

RESEARCH ARTICLE

WHICH FACTORS CAN CONTRIBUTE TO INCREASING MODERN CONTRACEPTIVE USE AMONG WOMEN OF REPRODUCTIVE AGE IN BANGLADESH?

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Abstract

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Contraceptive Use, Multilevel Logistic Regression Model, Odds Ratio. Bangladesh

..... Introduction: Modern contraceptive use not only prevents reproductive health-related problems among women but also controls rapid population growth. Contraceptive use and fertility are inversely related to each other. The objective of this study is to identify determinants of modern contraceptive use among women of reproductive age in Bangladesh.

Methods: The most recent data from the Bangladesh Demography and Health Survey 2017-18 were used in this study. We analyzed a total of 20,127 women of reproductive age (15-49 years). The multilevel logistic regression method was utilized to determine the significant factors of modern contraceptive use. A p-value (<0.05) with a 95% confidence interval was used to evaluate the statistically significant variables.

Results: Our research revealed that modern contraceptive use was significantly associated with women's age, women's education, women's occupation, division, place of residence, exposure to mass media, wealth index, and religion. Women with higher educational status (OR= 1.39, 95% CI= 1.22-1.59) had a higher chance of using contraception than women with no education.

Conclusion: The prevalence of modern contraceptive use is still low in Bangladesh. The study suggested that focusing on women's age, women's education, women's occupation, division, place of residence, exposure to mass media, wealth index, and religion might help to increase contraceptive use and reduce rapid population growth in Bangladesh.

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Introduction:-

Contraception refers to the use of artificial means to stop women from becoming pregnant as a result of sexual activity (1). Modern contraceptives include pill, IUD, injection, vaginal methods, condom, female sterilization, male sterilization, and implants. The health of women and children is significantly impacted by modern contraceptives, which are essential for regulating the population's growth (2). Women who do not use contraception are probably 1.8 times more likely to experience maternal deaths (3). 90% of unintended pregnancies in South Central and Southeast Asia, sub-Saharan Africa, Latin America, and the Caribbean are caused by the non-use of modern

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contraception (4). Almost 55% of women's pregnancies were unintended in the world between the ages of 15 and 44, which is a severe public health issue (5). Unintended pregnancies cause stress, despair, and life dissatisfaction in women, as well as the possibility of miscarriage, troubled relationships with relatives, suicide, and low birth weight babies (6,7). The use of modern contraceptives not only reduces maternal and child deaths but also decreases unintended pregnancies (8). The use of contraceptives in developing nations helped to avert about 218 million unintended pregnancies, 55 million unplanned births, 138 million abortions, 25 million miscarriages, and 118,000 maternal deaths (9). The empowerment of women, the reduction of poverty, the improvement of women's education, and the participation of women in the labor force are all greatly influenced by modern contraceptives. Aside from unsafe abortions, modern contraceptives also help in the prevention of sexually transmitted infections like HIV/AIDS (10). Healthcare challenges include the use of contraceptives and service-related, method-related, personal, and partner-related factors are all linked to the use of contraceptives (11). Sustainable Development Goals (SDGs) 3.7 is related to modern contraceptive use among reproductive-aged women. To meet the goals, the country needs to pay more attention to the utilization of modern contraceptives, especially in developing countries. Human overpopulation is a challenge in Bangladesh, which is the world's eighth-most populous country. Bangladesh's population continues to increase by more than two million people annually (12). There are 2.3 births per woman overall in Bangladesh (13). In underdeveloped nations like Bangladesh, family planning strategies involving the use of contraceptives can be extremely important for lowering fertility rates (14). Also, the maternal mortality rate and the neonatal mortality rate are still high in Bangladesh (15). The goal of SDG 3.1 is to lower maternal mortality to fewer than 70 per 100,000 live births, and SDG 3.2 is to reduce the rate of neonatal deaths to less than 12 per 1,000 live births by 2030. The family planning method can lower maternal and neonatal mortality by limiting the number of births (16).

Despite the importance of using contraceptives and their role in demographic change, not enough has been done to look at the causes and effects of modern contraceptive use in Bangladesh. In a number of earlier investigations, a binary logistic regression model was employed to analyze the factors influencing the use of modern contraceptives (17–20) which restricts regional heterogeneity in contraceptive use when data are clustered. However, a multilevel logistic regression model was utilized to address this gap and estimate the important determinants of individual, household, and community-level characteristics. The major objective is to explore the determinants of modern contraceptive use strategies for increasing modern contraceptive use, which will reduce fertility and population growth rates to targeted ranges.

Materials and Methods:-

We utilized the most recent Bangladesh Demographic and Health Survey (BDHS) 2017-18 data. The survey was conducted under the National Institute of Population Research and Training (NIPORT). The ICF Institutional Review Board (IRB) certified the DHS survey, and all participants gave their informed consent (https://dhsprogram.com/Methodology/Protecting-the-Privacy-of-DHS-Survey-Respondents.cfm). A total of 20,127 women were analyzed in this study. Use of modern contraceptives was taken into account as our outcome variable. Individual, household and community-level factors were considered as explanatory variables. Individual-level factors were women's age (15–24, 25–34, and 35–49 years), women's education (no, primary, secondary, and higher), women's occupation (agricultural worker, physical worker, service, business, unemployed), and religion (Muslim, non-Muslim). Household-level factors were division (Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur, Mymensingh, Sylhet) and place of residence (urban, rural). We used a multilevel logistic regression model to identify the determinants of modern contraceptive use adjusted for individual, household and community-level factors. To present the findings, an odds ratio with a 95% confidence interval (95% CI) was utilized. STATA 13 version was used to conduct all of the analyses.

Results:-

The background characteristics of the study population are presented in Table 1. The results of this study showed that the prevalence of contraception use was 58.34% among reproductive-aged women. When the study was conducted, approximately 37.0% of all respondents were aged 35-49 years, and 27.0% were between the ages of 15 and 24. Most of the women (52.19%) had either secondary education or higher secondary education, and around 16.0% of the total women were uneducated. Only 1.85% of all respondents were in the service, while the majority of the women (49.84%) were unemployed. Around 25.0% of the total respondents came from the Dhaka division, and

only 5.59% were included in the Barisal division. The largest number of women (71.54%) lived in rural areas, whereas 28.46% came from urban areas. About 41.0% of the total women belonged to the richest wealth index, and 38.26% were from the poorest wealth index. Around 34.0% of the total women had no exposure to the media, and the majority of women (90.68%) followed the Muslim religion.

Table	1:-	Percentage	distribution	of	specific	variables	according	to	the	Bangladesh	Demographic	and	Health
Survey	, 20	17-18.											

Covariates	Percentage	Confidence Interval			
		Lower	Upper		
Contraceptive use					
No	41.66	40.66	42.66		
Yes	58.34	57.34	59.34		
Women's age					
15-24 years	27.92	27.16	28.68		
25-34 years	35.02	34.22	35.83		
35-49 years	37.06	36.28	37.85		
Women's education					
No education	16.56	15.72	17.44		
Primary	31.25	30.32	32.19		
Secondary	39.62	38.59	40.65		
Higher Secondary	12.57	11.8	13.39		
Women's occupation					
Agricultural worker	1.88	1.47	2.42		
Physical Worker	13.96	12.94	15.05		
Service	1.85	1.63	2.09		
Business	32.47	30.76	34.22		
Unemployed	49.84	48.01	51.67		
Division					
Barisal	5.59	5.28	5.92		
Chittagong	17.99	17.33	18.68		
Dhaka	25.46	24.61	26.32		
Khulna	11.61	11.17	12.06		
Mymensingh	7.68	7.17	8.22		
Rajshahi	13.92	13.34	14.53		
Rangpur	11.83	11.27	12.4		
Sylhet	5.92	5.65	6.21		
Place of residence					
Urban	28.46	27.64	29.3		
Rural	71.54	70.7	72.36		
Wealth index					
Poorest	38.26	36.38	40.17		
Middle	20.17	19.14	21.23		
Richest	41.57	39.75	43.42		
Exposure to media					
No	34.02	32.19	35.91		
Yes	65.98	64.09	67.81		
Religion					
Muslim	90.68	88.85	92.23		
Non-Muslim	9.32	7.77	11.15		
	=				

Fig. 1 provided a geographical distribution of modern contraceptive use in several administrative regions. Contraceptive use was most prevalent in the green area of the map, whereas it was less common in the red area. The prevalence of modern contraceptive use was the highest (15.04%) in the Dhaka division and the lowest (9.67%) in the Sylhet division.



Fig 1:- The prevalence of modern contraceptive use in each division of Bangladesh.

To investigate the effects of different individual, household, and community-level factors on the modern contraceptive, the multilevel logistic regression model was used (see Table 3). Modern contraceptive use was significantly associated with women's age, women's education, women's occupation, division, place of residence, wealth index, exposure to mass media, and religion. Women aged 35-49 years were 1.25 times more likely to use modern contraception than women aged 15-24 years. Education plays a significant role in modern contraception use. Women with higher secondary education had a 1.39 times higher chance of using contraception compared to women with no education. The likelihood of using contraception was higher for mothers who were involved in business (OR = 1.32; 95% CI = 1.03-1.70) compared to mothers who were involved in agricultural work. Women from Sylhet and Chittagong divisions had a 23.0% (OR = 0.77; 95% CI = 0.67–0.89) and 20.0% (OR = 0.80; 95% CI = 0.69-0.93) lower chance of using modern contraception than women who lived in the Barisal division. Place of residence is significantly related to modern contraceptive use. Rural women had a 26.0% (OR = 0.74; 95% CI = 0.68–0.81) lower likelihood of using contraception compared to urban women. Women who came from the richest wealth index had a 20% lower chance of using contraception than women belonging to the poorest wealth index. Women who were exposed to mass media were 1.09 times more likely to use contraception than women who were not exposed to mass media. Non-Muslim women had a higher (OR = 1.46; 95% CI = 1.32-1.63) likelihood of using contraception than Muslim women.

Covariates	Odds Ratio					
Women's age						
15-24 years	1.00					
25-34 years	1.67 (1.55-1.81) ***					
35-49 years	1.25 (1.15-1.37) ***					
Women's education						
No education	1.00					
Primary	1.37 (1.25-1.51) ***					
Secondary	1.35 (1.22-1.50) ***					
Higher Secondary	1.39 (1.22-1.59) ***					
Women's occupation						
Agricultural worker	1.00					
Physical Worker	0.91 (0.70-1.18)					
Service	0.91 (0.66-1.26)					
Business	1.32 (1.03-1.70) *					
Unemployed	0.93 (0.72-1.20)					
Division						
Barisal	1.00					
Chittagong	0.80 (0.69-0.93) **					
Dhaka	1.12 (0.97-1.30)					
Khulna	1.08 (0.95-1.25)					
Mymensingh	1.12 (0.97-1.29)					
Rajshahi	1.14 (0.98-1.33)					
Rangpur	1.23 (1.06-1.42) **					
Sylhet	0.77 (0.67-0.89) ***					
Place of residence						
Urban	1.00					
Rural	0.74 (0.68-0.81) ***					
Wealth index						
Poorest	1.00					
Middle	0.82 (0.75-0.90) ***					
Richest	0.80 (0.73-0.87) ***					
Exposure to media						
No	1.00					
Yes	1.09 (1.01-1.17) *					
Religion						
Muslim	1.00					
Non-Muslim	1.46 (1.32-1.63) ***					

Table 2:- Results of Multilevel logistic regression model on modern contraceptive use.

OR: Odds Ratio, CI: Confidence Interval

The result of the random effect showed that the between-cluster variation for modern contraception use was steady after accounting for the individual, household, and community-level factors in the full model (see Table 3). It showed that the variance between clusters had remained unchanged.

Table 3.	Doromotor	actimata	of Multiloval	logistic	rograssion	modal	with intro	alace	corrolation	coofficient ((ICC)
Table 3:-	Farameter	estimate	of Multilevel	logistic	regression	moder	with mina-	class	correlation	coefficient (ICC).

Random effect variance	Model 1	Model 2		
	(Null model)	(Full Model)		
Variance at cluster level	0.068***	0.068***		
ICC	0.020	0.020		

Notes: ***P < 0.001; Model 1 is the null model without any explanatory variable. Model 2 is the full model adjusted for individual, household and community-level factors.

^{***}P<0.001 **P<0.01

^{*}P<0.01

Discussion:-

The aim of this study was to identify individual, household, and community-level factors that affect modern contraception use among reproductive-aged women (15-49 years) in Bangladesh. Women's age, women's education, women's occupation, division, place of residence, wealth index, media exposure, and religion were all important determinants in the use of modern contraceptives. With increasing respondents' ages, the likelihood of utilizing modern contraception rises. Women who were younger than those who were older were less likely to use contraception. The results of our investigation were consistent with other studies conducted in Afghanistan (21). One of the major predictors of adopting contraception in Bangladesh was women's education. Contraceptive use was extremely low because of a lack of education. More educated women had a higher chance of using contraception compared to women with no education. Another investigation came to similar conclusions (17). Lower educational levels violate their basic freedoms and reduce the incidence of using contraceptives. Providing secondary and higher education could be essential in increasing the usage of contraception and reducing the rising fertility rate. Women's labor force participation plays a significant role in the use of contraception. Women with high occupations had a higher chance of using contraception compared to women with low occupations. Another study produced results that were identical (22). This study indicated significant variations in the usage of contraception by division. Women from Chittagong and Sylhet divisions were less likely to use contraception compared to women from the Barisal division. This result is consistent with another study conducted in Bangladesh (23). Focusing on different administrative areas in Bangladesh can play a crucial role in increasing modern contraceptive use among reproductive-aged women, which can protect women from reproductive health-related problems during pregnancy. The place of residence was found to be an influential factor in modern contraceptive use. Rural women had a lower likelihood of using contraception than urban women. The finding was in line with another study that was conducted in Uganda (24). Rural women are not aware of contraceptive use because they are mostly uneducated and unemployed. For this reason, attention to the place of residence, especially for rural women, could play a vital role in increasing the use of contraception. Another significant factor, the wealth index, is closely related to the use of modern contraceptives. When women's economic situations improve, they utilize contraception less often. Similar results were obtained by another investigation (25). The use of contraception among women of reproductive age is strongly correlated with media exposure. Women who were exposed to mass media had a higher chance of using contraception compared to women who were not exposed to mass media. The identical findings from a Bangladeshi investigation were also revealed (26). In order to increase the use of contraception among women, policymakers should give more emphasis on the media's ability to disseminate information on family planning. The most significant predictor for modern contraceptive use among reproductive-aged women was religion. The use of contraception was higher among non-Muslim women than among Muslims. The same outcome was discovered in another study (27).

Conclusion:-

The prevalence of modern contraceptive use is still low in Bangladesh. It not only affects women's reproductive health but also hampers the overall economic growth of any country. Attention to women's age, women's education, women's occupation, division, place of residence, wealth index, exposure to mass media, and religion could play crucial roles in increasing contraceptive use among reproductive-aged women and reducing rapid population growth.

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