Prevalence of Girls Child Marriage and Its Effect on Fertility in India: An Empirical Analysis Using Unit Level Data

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ABSTRACT

The present study aims to investigate the association between early marriage and high fertility and poor fertility health indicators among child married women in India. The binary logistic regression has been applied to analyze secondary data (DLHS-4) of 125293 ever-married women (aged 20-24 years) in India. The present study is to identify the differences in poor fertility outcomes [high fertility (three or more childbirths); rapid repeat childbirth (<24 months between births); unwanted pregnancy (any ever) and pregnancy termination (any stillbirth, miscarriage or abortion ever)] by early (<18) versus adult (≥18) age at marriage. In this study, we can find the associations between child marriage and fertility outcomes were assessed by calculating adjusted odds ratios (AORs) using logistic regression models after controlling for demographics, social equity indicators (education, wealth index, rural residence), marriage duration and culture-specific factors (husband's desire for more children, son preference). Moreover, girl child marriage was significantly associated with low social equity indicators (poverty, rural residence, and no formal education). In adjusted logistic regression models represent that girl child marriage was significantly associated with high fertility, rapid repeat childbirth, unwanted pregnancy and pregnancy termination. Further, girl child marriage affects half of all ever-married women aged 20–24 years in India and increases their risk for high fertility and poor fertility health indicators among child married women in India. Therefore, the policy level intervention should focus on to eliminate the girls child marriage by strict law enforcement, promoting civil, sexual and reproductive health right among adolescent girls in India.
JEL classification: *J10, J12, R20*

Key Words : Child marriage, Fertility, Family planning, India

INTRODUCTION

According to the prohibition of Indian child marriage act 2006, child marriage today is defined as one where girls and boys who were married below the age of 18 and 21, respectively. The UNICEF'S "State of the World's Children 2009" report has shown that, India has the 12th highest rate of child marriage in the world. About 40 per cent of the world's child marriage occurs in India. Similarly, 47 per cent of Indian women and 56 per cent of rural women aged 20-24 year married below the age of 18 year. Moreover, child marriage also increases the fertility rate among young

women. In highly patriarchal society, large numbers of families want more children and son preference. Further, the groom's families put pressure on young bride to prove her fertility after marriage as early as possible (Nayan, 2015). Consequently, girls are getting motherhood in the early age. In India, about 36 per cent of married adolescents aged 13-16 years and 64 per cent of those aged 17-19 years are already mother or pregnant with their first child (Jejeebhoy *et al.*, 1995). However, early pregnancy increases risks for both the mother and her child. Each year, 10,000 adolescent girls in developing countries die of causes related to pregnancy and child birth and prenatal deaths are 50 per cent higher among babies born to mothers under 18 years old than among those born to mothers above 18 years (Nayan, 2015). Compared to women who marry later in life, child brides experience high rates of adverse sexual and reproductive health outcomes, gender-based violence, malnutrition, and high maternal and child morbidity and mortality, such as grand multiparity and low-birth weight among the adolescent girls (Mahavarkar *et al.*, 2008). Girl child marriage, which is commonly practiced in India, disproportionately affects girls of lower socioeconomic status and those residing in rural regions (Sathar *et al.*, 2002). Moreover, the mean age at marriage among women in India has increased significantly from 20.2 years (DLHS-3) to 21.9 years (DLHS-4) and percentage of child marriage has decreased from 24.10 (DLHS-3) per cent to 21.22 (DLHS-4) per cent in India.

Table 1 : Mean age at marriage and percentage of marriages below legally prescribed minimum age for women in India				
Prevalence of child marriage in India	DLHS-4 data	DLHS-4 data	DLHS-3 data	DLHS-3 data
	Mean age at marriage	Percentage of marriages below legal age at marriage	Mean age at marriage	Percentage of marriages below legal age at marriage
	Women	Women (<18)	Women	Women (<18)
Rural Area	21.94	24.15	19.2	26.90
Urban Area	22.7	18.62	21.2	22.11
DLHS-4	21.9	21.22		
DLHS-3			20.2	24.10

Source: Ministry of Health and Family Welfare, Government of India (2013) for DLHS-4(2012-13) data

This paper is divided into five sections. The objectives and methodology of this paper are spelled out in the following section. The nest section of this paper is highlighted the result of various associations between child marriage and high fertility and poor fertility health indicators among adolescent girl in India. Finally, the end of this paper is analyzed to draw some conclusion, policy implications and limitation of the study.

Objective of the study :
This paper is planned to attain the following objectives:

1. The present study is to determine the association between early marriage and high fertility and poor fertility health indicators among child married women in India

2. In this study, the sample was restricted to ever-married women aged 20–24 years in India and try to identify the difference in fertility outcomes between child and adult married women in India.

3. In this study, I have tried to investigate if any relationship exists between the village infrastructural development and high fertility or poor fertility outcome among child married women in India

4. This study aims to provide some lesson to the policy makers. So, the prevalence of child marriage and its related to poor fertility outcome can be removed among adolescent girls in India.

METHODOLOGY

Data:

In this study, DLHS-4 (2012-13) (Ministry of Health and Family Welfare, Government of India 2013) unit level data is used as our main data source. I use unit level household data, ever-married[1] women data and village level data to identify the determinants of high fertility and poor fertility health indicators among child married women in India. Moreover, I use DLHS-4 data as our main data source because this is the latest data and no other data source is available which gives information on the variable used in this paper. It gives information not only at the district level, but also at the village level in India by which I can measure poor fertility health indicators among child married women in India. In Census-2011 and National Family Health Survey (NFHS)-4 data does not contain information on this variable.

Methodology:

In the present study, I have used descriptive statistics to calculate the prevalence of child marriage among women aged 20–24 years in India. In this study, the Chi square test has been applied to analyze the socio-economic characteristics of child and adult married women in India. Moreover, I have consider the two-tailed p value of <0.05 to be statistically significant. In this study, the associations between child marriage and fertility outcomes were assessed by calculating adjusted odds ratios (AORs) with 95 % Confidence Interval (CI) using logistic regression models after controlling for age and social equity indicators (education, wealth index, rural residence) among child married women in India. The separate regression analyses were conducted also adjusting for cultural- specific factors *i.e.* husband's desire for more children and son preference that have shown to affect the fertility rate among child married women in India. To further explore the relationship of early marriage and fertility outcomes, I performed nuanced analysis by age of marriage and compared women married at ages <14 years, 14–15 years, 16–17 years with those married at age ≥18 years. However, I have used Nagelkerke's R-square for the goodness-of-fit for all logistic regression analysis.

RESULTS AND DISCUSSION

Sample profile of the respondents :

In Table-2 represents the percentage distribution of ever-married women aged 20–24 years in India. In this table, about 6.2 per cent, 19.7 per cent and 37.1 per cent of women married at the age of <14, <16 and <18 years, respectively. Similarly, 57.6 per cent of women married as child had no formal education and 70 per cent resided in rural areas. Moreover, 33.8 per cent women reported preferred sons over girls and 23.1 per cent reported her partner wanted more children and only 29.8 per cent of women ever used contraception. The proportion of mothers belong to the poorest and poorer wealth quintiles was about 25.9 per cent and 22.81 per cent, respectively. Similarly, for village infrastructure quintile, 48.23 per cent and 12.59 per cent mothers belong to the least and highest infrastructure quintile. Among social groups, 34.72 per cent and 29.28 per cent of mothers

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1. Ever- Married women are those persons who have been married at least once in their lives although their current marital status may not be "married".

Table 2 : Prevalence of child marriage and social equity indicators of ever-married women aged 20–24 years in India	
Demographic and social equity indicators	Weighted (%)
Age of marriage(years)	
<14	6.2
<16	19.7
<18	37.1
≥18	37
Age of women (years)	
20	22.6
21	14.3
22	24
23	16.6
24	22.5
Highest Education level of Women	
No education	57.6
Primary	18.9
Secondary	16.2
Higher	7.3
Highest Education level of Husband	
No education	59.09
Primary	19.24
Secondary	16.30
Higher	5.37
Type of place of residence	
Urban	30
Rural	70
Religion	
Hindu	66.04
Muslim	26.50
Others	7.46
Caste	
SC	34.72
ST	29.28
OBC	19.96
General	16.04
Wealth index	
Poorest	25.9
Poorer	22.81
Middle	18.53
Richer	17.89
Richest	14.87
Village Infrastructure Quintile	
Least	48.23
Medium	39.18
Highest	12.59

Table 2 contd…

Table 2 contd..

Respondent Occupation	
Unemployment	82.66
Professional/service/production worker	7.79
Agriculture worker/ labour	9.55
Contraception use (ever)	
No	70.2
Yes	29.8
Duration of marriage (years)	
0–4	59.1
5–9	36.9
10–14	4
Husband's desire for more children	
No	76.9
Yes	23.1
Son preference	
No	66.2
Yes	33.8

Source: Ministry of Health and Family Welfare, Government of India (2013) for DLHS-4(2012-13) data

belong to-SC and ST group. About 82.66 per cent of mothers were unemployed and 59.09 per cent of husband with no education. Similarly, 57.6 per cent of ever-married women were uneducated and the majority of them are Hindu.

Simple associations between child marriage and socio-demographic characteristics :

In Table 3, there were significant differences in demographics and social equity indicators among women aged 20–24 years who were married below the age of 18 years compared to those married above the age of 18 years. The prevalence of child marriage was disproportionately more among young (61.9 % vs. 38.1 %), uneducated (59.8 % vs.40.2 %), unemployed (62.66 % vs.37.34 %), SC (52.96 % vs.47.04 %) and poorest (69.1 % vs. 30.9 %) women in India, who resided in rural areas (54 % vs. 46 %). The prevalence of contraception was higher among women married as child as compared to women married as adults age (54.9 % vs. 45.1 %). Moreover, women married as child as compared to women married as adult also reported higher proportion of husband's desire for more children (59.4 % vs. 40.6 %) and son preference (52.4 % vs. 47.6 %), respectively.

Associations between child marriage and fertility indicators :

In Table 4, overall, in a sample of ever-married women aged 20–24 years in India, about 72.9 per cent had at least one childbirth, 29.6 per cent had their first childbirth during the first year of their marriage, 17.9 per cent had high fertility (≥ 3 births), and 26.6 per cent had repeated childbirths within 24 months**.** About 15.5 per cent of ever-married women aged 20–24 years had termination of pregnancy at least once. Moreover, women married as child compared to women married as adults were more likely to have at least one childbirth (AOR 5.10; 95 % CI 3.35–7.93), had three or more childbirths (AOR 6.42; 95 % CI 3.34–12.41), had at least one unwanted pregnancy (AOR 2.78; 95 % CI 1.68–4.66), had rapid repeat childbirth (AOR 2.94; 95 % CI 1.95–4.52), and had at least one pregnancy termination (AOR 1.80; 95 % CI 1.21–2.88). Moreover, women married as child were also less likely to have childbirth in first year of marriage (AOR 0.63; 95 % CI 0.47–0.83) than women married as adult age. The adjusted regression analyses for husband's desire for

Table 3 : Prevalence of ever-married women aged 20–24 years who were married as adults or child by different characteristics including social equity indicators in India			
Demographic and Social Equity Indicators	Child Married Women	Adult Married Women	p-value
Age of women			<0.001
20	61.9	38.1	
21	53.4	46.6	
22	47.9	52.1	
23	39.9	60.1	
24	46	54	
Religion			<0.001
Hindu	51.63	48.37	
Muslim	53.72	46.28	
Others	32.53	67.47	
Highest education of Women			<0.001
No education	59.8	40.2	
Primary	48.2	51.8	
Secondary	33.3	66.7	
Higher secondary and above	11	89	
Highest education of husband			<0.001
No education	59.8	40.2	
Primary	48.2	51.8	
Secondary	33.3	66.7	
Higher secondary and above	11	89	
Caste			<0.001
SC	52.96	47.04	
ST	54.04	45.96	
OBC	51.72	48.28	
General	29.28	70.72	
Place of Residence			<0.001
Urban	40.9	59.1	
Rural	54	46	
Wealth Index			<0.001
Poorest	69.1	30.9	
Poorer	57.9	42.1	
Middle	51.6	48.4	
Richer	42.7	57.3	
Richest	26.3	73.7	
Respondent Occupation			<0.001
Unemployment	62.66	37.34	
Professional/service/production worker	25.79	74.21	
Agriculture worker/ labour	51.55	48.45	
Village Infrastructure Quintile			<0.001
Least	51.23	48.77	
Medium	39.18	60.82	
Highest	12.59	87.41	
Contraception use (ever)			0.036
NO	48.1	51.9	
YES	54.9	45.1	

Table 3 contd…

Duration of marriage (years)			<0.001
0-4	24.3	75.7	
5-9	86.0	14.0	
10-14	100.0	0	
Husband's desire for more children			<0.001
NO	47.0	53.0	
YES	59.4	40.6	
Son preference			0.254
NO	49.0	51.0	
YES	52.4	47.6	

Source: Ministry of Health and Family Welfare, Government of India (2013) for DLHS-4(2012-13) data, All figure are in percentage

more children and son preference represent that women married as child remained significantly more likely to have at least one childbirth, had three or more childbirths, had at least one unwanted pregnancy, had rapid repeat childbirth, and had at least one pregnancy termination. In addition,

Table 4 : Associations between ever-married women aged 20–24 Years who were married as children and fertility outcomes in India						
Indicators	Overall Percentage	Percentage of child married women	Percentage of adult married women	ORs (95% CI)	Adjusted ORs (95% CI)	Adjusted ORs(95% CI)[a] Including adjustment for husband's desire for more children and son preference
Childbirth in first year of marriage				0.58 (0.46–0.78)	0.63 (0.47–0.83)[b]	0.55 (0.41–0.77) [b]
No	70.4	74.9	63.8			
YES	29.6	25.1	36.2			
At least one childbirth				5.62 (4.03–7.57)	5.10 (3.35–7.93)	4.94 (2.95–8.35)
No	27.1	12.6	41.7			
YES	72.9	87.4	58.3			
Three or more child births				13.18 (8.74–20.82)	6.42 (3.34–12.41	6.60 (3.53–12.43)
No	82.1	66.2	98			
YES	17.9	33.8	2			
Repeat childbirth in less than 24 months				4.38 (3.40–5.91)	2.94 (1.95–4.52)	2.86 (1.83–4.54)
No	73.4	59.1	87.7			
YES	26.6	40.9	12.3			
At least one unwanted pregnancy				2.18 (1.46–2.97)	2.78 (1.68–4.66)	2.88 (1.75–4.79)
No	84.7	80.7	90.5			
YES	15.3	19.3	9.5			
At least one pregnancy termination				1.96 (1.37–2.52)	1.80 (1.21–2.88)	1.73 (1.10–2.78)
No	84.5	80.1	88.9			
YES	15.5	19.9	11.1			

All analyses used women married as adults as reference group, OR- odds ratio, CI- confidence interval

a Analysis adjusted for participant age, level of education, region of residence, area of residence, wealth index, ever used contraception, and marriage duration

b Not adjusted for duration of marriage since it has no bearing on the outcome

Source: Ministry of Health and Family Welfare, Government of India (2013) for DLHS-4(2012-13) data

women married as child remained consistently less likely to have childbirth in first year of marriage.

In Table 5, the nuanced analysis by age of marriage represent that all age groups (<14, 14–15, 16–17) as compared to those married ≥18 years were significantly associated with increased likelihood of at least one childbirth, three or more childbirths, rapid repeat childbirth, and at least one unwanted pregnancy with relatively higher odds among women married below 14 years followed by 14–15 years and 16–17 years in the adjusted models, except at least one child birth where women married at 16–17 years had higher odds than those married at 14–15 years. Moreover, among all age

Indicators	YES weighted (%)	NO weighted (%)	ORs (95% CI)	Adjusted ORs (95% CI)	Adjusted ORs(95% CI) [a] Including adjustment for husband's desire for more children and son preference
Table 5 : Associations between ever-married women aged 20–24 years who were married as children and fertility outcomes by age groups in India					
Childbirth in first year of marriage (years)					
<14	16.2	83.8	0.34 (0.15–0.83)	0.39 (0.18–0.92) [b]	0.20 (0.10–0.44) [b]
14-15	24	76	0.55 (0.40–0.80)	0.61 (0.44–0.92) [b]	0.52 (0.36–0.80) [b]
16-17	27.9	72.1	0.67 (0.50–0.95)	0.65 (0.47–0.94) [b]	0.64 (0.46–0.96) [b]
≥18	36.2	63.8	Reference	Reference [b]	Reference
At least one childbirth					
<14	94.9	5.1	18.65(7.18–59.39)	13.27 (4.10–56.87)	7.80 (1.98–31.22)
14-15	89.3	10.7	4.87 (3.85–12.26)	3.99 (2.77–12.95)	3.80 (1.58–9.52)
16-17	84.6	15.4	3.23 (2.94–6.09)	4.01 (3.20–7.84)	5.10 (2.96–9.03)
≥18	58.3	41.7	Reference	Reference	Reference
Three or more child births					
<14	68.1	31.9	54.88 (29.39–110.08)	45.55 (15.35–147.37)	61.26 (19.78–177.55)
14-15	42.6	57.4	17.48 (12.06–31.47)	10.25 (5.48–27.35)	12.84 (6.60–33.34)
16-17	20.9	79.1	5.19 (4.43–11.65)	3.97 (2.89–12.31)	6.50 (3.00–12.09)
≥18	2	98	Reference	Reference	Reference
Repeat childbirth in less than 24 months					
<14	61.9	38.1	8.55 (6.07–18.32)	6.29 (3.65–18.83)	7.80 (3.43–17.44)
14-15	45.9	54.1	4.49 (3.89–7.76)	3.01 (2.30–6.99)	3.50 (1.95–6.56)
16-17	33.2	66.8	3.25 (2.35–4.49)	2.94 (1.90–4.54)	2.80 (1.80–4.61)
≥18	12.3	87.7	Reference	Reference	Reference
At least one unwanted pregnancy					
<14	18	82	1.90 (0.98–3.77)	3.80 (1.28–11.74)	5.10 (1.74–14.80)
14-15	21.4	78.6	2.30 (1.52–3.63)	3.70 (1.96–7.13))	3.80 (1.96–7.55
16-17	18.1	81.9	1.90 (1.29–2.91)	2.70 (1.60–4.64)	2.80 (1.69–4.79)
≥18	9.5	90.5	Reference	Reference	Reference
At least one pregnancy termination					
<14	18.4	81.6	1.68 (0.89–3.26)	1.60 (0.64–4.21)	1.70 (0.71–4.16)
14-15	20.5	79.5	1.90 (1.32–2.82)	1.80 (1.02–3.40)	1.50 (0.79–3.03)
16-17	19.7	80.3	1.80 (1.28–2.66)	1.80 (1.20–2.88)	1.70 (1.11–2.84)
≥18	11.1	88.9	Reference	Reference	Reference

All analyses used women married as adults as reference group OR odds ratio, CI confidence interval

a Analysis adjusted for participant age, level of education, region of residence, area of residence, wealth index, ever used contraception, and marriage duration

b Not adjusted for duration of marriage since it has no bearing on the outcome

Source: Ministry of Health and Family Welfare, Government of India (2013) for DLHS-4(2012-13) data

groups compared to those married ≥18 years were significantly associated with decreased likelihood of having childbirth in first year of marriage. However, the pregnancy termination was found significantly associated with women married at the age of 16–17 years as compared to those married ≥18 years in the adjusted models.

Discussion :

The present study represent that half of ever-married women aged 20–24 years in India were married before the age of 18 years. In this study, I have shown that women who experienced greater social inequities (*i.e.*, poverty, rural residence, no education) were at increased the risk for early marriage in India. The social equity indicators known to be associated with higher fertility indicators, along with contraception, duration of marriage and few cultural-specific factors increased women's risk for high fertility and poor fertility outcomes such as unwanted pregnancy, rapid repeat childbirth, and termination of pregnancy among adolescent girl in India. In this study, we can find that the factors such as poverty, illiteracy, social and cultural specific factor are highly responsible for the prevalence of girl child marriages in India. The population policy of India has a target of achieving stabilization of population by annual reduction in population growth rate from 1.9 to 1.3 per cent and total fertility rate at 2.1 per cent in India (Shirmeen *et al.*, 2007). However, there is only meagre progress in achieving this goal with overall contraceptive rate still around 28 per cent in India that is quite low as compared to other neighbouring countries (Bibi *et al.*, 2008). Several reasons that limit the contraception use among the adolescents girl, in India, such as socio-economic barriers, husband desire for more children and son preference respectively. However, this study represent some cultural-specific factors such as husbands desire for more children and son preference that have shown to increase the rates of high fertility and low uses of contraception among adolescent girls in India. Moreover, women married as child were more likely to be controlled by husbands and in-laws, because their dependence and low status, especially in rural areas, women need to seek permission from the head of the household to visit health services (Khan *et al.*, 2009). This often comes with violence from their husbands if women seek to health services without men permission thus limiting the access to maternal healthcare services among these young women. This may also lead to high fertility and poor fertility outcomes among child married women in India. In this study, we can find, about 45 per cent of young adult women in India were married before the legal age of 18 years, with rural, poor and less educated girls are more vulnerable to be associated with child marriage among adolescent girls in India. In this study, I have shown the child marriage in India affects not only adolescent girls of 16 -17 years age group, but also large numbers of pubescent girls of 14-15 years age group. These finding suggest that neither the recent policy or programme efforts to prevent child birth and to promote maternal and child health development in India.

Conclusion, Policy Implications and Limitations of the Study :

In this study, I have shown the girl child marriage affects half of all ever-married women aged 20–24 years in India, and increase their risk for high fertility and poor fertility health indicators including rapid repeat childbirth and pregnancy termination among young women in India. These findings need for increase the specific interventions such as strict law enforcement, promoting civil, sexual and reproductive health rights among adolescent girls that can lead to reduce the child marriage among young women in India. Further, these findings reveal that young women married as child are more likely than those married as adults to report early and high fertility, inadequate birth spacing, unwanted pregnancy and pregnancy termination respectively. However, these finding

demonstrates the need for increasing the family planning programme among the married adolescents. Moreover, given the high rates of non-contraceptive user among the adolescent girls, the family planning programme should be necessary among the male partner, who are the main decision-makers of the reproductive health issues among the adolescents girls. Although the above listed efforts are needed across India, it must be recognized that rural, poor and less educated girls and women remain most vulnerable to child marriage and its consequences. Moreover, it should be necessary for better education and job opportunities for rural girls and their families with economically feasible options other than early marriage. Although, the rural health care and health care access has been the major problem in India**.** Therefore, the Government has to take some policy to increase the rural health care system by public-private partnerships at the grass root level in India and provides National Rural Health Mission (NRHM) at the backward region in India. Finally, this study have some limitation as well, the findings are specific to child and adult married women in India, and cannot be generalized to all other women and age groups in India.

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