ORIGINAL ARTICLE

Prevalence and Determinants of Contraceptive use among Employed and Unemployed Women in Bangladesh

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ABSTRACT

Background: Contraceptive use plays a significant role in controlling fertility, particularly in reaching the replacement level of fertility. The association between women's employment status and contraceptive use is poorly studied and understood in Bangladesh. The aim of this study was to determine the factors that influence contraceptive use among employed and unemployed women in Bangladesh.

Methods: Data and necessary information of 16,616 married women were extracted from the Bangladesh Demographic and Health Survey (BDHS) 2011. The cross sectional data has been used for univariate analysis, to carry out the description of the variables; bivariate analysis, to find the associations among the variables; and binary logistic regression analysis, to evaluate the effects of selected sociodemographic factors on contraceptive use.

Results: The results revealed that the contraceptive use was found higher among employed women (67%) than that of unemployed women. Women's age, education, region, number of living children, and child preference were found to be significantly associated with current use of contraception among employed women. On the other hand, women's age, education, husband's education, region, residence, religion, number of living children, ever heard about family planning, and child preference were identified as the significant predictors of contraceptive use among unemployed women.

Conclusion and Global Health Implications: A gap in using contraceptives among employed and unemployed women is identified. By creating employment opportunities for women to be enhanced the contraceptive use. Moreover, the sociodemographic factors need to be taken into consideration in formulating policies and implementing programs to increase the contraceptive prevalence rate among women.

Key words: Contraception • Reproductive Age • Family Planning • Women Employment • BDHS

1. Introduction

High fertility rate and hence high population growth rate are among the leading economic and social problems faced by the developing world. The high population growth rate has been associated with increased level of poverty and decreased life expectancy.[1-4] Contraception is unique among medical interventions in the breadth of its positive outcomes. It is an effective means of FP and fertility control and therefore very important in promoting maternal and child health.[5] Increasing contraceptive use in the developing countries has cut the number of maternal deaths by 40% over the past 20 years, merely by reducing the number of unintended pregnancies.[6] About 4.7 million European women aged 15-49 years are estimated to be at risk of an unintended pregnancy[7] and almost half of the 6.3 million pregnancies in the United States are unintended, despite the availability of a wide variety of highly effective contraceptive methods.[8] Contraceptive use averts almost 230 million births every year[9] and prevents 272,040 maternal deaths worldwide. Rapid reduction of worldwide fertility rates from a total fertility rate of 4.7 births in the early 1970s to 2.6 births in the late 2000s is predominantly attributed to increased contraceptive use.[10]

Bangladesh is a densely populated country in Southeast Asia. Though resource scarcity and subsistence-level economic conditions characterize the economy, Bangladesh has had exceptional health achievements. In 2010, the United Nations (UN) recognized the country for its exemplary progress towards Millennium Development Goal (MDG) 4 in child mortality[11] and for being on-track to achieve the maternal mortality reduction goals of MDG 5. Maternal mortality was reduced from 574 deaths per 100,000 live births in 1991, to 194 deaths per 100,000 live births in 2010.[12] Total fertility rate reduced from about 7.0 children per woman in 1970, to 2.3 children per woman in 2010.[13] However, Bangladesh still has a long way to go to achieve the replacement level of fertility. The contraceptive prevalence rate (CPR) would have to rise to over 70% for this target to be reached,[14] whereas, 61% currently married women aged 15-49 years use different contraceptive

methods in Bangladesh.[15] Moreover, unmet need for FP among currently married women in Bangladesh is 12%.[16] Henceforth, birth control allows women to have better care for themselves and their families through facilitating their education and career.[17]

Women's employment status is one of the most influential factors among several sociodemographic determinants of contraceptive use. Evidence shows that women's employment status is strongly associated with contraceptive use as economic role gives them more autonomy and more control over important decision.[18,19] Though numerous articles have been published in Bangladesh and other developing nations in relation to contraceptive use and various socio-demographic variables, none of those analyzed emphasized the employment status of women. Thus, it is important to examine the pattern of contraceptive use among employed and unemployed women. Therefore, the aims of this study were to explore the socio-demographic determinants of using contraception; and to observe differences in the prevalence of contraceptive use among employed and unemployed women in Bangladesh.

2. Methods

2.1. Sampling

This study utilized a representative set of cross-sectional data extracted from the Bangladesh Demographic and Health Survey (BDHS) 2011.[15] The survey was conducted under the authority of the National Institute of Population Research and Training (NIPORT) under the Ministry of Health and Family Welfare, Bangladesh. A nationally representative household based sample was created through a stratified, multistage cluster sampling strategy of which 600 primary sampling units was constructed (207 in urban and 393 in rural areas). The primary sampling units were derived from a sampling frame created for the Population and Housing Census 2011, provided by Bangladesh Bureau of Statistics (BBS). All ever-married women aged 12-49 years who were usual members of the selected households and those who spent the night before the survey in the selected households were eligible to be interviewed in the survey. A total of 18,222 ever- married women aged

12-49 years were identified in these households, and 17,842 were interviewed, yielding a response rate of 98%. Finally, a total of 16,166 currently married women (employed 1950; unemployed 14,666) aged 15-49 years were selected for this study after dropping divorced/widowed/separated women and women aged below 15 years. Detailed information on survey design and sampling procedures has been reported elsewhere.[15] The study is approved by the Department of Population Science and Human Resource Development, Faculty of Science, University of Rajshahi; Bangladesh.

2.2. Measures

The dependent variable, women's current contraceptive use, was a dichotomous variable indicating respondents' use of any method (modern or traditional) of contraception at the time of the survey. We included several theoretically pertinent sociodemographic variables. We classified women's age into empirically important groups (younger [15-24 years], middle age [25-34 years], and older [35-49 years]). Women's education level was defined in terms of the formal education system of Bangladesh: illiterate (0 year), primary (1-5 years), secondary and higher (6 years or more). Tertiles were used in classifying number of living children (none, 1-2 and 3 and above). Place of residence was categorized as rural versus urban. Religion was categorized as Muslims versus non-Muslims. We used the BDHS wealth index as a proxy indicator of socioeconomic position. The BDHS wealth index was constructed from data on household assets, including ownership of durable goods (such as televisions [TV] and bicycles) and dwelling characteristics (such as source of drinking water, sanitation facilities, and construction materials). We used principal component analyses to assign individual household wealth scores. These weighted values were then summed and rescaled to range from 0 to1, and each household was assigned to the five quintiles. Tertiles were used to classify age at first cohabitation (<15, 15-17 and 18 and above years) and hearing about family planning (FP) on TV during last few months of the survey was classified as yes versus no.

2.3. Statistical analyses

Prevalence of current contraceptive use was calculated for employed and unemployed women. Differences in current contraceptive use by sociodemographic characteristics were assessed by χ^2 –test, with significance for all analyses set at $p < 0.05$. Firstly, a binary logistic regression model was fitted to assess the net effects of selected sociodemographic variables on the use of contraception among currently married women irrespective of their employment status. Secondly, we categorized the women according to their employment status (employed or unemployed) and another two binary logistic regression models were constructed as whether the employed women used contraceptive (yes or no) and whether the unemployed women used contraceptive (yes or no) to determine which factors were most strongly associated with current contraceptive use. We entered all the covariates simultaneously into the multiple binary logistic regression models. There is an important assumption in multiple regression analyses, either linear or logistic, that there is no multicollinearity problem (dependent each to other) among the independent variables. However, there is no exact method to detect the multicollinearity problem in multiple logistic regression analysis. In this study, the magnitude of the standard error (SE) was used to detect the multicollinearity problem, if the magnitude of the SE lies between 0.001 and 0.5; it is judged that there is no evidence of multicollinearity.[20] In multivariate analysis, binary logistic regression analysis (enter method) was performed to determine which factors might affect the probability of using contraceptives. The analyses were adjusted for age, education, husband's education, religion, region, residence, number of living children, fertility preference, and heard about FP on TV. We estimated the odds ratios (ORs) to assess the strength of the associations for the 95% confidence intervals (CIs) for significance testing. Statistical Package for Social Sciences version 18.0 (SPSS Inc., Chicago, IL, USA) was used for statistical analysis.

3. Results

3.1. Descriptive statistics

Table 1 showed contraceptive use status of the study participants. The prevalence of current use of contraception among employed and unemployed women were 67.2% and 60.9% respectively, among them 56.5% employed women and 51.7% unemployed women used modern contraceptive method. The most commonly used contraceptive method by employed women was pill (27.7%), followed by injection (11.4%), periodic abstinence (8.3%) and condom (7.2%) whereas these proportions were 26.8%, 11.2%, 7% and 5.9% respectively among unemployed women. Female sterilization was found higher than male sterilization.

The χ^2 test was used to assess the association between current use of contraception and socio-demographic indicators (Table 2). The highest prevalence of contraceptive use was recorded among employed women aged 25-34 years, those who were educated, residing in urban areas or in Rangpur division, got married in the early ages (15-17 years),

heard about FP on TV during few months preceding the survey, having more than 2 children and who did not want children anymore. On the other hand, contraceptive use was highly pervasive among unemployed women aged 25-34 years, had higher education, residing in urban areas, married before 15 years of age, did not want children any more, and among non-Muslims.

Women in the age group 25-34years used contraceptives considerably more than that of younger and older counterparts. We found that 74% employed and 67% unemployed women of this age group used contraceptives and it was noticeably higher in comparison with other groups of women. There was a significant effect of women's educational attainment (p <0.001) and husband's education (p <0.001) on contraceptive use among unemployed women. This study elucidated that contraceptive use was higher among employed women of every level of education (primary 69%, secondary 68% and higher 68%) than their unemployed counterpart (primary 62%, secondary 59% and higher 65%) (Table 2). The proportion of women using contraception in

Table 1: Distribution of employed and unemployed women according to their current contraceptive use status

Using status	Employed women		Unemployed women	
	Number (*n*)	Percentage	Number (*n*)	Percentage
Use any method	1311	67.2	8928	60.9
Type of contraceptives				
Folkloric method	9	0.5	54	0.4
Traditional method	200	10.3	1296	8.8
Modern method	1102	56.5	7578	51.7
Contraceptive methods				
Pill	540	27.7	3937	26.8
IUD	21	1.1	106	0.7
Injections	222	11.4	1649	11.2
Condom	140	7.2	864	5.9
Female sterilization	106	5.4	710	4.8
Male sterilization	48	2.5	150	1.0
Periodic abstinence	162	8.3	1023	7.0
Withdrawal	38	1.9	273	1.9
Other	9	0.5	54	0.4
Implants/Norplant	25	1.3	162	1.1
Not using any method	639	32.8	5738	39.1

Table 2: Percentage of women who use any contraceptive according to their socio-demographic characteristics

Characteristics	Employed women	Unemployed women
Age (years)	***	***
15-24	63.5	54.4
25-34	73.5	67.4
35-49	62.2	60.5
Education level		***
No education	65.0	60.7
Primary	68.6	61.9
Secondary	67.6	59.3
Higher	68.0	65.3
Husband's education level		***
No education	66.1	63.5
Primary	69.5	59.7
Secondary	67.1	57.6
Higher	66.0	64.9
Region	***	***
Barisal	68.4	64.7
Chittagong	64.9	51.6
Dhaka	66.4	60.1
Khulna	69.9	66.1
Rajshahi	69.6	67.4
Rangpur	74.5	69.0
Sylhet	51.7	46.6
Residence		***
Urban	68.5	63.9
Rural	66.0	59.4
Religion		***
Muslim	67.2	60.2
Non Muslim	67.3	66.6
Wealth index		
Poorest	66.2	60.7
Poorer	62.3	62.5
Middle	73.4	60.2
Richer	69.4	59.6
Richest	65.2	61.3
Age at first cohabitation (years)	*	***
<15	68.8	62.9
15-17	69.7	59.9
18 and above	62.9	56.9

(Contd...)

Table 2: *(Continued)*

Characteristics	Employed women	Unemployed women
Number of living children	***	***
None	23.9	24.7
1-2	70.7	64.9
3 and above	73.6	65.0
Heard about FP on TV last few months	*	**
No	66.0	60.2
Yes	70.2	62.7
Visited by FP workers in past 6 months		
Talked	59.5	60.1
Gave FP methods	74.4	62.2
Talked and gave family planning method	82.4	64.4
No	67.3	60.8
Fertility preference	***	***
Want	53.5	50.1
Undecided	69.6	41.7
Want no more	75.5	68.8

Note: ***p<0.001, **p<0.01, *p<0.05, (p-values from χ^2 test assesses the association between current contraceptive use and socio-demographic indicators)

accordance with husband's education was almost same as those of the wife's education (Table 2). Use of contraception was found higher in Rangpur division, followed by Rajshahi, Khulna, Barisal, Dhaka, Chittagong and Sylhet division. Women in Sylhet division were in vulnerable condition as only 52% employed and 47% unemployed women used contraceptives there.

The present study described that 69% and 66% employed women used contraceptives in urban and rural areas respectively, whereas, these proportions became 64% and 59% respectively among unemployed women. Tendency of using contraceptives was found lower among Muslim unemployed women (60%) than that of non-Muslim counterparts (67%). The maximum use of contraceptive was observed among employed women (74%) who had more than 2 children whereas the corresponding figure was 65% among unemployed women (p <0.001). Nearly 25% employed women and 31% unemployed women were in vulnerable condition because they no longer wanted any children but did not use any contraceptive (Table 2).

Table 3: Logistic regression analysis between contraceptive use and both employment status and other sociodemographic variables

Predictor	Unadjusted OR (95% CI)	p-value	Adjusted OR[†] (95% CI)	p-values
Working Status				
Unemployed®	1.000		1.000	
Employed	1.319 (1.193-1.458)	0.000	1.211 (1.083-1.353)	0.001

[†]Analyses adjusted for participant age, education, husband's education, religion, region, type of place of residence, number of living children, fertility preference and heard about family planning on television. ®Reference Category, OR, Odds ratio

This study observed that employment status of women had a significant effect on contraceptive use (p <0.001). Probability of using contraceptive increased among employed women than their unemployed counterpart [unadjusted OR (95% CI): 1.319 (1.193-1.458)]. We found that employed women were 1.21 times more likely to use contraceptive than their unemployed counterparts [OR (95% CI): 1.211 (1.083-1.353)] (Table 3). It was observed among employed women that with the increase of educational level probability of contraceptive use increases. Completing higher education increased the probability of contraceptive use compared with illiterate [OR (95% CI): 1.646 (0.966-2.802)]. Probability of using contraceptive decreased among women aged 35-49 years in comparison with their youngest counterparts [OR (95% CI): 0.302 (0.207-0.441)]. Number of living children was likely to play a significant role in contraceptive use, since women who had 1-2 children and who had more than two children were more likely to use contraceptives compared with women who had no children [OR (95% CI): 6.782 (4.489-10.246), p =0.000 and OR (95% CI): 10.277 (6.246-16.909), p =0.000, respectively]. Women who wanted no more children were more likely to use contraceptive than their counterparts who desired for more children [OR (95% CI): 2.504 (1.871-3.351)] (Table 4).

Among unemployed women aged 35-49 years were less likely to use contraceptives than that of youngest counterpart [OR (95% CI): 0.648 (0.572-0.733)]. Women with higher level of education were found 1.469 (95% CI: 1.201-1.797, p =0.000) times more willing to use contraception compared with their illiterate counterparts. Women in Rangpur division were found 1.250 (95% CI 1.078-1.448; Table 4) times more likely and in Sylhet division

were found 0.427 (95% CI: 0.368-0.494) times less likely to use contraceptives compared with women in Barisal division. Residing in the rural areas decreased the probability of using contraceptives compared with their urban counterparts [OR (95% CI): 0.784 (0.722-0.850), p =0.000]. Probability of using contraceptive was higher among non-Muslim than their Muslim counterparts [OR (95% CI): 1.439 (1.272-1.628)]. Women who had 1-2 children and who had more than two children were 5.335 (95% CI: 4.629-6.150) times and 7.176 (95% CI: 6.028-8.543) times respectively more likely to use contraceptive compared with women having no child. Hearing about FP on television during few months preceding the survey increased the probability of using contraceptive [OR (95% CI): 1.146 (1.051-1.250)]. Compared with women who wanted more children, the probabilities of contraceptive use increased for women who wanted no more children [OR (95% CI): 1.487 (1.341-1.649)] and decreased for women who were undecided about having children [OR (95% CI): 0.537 (0.399-0.721)] (Table 4).

4. Discussion

Findings from this large representative survey indicate that, there is a gap in using contraceptives among employed (67%) and unemployed (61%) women, which is consistent with the results of a previous study of knowledge and practice of contraception in Bangladesh.[21] This study, in agreement with other studies, elucidates that contraceptive use is found highest among women aged 25-34 years.[22,23] Generally, this is due to the fact that the expected number of children would not have been achieved at a younger age and at older age women were less interested to use contraceptives due to menopause onset, infrequent sex, and not having sex.[24] Though

Table 4: The odds ratio of logistic regression models for the determinants of current use of contraception

Predictors	Employed women			Unemployed women		
	Odds Ratio (OR)	95% CI for OR	*p*- values	OR	95% CI for OR	*p*- values
Age (years)						
15-24®	1.000			1.000		
25-34	0.660	0.479-0.909	0.011	0.930	0.839-1.031	0.168
35-49	0.302	0.207-0.441	0.000	0.648	0.572-0.733	0.000
Education level						
No education®	1.000			1.000		
Primary	1.027	0.760-1.388	0.863	1.059	0.953-1.176	0.290
Secondary	1.136	0.795-1.623	0.483	1.079	0.956-1.219	0.217
Higher	1.646	0.966-2.802	0.047	1.469	1.201-1.797	0.000
Husband's education level						
No education®	1.000			1.000		
Primary	1.139	0.848-1.529	0.387	0.881	0.796-0.976	0.015
Secondary	1.089	0.779-1.523	0.617	0.813	0.728-0.908	0.000
Higher	0.992	0.611-1.613	0.976	1.067	0.914-1.245	0.414
Region						
Barisal®	1.000			1.000		
Chittagong	0.960	0.630-1.463	0.849	0.519	0.453-0.595	0.000
Dhaka	w1.265	0.841-1.901	0.259	0.793	0.692-0.910	0.001
Khulna	1.218	0.793-1.870	0.367	1.121	0.972-1.293	0.116
Rajshahi	1.212	0.794-1.849	0.372	1.238	1.071-1.431	0.004
Rangpur	1.525	0.970-2.397	0.068	1.250	1.078-1.448	0.003
Sylhet	0.481	0.300-0.770	0.002	0.427	0.368-0.494	0.000
Residence						
Urban®	1.000			1.000		
Rural	0.841	0.672-1.053	0.130	0.784	0.722-0.850	0.000
Religion						
Muslim®	1.000			1.000		
Non Muslim	1.189	0.871-1.622	0.276	1.439	1.272-1.628	0.000
Number of living children						
None®	1.000			1.000		
1-2	6.782	4.489-10.246	0.000	5.335	4.629-6.150	0.000
3 and above	10.277	6.246-16.909	0.000	7.176	6.028-8.543	0.000
Heard about FP on TV during few months						
No®	1.000			1.000		
Yes	1.279	0.996-1.643	0.053	1.146	1.051-1.250	0.001
Fertility preference						
Wanted®	1.000			1.000		
Undecided	1.945	0.723-5.234	0.188	0.537	0.399-0.721	0.000
Wanted no more®	2.504	1.871-3.351	0.000	1.487	1.341-1.649	0.000
Constant	0.260		0.000	0.406		0.000

® Reference Category

different studies observed a strong relation between wealth index and contraceptive use,[19,25] present study showed that there is no significant effect of wealth index on use of contraception.

Our study demonstrated that there is a significant effect of women's education and husband's education on current contraceptive use among unemployed women. Fertility and contraceptive use in developing countries are associated with various markers of socioeconomic status, most prominent of which is women's education.[26] Currently married women who have higher education were more likely to be current contraceptive users.[27] Another study showed that among women, illiteracy was identified one of the factors that affects the knowledge and practice of contraception.[28] Illiterate women were at higher risk of not using any FP method than literate women.[29] Female education and husband's education put a direct impact on the contraceptive prevalence rate.[30] Educated women are able to understand the advantages of using contraception and having fewer children. They were also able to learn about different types of contraceptive methods and which one suits them the best.[31]

Our results support findings from several other studies that show that women who live in the rural areas have the least tendency to use contraceptive compared with their urban counterpart.[25,27] Women in Sylhet division were found at more risk of becoming pregnant because only 52% employed women and 47% unemployed women of this region use contraceptives. Prevalence of contraceptive use was found lower among Muslim unemployed women (60%) than their counterpart (67%). The maximum use of contraceptive was observed among employed women who have more than 2 children (74%) whereas the corresponding figure is 65% among unemployed women. Consistently, it was found in another study that current use of contraceptive methods was found lowest among women with no children.[22]

Women who have heard about FP on TV were more likely to use contraceptive. The reported result was found consistent with a previous study conducted in Pakistan which stated that women were more likely to use contraceptives when messages of FP were delivered through media.[32] Nearly one-fourth of the employed women and one third of the unemployed women were at risk of becoming pregnant because they want no more children but do not use any contraceptive method.

The results revealed that current contraceptive use among employed women was significantly influenced by age, education, number of living children, ever heard about FP on TV and fertility preference. On the other hand, significant predictors of current contraceptive use among unemployed women were age, education, husband's education, region, residence, religion, number of living children, heard about FP on TV and fertility preference. These findings are consistent with other studies that found that age, religion, children ever born, exposure to mass media and region[21] school attendance of women, husband's school attendance and place of residence[33] and number of living children[34,35] had significant effects on contraceptive use.

However, this study has some limitations. In BDHS, the question on contraceptive use was posed to married women, thus our study did not examine contraceptive use among unmarried women. Since we examined contraceptive use pattern only among currently married women, it did not include non-married women or ever-married women. Hence, these results may not be able to be generalized to all women in Bangladesh. Secondly, the study can be criticized for using an indirect measure of household wealth. Nevertheless, due to unavailability of reliable and comparable income or consumption data across households of all social classes, an asset-based index is generally considered as a good proxy for household economic status. Finally, because our selection of variables was constrained by the preexisting BDHS data, we were unable to include additional, potentially important variables concerning current contraceptive use in the present analyses.

5. Conclusions and Global Health Implications

This study concludes that contraceptive use was lower among unemployed women than their employed

counterparts. Contraceptive use among unemployed women was significantly influenced by age, education, educational level of husband, residence, religion, number of living children, TV exposure and fertility preference. Women in Sylhet division were at risk of being pregnant because 48% employed women and 53% unemployed women who are in regular sexual union did not use any contraceptive method. One-fourth of the employed women and one-third of the unemployed women were in vulnerable condition because they did not want any children but do not use any contraceptive method. Since there is a gap among employed and unemployed women regarding using contraceptives, government and non-government organizations may create employment opportunities for women to enhance contraceptive use. Additionally, as the women of Sylhet division are at risk of becoming pregnant, FP professionals and policy makers should bring them under the umbrella of using contraceptives through proper upholding and motivating programs. Moreover, there is an urgent need for FP interventions to increase use of contraception that should target unemployed rural women and women who were undecided about having more children as well as those who did not want any children but do not use any contraceptive.

Key Messages

- The contraceptive use is more prevalent among employed women influenced by age, education, region, number of living children, and child preference.
- The contraceptive use may be enhanced through creating the employment opportunities for women.
- There is an urgent need for FP interventions targeting unemployed women who are undecided to have more children but do not use any contraceptive.

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