Adolescent Motherhood in Rural Rajshahi of Bangladesh

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Abstract. *In recent decades, adolescent motherhood has emerged as an issue of increasing concern through out the developing and the developed world. There is a growing awareness that early childbearing is a health risk for both the mother and the child. Also, it usually terminates a girl's educational career, threatening her future economic prospects, earning capacity, and overall well-being. Thus, adolescent motherhood has significant ramifications at the personal, societal and global levels. The aim of this paper is to investigate the scenario of early marriage and adolescent motherhood in rural Rajshahi of Bangladesh. Using the data from 196 currently married adolescent girls aged between 15 and 19 years it was found that 50% of them gave first birth before 19 years of age. Mean age at marriage and mean age at first birth of these currently married adolescent was found to be 15.18 and 16.16 years respectively. Using the most reliable statistical technique simultaneous linear probability model was fitted and found that education was the single most significant factor that affected both early marriage and earlier first birth after getting marriage. In addition, the result of the study show that increased education level increased the age at first marriage and delayed adolescent motherhood.*

Keywords and phrases: Early marriage, adolescent, adolescent motherhood, and linear probability model, Bangladesh.

1. INTRODUCTION

A definition of adolescent is young population aged 10-19 years. Adolescent are the young population aged 10-19 years, a vital population segment making up 25 percents of the Bangladeshi population (BBS, 2003). Theoretically adolescence is believed to be in the child bearing group (15-19) years, amount to 15% of all Bangladeshi population (BBS, 2003). According to the 2003-2004 Bangladesh Demographic and Health Survey (BDHS), female adolescents aged 10-19 constitute one fourth (25.1 percent) of the total female population and 40 percent of the total female population aged 10-49. According to the 1999/2000 Bangladesh Demographic and Health Survey/BDHS (BDHS, 2000), female adolescents aged 10-19 constituted one fourth (25.1 percent) of the total female population and 40 percent of the total female population aged 10-49 years old. In Bangladesh the average age at first marriage for female was only 14.8 years (Mitra et al., 1997). As a result, a great majority of newly wed couples are adolescents. Because they constitute the fertility-potential cohort, their fertility behavior has to be regulated effectively if national demographic goals are to be achieved on time. A government order in 1976 stated that, the minimum legal age of marriage was 18 years for females and 21 years for males. However, in the countryside, such requirements are hardly known particularly in rural areas and among those who do not know about them, the order has little impact on marriage behavior (Islam, et al. 1995). The mean age at first marriage of women is 16.05 years in rural areas and 18.22 years in urban areas (Rahman, 2005)

Bangladesh has a long tradition of early marriage and has the highest rate of adolescent childbearing among Asian countries (Islam et al., 1996; Singh, 1998). In this traditional rural society, there are many social pressures to "marry off" pubescent teenage girls (Aziz and Maloney, 1985). Although teenage fertility rates were declining throughout the late 1960s and early 1970s, their reproductive behavior emerged as a major concern in many developing countries like Bangladesh. In Bangladesh more than one fifth of adolescent girls experiencing first birth before aged 15, nearly two thirds before aged 18, and 80.0 percent by aged 20 (BDHS 2000). Child bearing as a crucial period of human development might have serious consequences on these young mothers.

Usually, in both developed and developing countries the rates of population growth are more rapid when women have their first child before they are in their twenties (Senderowitz and Paxman, 1985; Mazur, 1997; Jones, 1997). The period of adolescence encompasses the transition from

childhood to adulthood during the second decade of life. It is one of the most crucial periods in an individual's life, because during adolescence many social, economic, biological and demographic key events occur that set the stage for adult life.

Although the social and economic consequences for an adolescent of having a baby will depend on her particular culture, familial and community setting, the physical or health consequences for the mother and her child are more universally recognized as problematic (Buvinic and Kurz, 1998; Acsadi and Johnson-Acsadi, 1986). Adolescent pregnancies are usually problematic because they occur before a young woman has reached full biological, physical, and emotional maturity. As a consequence, adolescents face a number of problems, which include anemia, retardation of fetal growth, premature birth, and complications of labor. Pregnancy of a girl who is still growing means an increase in nutritional requirements, not only for growth of the fetus but also for the mother herself (Friedman, 1985). Teenage mothers have a higher incidence of low birth-weight babies, who are associated with birth injuries, serious childhood illness and mental and physical disabilities (Islam, Islam, and Yusuf, 1995). Children born from teenage mothers are also at higher risk of infant and child mortality (Mahmud and Islam, 1999).

Married adolescent women in Bangladesh are generally aware of contraceptive methods but very few use them. For example in the 1999-2000 BDHS, the data shows that 99.9 percent of women at the age of 15-19 ever heard of at least one method of family planning, but 61.9 percent were not using any contraception. This indicates that adolescents are aware of modern contraceptives but, in fact, very few use them. Early marriage associated with low levels of contraceptive use may lead to the beginning of childbearing at very young ages in most of the developing countries where this occurs. The age at which childbearing starts has important consequences for the overall level of a country's fertility as well as the health and welfare of the individual mother and child. Early initiation of childbearing is generally a major determinant of large individual family size and rapid national population growth, particularly in countries where family planning is not widely practiced (Islam, 1999).

In view of the negative health, social, and economic consequences of early childbearing, it is important to have a clear understanding of the fertility behaviour of adolescents in order to design interventions to improve the situation. This study examines the levels, trends, and differentials of adolescent childbearing as well as scenario of early marriage and adolescent

motherhood in rural Rajshahi of Bangladesh. The findings of the study may have important policy implications for further efforts to reduce fertility.

2. DATA AND METHODS

2.1. Sources of Data

The data were collected from a field survey conducted in the rural area of the district of Rajshahi in Bangladesh during the year 2004. We selected Baksimoil Union of Mohanpur Thana as a representative part of Rural Rajshahi and choose it purposively. We have collected information from 550 married respondents aged (10-49) years through purposive sample. The present study needs those married respondents who are aged (10-19) years and concentrated in rural areas. Thus we got 196 adolescents (women aged 10-19 years) who are related to adolescent marriage and motherhood.

2.2. Analytical Methods

In this study the tabular system of data along with the linear probability models were used to predict the adolescent motherhood and to identify the impact of influential factors that affect the teenage motherhood.

2.2.1 Linear Probability Model

Let us consider a simple model

$$Y_i = \beta_1 + \beta_2 X_i + u_i \qquad\qquad (1)$$

Where, X is explanatory variables, $Y = 1$ when pregnancy wastage occurs, and $Y = 0$ when there depicts no pregnancy wastage.

This model expresses the dichotomous Y_i as a linear function of the explanatory variables X_i and is called linear probability model. Now the conditional expectation of Y_i given X_i can be interpreted as the conditional

probability that the event will occur given X_i, that is $\Pr(Y_i = 1 | X_i)$. Thus $E(Y_i | X_i)$ gives the probability of pregnancy wastage whose reproductive knowledge is rated as X_i (Gujarati, 1995).

Assuming $E(u_i) = 0$, to find an unbiased estimator we obtain $E(Y_i | X_i) = \beta_1 + \beta_2 X_i$. Now letting P_i = probability that $Y_i = 1$ (the event occurs) and $1 - P_i$ = probability that $Y_i = 0$ (the event does not occur), the variable Y_i has the following distribution:

Y_i	Probability
0	$1 - P_i$
1	P_i
Total	1

Now by the definition of mathematical expectation we obtain $E(Y_i) = 0(1 - P_i) + 1(P_i) = P_i$. Thus we can write the conditional expectation as probability, that is, $E(Y_i | X_i) = \beta_1 + \beta_2 X_i = P_i$. Since the probability P_i must lie between 0 and 1, we have the restriction $0 \le E(Y_i | X_i) \le 1$, that is, the conditional expectation or conditional probability must lie between 0 and 1.

The general expression of the linear probability model (LPM) is

$$Y = \beta_1 + \beta_2 X_1 + \beta_3 X_2 + \Lambda + \beta_{k+1} X_k + u \tag{2}$$

where, Y equal to 1 or 0 according as pregnancy wastage occurs or not, and X_i's are the explanatory variables like reproductive knowledge rating, acceptance of family planning, birth spacing, total number of live birth, age of respondent, and other relevant factors.

3.   RESULTS AND DISCUSSIONS

Data were collected from 196 currently married adolescent women from the rural area of Rajshahi district. Some basic characteristics of this study population are:

- Total married adolescents under study were 196.
- Mean age at first marriage was 15.18 years.
- Mean age at first birth was 16.16 years.
- Mean difference between first marriage and first birth was 1.602 years.
- Only first birth was found for 99 (50%) married adolescents.
- No second birth was found in the study.
- At least one contraceptive method was currently using by 70.92% married adolescents.
- 88.26% respondent believed that pregnancy before 18 years is risky for health.
- 22.22% adolescent mothers faced pregnancy complications.
- Only 69.69% mothers took vitamins and iron tablets during pregnancy.
- 10.10% mothers did not take tetanus injection during birth.
- 47.47% adolescent mothers did not perform medical check up during pregnancy.

Table 1 represents the age at first birth with the age at first marriage of adolescent mothers. Vicious scenario of early marriage has been found to be 9 years that is much lower than the age at menarche. Most perilous deed is that 9.09% of currently married adolescent mothers gave first birth at 14 years (Table 1).
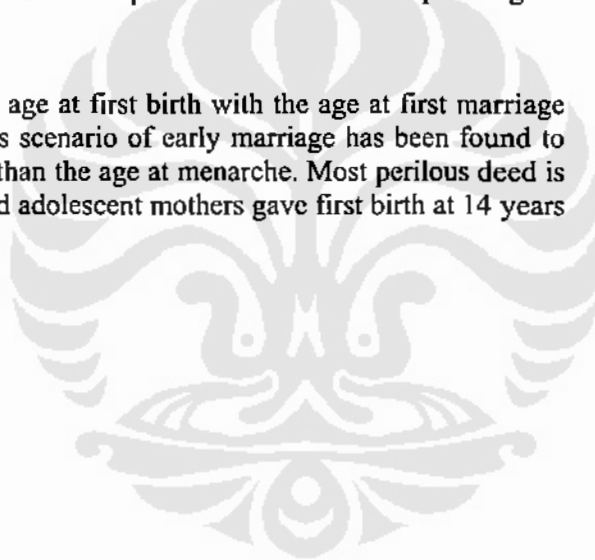
Table 1
AGE AT FIRST MARRIAGE AND AGE AT FIRST BIRTH IN RURAL AREA OF RAJSHAHI DISTRICT, BANGLADESH, 2004

Age at first marriage	Age at first birth						Total
	14	15	16	17	18	19	
9		1					1
10	1						1
11						1	1
12	3						3
13	5	9	1	1			16
14		11	8	3			22
15			19	8	1		28
16				17	2	1	20
17					6		6
18						1	1
19							
Total	9	21	28	29	9	3	99

Although 88.26% married adolescent women confessed that pregnancy before 18 years of age may cause serious health complications, however 34.18% of them became mother within 18 years and 50.51% of them gave birth within 19 years (Table 2). Again 28.57% of adolescents whose current age is 15 years are mother of one child. Similarly, 43.47%, 34.28%, 53.95%, and 66.66% married adolescents whose current age was 16, 17, 18, and 19 years respectively had their first child.

Table 2
DISTRIBUTION OF BIRTHS BY CURRENT AGE OF MOTHER IN RURAL AREA OF RAJSHAHI DISTRICT, BANGLADESH, 2004

Current age	Number of birth		Total
	0	1	
15	10 (71.41)	4 (28.57)	14 (100)
16	13 (56.53)	10 (43.47)	23 (100)
17	23 (65.72)	12 (34.28)	35 (100)
18	35 (46.05)	41 (53.95)	76 (100)
19	16 (33.34)	32 (66.66)	48 (100)
Total	97 (49.49)	99 (50.51)	196 (100)

Values in ( ) indicates percentage.

The study tried to investigate the stark reality behind the plight of early marriage and adolescent motherhood and to identify the major factors that affect early marriage and early motherhood as well. Thus to predict the

early marriage and duration of first birth after marriage for adolescent mothers a linear probability model was fit. A set of independent and dependent variables were defined as:

$$B_i = \begin{cases} 1, & \textit{difference between first marriage and first birth is above average (1.602 years)} \\ 0, & \textit{otherwise} \end{cases}$$

$$H_i = \begin{cases} 1, & \textit{complete 5 years education of husband} \\ 0, & \textit{incomplete husband's primary education} \end{cases}$$

$$E_i = \begin{cases} 1, & \textit{complete 5 years education of adolescent mother} \\ 0, & \textit{incomplete primary education} \end{cases}$$

$$M_i = \begin{cases} 1, & \textit{first marriage was after 15 years, that is, marriage happened between 15 and 19 years} \\ 0, & \textit{first marriage was before 15 years} \end{cases}$$

$$C_i = \begin{cases} 1, & \textit{used contraceptives} \\ 0, & \textit{did not use contraceptives} \end{cases}$$

The fitted linear probability model to predict the difference between the age at first birth and first marriage for adolescent mothers is

$$
\begin{aligned}
B_i &= 0.509C_i - 0.341M_i \\
SE &= (0.068)\ (0.114) \\
t &= (7.517)\ (-2.985) \\
p &= (0.000)\ (0.004)
\end{aligned}
\tag{3}
$$

The linear probability model for contraceptive use is

$$
\begin{aligned}
C_i &= 0.338E_i + 0.186H_i + 0.447M_i \\
SE &= (0.093)\ (0.105)\ \ (0.090) \\
t &= (3.622)\ (1.771)\ (4.986) \\
p &= (0.000)\ \ (0.078)\ (0.000)
\end{aligned}
\tag{4}
$$

Similarly the linear probability model for explaining the early marriage before reaching the adolescent age (15 years) can be fitted as

$$M_i = 0.330H_i + 0.324E_i$$
$$SE = (0.080) \quad (0.070)$$
$$t = (4.105) \quad (4.646)$$
$$p = (0.000) \quad (0.000)$$

(5)

Here evidently B_i can be explained by M_i as age at first marriage is related with the birth spacing as well as first conception after marriage. Generally, late marriage results in earlier conception immediately after marriage and earlier marriage delays first conception. However, several factors like education, occupation, and residence etc. may affect this. Since the data that were collected from rural areas and most of the respondents were housewife so these two factors have been excluded from the analysis especially from the model building. Therefore, duration of first conception (birth) after marriage depends on the age at marriage and acceptance of contraception. From equation 3, it can be seen that the coefficients of contraceptive use is positive and age at first marriage is negative. Thus with the increased age at first marriage the first conception (or birth) becomes faster, but the increased contraceptive use delays first birth. In other word, it can be mentioned that with the 10% increase in the age at first marriage the faster of increase in first birth by 3.41%. However, 10% increase of contraception delays first birth by 5.09%, that is, depicts 5.09% increase in probability of delaying first birth (first birth after 1.602 years from marriage) with the 10% increase of contraceptive use.

It was also found that mother's education is more powerful than the husbands and is more significant as shown in equation 4. With 10% increase of husband's education, level probability of contraceptive use is increased by 1.86%, but 10% increase of education level for adolescent women probability of contraceptive use is increased by 3.38%. Again as the coefficient of age at marriage is positive so the acceptance of contraception is increased with the increase of age at marriage too (equation 4).

Furthermore, the age at first marriage is highly associated with the education level of currently married adolescent women and their counterparts. From equation 5, it is clear that the effect of husband's education and their wives education for delaying first marriage are very close. For 10% increase in education level of husband, the probability of getting married for an adolescent woman after 15 years of age is increased by 3.3% whereas with 10% increase of woman's education this probability is increased by 3.24%.

The most interesting observation in our model fitting is that there exhibits simultaneity of B_i, M_i, and C_i. From equation 4 and equation 5 we may write that

$$
\begin{aligned}
C_i &= 0.338E_i + 0.186H_i + 0.447M_i\,; \\
&= 0.338E_i + 0.186H_i + 0.447\left(0.330H_i + 0.324E_i\right) \\
&= 0.483E_i + 0.333H_i
\end{aligned}
\tag{6}
$$

Thus from equation 6 it is clear that education is the single most important factor that affects the contraceptive use and with the increase of education level both for husband and wife contraceptive use increases. Again from equation 3, equation 5, and equation 6, it may be written that

$$
\begin{aligned}
B_i &= 0.509C_i - 0.341M_i \\
&= 0.509\left(0.483E_i + 0.333H_i\right) - 0.341\left(0.330H_i + 0.324E_i\right) \\
&= 0.135E_i + 0.057H_i
\end{aligned}
\tag{7}
$$

It is very clear from the above equation that the education level is the most important factor that is responsible for delaying first birth. Therefore with the increase of education level of adolescent mothers and their counterparts substantially increase the timing before first birth, that is, substantially delaying first birth. Hence from equation 5, equation 6, and equation 7, it can be said that increased education both for adolescent women and their husbands can increase the age at first marriage, contraceptive use, and delay first birth. Thus, early marriage and adolescent motherhood can be reduced in a large extent by increasing education level for teenagers.

4.　CONCLUDING REMARKS

Marriage is almost universal among females in Bangladesh, but the constitutional law of Bangladesh strictly prohibits early marriage. However, in the study area most of the adolescent women got marriage before 18 years old and gave their first birth before reaching 20 years old. This study demonstrates a very high incidence of teenage child bearing in rural area of Rajshahi district of Bangladesh, which detrimental to national efforts to produce a further decline in the overall fertility rate in order to achieve the

replacement level of fertility. Data shows that 88.26% married adolescent women confessed that pregnancy before 18 years old may cause serious health complications, 34.18% of them became mother at age 18 years old, and 50.51% of them gave birth within 19 years. The findings show that the mean at first marriage and first birth was only 15.18 and 16.16 years respectively for the rural area of Rajshahi district and is the most serious and vulnerable scene. Education was the most influential factor which was responsible for adolescent motherhood in this area. This scene is true not only for this study areas but occur in the maximum rural area of Bangladesh (Rahman, 2005, BDHS 2003-2004).

Appropriate policy and programmatic measures should be undertaken immediately to reduce the incidence of early childbearing that can have negative health, social and economic consequences, including the curtailment of education and job prospects of young mothers. There is lack of effective health programs to reaching out to the adolescents in general but the need for health program is more serious for the girl child because of their physiological condition and motherhood. It is important to create a positive environment for adolescents at all level. A girl can become a resourceful human being if she is given proper education, exposure, and opportunity. In order to reduce the rate of early child bearing, key challenges include the need to:

- identify the adolescent girl as a distinct group and pay proper attention to their development, empowerment with necessary information and skills,
- establish their right to life, so that they can take decisions about their own lives, marriage, and profession,
- promote that early child bearing can be postponed by delaying early marriage; more important is the need to extend the interval between marriage and first birth, thus delaying the timing of the first birth through the effective use of family planning methods,
- provide for the development of opportunities for both adolescent boys and girls for building up themselves, and there should be a gender balanced development, and
- develop a positive attitude on the girl child and public awareness creation regarding their issues; social mobilization and campaign program for the girl child is essential to bring positive changes in the society.

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