**Trends in the Educational Attainment and Its Association with the Timing of Marriage among Women in Bangladesh: A Cohort Analysis**

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**Abstract**

This study examines the trends in educational attainment and its effect on the timing of first marriage using a pooled sample of 59,792 ever-married women from the last six Bangladesh Demographic and Health Surveys data. Although there has been significant development in education, females' age at first marriage has not increased as expected pace and direction. The estimated hazard ratios of the Cox regression analyses suggest that, the women born in recent cohorts and those married in the recent years were significantly more likely to delay marriage. The trends and differentials reflect delayed marriage due to increased level of education. Despite this, child marriage is still common in Bangladesh. The factors hidden behind early marriage among women are social custom, cultural norms and violation of ordinance of age at first marriage. To reduce early marriage, program should address the need to keep the girls in school for an extended period.

**Key words:**

**Introduction**

Age at first marriage is of particular interest because it marks the transition to adulthood. Marriage marks the onset of exposure to the risk of pregnancy for women in societies where childbearing outside of marriage is not socially acceptable. It is a significant and memorable event in one's life cycle as well as the most important foundation of family formation process (Ikamari 2005). In Bangladesh, as in most of the developing countries, early and in particular, child marriage for girls continues to be a strong social norm. On average, girls who marry as adolescents attain lower schooling, have lower social status in their husbands' families, less reproductive control, and suffer in higher rates of maternal mortality and domestic violence (Field & Ambrus 2008).

Changes in marriage pattern, for instance, delayed marriage are believed to bring in the issues of dating, premarital sex, unwanted pregnancy, abortion, STDs and HIV/AIDS (Jones 2007a). In contrast, women who marry early will have, on average; a longer period of exposure to the risk of pregnancy, and thus often leading to higher fertility and larger family size. A number of studies over the years have documented the contribution of changes in the timing of marriage to fertility transitions, both historically in developed countries and currently in developing countries (Mensch *et al*. 2005; Rosero-Bixby 1996). In developing countries, where fertility reduction is a major concern, the study of females' age at first marriage is of great importance.

Delayed marriage of the magnitude being experienced in many East and South Asian countries is sufficient to make a considerable difference in lowering fertility rates, from an accounting point of view, but perhaps more emphasis needs to be placed on the motivation for delaying marriage (Jones 2010). In South Asia, universal marriage remains the norm, and although there has been a decline over time in the proportion of married females in the 15-19 age group, the proportion who marry as teenagers still remains very high in Bangladesh, parts of India, Afghanistan and Nepal (Bhagat 2002). In contrast, in many Asian countries, the continued increase in the proportion of women never married in their prime reproductive ages has been due to compositional changes (that is, the rising proportions who have completed secondary and higher

education, groups which include much higher proportions of unmarried women), rather than to increases in unmarried proportions, controlling for education (Jones 2007a).

Increases in age at marriage are associated with major social-structural changes, such as, increases in educational attainment, urbanization, and the emergence of new roles for single women (Singh & Samara 1996; Kaufman & Meekers 1998, Ikamari 2005). The findings of the studies conducted by Jejeebhoy (1995) and Singh and Samara (1996), based on a number of data sources, mostly the World Fertility Surveys and Demographic and Health Surveys (DHS) found that, education is the most single significant factor that reduces the risk of early marriage, but the relationship may be subject to threshold effects (Ikamari 2005). In many countries, the tendency for education to increase the age at marriage becomes universal only after a few years of primary education (Ikamari 2005). Since the results of the studies are contradictory, little can be said about trends in the relationship between education and age at marriage over time (Jejeebhoy, 1995; Ikamari 2005).

Bangladesh is a male dominated, patriarchal, traditional, conservative, and largely Islamic society; where socio-cultural values, norms and traditions have sanctioned the segregation of the sexes and a strict gender-based division of labor. Gender roles have been highly regulated within public and private spheres of influence. Consequently, marriages are arranged by families and in many cases without prior consent of the girls. Muslim women can only marry non-Muslims under the Special Marriages Act where both partners are required to renounce their religious beliefs. Though the marriage law stipulates minimum age at 18 for females and 21 for males, it is hardly effectively enforced and child marriages remain common, particularly in the rural areas. Customary marriages solemnized outside the purview of personal law – including child marriages – are accepted as valid, and while the perpetrators are liable to simple fines and imprisonment, they are barely punished. A lack of effective birth and marriage registration systems remains a major hindrance to the abolition of child and forced marriages in Bangladesh.

Bangladesh is in the midst of one of the most profound social changes in its history; the gender integration of men and women throughout society. Increasing girls' access to schooling has been the goal of education reforms undertaken since 1992. The Female Secondary School Assistance

Project initiated in 1993 by the World Bank and Bangladesh Government, attempted to address gender disparity in secondary education and thereby increases the number of educated women capable of participating fully in the economic and social development of the country. The decade of the 1990s was significant in the history of educational development in the country, with respect to primary and mass education, particularly for girls and women. The policy adopted by Bangladesh government has broadened opportunity for females to be higher educated.

In this study, we are interested to examine trends in educational differentials in marriage formation, because educational attainment serves as a proxy for economic independence in the literature. In addition, Bangladesh has experienced educational expansion in recent decades, and we would like to understand the implications of educational expansion for marriage formation behaviors, as education is widely credited as the most significant factor for delaying girls' age at first marriage. It is believed that education enhances girls' autonomy, giving them negotiation skills in choosing a partner and influencing the timing of marriage. The findings of the study may help program managers and policy makers regarding the importance of females' education and its impact on the timing of marriage among women of Bangladesh.

### An overview of females' age at first marriage in Bangladesh

In Bangladesh, like other Asian countries, marriage indicates the onset of exposure to the risk of pregnancy; and thus, it is an important fertility indicator. Marriage in Bangladesh marks the point in a woman's life when childbearing becomes socially acceptable. Age at first marriage has a major effect on childbearing, because the risk of pregnancy depends primarily on the age at which women first marry. Women who marry early, on average, are more likely to have their first child at a young age and give birth to more children overall, contributing to higher fertility. Since, illegitimate births are not socially acceptable in Bangladesh; marriage is the only legal, social and religious bond that allows men and women to come into sexual contact and procreate offspring.

Bangladesh has a long tradition of early and nearly universal marriage. The practice of early marriage is more common in Bangladesh than in its neighboring countries. In Bangladesh, there

is ample evidence to suggest that the trend towards later marriage is less dramatic. Females' age at marriage in the country is the lowest among all South Asian countries, even though South Asia as a whole lags far behind of others in Asia (Islam & Ahmed 1998). Using Demographic and Health Survey data, a study conducted on forty developing countries showed that, Bangladeshi women have the lowest median age at first marriage (Singh & Samara 1996). Another study conducted on six developing nations argues that Bangladeshi women have the youngest age at marriage (Quisumbing & Hallman 2003). In their analysis of marriage change in South India in the early 1980s, Caldwell and his colleagues (1983) argued that parents are unwilling to postpone marriage beyond the teenage years because of the increased cost of dowry for older brides –an issue that is also reported as a concern for poor parents in Bangladesh (Amin *et al*., 2002).

Pre-marital sex is looked down upon harshly in Bangladeshi society (Maloney *et al*. 1981). In Bangladesh, preservation of virginity until marriage, particularly for the girls, is a strong social norm and cultural practice irrespective of religion. As a consequence, young ages at marriage and early childbearing have been encouraged, particularly in rural areas. In rural Bangladesh, there are many social pressures to "marry off" pubescent girls (Aziz & Maloney 1985). If the marriage of a pubescent girl is delayed, her parents and the girl herself are suspected to have some guilty. Sometimes neighbors and even relatives criticize parents if they have not married-off their daughters soon after the onset of menarche (Islam & Mahmud 1996). In the Bangladeshi cultural context, younger females are in higher demand than older females as potential brides and they require less dowry as well (Islam & Mahmud 1996).

In Bangladesh, 70 percent of the girls aged 15-19 were reported to be ever-married in 1975. This proportion had fallen to 48 percent in 1985 (Mitra *et al*. 1994). In 2000, 48 percent girls aged 15-19 years were ever-married – twice the proportion of India (Jones 2006). The most recent Bangladesh Demographic and Health Survey (BDHS) 2011 reported that, the proportion of women marrying in their early teens continues to decline. According to the 2011 BDHS, across age cohorts, the proportion of women marrying by age 15 has declined by two-thirds over time, from 52 percent among women aged 45-49 to 17 percent among women aged 15-19 years. Similarly, the proportion of women marrying by age 18 and age 20 decreased substantially from

the oldest cohort to the youngest cohort. The survey further reported a slow but steady increase over the past 25 years in the age at which Bangladeshi women first marry, from a median age of 14.9 years for women in their mid to late forties to 16.6 years for those in their early twenties (NIPORT *et al*. 2013).

*Trends in educational attainment and employment rate among young women*

Figure I shows the median years of completed schooling among young women aged 15-24 in Bangladesh as obtained in the last six BDHSs. The figure shows continual increasing trends in educational attainment for both age cohorts 15-19 and 20-24. For instance, the median years of schooling has increased to 6.5 years in 2011 from only 1.0 year among women aged 20-24. Besides, the median years of schooling attainment among women 15-19 increased to the peak 6.9 years in 2011 from 4.0 years in 1993-1994. According to 2011 BDHS, 5.8 percent and 9.8 percent of the women aged 15-19 and 20-24 years respectively had no formal education. In addition, the rate of at least secondary level of schooling in the women aged 15-19 and 20-24 was 19.3 percent and 18.3 respectively, indicating low level of completion of secondary schooling. Despite this, the increasing trends of median years of schooling completed among women aged 15-19 indicate that they will attain more level of schooling in future.

Figure II displays the employment status of the young women as obtained in the BDHSs. The figure shows fluctuations in employment rates. Among the urban women aged 20-24, the employment rate rose to the peak 25.0 percent in 2007 which dropped to 20.8 percent in 2011. The rural women were much less likely to be employed as compared to their urban counterparts. In 2011, only 11.6 percent were employed at survey. Although the age group 15-19 is not eligible for formal jobs, it is likely that a substantial number of women of this age cohort were engaged in formal or some informal jobs. In national level, the rate of employed women aged 15-19 was 16.6 percent in 2007 which came down to 7.9 percent in 2011.

*Effect of age at marriage on fertility in Bangladesh*

Human reproduction is a very complex process and is governed by a number of biological, behavioral and cultural factors on the one hand and socioeconomic and demographic factors on the other (Bongaarts & Potter 1983). In a population with little fertility control, age at marriage effect on fertility is a rather straightforward consequence of differences in length of exposure to the risk of conception (Coale & Tye 1961). In countries like Bangladesh, where non-marital fertility is rare, age at marriage is one of the strongest and most persistent factors affecting fertility. Early age at marriage increases the exposure to frequent pregnancy and thereby higher fertility and higher family size. In contrast, the delay in the age of union formation is a major demographic trend that ties in with low fertility (Hango & Bourdais, 2007).

In current discussions of the fertility transition in Asia, the role of marriage change is frequently understated, because of the strong emphasis (perhaps flowing from the influence of the family planning movement) on marital fertility (Jones 2007a). Bangladesh has made remarkable progress in its fertility decline from a high level of 6.3 births in the mid 1970s to 2.3 births per woman in 2011. Such changes can be traced to one or several proximate determinants such as increase in contraceptive use for stopping and spacing purposes, a rise in age at first marriage, a decline in the proportion married, prolonged breast-feeding, and increased induced abortion (Islam *et al*. 2004). A recent study conducted on Bangladeshi women shows that the women married as children and as adults had on average 3.3 children and 2.0 children respectively by the time of their age at first marriage to survey date (Kamal 2012a). A study on identification of the key factors of childbearing pattern in Bangladesh found that education level and age at first marriage were the main causes of high fertility in Bangladesh. Using Bongaarts' model, the study further reveals that marriage has a weaker fertility inhibiting effect among other proximate determinants in Bangladesh due to prevailing culture and common practice of early marriage among women (Islam *et al*. 2004). Delayed marriage does not play much part in lowering fertility because marriage continues to occur at very young ages.

**Data and Methods**

*Data sources*

Data for this study have been taken from the six consecutive BDHSs conducted during 1993 to 2011. The BDHSs are repeated cross-sectional surveys covering rural-urban areas and all administrative regions of the country. Each of the BDHSs included a nationally representative sample of ever-married women age 15-49 years. The surveys obtained detailed information on education, fertility levels, age at first marriage, birth year, marriage year, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutritional status of women and young children, childhood mortality, maternal and child health, and knowledge and attitudes regarding HIV/AIDS and other sexually transmitted infections (STIs). The BDHSs were conducted under the authority of the National Institute for Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare. The details of the surveys are given in the survey reports. We created new files extracting necessary data from the six individual recode files of the BDSHs survey. Then we merged six individual files and created a new file for this study.

*Sample size*

In the last six surveys, a total of 69,496 ever-married women were successfully interviewed. In the 1993-1994 BDHS, a total of 626 ever-married women were of age 10-14. These women were totally excluded from analysis. Besides, a total of 9,078 women were aged 15-19. We included these women only to estimate Singulate Mean age at Marriage (SMAM). The women aged below 20 years were excluded from statistical analyses; because, a large proportion of women aged below 20 years were never-married, and thus, their inclusion in the study may create ambiguity in analyzing the trend of marriage timing. Thus, the study is based on a pooled sample of 59,792 ever-married women.

**Measures of Variables**

*Outcome measure*

The outcome variable of this study is females' age at first marriage (measured in years). All the respondents were asked at what age they were married-off. This was analyzed as a continuous variable.

*Exposure variables*

In this study, we paid particular attention to improve the understanding of the effect of women's education on the timing of marriage. The variable "women's education" was grouped into four categories: no education, primary (one to five years completed), secondary (at least ten years completed) and higher (at least eleven years completed). These categories are given in the BDHSs data. The other exposure variables included for analysis are: "women's year of birth" (born before 1950, 1950-1959, 1960-1969, 1970-1979, 1980-1989 and after 1989), "the year of marriage" (married before 1960, 1960-1969, 1970-1979, 1980-1989, 1990-1999, 2000-2009 and after 2009), place of residence (urban and rural), and religion (Islam and other).

*The effect of rising educational attainment on marriage: compositional aspects*

Jones and Gubhaju (2009) posit three main mechanisms through which education may operate on remaining sinle. First, school attendance is incompatible with marriage, and delayed completion of education delays entry into the immediate post-education years, which are normally devoted to career development and other adjustments to a new life status. Second, education brings ideational change, opening up a wider range of perceived possibilities for the life-course. Third, education gives access to better jobs and higher salaries.

Thus, if changes in overall marriage patterns can in some cases be shown by statistical analysis to be 'compositional' in the sense that they result from rising proportions of the population in educational categories marked by particular marriage patterns, the implications are broader than

merely inferring that average age at marriage is delayed because more of the population is in the educational groups that marry later (Jones & Gubhaju 2009). To improve understanding the proportions of women remain single, we used the following the formula for decomposition:

$$\Delta S = \sum \overline{S_e} \Delta K_e + \sum \overline{K_e} \Delta S_e$$

where $S$ denotes proportion single within a particular age group, $S_e$ denotes proportion single among women with education $e$ within a particular age group, $K_e$ denotes the proportion of women with education $e$ within the particular age group, $\Delta$ denotes the change over the period under consideration, $S_e$ and $K_e$ denote the averages over the period under consideration, each obtained by summing beginning and end values and dividing by two, and the summations are over educational groups. The first of the two summations on the right hand side of the above formula is the component of change that is attributable to changes in population composition by educational and the second of the two summations is the component of change that is owing to changes in education-specific proportions single (Jones & Gubhaju 2009). Decompositions are presented in the form of percentages and add up to 100 percent.


*Statistical Analyses*

Both bivariate and multivariate statistical analyses were performed in the study to examine the relationship between age at first marriage and the selected background characteristics of the subjects. We applied one-way Analysis of Covariance (ANCOVA) to examine the difference of adjusted mean age at first marriage by sub-groups of the exposure variables. To assess the net effect of the selected exposure variables, we applied Cox proportional hazard regression analysis (Cox 1972) as multivariate treatment. The key equation for the Cox regression model is the hazard function, which can be written as follows:

$$\theta(t, X_i) = \theta_0(t) \exp(\beta' X_k) = \theta_0(t) \lambda_i = \theta_0^*(t) \lambda_i^*$$

where, $t$ is the survival time, $\beta$ is the parameter to be estimated, $\theta(t, X_i)$ is the hazard rate at survival time $t$ for individual $i$ with fixed covariate $(X)$, $\theta_0$ is the baseline hazard function that is dependent on $t$ but not on $X$ and $\lambda$ is person specific non-negative function of covariates $X$.

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The Cox method allows estimation of the slope coefficients without specifying the functional form of the baseline hazard function. In essence, the model shows how the covariates representing the characteristics of a sub-group of women influence their risk of entering marriage in comparison to the baseline group. An exponential $\beta$-value greater than one means that the covariate has the effect of raising the hazard rate, or the risk of early marriage, compared to the baseline group, while an exponential $\beta$-value of less than one has the opposite effect. An exponential $\beta$-value of one is neutral and exerts no effect.

We constructed two separate models for each of the exposure variables: "year of birth" and "year of marriage"; along with "women's education", "place of residence" and "religion". The model-fitting process involved two stages of estimation. Model I included women's education, place of residence, religion and either "year of birth" or "year of marriage". Model II included interaction terms between women's educational attainment and cohorts by "year of birth" and "year of marriage" to examine the effect of level of education on sub-group of women by different cohorts keeping place of residence and religion constant. The results of the multivariate analyses have been presented by hazard risk (HR) with 95 percent Confidence Interval (CI) for easy understanding of the effect of the corresponding factors, net of other confounders. The statistical analyses were performed by SPSS v21 (SPSS Inc, Chicago, IL, USA).

**Results**

Table 1 shows the weighted percentage distribution of women aged 20-49 by educational attainment for the period 1993 to 2011 by year of birth and year of marriage cohorts. Due to the repeated cross-sectional nature of the research design, the large proportion of women was in the middle cohorts. The table depicts drastic change in educational attainment among women. A radical change has occurred to attaining at least secondary level of education during 1980s and 1990s. The attainment of at least secondary level of education has increased more than twelve fold among women born in 1990s as compared to women born in 1940s. The marriage cohorts of women revealed that the attainment of secondary and higher education has increased significantly in the early 2000s and later than 1990s or past.

Table 2 shows the results of decomposition of singlehood. The 2011 data shows dramatic increase in the proportion of singlehood for age group 20-24 as compared to that of 1993-1994. Remaining singlehood had substantially increased among women aged 25-29 who had secondary and higher education. The singlehood after age 29 was negligible. Besides, there were rising proportions of women in secondary and higher education and sharply falling proportions with no formal education. When the proportion of singlehood in each age group is disaggregated into the effect of changing educational composition and the effect of increasing proportions single within each educational group, it was found that the increase in proportion single between the two survey years 1993-1994 and 2011 is attributable to rising singlehood within each educational group particularly for the younger cohorts.

Table 3 represents the adjusted mean age at first marriage and standard deviation (SD) by educational attainment of women and by birth cohort and marriage cohort. A low SD indicates that the data points tend to be very close to the mean; whereas high SD indicates that the data points are spread out over a large range of values. A close inspection to the table reveals that, the mean age at first marriage has increased gradually by only 2.6 years among women born after 1989 than those born before 1950. Overall, all cohorts of women for "year of birth" and "year of marriage" showed increasing trend of age at first marriage by women's level of education. The mean age at first marriage was higher among women with higher education; the highest was among women who got marriage after 2009.

Figure III shows the proportion of never-married women by age and survey year. The proportion of never-married women age 20-24 increased from 12.4 percent in 19993-1994 to 18.5 percent in 1999-2000; then it declined steadily to 13.4 percent in 2011. The proportion of never-married women age 15-19 years gradually increased from 50.5 percent in 1993-1994 to 54.3 percent in 2011. Considering the entire age range 15-49, the proportion single gradually increased to 23.0 percent in 2004 from 14.8 percent in 1993-1994 and then decreased again to 14.7 percent in 2011.

Figure IV demonstrates the Singulate Mean Age at Marriage (SMAM) by survey year. Except for 1993-1994, the SMAM was almost static at around 18.7 years during 1996-1997 to 2011. In

Figure V, we explore the association between education and marriage using the cumulative proportions of women experiencing the first marriage at specified ages. The cumulative proportion attaining the first marriage by any given age was highest among women with no education, followed by women with primary education, secondary education and finally by women with higher education. A close inspection on the Figure I and Figure III suggest that marriage is nearly universal at age 29.

The results of the Cox proportional hazard models are presented in Table 4 and Table 5. Model I in Table 4 and Table 5 was constructed to examine the changing effect of marriage year and birth year on the timing of marriage; whereas Model II in the tables were constructed to examine the changing effect of education on the timing of marriage. Table 4 and Table 5 reveal that women's level of education was negatively associated with their age at first marriage. The higher was the education the lower was the risk of early marriage. The birth cohort of women in Table 4 shows that, the risk of early marriage decreased consistently among women who were born during 1950 to 1989 than those who were born in 1944-1949. Likewise, Table 5 reveals that, the probability of early marriage decreased consistently across the marriage cohorts of women as compared to the reference category. The interaction terms as shown in the tables suggest that women's secondary and higher level of education had higher predictive power on females' age at first marriage than that of birth cohort and marriage cohort. In addition, the interaction between birth cohort and women's education, as well as marriage cohort and women's education reveal that the elder women than their younger counterparts spent a shorter time to entry into marriage.

**Discussion and conclusion**

In this study we examined the trends and educational differentials in the timing of first marriage among women in Bangladesh using BDHSs data. While earlier studies examined the factors associated with females' age at marriage, we examined both probabilities and rates of first marriage to explicitly recognize the fact that there may be an educational crossover in the timing of marriage. The findings of our study reveal that, there occurred a drastic revolution in attainment of women's level of education. The proportion of women with no formal education has decreased from 73 percent among those born before 1950 to 7 percent among women who

born after 1989. The attainment of higher education has increased seven fold during this period. The mean age at first marriage for the Bangladeshi women is in increasing trends with slow pace. This is supported by SMAM, which indicates no substantial change in recent decades. The proportion of singlehood among women aged 15-49 increased gradually during the period 1993-1994 to 2004 and then decreased.

The women's education showed a negative association with age at first marriage. Consistent with earlier studies (Chang & Li 2011; Ikamari 2005; Mensch *et al*. 2005; Islam & Ahmed 1998; Singh & Samara 1996), the findings of our study reveal that women with more education, or born in more recent cohorts, have been married later and less often compared with those with lesser education or born in earlier cohorts. Each additional level of education lowers the probability of first marriage significantly. It is plausible that education broadens a girl's perspective and gives rise to her aspirations; hence, she can choose when to get marriage and to whom. It is also clear that education is becoming more important in differentiating the timing of marriage. Lindstrom and Paz (2001) in their study of two cohorts of Mexican women found that, increased number of years of schooling reduces the likelihood of marriage. In fact, education apart from providing employment opportunity, also modernize a woman's outlook and builds her confidence to stand for independently rather than dependence on husband by marital agreement.

The trends and differentials we document in this paper reflect the probability of late marriage across birth cohorts and marriage cohorts of women. Our finding of increasing educational differentials in delayed marriage across successive birth cohorts and marriage cohort is especially encouraging as women's educational attainment continues to rise in Bangladesh. The interaction terms added for analyses indicate that, across birth cohorts and marriage cohorts, education has a stronger relationship with the timing of marriage for more recent birth cohorts and marriage cohorts, perhaps due to improvement in the quality of education, or possibly due to the greater role education plays in getting marriage. As is well documented in the literature, improvements in school quality can improve school enrollment and grade completion (Jayaraman *et al*. 2007). Although our study documents rising trends in educational attainment, reaching to the replacement level of fertility is likely to be delayed due to very slow increase in age at marriage.

The ongoing increased proportion of singlehood among adolescents aged 15-19 is likely only going to become larger –more of whom are expected to receive higher education, due to not only to diminishing gender inequity in educational attainment, also to lowering total fertility in Bangladesh. In brief, our findings suggest that, if current trends in marriage formation, particularly among adolescents continue, it is likely that Bangladesh would achieve the replacement level of fertility rates shortly. Evidently, both delayed marriage and sharp fertility declines have occurred in South-East and East Asia when women's educational levels have been rising and their workforce participation generally increasing (Jones 2007b). Schuler and others (2006) explored the norm, belief and socio-cultural strategies associated with the early marriage and childbearing. Education has been found to be very important socio-economic factor that possesses strongest effect in delaying first birth during adolescence and a one-year increase in age at marriage decreases the chance of teenage first birth by 10 percent or more in Bangladesh (Nahar & Min 2008).

In spite of rapid fertility transition in Bangladesh, teenage fertility has not changed at the same pace and magnitude. Although the age-specific fertility rate of women aged 20-49 decreased consistently during 1993-1994 to 2007, the contribution to the country's level of TFR by adolescents has remained high (Kamal 2012a). The TFR of adolescents declined from 140 births in 1993-1994 to 118 births per 1,000 women in 2011; however, the contribution of adolescents' in the TFR was more than one-fourth in 2011 (25.4 percent), whereas in 1993-1994 this relative contribution was one-fifth (20.3 percent). This increasing share of adolescent childbearing in the TFR can be related to the lack of meaningful increase in the age at marriage.

In the last one and half decade, the mean age at first marriage did not change much although the educational attainment of women has increased substantially. In 2011, almost 46 percent of the female adolescents were married-off at the survey. This is a slight decrease as compared to 49 percent in 1993-1994. According to 2011 BDHS, 74 percent marriage took place by the age of 18 among women of age 20-49 years. By any standard, the rate of teenage marriages is still high in Bangladesh than that of other developing countries. Our findings further reveal that, in Bangladesh, the prevalence and probability of early marriage are higher in rural than urban areas,

and among the Muslims than non-Muslims. The explanation of this finding is straightforward. The rural and Muslim women are still lagging behind in education than their urban and non-Muslim counterparts. This is supported by earlier studies (see e.g. Kamal 2012b; Ikamari 2005; Islam & Ahmed 1998). Since non-marriage has long been more prevalent in urban areas and among the higher educated, part of the increase in non-marriage over recent decades was a purely compositional effect of the rise in the proportion of urban and educated populations (Jones & Gubhaju 2009; Jones 2011). Our findings from decomposition also show that remaining single has increased among age group 20-24 in recent period and this singlehood is greatly attributed to their increased level of education.

Adolescent and child marriage continue to be a strong social norm in Bangladeshi society, particularly for girls. Parents always remain in anxiety to protect virginity of their daughters as before marriage any sexual blame against girls is assessed as a big sin and socially lookdown too. Besides, daughters are viewed as a burden, mainly in poor families as at nuptial time parents needs to pay dowry to grooms and the amount of dowry increases with increasing bride's age. Consequently, the prevalence of teenage marriage is very common in Bangladesh, especially in poor society. Where poverty is acute, a young girl is seen as a burden of family and parents look for early marriage of their daughters as an alternative way to get rid of the burden. A good marriage is the outcome of many factors besides education –family wealth, good reputation, good connections, and the availability of suitable grooms and funds for dowry (Amin & Suran 2008; Amin & Cain 1997).

The age when men and women form marital unions is influenced by social norms and expectations regarding their roles as spouses and parents –factors that are plausibly changing with globalization, urbanization, and rising educational attainment; as such, the timing of marriage should be of considerable relevance to researchers interested in the transition to adulthood in the developing world (Mensch *et al*. 2005). Although age at marriage is likely to be sensitive to the economic environment, particular marriage patterns also appear to be shaped by the distinctiveness of individual family systems. Increasing exposure to Western media may affect consumer norms and raise expectations such that young men in many societies increasingly feel obligated to postpone marriage until they have acquired the resources that are

now expected for the establishment of a household (Mensch *et al*. 2005). Unlike the situation three or four decades ago, young women completing their education these days see all around them examples of women who are defying traditional views of women's roles: they are in the work force, earning money, leading independent lives, remaining single at ages far beyond traditional norms (Jones 2011).

The motivations behind the elevated rate of early marriage come from traditional Bangladeshi customs and moral codes. Bangladesh belongs to a patriarchal social system and unequal society prevails till today. Cultural norms, traditional beliefs and social customs still support early and child marriage, particularly of the girls. On top of this, poverty, ignorance regarding demerits of child marriage and adverse health outcomes are major underpinning factor encouraging early marriage. Moreover, young girls are often considered as an economic burden of family, particularly among poor parents. To relieve from this so-called economic burden, parents and guardians arrange marriage of their daughters even with much older man which is often considered as a family survival strategy in order to obtain possible financial security. Additionally, parents are attracted by the prospect of lower dowry payments if they marry their daughters off at an early age. Another root cause of early marriage in Bangladesh is the fear of sexual harassment of young daughters. Early marriage is seen as a way to "protect" a girl's sexuality in such a hazardous milieu. Even many of the in-school girls are married-off before their completion of secondary schooling. They have little say over parents on marriage issue due to patriarchal social systems. Possibly these are the reasons why the sharp increases in female education have not had much effect in raising females' age at marriage in Bangladesh, while in other countries, education seems to have had much more effect on the timing of marriage.

The study has several limitations that need to be explored. First, higher risk of early entry to marriage is not solely determined by women's education, certainly there are other factors operating, other than education such as parental socioeconomic status, parental food security, number of siblings, pre-marital employment status etc., but it is difficult to estimate their relative influence. Second, in Bangladesh, as in many other developing countries, there might have under reporting of age and age at first marriage, age at first birth etc. Many women of reproductive age in Bangladesh prefer hiding their actual age to prove them young. This is due to the fact that vital

registration of age at birth and even age at marriage is not properly followed and maintained. Despite these limitations, the strength of this study is that it dealt with the nationally-representative and standard BDHSs data that are mostly used in demographic perspectives.

Finally, during the last one and a half decade Bangladesh has gained substantial development in females' education. Although there has been significant development in education, females' age at first marriage has not increased as expected pace and direction. Still a large proportion of marriage takes place as children. Although the legal age at first marriage for females in Bangladesh is 18 years, still almost three-fourths of the women aged 20-49 get marriage before this age. The ordinance is hardly followed in rural Bangladesh where vast majority of people live in. Given the differentials in female ages at marriage by years of schooling, we assessed whether the decline in the proportion of young girl's who are married is related to increases in their educational attainment. The findings of the study lead to recommend that more emphasis should be given to rural women to enhancing their education. The girls should remain in schooling for a longer duration for being more educated not only to raise their age at first marriage, also to their personal as well as overall development of society.

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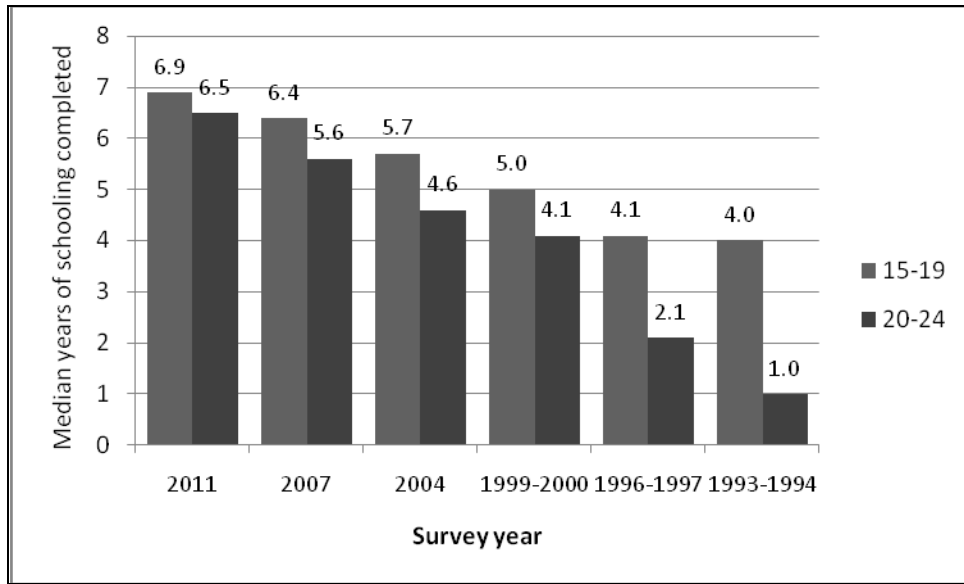
FIGURE I: Median years of schooling completed among young women aged 15-24 by survey year.
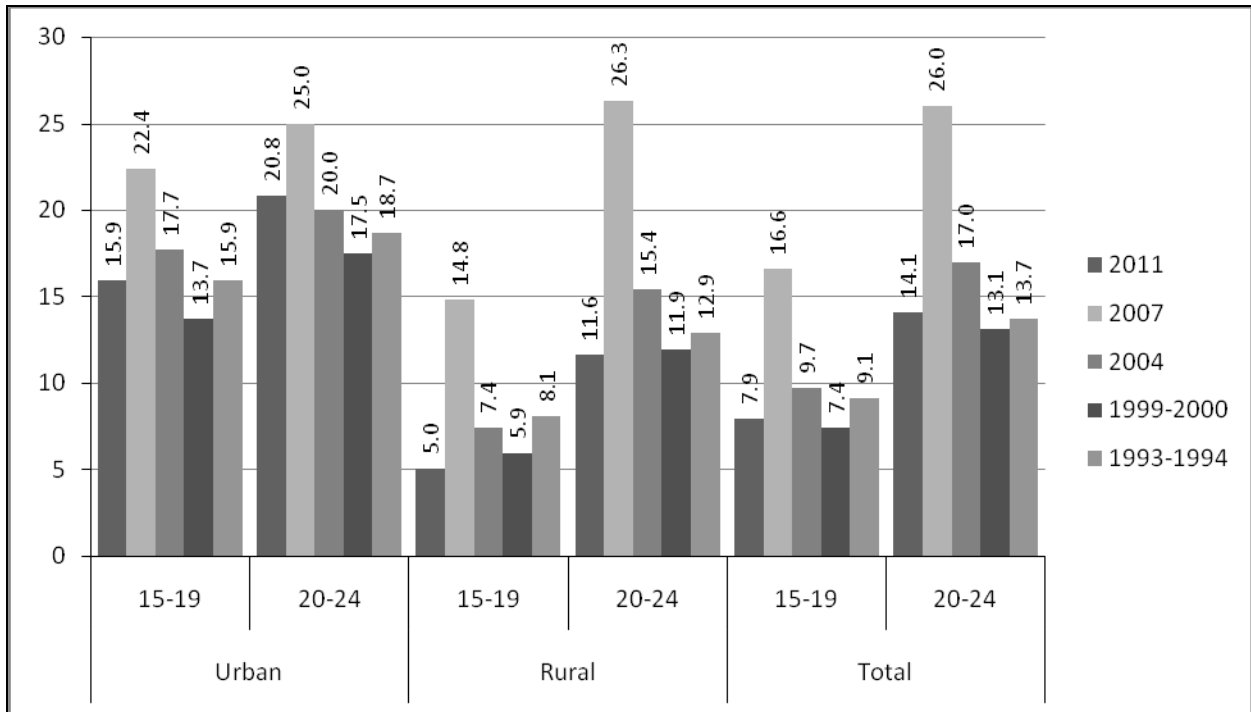


FIGURE II: Percentage of employed young women aged 15-24 by survey year.
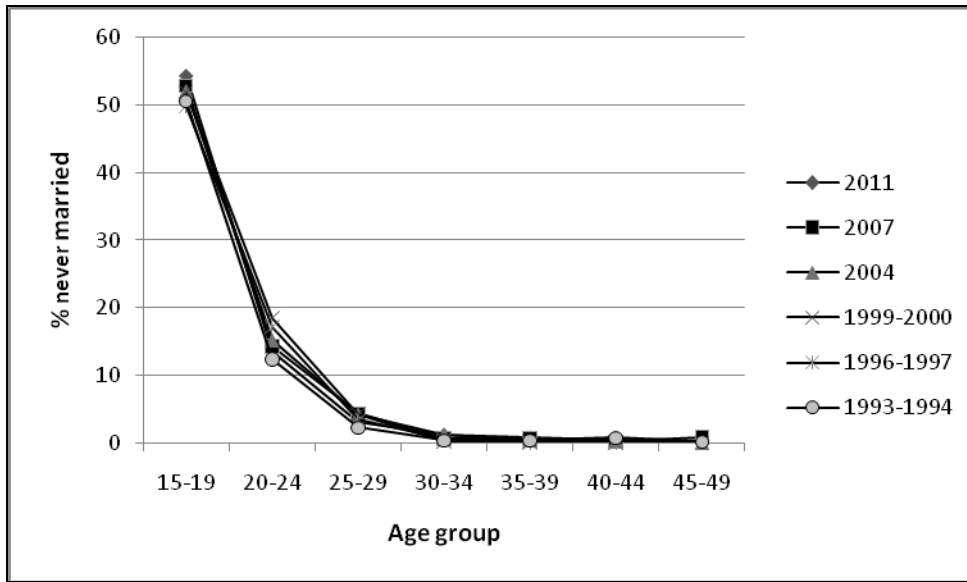
FIGURE III:   Percentage of never-married women by current age and survey year.
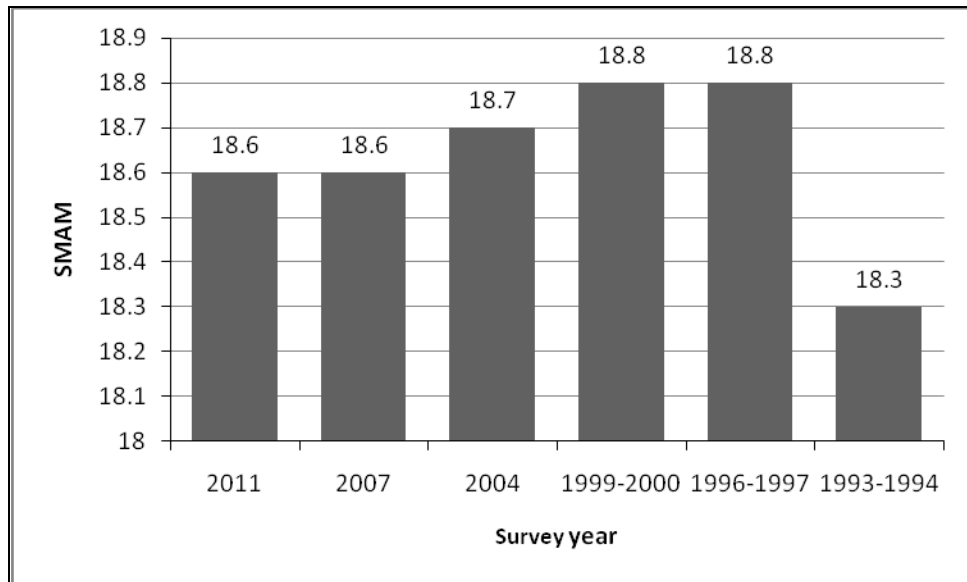


FIGURE IV: Singulate Mean Age at Marriage (SMAM) of women by survey year.
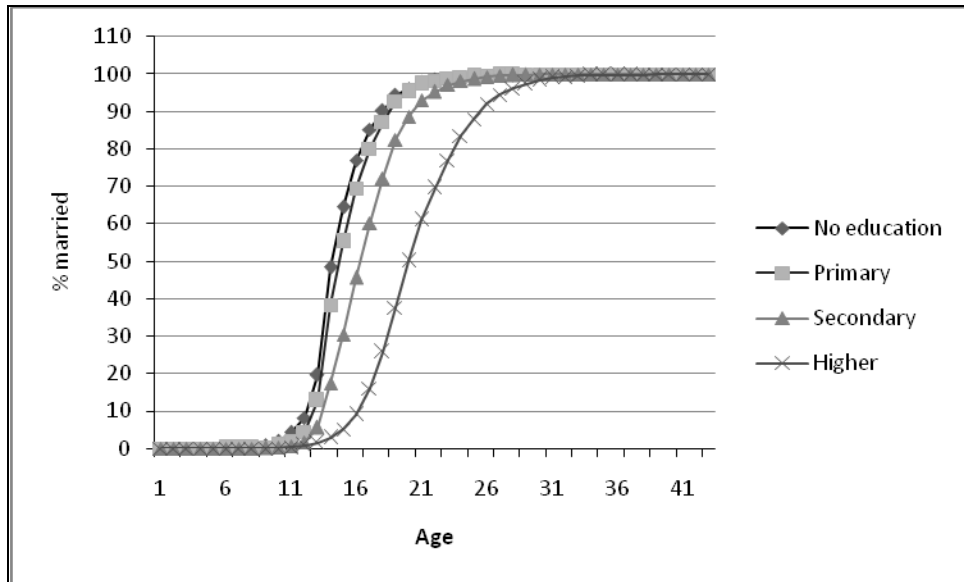
Figure V:     Cumulative proportions of first marriage among women age 20-49 by current age and women's level of education.

Table 1: Weighted percentage distribution of educational attainment of women aged 20-49 by birth cohort and marriage cohort (N=59,792), BDHS 1993-2011

| Year | N | Women's level of education | | | |
|---|---|---|---|---|---|
| | | No education | Primary | Secondary | Higher |
| Year of birth | | | | | |
| Before 1950 | 1,097 | 73.0 | 21.8 | 4.1 | 1.1 |
| 1950-1959 | 7,752 | 63.4 | 24.6 | 9.9 | 2.1 |
| 1960-1969 | 17,490 | 54.2 | 27.5 | 14.8 | 3.4 |
| 1970-1979 | 20,481 | 43.5 | 29.2 | 21.0 | 6.4 |
| 1980-1989 | 11,770 | 19.3 | 30.9 | 41.5 | 8.3 |
| After 1989 | 1,198 | 7.4 | 27.7 | 59.9 | 7.1 |
| Year of marriage | | | | | |
| Before 1960 | 374 | 85.0 | 13.2 | 1.7 | 0.1 |
| 1960-1969 | 4,151 | 68.8 | 24.2 | 6.5 | 0.5 |
| 1970-1979 | 11,853 | 59.7 | 27.4 | 11.4 | 1.5 |
| 1980-1989 | 19,667 | 52.8 | 28.8 | 15.7 | 2.8 |
| 1990-1999 | 15,832 | 31.8 | 31.1 | 29.3 | 7.9 |
| 2000-2009 | 7,599 | 10.3 | 25.9 | 49.7 | 14.1 |
| After 2009 | 310 | 7.9 | 15.7 | 43.9 | 32.8 |

Table 2: Population composition and proportions single by age group of women and educational level, 1993-1994 and 2011 (proportions expressed as percentages)

| Age group | No education | | Primary | | Secondary | | Higher | | All levels | | Change | Proportion of change attributable to | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1993/1994 | 2011 | 1993/1994 | 2011 | 1993/1994 | 2011 | 1993/1994 | 2011 | 1993/1994 | 2011 | 1993-2011 | $\sum \overline{S_e} \Delta K_e$ | $\sum \overline{K_e} \Delta S_e$ |
| Population composition by age group and education level | | | | | | | | | | | | | |
| 20-24 | 48.8 | 9.4 | 26.9 | 25.1 | 17.6 | 49.8 | 6.7 | 15.8 | 100.0 | 100.0 | --- | --- | --- |
| 25-29 | 53.4 | 17.9 | 26.4 | 29.1 | 16.3 | 40.8 | 3.9 | 12.2 | 100.0 | 100.0 | --- | --- | --- |
| 30-34 | 59.7 | 27.7 | 26.2 | 31.4 | 12.1 | 28.1 | 2.0 | 12.8 | 100.0 | 100.0 | --- | --- | --- |
| 35-39 | 62.6 | 37.5 | 25.3 | 29.8 | 10.0 | 23.8 | 2.1 | 8.9 | 100.0 | 100.0 | --- | --- | --- |
| 40-44 | 65.3 | 45.5 | 25.4 | 29.6 | 7.8 | 18.6 | 1.5 | 6.3 | 100.0 | 100.0 | --- | --- | --- |
| Proportion single by age group and education level | | | | | | | | | | | | | |
| 20-24 | 6.6 | 9.0 | 3.6 | 20.1 | 6.2 | 51.3 | 8.7 | 79.2 | 12.3 | 15.0 | 2.7 | 26.1 | 73.9 |
| 25-29 | 2.3 | 2.2 | 0.9 | 2.5 | 1.2 | 4.4 | 0.5 | 12.2 | 2.6 | 3.8 | 1.1 | 17.1 | 82.9 |
| 30-34 | 0.7 | 1.8 | 0.2 | 0.5 | 0.3 | 0.9 | 0.0 | 2.1 | 0.7 | 1.5 | 0.8 | -27.3 | 127.3 |
| 35-39 | 0.7 | 0.4 | 0.0 | 0.3 | 0.0 | 0.2 | 0.0 | 0.7 | 0.5 | 0.6 | 0.1 | 115.2 | -15.2 |
| 40-44 | 1.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.9 | 0.3 | -0.6 | 44.4 | 55.6 |
| SMAM | 17.1 | 17.7 | 17.7 | 17.7 | 19.5 | 18.2 | 21.8 | 22.7 | 18.5 | 18.9 | 0.3 | | |

Table 3: Adjusted* mean age at first marriage and standard deviation by educational attainment of women aged 20-49 (N=59,792) by birth cohort and marriage cohort, BDHS 1993-2011

| Year | Women's level of education | | | | Total | $F$-statistic |
|------|------|---------|-----------|--------|-------|-------------|
| | No education | Primary | Secondary | Higher | | |
| Birth year | | | | | | 482.4*** |
| Before 1950 | 12.9±2.8 | 13.7±2.9 | 16.2±4.3 | 19.7±3.7 | 13.3±3.1 | |
| 1950-1959 | 13.4±2.6 | 13.8±2.6 | 15.3±3.2 | 19.7±4.2 | 13.8±2.9 | |
| 1960-1969 | 14.3±2.8 | 14.6±2.7 | 15.9±3.1 | 20.4±4.6 | 14.8±3.1 | |
| 1970-1979 | 14.3±2.3 | 14.8±2.5 | 16.3±2.9 | 20.4±3.9 | 15.3±3.0 | |
| 1980-1989 | 14.7±1.9 | 15.0±2.3 | 16.1±2.5 | 19.4±3.0 | 15.8±2.7 | |
| After 1989 | 15.4±1.9 | 15.3±2.1 | 15.8±2.0 | 17.9±1.5 | 15.8±2.1 | |
| Marriage year | | | | | | 1505.9*** |
| Before 1960 | 10.6±2.3 | 10.6±2.5 | 10.8±3.0 | 15.8±3.1 | 10.6±2.3 | |
| 1960-1969 | 12.5±2.0 | 12.9±2.0 | 13.5±2.0 | 17.4±3.4 | 12.7±2.0 | |
| 1970-1979 | 13.4±2.0 | 13.7±2.0 | 14.6±2.4 | 17.6±3.4 | 13.7±2.2 | |
| 1980-1989 | 14.4±2.4 | 14.5±2.3 | 15.6±2.5 | 18.5±3.6 | 14.7±2.5 | |
| 1990-1999 | 15.3±2.8 | 15.2±2.5 | 16.2±2.9 | 19.9±3.8 | 15.9±3.1 | |
| 2000-2009 | 16.4±3.0 | 16.1±2.7 | 16.8±2.6 | 21.0±3.6 | 17.2±3.3 | |
| After 2009 | 23.2±7.3 | 21.7±3.9 | 20.7±2.7 | 22.2±3.8 | 21.5±3.8 | |

*Note*: * Adjusted by current age of women. Level of significance *** $p<0.001$

Table 4: Cox proportional hazard model showing the hazard risk [Exp(β)] of timing of marriage with standard error (SE) and 95% confidence interval (CI) for birth year and women's level of education

| Variables | Model I | | | Model II | | |
|---|---|---|---|---|---|---|
| | Exp(β) | SE | 95% CI | Exp(β) | SE | 95% CI |
| Women's level of education | | | | | | |
| No education | 1.00 | --- | --- | | | |
| Primary | 0.89*** | 0.01 | 0.87-0.91 | | | |
| Secondary | 0.62*** | 0.01 | 0.60-0.63 | | | |
| Higher | 0.31*** | 0.02 | 0.29-0.32 | | | |
| Birth year | | | | | | |
| 1944-1949 | 1.00 | --- | --- | | | |
| 1950-1959 | 0.91*** | 0.03 | 0.85-0.97 | | | |
| 1960-1969 | 0.67*** | 0.03 | 0.63-0.71 | | | |
| 1970-1979 | 0.64*** | 0.03 | 0.61-0.69 | | | |
| 1980-1989 | 0.64*** | 0.03 | 0.60-0.68 | | | |
| 1990-1999 | 0.66*** | 0.04 | 0.45-0.53 | | | |
| Place of residence | | | | | | |
| Urban | 1.00 | --- | --- | 1.00 | --- | --- |
| Rural | 1.11*** | 0.01 | 1.09-1.13 | 1.12*** | 0.01 | 1.10-1.14 |
| Religion | | | | | | |
| Islam | 1.34*** | 0.01 | 1.31-1.37 | 1.33*** | 0.01 | 1.30-1.36 |
| Other | 1.00 | --- | --- | 1.00 | --- | --- |
| **Interaction terms** | | | | | | |
| Primary×(1950-1959) | | | | 1.16*** | 0.02 | 1.1-1.21 |
| Secondary×(1950-1959) | | | | 0.74*** | 0.04 | 0.69-0.79 |
| Higher×(1950-1959) | | | | 0.31*** | 0.07 | 0.27-0.36 |
| Primary×(1960-1969) | | | | 0.89*** | 0.02 | 0.86-0.91 |
| Secondary×(1960-1969) | | | | 0.62*** | 0.02 | 0.59-0.64 |
| Higher×(1960-1969) | | | | 0.28*** | 0.04 | 0.26-0.30 |
| Primary×(1970-1979) | | | | 0.82*** | 0.01 | 0.80-0.84 |
| Secondary×(1970-1979) | | | | 0.55*** | 0.02 | 0.53-0.57 |
| Higher×(1970-1979) | | | | 0.27*** | 0.03 | 0.26-0.29 |
| Primary×(1980-1989) | | | | 0.79*** | 0.02 | 0.77-0.82 |
| Secondary×(1980-1989) | | | | 0.58*** | 0.02 | 0.56-0.60 |
| Higher×(1980-1989) | | | | 0.31*** | 0.03 | 0.30-0.33 |
| Primary×(1990-1999) | | | | 0.73*** | 0.06 | 0.66-0.82 |
| Secondary×(1990-1999) | | | | 0.64*** | 0.04 | 0.59-0.69 |
| Higher×(1990-1999) | | | | 0.43*** | 0.11 | 0.35-0.52 |

*Note*: Level of significance *** $p<0.001$

Table 5: Cox proportional hazard model showing the hazard risk [Exp(β)] of timing of marriage with standard error (SE) and 95% confidence interval (CI) for marriage year and women's level of education

| Variables | Model I Exp(β) | SE | 95% CI | Model II Exp(β) | SE | 95% CI |
|---|---|---|---|---|---|---|
| Education | | | | | | |
| No education | 1.00 | --- | --- | | | |
| Primary | 0.97*** | 0.01 | 0.95-0.99 | | | |
| Secondary | 0.74*** | 0.01 | 0.72-0.76 | | | |
| Higher | 0.37*** | 0.02 | 0.36-0.39 | | | |
| Marriage year | | | | | | |
| 1951-1959 | 1.00 | --- | --- | | | |
| 1960-1969 | 0.35*** | 0.05 | 0.31-0.39 | | | |
| 1970-1979 | 0.23*** | 0.05 | 0.21-0.25 | | | |
| 1980-1989 | 0.15*** | 0.05 | 0.14-0.17 | | | |
| 1990-1999 | 0.12*** | 0.05 | 0.11-0.13 | | | |
| 2000-2009 | 0.10*** | 0.05 | 0.09-0.11 | | | |
| 2010-2011 | 0.05*** | 0.08 | 0.04-0.06 | | | |
| Place of residence | | | | | | |
| Urban | 1.00 | --- | --- | 1.00 | --- | --- |
| Rural | 1.10*** | 0.01 | 1.08-1.12 | 1.12*** | 0.01 | 1.10-1.14 |
| Religion | | | | | | |
| Islam | 1.38*** | 0.01 | 1.34-1.41 | 1.35*** | 0.01 | 1.32-1.39 |
| Other | 1.00 | --- | --- | 1.00 | --- | --- |
| **Interaction terms** | | | | | | |
| Primary×(1960-1969) | | | | 1.81*** | 0.03 | 1.70-1.93 |
| Secondary×(1960-1969) | | | | 1.38*** | 0.06 | 1.23-1.54 |
| Higher×(1960-1969) | | | | 0.67* | 0.21 | 0.44-1.02 |
| Primary×(1970-1979) | | | | 1.29*** | 0.02 | 1.24-1.33 |
| Secondary×(1970-1979) | | | | 0.94** | 0.03 | 0.89-0.99 |
| Higher×(1970-1979) | | | | 0.45*** | 0.07 | 0.39-0.52 |
| Primary×(1980-1989) | | | | 0.92*** | 0.02 | 0.89-0.94 |
| Secondary×(1980-1989) | | | | 0.67*** | 0.02 | 0.64-0.69 |
| Higher×(1980-1989) | | | | 0.36*** | 0.04 | 0.34-0.39 |
| Primary×(1990-1999) | | | | 0.73** | 0.02 | 0.70-0.75 |
| Secondary×(1990-1999) | | | | 0.55*** | 0.02 | 0.53-0.57 |
| Higher×(1990-1999) | | | | 0.28*** | 0.03 | 0.27-0.30 |
| Primary×(2000-2009) | | | | 0.57*** | 0.02 | 0.54-0.59 |
| Secondary×(2000-2009) | | | | 0.48*** | 0.02 | 0.47-0.50 |
| Higher×(2000-2009) | | | | 0.24*** | 0.03 | 0.23-0.25 |
| Primary×(2009-2011) | | | | 0.22*** | 0.15 | 0.16-0.29 |
| Secondary×(2009-2011) | | | | 0.25*** | 0.08 | 0.21-0.29 |
| Higher×(2009-2011) | | | | 0.21*** | 0.10 | 0.17-0.26 |

*Note*: Level of significance *** $p<0.001$; and *** $p<0.05$.