



Determinants of Female Age at Marriage in Rural Bangladesh: A Case Study in Tangail District

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ABSTRACT

Age at marriage is an essential factor that highly influences the fertility rate. This study aims to find out the factors that influence female age at marriage at the individual level as well as household level. Previous study revealed the determinants of female age at marriage in Bangladesh by considering female characteristics only and did not consider the characteristics of parents and households. Therefore, it is an important point to examine whether the parents' and households' socio-economic status influences the female age at marriage. The study collected 400 married females' information from 10 villages of Tangail district by considering each village as a cluster. The study also collected 100 unmarried females' information. To meet the objective, the study used both descriptive and inferential tools and techniques. To identify the determinants of female age at marriage cox's proportional hazard model was used. The results show that the median age at marriage was 16.00 years when we considered all respondents, which is slightly higher than the median age at marriage for married (15.50) females only. The mean age at marriage was found to be 15.97 years for married women only. The cox's proportional model results show that the father's occupation and females' education are the significant determinants of female age at marriage. The chance of getting early marriage decreases as the level of education increases. The respondents who are enjoying the status of NGO membership show a lower chance of early marrying than those who are not involved with NGOs. One of the important findings of the study is that half of the marriages took place during their ages at or below 16 years, which violates the legal age at marriage. Females who was involved in a job or any other services have a higher median age at marriage compared to other female respondents.

1. Introduction

The increasing growth of population is a major problem for developing countries. The growth of population depends on many factors such as fertility, mortality and migration. Among the several factors, female age at first marriage is strongly related to population growth.

Several studies in various developing countries have been done to differentials and determinants of age at marriage (Audinarayana, 1993; Heaton, 1996; Islam and Mahmud, 1996; Yadava and Hossain, 2000). Some other researchers try to find out the relation between fertility and age at marriage (Amin, 1996; Islam and Khan, 1995; Wang and Yang, 1996).

Islam and Mahmud (1996) in a study identified that the high risk of getting early marriage of women is in rural areas, illiterate women and women who did not involve any work using the data of Bangladesh Fertility

Survey-1989. Several studies found that education is another important factor that has a significant impact on age at marriage in many developing countries (Islam and Ahmed, 1998; Shaikh, 1997; Thoronton and Lin, 1994). Among several individual characteristics, education and occupation are a strong determinant of female age at marriage. Several studies have been conducted to identify the determinants of female age at marriage but no study considered female family-level characteristics like the socio-economic condition of parents along with individual characteristics of the women. Therefore, it is essential to identify the influential determinant of female age at marriage by considering both the groups of characteristics.

2. Rationale of the Study

East Asian countries have a higher mean age at marriage

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than in South Asian countries. The female mean age at marriage is found around 27 years for Hong Kong, about 26 years for Singapore and Japan, and 24.4 years for South Korea, 24.2 years for Sri Lanka, 19.7 years for Pakistan and 18.1 years for India in 1981 (Hossain, 2000). In Bangladesh recently the female age at marriage are increased compared to previous years though it is still very low. Yadava and Hossain (2000) in a study using the DSS data of ICDDR,B, found that the mean and median age at marriage increased by 3 years when it is computed using married and unmarried females. The existing studies in Bangladesh did not investigate the role of parents' socio-economic condition on age at marriage. Hence, it is necessary to examine whether the parents' socio-economic conditions influence the age at marriage or not. The objective of the study was to find out the social and economic condition of female households that affect the female age at marriage in the rural community of Bangladesh.

3. Materials and Methods

3.1. Survey Area and Respondents

The study used a cluster-sampling technique to collect data from rural villages in Tangail. Tangail is a district in the central region of Bangladesh. It is the largest district of Dhaka division by area and second-largest by population. The population of Tangail district is about 3.8 million and its area is 3,414.28 square kilometers (BBS, 2011). It is surrounded by Jamalpur District on the north, the Dhaka and Manikganj Districts on the south, the Mymensingh and Gazipur on the east, and the Sirajganj on the west. In Tangail, the average literacy rate as of the 2011 census was 47.8%; male 50%, female 43.8% (BBS, 2011). The cluster was selected using a systematic probability proportionate to size (PPS) sampling procedure. Using a structured questionnaire the data were collected from 10 villages, where each village is considered as cluster and from each of the cluster 40 households were covered. In each household women belonging 15 to 49 years old age group, irrespective of their marital status were interviewed. The differentials and determinants of age at marriage were studied using Univariate analysis and Cox's proportional hazard model techniques respectively. The statistical analyses were done using SPSS and SAS software.

Cox's Proportional Hazard Model

Cox (1972) proposed a proportional hazard model that is given by, Where, t is the survival time, x is a vector of covariates values, β are unknown parameters and $h_0(t, x)$ is the baseline hazard when the covariates' effects are kept at their mean values. To do the hazard model age at marriage was considered as the time variable and status was defined whether the respondents married or not.

4. Results and Discussion

4.1. Differentials of Age at Marriage according to the Individual Characteristics

Table 1 shows the mean and median age at marriage of

the females under study according to their individual characteristics. The median age at marriage is slightly higher for considering both complete and censored

Table 1. Mean and median age at marriage of the females under study according to their individual characteristics

Characteristics	Age at marriage		
	Mean (in years)	Median* (in years)	Median** (in years)
Over all	15.97	15.50	16.00
Current Age			
≤ 19 years	15.07	15.00	16.00
20-29 years	16.34	16.00	18.00
30-39 years	16.07	16.00	16.00
40+ years	15.72	15.00	15.00
Education of the females			
Illiterate	15.60	15.00	15.00
Primary (1-5 years schooling)	15.00	15.00	15.00
Secondary (6-10 years schooling)	16.22	16.00	16.00
Higher secondary and above (11+ years schooling)	19.31	20.00	20.00
Occupation of the females			
Under-age for work	13.82	14.00	14.00
Student	18.11	17.00	18.00
Self-employed and Service	19.90	20.00	20.00
Unemployed	17.33	17.00	17.00
Others (labourer, HH work)	18.56	18.00	20.00
Number of Brothers			
No brother	15.98	16.00	16.00
(1 or 2) brother	16.00	15.00	16.00
(3 or 4) brother	16.03	15.00	16.00
(5 or more) brother	15.24	15.00	15.00
Year of Marriage			
Before 1991	14.58	15.00	
1991-2000	15.55	15.00	
2001-2010	16.56	16.00	
2011-2015	17.25	17.00	
Religion			
Muslim	15.96	15.00	15.00
Hindu	15.99	16.00	16.00

* Based on completed cases

** Based on completed as well as censored cases

cases than married females. The mean age at marriage is higher for women whose current age belongs to 20-29 age groups and lower for the women belongs to age groups less than equal to 19 years considering married females only.

The table also shows that as the education level increases the mean and median age at marriage also increase except for illiterate and primary education. As expected the mean and median age at marriage is higher for women who attained higher secondary and above education, and the mean and median age at marriage are 19.31 and 20.00 respectively. Whereas for illiterate women, the mean and median age at marriage was obtained 15.60 and 15 years respectively. It is important to note that the median age at marriage is not varying according to education level when compared to married only and complete and censor cases together. The same situation was also observed according to the occupation of the females except for students and others (Table 1). This situation may be occurred due to the causes of a limited number of censor cases.

The mean and median age at marriage is lower for the females who have five or more brothers. The mean and median age at marriage was found 14.58 years and 15 years respectively for the marriages took place before 1991, which increased to 17.25 years and 17.0 years after 2010.

The household characteristics such as economic condition of the household, household involvement of any NGO, occupation of mother and father and finally mother education level are considered to identify the determinants of age at first marriage for the study population.

It has been founded that the median age at marriage is higher or equal if obtained by combining both married and censored cases compare to median age at marriage obtained based on married females only for all the categories. It is important to note that mothers who attained post-secondary level education have considerably higher median age at marriage compare to females whose fathers attained higher secondary & above level education. Though the mother's education has a significant effect on age at marriage, the occupation of the mother does not show any considerable variations. However, father's occupation plays an important role in the female age at first marriage (Table 2).

Table 2. Mean and median age at marriage of study females according to the characteristics of their parents and socio-economic condition of the households

Characteristics	Age at marriage		
	Mean (in years)	Median* (in years)	Median** (in years)
Over all	15.97	15.50	16.00
Education of Father			
Illiterate	15.69	15.00	16.00
Primary (1-5 years schooling)	15.82	15.00	16.00

Secondary (6-10 years schooling)	16.40	16.00	16.00
Higher secondary and above (11+ years schooling)	17.56	17.50	18.00
Education of Mother			
Illiterate	15.71	15.00	16.00
Primary (1-5 years schooling)	16.26	16.00	16.00
Secondary (6-10 years schooling)	16.82	16.00	17.00
Higher secondary and above (11+ years schooling)	22.00	23.00	23.00
Occupation of Father			
Agriculture owner	16.70	16.00	17.00
Business	15.93	16.00	16.00
Service/ Self-employed/ Expatriate	15.87	15.50	16.00
Labourer (agricultural & non-agricultural)	15.29	15.00	15.00
Others	16.20	16.00	16.00
Occupation of Mother			
Self-employed	18.12	17.00	17.00
House wife	15.87	15.00	16.00
N G O Membership of the Household	16.03	15.00	16.00
Yes	15.99	16.00	16.00
No	15.96	15.00	16.00
Economic Condition of the household			
Extremely poor	15.95	14.00	15.00
Poor	15.54	15.00	15.00
Lower Middle Class	16.32	16.00	16.00
Upper Middle Class	16.74	16.00	17.00
Rich	16.13	16.00	19.00
Hindu	15.99	16.00	16.00

* Based on completed cases

** Based on completed as well as censored cases

The father's occupation has a significant effect on the female age at first marriage. Female whose fathers are self-employed, expatriate, or agricultural owner or involved in service have a higher median age at marriage whereas the median age at marriage is low for females whose fathers are labour. The findings indicate that both the mean and

median age at marriage was lower for the females whose mothers were housewives. (Table 2).

Table 2 shows that household economic condition has a significant effect on female age at first marriage and both the mean and median age at marriage was found considerably higher for the females belonging to the upper-middle class and rich economic conditions of the households. Again the mean age at marriage was found slightly higher for the females who come from extremely poor households (15.95 years) than those from poor (15.54 years) households. The membership of households to NGO does not show the considerable variation of female age at marriage for both married and unmarried cases.

4.2. Determinants of Females Early Age at Marriage

The proportional hazard model applied to determine the determinants of females' early age at marriage by considering survival time as a dependent variable and the related variables enter into as independent variables. Age at marriage was considered as a time variable and status was defined whether the respondents married or not.

The regression coefficients of the proportional hazard model along with relative risks are shown in Table 3. Considering illiterate as the reference category, the estimated regression coefficients indicate that as the level of education increases the risk of early marriage decreases that is the age at marriage increase (Table 3). The relative risk of early marriage is almost the same for primary level education and secondary level education. Compare to higher educated women with illiterate women the table shows that higher educated women have 48% less chance to get married early. One of the possible reasons behind this may be educated women spend more time at school/college, waiting time for getting a suitable alliance and above all awareness of the demerits of early marriages.

The risk of early marriage according to the year of marriage cohort shows all categories are insignificant. However, as the marriage cohort advances the risk of early marriage decreases, which indirectly indicates the increasing trend in the female age at marriage over time. The risk of getting early marriage for females belonging to the marriage cohort 2011-2015 are 18% less risk than female belonging to the marriage cohort before 1991.

Table 3. Results of Cox's Proportional Hazard Model for Female Age at Marriage

Variable	Estimated coefficient (β)	S.E.	Wald statistic	d.f.	Significance level (p)	Relative risk
Education of the Females						
Illiterate*	-	-	-	-	-	1.000
Primary	0.068	.151	0.203	1	0.653	1.070
Secondary	-0.028	.152	0.035	1	0.851	0.972
Higher secondary	-0.650	.278	5.471	1	0.019	0.522
Year of Marriage Cohort						
Before 1991*	-	-	-	-	-	1.000
1991-2000	-0.210	0.155	1.843	1	0.175	0.810
2001-2010	-0.127	0.154	0.683	1	0.409	0.881
2011-2015	-0.041	0.184	0.049	1	0.824	0.960
Number of brothers/sisters	.0025	0.026	0.889	1	0.346	1.025
Religion						
Muslim*	-	-	-	-	-	1.000
Hindu	0.206	0.132	2.445	1	0.118	1.229
Occupation of the Father						
Agriculture owner*	-	-	-	-	-	1.000
Business	0.262	0.159	2.721	1	0.099	1.300
Service/ Self-employed/Expatriate	0.304	0.170	3.188	1	0.074	1.355
Labourer	0.291	0.162	3.231	1	0.072	1.338
Others	0.055	0.179	0.093	1	0.761	1.056
Education of mother	-0.006	0.020	0.086	1	0.770	.994
Economic Status of the household						
Extremely poor*	-	-	-	-	-	1.000
Poor	0.045	0.193	0.055	1	0.815	1.046

Lower Middle Class	0.018	0.204	0.008	1	0.930	1.018
Upper Middle Class	-0.278	0.258	1.167	1	0.280	.757
Rich	-0.180	0.409	0.193	1	0.661	0.836
Status of NGO membership						
Yes*	-	-	-	-	-	1.000
No	0.101	0.116	0.751	1	0.386	1.106
-2 Log Likelihood = 3648.640						
Model 2 = 365.993; d.f. = 23; p-value = 0.000; N = 500 (Events = 400, Censored = 100)						

* Reference category

The analysis revealed that the number of brothers and religion of the women had no significant effect on the timing of marriage (Table 3).

It is revealed that the father's occupation has a significant effect on the risk of early marriage (Table 3). About 1.30, 1.35, 1.33 and 1.05 times more likely of getting early marriage whose fathers were businessperson, Service/Self-employed/expatriate, labourer and others than farmer owner father. The results also indicate that the mother's education had an insignificant effect on females' age at marriage.

The effect of parents' economic condition on the risk of early marriage was also observed in this study. All categories of economic status that have an insignificant effect though an increasing trend in the risk of early marriage was observed as the household economic status improved up-to lower middle class (Table 3). The risk of marriage found 4.6% higher for the females belonging to poor economic status compared to the extremely poor households.

Proportional Hazard model indicated that the risk of early marriage increased i.e. the age at marriage decreased with the decreased level of education. Practically, the economic status of households is closely related to the father's occupations and household NGO membership status. The result shows that females belonging to the high economic status household have a higher chance of getting married early. Finally, it can be said that the female education level is the most important factor to increase the age of marriage.

5. Conclusion

The study found that the risk of early marriage decreases as education of the respondent increases. The respondents who were students or involved in any kind of job has the highest median age at marriage. The study also shows that no significant variation is observed in the female age at marriage according to the number of brothers, year of marriage cohort but a steady upward trend in the females' age at marriage is observed over time.

Though female age at marriage did not vary significantly according to the parent education level, a significantly higher age at marriage observed for the females whose mothers worked somewhere. A small difference observed in the case of the occupations of fathers. One important finding of the study was that the age at marriage of the

females varied according to the current age.

The results of the proportional hazard model revealed that respondent education level and occupations of fathers are the significant predictors on which female age at marriage vary. It is also very important to note that household's economic condition, education level of mothers, religion, and the number of brothers were not found significant in the analysis.

This study recommends that the most appropriate way to decrease the risk of early marriage is to increase the education level of both girls and women. Therefore, the government should take special programmes to improve the educational level of rural females. The study also recommends that women who involve in income-generating activities have less chance of early marriage so the government should take simultaneously proper steps to ensure the participation of women in economically productive activities. Besides, the government should take suitable steps through law implementing agencies to legislate and portray the regulation regarding the minimum age at marriage by any means.

Abbreviations

NGO: Non-Government Organisation; ICDDR, B: International Centre for Diarrhoeal Disease Research, Bangladesh; DSS: Demographic Surveillance System; PPS: Probability Proportional to Size.

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