

## Prevalence of Unintended Pregnancy and its Association with Unmet Need for Contraception among Married Women in Bangladesh

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### ABSTRACT

**Objectives:** Unmet need for contraception and unintended pregnancy is perceived as critical boundaries towards advancing women's regenerative wellbeing and prosperity. This paper examines the current prevalence of unintended pregnancy and unmet need for contraception and explores the effect of unmet need for contraception in unwanted pregnancy in a nationwide representative sample in Bangladesh.

**Methods:** This cross-sectional study is based on data from Bangladesh Demographic Health Survey, 2014. Participants were 4,074 married women of reproductive age (15-49 years). Pregnancy intention status for the last-born child was the leading result variable and the independent variable of basic concern was unmet need for contraception. In this analysis we used chi-square test of independence and binary logistic regression.

**Results:** An unmet need for contraception is a significant predictor of unintended pregnancy and average age of the sample populace was 24.36 years (SD 5.625). About 24.4% of the women explained their most recent pregnancy as unintended and the prevalence of unmet need for contraception was 17.9%. In the binary logistic model, the odds ratio indicates that women who had unmet need for contraception were about 32 times bound to have unintended pregnancy contrasted with the individuals who had not (95% CI = 17.284 – 60.434).

**Conclusions:** Women in rural areas had the highest prevalence of both unintended pregnancy and unmet need for contraception than women in urban. Findings suggest that, reducing unplanned pregnancy, planning and actualizing procedures that make awareness at the community level and reinforcing no unmet need for contraception are recommended in Bangladesh.

### Keywords

Unintended pregnancy; Unmet need; Contraception; Odds ratio

### Introduction

The problem of unintended pregnancy has been confronting by ladies living in each country, paying little heed to its advancement status. Unintended pregnancy is an expected danger for each explicitly sexually dynamic lady. It's been an overall issue that influences women along with their families, society, as well as the nation. An unpredictable arrangement of social and mental factor puts women in danger for unintended childbearing [1]. The problem of unintended pregnancy has been crucial to demographers trying to get fruitfulness, to general wellbeing professionals in stopping unwanted pregnancy and to both groups in enhancing a woman's capacity to decide if and at what time to have kids [2]. Unwanted pregnancies have a wide scope of adverse consequences, for example, low birth weight, untimely birth [3], maternal gloom [4]–[6], anxiety [7], poor physical and mental prosperity [8], and antenatal and delivery care, breastfeeding and infant mortality [9] have been documented and thus it has obtained growing research and policy attention during the most recent couple of decades. Mothers whose pregnancies are mistimed/unwanted pregnancies are more averse to start and use pre-birth and antenatal consideration, or look for it later than mothers who have planned pregnancies [10], [11]. It is such a general medical issue that may lead women to illness and death mainly through risky fetus removal in addition it also results in economic, social, and health crisis throughout the

world. And if unintended pregnancies could be controlled then up to 1 million maternal passings and 4.6 million disability-adjusted life years (DALYs) might be prevented globally, shown from the evidence of recent estimates [12]. In 2008, around the world out of 208 million pregnancies about 86 million (41%) were unwanted and of these unwanted pregnancies nearly 41 million (48%) finished in premature births, 33 million (almost 39%) finished in unwanted births, and around 11 million (nearly 13%) ended in miscarriages [13]. According to Population Reference Bureau reports (2009 estimation), unwanted pregnancy is a typical result for in excess of 200 million women overall who need to quit having children or delay their next pregnancy yet are not utilizing a successful technique for contraception [14].

In most cases, unintended pregnancies occur due to misuse or non-use of contraceptives, or noticeable contraceptive failure [15]. Unintended pregnancy is a significant danger factor for prompt premature birth and prosthetic involvement, and is considered to be the most difficult issue in the field of maternal and child morbidity wellbeing, and females' regenerative wellbeing all-inclusive [16]– [18]. Unwanted pregnancy, as well as early termination create critical boundaries to accomplishing Millennium Development Goals (MDGs) related to the maternal and youngster wellbeing [19]. The contraceptive prevalence rate (CPR) expanded practically nearly six-fold from 8 percent to 45 percent between 1975 and 1993–94, and the corresponding fruitfulness rate has decreased from 6.4 births for each woman to 3.4 births for each woman between 1975 and 1994 [20]. Subsequently, throughout the time of 1994 to 2007, the pace of utilization of any type of contraception among wedded women has expanded by 11% (45% to 56%) also utilization rate of modern methods has expanded to 48% [21]. Three of each five wedded ladies in Bangladesh utilize a contraception technique, and of them a greater part about 52% utilize current strategies (modern methods) for contraception. Also practice of contraceptives has improved between 2007 to 2011 from 56 percent to 61 percent [22]. During 1993 to 2014, the percentage of unplanned pregnancy has also decreased, though, at a lethargic rate from 33 percent to 26 percent throughout the nation [23]. In spite of these accomplishments, the prevalence of unmet need for contraception despite everything stays high and has been expanding yet gradually lately. Demographic and Health Survey (DHS) characterizes unmet need for contraception as a circumstance when ladies are reluctant to take more kids or need to take around at least two years gap after the last pregnancy yet are not utilizing any types of contraception. The gap between women's regenerative expectations and their contraceptive behaviour is the main focus behind the idea of unmet need. According to World Health Organisation (WHO) definition: Women who are fertile and sexually dynamic yet are not utilizing any technique for contraception, and reporting not having any desire for additional child or needing to postpone the next child is considered to have unmet need. As indicated by Bangladesh Demographic and Health Survey (BDHS 2011), unmet need for family planning has expanded from 11 percent to 17 percent of currently married women between 2004 and 2007 and afterward diminished to 14 percent in 2011 and women residing in rustic zones found to have about 14% unmet need which is higher than women residing in metropolitan regions (about 11%) [22]. According to division, unmet need is most elevated in Chittagong division (about 21%) then least in Khulna division and Rangpur division (both are 10%) [22]. These discoveries uncover that unmet need is a developing concern and can be seen as a botched chance to report about unplanned pregnancy in the nation. Worldwide appraisals demonstrated that between 2010 and 2014 about 56.3 million abortions occurred annually and half of all abortions are assessed to be hazardous and 97% of these happen in developing countries [24]. It has been evaluated that about 82% of unintended pregnancies occurred because of unmet need for contraception [25]. About 54 million unintended pregnancies and 26 million abortions would be prevented each year if all

women having unmet need utilized a modern contraceptive method [26]. For the above context, it is important to concentrate more on undesirable pregnancy as well as unmet need for contraception in addition through study it is possible to understand the socioeconomic determining factors of these problems for developing effective tactics for the anticipation of unintended pregnancies. However, there stays a lack of exploration proof concerning the causes of relationship with unintentional pregnancy in Bangladesh. Here in our investigation, we plan to analyze the current prevalence of unplanned pregnancy as well as unmet need for contraception and investigate the impact of unmet need for contraception in unplanned pregnancy. Aimed at this reason, we utilized information from the most recent demographic and health survey of Bangladesh, that is nationwide representative as well as a trustworthy source of populace health statistics in Bangladesh.

## Methods

### Study Design and Data Source:

Data for this cross-sectional study were extracted from Bangladesh Demographic and Health Survey conducted in 2014. The 2014 survey was the seventh to be conducted in the country. The survey was conducted by an autonomous national research institution under the Ministry of Health and Family Welfare namely, National Institute of Population Research and Training (NIPORT) and a notable research institution within the country namely, Mitra and Associates executed the survey. ICF International of Rockville (Maryland, USA) provided the technical assistance and United States Agency for International Development (USAID) provided the financial assistance [27]. A two-stage stratification technique was used to select sample households. Initially, 393 clusters were chosen in rural areas and 207 clusters were chosen in urban regions for 600 enumeration areas (EAs) with proportional probability. In the second stage, on average a sample of 30 households was selected per enumeration area (EA) by systematic sampling. Altogether 18,245 ever-married ladies aging somewhere in the range of 15 and 49 years were carefully chosen for interview of 2014 BDHS survey, of whom 17,863 were at last studied where reaction rate remained 98% [27]. Participants of 4,074 married women were extracted from 17,863 married women of generative age (15–49 years) from both rural residencies and urban residencies for this study.

### Variable selection:

The result variable of this investigation was pregnancy expectation status for the last-born child among ladies. The conception of unintended pregnancy is recognized as a complicated and subtle one among researchers [28]. Albeit a subsample of the presently pregnant ladies stated their intention status for their present pregnancy, the subsample was not very numerous to even think about producing genuinely significant outcomes. Thus the most recent completed pregnancy occurred in the 5 years going before the review and any existing pregnancy was considered for the analysis. According to the traditional rules, needed later (alluding to ill-timed pregnancy) and needed no more (alluding to undesirable pregnancy) fall inside the extent of undesirable/unplanned pregnancy [14], [29] and is normally utilized as a binary result variable i.e., intended = needed at that point, and unintended/ unplanned = needed later/ needed no more.

$$Y = \begin{cases} 1, & \text{If the } i^{\text{th}} \text{ respondent stated her last pregnancy as unwanted (Unintended)} \\ 0, & \text{If the } i^{\text{th}} \text{ respondent stated her last pregnancy as wanted (Intended)} \end{cases}$$

The leading explanatory variable of this investigation was unmet need for contraception. The break between ladies' regenerative expectations and their contraceptive behaviour is the main focus behind the idea of unmet need. Unmet need for contraception indicates the non-use of any contraceptive method among ladies who are prolific and sexually dynamic, yet need no new pregnancies or need to postpone the resulting pregnancy. Participants were explained the perception by the interviewer and the subsequent options were given for answering the query whether they had unmet need for contraception or not. In light of these reactions, we just kept those perceptions for which unmet need for contraception is appropriate. As an instance, ladies who were not fertile are not intended to utilize contraceptives and thus before analysis, we removed those observations from the dataset. The individuals who are at present utilizing any contraception strategy for dispersing and restricting were sorted as: Has no unmet need, otherwise has unmet need.

For picking significant covariates, a writing search in conspicuous clinical databases was led for concentrates on unwanted pregnancy. In light of the writing survey, and accessibility inside the BDHS datasets, the subsequent covariates were chosen for this investigation: Age (<25/≥25); Husband/partner's age (<25/≥25); Type of residence (urban/rural); Division (Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur, and Sylhet); Respondent's highest education level: no education (no institutional education), primary (institutional education of 1–5 years), secondary/higher (institutional education of more than 5 years); Husband/partner's education level: no education (no institutional education), primary (institutional education of 1–5 years), secondary/higher (institutional education of more than 5 years); Husband's occupation: blue collar (comprises engagements in hard manual labor, typically agriculture, manufacturing, construction, mining, or maintenance), white collar (includes clerical, administrative or managerial duties and stereotypically, eschew physical labor such as employments in business, service, health sector, teaching), others (includes unemployment, student etc.); Religion (muslim/non-muslim); Respondent currently working (yes/no); Household head (male/female); Media Access (yes/no); First birth age (<18/≥18); First cohabitation age (<18/≥18); Total children ever born (≤2/ >2); Number of living children (≤2/ >2); Number of Child loss (≤2/ >2); Ideal number of children (≤2/ >2); Autonomy in own healthcare decision (yes/no); Terminated any pregnancy ever (yes/no); Presently residing with husband/partner (living with her/staying elsewhere); Currently using any contraception (yes/no); Visited by FP worker in past 6 months (yes/no); Husband's desire for children (both want same, husband wants more, husband wants fewer); Unmet need for contraception (yes/no); Wealth status (poor/middle/rich). These indicator factors have been remembered for this examination principally dependent on their impact in the existing writings concerning the subject. Media accesses of women were evaluated by asking the frequency of watching television, listening to the radio, and reading newspapers at least once a week. At long last, I classified media access into a dichotomous classification: 0 for no and 1 for yes.

### **Data Analysis**

The BDHS dataset covers info on an extensive scope of factors. The dataset was checked to incorporate just those participants for whom all data vital for the current investigation were

accessible. Before starting the analysis, we weighted the data by sample weights to create population estimates. For displaying the basic sociodemographic features of the sample population descriptive analysis (frequency distribution) was performed. For demonstrating the group differences in regarding pregnancy expectations through the independent variables Pearson's  $\chi^2$  tests was implemented. To guarantee legitimacy for additional examination the independent variables were checked for multicollinearity. Based on the bivariate analysis results, variables that showed statistically significant association ( $p < 0.05$ ) with pregnancy intention status were entered into the binomial logistic regression model all together and assess the net effect of unmet need for contraception on pregnancy intention status after controlling for other variables. For measuring the strength of relationships between pregnancy expectation status and the explanatory variables in the model, adjusted odds ratios (AOR) with 95% confidence intervals (CI) were calculated. Finally, the Wald test (a two-tailed p-value of  $<0.05$ ) is performed to test the significance of the parameters. All analyses were done by using IBM SPSS Statistics version 23 and report writing was done by using MS word.

### Results

**Table 1** represents mean or percentage distributions of the socio-demographic characteristics and contraceptive behavior of the study participants.

**Table 1:** Socio-Demographic Characteristics & Contraceptive Behavior of the Sample Population by Variables Used in Analyses, BDHS 2014

Outcome variable	Mean	SD	
Age	24.36	5.63	
Variables	No. of Respondents (Percentage)	Variables	No. of Respondents (Percentage)
<b>Age</b>		<b>Media access</b>	
< 25	2292 (56.3)	No	1512 (37.1)
≥ 25	1782 (43.7)	Yes	2562 (62.9)
<b>Husband/partner's Age</b>		<b>First cohabitation age</b>	
< 25	343 (8.4)	< 18	2903 (71.3)
≥ 25	3731 (91.6)	≥ 18	1171 (28.7)
<b>Place of residence</b>		<b>First birth age</b>	
Urban	1309 (32.1)	< 18	1766 (43.3)
Rural	2765 (67.9)	≥ 18	2308 (56.7)
<b>Division</b>		<b>Total child ever born</b>	
Barisal	494 (12.1)	≤ 2	2957 (72.6)
Chittagong	783 (19.2)	> 2	1117 (27.4)
Dhaka	720 (17.7)	<b>Number of child alive</b>	
Khulna	477 (11.7)	≤ 2	3100 (76.1)
Rajshahi	496 (12.2)	> 2	974 (23.9)
Rangpur	516 (12.7)	<b>Number of Child loss</b>	
Sylhet	588 (14.4)	≤ 2	4059 (99.6)
<b>Respondent's education level</b>		> 2	15 (0.4)
No Education	507 (12.4)	<b>Ideal number of children</b>	

Primary	1096 (26.9)	≤ 2	3394 (83.3)
Secondary/Higher	2471 (60.7)	> 2	680 (16.7)
<b>Husband's education level</b>		<b>Autonomy in own healthcare decision</b>	
No Education	882 (21.6)	No	1634 (40.1)
Primary	1238 (30.4)	Yes	2440 (59.9)
Secondary/Higher	1954 (48.0)	<b>Terminated any pregnancy ever</b>	
<b>Husband's occupation</b>		No	3477 (85.3)
Blue collar	2758 (67.7)	Yes	597 (14.7)
White collar	1215 (29.8)	<b>Currently residing with husband/partner</b>	
Others	101 (2.5)	Staying elsewhere	590 (14.5)
<b>Wealth index</b>		Living with her	3484 (85.5)
Poor	1605 (39.4)	<b>Currently using any contraception</b>	
Middle	788 (19.3)	No	1315 (32.3)
Rich	1681 (41.3)	Yes	2759 (67.7)
<b>Religion</b>		<b>Visited by FP worker in past 6 months</b>	
Non-Muslim	335 (8.2)	No	3068 (75.3)
Muslim	3739 (91.8)	Yes	1006 (24.7)
<b>Respondent currently working</b>		<b>Husband's expectation for children</b>	
No	3199 (78.5)	Both want same	3338 (82.0)
Yes	875 (21.5)	Husband wants more	458 (11.2)
<b>Household head</b>		Husband wants fewer	278 (6.8)
Male	3726 (91.5)	<b>Unmet need for contraception</b>	
Female	348 (8.5)	No	3346 (82.1)
		Yes	728 (17.9)

By analyzing the mean or percentage distribution table, we can see that the mean age of the respondents was 24.36 years (with SD 5.625) and 56.3% women were aged below 25 years and rest of 43.7% women were aged 25 years or more at the time of the survey. Majority of the respondents' husbands (91.6%) age was 25 years or above and only 8.4% respondents' husbands age was below 25 years. Two-third of the participants were from the rural area with percentage of 67.9% and the remaining one-third of the participants were from urban area. Among all participants' highest participants nearly one-fifth of the participants were from Chittagong division (19.2%) and second highest participants were from Dhaka division (17.7%), while only 14.4%, 12.7%, 12.2% and 12.1% participants were living in Sylhet, Rangpur, Rajshahi and Barisal, and the lowest number of participants about 11.7% were from Khulna. As compared to husbands, nearly two-third (60.7%) of the women completed secondary or higher education whereas less than half (48.0%) of their husbands completed secondary or higher education. But in case of primary education and no formal education husbands had a higher rate than women and the rate of primary education among women and their husbands were 26.9% and 30.4% respectively, also 12.4% women and 21.6% of their husbands had no formal education. Most of the women's husband were involved in blue collar activities about 67.7% and more than a quarter of the women's husband (29.8%) were involved in white collar profession while only 2.5% women's husband were involved in other activities like unemployed, student etc. Well over one-third (41.3%) of the women were belonged to rich wealth status, and also more than one third (39.4%) of the women were belonged to poor class while less than one-fifth (19.3%) of the women were from middle class. On the basis of religion, most of the women were Muslim with highest percentage of 91.8% and only 8.2% women were non-muslim. Also majority of the

women more than two-third of the women currently had no employment having percentage of 78.5% and only one-fifth (21.5%) of the women had currently employment. All over most of the household were male headed about 91.5% and the rest 8.5% households were female headed. And more than three-fifths of the respondents had media access (62.9%) while only 37.1% respondents had no media access. More than two-third of the women about 71.3% experienced first cohabitation prior to arriving at the age of 18 years and only the remaining 28.7% ladies experienced first cohabitation at the age of 18 years or above. Also about 43.3% ladies experienced first childbirth prior to arriving at the age of 18 years and the rest 56.7% ladies experienced first childbirth at the age of 18 years or above. Women had two or less number of children ever born was 72.6% and the rest had more than two children ever born. The proportion of women who had two or less number of living children was 76.1% and 23.9% had more than two living children. Almost all of the women about 99.6% had two or less number of child loss and only a very few percent about 0.4% had more than two child loss. All over 83.3% like 4 out of 5 women are said to have two or fewer children and less than one-fifth (16.7%) women with more than two children have a fair number of children. About 59.9% women confirmed that they were involved in their health care decision and women who stated that they had no involvement in own health care decision was 40.1%. Less than one-fifth of the women (14.7%) ever terminated a pregnancy and women had no terminated pregnancy ever was 85.3%. Maximum women (85.5%) were living with their husband and only 14.5% were staying elsewhere. About 67.7% women reported using any contraceptive method whereas women reported not using any contraceptive method was 32.3%. There were 24.7% of women who were visited by FP worker in last 6 months and more than three-quarter (75.3%) of the women weren't visited by FP worker in last 6 months. Desire for children among women and husband was- "both want same" was maximum about 82%, "husband wants more" was about 11.2% and a very little percentage only about 6.8% was "husband wants fewer". Little less than one-fifth of the women (17.9%) reported that they were facing unmet need for contraception and the rest 82.1% women facing no unmet need for contraception.

**Table 2.** Association of Unintended Pregnancy with Explanatory Variables, BDHS 2014

Explanatory variables	Last pregnancy by intention status (n = 4,074)		Total (%)	$\chi^2$ - value	P-value
	Unintended (24.4)	Intended (75.6)			
	Number (%)	Number (%)			
<b>Age</b>					
< 25	510 (51.3)	1782 (57.9)	2292 (56.3)	13.099	.000
≥ 25	484 (48.7)	1298 (42.1)	1782 (43.7)		
<b>Husband's Age</b>					
< 25	70 (7.0)	273 (8.9)	343 (8.4)	3.233	.072
≥ 25	924 (93.0)	2807 (91.1)	3791 (91.6)		
<b>Place of residence</b>					
Urban	275 (27.7)	1034 (33.6)	1309 (32.1)	12.018	.001
Rural	719 (72.3)	2046 (66.4)	2765 (67.9)		

<b>Division</b>					
Barisal	134 (13.5)	360 (11.7)	494 (12.1)		
Chittagong	170 (17.1)	613 (19.9)	783 (19.2)		
Dhaka	165 (16.6)	555 (18.0)	720 (17.7)		
Khulna	132 (13.3)	345 (11.2)	477 (11.7)	20.405	.002
Rajshahi	142 (14.3)	354 (11.5)	496 (12.2)		
Rangpur	101 (10.2)	415 (13.5)	516 (12.7)		
Sylhet	150 (15.1)	438 (14.2)	588 (14.4)		
<b>Respondent's education level</b>					
No Education	164 (16.5)	343 (11.1)	507 (12.4)		
Primary	320 (32.2)	776 (25.2)	1096 (26.9)	49.977	.000
Secondary/ Higher	510 (51.3)	1961 (63.7)	2471 (60.7)		
<b>Husband's education level</b>					
No Education	271 (27.3)	611 (19.8)	882 (21.6)		
Primary	324 (32.6)	914 (29.7)	1238 (30.4)	38.022	.000
Secondary/Higher	399 (40.1)	1555 (50.5)	1954 (48.0)		
<b>Husband's occupation</b>					
Blue collar	700 (70.4)	2058 (66.8)	2758 (67.7)		
White collar	285 (28.7)	930 (30.2)	1215 (29.8)	15.161	.001
Others	9 (0.9)	92 (3.0)	101 (2.5)		
<b>Wealth index</b>					
Poor	455 (45.8)	1150 (37.3)	1605 (39.4)		
Middle	197 (19.8)	591 (19.2)	788 (19.3)	28.707	.000
Rich	342 (34.4)	1339 (43.5)	1681 (41.3)		
<b>Religion</b>					
Non-Muslim	55 (5.5)	280 (9.1)	335 (8.2)	12.604	.000
Muslim	939 (94.5)	2800 (90.9)	3739 (91.8)		
<b>Respondent currently working</b>					
No	739 (74.3)	2460 (79.9)	3199 (78.5)	13.597	.000
Yes	255 (25.7)	620 (20.1)	875 (21.5)		
<b>Household head</b>					
Male	919 (92.5)	2807 (91.1)	3726 (91.5)	1.672	.196
Female	75 (7.5)	273 (8.9)	348 (8.5)		
<b>Media access</b>					
No	432 (43.5)	1080 (35.1)	1512 (37.1)	22.696	.000
Yes	562 (56.5)	2000 (64.9)	2562 (62.9)		
<b>First cohabitation age</b>					
< 18	750 (75.5)	2153 (69.9)	2903 (71.3)	11.302	.001
≥ 18	244 (24.5)	927 (30.1)	1171 (28.7)		
<b>First birth age</b>					
< 18	521 (52.4)	1245 (40.4)	1766 (43.3)	44.009	.000
≥ 18	473 (47.6)	1835 (59.6)	2308 (56.7)		
<b>Total child ever born</b>					
≤ 2	535 (53.8)	2422 (78.6)	2957 (72.6)	232.502	.000
> 2	459 (46.2)	658 (21.4)	1117 (27.4)		
<b>Number of child alive</b>					
≤ 2	570 (57.3)	2530 (82.1)	3100 (76.1)	254.038	.000



> 2	424 (42.7)	550 (17.9)	974 (23.9)		
<b>Number of child loss</b>					
≤ 2	991 (99.7)	3068 (99.6)	4059 (99.6)	.158	.691
> 2	3 (0.3)	12 (0.4)	15 (0.4)		
<b>Ideal number of children</b>					
≤ 2	815 (82.0)	2579 (83.7)	3394 (83.3)	1.640	.200
> 2	179 (18.0)	501 (16.3)	680 (16.7)		
<b>Autonomy in own healthcare decision</b>					
No	399 (40.1)	1235 (40.1)	1634 (40.1)	.001	.981
Yes	595 (59.9)	1845 (59.9)	2440 (59.9)		
<b>Terminated any pregnancy ever</b>					
No	840 (84.5)	2637 (85.6)	3477 (85.3)	.740	.390
Yes	154 (15.5)	443 (14.4)	597 (14.7)		
<b>Currently residing with husband/partner</b>					
Staying elsewhere	113 (11.4)	477 (15.5)	3484 (85.5)	10.294	.001
Living with her	881 (88.6)	2603 (84.5)	590 (14.5)		
<b>Currently using any contraception</b>					
No	270 (27.2)	1045 (33.9)	1315 (32.3)	15.736	.000
Yes	724 (72.8)	2035 (66.1)	2759 (67.7)		
<b>Visited by FP worker in last 6 months</b>					
No	726 (73.0)	2342 (76.0)	3068 (75.3)	3.639	.056
Yes	268 (27.0)	738 (24.0)	1006 (24.7)		
<b>Husband's expectation for children</b>					
Both want same	792 (79.7)	2546 (82.7)	3338 (81.9)		
Husband wants more	131 (13.2)	327 (10.6)	458 (11.2)	5.401	.067
Husband wants fewer	71 (7.1)	207 (6.7)	278 (6.8)		
<b>Unmet need for contraception</b>					
No	735 (73.9)	2611 (84.8)	3346 (82.1)	60.046	.000
Yes	259 (26.1)	469 (15.2)	728 (17.9)		

**Table 2** shows results of chi-square tests which comparing the corresponding percentage of respondents who reported unintended pregnancies contrary to a variety of demographic, social and economic, health-related factors and contraceptive behaviors. Implementing the chi-square test of independence, it is found that among the context oriented variables respondent's age, residence, division, respondent's education, husband's education, husband's occupation, wealth index, religion, respondent currently working, media exposure, first cohabitation age, first birth age, total child ever born, number of child alive, currently residing with husband/partner, presently utilizing any contraception and unmet need for contraception all had a statistically significant correlation with respondents pregnancy intention status of Bangladesh (P-value < 0.05). Other variables are not found significantly associated with pregnancy intention status (P-value > 0.05).

**Table 3:** Logistic Regression Coefficients of Unintended Pregnancy Among Women of Reproductive Age in Bangladesh, 2014 (Adjusted Odds Ratios (AOR))

Parameter	$\beta$	S.E.	Wald	df	Sig.	Exp( $\beta$ )	95% C.I. for
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	<b>Exp(<math>\beta</math>)</b>							
							<b>Lower</b>	<b>Upper</b>
<b>Age</b>								
< 25 <sup>®</sup>						1		
≥ 25	-.590	.110	28.910	1	.000***	.554	.447	.687
<b>Place of residence</b>								
Urban <sup>®</sup>						1		
Rural	.118	.098	1.455	1	.228	1.125	.929	1.362
<b>Division</b>								
Barisal <sup>®</sup>						1		
Chittagong	-.338	.147	5.284	1	.022*	.713	.535	.951
Dhaka	-.116	.150	.600	1	.439	.891	.664	1.194
Khulna	.218	.158	1.915	1	.166	1.244	.913	1.695
Rajshahi	.180	.156	1.331	1	.249	1.197	.882	1.624
Rangpur	-.337	.162	4.294	1	.038*	.714	.519	.982
Sylhet	-.147	.158	.859	1	.354	.864	.633	1.177
<b>Respondent's education level</b>								
No						1		
Education <sup>®</sup>								
Primary	.080	.135	.354	1	.552	1.083	.832	1.411
Secondary/ Higher	-.090	.144	.391	1	.532	.914	.689	1.212
<b>Husband's education level</b>								
No						1		
Education <sup>®</sup>								
Primary	-.007	.113	.003	1	.953	.993	.796	1.240
Secondary/ Higher	-.026	.126	.044	1	.834	.974	.761	1.247
<b>Husband's occupation</b>								
Blue collar <sup>®</sup>						1		
White collar	.051	.093	.306	1	.580	1.053	.877	1.264
Others	-1.004	.367	7.478	1	.006**	.366	.178	.752
<b>Wealth index</b>								
Poor <sup>®</sup>						1		
Middle	-.014	.117	.014	1	.906	.986	.784	1.240
Rich	-.084	.123	.464	1	.496	.919	.722	1.171
<b>Religion</b>								
Non-Muslim <sup>®</sup>						1		
Muslim	.345	.165	4.373	1	.037*	1.412	1.022	1.950
<b>Respondent currently working</b>								
No <sup>®</sup>						1		
Yes	.159	.095	2.794	1	.095	1.173	.973	1.413
<b>Media access</b>								
No <sup>®</sup>						1		
Yes	.039	.102	.144	1	.705	1.039	.852	1.268
<b>First cohabitation age</b>								
< 18 <sup>®</sup>						1		

$\geq 18$	.307	.113	7.388	1	.007**	1.359	1.089	1.695
<b>First birth age</b>								
< 18®						1		
$\geq 18$	-.264	.098	7.279	1	.007**	.768	.634	.930
<b>Total child ever born</b>								
$\leq 2$ ®						1		
> 2	.534	.218	5.999	1	.014*	1.706	1.113	2.615
<b>Number of child alive</b>								
$\leq 2$ ®						1		
> 2	1.004	.222	20.389	1	.000***	2.729	1.765	4.220
<b>Currently residing with husband/partner</b>								
Staying elsewhere®						1		
Living with her	.439	.135	10.510	1	.001***	1.551	1.189	2.022
<b>Currently using any contraception</b>								
No®						1		
Yes	2.883	.310	86.210	1	.000***	17.863	9.720	32.827
<b>Unmet need for contraception</b>								
No®						1		
Yes	3.476	.319	118.46	1	.000***	32.319	17.284	60.434
Constant	-4.764	.415	131.87	1	.000***	.009		

Note: ® indicate reference category and \*\*\* P < 0.001, \*\* P < 0.01, \* P < 0.05

From **Table 3**, it is shown that respondent's age, division, husband's occupation, religion, first cohabitation age, first birth age, total child ever born, number of child alive, currently residing with husband/partner, currently using any contraception and unmet need for contraception all have a significant impact on pregnancy intention status.

Binary logistic regression was used to measure the effect of several factors on the likelihood that respondents stated their last pregnancy as unintended. The full model containing all predictors was statistically significant,  $\chi^2(26, N = 4,074) = 631.667, p < 0.001$ , showing that the model had the ability to make a distinction between respondents who reported and didn't report last pregnancy as unintended. The model all in all clarified between 14.4% (Cox and Snell R square) and 21.4% (Nagelkerke R squared) of the variance in pregnancy intention status, and effectively grouped 77.3% of cases. As presented in Table 3, just nine of the explanatory variables made a unique statistically significant impact to the model (respondent's age, religion, first cohabitation age, first birth age, total child ever born, number of child alive, currently residing with husband/partner, currently using any contraception and unmet need for contraception).

The strongest predictor of reporting unintended pregnancy was having unmet need for contraception, recording an odds ratio of 32.3. This indicated that respondents who had unmet need for contraception were over 32.3 times more likely to report unintended pregnancy than those who did not have unmet need for contraception, controlling for all other factors in the model. The odds ratio of 17.8 for currently using any contraception was second strong predictor

of reporting unintended pregnancy, indicating that respondents who were currently using any contraception were 17.8 times more likely to report unintended pregnancy than those who weren't currently using any contraception, controlling for other factors in the model which indicates that the contraception method that the respondents currently using is not working or choosing a wrong contraception method or not using it with properly following the indicated instructions or irregular use of contraception.

Multivariate analysis shows a negative regression coefficient of women with age  $\geq 25$  years. That means women of age  $\geq 25$  years are less likely to have unintended pregnancy than women of age  $< 25$  years. Odds ratio indicates that older women are 45% less likely to report having an unintended pregnancy.

Multivariate analysis also reveals that women of Chittagong and Rangpur have a negative regression coefficient and significant tendency to have less unintended pregnancy compared to Barisal division. It is noticed that Chittagong and Rangpur division's respondents are both 28% less likely to have unintended pregnancy than Barisal division respondents, respectively. But the odds ratio of women in the Dhaka, Khulna, Rajshahi and Sylhet divisions did not show significant association since  $p\text{-value} > 0.05$ .

The result also illustrates that the occupation of respondent's husbands shows a significant association. Husbands involving in others occupation (Student, Unemployment, etc.) are less likely (odds ratio is .366) to have unintended pregnancy than husbands involving in blue collar activities. The odds value also increases to 1.053 to husbands involving in white collar activities than husbands involving in blue collar activities. But this outcome did not indicate significant relationships since  $p\text{-value} > 0.05$ .

The study demonstrates that religion has a significant association with pregnancy intention status. The result indicates Muslim women are 1.4 times more likely to have unintended pregnancy compared to Non-muslim women. The odds ratio indicated that age at first cohabitation had a strong positive association with pregnancy intention status. Respondents who had first cohabitation at 18 years or above are found to have unintended pregnancy 1.36 times more likely compared with those who had first cohabitation at below 18 years.

Similarly, age of respondents at first birth also exhibits a significant impact on the dependent variable, which shows respondents who had her first birth at the age of below 18 years are more experiencing unwanted pregnancy than the respondents who had her first birth at 18 years or above. Multivariate analysis shows a negative regression coefficient of respondents who had her first birth at 18 years or above. Odds ratio indicates that respondents who had her first birth at 18 years or above are 23% less likely to have unintended pregnancy than respondents who had her first birth at below 18 years. This result also shows significant since  $p\text{-value} < 0.05$ .

Total child ever born and number of living children also shows a positive association with pregnancy intention status. Multivariate analysis indicates that unintentional pregnancy increases with total child ever born and number of living children. Women with more than two children ever born and number of living children are respectively 1.7 times and 2.7 times more likely to have unintended pregnancy than women with two or less number of total child ever born and number of living children.

## Discussions

Finally, the result illustrates that women who were currently residing with their husband/partner has a strong positive association with pregnancy intention status. The result indicates that women who were currently residing with their husband/partner showed 1.5 times more likely to have unintended pregnancy than ladies who were currently staying elsewhere.

According above analysis here are some recommendations -

- Different social policies and exertion should be formulated to guarantee the advancement in human administrations organizations are running smoothly and consistently in the nation over, as well as the remotest region.
- The study proposes building awareness with respect to the bad marks of unintended pregnancy among husbands with blue collar activities. In the long term, education of women ought to be expanded and women giving their first birth at least 18 years or above are recommended to reduce unplanned pregnancy.
- Projects focusing to lessen unmet need for contraception, and legitimate rules ought to be created to quantify the degree and fundamental reasons for unmet need with an end goal to diminish the burden of unintended pregnancy in Bangladesh.
- Enhancing the awareness about family planning among couples who are currently residing with their partners and first cohabitation before 18 years should be strictly prohibited.

More in-depth studies on the influence of behavioral and cultural practices on unintended pregnancy and also the reasons of unmet need for contraception can be helpful for developing explicit ways of unintended pregnancies.

## Conclusion

By doing this study, we have reached to a conclusion that the prevalence of unintended pregnancy and unmet need for contraception are extensively high with critical incongruities through the residence. Unmet need for contraception and current use of contraception has a major effect on unintended pregnancy because women who not having any desire to take additional kids or want to postpone the next should use a proper contraception method otherwise there would have quite possibility of experiencing an unintentional pregnancy. Although 67.7% women were currently using any contraception, still there were many who were experiencing unwanted pregnancy. And in many case, this may be unintentional due to immaturity, unconsciousness and inadequate or lack of knowledge about family planning and contraception.

## Limitations

The study has few limitations. The data were cross-sectional and in a cross-sectional study, it is hard to get causal relationships since this is a 1-time estimation of exposure and outcome. For this reason, there is no guarantee about causal relationships in the study. We can just get proof of

statistical relationship between the things of interest and the experience of unintended pregnancy. As well as, we have Bangladesh Health and Demographic Survey (BDHS) 2014 as latest data source so far during this six years' period the rate and perception about pregnancy intention and contraception utilization among women might be changed. Also data for currently pregnant women would give more significant result but the number was not too many to even think about producing statistically meaningful results. So we have to take consideration about the latest completed pregnancy occurred in the five years going before the study and any current pregnancy.

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