IIUC Business Review, Vol.-12, Issue-1, Dec. 2023
DOI: https://doi.org/10.3329/iiucbr.v12i1.88343

Socioeconomic determinants of adolescent motherhood in Bangladesh

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Abstracts
Bangladesh has a persistently high adolescent pregnancy rate, posing a public health risk. This study extracted 12680 women who had first birth at adolescent age from the Bangladesh Demographic and Health Survey 2017–18. Bivariate and multivariate logistic regression analyses were employed to identify the socioeconomic determinants of teenage motherhood. The study identified that women with a higher level of education (OR = 0.272), non-Muslims (OR: 0.523), who live in cities (in rural, OR: 1.095), who come from higher-income families (OR: 0.746), and who have a lower spousal age gap (spousal age gap more than 10 years, OR: 1.928) had less likely of having their first child at adolescent age. Policymakers need to emphasize economically empowering girls at the national and regional levels to reduce the rate of adolescent motherhood in Bangladesh.

Keywords Socioeconomic variables, Age at first birth, Adolescent, Bangladesh.
Paper type Research paper

1. Introduction

Premature birth is a significant health issue in many developing and middle-income nations. Adolescent or teenage pregnancy occurs in a girl between 10 and 19. (Dangal, 2005). Bangladesh has the highest incidence of teenage pregnancy in South Asia, at 35% (Papri, Khanam, Ara, & Panna, 2016). Most of these pregnancies result in healthy newborns; however, around 10% are terminated for various reasons (Macro & Hopkins, 2003). When a woman gives birth before age 19 in Bangladesh, it is called premature (Mahabub-ul-Anwar, 2005; Singh, 1998). The demands of motherhood and childcare can significantly impact a woman's ability to succeed professionally and personally if she gives birth too soon. A more significant number of children are born to mothers who begin childbearing at a younger age.

Women with early first children had more children than those with later first children did. Early childbirth harms mothers and babies and may hurt the family financially (Fagbamigbe & Idemudia, 2016). Experts have often voiced their worry about the detrimental social, health, and economic effects of youthful marriage, adolescent childbearing, unexpected pregnancies, and, in

IIUC Business Review
Vol.-12, Issue-1, Dec. 2023
pp. 61-74

ISSN 1991-380X

certain communities, high numbers of both premarital and adulterous conceptions (Gogna, Binstock, Fernández, Ibarlucía, & Zamberlin, 2008). Lower birth weights, earlier weaning, and increased mortality, particularly in the second year of life, are strongly linked to poor prenatal health care and immunization behavior, which is strongly linked to early pregnancies (Bongaarts, 2009). More and more research shows that families' health is tied to when and how quickly they start having children.

Maternal and infant mortality rates are more significant among women who begin having children at a young age (Menken, Duffy, & Kuhn, 2003). The average relative risk of mortality before age five is around 46% greater for infants born to women under 18 and about 13% higher for those born to mothers 18-19 related to kids of mothers 20-34, according to statistics from 36 Demographic and Health Surveys and World Fertility Surveys (WFS) (Goli, Rammohan, & Singh, 2015). Bangladesh has a total fertility rate (TFR) of 2.3, which means that women have 2.3 children on average over their lifetimes. (NIPORT, 2020). In underdeveloped nations, problems throughout pregnancy and delivery are the top reasons for mortality for adolescent females aged 15 to 19. Age at first births of women is important since they start a woman's motherhood and caregiving. Teenage mother health must be prioritized in Bangladesh (Hobcraft, 1992). Between 2004 and 2014, Bangladesh had significant gains in several measures of human development (HDI) advances, yet teenage marriage and rapid motherhood remain issues (Kamal, 2012; Haque, 2011). Having children earlier enhances fertility and extends the reproductive period. Lack of contraception contributes to high fertility and rapid population growth in developing countries (Islam & Gagnon, 2014). The early first birth period is linked to increased fertility (Kuningas, Altmäe, Uitterlinden, Hofman, van Duijn, & Tiemeier, 2011; Hoq, 2019).

When women have their first child while they are still adolescents, the rate of population expansion is significantly accelerated. More than forty percent (40%) of young women in developing countries give delivery to their first kid earlier, reaching the age of twenty (Alauddin &MacLaren, 1999). In addition, when teenagers get pregnant before reaching their full physical and mental potential, the mother is at a greater risk for morbidity and death (MEASURE Evaluation, 2017). An adolescent woman gives birth for the first time and has less authority to make decisions about her reproductive health. An increase in the age at which a woman gives birth for the first time has beneficial effects on the fitness condition of both the mother and her baby (MEASURE Evaluation, 2017). In addition to this, it has the potential to have a significant influence on the economic, social, and emotional destiny of a young lady.

The age at which developing country women have their first child affects population structure. In the long run, adolescent fertility may increase family sizes. Shorter generational gaps increase the likelihood of younger births, which increases fertility and population growth. Therefore, there is a need to delay childbearing to improve the lives of mother, children, and families in some ways. There is also evidence that adolescent mother's mental health is much poorer than that of other mothers or adolescent nonmothers, maybe because of the shock of an unplanned pregnancy (Hinke, Rice, & Tominey, 2022). This research aims to better understand the variables that contribute to the teenage age of motherhood in Bangladesh and how they affect the age at first motherhood of teenage women.

2. Literature review

Throughout the developing world, including Bangladesh, fertility is heavily influenced by economic, demographic, and cultural factors such as females' perceptions of the ideal family size, levels of education and exposure to the media, financial stability, and the prevalence of maternal experiences with infant mortality. Reducing fertility in rural Bangladesh's varied sociocultural environments is difficult (Rabbi & Kabir, 2013). Pregnancy-related causes of mortality were responsible for the deaths of 295,000 mothers and 2.5 million infants in 2017. (WHO, 2019).

Historically, Bangladesh has had one of the highest rates of child marriage anywhere in the world, and the average age of a woman giving birth there is still very young (Bhowmik, Biswas, & Hossain, 2021). Numerous studies emphasize starting and maintaining a family quickly. Studies have linked declining fertility to greater contraceptive use, women's education, and labor force participation. The effects of parental education, wealth, race, and location (urban vs. rural) on a child's chronological age at birth have been the subject of few other studies. Motherhood varies by educational attainment, with college-educated women waiting longer to have a family than their less-educated counterparts do. Past research has exposed that work affects women's age at first birth. The results suggest that various determinants emerge as a formidable force in various settings, including instruction.

East Asia and the Pacific had a median birth age of 20.2 years. In contrast, in developing nations, 2 7.3 million births to adolescents under 18 are to girls under 15 (Kennedy, Gray, Azzopardi, & Creati, 2011; Campbell, Martinelli-heckadon, & Wong, 2013). Having children at a young age extends the time of regeneration, which in turn increases fertility. It is a significant factor in rapid population growth and large family sizes. Even with the physical, enthusiastic, and financial obligations

of raising children, young mothers and dads may need to be more adaptable and have fewer resources to act as a pressure shield (Nicola, 2013). Researchers have shown that advanced maternal and paternal ages hurt a couple's fecundity and physiological ability to conceive (Sartorius & Nieschlag, 2010; Larsen & Yan, 2000). Almost a quarter of girls aged 10 to 14 in developing countries are not enrolled in school, and more than 14 million girls aged 15 to 19 who are not in school have babies yearly. Increasing evidence suggests that a family's financial success may be influenced by when and how often children are born. Previous research has shown that the decline in fertility rates may result from a combination of factors, including the widespread use of contraception, rising levels of female education, and women's increased participation in the labor force (Abbasi-Shavazi, 2002; Erfani, 2008). Several studies found that sociodemographic and economic variables predicted age at first childbirth. High spousal age gaps, early first sex, place of residence, religion, social status, media exposure, and no formal schooling or less education are examples (Dewau, Mekonnen, & Seretew, 2021; Nahar, Zahangir, & Islam, 2013; Motsima, 2020; Ferre, 2009). One of the most reliable indicators of a young mother's age during her first birth is her age at marriage.

Fecundity of Bangladeshi women is rising, although it still pales compared to affluent nations (Hoque, Khan, & Haque, 2012). Because of this, the crucial factor is to investigate the causes of the first deliveries of a young age woman. Therefore, this research pointed to determining the rate of young mothers giving delivery to their first child among married women in Bangladesh. Our primary goal was identifying the precipitating variables so policymakers could take the necessary actions to lower rates.

3. Methodology

3.1 Data and variables

The data were collected from the Bangladesh Demographic and Health Survey (BDHS) (2017-18). Bivariate and multivariate logistic regression models were used to evaluate factors contributing to early pregnancy in Bangladesh. The 2017-18 survey dataset collected information on 20127 respondents, of whom 2025 respondents had no child during the survey date, and some information about the 1014 respondents was excluded due to the missing information of some predictors (NIPORT, 2019). The final sample comprises 17088 respondents, of which 12680 (74.20%) women had their first birth at adolescence.

In this investigation, the occurrence of teenage pregnancy was the outcome variable of interest. Women who gave birth for the first time before age 20 fall under the category of adolescent mothers. The variable

woman's age at first birth was recoded as '1' if she had her first birth in adolescence and '0' if she had her first birth in adulthood (adulthood is commonly thought of as beginning at age 20). Several factors were included in the prediction of motherhood based on literature review. The predictors were education level, occupation, place of residence, division, religion, wealth index, media access, spousal age gap, and partner violence.

3.2 Analytical approach

Researchers used both bivariate and multivariate statistical methods to investigate the factors that lead to teenage pregnancy among women who had at least one child from a previous marriage in Bangladesh. Firstly, a bivariate analysis was conducted to find the associations between socioeconomic and dependent variables. Since the dependent variable was binary ('1' if the woman had first birth in adolescent age and 'o' for otherwise) , multivariate logistic regression models were used to determine the geographical factors, socioeconomic, demographic, and cultural factors influencing teenage maternity. The findings of the multivariate logistic regression studies have been given as odds ratios (OR).

4. **Results**

4.1 Sample characteristics

Among the women, 74.2 percent had begun motherhood before the age of 20 years. In contrast, 25.8% of the women began reproduction after the age of 20 years. Among women who began motherhood at adolescence, 40.9 percent had secondary education, followed by primary educated (35.8%) and illiterate women (17.9%). On the other hand, those women started motherhood in adulthood; 35.1 percent of them had secondary education, followed by higher educated (27.3%) and primarily educated women (24.2%). At the time of the survey, 50.7% of teenage mothers were engaged in the job, compared to 44.5% of adult mothers. On the other hand, 35.4% of women who started childbearing at a teenage age had primarily educated husbands, whereas 24.6% of women who started childbearing at an adult age had primarily educated husbands.

Table I

Percentage distribution of women who started childbearing at 15-19 years and 20-49 years in Bangladesh, 2017-2018.

Variables	The first birth at adolescent age (≤ 19 Years)	The first birth at adult age (> 19 years)	Chi-square Test
Education of Respondents			
No education	17.9	13.4	
Primary	35.8	24.2	1627.91***
Secondary	40.9	35.1	
Higher	5.4	27.3	

Variables	The first birth at adolescent age (≤ 19 Years)	The first birth at adult age (> 19 years)	Chi-square Test
Employment Status			
Not employed	49.3	55.5	51.02***
Currently employed	50.7	44.5	
Education of Husbands			
No education	25.2	17.5	
Primary	35.4	24.6	1068.67***
Secondary	29.5	28.0	
Higher	9.9	29.9	
Place of Residence			
Urban	25.4	35.4	161.998***
Rural	74.6	64.6	
Division			
Barisal	5.8	5.2	
Chattogram	18.3	17.1	
Dhaka	23.5	29.9	
Khulna	11.8	11.1	194.423***
Mymensingh	7.8	7.4	
Rajshahi	14.8	11.8	
Rangpur	13.1	9.2	
Sylhet	4.9	8.4	
Religion			
Muslim	91.9	85.9	134.885***
Non-Muslim	8.1	14.1	
Wealth Index			
Poor	42.1	29.2	544.875***
Middle	41.7	38.9	
Rich	16.2	31.9	
Media Access			
No	37.1	27.7	127.15***
Yes	62.9	72.3	
Spousal Age Gap			
Less than 5 years	28.7	38.9	160.13***
5-10 years	41.3	36.6	
More than 10 years	30.0	24.5	
Partner violence			
Not justified	77.9	82.7	45.911***
Justified	22.1	17.3	
Total (N)	12680 (74.20%)	4408 (25.80%)	

Source: Author's elaboration using BDHS 2017/18 survey dataset.

About 74.6% of mothers who started childbearing in adolescence and 64.6% who started childbearing in adulthood lived in rural areas. The highest proportion of women whose first birth started in both categories lived in the Dhaka division, followed by Chattogram and Rajshahi. Over 90% of the adolescent mother were Muslims. 42.1% of adolescent

mothers were from lower-income families, followed by middle-class families (41.7%). 41.3% of first motherhood at teenage age had a 5 to 10 years spousal age gap, whereas 36.6% of women who started childbearing at adult age had the same spousal age gap. The exciting part of this study is women's perception regarding partner violence. The study found that 22.1% of women who had first motherhood before age 20 thought partner violence was justified, whereas 17.3% of women who had first motherhood after age 19 had the same perception. Moreover, the study identified that all the independent variables were statistically associated with age at first motherhood.

4.2 Logistic regression analysis

This section using logistic regression analysis examines various categorical and continuous independent variables influence on adolescent women's first motherhood.

Table II presents logistic regression estimates of the predictors of adolescent motherhood among women. In concordance with the findings of teenage girls, it was found that higher-educated women were less likely to become mothers at an adolescent age than uneducated women (OR= 0.272). Women whose husbands had primary education were 48.2% less likely to become mothers during adolescence than those whose husbands had no education. Rural women were more likely to become teenage mothers than urban women. The study found that rural women were 1.095 times more likely to become mothers during adolescence than urban women.

Moreover, women from the Dhaka and Sylhet divisions had a significantly lower likelihood (18.8% and 54.3%, respectively) of adolescent motherhood than the Barisal division.

In contrast, women from the Rangpur division are 1.480 times more likely to engage in adolescent motherhood than those from the Barisal division. Women whose spousal age gap is between 5 to 10 years and more than 10 years had 1.691 times and 1.928 times higher odds of adolescent motherhood than women whose married age gap is below 5 years. A smaller marital age gap was associated with a decreased risk of adolescent motherhood.

Table II

Odds ratios of adolescent motherhood among women in Bangladesh

Variables	Coefficient (B)	Adolescent motherhood Odds Ratio
Education of Respondents		
No education (RC)	---	1.00
Primary	0.183	1.201***
Secondary	0.087	1.091

Variables	Coefficient (B)	Adolescent motherhood Odds Ratio
Higher	-1.304	0.272***
Employment Status		
Not employed (RC)	---	1.00
Currently employed	0.005	0.990
Education of Husbands		
No education (RC)	---	1.00
Primary	0.076	1.079
Secondary	-0.059	0.943
Higher	-0.657	0.518***
Place of Residence		
Urban (RC)	---	1.00
Rural	0.091	1.095*
Division		
Barisal (RC)	---	1.00
Chattogram	0.040	1.041
Dhaka	-0.209	0.812**
Khulna	0.061	1.063
Mymensingh	-0.060	0.941
Rajshahi	0.136	1.146
Rangpur	0.392	1.480***
Sylhet	-0.782	0.457***
Religion		
Muslim (RC)	---	1.00
Non-Muslim	-0.648	0.523***
Wealth Index		
Poor (RC)	---	1.00
Middle	-0.055	0.947
Rich	-0.293	0.746***
Media Access		
No (RC)	---	1.00
Yes	-0.032	0.969
Spousal Age Gap		
Less than 5 years (RC)	---	1.00
5-10 years	0.526	1.691***
More than 10 years	0.656	1.928***
Partner violence		
Not justified (RC)	---	1.00
Justified	0.053	1.054
Constant	1.020	2.773***

Source: Author's elaboration using BDHS 2017/18 survey dataset. Note: RC = reference category,
*p<0.01;**p<0.05; ***p<0.01

The study found that non-Muslim women were 47.7% less likely to start motherhood at a teenage age than Muslim women. The study discovered teenage motherhood among women in different socioeconomic groups. The upper-class women were less likely to become mothers at teenage age (25.4%) than lower-status women.

5. Discussion

Using data from the BDHS-2017-18, this study explores the variables influencing adolescent pregnancy in Bangladesh. According to the survey, despite a significant fall in Bangladesh's overall total fertility rate (NIPORT, 2019), teenage fertility is still highly prevalent (Islam & Gagnon, 2014). Furthermore, the number of pregnant adolescent women with their first child is still alarming. The higher incidence of age at first birth among adolescent females can be related to education, effectively stopping teenage marriage and decreasing adolescent motherhood. Teenage mothers are less likely to finish their education, which stops them from reaching their full potential and pursuing better economic possibilities and frequently results in lower lifetime earnings. Lower education increased the likelihood of adolescent motherhood compared to highly educated women.

The education level of the spouses correlated favorably with adolescent motherhood. This data suggests that partners' low educational level is a risk factor for teenage pregnancy among married adolescent females. This teenage pregnancy prediction discovery might have some interpretations. It is also possible that adolescent females' education plays a more considerable influence in postponing adolescent motherhood than their partners'. A previous study has indicated that in some nations, women's education predicts fertility more than a husband's education (Snopkowski, Towner, & Shenk, 2016). Future studies should examine the interplay between husband-and-wife education levels and relate the support of husband-and-wife education levels to explain teenage motherhood.

Divisional differentials were important predictors of age at first birth. Adolescent motherhood was more prevalent in rural areas than in metropolitan areas. One possible explanation is the influence of lower-scale socioeconomic growth and lower access to electronic media in Bangladesh's rural areas. Khan and Raeside (1997) discovered that teenage females who lived in rural regions or who practiced Islam (Muslim in religion) were more likely to have children before the age of 20 in Bangladesh. Religion in South Asia is a socialization medium that forms communal ideology by influencing health, particularly women's health, in various ways (Kamal & Ulas, 2021). Muslim women are much more likely to have their first child younger than non-Muslim women (Kamal, 2012; Hoq, 2020; Hoq, Hossain, & Sultana, 2019; Hossain, 2022). One probable explanation is that religion promotes early marriage by allowing girls to marry at any age. Wealthy participants are less likely than poor participants to have a favorable inclination to experience early pregnancy and motherhood (Amoran, 2012).

According to Kearney and Levine (2012), female children born to low-income group mothers can be at increased risk of getting pregnant in their adolescent years compared to those without these 'disadvantages.' Female children born to teenage mothers may be susceptible to pursuing a better life and male companionship due to financial disadvantage and the absence of a father figure. Teenagers might decide to get pregnant at an early age based on their previous experiences and expectations of what the future holds for them, and changing their surroundings can help to modify their views. The more spousal age gap is significantly related to higher adolescent motherhood among females. Possible explanations include a more significant marital age gap, which pointers to uneven power relations in the domestic and a low degree of inter-spouse communication, resulting in the wife's reduced involvement in domestic decision-making (Das., Gautam, Das, and Tripathy, 2011).

6. Conclusion

Adolescent pregnancy, which may be attributed to various underlying cultural, economic, and other pressures, must be prevented. For that, multifaceted methods aimed at empowering girls to reduce their positive perception toward husband violence at home and customized to specific groups of women, particularly those who are disadvantaged and helpless. According to the study's findings, the burdens of pregnancy and early motherhood among teenage girls in Bangladesh are rather significant. The study found that in Bangladesh, the outcome variable of early motherhood had statistically significant correlations with the age of females, level of income, educational attainment, place of residence, division, religion, wealth index, and spousal age gap.

The present study emphasizing on women's education to prevent early marriage and pregnancies, as well as a special shield for poorer girls to enable them to complete their education and encourage their engagement in recognized jobs. Interventions that economically empower women should be supported by policymakers at the national and regional levels when the age of marriage is low and teenage motherhood is common. Additionally, depending on regional differences, improved assistance for adolescent moms should be set up.

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