

Determinants of Age at First Birth in Bangladesh

Prosannajid Sarkar

Department of Population Science and Human Resource Development,
University of Rajshahi, Rajshahi-6205, Bangladesh

Abstract: The relationship between age at first birth and overall fertility in developing countries like Bangladesh is generally an underdeveloped area as far as demographic research is concerned. Fertility analysts generally assume that child bearing only occurs within marriage. Then they treat age at first marriage to be a major proximate determinant of fertility. Result shows that women in Bangladesh engage in sexual activities at an early age before 15 years and most use modern methods (43%) for birth control. Most of women use specific pills method. Islam religion has a more tendency to marry at age before 15 years. The incidence of primary sterility for formerly married women; it is increases as duration of marriage increase and for currently married women; it is decreases with increase in duration of marriage. Findings need to be scientifically used in suitable programs addressing the case of fertility control in the developing countries as well as in Bangladesh.

Key words: Age at first birth, proximate determinants, contraceptives, logistic regression analysis, Bangladesh

INTRODUCTION

Bangladesh lie in the northeastern part of South Asia between 20°34 and 26°38-North latitude and between 88°01 and 92°41-East longitude. The country is bounded by India on the West, the north and the Northeast and Burma on the Southeast and the Bay of Bengal on the South.

The area of the country is 56,977 miles² or 1, 47,570 km². The limits of territorial waters of Bangladesh are 12 nautical miles and the area of the high seas extending to 200 nautical miles measured from the base lines constitutes the economics zone of the country.

Over the last five decades, there have been major achievements in some areas of health development both globally and in the South-East Asia region. However, despite many major achievements in health, a large number of women in our region continue to die from preventable causes related to maternity.

The maternal deaths in the South-East Asia region are among the highest in the world and nearly every 2 min a woman dies as a result of complications of pregnancy or childbirth. This accounts for 40% of all global maternal deaths.

Perceiving the importance of the maternal health, World Health Day has been observed over the world with the slogan pregnancy is special, let's make it safe in 1998 and make every mother and child count in 2005. In spite of effective program every minute a mother

dies from complications in pregnancy and childbirth. That means 1,400 mother's die every day more than half a million mothers die every year (WHO, 2004). The survival and well-being of mothers are not only important in their own right but are also central to solving much broader economic, social and developmental challenges. When mothers die or are sick, their families, communities and nations suffer as well. Improving the survival and well-being of mothers will not only increase the health of societies, it will also decrease inequity and poverty.

The population size and growth rate of the country has undergone significant changes over the past few decades. Bangladesh Bureau of Statistics (BBS) conducted the fourth decennial population census in the country on January 23-27, 2001.

The population of the country stood at 137.00 million. The intercensal growth rate is 1.48% (BBS, 2001). The 2001 census indicated that 46.7% of the population is below age 15 years, 49.3% are between 15 and 64 years and 3% are age 65 and over (BBS, 2001).

The population of Bangladesh has been steadily increasing at a moderate rate of 1.48% which presents a formidable challenge to the policy makers when they try to improve the quality of life through socio-economic development.

The base population has already reached a very high population density. Due to the past efforts of both the government and the development partners, the Total Fertility Rate (TFR) declined from 6.3 in 1975 to 2.56 in

2005. An increase in the Contraceptive Prevalence Rate (CPR) from about 9.6 % in 1975 to 53.63% in 2005 caused most of the decline of the fertility level in Bangladesh.

Age at marriage may be effect on fertility. In some situations, age at marriage may have no effect on fertility. First, if women start having children no matter when they marry, then the effect of age at marriage on fertility may be limited. Second, if fertility is controlled within marriage by using contraceptives or other means, age at marriage may not have much effect on fertility because couples may decide how many children they would like to have regardless of the age at marriage. Third, if the level and pattern of fecund ability depends upon marriage duration and little on age, fertility is likely to be affected little by age at marriage because a woman, whether she marries early or late will have the same fertility experience. Although, fecundity is related to the age of a woman, it does not depend on age at marriage.

Marriage is almost universal in Bangladesh and postponement of first marriage has been outlined as the main determinant of fertility decline observed (Cleland *et al.*, 1994). Meanwhile, the mean age at first marriage for women has indicated 16.6 years in 1974 to 8.2 in 1991 and 21 in 2001 and men 23.9 in 1974 to 25.3 in 1991 and 26.5 in 2001 (BBS, 1993, 2001). Total Fertility rate is 4.2 in 1990 (Mitra *et al.*, 1993) but at present total fertility rate is 2.9 (BBS, 2001). There has been a substantial decline in the crude birth rate in Bangladesh, it was 34.4 per thousand population in 1986, declined to 30.8 in 1992 but at present 25.5 in 2001 (BBS, 1993, 2001). Though the TFR has dropped significantly, the maternal mortality rate is 320 per 100,000 live births (Niport, 2005). A high proportion of such deaths are attributed to a lack of emergency obstetric services and trained personnel. Doctors, trained nurses or midwives assist the delivery of only 13% of births in Bangladesh (BDHS, 2004). Additionally, trained traditional birth attendants assist 14% of births. Maternal mortality has come down 6 deaths per thousand live births to roughly 5 per thousand live births (BBS, 1993). This small but important decline is mainly attributed to increased availability of family planning and immunization services and a reduction in the number of births to high-risk mothers. In this context, age at first marriage to be a major proximate determinant of fertility. These facts have been the major motive of conducting the current research on age at first birth in Bangladesh.

Proximate determinants of age at first birth: The major fertility variables that are of great importance in starting the patterns of family formation are the proportion remaining childless and the age at first birth for those who bear children. Since marriage is believed to be virtually

universal in Bangladesh and voluntary childlessness is unknown, the main proximate determinant of proportion remaining childless is the incidence of primary sterility. On the other hand, the proximate determinant of age at first birth includes:

- Age at first sexual intercourse or union or marriage
- The incidence of primary sterility
- Practice of contraception in order to delay first conception

Objective of the study: The present study focuses on:

- To identify the factors affecting fertility as they operate through age at first birth
- To examine of the contribution of each of the proximate determinants of fertility
- To investigate the factors affecting fertility to primary sterility and practice of contraception

MATERIALS AND METHODS

The data for the present study have been derived from the Bangladesh Demographic and Health Survey (BDHS, 2004) was conducted under the authority of the National Institute for Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare.

At first, the researchers estimate percentage distribution of age at first birth regarding currently and formally married women. Secondly, to test any association between different phenomena that could be useful in the cross tabulation analysis by Pearson's χ^2 statistic is considered. Finally, logistic regression was used to identify factor affecting age at first union.

RESULTS AND DISCUSSION

Age at first union: Limiting of first marriage, first intercourse and first birth is crucial for the onset of the child bearing years. The conventional marker of the beginning of exposure to the risk of pregnancy is the date of first union. However, in some societies, sexual activity is not confined to marriage and women may bear children before the reorganization of the date of first union. In such settings, the age at first sexual intercourse and date of first birth may be more appropriate indicators of the beginning of sexual exposure than the date of first union. The same is true settings where marriages are arranged in early childhood and months or even years may elapse before the marriage is consummated.

Age at first union between couples is an important indicator of child bearing. An individual decision-making has become more important because individuals are no longer accountable for their behaviour directly to the

Table 1: Percentage distribution of respondent's age at first union by current age

Current age	Marital status			Age at first union group						
	CM	FM	N	<15	15-17	18-19	20-21	22-24	25+	N
15-19	96.40	3.60	1348	63.70	28.30	8.00	0.00	0.00	0.00	1348
20-24	95.80	4.20	2174	50.10	24.80	16.00	7.50	1.60	0.00	2174
25-29	96.20	3.80	1935	53.10	21.50	13.20	6.10	4.30	1.70	1935
30-34	93.20	6.80	1661	59.50	17.80	10.40	5.10	4.10	3.20	1661
35-39	90.90	9.10	1596	58.40	21.00	10.20	4.60	2.80	3.00	1596
40-44	85.50	14.50	1218	66.80	18.00	7.80	4.20	2.40	0.80	1218
45-49	81.10	18.90	1064	75.70	13.30	6.20	2.20	1.40	1.30	1064
15-49	92.30	7.70	10996	59.30	21.20	11.00	4.70	2.50	1.40	10996

CM = Currently Married; FM = Formally Married, N = Number of total women; Calculated from 2007 BDHS

elders or to the community but rather to the judges in the courts (Bauni, 1990). From Table 1, it is evident that among all the respondents (96.20%) currently married women is higher in age group 25-29 years and after that the percentage is gradually decreasing as age increase. On the other hand the percentage of formally married women is lower in age group 15-19 years and after age 25-29 the percentage start to increase as age increase.

It also observe from Table 1 that respondents with age group 45-49 years have higher percentage of lower age (<15 years) at first union. Among all the respondents (15-49 years) near about 60% respondent's age at first union is <15 years which contains 59.30%. This is indication that women in Bangladesh engage in sexual activities at an early age. This finding can be supported by the result of the 1985 Tanzania national survey on adolescent fertility, conducted among urban youth aged 12-24 years which showed that >50% of the females surveyed were sexually active (Mwateba *et al.*, 1988).

Again, it can also be observed from Table 2 that among all the respondents there is no strong variation in mean age between currently married, formally married and for both. The highest mean age for both populations was found in age group 15-29 years the result is also higher for currently married population for same age group which is also higher for formally married respondents in the age group 20-24 years.

Multiple logistic regression analysis: Multiple logistic regression analysis is conducted to assess the proximate determinants of age at first union as dependent variable (0 = if he/she age at first union after age 15 and 1 = if he/she age at first union before age 15) by some selected characteristics. There are many potential independent variables. Of all the potential independent variables, the researchers consider only those of the variables which give significant result in empirical study and that are also suitable for theoretical purpose. Here the independent variables are age, place of residence, literacy and religion of the respondents.

Table 2: Mean age of respondents age at first marriage by current age

Age group	Age at first union		
	Both	Currently married	Formally married
15-19	14.96	14.97	14.60
20-24	15.83	15.85	15.37
25-29	15.91	15.93	15.27
30-34	15.76	15.79	15.32
35-39	15.61	15.65	15.24
40-44	14.97	15.03	14.63
45-49	14.48	14.57	14.06
15-49	15.47	15.52	14.83

Calculated from 2007 BDHS

Table 3: Odds ratio predicting that a woman had age at first union before age 15

Variables	Odds ratio
Age	
15-19	RC
20+	0.831***
Place of residence	
Urban	RC
Rural	1.357***
Literacy	
Can not read at all	RC
Able to read only parts of sentence	0.755***
Able to read whole sentence	0.324***
No card with required language	1004291025.521
Blind/visually impaired	0.265
Religion	
Islam	RC
Hinduism	0.460***
Buddhism	0.202***
Christianity	0.635
Others	1.403

***p<0.001 (highly significant); Calculated from 2007 BDHS

Table 3 shows that respondents with age 20 years and above are highly significant but 0.831 times less preferable to marry before age 15 years than the reference category. Place of resident exerts the significant effect on the dependent variable which shows rural respondents are 36% more preferable to marry before age 15 than the urban respondents. From Table 3, it is also observed that the entire literacy category except the category no card with required language contains lower likelihood to marry before age 15 years than the reference category. Religion is also an indicator of age at first union as shown in Table 3. The researchers found that respondents with

Islam religion have a more tendency to marry at age before 15 years but only others religions contains a higher likelihood than the reference category.

Primary sterility: The term sterility is generally used interchangeable regardless of the precise definition. According to demographic terminology, primary sterility (primary infertility) is defined as the inability to bear any children. Therefore, this definition, primary sterility may arise because of the inability to conceive or inability to carry a pregnancy to full term. One point to note is that sterility can only be considered for the non-celibate women. In clinical studies, sterility defined as the inability to become pregnant or achieve fertilization.

Sterility might be due to the normal ageing process or to the consequences of a variety of diseases or malfunctions of the reproductive process (Vaessen, 1984). Although, the causes of sterility are diverse, it is generally agreed that Sexually Transmitted Diseases (STDs) are the major preventable cause of sterility (Farley and Besley, 1988). STDs may result in a problem that may also be caused by infections related to pregnancy and abortion (Cast *et al.*, 1985). Infection is particularly likely after unhygienic obstetric or abortion practices.

There is no direct way of measuring primary sterility from the BDHS data. However, since most women marry and in practice there is no control to prevent a first, childlessness or the failure to conceive among married women may be taken as an indicator of primary sterility or

very marked sub fecundity. The assumption is that marriages are stable and abstinence is rare for married couples since marriage is an institution for producing children.

The study will consider the proportion remaining childless as a fair indicator of either primary sterility or very marked sub-fecundity if the duration of marriage is >5 years without any live birth. Also, primary sterility has been known to affect fertility particularly in areas where there is high incidence of sterility. If sterility is reducing, fertility is likely to rise and this is the trend in countries where the prevalence of sterility is high. From Table 4, it reveals that for currently married women, the incidence of primary sterility decreases with increase in duration of marriage. For example primary sterility decreases from 19.40% for married <5 years to 8.90% for those married for 30+ years. Surprising enough, sterility tends to decrease with increasing age.

Again, from Table 4 for formerly married women, the incidence of primary sterility increases as duration of marriage increase. For example primary sterility increases from 7.30% for married <5 years to 17.8% for those married for 30+ years. Surprising enough, sterility tends to increase with increasing age. This may led us to conclude that either the choice of the period was too short to capture primary sterility hence this was primary sterility of formerly married women is on the increase now in Bangladesh. All in all, primary sterility is not very widespread.

Table 4: Percentage distribution of women who remain childless by marriage duration and current age

Current age	Duration of marriage							Childless	Currently married	
	0-4	5-9	10-14	15-19	20-24	25-29	30+			
(a) Currently married women										
15-19	88.60	11.40	0.00	0.00	0.00	0.00	0.00	11.40	100.00	1300
20-24	32.80	57.40	9.80	0.00	0.00	0.00	0.00	67.20	100.00	2082
25-29	5.70	26.10	56.70	11.50	0.00	0.00	0.00	94.33	100.03	1862
30-34	1.70	5.20	20.60	59.90	12.60	0.00	0.00	98.30	100.00	1548
35-39	0.10	1.40	3.90	22.90	58.60	13.00	0.00	99.80	99.90	1450
40-44	0.00	0.10	0.30	2.20	17.20	62.90	17.30	100.00	100.00	1041
45-49	0.00	0.00	0.20	0.70	1.90	12.90	84.40	100.10	100.10	863
15-49	19.40	19.10	16.20	14.80	12.20	9.40	8.90	80.60	100.00	0146
Current age	Duration of marriage							Childless	Formally married	
	0-4	5-9	10-14	15-19	20-24	25-29	30+			
(b) Formally married women										
15-19	79.20	20.80	0.00	0.00	0.00	0.00	0.00	20.80		48
20-24	21.70	62.00	16.30	0.00	0.00	0.00	0.00	78.30		92
25-29	2.70	21.90	61.60	13.70	0.00	0.00	0.00	97.20		73
30-34	1.80	3.50	15.90	60.20	18.60	0.00	0.00	98.20		113
35-39	0.00	0.00	4.80	16.40	62.30	16.40	0.00	99.90		146
40-44	0.00	0.00	1.10	0.60	15.30	59.90	23.20	100.10		177
45-49	0.00	0.00	0.00	1.00	1.00	10.40	87.60	100.00		201
15-49	7.30	10.20	10.20	12.40	16.60	17.80	25.50	92.70		850

Calculated from 2007 BDHS

Table 5: Percentage distribution of non-pregnant married sexually active women who use contraceptive to delay first birth by current age

Current age	Contraceptive method				N
	Not using	Folkloric method	Traditional method	Modern method	
15-19	60.80	0.00	4.00	35.20	1348
20-24	50.70	0.10	5.00	44.20	2174
25-29	42.20	0.50	5.30	52.00	1935
30-34	39.60	0.50	7.90	52.10	1661
35-39	39.00	0.90	12.70	47.40	1596
40-44	52.10	0.70	12.30	34.80	1218
45-49	67.10	0.70	7.50	24.70	1064
15-49	48.80	0.50	7.50	43.20	10996

Calculated from 2007 BDHS

Table 6: Percentage distribution of specific method used by current age

Current age	Current contraceptive method											N
	Not using	Pill	IUD	Inj	CDM	FS	MS	PA	Wdrl	Other	Npl	
15-19	60.80	27.00	0.60	3.50	3.80	0.10	0.10	1.60	2.40	0.00	0.10	1348
20-24	50.70	31.10	0.60	6.30	4.70	0.50	0.20	2.60	2.0	0.10	0.80	2174
25-29	42.20	31.50	0.70	8.30	6.30	3.20	0.70	2.90	2.40	0.50	1.30	1935
30-34	39.60	29.70	1.60	7.90	6.40	4.50	0.70	5.10	2.80	0.50	1.20	1661
35-39	39.00	23.60	1.30	8.10	5.80	7.00	0.80	8.30	4.30	0.90	0.80	1596
40-44	52.10	14.50	0.70	4.20	3.90	9.90	1.20	8.60	3.70	0.70	0.50	1218
45-49	67.10	5.90	0.30	2.00	1.50	14.00	0.90	5.50	2.00	0.70	0.10	1064
15-49	48.80	25.10	0.80	6.20	4.90	4.80	0.60	4.70	2.80	0.50	0.80	10996

Inj = Injections CDM = Condom; FS = Female Sterilization; MS = Male Sterilization; PA = Periodic Abstinence; Wdrl = Withdrawal; Npl = Norplant and Calculated from 2007 BDHS

Contraceptive use: Any deliberate practice undertaken to reduce the risk of conception by sexually active women (and their male partners) is considered as contraception. The tool used to prevent or reduce the frequency of conception is known as contraceptive. Contraceptive use has been described as the most important proximate determinant of fertility (Sherris *et al.*, 1985; Mauldin and Segal, 1988). Robey *et al.* (1992) have shown that differences in the levels of contraceptive use explain 92% of the variation in fertility among the 50 countries they studied. This implies that where contraceptive use is widespread, fertility is low. It is therefore essential to study the extent of the use of contraception in order to make sensible statements about the current and future fertility rates in a society.

Table 5 shows that women most use modern methods than traditional and folkloric ones to delay first birth. About 43.20% of women use modern methods, 7.50% use traditional methods and 0.50% use folkloric methods of contraception to delay the first birth in Bangladesh. Meanwhile, it is notable that approximately half percent women (48.80) do not use any contraceptive method at all to delay their first births.

In total 51.20% of women in Bangladesh does something to protect first birth. Again, more than half percent women (52.50%) in age group 25-34 years who are use modern methods. So, adolescents use modern and traditional methods than other groups do. This is an indication of the acceptance of modern methods in recent years.

Specific methods: According to Table 6 shows that married women mostly use pills (25.10%) for birth control. The second popular contraceptive use of women in Bangladesh to delay their first birth is injections (6.20%). The third which can also be STD/AIDS control programs that are emphasis the use of condoms (4.90%). While, 4.80% use female sterilization, 4.70% use periodic abstinence, 2.80% and <1% use Norplant, IUD and as well as male sterilization or other methods. This findings call for a review of family planning policy in Bangladesh.

CONCLUSION

Age at marriage is one of the vital indicators of and it influences fertility. Late marriage decreases fertility rate. However, age at first birth in fertility has also become the burning question of the day. Age at first birth in Bangladesh has long been a topic of interest to population research because of fertility apparent direct relationship with lack of health facilities and indirectly with the poverty. By running and interpreting the logistic regression analysis, study shows that current age, residence, education and religion is the major factor/contributors of fertility.

This indicates that various socio-demographic factors have played a crucial role in directly and indirectly influencing age at first birth in fertility of Bangladesh. Though, it is difficult in poor setting Bangladesh, the regarding authority should take proper steps in improving the situation of mother education in rural areas as well as

throughout the country. Again, the impact of fertility also marriages related deepen on govt. policy. As the country govt. policy will be cruel and actual then the country will be lie on fertility level and fertility rate with respect to fulfill consistency of natural resources.

However, there is a real need for more in depth studies on this regard. Thus, necessary action in called for to reduce future level of mortality in the country in order to achieve better living conditions in future.

REFERENCES

- BBS, 1993. Statistical Yearbook of Bangladesh 1993. Statistics Division, Government of the People's Republic of Bangladesh, Dhaka.
- BDHS, 2004. National Institute of Population Research and Training (NIPORT). Macro International Co., Dhaka, Bangladesh, USA.
- BBS, 2001. Population Census 2001. Statistics Division, Dhaka Government of the People's Republic of Bangladesh.
- Bauni, E.K., 1990. The changing sexual patterns of the meru people of the Chogoria Region, Kenya. Study Presented at the IUSSP Seminar on Anthropological Studies Relevant to the Sexual Transmission of HIV, Sonderborg, Denmark, November 19-22.
- Cast, W., T.M. Farley and P.J. Rowe, 1985. Worldwide patterns of infertility: Is Africa different? *Lancet*, 2: 596-598.
- Cleland, J., N. Onuoha and I. Timaeus, 1994. Fertility Change in Sub-Saharan Africa: A Review of the Evidence. In: *The Onset of Fertility Transition in Sub-Saharan Africa*, Locoh, T. and V. Hertrich (Eds.). IUSSP, Liege, Belgium, pp: 1-20.
- Farley, T.M.M. and E.M. Besley, 1988. The prevalence and aetiology of infertility. *Afr. Popul. Conf.*, 1: 15-30.
- Mauldin, W.P. and S.J. Segal, 1988. Prevalence of contraceptive use: Trends and issues. *Stud. Family Plann.*, 19: 335-353.
- Mitra, S.N., C. Lerman and S. Islam, 1993. Bangladesh contraceptive survey-1991. Final Report, Mitra and Associates, Dhaka, Bangladesh.
- Mwateba, R., J.M. Paxman and D.C. Weil, 1988. Confronting and the consequences of schoolgirl pregnancy in Tanzania, lessons from the multidisciplinary approach of dares salaam youth center. Proceedings of study Presented at the Annual Meeting of the American Public Health Association, Nov. 13-17, Francisco, CA, pp: 33-35.
- Niport, 2005. National Institute of Population Research and Training. NIPORT, Dhaka, Bangladesh.
- Robey, B., S.O. Rutstein and L. Morris, 1992. The reproductive revolution. *New Survey Findings, Population Reports, Series M, Number 11*.
- Sherris, J.D., K.A. London, S.H. Moore, J.M. Pile and W.B. Watson, 1985. The impact of family planning programs on fertility. *Population Reports, Series J, Number 29*.
- Vaessen, M., 1984. *Childless and Infecundity*. WFS Comparative Studies, Voorburg, Netherlands.
- WHO, 2004. The world health report 2004-changing history. <http://www.who.int/whr/2004/en/>.