

## **Determinants of Contraceptive Practice Among the Tribal Women in Rangamati Hill District: A Multivariate Analysis**

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***Abstract:** This paper attempts to identify the determinants of contraception use among the tribal women of Rangamati Hill district of Bangladesh. The findings suggest that the contraceptive prevalence rate (CPR) of the study women is quite higher as compared to the mainstream population of Bangladesh. The both bivariate and multivariate analysis apparently reveal that, the current use of family planning methods significantly varies with the socioeconomic and demographic variables: age of the respondents, education of husband, duration of marriage, son-preference, desire for additional children, type of family, place of residence and ethnic identity.*

### **1.0 Introduction**

Tribal communities in Bangladesh constitute more than 1.1% of its total population. A large number of tribal people are concentrated in the hilly remote zones of three districts: Bandarban, Khagrachari and Rangamati which conjointly named as Chittagong Hill Districts (CHT). Since the peace accord signed in 2 December 1997, the Government of Bangladesh in association with the development partners and donor agencies has adopted a large number of development programmes including safe motherhood, health, nutrition and family planning programme especially for the tribal communities in the CHT region. The family planning programme has been expanded through the well trained government or non-government field workers among the tribes of sparsely populated and even difficult to access terrains such as forests and hilly regions to provide doorstep family planning services and information on modern contraceptive methods.

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Most studies conducted so far in Bangladesh that concentrated on the fertility issues and determinants of contraceptive practice mainly focused on the mainstream population. Demography of the ethnic communities in Bangladesh particularly the tribal demography has yet to be the research interest of the demographers or researchers or academicians. In formulating an effective policy for a particular situation for any backward community there needs the accumulation of prevailing situation of that community. A little is known about the socioeconomic and demographic phenomenon of the tribal or indigenous community of Bangladesh. So far known, literatures on tribal fertility and their contraceptive practice are quite rare due to lack of scientific research on tribal demography in Bangladesh.

In CHT, Government has a special development programme, which is implemented with UNICEF support. Currently health care for tribal in CHT and in other areas are provided through the existing network of government health and family planning services and private providers. UNICEF has recruited and trained tribal workers and in a number of key social areas including primary education and primary health care the programme has been effective (MOHFW, 2004). The expansion of the family planning programme and lower contraceptive prevalence rate (47.1%) and higher fertility (3.7 births per woman) (NIPORT, 2004) in the Chittagong division compared to other administrative divisions of Bangladesh have made much interest regarding the contraceptive use among the tribal women of the CHT region. Studies concentrated on contraceptive determinants of mainstream population revealed significant relation with a number of relevant socioeconomic, demographic and cultural factors. However, most studies applied bivariate analysis to determine the relationship of two variables rather than multiple variables. Hence, there arise questions: what is the current status of contraceptive practice among the tribal or indigenous communities in CHT? What is the relative importance of different socioeconomic and demographic factors to contraceptive practice? In what extent these factors are related to other socioeconomic and demographic factors?

Taking into consideration the above questions the present study examines the current status of contraceptive practice among the tribal women of Rangamati Hill District under Chittagong division and assesses their relative importance in relation to current contraceptive use.

## **2.0 Data and Methodology**

This paper is based on primary data collected by a multistage random survey. The data were collected from the major tribes: Chakma, Marma, Tanchangya and Tripura residing in Rangamati Hill District in Chittagong division of Bangladesh through a structured questionnaire named by 'Socioeconomic and Demographic Survey of the Indigenous People (SEDSIP) of Rangamati Hill District-2006' conducted in January-February, 2006. The reference period of the survey was 'January 1, 2005 to December 31, 2005'. The interviews were conducted by several groups of well-trained male and female investigators who had previous experiences in data collection and their educational qualification were not below graduation. The questionnaire was designed by several discussions with demographers and experts for collecting data on ethnicity, age, sex, education, land holdings, income, marital status, status of women's father at the time of their marriage, religion, attitude towards family planning and family size, the proximate determinants of fertility, children ever born and their survival status, sex preference etc. Qualitative data were collected through in-depth interviews with area and village heads namely Headman and Karbari respectively and other persons and through several focus group discussions. A total of 905 ever-married women of the prime reproductive ages from 897 households were successfully interviewed from rural and urban areas of three upazillas (sub-district): Kaptai, Kawkhali and Rangamati sadar. Among the respondents 865 are currently married women of whom 818 were found non-pregnant and these are included for analysis in this paper.

To assess the net effects of the explanatory variables, we applied binary logistic regression. The logistic regression is useful not only to

identify the risk factors; it also predicts the probability of success. The general logistic model expresses a qualitative dependent variable as a function of several independent variables both qualitative and quantitative (Fox, 1984).

If  $P$  is the probability of use of contraception, then

$$P = \frac{e^{\beta_0 + \beta_1 x}}{1 + e^{\beta_0 + \beta_1 x}}$$

or, equivalently, 
$$P = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x)}}$$

where;  $\beta_0$  and  $\beta_i$  are the coefficients estimated from the data,  $x$  is the independent variable and  $e$  is the base of the natural logarithms, approximately 2.718. For more than one independent variable the model can be written as:

$$P = \frac{1}{1 + e^{-z}}$$

where  $z$  is a linear combination and can be expressed as follows:

$$z = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_p x_p = \sum_{j=0}^p \beta_j x_j$$

In logistic regression model, the relationship between the independent variable and the probability is non-linear. In this analysis, the input data were matrices tabulating the current use status of contraception by independent variables. The dependent variable is a dichotomous response variable that was assigned either 1 or 0. If a woman was using a contraceptive method she was coded as 1 and for not using she was coded as 0. Initially 16 variables were selected in logistic regression in assessing the significant variables in performing stepwise regression method. The results of the analysis are presented in logit regression coefficients, odds ratios and significant levels (P value). In assessing the relative importance P value is used to identify

the significant effects of the selected variables considered for logistic regression method. If the odds ratio is greater than unity, the probability of being a current user is higher than that of being a non user.

### 3.0 Results

#### 3.1 Bivariate Analysis

The results of the bivariate analysis are presented in Table 1. The data obtained from the sampled women reveal that 72.5% currently married tribal women of Rangamati Hill District are using a contraceptive method, while this rate in Chittagong division is 47.1% and national level is 58.1% (NIPORT, 2004). Thus, the CPR of the study population is quite high as compared to the mainstream population. As regards to method choice, the practices of modem and traditional methods were found to be 63.3% and 9.2% respectively (data not shown in Table).

Table-1: Percentage of currently married tribal women of Rangamati Hill district by current status of contraception use and selected socioeconomic and demographic background, 2006

Background characteristics	No. of cases N	Percentage of current CPR	Chi-square (df)
Total	818	72.5	
<b>Age of women</b>			
<25 years	157	55.4	31.55*** (2)
25-34 years	346	79.5	
35+ years	315	73.3	
<b>Education of women</b>			
Illiterate	479	69.7	7.01* (3)
I-V	108	76.9	
VI-X	120	71.7	
SSC+	111	81.1	
<b>Education of husband</b>			
Illiterate	275	65.5	16.52*** (3)
I-V	173	79.8	
VI-X	175	69.1	
SSC+	195	79.0	
<b>Duration of marriage</b>			
<10 years	339	64.6	30.81*** (2)
10-19 years	292	83.9	
20+ years	187	69.0	

<b>No. of living children</b>			
No children	40	17.5	64.17 <sup>•</sup> (3)
1-2	475	74.5	
3-4	252	76.6	
5+	51	76.5	
<b>Child mortality</b>			
No	689	73.0	<b>0.571 (1)</b>
Yes	129	69.8	
<b>Have son or not</b>			
No	212	60.8	19.46 <sup>***</sup> (1)
Yes	606	76.6	
<b>Ideal vs. actual no. of children</b>			
Ideal > Actual	312	61.9	28.75 <sup>***</sup> (2)
Ideal = Actual	338	79.6	
Ideal < Actual	168	78.0	
<b>Working status of women</b>			
Housewife	396	72.0	0.58 (2)
Self-employed	331	72.2	
Work for wage	91	75.8	
<b>Occupation of husband</b>			
Agriculture/Fisherman/Labourer	513	69.6	6.76 <sup>**</sup> (2)
Businessman	118	80.5	
Service	187	75.4	
<b>Desire for additional children</b>			
Yes	270	58.9	35.53 <sup>***</sup> (2)
No	498	78.9	
Not sure	36	77.8	
<b>Type of family</b>			
Nuclear	622	75.4	11.01 <sup>***</sup> (1)
Joint	196	63.3	
<b>Family income</b>			
≤ TK. 3000	92	62.0	11.77 <sup>***</sup> (1)
TK. 3001-6000	328	69.8	
TK. 6001-9000	202	74.8	
TK. 9001+	196	79.6	
<b>Landholdings (in decimals)</b>			
Landless	252	77.0	7.50 <sup>*</sup> (3)
1-100	124	64.5	
101-300	286	70.6	
301+	156	75.0	
<b>Residence</b>			
Rural	631	69.6	11.82 <sup>***</sup> (1)
Urban	187	82.4	
<b>Ethnic identity</b>			
Chakma	259	78.4	16.67 <sup>***</sup> (1)
Marma	189	62.4	
Tanchangya	176	77.3	
Tripura	194	70.1	

Source: Field Survey, 2006

Note: <sup>\*\*\*</sup> p<0.01; <sup>\*\*</sup> p<0.05 and <sup>\*</sup> p<0.10

Table 1 suggests that, although CPR was found high among the women studied, there exists significant variation in current use of family planning method with respect to different selected socioeconomic and demographic characteristics. The current use of contraceptives was found to be directly associated with the respondent's age, Education of husband, duration of marriage, number of living children and family income. The relationship that found in current use of family planning method and the variables are linear as well as curvilinear. The education level of husband seems to have higher positive effect rather than that of the education level of wife. Number of living children is found as a significant factor while child mortality has no significant association with contraceptive use. Having son or not and ideal versus actual number of children seem to have highly significant association with contraceptive practice. Among the study tribal women working status does not seem to have significant effect to be contraceptive users.

The use of contraceptive was found significantly higher among the women who do not desire for additional children compared to the women who desire for at least another child and who were suffering from indecision to stop childbearing. A significant variation is also observed in contraception use by type of family. The tribal women belonging nuclear family are likely to use contraceptives higher than that of the women belonging joint family. Family income appeared as a significant positive factor in contraceptive practice of the tribal women in the study area while landholdings do not seem to have higher effect on it. Urban women outstrip rural women in current use of contraception. The practice of contraceptives significantly differs by ethnic identity of the tribal women. The Chakma are credited to be the highest contraception users followed by the Tanchangya, Manna and Tripura.

### 3.2 Multivariate Analysis

Table 2 shows the results of the logistic regression analysis with relative importance of the significant variables. Out of sixteen variables, considered for the logistic regression model, nine were

found to have significant effect on current use of contraceptive methods among the tribal women under study. The variables, namely the education of women, number of living children, experience of child loss, ideal versus actual number of children, working status of women, occupation of husband and landholdings of family, seem to have insignificant effect on using family planning methods by the indigenous women of study area.

The residential background of the women appeared as the most important factor for current contraceptive status. The women residing in urban areas are likely to use contraceptives almost two and half times higher than that of the women of rural areas. The urban areas are generally better facilitated for social services including medical care as well as family planning. Moreover, the demand and supply process make awareness among the urban dwellers to limit their family in desired size which resultants to accept family planning method.

Table-2: Logistic regression of current contraceptive use by selected socioeconomic and demographic characteristics of the tribal women in Rangamati Hill district, Bangladesh, 2006

Variables	Logistic coefficient ( $\beta$ )	Odds ratio Exp ( $\beta$ )	Sig.
<b>Age of women</b>			
<25 years (RC)*		1.00	
25-34 years	0.589	1.802	0.021
35+ years	-0.045	0.956	0.909
<b>Education of husband</b>			
Illiterate (RC)		1.00	
I-V	0.615	1.850	0.015
VI-X	0.071	1.073	0.779
SSC+	0.245	1.278	0.432
<b>Duration of marriage</b>			
<10 years	0.495	1.641	0.233
10-19 years	0.739	2.095	0.010
20+ years (RC)		1.00	
<b>Have son or not</b>			
No	0.537	1.712	0.011
Yes (RC)			



<b>Desire for additional children</b>			
Yes (RC)		1.00	
No	0.895	2.448	0.000
Not sure	0.632	1.881	0.170
<b>Type of family</b>			
Nuclear (RC)		1.00	
Joint	-0.585	0.557	0.005
<b>Family income</b>			
≤ TK. 3000		1.00	
TK. 3001-6000	0.322	1.380	0.258
TK.6001-9000	0.522	1.686	0.110
TK. 9001+	0.897	2.452	0.012
<b>Residence</b>			
Rural		1.00	
Urban	0.905	2.473	0.001
<b>Ethnic identity</b>			
Chakma		1.00	
Marma	-.671	0.511	0.004
Tanchangya	0.252	1.286	0.329
Tripura	-0.258	0.773	0.303
<b>Constant</b>	-1.10	-	0.05
Model chi-square = 124.582; df = 18; Sig. = 0.000			

Source: Authors' calculations based on field survey, 2006.

Note: RC = Reference category.

The age of the respondent has been found as a significant factor. The women aged 25-34 years showing relatively higher prevalence rate by 1.8 times compared to their younger counterparts. Education level of husband seems to have little effect on current use of contraception. The women whose husband attained I-V classes are likely to have higher contraceptive prevalence rate with compared to the women whose husbands are illiterate. The two other categories of education level of husband VI-X and SSC or more have been found insignificant. Duration of marriage has a net effect on current use of contraceptives. The women having duration of marriage twenty or more years are less likely to use contraceptives as compared to the women having lower duration of marriage.

'Son preference' or 'having son or not' has a significant independent effect on current contraceptive status of the hilly tribal women. The use prevalence was found 1.71 times higher among the women who

have no son compared to the women who have at least one son. The results suggest that desire for additional children plays an important role in using contraceptive methods. The women desiring to stop child bearing shows the probability of using family planning methods about two and a half times higher compared with those who desire for additional children. Type of family shows a net significant effect on contraceptive use. The women belonging joint family are less likely to use contraceptives compared to women from nuclear family which is reflected from the negative value of the regression **coefficient**.

The logistic regression analysis shows that, family income has a significant positive effect on contraceptive use. The women having lower family income tends to have lower probability of contraceptive use compared to those who have higher family income. The prevalence of current contraceptive use significantly varies with the ethnic identity of the women studied. Although, the results show an insignificant effect for two ethnic communities: Tanchangya and Tripura but significantly higher prevalence rates were found among the Chakma compared to the Marma women.

#### **4.0 Discussion**

We undertook a multivariate analysis of correlates of contraceptive use among four major tribes resided in Rangamati Hill District in Bangladesh. Following bivariate analysis we used logistic regression, an appropriate statistical technique, to measure in what extent contraceptive use varies with different socioeconomic and demographic factors. The study suggests that contraceptive use among the **tribes** particularly of Rangamati Hill District is higher in a larger extent than that of the national level. The family planning programme in such remote terrains has been successful due to door to door delivery services provided by the great efforts of government and non-government field workers of the locality (field survey experience, 2006). Despite the fact, the current use of contraceptive significantly varies with some of the socioeconomic and demographic factors that have been considered in the present analysis.

While the variables women's education, experience of child loss, working status for mainstream population always show positively significant effect on contraceptive use but the variables were found insignificant for the women studied. The reasons for this result may be attributed to small sample size and lower education level of the women and their lower working status. Due to their less education only a few number of tribal women were found employed mostly in the informal sectors. Higher levels of education and wider employment opportunities for women as well as higher family socioeconomic status may directly may influence egalitarian decision-making in family life, leading in turn to more effective contraceptive use (Ullah and Chakraborty, 1993).

The lower and higher aged women tend to have lower use prevalence compared to the women of medium ages. The same result was found for effective duration of marriage. Husband's education has net positive significant effect on family planning decision making. Having son or not plays vital role in accepting family planning method. The negative sign of the regression coefficient ensures that the women of joint family have the risk of lower probability for contraceptive use. The variable 'income of family' seems to have significant positive effect on contraceptive use. Besides, the positive sign of the regression coefficient corresponding to residential background of the respondents suggests that the urban indigenous women are likely to use contraceptives compared to their rural sisters. Current use of contraceptives differs significantly in terms of ethnic identity. The negative sign of the regression coefficient shows that the Marna women are less likely to be contraceptive users as compared to than that of the Chakma women. The risks of the probability of using family planning method were found insignificant among the women of two other ethnic communities namely Tanchangya and Tripura.

In the light of above discussion, the findings have some important policy implication. The tribal communities are far behind as regards to socioeconomic status compared to the mainstream population. Efforts should be made to encourage tribal communities to be higher educated. The education is one of the prime factors which ultimately

create awareness to limit family in a desired size by the help of contraceptive use. The results help to recommend that, awareness should be created especially to the younger women regarding the demerits of adolescent childbearing and benefits of family planning. The doorstep service delivery system of contraceptive materials needs to be continued to raise the prevailing CPR among the tribal women of Rangamati Hill District of Bangladesh.

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