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Prevalent Factors Influencing Women's Intention to Limit Childbearing: Empirical Evidence Based on Bangladesh Demography and Health Surveys

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Authors' contributions

This work was carried out in collaboration among all authors. Author MKA had the original idea for this study. Author NF prepared the data for analysis. Authors MKA and MNF performed statistical analysis and did most of the writing. Author KPD helped in identifying problems in the context of Bangladesh and supervised the analysis also contributed to preparing the final draft. All authors read and approved the final manuscript.

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ABSTRACT

Aims: Bangladesh, as one of the most densely populated countries in the world, is facing an overpopulation crisis. Understanding the factors that influence a women's intention to limit her ability and desire to bear children is important for family planning program purposes and population policies. This paper has focuses on identifying the prevalent factors that influences a woman's intention to limit pregnancy, by measuring the impact of those factors on her intentions. The paper also provides a few recommendations toward addressing issues regarding childbearing.
Methodology: This study is a retrospective analysis of data from the 2004, 2007, 2011 and 2014 Bangladesh Demography and Health Survey (BDHS). Cases in the study are childbearing-aged married women. The dependent variable is the women's intention to limit her childbearing, in the forms of desiring more children or not. To measure the impact, a logistic regression model is considered.

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Results: Results show that the women studied tended to limit their desire to bear a child is highly associated with older age, the number of children alive, living area concerns, whether a child has already died in the family, family planning and religion. Moreover, a surprising relationship was found among the people of differing economic and education statuses in relation to their tendency to limit a desire for children.

Conclusions: This study identifies different factors, such as access to media, age at first marriage, respondents working status, region, previous child death, religion and the total number of children as the most concurrent features for influencing a woman's intention to limit pregnancy in Bangladesh. The study intends to initiate a discussion of the impact of these covariates on intentions which limit childbearing desires, which should be helpful to concerned authorities, policymakers and researchers in formulating policies.

Keywords: Childbearing; family planning; odds ratio; retrospective study.

DEFINITIONS

Childbearing: A process of or relating to the process of conceiving; being pregnant with; and giving birth to children.

1. INTRODUCTION

Human overpopulation is one of the most important issues in the world. Bangladesh faces an intolerable burden regarding overpopulation. Bangladesh is the eighth most populous country in the world [1], with a current population of 164,689,383 and a population density of 1,265 per square kilometer, according to the latest United Nations estimates [2]. Population density is only slated to rise, as birthrates are expected to continue along their current trajectory, and the number of births will exceed the number of deaths by 2,405,062 in 2020 [3]. Every year more than two million people are being added to the population of Bangladesh. Moreover, a recent UNFPA report shows that Bangladesh may see a rise in unwanted pregnancy and abortions amid the coronavirus pandemic, as the use of modern contraceptives has gone down [4]. For these reasons, tracking the impact of a woman's intention to limit her childbearing has become more prominent, as their intentions demographically has been reported as a potent predictor of fertility at the gross population level [5,6,7,8]. Thus, it is a crucial time for identifying the influential factors impacting a woman's intention to limit her childbearing. Understanding these factors will be of use in policy and family planning to control family sizes in Bangladesh.

In economic terms, a motivation to limit childbearing can occur if the supply of children exceeds their demand [9]. According to this theory, women in Bangladesh currently would have an urge to limit the number of children they bear, if they decide to have children at all. Women in Bangladesh who come from different backgrounds and statuses intend to limit childbearing differently. According to a study done among Ghanaian women, desire for getting fewer children was higher among mothers with a higher education level, higher economic status, who live in urban areas, who are in the 20-34 age bracket, who already have children, and those who are currently married or in a union [10]. In high fertility societies, the ideas behind family planning are not clear, as some give non-numeric responses, such as, "It's up to God", "As many as possible", "I don't know", when asked for their desired family size for additional children [11]. Likewise, a couple's knowledge, approval, and use of family planning, correlates with a desire not to have additional children, according to different studies conducted in Ethiopia [12] and Pakistan [13].

However, in many previous studies, other demographic, socioeconomic and health related factors have been recognized in influencing fertility intentions [12,13,14,15,16,17]. As demand increases, many researchers have focused on determining which factors that influence women's intentions the most. Women living in wealthier households are more likely to exhibit a desire to stop childbearing than poorer women [18]. Also, women living in villages with high HIV mortality experience greater consistency between preferences and behavior, as do women married to men who are unsuccessful labor migrants [19]. A study has been conducted in Oromia, Ethiopia where it was found that a greater intention to limit childbearing was associated with older age, a larger number of living sons and daughters, on being wealthier, on there being no previous child deaths, on knowledge and use of family planning, and on exposure to media [20].

Other studies in Bangladesh [21] and Botswana [22] observed that a stated desire to stop childbearing is generally more common among

women with two sons than those with two daughters. These studies show that a woman's level of education indicated an inverse association with an intention to have more children [18]. Urban women preferred to stop childbearing as compared to rural women [18,20,23]. Women who were using any contraceptive method were more likely to stop childbearing than those who did not. Mass media exposure and inter-spousal communication was shown to have a significant association with an intention to limit childbearing [24]. The major determinants of a desire to limit childbearing tended to be age (those who are older), wealth (those who are richer), the number of living sons, the number of living daughters, a knowledge of family planning, exposure to mass media, and exposure to family planning information [25].

The study focuses on identifying the prevalent factors that influence a woman's intention to limit of childbearing by measuring the impact of prevalent factors, and exploring some recommendations by addressing the childbearing issues among the married women in Bangladesh.

2. METHODOLOGY

2.1 Database

The study used the data in the Bangladesh Demographic and Health Survey (BDHS), a nationally representative sample survey of men and women of reproductive age conducted every about 3 years since 1993-94. The survey is a collaborative effort of the National Institute of Population Research and Training (NIPORT), ICF International (USA), and Mitra and Associates [26]. Data used in this study came from the four most recent BDHSs conducted in 2004, 2007, 2011, and 2014. The methodology used in this study was of repeated analysis of retrospective survey data in the BDHS program. The BDHS Individual record data file has 11,440, 10,996, 17,842, and 17,863 ever-married women respondents for the years 2004, 2007, 2011, and 2014 respectively (Table 1). To assess the factors influencing women's intention to limit childbearing, the study considered the following steps for selecting an appropriate sample:

Step I: Consider those respondents who has expressed intentions regarding bearing a child or not bearing a child.

Step II: Match all the background information of the respondents

2.2 Variables and Study Framework

The dependent variable was the women's intention to limit childbearing. As part of the interviewing procedure, the BDH surveys routinely collect information childbearing aged married women about their intention regarding having more children. This information can be used to assess a subject's childbearing status. In this study, covariates have been considered under three major headings: a) demographic, b) socioeconomic, and c) health-related, as shown in Fig. 1. There were a number of potentially important background factors regarding childbearing in the study: The mother's age (15-24, 25-34, 35-49), the number of living children (no child, 1-3 children and more than 3 children), the mother's education (no education, primary, secondary and higher), a use of family planning (Yes and No), a wealth index (poorest, poorer, middle, richer and richest) [27], her place of residence (urban and rural), her media exposure (no, yes), her age at the time of her first marriage (below 15, 15-19 and 20+), if she was employed (yes and no), any previous child death (yes and no), her religion (Muslim and non-Muslim), and the total number of ever born children (0-2, 3-5 and more than 5 children).

The distribution of the an intent to limit childbearing among the total of 11,437, 10237, 16,607 and 16,864 respondents for 2004, 2007, 2011 and 2014 are shown in Table 2. For the analysis, the dependent variable had been converted to a binary variable (wants more children and does not want more children). For this purpose, we considered the first three categories in Table 2 as 'wants more children' and the fifth category as 'no more children'. All other categories have been omitted.

The total number of respondents covering these two categories was 9,365, 9,226, 14,962, 14,848 for the year of 2004, 2007, 2011 and 2014, respectively where 3,704 (39.6%) respondents wanted more children and 5,661 (60.4%) respondents did not want more children in 2004; 3,445 (37.3%) respondents wanted more children and 5,781 (62.7%) respondents did not want more children in 2007; 5,197 (34.7%) respondents wanted more children and 9,765 (65.3%) respondents did not want more children in 2011 and in 2014, 5,293 (35.6%) respondents wanted more children and 9,555 (64.4%) respondents did not want more children (Table 3).

Table 1. Sample size estimation

Year	Survey Sample	Step 1	Step 2 (Study Sample)
2004	11,440	9,365	8,100
2007	10,996	9,226	8,379
2011	17,842	14,962	13,454
2014	17,863	14,848	13,875

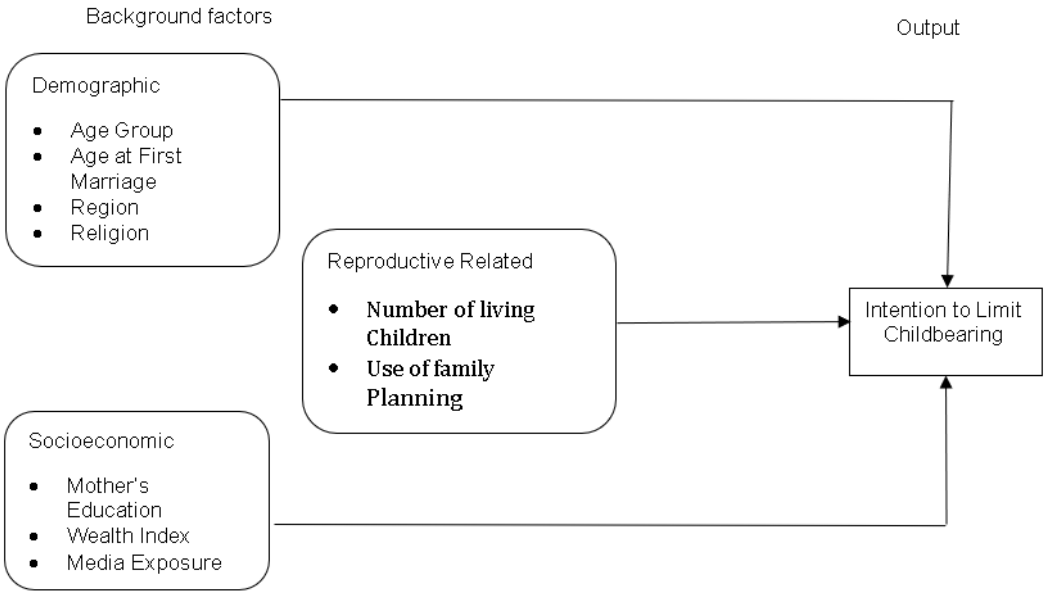

Fig. 1. Conceptual framework

Table 2. Distribution of the respondent's status for childbearing

Fertility Preference	2004	2007	2011	2014
	n (%)	n (%)	n (%)	n (%)
Wants within 2 years	1,360 (11.9%)	1,214 (11.9%)	1,807 (10.9%)	1,773 (10.5%)
Wants after 2+ years	2,238 (19.6%)	2,145 (21%)	3,289 (19.8%)	3,321 (19.7%)
Wants, unsure timing	106 (0.9%)	86 (0.8%)	100 (0.6%)	198 (1.2%)
Undecided	218 (1.9%)	105 (1%)	226 (1.4%)	462 (2.7%)
Wants no more	5,661 (49.5%)	5,781 (56.5%)	9,765 (58.8%)	9,555 (56.7%)
Sterilized (respondent or partner)	666 (5.8%)	633 (6.2%)	1,033 (6.2%)	986 (5.8%)
Declared infecund	379 (3.3%)	273 (2.7%)	379 (2.3%)	561 (3.3%)
Never had sex	809 (7.1%)	0 (0%)	8 (<0.001%)	7 (<0.001%)
Total	11,437 (100%)	10,237 (100%)	16,607 (100%)	16,864 (100%)

Table 3. Distribution of the respondent's intention to limit childbearing

Variable	Category	2004	2007	2011	2014
		n (%)	n (%)	n (%)	n (%)
Child Preference	Wants more children	3704 (39.6%)	3445 (37.3%)	5197 (34.7%)	5293 (35.6%)
	No more children	5661 (60.4%)	5781 (62.7%)	9765 (65.3%)	9555 (64.4%)
Total		9365 (100%)	9226 (100%)	14962 (100%)	14848 (100%)

3 RESULTS

3.1 Univariate Analysis

Table 4 shows the frequency distribution of women of all categories obtained from four different BDH surveys 2004, 2007, 2011 and 2011. Frequency distribution gives a quick idea about all covariates related to this study.

3.2 Bivariate Analysis

In bivariate analysis, the present association between different background factors and the dependent variable has been found. The results in row-percentage by the sample with their corresponding *P* values have been presented in Table 5.

Table 5 shows a relation among the variables regarding the childbearing status of mothers. In Table 5, we preformed the Chi-square test and presented the row percentage of wants more children. To make the table simple and understandable, we did not present the row percentage of "do not wants more children" as it is just the counter part. Both part's sum will give the total row percentage of 100% as well as the sample size (n) of each category or variables. Based on the 2004 BDHS data, it was found that a desire for more children was maximized (72.0%) in the youngest age group (15-24) and minimized (5.7%) in the oldest age group (35-49). The other three studies (2007, 2011 and 2014 BDHS) revealed that an intention to bear children tended to decrease as a mother's age increased. Among families with no children, a subject's intention to have a child or multiple children was very high (98.3%, 97.0%, 96.3% and 97.1% in 2004, 2007, 2001 and 2014 respectively).

Whereas for those subjects that had more than three living children, their intentions to have more children were very low (3.6%, 2.0%, 2.1% and 1.7% in 2004, 2007, 2001 and 2014 respectively). The number of living children was significantly associated (*p<0.001)* with an intention to limit childbearing.

Education levels were also highly associated (*p<0.001)* with intention to limit childbearing. In case of education levels, we observed that, in 2004, 24.3% of those mothers who had no education wanted to have more children, whereas 37.4%, 58.0% and 63.9% mothers with education levels that reached Primary, Secondary and Higher, respectively, wanted to have more children. In 2007, we found that 19.1%, 34.6%, 53.4% and 51.8% mothers who wanted to have more children correspondingly had education levels that were identified as No education, Primary, Secondary and Higher respectively. In 2011, it showed that 15.6% of uneducated mothers, 28.9% primary educated mothers, 47.8% secondary educated mothers and 53.1% higher educated mothers wanted to have more children in future. In 2014, it was revealed that 12.8% of uneducated mothers, 29.7% primary educated mothers, 47.1% secondary educated mothers and 57.9% higher educated mothers wanted to have more children. We observed an interesting relationship between education levels and an intention to limit childbearing, with an intention to limit the amount of children borne decreased alongside an in increase in the education level of the subject.

We found that another factor, the number of living children, was a factor in influencing the decision to have more children throughout those with differing education. Most of the highly educated mothers had no or only one child, so their intention to have more children was high compared to others. 31.3%, 31.1%, 30.1% and 31.4% of those respondents that wanted to have more children were using a modern method of family planning in 2004, 2007, 2011 and 2014, respectively. This indicates that the percentage of women who intended to limit their childbearing was almost the same for more than ten years among the families those have used the modern method of family planning. The desire of more children among the poorest, poorer, middle, richer and richest family is 38.5%, 38.2%, 40.8%, 38.4% and 41.9% in 2004, 31.0%, 35.6%, 38.8%, 40.8% and 39.7% in 2007, 30.6%, 32.7%, 33.7%, 37.3% and 38.3% in 2011 and 30.0%, 31.8%, 36.7%, 38.9% and 39.7% in 2014 respectively. We observed that the intention of limiting childbearing has increased alongside an increase of social status.

A desire to bear more children was found to be almost the same in urban (39.7%) families and rural (39.5%) families in 2004; it was lower in urban (35.7%) family than the rural (37.8%) family in 2007, but it was higher in urban (37.1%) family than the rural (33.9%) family in 2011, also, it was higher in urban (38.1%) family than the rural (34.7%) family in 2014. 43.6%, 41.8%, 38.6% and 40.00% respondents want more children those have media access in 2004, 2007, 2011 and 2014 respectively.

The desire to have more children increased with an increase of a woman's age at marriage, 31.9%, 47.0% and 59.2% participants with age at marriage below 15, 15-19 and more than 20 years want more children in 2004, it was 27.5%, 44.3% and 52.7% in 2007, 24.0%, 39.9% and 50.6% in 2011 and 24.40% participants with age at marriage below 15 want more children, it was 40.20% among participants with age at marriage in between 15-19 years and almost half of the participants (49.20%) with age at marriage more than 20 wanted more children in 2014. A preference of having more children was more prevalent in housewife participants (41.9%, 40.8% and 39.10%) compared to those who currently were working participants (30.0%, 29.3% and 28.20%) in 2004, 2007 and 204 but in 2011, desire of more children is more (37.0%) in working mothers than (34.4%) housewife mothers. The childbearing is 45.9%, 42.7%, 39.0% and 39.20% among families with no previous child death and 20.5%, 18.6%, 15.5% and 16.1% among families with previous record of at least one child death in 2004, 2007, 2011 and 2014 respectively. It was found that Muslim participants were more prone to have more children than non-Muslim participants. In Muslim family, the rate of childbearing was 39.9%, 37.3%, 35.2% and 36.30%, whereas it was 36.3%, 37.3%, 30.6% and 28.80% in a non-Muslim family in 2004, 2007, 2011 and 2014 respectively. Considering the total number of children, was noticed that if the number of children increases, the percentage of intentions to limit childbearing decreases. Among participants with 0-2 children, more than half (67.2%, 61.8%, 55.5% and 55.20%) wanted more children, among participants with 3- 5ever born children, 12.3%, 9.7%, 6.4% and 5.8% respondents wanted more children and among participants with 5 or more ever born children only 3.1%, 2.1%, 1.4% and 0.60% wanted more children in 2004, 2007, 2011 and 2014, respectively.

Fig. 2 shows that among higher educated families, 90% of them had 0-2 children (small family size), where only 10% of families had 3-5 children. Also, secondary educated family had high tendency to keep the family size small (74.6% had only 0 to 2 children). On the other hand, no educated and primary educated family had big family size (3-5 children and 5+). It is clear from Table 5, that higher educated family (secondary and high education) had small family size. Therefore, the penchant to constitute a standard family size by having more children is higher among higher educated families. Similarly, the same explanation is applicable for BDHS 2004, 2007 and 2011.

Fig. 3 shows that among richest families, 69.3% of them had 0-2 children (small family size), 28.4% of families had 3-5 children and only 2.3% had 5+ children. Also, similar trend had been found for other economic status people. It is also note that almost half of the families having poor economic status had children 3 and above which is beyond the standard family size (2 children). So, we can conclude that families having higher economic status had lower family size compared to the poor economic status. Therefore, the penchant to constitute a standard family size by having more children is higher among higher economic status families. Similarly, we can explain the relation between intension to limit childbearing and economic status for BDHS 2011, 2007 and 2004.

3.3 Multivariate Analysis: Logistic Regression

Table 6 shows that the age of the respondents is one of the major factors in having more children. Participants in the 15-24 age groups were 8.8 times, 10.3 times, 14.5 times and 18.5 times more likely to have children compared to the 35-49 age group (the reference group) in 2004, 2007, 2011 and 2014, respectively. On the other hand, participants in the 25-34 age groups were 3.1 times, 3.2 times, 3.5 times and 4.6 times more likely to have children compared to the 35-49 age group in 2004, 2007, 2011 and 2014, respectively. Over the years the OR is becoming smaller for both the 15-24 and 25-34 age groups, which implies that the tendency of wanting more children decreases for these age groups, compare to the reference group.

In 2004, it was found that respondents with no living children were 55.5 (which is the reciprocal of 0.018 obtained from Table 6) times more likely to have children compared to the reference group (families with 3+ living children). Participants with 1-3 living children were 2.37 times more likely to have children compared to the reference group. Later years showed an increasing gap between the two groups. In 2007, it was 66.7 times for mothers with no living children and 3.7 times among the respondents those have 1-3 living children compared to the reference group. In 2011, it was 76.9 times more likely to have children for no currently living children mothers and 3.7 times among the

respondents those have 1-3 living children compared to the reference group. In 2014, those who desired to bear children was 37.0 times higher among the respondents those have no living children and 2.0 times higher among those have 1-3 living children compared to the reference group.

Table 4. Frequency distribution of selected variables (women of all categories)

Characteristics	2004	2007	2011	2014
	n (%)	n (%)	n (%)	n (%)
Age group				
15-24	3800(33.7%)	3599(32.7%)	5484(30.9%)	5253(29.4%)
25-34	3806(33.7%)	3590(32.7%)	6048(34.1%)	6437(36%)
35-49	3684(32.6%)	3807(34.6%)	6218(35%)	6174(34.6%)
Number of living children				
0	1396(12.2%)	1212(11%)	1867(10.5%)	1814(10.2%)
1-3	7042(61.6%)	7250(65.9%)	12358(69.6%)	12896(72.2%)
>3	3002(26.2%)	2534(23%)	3524(19.9%)	3153(17.7%)
Education Category				
No Education	4713(41.2%)	3746(34.1%)	4912(27.7%)	4455(24.9%)
Primary	3359(29.4%)	3263(29.7%)	5326(30%)	5209(29.2%)
Secondary	2791(24.4%)	3341(30.4%)	6210(35%)	6679(37.4%)
Higher	577(5%)	646(5.9%)	1300(7.3%)	1520(8.5%)
Use of Family Planning				
Modern Method	5053(49.1%)	4884(48.1%)	8659(53.4%)	9112(55.4%)
No Method	5246(50.9%)	5263(51.9%)	7566(46.6%)	7336(44.6%)
Wealth index				
Poorest	2279(19.9%)	2115(19.2%)	3250(18.3%)	3359(18.8%)
Poorer	2290(20%)	2157(19.6%)	3487(19.6%)	3408(19.1%)
Middle	2267(19.8%)	2186(19.9%)	3567(20.1%)	3560(19.9%)
Richer	2307(20.2%)	2259(20.5%)	3664(20.6%)	3758(21%)
Richest	2297(20.1%)	2278(20.7%)	3781(21.3%)	3778(21.1%)
Place of residence				
Urban	2586(22.6%)	2482(22.6%)	4619(26%)	5047(28.3%)
Rural	8854(77.4%)	8514(77.4%)	13130(74%)	12816(71.7%)
Access to media				
No	3589(31.4%)	4042(36.8%)	6223(35.1%)	6683(37.4%)
Yes	7851(68.6%)	6954(63.2%)	11526(64.9%)	11180(62.6%)
Age at first marriage				
Below 15 years	6386(55.8%)	5177(47.1%)	7171(40.4%)	6462(36.2%)
15-19	4393(38.4%)	5070(46.1%)	9046(51%)	9770(54.7%)
>=20	661(5.8%)	749(6.8%)	1532(8.6%)	1631(9.1%)
Respondent Currently Working				
No	8890(77.7%)	7459(67.9%)	15414(86.8%)	11947(66.9%)
Yes	2550(22.3%)	3533(32.1%)	2335(13.2%)	5912(33.1%)
Previous Child Death				
No	8285(72.4%)	8355(76%)	14254(80.3%)	14810(82.9%)
Yes	3155(27.6%)	2641(24%)	3495(19.7%)	3053(17.1%)
Religion				
Muslim	10310(90.1%)	10005(91%)	15980(90%)	16096(90.1%)
Non-Muslim	1130(9.9%)	991(9%)	1769(10%)	1767(9.9%)
Total number of children				
0-2	5606(49%)	5746(52.3%)	9865(55.6%)	10416(58.3%)
3-5	4319(37.8%)	4088(37.2%)	6479(36.5%)	6399(35.8%)
>5	1515(13.2%)	1163(10.6%)	1405(7.9%)	1048(5.9%)

Table 5. Association between selected variables and the intention to limit childbearing with *P* values

Characteristics	Fertility Preference Status							
	2004		2007		2011		2014	
	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)
Age group								
15-24	2544 (72.0%)	2930.20 (<0.001)	2457 (72.3%)	3031.30 (<0.001)	3641 (70.6%)	4829.87 (<0.001)	3627 (74.4%)	5263.30 (<0.001)
25-34	884 (26.4%)		819 (25.8%)		1296 (24.3%)		1464 (26.6%)	
35-49	133 (5.7%)		169 (6.4%		260 (5.8%)		202 (4.5%)	
Number of living children								
0	1163 (98.3%)	2967.80 (<0.001)	1008 (97.0%	2645.86 (<0.001)	1557 (96.3%)	3992.38 (<0.001)	1526 (97.1%)	3794.86 (<0.001)
1-3	2459 (41.9%)		2396 (38.8%		3582 (33.8%)		3727 (34.3%)	
3+	83 (3.6%)		41 (2.0%)		57 (2.1%)		40 (1.7%)	
Education Category								
No Education	849 (24.3%)	827.86 (<0.001)	527 (19.1%)	789.84 (<0.001)	567 (15.6%)	1253.65 (<0.001)	411 (12.8%)	1438.35 (<0.001)
Primary	1054 (37.4%)		965 (34.6%)		1303 (28.9%)		1269 (29.7%)	
Secondary	1473 (58.0%)		1641 (53.4%)		2692 (47.8%)		2800 (47.1%)	
Higher	329 (63.9%)		312 (51.8%)		635 (53.1%)		812 (57.9%)	
Use of Family Planning								
Modern Method	1351 (31.3%)	387.98 (<0.001)	1315 (31.1%)	215.04 (<0.001)	2267 (30.1%)	289.75 (<0.001)	2476 (31.4%)	287.99 (<0.001)
No Method	2074 (52.8%)		1947 (46.8%)		2630 (44.4%)		2553 (45.7%)	

Characteristics	Fertility Preference Status							
	2004		2007		2011		2014	
	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)
Wealth index								
Poorest	687 (38.5%)	9.07 (0.103)	520 (31.0%	47.15 (<0.001)	792 (30.6%)	53.16 (<0.001)	809 (30.0%)	94.20 (<0.001)
Poorer	723 (38.2%)		639 (35.6%)		952 (32.7%)		907 (31.8%)	
Middle	754 (40.8%)		733 (38.8%)		1024 (33.7%)		1099 (36.7%)	
Richer	738 (38.4%)		785 (40.8%)		1173 (37.3%)		1212 (38.9%)	
Richest	802 (41.9%)		768 (39.7%)		1256 (38.3%)		1265 (39.7%)	
Place of residence								
Urban	837 (39.7%)	0.03 (0.878)	740 (35.7%)	2.87 (0.147)	1456 (37.1%)	13.23 (0.003)	1577 (38.1%)	14.68 (0.008)
Rural	2867 (39.5%)		2705 (37.8%)		3740 (33.9%)		3716 (34.7%)	
Access to media								
No	840 (30.0%)	152.85 (<0.001)	958 (29.3%)	140.00 (<0.001)	1383 (27.3%)	189.07 (<0.001)	1517 (28.0%)	214.57 (<0.001)
Yes	2864 (43.6%)		2487 (41.8%)		3813 (38.6%)		3776 (40.0%)	
Age at first marriage								
Below 15 years	1611 (31.9%)	300.93 (<0.001)	1139 (27.5%)	330.67 (<0.001)	1387 (24.0%)	531.31 (<0.001)	1233 (24.4%)	467.03 (<0.001)
15-19	1770 (47.0%)		1949 (44.3%)		3135 (39.9%)		3360 (40.2%)	
20+	324 (59.2%)		356 (52.7%)		675 (50.6%)		700 (49.2%)	

Characteristics	Fertility Preference Status							
	2004		2007		2011		2014	
	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)	Wants More Children	Chi-square (P Value)
Respondent Currently Working								
No	3160 (41.9%)	86.22 (<0.001)	2637 (40.8%)	108.16 (<0.001)	4564 (34.4%)	4.48 (0.112)	3974 (39.1%)	166.21 (<0.001)
Yes	545 (30.0%)		807 (29.3%)		633 (37.0%)		1318 (28.2%)	
Previous Child Death								
No	3223 (45.9%)	471.66 (<0.001)	3067 (42.7%)	391.78 (<0.001)	4776 (39.0%)	538.89 (<0.001)	4927 (39.2%)	443.73 (<0.001)
Yes	481 (20.5%)		378 (18.6%)		421 (15.5%)		366 (16.1%)	
Religion								
Muslim	3385 (39.9%)	4.175 (0.081)	3141 (37.3%)	0.00 (0.991)	4747 (35.2%)	12.52 (0.002)	4859 (36.3%)	27.97 (<0.001)
Non-Muslim	320 (36.3%)		304 (37.3%)		450 (30.6%)		434 (28.8%)	
Total number of children								
0-2	3251 (67.2%)	3216.35 (<0.001)	3106 (61.8%)	2819.67 (<0.001)	4854 (55.5%)	4013.99 (<0.001)	4997 (55.2%)	3874.00 (<0.001)
3-5	418 (12.3%)		321 (9.7%)		327 (6.4%)		290 (5.8%)	
5+	35 (3.1%)		19 (2.1%)		16 (1.4%)		5 (0.6%)	

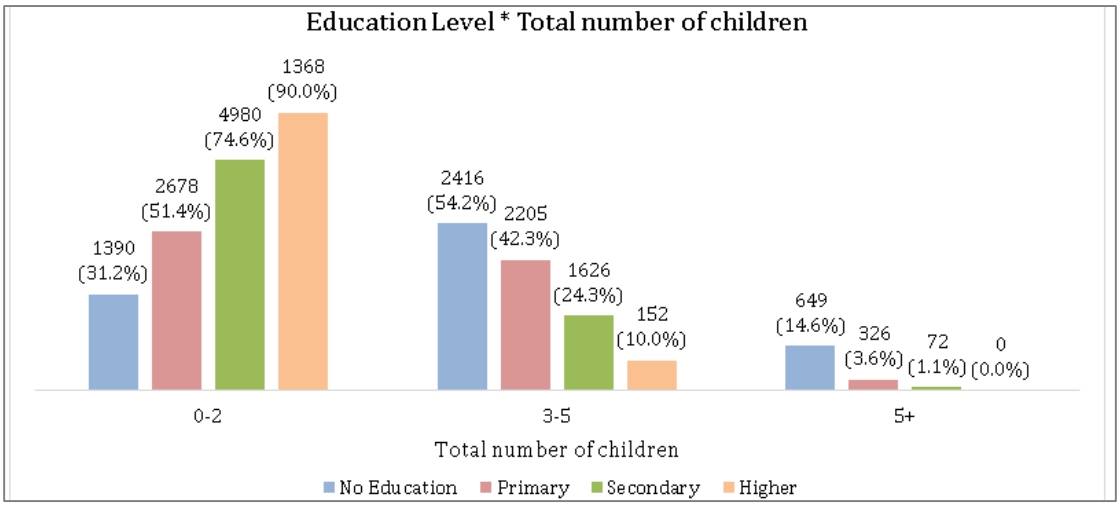

Fig. 2. Total number of children by education of BDHS 2014

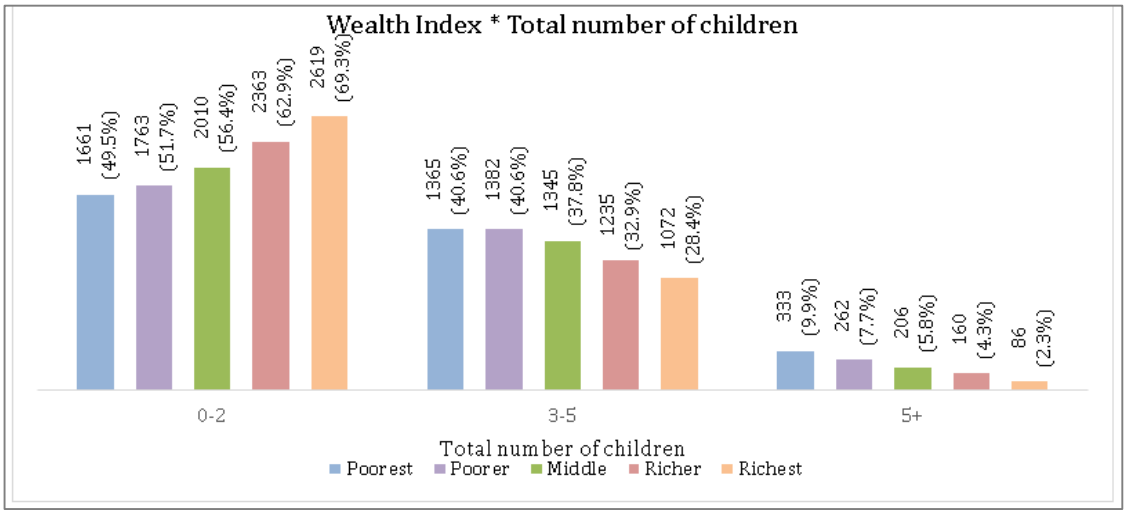

Fig. 3. Total number of children by wealth index of BDHS 2014

The tendency to limit childbearing was 1.772 times more in 2004, 1.657 times more in 2007, 1.502 times more in 2011 and 1.67 times more in 2014 among the family using a modern method of family planning than the families of those that were not using any family planning method. The results were highly significant (at 1% level of significance).

In 2004, lesser educated respondents were 50.1% more likely to limit their childbearing compared to those with higher level educations: those with primary educations were at 51.8%, and secondary educated respondents were 12.1% more likely to limit their childbearing compared to the those who were more educated. In 2007, those with no education and those with only primary level educations were 15.8% and 5.3% more likely to limit their childbearing compared to those with higher education levels, but secondary educated respondents were 2.5% less likely to limit their childbearing compared to the higher educated respondents. In 2011, uneducated, primary educated and secondary educated respondents were 35.7%, 40.6% and 17.5% more likely to limit childbearing compared to the reference group. In 2014, 86.4% illiterate respondents were more likely to limit childbearing compare to the reference group, 51.7% primary educated respondents and 27.7% secondary educated respondents were more likely to limit childbearing compare to the higher educated respondents.

Table 6. Regression coefficients and Odds Ratios (OR) with 95% confidence intervals of explanatory variables for the intention to limit childbearing obtained from logistic regression model

Characteristics	OR (95% CI)			
	2004	2007	2011	2014
Age group				
15-24	0.114(0.086-0.151)***	0.097(0.077-0.122)***	0.069(0.055-0.085)***	0.054(0.043-0.067)***
25-34	0.324(0.249-0.422)***	0.313(0.245-0.4)***	0.284(0.232-0.349)***	0.217(0.177-0.265)***
35-49 (Ref)	1	1	1	1
Number of living children				
0	0.018(0.01-0.032)***	0.015(0.008-0.027)***	0.031(0.019-0.051)***	0.027(0.013-0.054)***
1-3	0.421(0.305-0.582)***	0.267(0.168-0.423)***	0.575(0.387-0.854)***	0.488(0.286-0.831)***
3+(Ref)	1	1	1	1
Education Category				
No Education	1.501(1.068-2.111)***	1.158(0.825-1.625)	1.357(1.035-1.780)**	1.864(1.411-2.462)***
Primary	1.518(1.114-2.069)***	1.053(0.762-1.455)	1.406(1.101-1.796)**	1.517(1.186-1.941)***
Secondary	1.121(0.842-1.492)***	0.975(0.729-1.303)	1.175(0.943-1.463)**	1.277(1.040-1.568)***
Higher (Ref)	1	1	1	1
Use of Family Planning				
Modern Method	1.772(1.514-2.075)***	1.657(1.418-1.935)***	1.502(1.329-1.697)***	1.67(1.451-1.922)***
No Method (Ref)	1	1	1	1
Wealth index				
Poorest	0.774(0.569-1.051)*	1.158(0.873-1.537)	1.189(0.937-1.508)	1.064(0.791-1.431)
Poorer	0.779(0.608-0.999)*	1.208(0.93-1.569)	1.274(1.026-1.583)	0.963(0.741-1.252)
Middle	0.847(0.671-1.070)*	1.054(0.816-1.362)	1.191(0.981-1.446)	0.858(0.655-1.123)
Richer	1.043(0.816-1.333)*	0.997(0.809-1.229)	1.059(0.879-1.277)	0.910(0.729-1.136)
Richest (Ref)	1	1	1	1
Place of residence				
Urban	1.085(0.909-1.296)	1.426(1.181-1.722)***	1.109(0.949-1.295)	0.996(0.846-1.171)
Rural (Ref)	1	1	1	1
Access to media				
No	0.963(0.805-1.153)	0.95(0.809-1.116)	0.92(0.8-1.059)	1.026(0.878-1.199)
Yes (Ref)	1	1	1	1

Characteristics	OR (95% CI)			
	2004	2007	2011	2014
Age at first marriage				
Below 15 years	2.44(1.84-3.236)***	2.448(1.81-3.312)***	2.578(2.046-3.247)***	2.687(2.052-3.518)***
15-19	1.618(1.234-2.122)***	1.675(1.274-2.204)***	1.75(1.417-2.162)***	1.771(1.39-2.257)***
20+ (Ref)	1	1	1	1
Respondent Currently Working				
No	0.906(0.751-1.094)	0.867(0.74-1.016)*	1.221(1.031-1.446)**	0.946(0.812-1.102)
Yes (Ref)	1	1	1	1
Previous Child Death				
No	2.454(1.903-3.164)***	2.332(1.843-2.95)***	2.51(2.03-3.104)***	2.476(1.907-3.215)***
Yes (Ref)	1	1	1	1
Religion				
Muslim	0.715(0.539-0.947)**	0.932(0.648-1.339)	0.708(0.592-0.847)***	0.666(0.544-0.814)***
Non-Muslim (Ref)	1	1	1	1
Total number of children				
0-2	0.109(0.062-0.189)***	0.144(0.074-0.282)***	0.088(0.042-0.186)***	0.047(0.018-0.123)***
3-5	0.58(0.368-0.915)***	0.668(0.357-1.25)***	0.533(0.263-1.082)***	0.266(0.107-0.661)***
5+ (Ref)	1	1	1	1

*Notes. ***P value < 0.01, **P value < 0.05, *P value <0.1; Ref = Reference category, wants more children is the reference category for dependent variable*

It is found that among income levels, the poorest, poorer and middle families were 22.6%, 22.1%, and 15.3% less likely to limit their childbearing respectively compared to the richest and richer families 4.3% more likely to have more children compare to the richest family in 2004. In 2007, the poorest, poorer and middle families were 1.158, 1.208 and 1.054 times more likely to limit childbearing respectively compared to the richest family and richer families being 0.3% less likely to limit of childbearing compare to the reference group. In 2011, It is observed that poorest, poorer, middle and richer family were 1.189, 1.274, 1.191 and 1.059 times more likely to limit their childbearing respectively, compared to the richest family. The poorest family was 6.4% more likely to limit their childbearing compared to the richest family, and poorer, middle and richer family were 3.7%, 14.2% and 9.0% less likely to limit their childbearing respectively, compared to the richest family in 2014.

The Odds Ratio (OR) for the families that lived in an urban area was found to be 1.085, 1.426, 1.109 and 0.996 in 2004, 2007, 2011 and 2014. Compared to those in rural areas, this indicates that 8.5%, 42.6%, 10.9% of families living in urban areas were more likely to limit their childbearing, compared to those in rural areas in 2004, 2007 and 2001. Urban families were 0.4% less likely to limit their childbearing compared to rural families in 2014.

For media access, the ORs were 0.963, 0.95, 0.92 and 1.026 in 2004, 2007, 2011 and 2014 respectively. This is clear from the OR result that having no media access increases the tendency to take more children.

The preference to limit childbearing increased by 2.44, 2.448, 2.578 and 2.687 times for respondents with an age at marriage below 15, compare to respondents with age at marriage 20 or more. Results increased by 1.618, 1.675, 1.75 and 1.771 times for respondents with age at marriage in between 15-19 compare to the group with age at marriage 20 or more in 2004, 2007, 2011 and 2014.

In 2004, 2007 and 2014, housewife respondents were more likely to have more children compared to working respondents. In this case, the ORs were found to be 0.906, 0.867 and 0.946 but in 2011, results were that 22.1% of housewives were more likely to limit childbearing compared to working respondents.

ORs for the family with no child death in the past were 2.454, 2.332, 2.51 and 2.476 in 2004, 2007, 2011 and 2014 respectively. This result is also highly significant (1% level of significance). The implication here is that there was a greater chance to have more children in a family with one or more child deaths in the family's history.

For Muslim participants ORs are 0.715, 0.932, 0.708 and 0.666, which means that Muslim families were more likely to have more children than non-Muslim families, which was also the case for Malawi and other parts of sub-Saharan Africa, and four Asian countries [28,29,30, and 31].

Results reveal an 89.1%, 85.6%, 91.2% and 95.3% increased chance for families with 0-2 children, while the results indicated an 42.0%, 33.2%, 46.7% and 73.4% increased chance for families that had 3-5 children. Each category was compared against a family who has more than five children in 2004, 2007, 2011 and 2014 respectively.

4. CONCLUSION

This study examined the influential factors of woman's intention to limit childbearing in Bangladesh, based on four recent national surveys. The study showed that women in the age group ranging from 15 to 24 wanted to have more children compared to other age groups, as newlywed brides face strong pressures to become pregnant in Bangladesh [32]. The number of living children, another important factor, influenced women to have more children. Results in Table 6 showed that families with secondary education and more wanted to have more children primarily because 90% of highly educated families and almost 75% of secondary educated families had only 0 to 2 children [Fig. 2]. Although an educated family wanted to have more children, they were more conscious about family size and family planning, which indicated that education was a very important factor in controlling the size of a population. Families using a modern contraceptive method were very aware of the future population growth. To more effectively manage the population crisis in Bangladesh and elsewhere, we should increase awareness of family planning methods, and work to clear out fears of side effects that families have regarding modern contraceptive methods.

Desire to have children had gone down across all economic statuses over the years; however, the

most noticeable improvement had happened among the poorest group (30% of them wanted to have more children in 2014 as opposed to 38.5% in 2004, Table 5). In recent years, wealthier families wanted to have more children compared to their counter parts primarily because of the number of children they had (almost 70% of them have 0-2 children [Figure 3]). Rural families were likely to have more children than urban families. Access to media, age at first marriage, respondents working status, region, previous child death, religion and the total number of children are the most concurrent features for influencing women's intention to limit childbearing in Bangladesh.

It has become high time for Bangladesh to start focusing on this issue. In order to combat the overpopulation crisis, the benefits of having a small family should be highly promoted. Both electronic and print media should introduce more exposure to this idea, and advertisements should be developed promoting a smaller family size, particularly in rural areas to ensure a maximum coverage of people. Different seminars and projects must be taken at different institutions to raise awareness. Family planning services should be made more readily available to rural families. NIPORT and the Family Planning Department of Ministry of Health and Family Welfare in Bangladesh must provide expanded and specialized facilities, including free counseling, incentives for schooling, and health care for families with limited number of children.

CONSENT

Written informed consent was obtained from the participants before participation in the study, and data collection was conducted confidentially.

ETHICAL APPROVAL

There was no need to undergo an ethical approval process, since the study is based on publicly available secondary data.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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