

The Impact of Early Marriage on Pregnancy Outcomes of Ever-married Women: Findings from India Human Development Survey, 2011-12

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Abstract

Background: Women's adverse pregnancy outcomes are the major areas of concern and serious problem in developing countries like India. This study examines the association between early marriage and selected pregnancy outcomes-stillbirth, miscarriage or wasted pregnancy, pregnancy complications, delivery complications and post-natal complications.

Methods: Data from India Human Development Survey, 2011-12 were utilized. A total of 35,282 ever-married women were included in the analysis. Cross-tabulation, Pearson chi-square test, and binary logistic regression were performed for the analyses of the study.

Results: Bivariate association showed significant differences in women's pregnancy outcomes according to their age at marriage. Multivariate logistic regression analysis suggest that after controlling for relevant demographics the likelihood of stillbirth (OR 1.12, $p < 0.05$), miscarriage or wasted pregnancy (OR 1.15, $p < 0.01$), pregnancy complications (OR 1.24, $p < 0.01$), and post-natal complications (OR 1.32, $p < 0.01$) were higher among the women who married at the age of ≤ 14 years than those women who married at the age of 18 years or above and no significant association was found between the women who married at the age of 15-17 years and pregnancy outcomes except for post-natal complications (OR 1.12, $p < 0.05$) in adjusted analysis.

Conclusion: Findings suggest that women who married below 15 years of age were at higher risk of adverse pregnancy outcomes than the later married women and there is a need for immediate policy intervention to address their severe health outcomes.

Keywords: Pregnancy; Miscarriage; Reproductive health; Childbirth

Introduction

Early marriage or child marriage is defined as the marriage or union (with or without consent) before the age of 18 years [1,2]. It is recognized as a violation of human right [1,3]. Although early marriage is a worldwide phenomenon, the prevalence of child marriage is more common in South Asian and Sub-Saharan countries [4]. South Asia has almost half of all child brides worldwide and India has one in three child brides of global [5]. The recent National Demographic & Health Survey (NFHS-4), 2015-16 estimated that about 27% of women age 20-24 years were married before age 18 which was 47% in 2005-06 in India [6]. According to Prohibition of Child Marriage Act (2006), the legal age of marriage is 18 for girls and 21 for boys in India. The punishment for child marriage is "rigorous imprisonment which may extend to two years or with fine which may extend to one lakh rupees or with both" [7]. Child marriage leads to several adverse physiological and emotional outcomes [8,9].

Despite, its several adverse outcomes the practice of early marriage has been widely prevailing in low-middle income countries. Although early marriage affects both the sexes, the female is at disproportionate risk [1]. It curtails educational opportunities for young and adolescent girls, truncated girls' childhood, and makes their life isolated and lonely [10]. Poverty, social-cultural norms, beliefs, establish social ties

for improved social status, reduce the economic burden, protect daughter from rape, premarital sexual activities are the main driving force of early marriage [3].

Child marriage has negatively associated with women's reproductive health outcomes and fertility control behaviors [11-14]. Awareness of family planning and maternal care utilization is lower among the women who married at early age. For instance, the modern method of contraceptive use is limited among early married women whom further linked to early fertility and rapid repeat childbirth [12-14]. Early married adolescent girls' are more likely than those adult married women to report complications in pregnancy and unplanned pregnancies which has results greater experiences of miscarriage and stillbirth [15,16]. Child married women have frequently experience obstetric fistula, death in childbirth and increased risk of infant morbidity and mortality [2,9,17,18]. Early marriage is also significantly associated with nutritional status of women and their children [17,19]. It is evidenced that domestic violence is common among the women who married minor [20-25]. Physical and sexual violence among young adolescent married women increases the risk for several physiological and mental health problems. Thus, early married women are more vulnerable to Sexual Tract Infections (STIs). Sexual intercourse with a sexually infected partner increases the risk of HIV/AIDS, and other sexually transmitted diseases [3,10,26,27]. It is evidenced that spousal age gap among the early married women generally been large. Higher spousal age difference leads to unequal

power relations which has an indirect link to women's poor reproductive health status [24,28-31].

Recently, a growing number of study particularly from India suggests that early marriage has a significant impact on women's reproductive health especially pregnancy-related outcomes [9,13,14,17,32-34]. A study of currently married women in reproductive ages 15-49 in India reports that after adjusting several economic and demographic characteristics adult married women were more likely to have better reproductive health status than those women married early [34]. Similarly, a study of 20-24 aged ever-married women in India states that women who married late were more likely to use contraceptives to delay first pregnancy, to have had their first delivery in a health facility, and lower chances of miscarriage or stillbirth even after controlling several confounders [32]. Likewise, a study of 20-24 year aged married ever-women in India reports that the odds of rapid repeat childbirth, any unwanted pregnancy, multiple unwanted pregnancies, pregnancy termination, and female sterilization were higher among the women who married before the age 18 compared to adult married women after adjusting for age, education level, wealth index, rural/urban/town residence, national region, and religion [14]. Another study by Anita Raj and others revealed that women in 20-24 years of the age group who married before 18 years of age were 1.8 times more likely than those married as adults to report ever experiencing physical or sexual violence after adjusting for potential confounders [17]. Likewise, an evidence from ever-married women aged 20-24 in selected Indian states reported that women who married later (18 years) were the lesser experience of physical and sexual violence than those women who married early [32]. The experience of physical and sexual violence adversely affects the reproductive health status of young women.

This study aims to examine the association of early marriage with adverse pregnancy outcomes and complications during pregnancy, delivery, and post-natal period.

Materials and Methods

Data

A total number of 35,282 ever-married women aged 15-49 years from the second round of India Human Development Survey (IHDS-2) were used for the analysis of study. It is a multi-topic, nationally representative survey of 42,152 households across 33 Indian states and union territories. IHDS-2 was conducted in 2011-12 by the University of Maryland and National Council of Applied Economic Research (NCAER), New Delhi. The information on age at marriage, pregnancy outcomes and complications during pregnancy, delivery, and post-natal period were utilized for the current study.

Outcome measures

Pregnancy-related health outcomes of women are the main outcomes of interest in this study. The selected pregnancy-related outcome measures are stillbirth, miscarriage or wasted pregnancy, pregnancy complications, delivery complications, and post-natal complications. All the outcome variables were converted into dichotomous form. Any pregnancy complications variable had constructed by summing up 10 binary responses (yes '1' or no '0') of pregnancy-related problems i.e. night blindness, blurred vision,

convulsions not from fever, excessive swelling, excessive fatigue, anemia, vaginal bleeding, high Blood Pressure, giddiness, and no fetal movement. If ever married women experience any of these problems were assigned as '1' and no experience of complications assigned as '0'. Likewise, the experience of any delivery complications and any post-natal complications had constructed by sum up of a range of problems during delivery (Bag burst early, Baby stuck, Long labor pain, Wrong baby position, Placenta delayed, Bleeding from vagina, premature labor, and any other) and post-natal period (Excessive vaginal bleeding, persistent back pain, very high fever, pelvic inflammation, foul-smelling discharge, and any other) respectively.

Main predictor

Age at marriage is the main predictor variable in this study. For the purpose of the study, women's age at marriage had divided into 14 years, 15-17 years and 18 years.

Explanatory variables

Important socio-economic and demographic variables such as place of residence (rural, urban), age (15-24, 25-34, 35+) caste (forward caste, OBC, SC/ST), religion (Hindu, Muslim, Other), women's education (illiterate, primary, secondary, higher), spouse education (illiterate, primary, secondary, higher), and women's Body Mass Index (thin, normal, obese) have been included in the analysis.

Analytical approach

Bivariate analyses were performed to examine the nature of association between age at marriage and pregnancy outcomes of women. Multivariate analyses used logistic regression to examine the association between early marriage and women's pregnancy outcomes. The results are presented by estimated odds ratio with 95% confidence interval appropriate sampling weight was supplemented to perform the whole analysis. All analyses were carried out using STATA 12.1 version (StataCorp LP, College Station, Texas, USA).

Results

Respondents characteristics

Table 1 depicts three categories of age at marriage according to selected socio-demographic characteristics of women. The majority of the sampled women lived in rural areas (68%), belonged to a socially disadvantaged group (30.4% SC/ST, 43.3% OBC), practiced Hinduism (82.7%) and had no or a very low level of education (38.5% illiterate, 16.2% primary level). Nearly 16% of the women were aged 15-24 years and 35% of them were aged 25-34 years. About 20% of the husbands were illiterate and 16.2% were completed only primary level of education. The majority of the sampled women who got married at age 14 or before were resided in rural areas (83%), belonged to backward caste group (48% OBC, 36% SC/ST), followed Hindu religion (87%), and had no or very lower level of education (67% illiterate). Among women who married at age 18 or later, 60% of them were lived in rural areas, 80% were practiced Hindu religion, and 39% were illiterate. About 27% of the women who got married at age 14 or below had thin Body Mass Index (BMI) compared to 18% of the women who got married at age 18 or later.

Characteristics	Age at Marriage (years)			Total
	≤ 14	15-17	≥ 18	
Place of Residence				
Rural	83.4	74.9	59.6	68.2
Urban	16.6	25.1	40.4	31.8
Age				
15-24	7.9	14.7	18.1	15.5
22-34	29.9	31.5	38.2	34.7
35+	62.2	53.8	43.7	49.8
Caste				
Forward	16.2	21.6	32.1	26.3
OBC	48.1	44.8	41	43.3
SC/ST	35.7	33.6	26.9	30.4
Religion				
Hindu	87.1	83.7	80.8	82.7
Muslim	11.5	13.2	12.3	12.5
Others	1.3	3.1	6.9	4.8
Education				
Illiterate	67.1	49.1	23.5	38.5
Primary	17.2	18.7	14.1	16.2
Secondary	14.3	28.5	39	31.9
Higher	1.5	3.7	23.3	13.5
Spouse Education				
Illiterate	34	26.3	13.7	20.8
Primary	21.6	20.7	13.7	17.2
Secondary	33.8	39.9	43.1	40.7
Higher	10.6	13.1	29.6	21.3
Body Mass Index				
Thin	27.1	23.8	18.2	21.4
Normal	56.5	57.5	58	57.6
Obese	16.5	18.7	23.9	21
Total Sample	4,173	11,680	19,400	35,253

Table 1: Percentage distribution of ever-married women by age at marriage according to selected socio-demographic characteristics in India, 2011-12 [Note: % = Weighted percentage].

Age at first marriage according to selected pregnancy outcomes of women

Table 2 represents selected pregnancy outcomes by age at first marriage. More than 13% of the women who married at age 14 or

before were had stillbirth compared to 10% of the women married at age 18 or later. About 22% of the early married women (at age 14 or before) have had a miscarriage or wasted pregnancy compared to 19% of the women who married at age 18 or later. Around 70%, 30% and

39% of early marrying women have had any pregnancy complications, delivery complications, and post-natal complications compared to 63%, 36%, and 29% of women who married at 18 or later respectively.

The result of 2 tests shows a statistically significant association between early marriage and reproductive health status (stillbirth,

miscarriage or wasted pregnancy, any pregnancy complications, post-natal complications) at 1% significance level.

Reproductive Health Outcomes	Age at marriage			Total (%)	N
	≤ 14 Years (%)	15-17 Years (%)	≥ 18 Years (%)		
Stillbirth*					
No	86.2	88.7	89.8	88.9	31261
Yes	13.8	11.3	10.2	11.1	3992
Miscarriage or wasted pregnancies					
No	78.1	80.7	80.9	80.4	28229
Yes	21.9	19.3	19.1	19.6	7024
Any pregnancy complications*					
No	30.2	33.7	37.1	35.2	5015
Yes	69.8	66.3	62.9	64.8	8737
Any delivery complications					
No	69.7	64.5	63.9	64.7	9198
Yes	30.3	35.5	36.1	35.3	4571
Any post-natal complications*					
No	61	66.5	70.6	68.2	9528
Yes	39	33.5	29.4	31.8	4094

Table 2: Percentage distribution of ever-married women by age at marriage according to their selected reproductive health outcomes in India, 2011-12 [Notes: %=weighted percentage, N=total sample; *2 test significant at the 1% significance level; Sample restricted to last birth women since January 2005].

Association between early marriage and women's pregnancy outcomes

Crude analysis reveals that women who married at the age of ≤ 14 years and 15-17 years were more likely to experience stillbirth, miscarriage or wasted pregnancy, pregnancy complications and post-natal complications than those women who married at the age of ≥ 18 years. However, this study did not find any significant relationship between early marriage and delivery complications. Moreover, the likelihood of stillbirth (OR 1.12, p<0.05), miscarriage or wasted pregnancy (OR 1.15, p<0.01), pregnancy complications (OR 1.24 p<0.01), and post-natal complications (OR 1.32, p<0.01) were higher among the women who married at age of ≤ 14 years than those women who married at age of ≥ 18 years even after controlling for relevant socioeconomic and demographic factors. However, women who married at the age of 15-17 years were no longer significantly associated with pregnancy-related health outcomes. Only post-natal complications (OR 1.12, p<0.05) remained significantly associated with women married at the age of 15-17 years even after adjusted for relevant co-factors.

Discussion and Conclusion

The prior studies have focused on the association of early marriage with women's reproductive health outcomes at national and regional level. The current study made a comprehensive analysis of the impact of early marriage on women's pregnancy outcomes using the more recent nationally representative database. The analyses clearly suggest that women who got married at the age of ≤ 14 years were more likely to had stillbirth, miscarriage or wasted pregnancy, pregnancy complications, and post-natal complication than the women who married at age of 18 years or above. Crude analyses reveal that the women who married at the age of 15-17 years had more likelihood of stillbirth, pregnancy complications, and post-natal complications than the women who married at the age of ≥ 18 years. But, when the model was adjusted for relevant socio-economic and demographic covariates the association becomes insignificant. Only post-natal complications retain its significant association with the women who married at the age of 15-17 years in the adjusted model. It was also found that women married in early adolescent (≤ 14 years) were at higher risk of adverse pregnancy health outcomes.

Although both groups of women were affected, the study emphasized the importance of women who got married at age 14 years where an immediate policy intervention needed. It is evident that women who married early had poor socio-economic status, lower level of education, poor nutritional status, limited exposure to mass media, and lived in backward regions which had a negative impact on their pregnancy outcomes. The current programme and policy on child marriage mainly targeted unmarried minor girls as providing financial incentives for delaying marriage, improvement girls' educational facilities, and communication and enhance job opportunities. These programs should be broadened to address the health status of a married adolescent. Thus, efforts should be made to awareness of family planning, decision making the authority of women, access to healthcare services and utilization which has an indirect link in women's reproductive health status. In addition to this, rural, backward caste, poorer and less educated women must be recognized in policy and programme as they are more vulnerable to adverse reproductive health risk.

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