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ANALYSIS OF THE DETERMINANT'S OF MARRIAGE TO FIRST BIRTH INTERVAL IN BANGLADESH

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ABSTRACT

In this study an attempt has been made to examine the marriage to first birth interval and also to identify the socio-economic, demographic and cultural factors influencing the first birth interval among married women in Bangladesh. For this purpose the present study utilized the Bangladesh Demographic and health survey (Bdhs, 2004). Birth interval is major determinant of the rates of fertility. The average marriage to first birth interval of the respondent's is observed to be 33.49 months. Independents test of chi-square and proportional hazards model are used to study the effect of selected background characteristics on first birth interval in Bangladesh. Accepted religion of respondent's all of the independent variable has strong association with first birth interval. Result from proportional hazards model reveal that respondent's education, access to mass media, age at first marriage, and use of contraception has highly significant impact on first interval excluding Rajshahi and Khulna division. Husband's education is partially significant over first birth interval and childhood place of residence has little bit connotation on first birth interval.

Keywords: First birth, Marriage interval.

1. INTRODUCTION

The marriage to first birth interval, particularly when the age of effective marriage is noticeably low influenced by a number of demographical, social and cultural factors. The marriage to first birth interval in terms of the age of mother has strong impact of fertility and implications for women role and social change in general. The marriage to first birth along with other variables determines the

observed reproductive behavior of the women. In developed societies with a higher use of contraception, first birth interval may be less relevance to the study of fertility. However, the population where contraceptive practice is quite low, marriage to the first birth interval could be one of the prime determinants of fertility.

Generally in the societies were the births are confined to marriage, reproduction starts from the onset of effective marriage (EM) and first birth interval following effective marriage depends on the demographic characteristic of women at the earlier stages of married life. When a women marries she is susceptible to conception and the change of status from non-mother to mother is anon-renewable event. Therefore, it has significant consequences for subsequent demographic, social and cultural activities. The demographic factors include the age at menarche; length of adolescent infertility and length of gestation, while the social factors include the visit of newly married females to parents house and other social religious taboos causing physical separation between the spouses. Marriage is a primary indicator of exposure of women to the risk of pregnancy and is therefore important for understanding fertility patterns because premarital conceptions are very rare and virtually all fertility occurs within wedlock (Islam and Ahmed, 1998). Since mean age at first marriage in Bangladesh is one of the lowest in the world, which is again in the neighborhood of the age at menarche, the marriage to first birth in Bangladesh is much longer than that of western countries where age at marriage is higher. The longer first closed birth interval is possibly due to adolescent sub-fecundity, traditional customs including visit of female partner to partner's house in early years of marriage and fewer chance coition because of the observance of rigid intercourse taboos, etc. Battacharya and Singh (1983). In addition, the conception delay and consequently the unexpectedly longer first birth interval in Bangladesh probably due to the severe malnutrition resulting the increased anovulatory cycles among those mother who are particularly residing in the rural and urban slum areas. However, very little attention has been paid to the first birth interval and its determinants although many have discussed the factors influencing on the respondent at first marriage, age at first birth and conception issues in Bangladesh. The analysis of the waiting marriage to first birth signifies couple's fertility at earlier stage of married life and as the first birth is the most welcome event for almost all families in Bangladesh, there is a little chance of memory lapse in reporting the date of first marriage and also the date of first birth. In addition, marriage to first birth interval is obviously free from the lactation amenorrhea, a prime factor for the prolonged birth intervals. Thus, in the present study a detailed examination is made to estimate the marriage to first birth and its relationship with the age at first marriage and also to examine the available socio-economic and demographic factors influencing the marriage to first birth interval. It is expected, therefore, that analysis will provide a comprehensive picture of the marriage to first birth interval in Bangladesh.

2. OBJECTIVE OF THE STUDY

The main objective of the present research attempt is to study the level and patterns of marriage to first interval, in Bangladesh.

However, the specific objective of the study is as follows

1. To examine the influence of some demographic, socio-economic and cultural variables on the marriage to first birth interval.

2. To investigate the effect of some selected variables on having marriage to first birth interval in rural and urban areas of Bangladesh.

3. To find out which women are most likely to have marriage to first birth interval, under what circumstance, and for what reasons.

3. CONCEPTUAL FRAMEWORK

The conceptual framework of the present study is presented in the following figure:
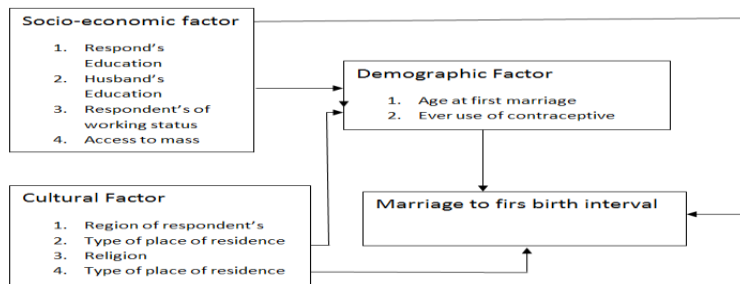
4. LITERATURE REVIEW

The literature on birth interval is extensive; however, only a few of the studies have analyzed birth interval in the context of fertility and shown an important relationship between the length of birth interval and their covariates and the fertility reduction. A variety of work has been done on first birth interval during the last few decades. Only the relevant literature in the context of the present study is reviewed here. (Yerushalmy et al, 1956), Nortman et al (1976) have found that infants who were conceived less than 6 months after a preceding birth have higher mortality than other infants, particularly in the neonatal period. Westoff et al. (1961) have found that birth intervals are longer after a male than after a female birth. Martin et al. (1964) reveals that children born at a longer birth intervals of 3-4 years will be heavier, taller and are non likely to suffer from portion, irrespective of family income and other factors energy malnutrition. Sheps (1965) reported that the Hutterite population, in the absence of contraception, averaged birth intervals under 24 months through a relatively reduced post-partum amenorrhoea period and low fetal wastage. Wray and Aguirre (1969), and Clark (1981) have found that short previous and subsequent birth intervals were associated with higher fates of malnutrition and lower rates of growth of the index child. Maccoby and Jacklin (1973), Maccoby et al. (1979) furnished that the apparent effect of birth order on hormone levels was really an effect of birth interval. They found that later born males who were closely spaced in relation to their next-older siblings had lower concentrations of hormones; whereas infants born 4 or more years after their next-older siblings had hormone levels equal to, or higher then, those of first-born. These findings suggest that the apparent effect of birth order on male sexual orientation may also really be an effect of birth interval, and that the increased prevalence of homosexuality in later born males is

completely attributable to those individuals with short birth intervals and attendant low fetal hormone levels.

Leridon (1980) reported that the average third birth interval was 23.1 months for historical families (17th and 18th centuries), 29.6 months for Japan and 20.5 months for the hutterite population. (Rodriguez and Hobcraft, 1980) May, compared results of identical structural for nine countries and found that a woman's education and age, time period, and the length of the previous birth interval all had substantial effects on birth-interval length.

Rindruss et al. (1987) analyzed the determinants of birth intervals for five countries, including the Philippines and malaysia.Using as their data a pooled file of the WFS information for all five countries, they found significant and important differences in child spacing for the following variables: country and ethniciy, age at first birth , urban experience, and for korea, sex of the preceding birth. Unlike Rodriguez G; Hobcraft JN, 1980 May, they discovered that education had relatively little effect on interval lengths except at the higher birth orders.

Bairagi and R.L. (1986) found strong song preference and shorter birth interval for higher fertility with evidence from a KAP (Knowledge, attitude and practice of family planning) survey, in companiganjthana, a rural of Bangladesh.

A study by Chowdhury and Bairagi (1990) furnished that fertility could be reduced by 4-8% if there were no son preference in Matlab, a rural of Bangladesh.

Majumder (1991) observed that children born after a longer birth interval had a lower mortality rate than those born within a short interval.

Analyzing the number of children ever born in Matlab, Bangladesh, Rahman and Vanzo (1993) found that among mothers with four surviving children the probability of having a subsequent birth was lowest among those who had three sons and one daughter.

In a study on Matlab area in Bangladesh, Salway et al. (1993) have found that the median birth interval increases in all education groups, with better-educated women having consistently longer birth interval. Khan and Reside (1998) reveals that a women's education has a greater influence on her fertility than the education of her husband and Muslims have a higher risk in moving towards the next birth (a higher order birth) than their non-Muslim counterparts. Residence in the Dhaka region is found to pose a lower risk of having a first birth in both urban and rural area when compared with the Chittagong region.

5. LIMITATION OF THE STUDY

Studies specially based on survey data usually data suffer from a number of limitations. The present data may not be regarded an exceptional one. The mail limitation of the study, which are only mentions. To meet the objectives of this study, information on some background characteristics (variable) are not available in the data (used for the study), which were utmost important.

6. METHODOLOGY

This study is a quantitative research. To meet these objectives of the study we have considered individual bi-variate analysis of marriage to first birth interval independent variable. The statistical methods are applied on the analysis such as:-

1. Proportional hazards modals.
2. Chi-square test.

7. MULTIVARIATE ANALYSIS

Cox's proportional hazards regression model is applied for multivariate analysis. In survival analysis, the data are normally found to be incomplete because some individuals may leave the study before reaching the end-point (e.g. death or in this case, the next birth). Thus there are two problems caused by such incomplete data, namely selectively and censoring. Life table techniques can handles such censored observation in the calculation of survival probabilities. In this analysis, the event of women who have had a birth within a specific duration is denoted as a "failure" event (uncensored); if it does not occur, then the event is turned as "censored". Since a considerable number of women were waiting for giving birth their next child or they had a desire for a future child at the time of survey, it is necessary to recourse to regression technique that is appropriate for censored data. Cox's proportional hazards life-table model is most appropriate for the analysis of data with censored observation. This model is employed to allow for the inclusion of periods of observation of censored as well as non-censored cases. Here open birth intervals at the time of survey are considered as censored cases and closed birth intervals at time of survey are considered as non-censored cases.

7.1. Chi-Square Test Statistics

Contingency chi-square test statistics has been employed to examine whether each of the socio-economic, cultural and demographic factors has significant association with marriage to first birth interval.

8. RESULTS AND DISCUSSION

Overall mean 33.49 months, median 24 months and no. of observation N=11398. We inspect from the Table 3.2 that mean and median first birth interval for different divisions of Bangladesh. Among the regions, the highest mean first birth internal is in Rajshahi Division (35.16 months) followed by Sylhet division (34.91 months). Whereas the lowest mean first birth interval is in Chittagong division (29.93 months) followed by Dhaka division (33.43 months). We have also seen that the highest median marriage to first birth interval is in Rajshahi division (25.10 months) followed by Khulna division (24.96 months).

Table-8.1. Mean and median marriage to fist birth interval of respondents by background characteristics.

Background characteristics	Categories	Data 2004 BDHS			
		Mean	**Median**	**Standard deviation**	**No. of respondents**
Region of respondent's	Barisal	33.65	24.94	34.94	1349
	Chittagong	29.93	21.23	34.55	2062
	Dhaka	33.43	24.03	36.26	2576
	Khulna	34.30	24.96	37.51	1705
	Rajshahi	35.16	25.10	38.69	2559
	Sylhet	34.91	23.17	42.01	1147
Type of place residence	Rural	33.60	24.37	36.67	7508
	Urban	33.27	23.40	38.24	3890
Religion	Muslim	33.68	24.03	37.41	10141
	Others	33.96	23.97	35.49	1257
Respondents Educations	Illiterate	39.22	26.74	45.91	4657
	Primary	31.46	23.90	31.25	3490
	Secondary and above	27.46	21.67	26.43	3251
Husband's education	Illiterate	36.50	25.46	41.51	4308
	Primary	32.63	23.93	35.22	2909
	Secondary and above	30.99	23.23	33.47	4181
Access to mass media	No access	36.13	25.54	41.71	3382
	Have access	32.38	23.62	35.08	8016
Childhood place of resident's	Country side	34.03	24.42	37.45	9757
	Town	30.28	21.87	35.56	1641
Husband's occupation	Agriculture	35.45	25.26	39.77	3256
	Business	31.79	23.35	34.30	2631
	Service	32.15	23.41	35.12	3285
	Others	34.66	24.21	39.42	2326
Economic Status	Poor	34.01	24.32	37.73	8889
	Middle	31.95	23.51	35.32	1826
	High	30.92	22.31	35.10	683
Age at first marriage	=<14 years	39.50	29.08	41.88	4249
	14-17 years	30.45	22.81	33.56	5438
	=>18 years	28.24	19.29	33.77	1711
Ever use of contraceptive	No	46.94	25.27	62.46	2321
	Yes	30.05	23.73	26.13	9077
Respondents Currently working	Not	32.46	23.76	35.11	8890
	Working	37.15	25.22	43.66	2508

Whereas the lowest median first birth interval is in Sylhet division (23.17). Among the residence of respondents, we observed the higher mean first birth interval in rural areas (33.60 months) while mean first birth interval is (33.27 months) in urban areas. Also median of marriage to first birth interval of respondent in rural areas is greater than urban counterparts. The first birth interval of the respondents according to husband's occupation reveals that the mean first birth interval of the respondents whose husbands are farmer, Businessman, service holders and others are 35.45 months, 31.79 months and 34.66 months respectively of respondent's.

Table-8.2. Differentials marriage to first birth interval by first birth interval less than and equal 24 months and above 24 months

Background characteristics	Categories	Data 2004 BDHS		Chi-square	P-value
		Percentage			
		=<24 months	>24 months		
Region of respondent's	Barisal	49.20	50.80		
	Chittagong	59.00	41.00	62.722	0.000
	Dhaka	51.90	48.00		
	Khulna	49.00	51.00		
	Rajshahi	48.80	51.20		
	Sylhet	54.10	45.90		
Type of place residence	Rural	50.90	49.10	10.145	.001
	Urban	54.00	46.00		
Religion	Muslim	51.90	48.10	0.012	.469
	Others	52.10	47.90		
Respondents Educations	Illiterate	45.40	54.60	191.051	0.000
	Primary	52.20	47.80		
	Secondary and above	61.20	38.80		
Husband's education	Illiterate	48.00	52.00		
	Primary	52.20	47.80	52.386	0.000
	Secondary and above	55.90	44.10		
Access to mass media	No access	48.00	52.00	30.003	0.000
	Have access	53.60	46.40		
Childhood place of resident's	Country side	50.70	49.30	41.239	0.000
	Town	59.30	40.70		
Husband's occupation	Agriculture	48.40	51.60		
	Business	53.70	46.30	27.679	0.000
	Service	54.40	45.60		
	Others	51.30	48.70		
Economic Status	Poor	51.00	49.00		
	Middle	54.10	45.90	20.093	0.000
	High	59.00	41.00		
Age at first marriage	=<14 years	41.40	58.60		
	14-17 years	55.80	44.20	357.029	0.000
	=>18 years	66.00	34.00		
Ever use of contraceptive	No	48.80	51.20	11.586	0.001
	Yes	52.80	47.20		
Respondents Currently working	Not	52.90	47.10	15.604	0.000
	Working	48.50	51.50		

Respondent's whose occupations are agriculture there median first birth interval is maximum. Respondent with secondary and above education level have relatively lower mean marriage to first birth interval as compared to their illiterate and primary counterparts. And median first birth interval is followed same sequence. Respondent's those husband's are illiterate their mean and median age at first marriage are higher than the other two categories. Respondents who have no access to the mass media have higher mean and median marriage to

first birth as compared to those respondents' have any access to media. Respondent's whose childhood where country side are on an average first birth interval about (4 months) higher as compared to matching parts. Mean and median first births for people are 30.92 months and 22.31 months lower than middle and poor class people. Respondent's who are early marriage i.e., marriage before 14 years of age is about 40 months mean first birth interval. Which is 12 months higher compared to respondents are married after 18 years of age. And median first birth interval of respondent's for above categories is approximately alike. Respondent's who never used any method of contraception their first birth interval is higher as compared to other category. About 90 percent people are Muslim in Bangladesh. Mean and median first birth interval in Muslim community as compared to other religion has nose significant difference. Respondent's who are not working than mean and median first interval is lower than working women.

To observed the association between marriage to first birth interval and the categorized independent attributes we have employed chi-square in Table-3.3

Bi-variate analysis is a useful first step in studying the relationship between to variable. It tells us how important an individual variable is by itself. Moreever, it helps us to identity the cross-section of a population based on some critical characteristics. For bi-variate analysis of marriage to first birth interval; all women are divided into two groups;

1. Whose marriage to first birth interval less than and equal 24 months (median).
2. Whose marriage to first birth interval above 24 months.

We inspect from the table-3.3; region of respondent's has highly significant effect on first birth interval, which reveals that in Chittagong division the highest (59 percent) respondents first birth interval are less than and equal 24 months. Whereas in Rajshahi region, the lowest (48.80 percent) respondents first birth interval less than and equal 24 months. We observed that type of place of residents is significant effect on marriage to first birth interval. The respondents of rural areas 50.90 percent respondent's first birth interval are less than and equal 24 months. In urban areas about (46.00 percent) respondent's first birth interval are more within 24 months. We see that respondent's education level is highly significant on first birth interval. Here, it is observed that more than 61 percent secondary and above educated respondent's first birth interval are less than 24 months. This is maximizing as compared to any other level of respondent's Husband education is significant effect on marriage to first birth interval. More 50 percent respondent's whose husband's are illiterate are going to be a mother after 24 months. Whereas about 56 percent females whose husbands are secondary and above educated having a child within 24 months. The highly significant association between and access to mass media respondent's who have no access to the mass media above 50 percent having a child after 2 years of marriage. Childhood place of residence there strongly significant effect on first birth interval, respondent's who were resided town at the onset of life majority of them are living a child before 24 months.

Table-8.3. Proportional hazards model estimates of the effects of selected background characteristics on marriage to first birth interval of women of Bangladesh-2004.

Background characteristics	Categories	Regression coefficient	Standard error S.E (β)	Relative risk Exp (β)	P-value
Region of respondent's	Barisal (R.C)	-	-	-	0.000
	Chittagong	.252	0.038	1.287	0.000
	Dhaka	0.070	0.037	1.073	0.057
	Khulna	0.025	0.040	1.026	0.252
	Rajshahi	0.010	0.037	1.010	0.784
	Sylhet	0.198	0.044	1.220	0.000
Type of place residence	Rural (R.C)	-	-	-	0.000
	Urban	-0.025	0.026	0.976	0.338
Respondents Educations	Illiterate (R.C)	-	-	-	0.000
	Primary	0.103	0.026	1.109	0.000
	Secondary and above	0.111	0.033	1.117	0.001
Husband's education	Illiterate (R.C)	-	-	-	0.000
	Primary	-0.018	0.027	0.982	0.495
	Secondary and above	-0.077	0.030	0.926	0.011
Access to mass media	No access (R.C)	-	-	-	0.000
	Have access	-0.074	0.24	0.928	0.002
Childhood place of resident's	Country side (R.C)	-	-	-	0.000
	Town	0.055	0.033	1.057	0.091
Husband's occupation	Agriculture (R.C)	-	-	-	0.000
	Business	0.074	0.030	1.077	0.013
	Service	0.026	0.030	1.026	0.386
	Others	0.34	0.030	1.034	0.258
Economic Status	Poor (R.C)	-	-	-	0.000
	Middle	-0.019	0.032	0.981	0.550
	High	-0.030	0.051	0.970	0.553
Age at first marriage	=<14 years (R.C)	-	-	-	0.000
	=14-17 years	0.226	0.022	1.254	0.000
	=>18 years	0.270	0.034	1.310	0.000
Ever use of contraceptive	No (R.C)	-	-	-	0.000
	Yes	0.636	0.029	1.890	0.000
Respondents Currently working	Not (R.C)	-	-	-	0.000
	Working	-0.040	0.024	0.961	0.104

-2log likelihood=166828.182 and model chi-square (df)=727.278 (21), R.C=Reference Category.

Whereas about 50 percent countryside childhood residence respondent's are waiting 24 months for first birth. Husband's occupation is significant effect association between first birth intervals, more than 51 percent whose husband's are related with agriculture the closed birth interval above 24 months. Whereas for business man and service holder husbands near 46 percent women first birth interval more than 24 months. Economic status is highly significant effect on first birth interval, 59 percent respondents of high economic status having a child within 24 months while for poor and middle class people are 51 percent and 54 percent respectively. Age at first marriage is strongly significant effect on marriage to first birth interval,respondent's who are married after legal at marriage, only 34 percent are going to be a mother after 25 months. Whereas the female are married be below 14 years, about 59 percent having a child after 2 years of marriage. Ever use of contraceptive are strong association on first birth interval. More than 52 percent respondent's first birth interval is less than on equal 24 months in case of ever use of contraception. No the

country, about 51 percent females first birth interval is more the 24 months incase of never use of contraception. About 53 percent not working women having a child before 25 months whereas above 51 percent working respondent's going to be a mothers 2 years later. Religion has no insignificant effect on marriage to first birth interval, because every religious person is welcome to the first birth.

From table-3.4 we inspect that region of respondent's is found to have a highly significant positive influence on the first birth interval for the women of Chittagong and Syilhet division. Here it reveals that about 29 percent and 22 percent respondent's corresponds to Chittagong Sylhet have higher probability of being a mother than Barisal division. Dhaka division has also significant positive effect on first birth interval and is found to have 7 percent higher risk compared to Barisal division. Chittagong place of residence is found to have a statistically significant positive effect on the first birth interval. The women's were lived in town are found to have 6 percent higher risk of being a mother within 24 months than those of countryside counterparts. Respondent's education has a strongly positive influence on the first birth interval. From the analysis it observed that, the respondents who are primary educated have 11 percent higher risk of having first birth than illiterate counterparts. And it is also revealed that the respondents who are secondary and above educated have 12 percent higher likelihood of having a child as compared to illiterate respondents. Access to mass media is a statistically significant negative influence on having marriage to first birth interval. From the proportional hazard model it is apparent that women who have any access to mass media have 7 percent lower risk to be a mother contrast to no access females. For only businessman category of husband's occupation is found to have a statistically significant positive influence on first birth interval. From the analysis it is evident that the respondent's whose husbands are businessman have 8 percent higher risk of being a mother before than those of agriculture counterparts. Husbands education are partially significant on first birth interval respondent's who are married with secondary and above educated man have 7 percent lower likelihood of being a mother compared to illiterate husband's of respondent's. Age at first marriage is statistically significant positive influence on the first birth interval. Within (14-17 years) and above 17 years of age have respectively 25 percent and 31 percent higher likelihood on first birth interval as compared to respondent's are married below 14 years. Ever use of contraceptive is statistically significant positive influence on having marriage to first birth interval. Respondent's who are used of any method having 89 percent higher risk of being a mother than the never users. Economic status and respondent's working status are not statistically significant on marriage first birth interval.

9. CONCLUSION

The purpose of the study has been to examine the marriage to first birth and its relationship with the age at first marriage and also to identify the available socio-demographic factors influencing the first birth interval in Bangladesh. Obviously, clear information of marriage to first live birth interval provides insights into birth spacing patterns and receives increasing attention in the study of human fertility and also infant mortality levels. The result on the marriage to first birth interval suggests that the overall mean first birth interval among Bangladeshi women is amount 33.49 months (2004). Although, traditionally Bangladeshi couples desired to have children as soon as possible after marriage, results from the socio-demographic differentials of the marriage to first birth demonstrate that multiple effects influence the marriage to first

birth interval. Among them, place of residence, education, occupation, age at first marriage, region, economic status, husbands' education and occupation are important in the variation of the marriage to first birth interval.Moreover, the longer marriage to first birth interval could have occurred due to unstated spontaneous abortions, still births, severe malnourishment of some mothers before their first contraception or errors in the exact dating, of the beginning of exposure to the risk of conception. All the above factors affect women's exposure to the risk of conception and are responsible for the longer marriage to first birth in Bangladesh. Since the marriage to first birth interval is heavily dependent on the dating of first marriage and first birth, an appreciable amount of changes of date imputation of first marriage could influence the results. Although the results of this article from retrospective survey are consistent with analysis of Indian data Battacharya and Singh (1983) as well as the analysis of the data from Pakistan and Nepal Hobcraft *et al.* (1984), longitudinal data regarding vital statistics are of immense importance to examine the exact marriage to first birth in Bangladesh. As the time of first birth is one of the prime determinants of fertility and is also determined largely by the demographical characteristics of the women and can, therefore, be utilized for estimating various demographical determinants of human reproductions, the knowledge of which may be helpful in the assessment of impact of contraception along with the impact of socio-economic factors on fertility.

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