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Association Between Child Marriage and Reproductive Health Outcomes and Service Utilization: A Multi-Country Study From South Asia

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A B S T R A C T

Purpose: Despite the pervasiveness of child marriage and its potentially adverse consequences on reproductive health outcomes, there is relatively little empirical evidence available on this issue, which has hindered efforts to improve the targeting of adolescent health programs. The purpose of this study was to assess the association of child marriage with fertility, fertility control, and maternal health care use outcomes in four South Asian countries: India, Bangladesh, Nepal, and Pakistan.
Methods: Data for the study come from the most recent Demographic and Health Surveys conducted in the study countries; we used a subsample of women aged 20–24 years. Child marriage, defined as first marriage before 18 years of age, is categorized into two groups: first married at ages 15–17 years and first married at age ≤14 years. We used multivariate logistic regression models.
Results: The results of the study suggest that child marriage is significantly associated with a history of rapid repeat childbirth, current modern contraceptive use, female sterilization, not using contraception before first childbirth, pregnancy termination, unintended pregnancy, and inadequate use of maternal health services, although the associations are not always consistent across countries. Furthermore, women who married in early adolescence or childhood show a higher propensity toward most of the negative outcomes, compared with women who married in middle adolescence.
Conclusions: Child marriage adds a layer of vulnerability to women that leads to poor fertility control and fertility-related outcomes, and low maternal health care use.
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IMPLICATIONS AND CONTRIBUTION

Child brides are a key subgroup requiring improved focus by reproductive health programs. The study provides insight into the associations of child marriage with adverse outcomes in India, Bangladesh, Nepal, and Pakistan. It distinguishes between women who married in middle adolescence from those who married in early adolescence or childhood.

Although substantial progress has been made in reducing the prevalence of child marriage (marriage before the age of 18 years), it remains a pervasive problem in South Asia [1], with females being disproportionately at risk. Child marriage is increasingly recognized as a violation of human rights [2], and previous research has associated child or early marriage with a number of adverse health and social outcomes.

In India, maternal child marriage has been found to be significantly associated with an increased likelihood of stunting and underweight among children born in the past 5 years [3] and

of having a miscarriage or stillbirth [4]; and a lower likelihood of contraceptive use to delay the first pregnancy and institutional delivery among women aged 20–24 years [4]. In separate analyses, Raj et al [5] found a significant association with having three or more births, a repeat childbirth in <24 months, multiple unwanted pregnancies, pregnancy termination, and sterilization. Other researchers have associated child marriage with increased exposure to intimate partner violence, human immunodeficiency virus/acquired immunodeficiency syndrome, cross-generational sex, obstetric fistula, high maternal mortality and morbidity, and depression [4,6–9]. These adverse outcomes have been attributed to a host of factors, including restricted access to education and health information, limited exercise of informed choices, greater power imbalances between spouses, limited

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mobility and social interaction, and limited access to health care among child brides compared with women who marry at older ages [7,10].

Despite the pervasiveness of child marriage and its potentially adverse consequences on reproductive health outcomes, there is relatively little empirical evidence available on this issue, which has hindered efforts to improve the targeting of adolescent health programs. Most studies to date have focused on India, and little is known about the associations between child marriage and health outcomes in other countries. Empowering young adolescent girls is recognized as a key to improving overall reproductive and child health outcomes and accelerating social and economic development in low- and middle-income countries. However, a number of recent descriptive studies suggest that youth-serving reproductive health programs are often not reaching key subgroups that may be most at risk of poor reproductive health outcomes [7,11]. Girls who have married before the legal age constitute one of these subgroups.

The purpose of the study was to assess the influence of child marriage on reproductive health outcomes and service use in four South Asian countries—India, Bangladesh, Nepal, and Pakistan—after controlling for other individual-, household-, and community-level factors. We selected the South Asia region because of its high prevalence of child marriage [1]. We chose the four countries because they have data available from a recent Demographic and Health Survey (DHS). (Using the United Nations' geographic classification of countries, the other South Asian countries are Afghanistan, Bhutan, Iran, Maldives, and Sri Lanka. Of these, only Maldives, which has a population of fewer than 70,000 individuals, has recent DHS data available [year 2005 or later].) Despite a decline in overall child marriage prevalence since the 1990s, a significant linear decline has been seen only in marriage among females ≤13 years of age in all four countries, but not among females ≥14 years of age [12]. Although the legal age at marriage (with or without consent) is 18 years in Bangladesh, India, and Nepal, and 16 years in Pakistan [13], the median age at first marriage among females 25–49 years is 15.0 in Bangladesh [14], 16.8 in India [15], 17.0 in Nepal [16], and 19.1 in Pakistan [17]. The total fertility rate ranges from 2.4 in Bangladesh to 4.0 in Pakistan [1].

Methodology

Data

We drew data from the most recent DHS in India (2005–2006), Bangladesh (2007), Nepal (2006), and Pakistan (2006–2007). (For Nepal, we used data from DHS 2006 even though DHS 2011 was available, to keep consistency in period across countries.) These are nationally representative, population-based surveys of women aged 15–49 years. Analyses have been restricted to women 20–24 years of age who were married, divorced, or widowed. Excluded from the analysis were currently married women not living together, never-married women, and women whose *gauna* had not been performed. (*Gauna* is a tradition practiced primarily in the northern states of India in which a young bride lives with her parents until another ceremony is performed, after which time the bride goes to live with her husband.)

Variables

For the purpose of this study, child marriage is defined as the first marriage when the respondent was <18 years of age. The indicator of age at first marriage has been categorized as: ≥18 years (reference group), 15–17 years (to capture marriage in middle adolescence), and ≤14 years of age (to capture marriage in early adolescence or childhood). Age at marriage is calculated from the century month code of the date of the first marriage or union and the century month code of the respondent's date of birth.

The outcomes of interest were the following:

- **Early fertility** is a binary indicator measuring whether the woman gave birth within the first 12 months of marriage.
- **Current modern contraceptive use** is a binary variable measuring whether the woman is currently using a modern contraceptive method.
- **Female sterilization** is measured with a binary indicator of whether the woman has undergone the procedure.
- **No contraception** before the first childbirth is established if a woman had a living child or children before her first use of contraception, or if a woman has never used contraception.
- **History of rapid repeat childbirth** is operationalized by having had at least one birth within 24 months of a previous childbirth.
- **Pregnancy termination** is a binary indicator of whether a woman reports ever having had a pregnancy that resulted in miscarriage, abortion, or stillbirth.
- **Unintended pregnancy** is measured with a binary indicator of whether the respondent has had at least one child in the past 5 years that was wanted later or not wanted at all.
- **Multiple unintended pregnancies** indicate whether the woman has ever had two or more unwanted pregnancies.
- **Number of antenatal care visits** indicates the number of antenatal visits during the pregnancy associated with her last birth, where the last category has been truncated to denote four or more antenatal visits based on the World Health Organization guidelines of adequate antenatal care.
- **Delivery by skilled personnel** refers to whether the woman's last birth was assisted by a skilled health care worker. Categorization of "skilled personnel" was country specific, based on the description in the country's DHS report [14–17].
- **Institutional delivery** refers to whether the woman delivered her last child in a health care facility (public or private).

A common set of control variables is included in all of the models estimated: the age of the woman, in years; type of place of residence (urban versus rural), household wealth, quintile; the woman's educational attainment; the age gap in years between the woman and her spouse; religion; and geographic area of residence. Duration of marriage is not included in the models because of the high correlation with age at first marriage. The regression models for modern contraceptive use also control for the number of living sons, whereas models for maternal health care use control for birth order.

Statistical analysis

We carried out both descriptive and multivariate analyses separately for each country. Descriptive statistics include univariate statistics on the predictor and control variables and bivariate associations between age at marriage and the outcome variables. We estimated a series of logistic regression models to examine the association between various outcome variables and age at marriage. Results are presented as odds ratios (ORs) with 95% confidence intervals (CIs). To examine the association