, continuance, and switching may be influenced by family planning programs that provide a variety of methods, as well as proper counseling to help users make educated decisions and offer easy access to excellent follow-up services. These three factors are often examined in studies of the dynamics of contraceptive usage to provide recommendations for enhancing services.* Evidence from these studies has a variety of programmatic consequences, including better monitoring and evaluation of program operations, increased efficacy in terms of fulfilling the demands of users, and, more broadly, enhancing the capacity of governments to achieve established targets for total fertility, as well as for mother and child health services (Bongaarts–Sinding 2011). The study addresses the following research questions:

- Has the prevalence of modern reversible contraceptives been determined by socioeconomic and demographic factors?
- Has the prevalence of permanent contraceptives been determined by socioeconomic and demographic factors?
- Have the traditional methods used by women been determined by socioeconomic and demographic factors?

MATERIAL AND METHODS

The 2017–2018 BDHS is representative of the entire population residing in non-institutional dwelling units in the country. The Bangladesh Bureau of Statistics (BBS) released a list of enumeration areas (EAs) from the 2011 Population and Housing Census of the People’s Republic of Bangladesh, which was used as a sample frame for the survey (BBS 2011). Under the direction of the Ministry of Health and Family Welfare’s Medical Education and Family Welfare Division, NIPORT conducted the 2017–18 BDHS. From October 2017 to March 2018, private research firm Mitra and Associates was employed to gather data. The 2017–18 BDHS was supported by funding from USAID/Bangladesh. Six different kinds of questionnaires were utilized for the 2017–18 BDHS. However, we only looked at the dataset from the Woman’s Questionnaire. The Woman’s Questionnaire gathered data from ever-married women aged 15–49.

Over twenty thousand (20,127) married women between the ages of 15 and 49 participated in the 2017–18 BDHS. Pregnant, divorced, or separated women were not included in the analysis because of the nature of this research’s outcome variable of interest (i.e., contraceptive usage) (Figure 1). Women who reported never having sexual relations were likewise disqualified.

The outcome variable of the study measured from the survey question was ‘Unmet need for contraception.’ This variable was recorded as ‘unmet need for spacing,’ ‘unmet need for limiting,’ ‘met need for spacing,’ ‘met need for limiting,’ ‘no unmet need (no demand),’ and ‘infecund, menopausal.’

The final outcome variable of this study is ‘met need for limiting,’ which includes

- demand satisfied with limiting using modern reversible contraceptives (‘1’ using modern reversible methods and ‘0’ not using modern reversible methods);
- demand satisfied with limiting using modern permanent contraceptives (‘1’ using modern permanent contraceptive method and ‘0’ not using a permanent method); and
- satisfied with traditional contraceptive methods (‘1’ using traditional methods and ‘0’ not using traditional methods). (See Figure 1.)

Modern reversible contraception refers to a number of methods (including injectable hormones, the standard day method (SDM), the pill, IUD, male condom, female condom, diaphragm, foam/jelly, lactation amenorrhea method (LAM), and other modern methods), whereas permanent contraception involves making a person incapable of reproduction (sterilization and implants). In addition, the traditional method describes when women limit their reproductive options by using rhythm, withdrawal, or other conventional measures.

The studies made use of a wide variety of socioeconomic and demographic characteristics as explanatory variables. These variables have been shown to be substantially associated with either unmet needs or demand satisfied for family planning in Bangladesh or other countries. These independent variables are the following: Education (no education, primary, secondary, and higher education); Respondent currently working (yes, no); Age group (15–19 years, 20–24 years, 25–29 years, 30–34 years, 35–39 years, 40–44 years, 45–49 years); Age at first marriage (< 18 years, 18+ years); Husband's education (no education, primary, secondary, and higher education); Place of residence (urban, rural); Division (Dhaka, Chattogram, Sylhet, Khulna, Barishal, Mymensingh, Rajshahi, Rangpur); Wealth index (upper, middle, lower class); Parity (at most one child, 2, 3, 4, 5+ children); have at least one son (no child, all are daughters, at least one son); Access to mass media (no access, somewhat access, have access), and Religion (Muslim, non-Muslim).

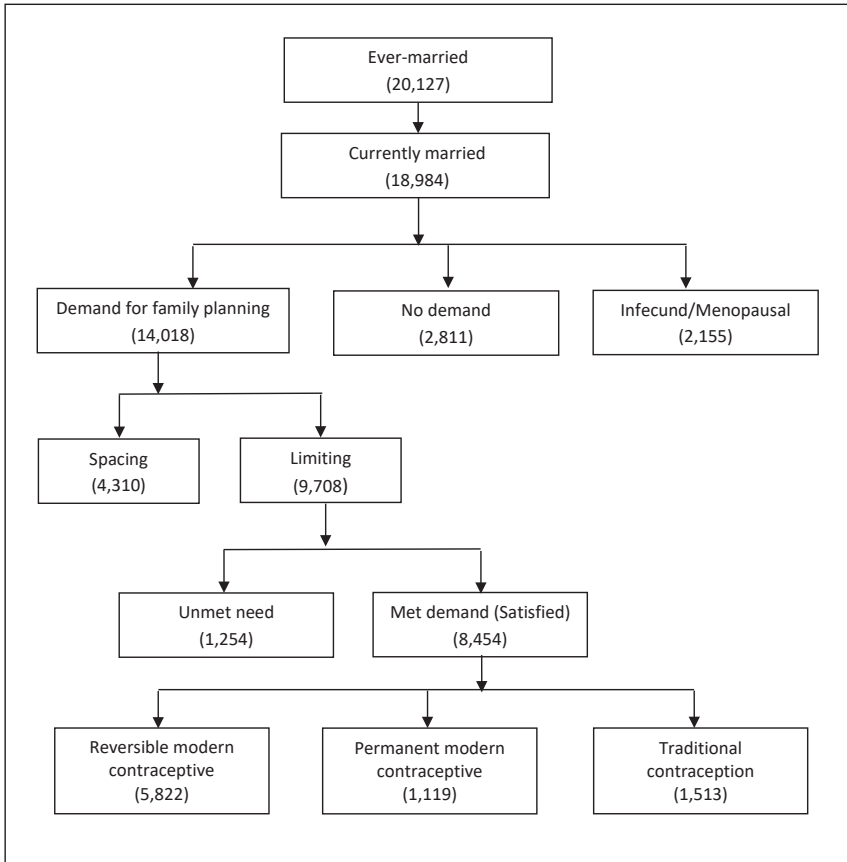
In order to meet the goals of the research, both bivariate and multivariate statistical methods, such as cross-tabulation and binary logistic regression, were used. The patterns of demand for limiting methods and satisfied demand according to the background factors were analyzed using a bivariate analysis with a Chi-square significance test. To identify the socioeconomic factors associated with satisfied demand for mixed methods of contraception, three different binary logistic regression analyses were conducted.

Binary logistic regression is used when the response is binary (i.e., it has two possible outcomes).

$$(\beta; y, X) = \prod \pi_i^{y_i} (1 - \pi_i)^{1-y_i},$$

where π is the probability that an observation is in a specified category of the binary Y variable, generally called the “success probability.”

Figure 1. Details associated with satisfying the demand of currently married women for limiting family planning through using contraception in Bangladesh (2017–18)



Source: Author's compilation.

RESULTS

Table 1 gives an overview of the relevant background features (the selected socioeconomic and background characteristics) of married women in Bangladesh. Almost 40% of females had completed secondary education, while 47% of currently married women were employed (doing any job) at the time of the survey. Around 47% of respondents were under 30, whereas 75.2% were

married before the legal age (18 years) in Bangladesh. Thirty-two per cent of respondents' husbands had completed at most primary education, whereas 29.9% had secondary education. In the sample from Bangladesh, 71.7% of women live in rural areas, 5.6% in Dhaka, and 18% in Chattogram. A significant number of women belong to middle-class families (41.2%). Almost 16% of women responded that they had four children or more, 70.2% of women responded that they had at least one living son, and 61.4% had some access to mass media. The majority of women (90.6%) in this study belong to the Muslim community.

Table 1. Background characteristics of currently married women in the Bangladeshi sample (2017–18)

Background characteristics	Number of women	Per cent
<i>Education of respondents</i>		
No education	2947	15.5
Primary	5904	31.1
Secondary	7681	40.5
Higher secondary+	2452	12.9
<i>Respondent currently working</i>		
No	10064	53.0
Yes	8921	47.0
<i>Age of respondent</i>		
15–19	2006	10.6
20–24	3435	18.1
25–29	3445	18.1
30–34	3308	17.4
35–39	2699	14.2
40–44	2109	11.1
45–49	1983	10.4
<i>Age at first marriage</i>		
<18	14272	75.2
18+	4713	24.8
<i>Husband's education</i>		
No education	4131	21.8
Primary	6080	32.0
Secondary	5675	29.9
Higher secondary+	3098	16.3

Background characteristics	Number of women	Per cent
<i>Place of residence</i>		
Urban	5378	28.3
Rural	13607	71.7
<i>Division</i>		
Barishal	1056	5.6
Chattogram	3414	18.0
Dhaka	4864	25.6
Khulna	2205	11.6
Mymensingh	1468	7.7
Rajshahi	2645	13.9
Rangpur	2248	11.8
Sylhet	1085	5.7
<i>Wealth index</i>		
Poor	7203	37.9
Middle	7831	41.2
Upper	3951	20.8
<i>Parity</i>		
≤ 1 child	6251	32.9
2 children	5923	31.2
3 children	3849	20.3
4 children	1760	9.3
5 or more children	1201	6.3
<i>Have at least one son</i>		
No child	1978	10.4
All are daughters	3682	19.4
At least one son	13323	70.2
<i>Access to mass media</i>		
No access at all	6419	33.8
Limited access	11648	61.4
Full access	916	4.8
<i>Religion</i>		
Muslim	17205	90.6
Non-Muslim	1779	9.4
<i>N</i>	<i>18984</i>	<i>100.0</i>

Source: own calculation.

Met and unmet demand for family planning

The level of satisfied demand among currently married women in Bangladesh between the ages of 15 and 49 are presented in Table 2. In Bangladesh, 15.4% of primary-educated women had an unmet need for limiting family planning, whereas only 9.6% of illiterate women did. In addition, 89.7% of currently working women had satisfied their needs. Satisfaction increased with an increase in the age of the women and their parity. The majority of women began to restrict childbirth at age 45 or older (90.3% of women) and parity 5+ (89.4% of women satisfied demand). Satisfied demand was greater for women married before the legal age, living in urban areas, and having at least one son. The disparity in unmet needs for family planning was significantly noticeable between secondary schooled women (15.7%) and illiterate women (11.5%). There was a noticeable gap in unmet needs for family planning between the Chattogram (21.9%) and Rangpur (6.9%) Divisions. Muslims (13.7%) and upper-class respondents (14.6%) had a greater unmet need for contraception than their counterpart respondents. Respondents with no access to any type of mass media (13.2%) had a greater unmet need for contraception than those with access (8.4%).

Table 2. *Proportion of respondents and demand for family planning according to characteristics of currently married women in Bangladesh (2017–18, %)*

Background characteristics	N	Unmet need	Met need (Satisfied)	Value of χ^2
<i>Education of respondents'</i>				
No Education	1914	9.6	90.4	41.16***
Primary	3544	12.7	87.3	
Secondary	3504	15.4	84.6	
Higher Secondary+	747	11.0	89.0	
<i>Respondent currently working</i>				
No	4437	16.0	84.0	68.06***
Yes	5270	10.3	89.7	
<i>Age of respondent</i>				
15–19	77	14.3	85.7	37.52***
20–24	699	13.4	86.6	
25–29	1737	15.5	84.5	
30–34	2436	14.8	85.2	
35–39	2231	11.7	88.3	
40–44	1549	10.7	89.3	
45–49	979	9.7	90.3	

Background characteristics	N	Unmet need	Met need (Satisfied)	Value of χ^2
<i>Age at first marriage</i>				
<18	7745	12.9	87.1	0.034
18+	1963	13.0	87.0	
<i>Husband's education</i>				
No Education	2688	11.5	88.5	25.09***
Primary	3239	12.3	87.7	
Secondary	2523	15.7	84.3	
Higher Secondary+	1258	11.9	88.1	
<i>Place of residence</i>				
Urban	2682	10.3	89.7	23.52***
Rural	7027	13.9	86.1	
<i>Division</i>				
Barishal	551	14.7	85.3	196.16***
Chattogram	1662	21.9	78.1	
Dhaka	2396	13.0	87.0	
Khulna	1159	8.8	91.2	
Mymensingh	734	11.3	88.7	
Rajshahi	1401	10.1	89.9	
Rangpur	1281	6.9	93.1	
Sylhet	524	16.0	84.0	
<i>Wealth Index</i>				
Poor	3987	11.2	88.8	18.20***
Middle	3878	13.9	86.1	
Upper	1844	14.6	85.4	
<i>Parity</i>				
≤ 1 child	459	11.1	88.9	10.34**
2 children	4002	12.5	87.5	
3 children	3066	13.7	86.3	
4 children	1349	14.5	85.5	
5 or more children	834	10.6	89.4	
<i>Have at least one son</i>				
No child	12	16.7	83.3	0.406
All daughters	1089	13.4	86.6	
At least one son	8608	12.9	87.1	

Background characteristics	N	Unmet need	Met need (Satisfied)	Value of χ^2
<i>Access to mass media</i>				
No access at all	3520	13.2	86.8	6.68**
Limited access	5842	13.0	87.0	
Full access	346	8.4	91.6	
<i>Religion</i>				
Muslim	8681	13.7	86.3	39.23***
Non-Muslim	1027	6.7	93.3	
<i>N</i>	<i>9708</i>	<i>1254</i>	<i>8454</i>	

Source: Author's own calculation.

Mixed methods of contraception and satisfied demand

The proportion of Bangladeshi women who are satisfied with using modern and traditional contraceptives is shown in Table 3. This study considered the variables to be significant in the bivariate analysis of demand for family planning according to background characteristics. The results demonstrate that the vast majority of educated women were using reversible modern birth control methods as opposed to permanent and traditional contraception in Bangladesh. Around two-thirds of working women were using reversible contraceptives compared to permanent and traditional methods. The use of modern reversible methods of contraception that are intended to be long-term declined as the number of mature women in the population grew. Regarding education, 8.9% of women with higher-secondary educated husbands used permanent contraceptives, whereas 18% of those with illiterate husbands did the same. There were distinctions in terms of place of residence and wealth: urban and upper-class respondents used reversible contraceptives more than their other counterpart respondents. Only 6.8% of respondents in Barishal who were satisfied with family planning methods were using permanent contraceptives, while the figure was 10.6% in Mymensingh and 11.3% in Chattogram. As the number of children born per woman rises, the number of women opting for methods of permanent contraception likewise rises. The use of methods of permanent contraception was prevalent, with Muslims at 13.0% and non-Muslims at 15.2%. Despite this, the disparity of permanent contraceptive use according to access/no access to media was 1.8%.

Table 3. Proportion of methods of contraceptive use among Bangladeshi respondents satisfied with family planning according to background characteristics (2017–18, %)

Background characteristics	N	Modern contraceptive		Traditional contraception	Value of χ^2	
		Reversible	Permanent			
<i>Education of respondents</i>						
No education	1731	56.5	20.6	22.9	260.1***	
Primary	3093	66.7	14.6	18.7		
Secondary	2964	77.6	8.4	14.1		
Higher secondary+	666	72.1	9.2	18.8	0.532	
<i>Respondent currently working</i>						
No	3728	68.9	13.0	18.1		
Yes	4725	68.8	13.4	17.7		
<i>Age of respondent</i>						
15–19	67	85.1	4.5	10.4	872.8***	
20–24	606	90.4	3.0	6.6		
25–29	1469	83.0	7.8	9.3		
30–34	2075	76.8	11.9	11.3		
35–39	1971	66.7	15.0	18.3		
40–44	1383	52.7	16.8	30.4		
45–49	884	40.7	23.8	35.5		
<i>Husband's education</i>						
No education	2381	63.3	18.0	18.7	102.2***	
Primary	2838	70.9	12.9	16.2		
Secondary	2126	72.4	10.6	16.9		
Higher secondary+	1108	68.7	8.9	22.4		
<i>Place of residence</i>						
Urban	2407	70.2	11.9	17.9	5.28*	
Rural	6047	68.3	13.8	17.9		
<i>Division</i>						
Barishal	470	73.2	6.8	20.0	63.0***	
Chattogram	1298	70.4	11.3	18.3		
Dhaka	2083	69.1	13.8	17.1		
Khulna	1057	65.4	12.8	21.9		
Mymensingh	650	74.5	10.6	14.9		
Rajshahi	1260	68.9	15.1	16.0		
Rangpur	1193	66.8	16.3	16.9		
Sylhet	441	64.4	14.5	21.1		

Background characteristics	N	Modern contraceptive		Traditional contraception	Value of χ^2
		Reversible	Permanent		
<i>Wealth index</i>					
Poor	3540	68.7	14.0	17.2	9.72**
Middle	3339	68.9	13.3	17.8	
Upper	1575	69.1	11.3	19.6	
<i>Parity</i>					
≤ 1 child	408	70.6	12.0	17.4	313.7***
2 children	3501	77.6	7.3	15.0	
3 children	2646	65.1	17.5	17.3	
4 children	1154	59.4	18.5	22.0	
5 or more children	746	54.6	18.1	27.3	
<i>Access to mass media</i>					
No access at all	3055	67.5	12.5	20.0	24.67***
Limited access	5083	69.8	13.8	16.3	
Full access	317	66.2	10.7	23.0	
<i>Religion</i>					
Muslim	7496	69.1	13.0	17.9	3.80
Non-Muslim	958	67.1	15.2	17.6	
<i>N</i>	<i>8454</i>	<i>5822</i>	<i>1119</i>	<i>1513</i>	

Source: Author's own calculation.

RESULTS FROM LOGISTIC REGRESSION MODELS

A logistic model, also known as a logit model, estimates the likelihood of a specific outcome given two choices by treating the log odds (the logarithm of the odds) as the linear product of one or more independent variables. In this analysis, the study considers only those variables that were found to be statistically significant in the bivariate analysis of mixed methods of contraceptives among respondents whose demands for limiting childbirth were satisfied.

Modern reversible contraceptive use and satisfied demand

Significant socioeconomic determinants associated with the satisfaction with using modern reversible contraceptives for limiting childbirth in Bangladesh were identified as respondents' education, women's age, husband's education, division, parity, and access to mass media (Table 4, Column 1).

The odds of using modern contraceptive methods increased with women's education. The likelihood of women with at least a secondary education using modern reversible contraceptives was 1.773 times that of those without education. Women whose husbands had a higher secondary education were 33.4% less likely to use modern reversible methods than those husbands with no education. Women's tendency to use modern reversible contraceptives declined as they lived longer and had more children. Women in the age group 45-49 were 86.6% less likely to use modern reversible contraceptives than women in the age group 15-19. On the other hand, women with two children were 579% more likely to use modern reversible birth-limiting methods than those with at most one child. Respondents from Dhaka, Khulna, Rajshahi, Rangpur, and Sylhet Divisions were less likely to be limiting childbearing using modern reversible birth control methods than respondents from the Barishal Division.

Table 4. *Adjusted odds ratio of the contraceptive method mix among Bangladeshi respondents satisfied with limiting demand through family planning according to background characteristics (2017–18)*

Variables	Modern reversible contraceptive (1)	Modern permanent contraceptive (2)	Satisfied, Traditional contraceptive (3)
<i>Education of respondents</i>			
No education (Ref)	1.00	1.00	1.00
Primary	1.147**	0.831**	0.982
Secondary	1.644***	0.574***	0.769***
Higher secondary+	1.773***	0.653**	0.648***
<i>Age of respondent</i>			
15–19 (Ref)	1.00	1.00	1.00
20–24	1.369	0.868	0.680
25–29	0.730	2.179	1.005
30–34	0.543*	2.931*	1.265
35–39	0.357***	3.386*	2.163*
40–44	0.210***	3.584**	4.176***
45–49	0.134***	5.285***	5.218***
<i>Husband's education</i>			
No education (Ref)	1.00	1.00	1.00
Primary	1.026	0.859*	1.105
Secondary	0.945	0.820*	1.289***
Higher secondary+	0.666***	0.762	2.108***

Variables	Modern reversible contraceptive (1)	Modern permanent contraceptive (2)	Satisfied, Traditional contraceptive (3)
<i>Place of residence</i>			
Urban (Ref)	1.00	1.00	1.00
Rural	0.946	1.127	0.987
<i>Division</i>			
Barishal (Ref)	1.00	1.00	1.00
Chattogram	0.846	1.641**	0.964
Dhaka	0.749**	2.171***	0.913
Khulna	0.628***	2.008***	1.226
Mymensingh	1.094	1.430	0.750*
Rajshahi	0.794*	2.296***	0.799
Rangpur	0.712***	2.493***	0.866
Sylhet	0.596***	2.283***	1.209
<i>Wealth index</i>			
Poor (Ref)	1.00	1.00	1.00
Middle	1.053	0.937	0.987
Upper	1.088	0.895	0.981
<i>Parity</i>			
≤ 1 child (Ref)	1.00	1.00	1.00
2 children	1.579***	0.530***	0.812
3 children	1.140	1.145	0.711**
4 children	1.052	1.131	0.812
5 or more children	1.116	0.947	0.867
<i>Access to mass media</i>			
No access at all (Ref)	1.00	1.00	1.00
Limited access	0.894*	1.520***	0.828***
Full access	0.744*	1.701**	0.986
Constant	5.343***	0.031***	0.146***

Source: Author's own calculation,

Note: RC (1.00) = Reference category, * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Modern permanent contraceptive use for limiting childbearing

Educational level, age group, husband's education, division, parity, and access to mass media were identified as significant factors in using modern permanent contraceptive methods to limit childbearing (Table 4, Column 2). The odds of using the permanent method were significantly less among secondary and higher-

secondary-educated women. Secondary and higher secondary educated women were 42.6 and 34.7% less likely to use permanent birth control methods than illiterate women. Women's use of permanent methods of birth control increased as the age of women increased. In addition, husband's education was found to be a significant determinant of using permanent contraceptive methods. The odds of using the permanent method were significantly less among women with primary (14.1%) and secondary (18%) educated husbands than illiterate husbands. Women in all divisions in Bangladesh except for Mymensingh were more likely to use permanent birth control than the Barishal Division. Respondents with full access to mass media were 1.701 times more likely to limit their birth using permanent methods than those without access to any type of media.

Traditional contraceptive use for limiting childbearing

Educational levels, age group, husband's education, and access to mass media were identified as significant factors in using traditional contraception to limit childbearing (Table 4, Column 3). The odds of traditional contraceptive use were significantly lower among secondary- (OR = 0.769) and higher-secondary-educated women (OR = 0.648) than among illiterate women. However, older women were found to be more likely to use traditional contraceptive methods than those from the reference group. In addition, women with husbands with higher secondary education were 2.108 times more likely to use traditional contraception for limiting childbearing than illiterate husbands. The odds (OR = 0.711) of using traditional contraception were significantly less for respondents with three children than those with at most one child. Women with limited mass media exposure were less likely to use traditional contraception methods than those without access to mass media.

DISCUSSION

In this work, we evaluate the socioeconomic and demographic factors influencing the decision to limit family size using modern and traditional contraception in Bangladesh. According to the results of our research, family planning for limiting birth control is important amongst all socioeconomic categories. Those findings are supported by numerous other investigations (Rahaman et al. 2022; Huda et al. 2017). Through the years, modern methods of contraception have been the most popular approach to meeting the demand

for family planning. This has occurred because subsidized services have been widely disseminated and promoted, along with incentives provided by the government's family welfare office.

The findings of our study provide a more comprehensive understanding of the socioeconomic, demographic, and other woman- and husband-related variables that play a role in the decision to use modern contraception in Bangladesh. These include the education of women and their husbands, the working status of women, age of women, age at first marriage, type of residence, division, socioeconomic status, parity, number of sons, mass media, and religion of women.

Multivariate regression analysis yields even more robust evidence that female education is the primary factor influencing the greater use of modern reversible contraceptive methods. The number of educated women in the population has influenced the rise in the usage of modern reversible practices. This suggests that the birth control approach is spreading to less advantaged areas (Bora et al. 2022). Studies have indicated that teenage women are more likely to use reversible contraception than older women because of their increased desire to avoid undesired pregnancies and delay motherhood (Blanc et al. 2009; Mohsena et al. 2017). On the other hand, older women were more likely to use permanent and traditional forms of contraception than younger ones (Godfrey et al. 2011).

No statistically significant difference in contraceptive usage was found among different social status groups in Bangladesh (Islam et al. 2020). Eliminating regional disparities in contraceptive use in rural areas of Bangladesh may require interventions beyond simply increasing access to modern contraceptives, such as raising awareness among men and women about the negative consequences of having more children and the benefits of having smaller families. There are regional differences in the use of contraception, which may be attributed to administrative or domain levels (Khan 1997; Amin et al. 2002; Lakew et al. 2013). We see a similar pattern in Bangladesh, where modern contraceptive usage differs across regions and neighborhoods. More people in urban regions use modern contraception than those in the rural area. Numerous studies have discovered that religion-based culturally specific norms and expectations play a role in determining which method(s) individuals ultimately use (Srikanthan–Reid 2008; Frost–Darroch 2008).

The influence of the media on the decision to use modern or traditional contraception is also possible. Women who had access to any kind of mass media were more likely to utilize permanent contraception than those who had no access to any media (Hoq 2020). However, it might be difficult for the poorest women to access mass media outlets, including radio, newspapers, magazines, and television, where information about modern and permanent contraception (Ahmed–Seid 2020).

CONCLUSION

This research contributes to an ever-expanding body of literature that explores the causes and consequences of increased modern contraceptive usage for limiting family size. Educated women are more likely to utilize long-term methods of contraception and less likely to use traditional contraception to achieve their desired family size. In order to increase access to and awareness of modern reversible contraceptives, legislative and health system adjustments that increase women-centered care in rural areas are likely to be required. Meanwhile, there is a need to modify the historical conventions that support early marriage and increase the usage of sterilization after the desired number and sex of children are attained (Shakya et al. 2018). Therefore, future initiatives to increase modern reversible contraceptive usage should target younger age groups, those of poorer socioeconomic origins, and women with little or no education. In addition, increasing the uptake of permanent contraception methods should be targeted at higher educated women and their husbands, those with no access to any mass media, and those with parity two and above.

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