Prevalence of child marriage and its effect on fertility and fertility-control outcomes of young women in India: a cross-sectional, observational study

Anita Raj, Niranjan Saggurti, Donta Balaiah, Jay G Silverman

Summary

Background Child marriage is a substantial barrier to social and economic development in India, and a primary concern for women's health. We assessed the prevalence of child marriage—ie, before 18 years of age—in young adult women in India, and the associations between child marriage and women's fertility and fertility-control outcomes.

Methods Data from the National Family Health Survey-3 (2005–06) were limited to a sample of Indian women aged 20–24 years (n=22 807), of whom 14 813 had been or were presently married (ever-married). Prevalence of child marriage was estimated for the whole sample. We used regression models adjusted for demographics, and models adjusted for demographics and duration of marriage to estimate odds ratios (ORs) for the associations between child marriage and both fertility and fertility-control outcomes, in the ever-married subsample.

Findings 44·5% of women aged 20–24 years were married before age 18 years, 22·6% were married before age 16 years, and 2·6% were married before age 13 years. Child marriage was significantly associated with no contraceptive use before first childbirth (adjusted OR 1·37 [95% CI 1·22–1·54]), high fertility (three or more births) (7·40 [6·45–8·50]), a repeat childbirth in less than 24 months (3·00 [2·74–3·29]), multiple unwanted pregnancies (2·36 [1·90–2·94]), pregnancy termination (1·48 [1·34–1·63]), and female sterilisation (6·68 [5·78–7·60]). The association between child marriage and high fertility, a repeat childbirth in less than 24 months, multiple unwanted pregnancies, pregnancy termination, and sterilisation all remained significant after controlling for duration of marriage.

Interpretation Increased enforcement of existing policies is crucial for prevention of child marriage. Improved family-planning education, access, and support are urgently needed for women married as children, their husbands, and their families to reduce the high fertility and poor fertility-control outcomes of this practice.

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Department of Social and Behavioral Sciences, Boston University School of Public Health, Boston, MA, USA (A Raj PhD); **Population Council, New Delhi, India** (N Saggurti PhD); **National Institute for Research in Reproductive Health, Indian Council for Medical Research, Mumbai, India** (D Balaiah PhD); **and Department of Society, Human Development, and Health, Harvard School of Public Health, Boston, MA, USA** (J G Silverman PhD)

Correspondence to: Dr Anita Raj, Department of Social and Behavioral Sciences, Boston University School of Public Health, 801 Massachusetts Avenue, c/o 715 Albany Street, Boston, MA 02118, USA **anitaraj@bu.edu**

Introduction

Child marriage—defined by UNICEF as marriage before 18 years of age—is a reality for more than 60 million women worldwide.[1] The practice has become increasingly recognised as a human-rights violation,[2,3] and has decreased worldwide during the past 20 years.[4] Nonetheless, child marriage remains pervasive in south Asia, where more than half of all child marriages occur. Previous data indicate that about 30–70% of married young women (aged 20–24 years) in Bangladesh, Nepal, India, and Pakistan were married before 18 years of age.[1,5] Child marriage has serious consequences for national development, stunting educational and vocational opportunities for a large sector of the population.[1,5] Furthermore, marriage at a very young age has grave health consequences for both the young women and their children. These women are more likely than those who are married as adults to report early, frequent, and unplanned pregnancies, typically from lack of contraceptive use. Such pregnancies have been consistently linked to increased risk of maternal and infant morbidity and mortality.[1,2,6] Adolescent mothers are also more likely to experience fistula, pregnancy complications, and death during childbirth than are older mothers.[2,5,6]

The UN have prioritised maternal health, infant mortality, and women's empowerment with the inclusion of these issues in the Millennium Development Goals.[7] This action has reinforced the urgent need to understand and reduce child marriage and its effect on maternal and child health, particularly in south Asia, where more than a third of all maternal and child deaths occur.[8] Despite the pervasiveness and severe consequences, little empirical research has been published in the past decade about child marriage or the related public-health effects. This gap in knowledge hinders the work of both practitioners and policy makers.

India, the largest and most prosperous nation in south Asia, has maintained laws against child marriage since 1929, although at that time the legal age of marriage was set at 12 years. For girls, defined as female children younger than 18 years of age, the legal age for marriage was increased to 18 years in 1978. The most recent population-based estimate for child marriage (1998–99) shows that 50% of Indian women aged 20–24 years were married as children.[1,5] Although these

Panel: **Indian regions of residence**

North
New Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, and Uttaranchal

Central
Madhya Pradesh, Uttar Pradesh, and Chhattisgarh

East
Bihar, Orissa, West Bengal, and Jharkhand

Northeast
Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura

West
Goa, Gujarat, and Maharashtra

South
Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu

data clearly suggest that previous policies inadequately curbed the practice of child marriage, the data cannot show the potential effects of recent structural and policy changes in the country. In the past 15 years, India has had several economic reforms resulting in substantial increases in personal wealth for many citizens,[9–12] and simultaneously, national policy efforts have been developed to increase educational and economic opportunities for women and girls.[13,14] Finally, and perhaps most importantly, policies and programmes focused on prevention of child marriage and family-planning support for poor and rural women and girls have been substantially expanded in the past decade.[5] These efforts have brought national public attention to this issue and led to recent policy proposals by the Law Commission of India, to ensure legal protections are available to girls irrespective of which Indian state they live in.[4]

Our aim was to establish whether the prevalence of child marriage in India has changed during the past decade, in a nationally representative sample of young adult women, and to clarify the associations of this practice with fertility and fertility-control outcomes.

Methods

Participants

We selected participants from the India National Family Health Survey-3 (NFHS-3), which was undertaken by the International Institute for Population Sciences and Macro International between November, 2005, and August, 2006.[15] To minimise literacy barriers this survey was administered verbally via a trained interviewer in either English or the principal language of each Indian state, depending on the preference of household members. A nationally representative household-based sample was obtained via a stratified, multistage, cluster sampling strategy. A uniform sampling design was used across all states, with urban and rural samples drawn separately and proportionate to the state, unless oversampling was required for an area or group. For both urban and rural areas, geographic sampling units were obtained and random household sampling was undertaken in chosen units, or in randomly selected census blocks for urban areas. A sample of 124 385 women was generated at a 95% response rate. Further details of data collection and management procedures have been described previously.[15]

Child marriage was defined as marriage before 18 years of age. To assess the most recent data about prevalence of child marriage for women in India, the sample was limited to married and never married women aged 20–24 years (n=22 807; 18·3% of the sample). To identify differences in fertility outcomes between child and adult marriage, the sample was limited to ever-married women—defined as women who had been or were presently married—aged 20–24 years (n=14 813; 74·5% of the sample aged 20–24 years).

Procedures

The demographics assessed by single questions were age, level of education, area of residence, national region of residence (panel), and religion. Area of residence was defined as mega city (≥5 million people), large city (1 million–5 million people), small city (100 000–1 million people), large town (urban, 50 000–100 000 people), small town (urban, <50 000 people), and all other areas were coded as rural.

A relative index of household wealth was calculated from a standard set of interviewer-observed assets, including ownership of consumer items and dwelling characteristics. Individuals were ranked on the basis of their household score and divided into quintiles, each representing 20% of the score, between 1 (poorest) and 5 (wealthiest). Marital characteristics consisted of marital status (married, separated, divorced, widowed, or never married), age of marriage, partner age, and partner education. A variable was constructed from husband and participant age to indicate whether a husband was substantially older (10 years or more) than the participant. Married women included those who were in situations of gauna, in which the couple are married but do not yet have sexual intercourse or cohabitate.

Fertility control before first childbirth was assessed by single questions about the use of contraception before first childbirth and the number of children born before use of contraception; these questions are presented as a dichotomous variable on whether any children were born before use of contraception. Women without children were classified as using or not using contraception before their first childbirth if, respectively, they had ever or never used contraception. Early fertility was defined as childbirth in the first year of marriage and assessed by a question about the duration of marriage before first birth; women who had not given

	Participants (N=22 807)*
Age of marriage (years)	
<18	44·5% (7730)
<16	22·6% (3736)
<13	2·6% (436)
Age of woman (years)	
20	24·2% (5380)
21	18·4% (4291)
22	21·0% (4809)
23	18·9% (4331)
24	17·6% (3996)
Highest level of education†	
No formal education	31·4% (5264)
Primary	13·5% (2862)
Secondary	42·9% (11 058)
Higher	12·2% (3622)
Area of residence	
Mega city	3·4% (1469)
Large city	7·9% (3358)
Small city	9·1% (1722)
Large town	2·2% (804)
Small town	10·2% (3076)
Rural	67·2% (12 378)
Region of residence	
North	13·5% (4295)
Central	23·0% (4003)
East	22·6% (3374)
Northeast	4·2% (4136)
West	15·1% (2945)
South	21·6% (4054)
(Continues in next column)	
(Continued from previous column)	
Wealth index	
1 (poorest)	16·4% (2394)
2	18·5% (3176)
3	20·8% (4476)
4	22·2% (5829)
5 (wealthiest)	22·0% (6932)
Religion	
Hindu	79·9% (16 244)
Muslim	14·5% (3364)
Christian	2·3% (2004)
Sikh	1·8% (506)
Buddhist/neo-Buddhist	0·8% (326)
Other	0·7% (363)
Ever married	
Yes	74·5% (14 813)
No	25·5% (7994)

Data are weighted % of total participants (absolute number of participants). *Absolute number of participants does not perfectly correspond to percentages because the percentages are weighted (see Methods). †Datum is missing for one individual.

Table 1: **Prevalence of child marriage and demographic profile of women aged 20–24 years**

birth were classed as not having had childbirth in the first year of marriage.

High lifetime fertility was assessed by the participants' numbers of childbirths, and these data were combined to supply the total number of births during the lifetime. Participants were classed as having high fertility if they had had three or more childbirths, which was a median split for the variable. Low lifetime fertility control was defined as a repeat childbirth in less than 24 months, which was assessed by questions about the number of months between each childbirth.[16] We assessed whether a woman had ever had an unwanted pregnancy by asking whether she wanted the child at birth, wanted the child later, or had not wanted any more children. Participants who wanted the child later or had not wanted anymore children were categorised as having had an unwanted pregnancy, and those with two or more unwanted pregnancies were defined as having had multiple unwanted pregnancies. Pregnancy termination was assessed by a question in which participants responded yes or no if a pregnancy had ever resulted in miscarriage, abortion, or stillbirth. Sterilisation was assessed with a question about forms of modern contraception (eg, hormonal methods, barrier methods, and female sterilisation) and traditional contraception (eg, rhythm method and lactational amenorrhoea) used by participants.

Statistical analysis

Prevalence of child marriage was calculated for the total sample of women aged 20–24 years. Differences in child marriage by demographics and marital characteristics were assessed by χ^2 analyses, with significance for all analyses set at $p<0·05$. A series of logistic regression models were constructed from the ever-married subsample to estimate odds ratios (ORs) and 95% CIs for associations between child marriage and both fertility and fertility-control outcomes. Crude models and those adjusting for major demographics (age, level of education, area of residence, region of residence, wealth index, and religion) were created. A series of regression models were also adjusted for major demographics and marriage duration to assess the effects of child marriage on both fertility and fertility-control outcomes beyond those attributable to lengthy marriage (a consequence of early marriage). Lengthy marriage provides increased opportunity for outcomes such as high fertility and unwanted or terminated pregnancy. Before these additional adjusted analyses, a Pearson correlation statistic was calculated to ensure that duration of marriage and child marriage were not collinear. All statistical analyses were done with SPSS (version 15.0.1).

	Never married (N=7994)*	Adult marriage (N=7083)*	Child marriage (N=7730)*
Age of woman (years)			
20 (n=5380)	36·9% (2574)	21·9% (1104)	41·2% (1702)
21 (n=4291)	29·1% (1771)	27·8% (1147)	43·1% (1373)
22 (n=4809)	23·2% (1592)	30·8% (1505)	46·1% (1712)
23 (n=4331)	17·7% (1180)	34·8% (1583)	47·4% (1568)
24 (n=3996)	12·5% (877)	42·1% (1744)	45·5% (1375)
Highest level of education†			
No formal education (n=5264)	5·8% (485)	22·6% (1298)	71·6% (3481)
Primary (n=2862)	13·2% (542)	28·2% (856)	58·5% (1464)
Secondary (n=11 058)	28·6% (4203)	39·1% (4125)	32·3% (2730)
Higher (n=3622)	71·9% (2763)	25·6% (804)	2·5% (55)
Area of residence			
Mega city (n=1469)	48·5% (714)	30·2% (447)	21·3% (308)
Large city (n=3358)	41·4% (1459)	34·3% (1132)	24·2% (767)
Small city (n=1722)	38·8% (733)	32·8% (555)	28·4% (434)
Large town (n=804)	35·8% (412)	34·2% (216)	30·0% (176)
Small town (n=3076)	33·9% (1390)	33·3% (911)	32·8% (775)
Rural (n=12 378)	17·8% (3286)	29·7% (3822)	52·5% (5270)
Region of residence			
North (n=4295)	29·5% (1628)	34·0% (1510)	36·5% (1157)
Central (n=4003)	17·8% (911)	29·2% (1249)	53·0% (1843)
East (n=3374)	18·5% (892)	27·9% (945)	53·6% (1537)
Northeast (n=4136)	38·2% (1965)	26·8% (1127)	35·0% (1044)
West (n=2945)	28·5% (1207)	34·7% (922)	36·9% (816)
South (n=4054)	30·1% (1391)	31·7% (1330)	38·2% (1333)
Wealth index			
1 (poorest) (n=2394)	7·5% (219)	22·2% (541)	70·4% (1634)
2 (n=3176)	12·3% (553)	24·9% (841)	62·7% (1782)
3 (n=4476)	20·6% (1264)	29·5% (1378)	49·8% (1834)
4 (n=5829)	28·6% (2181)	37·3% (2026)	34·1% (1622)
5 (wealthiest) (n=6932)	47·7% (3777)	36·8% (2297)	15·5% (858)
Religion			
Hindu (n=16 244)	23·7% (5220)	30·8% (5116)	45·6% (5908)
Muslim (n=3364)	23·0% (1122)	30·8% (1043)	46·2% (1199)
Christian (n=2004)	49·7% (1106)	27·7% (542)	22·6% (356)
Sikh (n=506)	43·6% (224)	38·9% (193)	17·4% (89)
Buddhist/neo-Buddhist (n=326)	31·8% (148)	27·4% (88)	40·8% (90)
Other (n=363)	36·7% (174)	31·4% (101)	32·0% (88)

p=0·0001 (p value from χ^2 test assesses the association between child marriage and demographic indicators). Data are weighted % of total participants in each demographic subgroup (absolute number of participants). *Absolute number of participants does not perfectly correspond to percentages because the percentages are weighted (see Methods). †Datum is missing for one individual.

Table 2: **Prevalence of women aged 20–24 years who were unmarried, married as adults, or married as children, by demographic characteristic**

All analyses were weighted to account for selection probability, non-response, and sampling differences between regions with the national women's testing weight for the entire NFHS-3[15] women's sample to produce analyses that were representative of the national population. We calculated weighted percentages to present data that were more accurate and relevant to the national population, but we have also included the absolute numbers of participants from the original sample. Consequently, the percentages and numbers of participants do not perfectly correspond in the tables, and weighted percentages without numbers of participants are presented in the text.

Role of the funding source

The sponsor of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication

Results

The sample of women aged 20–24 years (n=22 807) had a median age of 22 years (IQR 21–23) and a mean age of 21·9 years (SD 1·4), of which about a third had no formal education, and more than two-thirds resided in rural areas (table 1). Three-quarters of women reported a history of marriage (table 1); a very small proportion of these women (0·8%) were no longer married because of divorce or becoming widowed. In ever-married women aged 20–24 years (n=14 813), the median age of husbands was 27 years (IQR 25–30) (mean age 27·7 years [SD 4·1]), and the median age difference between women and their husbands was 5 years (IQR 3–7) (mean 5·7 years [SD 3·9]). 14·3% of ever-married women had husbands who surpassed them in age by 10 or more years.

More than two-fifths of women aged 20–24 years were married before 18 years of age (table 1). Almost half of these women were married before 16 years, of which about a ninth were married before 13 years. The highest prevalence of child marriage was recorded in women aged 22–24 years, those who had less than a secondary education, those residing in rural areas or in the central or eastern regions of the country, and those in the lower two quintiles of wealth (table 2). Prevalence of child marriage was also higher in Hindu, Muslim, and Buddhist women than in Christian and Sikh women, and those of other religions (table 2). In the ever-married subsample (n=14 813), prevalence of child marriage was significantly more common in women whose husbands surpassed them in age by 10 or more years (66·0%) than in those whose husbands surpassed them in age by less than 10 years (57·4%; p<0·0001). Child mariage was also more common in women with less educated husbands than those with more educated husbands (p<0·0001): child marriage was reported by 77·1% of women whose husbands had no formal education and 33·7% of those whose husbands had some higher education.

In ever-married women aged 20–24 years (table 3), no contraceptive use before first childbirth was highly pervasive. Almost a fifth of women had had a child in the first year of marriage, and more than one in six women had had three or more childbirths. More than one in eight women had been sterilised, but of those

	Overall	Adult marriage (N=7018)*	Child marriage (N=7610)*	OR	Adjusted OR†	Adjusted OR† including adjustment for marriage duration (years)
Indicators from early in marriage						
No contraceptive use before first childbirth‡				1·95 (1·76–2·17)	1·37 (1·22–1·54)	NA
Yes	90·8% (13176)	87·5% (6095)	93·2% (7081)			
No	9·2% (1445)	12·5% (919)	6·9% (526)			
Childbirth in first year of marriage				1·09 (1·01–1·18)	1·03 (0·95–1·12)	NA
Yes	19·9% (3076)	19·1% (1459)	20·4% (1617)			
No	80·1% (11552)	80·9% (5559)	79·6% (5993)			
Lifetime indicators						
Any childbirths				5·82 (5·22–6·35)	5·71 (5·20–6·26)	0·89 (0·79–1·01)
Yes	81·2% (11635)	65·9% (4601)	91·8% (7034)			
No	18·8% (2993)	34·1% (2417)	8·2% (576)			
Three or more childbirths				10·19 (8·91–11·66)	7·40 (6·45–8·50)	1·30 (1·10–1·53)
Yes	17·4% (2239)	3·5% (216)	27·1% (2023)			
No	82·6% (12389)	96·5% (6802)	72·9% (5587)			
Repeat childbirth in less than 24 months				3·26 (2·99–3·54)	3·00 (2·74–3·29)	1·42 (1·25–1·61)
Yes	23·0% (3176)	12·0% (799)	30·7% (2377)			
No	77·0% (11452)	88·0% (6219)	69·3% (5233)			
Any unwanted pregnancies‡				1·56 (1·43–1·70)	1·67 (1·51–1·83)	1·08 (0·95–1·21)
Yes	15·2% (2239)	12·0% (853)	17·5% (1386)			
No	84·8% (12363)	88·0% (6155)	82·5% (6208)			
Multiple unwanted pregnancies‡				2·52 (2·05–3·10)	2·36 (1·90–2·94)	1·43 (1·10–1·87)
Yes	3·1% (435)	1·7% (123)	4·1% (312)			
No	96·9% (14167)	98·3% (6885)	95·9% (7282)			
Any pregnancy termination				1·41 (1·29–1·54)	1·48 (1·34–1·63)	1·22 (1·06–1·41)
Yes	15·3% (2069)	12·7% (833)	17·1% (1236)			
No	84·7% (12559)	87·3% (6185)	82·9% (6374)			
Sterilised				5·02 (4·44–5·68)	6·68 (5·78–7·60)	2·08 (1·73–2·49)
Yes	13·4% (1624)	4·6% (270)	19·5% (1354)			
No	86·6% (13004)	95·4% (6748)	80·5% (6256)			

Data are weighted % of participants in each subsample (absolute number of participants) and OR (95% CI). *Absolute number of participants does not perfectly correspond to percentages because the percentages are weighted (see Methods). †Analyses adjusted for participant age, level of education, area of residence, region of residence, wealth index, and religion. ‡Data are missing for some individuals. §All analyses used women married as adults (18 years or older) as the reference group.

Table 3: **Logistic regression analyses§ between ever-married women aged 20–24 years, who were married as adults or children, and both fertility and fertility-control outcomes**

not sterilised, 77·2% reported no present contraception use. Regression analyses adjusted for relevant demographic variables showed that women married as children were significantly more likely to report no contraceptive use before their first childbirth than were those who married as adults (table 3). However, child marriage was not significantly associated with childbirth in the first year of marriage. For women married as children, median age of first childbirth was 17 years (IQR 16–19) (mean 17·3 years [SD 2·0]) and these women were significantly more likely to give birth before 18 years of age ($p<0·0001$) than were those married as adults, who had a median age of first childbirth of 20 years (IQR 19–21) (mean 20·5 years [SD 1·4]). 48·4% of women who were married as children reported childbirth before 18 years of age, and 99·7% of women who reported childbirth before 18 years of age were married as children.

Women married as children were more likely to have had at least one childbirth, three or more childbirths, and a repeat childbirth in less than 24 months than were those married as adults (table 3). Child marriage was also associated with one or more unwanted pregnancies, pregnancy termination, and sterilisation (table 3). Regression analyses adjusted for duration of marriage to control for lengthy marriage, showed that women married as children remained significantly more likely to have had three or more childbirths, a repeat childbirth in less than 24 months, multiple unwanted pregnancies, pregnancy termination, and sterilisation (table 3).

In view of the association between child marriage and female sterilisation for all regression analyses, and the high rate of sterilisation in women married as children, we undertook additional exploratory analyses to assess length of time since sterilisation stratified by child marriage. In women married as adults and sterilised,

79·4% were sterilised in the past 2 years and 20·6% were sterilised 2–3 years ago. In women married as children and sterilised, 48·3% were sterilised in the past 2 years, 34·4% were sterilised 2–3 years ago, and 16·4% were sterilised 4 or more years ago. 9·7% of women who were married as children and had been sterilised, were sterilised before 18 years of age.

Discussion

Our study shows that nearly half of adult Indian women aged 20–24 years were married before the legal age of 18 years, with rural, poor, less educated girls, and those from central or eastern regions of the country most vulnerable to the practice. This practice is associated with increased and less controlled fertility, reduced contraception early in marriage, increased sterilisation, and increased poor fertility outcomes such as unwanted and terminated pregnancies, and repeat childbirths in less than 24 months.

The reported prevalence of child marriage is consistent with previous research in India[17–23] and represents a 5% reduction compared with national data from 1998–99,[5] suggesting that the practice of early marriage in India is slowly decreasing.[18–21] Nonetheless, the prevalence of child marriage remains unacceptably high. More than one in five women aged 20–24 years, about half of those married as children, were married before 16 years of age. Such findings indicate that child marriage affects not only adolescents aged 16–17 years, but also large numbers of pubescent girls aged 14–15 years. These results suggest that neither recent progress in economic and women's development,[6,7,10] nor existing policy or programmatic efforts to prevent child marriage and promote maternal and child health,[5,9,10] have been sufficient to reduce the prevalence of child marriage in India to that of most other developing nations.[1,5] National economic development gains have inadequately targeted the most rural and poor populations,[10,11] which might have hindered further reduction in child marriage.

Previous research from developing nations shows that married adolescents have earlier and higher fertility, poor fertility outcomes, inadequate number of years between children, and lower contraceptive use than have married young adults.[1,2,5,6,24] Although the associations between child marriage and both fertility and fertility-control outcomes seem to be partly attributable to length of marriage, most effects persisted after adjustment for marriage length. These associations strongly indicate that the social context of child marriage reduces women's control of their reproduction in adulthood, possibly because of less contraception knowledge, poor access to family-planning services,[5,6] reduced control of family-planning decisions in marriages to older men, and heightened control by in-laws.[5,6,21,23,25]

The association between child marriage and sterilisation has been shown previously in Indian women.[20] Sterilisation of people aged 20–24 years in India almost exclusively occurs in women—13% of women and 0·2% of men reported sterilisation.[15] Increased prevalence of sterilisation in young women married as children could be attributable to these women having their desired number of children at an earlier age, as indicated by their high fertility.[20] However, our findings suggest that sterilisation might also be the consequence of inadequate fertility control, which is evident from the increased risk of unwanted pregnancies in women married as children. Improved understanding of the motivations and social context surrounding such early-in-life sterilisation in women is also essential because sterilisation might reduce condom use in couples, thereby heightening the risk of HIV and other sexually transmitted infections.[26]

This study offers important insights into child marriage in India. However, because these data were based on self-report, they are vulnerable to social desirability and recall biases. Furthermore, the variable for pregnancy termination does not distinguish between forms of termination (eg, miscarriage, abortion, or stillbirth), and thus whether child marriage is associated with specific or all forms of pregnancy termination is not yet known. Analyses are cross-sectional and consequently causality cannot be assumed. However, since child marriage took place before fertility-related outcomes were assessed, ordering of events can be assumed. Finally, findings are specific to women aged 20–24 years in India, and cannot be generalised to other age-groups or national contexts. However, these findings are consistent with those from samples of differing ages and from African and other south Asian countries.[1,2,5,8,25]

The pervasiveness of child marriage and its association with high fertility and poor control of fertility—factors linked to numerous poor maternal and child health outcomes[1,2,5,6]—show the crucial need for increased family-planning interventions tailored to married adolescents. Existing child-marriage programmes that are primarily focused on prevention and targeting of unmarried girls should also be broadened to include interventions for women married as children and men who might pursue children for marriage. In view of the high rates of non-contraceptive use nationally, improved family-planning education, access, and support are needed. The importance of a sufficient number of years between children and contraception other than sterilisation should also be emphasised to young women who are married as children. Such efforts should be centred on women's needs, but also include husbands and in-laws who might have more control of family planning.[5,8,25]

Improved programmes are needed across India, with strong national economic and women's development efforts capable of reaching those least empowered in Indian society.[5,8,11] Social change programmes should provide better educational and job opportunities for girls

in rural areas, and improve the acceptability of girls' participation in such initiatives, such that child marriage is not the only economically feasible and socially acceptable option for many impoverished families. Although health-care access has been in crisis in India, particularly in rural areas,[27] the country is addressing these concerns through initiatives such as building public–private partnerships to expand reach into rural areas, and improvement of maternal health and health-care access with the National Rural Health Mission.[28–30] Through these initiatives, India should establish reduction of child marriage as an essential element of programmes and interventions to build on the existing priorities of family planning and maternal and child health.

Contributors

AR led the study conception, analyses, and report development. NS assisted with the study conception. NS and JS designed the analytical approach and assisted with report development. JS and DB assisted with the interpretation of study findings and DB also assisted with future implications and report development. All authors saw and approved the final draft.

Conflict of interest statement

We declare that we have no conflict of interest.

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