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ORIGINAL ARTICLE

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Child marriage and its association with Maternal Health Care Services utilisation among women aged 20–29: a multi-country study in the South Asia region

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ABSTRACT

Despite pervasiveness of child marriage in South Asian countries, its association with the usage of Maternal Health Care Services (MHCS) is poorly explored. In this study, we examined the impact of child marriage on MHCS utilisation among the prime reproductive aged women of five South Asian countries Afghanistan, Bangladesh, India, Nepal and Pakistan. Data for this study are extracted from the most recent Demographic and Health Surveys. The effect of child marriage on the use of MHCS was assessed by the multivariate logistic regression analysis. Findings reveal that in the South Asian region, the prevalence of child marriage is more common in Bangladesh, followed by Afghanistan, Nepal, India and Pakistan. Child marriage significantly ($p < .01$) deters the usage of MHCS – at least once antenatal care (ANC) visit, at least four ANC visit, Institutional delivery and seeking assistance from skilled birth assistance (SBA), though the effect size was somewhat different across the countries. Findings stipulate to remain girls in schooling more and the marriage acts of the countries should be enacted properly to diminish child marriage not only for increasing MHCS use, also for individual wellbeing and overall development of each country.

IMPACT STATEMENT

- **What is already known on this subject?** Child marriage in South Asian countries is commonplace despite substantial improvements of socioeconomic status. Although child marriage have many adverse reproductive and health outcomes, empirical evidence and systematic studies, particularly the association of child marriage with the usage of Maternal Health Care Services (MHCS) in the South Asian women are few.
- **What do the results of this study add?** Findings of this study affirm that prevalence of child marriage in South Asian region is still common. Although every country has set out minimum age at first marriage by acts, the acts are poorly followed, which adversely impacts the usage of MHCS among married women.
- **What are the implications of these findings for clinical practice and/or future research?** The study findings provide important insights of the consequence of child marriage on the skilled MHCS utilisation. The marriage acts of the countries should be enacted properly to restrict child marriage not only for increasing MHCS, also for individual wellbeing and overall development of each country. Study has important implications for planners, organisation managers and policy makers.

KEYWORDS

Child marriage; maternal health care; South Asia; child delivery; DHS

Introduction

Marriage is an important step of life for man and woman. In countries, where offspring procreation without marriage is illegal, there females' age at first marriage plays a vital role in shaping population structure (Giolito 2010; Wodon et al. 2017). Child marriage – defined as marriage before age 18 (UNICEF 2014, 2018; UNFPA 2020; Kamal and Ulas 2021), is more prevalent in the poor and developing countries (UNICEF 2014, 2018; Judiasih et al. 2018; UNFPA 2020; Kamal and Ulas 2021). Although child marriage is a reality of millions of women around the world; however, South Asia, Sub-Saharan Africa and Latin America are the homes of child brides and grooms. Worldwide, more than 700 million women get marriage before they reach at their 18th birthday. The practice of child marriage, particularly among the girls, is most common in South Asia (Raj et al. 2009; Lee-Rife et al. 2012; Kamal et al. 2015; Kamal and Ulas 2021). South Asia alone belongs to 42% of all child brides worldwide and India alone accounts for one-third of the global. Bangladesh has the highest rate of marriage in the girls under age 15 (UNICEF 2014).

The socio-cultural norms of the practices of child marriage in the South Asian countries perpetuates existing patriarchal systems that lead women to subordinate position and dependency on men in this region. 'A review of laws related to child marriage in South Asia reveals several key gaps and inconsistencies that undermine girls' ability to seek legal protection and remedy where child marriage persists' (Center for

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Reproductive Rights 2013). While marriage before age 18 is penalised for boys under general laws throughout South Asia, the legal minimum age at first marriage for girls are 15 years in Afghanistan and 16 years in Pakistan. In Bangladesh and India, the legal age at first marriage for girls has been set out to be 18 years. In Nepal, the age of marriage for girls is 18 years with parental consent and 20 years without parental consent. However, in Afghanistan, Bangladesh and Pakistan there are Special Marriage Act, governing nonreligious marriage, also permits girls to get marriage at as young as 14–15 years (Center for Reproductive Rights 2013).

Child marriage has been identified as a serious impediment of educational attainment and national economic development (Raj et al. 2009). Furthermore, child marriage has serious health consequences for both mother and child. The women married as child are more likely to have significantly higher fertility (Yaya et al. 2019; Kamal and Ulas 2021), unintended pregnancy, pregnancy termination and history of repeated childbirth respectively (Raj et al. 2009; Yaya et al. 2019; Kamal and Ulas 2021), than of those married as adult. The under-five children born to mothers married as child are also more tended to be stunted and underweight than those of married as adult (Raj et al. 2010). Child marriage is also significantly associated with decreased odds of antenatal care (ANC) and delivery assistance by skilled medical personnel and more likely to deliver pregnancy at home (Godha et al. 2013; Nasrullah et al. 2013; Sekine and Carter 2019). It is well documented that child marriage significantly increases the likelihood of stillbirth/miscarriage and pregnancy termination (Kamal and Hassan 2015).

Globally, around 303,000 women die in each year due to pregnancy and pregnancy related complications and almost all of these deaths (99%) occurred in the low and middle income countries (WHO 2015). Due to increased risk of biological immaturity, socioeconomic and cultural disparities, the teenagers of the poor and developing countries disproportionately face higher risk of complications. A study conducted on 144 countries reported significantly higher maternal mortality ratio (MMR) of 260 per 100,000 live births in the adolescent mothers aged 15–19 years as against of the MMR of 190 per 100,000 live births in the young women aged 20–24 years (Nove et al. 2014). Regardless of marital status of girls aged 10–24 years, a WHO multicountry cross-sectional study on 29 countries from Africa, Asia, Latin America and the Middle East found that adolescent pregnancy compared to their adult counterparts were significantly at higher risk of eclampsia, puerperal endometritis and reproductive tract infection, controlling for the explanatory variables such as marital status, maternal education, parity, mode of delivery and medical condition (Ganchimeg et al. 2014).

Child marriage in the South Asian countries is commonplace. Despite this, empirical evidence and systematic studies, particularly on child marriage and its association with the usage of reproductive and Maternal Health Care Services (MHCS) in the women married as child are few, which hinders to adopt suitable policies for reproductive and MHCS use of the married adolescents and young women. The aim of the study is to examine the impact of child marriage among the prime reproductive aged women on the utilisation of MHCS in five South Asian countries – Afghanistan, Bangladesh, India, Nepal and Pakistan. The reasons behind selection of these countries are that these countries are almost of similar culture in sexuality, and availability of Demographic and Health Survey (DHS) data with similar outcomes of interest to examine.

Data and methods

We extracted data from the most recent DHS conducted in Afghanistan (2015), Bangladesh (2014), India (2015–2016), Nepal (2016) and Pakistan (2017–2018). These are nationally representative and population-based surveys of women aged 15–49 years. The unit of analyses of this study is the women, who had given at least one live birth in the last five years preceding the survey. We restricted our analyses to the ever-married women of age 20–29 years; as because, the cohorts of women 20–24 and 25–29 are considered as prime reproductive aged women in this region. We excluded the adolescent women aged 15–19 years on the reason that a large proportion of them have remained single. For India, we excluded women from analyses whose *gauna* (the word is related to child marriage in the Northern Indian custom and conjugal life begins only after *gauna*) are yet to be completed. The details of the *gauna* are described in a study conducted on Indian women (Raj et al. 2009). The final sample size of woman stood at 18,082 for Afghanistan, 4991 for Bangladesh, 177,701 for India, 3444 for Nepal and 5455 for Pakistan. The sample was made weighted using weighting factor for each woman provided in the DHS data sets.

Variables

The outcomes of interest of this study are:

a. ***Antenatal care visits*** defined as at least one visit paid by the women, who had had experienced pregnancy at least once during the last five years preceding the survey, to the medically trained personnel.
b. ***At least four ANC visits*** indicate the number of ANC visits during the pregnancy associated with women's last pregnancy that was ended by a living birth. This variable has been included as an outcome of interest on the basis that, four or more ANC visits are considered adequate for a pregnant woman according to the guidelines provided by the World Health Organisation (WHO).
c. ***Institutional delivery*** refers to whether the woman delivered her last childbirth in a medically equipped public or private health care facility.
d. ***Skilled delivery assistance (SDA)*** refers to whether the woman's last birth was assisted by medically trained skilled personnel. Categorisation of 'skilled personnel' is country specific, and based on the definition and description provided in the concerned country's DHS report.

Each of the outcomes of interest was made a binary response. For example, if a woman received at least one ANC services, she was coded as '1' and '0' for otherwise.

The main independent variable of this study is child marriage. Age at first marriage was categorised into 'child marriage' and 'adult marriage'. The marriage event occurred at age 18 or later has been defined as 'adult marriage', and that which took place before age 18 has been defined as 'child marriage'. Along with age at first marriage we included a common set of explanatory factors as control variables; such as, current age of the women (20–24 and 25–29 years), place of residence (urban and rural), women's level of education (no education, primary, secondary and higher), household wealth index (poorest, poorer, middle, richer and richest), religion (Muslim, Hindu and others) and pregnancy wantedness (wanted and unintended). The unintended pregnancy included 'wanted pregnancy later' and 'wanted no more'. The details of the construction of the household wealth index are described in each country specific DHS reports.

Statistical analysis

Descriptive statistics and multivariate statistical analyses were separately conducted for each country. Descriptive analyses include percentage distribution of the women by 'type of marriage' and respondents' background characteristics. A series of multivariable binary logistic regression models were constructed to examine the effect of the child marriage on the utilisation of MHCS controlling for the other explanatory variables as described above. Prior to run the multivariable analyses, we examined multicollinearity and found its non-existence; the highest variance inflation factor (VIF) value was estimated to be 1.97. IBM SPSS v21 software (Armonk, NY) was used to analyse the data. The results of the multivariate logistic regression analyses are presented by odds ratios (ORs) with 95% confidence intervals (CIs).

Ethical statement

In this study, we used de-identified secondary data sets of five South Asian countries of the standard DHSs. The data sets are free and available for research purposes upon request. The DHS follows all protocols prescribed by the WHO and ethical approval was taken from each of the concerned countries. Moreover, a written consent was taken from all of the respondents. Thus, it was not necessary to take ethical approval further from any other institution.

Results

It is important that dataset provides many interesting outcomes about child marriage and its relation to MHCS utilisation among South Asian women. Table 1 shows the descriptive statistics of the women for each country by their background characteristics and outcomes of interests. Of the five countries, the incidence of child marriage was highest in Bangladesh, followed by Afghanistan, Nepal, India and Pakistan. The proportion of rural women was highest in Afghanistan and lowest in Nepal. Higher educated women were more prevalent in Nepal; whereas, proportion of women having no formal education was highest in Afghanistan. With regard to wealth index, the proportion of women with richest household wealth quintiles was lowest among the Indian women and highest in Bangladesh. The prevalence of unintended pregnancy was highest in the women of Bangladesh and lowest among those of Afghanistan. Almost 95% of the women of Pakistan received at least one ANC services and this proportion was lowest in the women of Afghanistan. The proportion of women received at least four ANC services was highest in the women of Nepal and lowest among those of Afghanistan. More than four out of five Indian women used 'institutional delivery' as against of less than two out of five women in Bangladesh. Almost 83% of the Indian women sought SDA and the corresponding rate in the Bangladeshi women was 44%.

Figure 1 demonstrates the prevalence of child marriage of married women for five countries cross-classified by their age group. The figure exhibits that the prevalence of child marriage was higher in the age group 20–24 than women aged 25–29 for each country. The rate of child marriage was highest in Bangladesh and lowest in India in each of the age groups.

Table 1. Percentage distribution of ever married women aged 20–29 by their background characteristics, outcome of interest, and country.

Characteristics	Afghanistan	Bangladesh	India	Nepal	Pakistan
Current age					
20–24	45.7	55.0	45.2	48.3	38.7
25–29	54.3	45.0	54.8	51.7	61.3
Age at first marriage					
<18	55.7	68.3	39.5	54.6	39.2
18+	44.3	31.7	60.5	45.4	60.8
Place of residence					
Urban	22.7	25.9	27.6	54.9	32.1
Rural	77.3	74.1	72.4	45.1	67.9
Women's level of education					
No education	79.3	12.2	25.2	29.7	48.1
Primary	9.8	27.7	14.8	20.5	16.9
Secondary	9.1	49.9	49.8	33.8	23.4
Higher	1.8	10.2	10.2	16.0	11.6
Wealth index					
Poorest	18.3	21.0	22.8	19.5	21.1
Poorer	20.2	18.9	22.6	20.9	20.9
Middle	20.8	19.9	21.4	23.3	21.4
Richer	22.0	20.4	19.3	21.1	20.2
Richest	18.7	19.8	13.9	15.1	16.4
Religion					
Muslim	na	90.5	15.5	6.5	na
Hindu	na	7.2	79.9	86.4	na
Other	na	2.2	4.6	7.1	na
Wantedness of last birth					
Wanted	90.9	73.1	90.6	79.7	87.2
Unintended	9.1	26.9	9.4	20.3	12.8
Received at least one ANC services					
No	41.1	35.0	18.5	14.9	11.2
Yes	58.9	65.0	81.5	85.1	88.8
Received at least four ANC services					
No	80.4	68.2	46.2	29.0	47.4
Yes	19.6	31.8	53.8	71.0	52.6
Delivered child at hospital or clinic					
No	49.7	61.1	19.1	40.5	31.4
Yes	50.3	38.9	80.9	59.5	68.6
Sought skilled delivery assistance					
No	53.8	56.3	17.4	40.1	28.5
Yes	46.2	43.7	82.6	59.9	71.5
Total women (N)	18,082	4,991	177,701	3,444	5,455

na: not available.

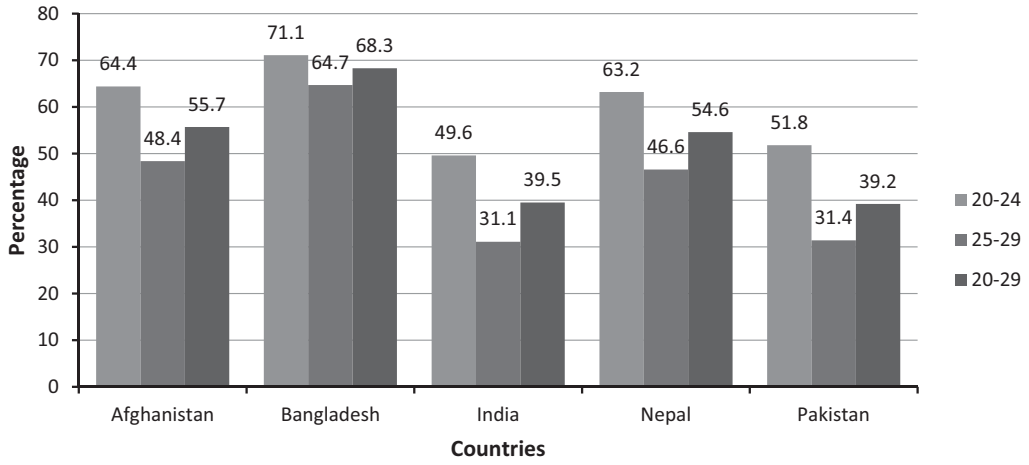

Figure 1. Prevalence of child marriage in the ever married women for five countries cross-classified by age group of women.

As shown in Table 2, the lower ORs of child marriage in the age group 25–29 indicate higher risk of child marriage in the women aged 20–24. The results for rural–urban differentials of child marriage were found mixed. The risk of child marriage was significantly higher in the rural women of Bangladesh and Nepal and lower among women in Afghanistan and Pakistan. Place of residence was not a significant factors of child marriage in the women of India. For each country, likelihood of child marriage was inversely associated with women's level of education. Household wealth index showed a strong inverse association with child marriage of women in Afghanistan, Bangladesh, India and Pakistan. The odds of child marriage was significantly higher in the Muslim women of Bangladesh. Religion did not show any significant association with child marriage in India.

Table 3 represents the results of multivariate logistic regression analyses of MHCS utilisation in association with child marriage (full results of the models are available from the authors upon request). Compared to the adult married women of all countries under study, those married as a child were significantly less likely to receive ANC at least once. For instance, in the women of Afghanistan, the odds of receiving at least once ANC significantly ($p < .01$) reduced by 21% (OR=0.79, CI = 0.73–0.89) in the women married as a child than those married as adult. Likewise, the child married women of all countries considered for analysis, were significantly ($p < .05$) less likely to receive at least four ANC services than women married as adult. For instance, the risk of receiving at least four ANC services significantly ($p < .01$) reduced by 31% (OR = 0.69, 95% CI = 0.58–0.81) in the child married women of Bangladesh than were those married as adult. Except Pakistan, delivery of childbirth at a facility were significantly lower among the child married women compared to those married as adult. For instance, 'institutional delivery' decreased significantly ($p < .01$) by 27% (OR = 0.73, 95% CI = 0.71–0.75) in the child married women of India than those who were adult married. Furthermore, in all countries, seeking assistance from skilled birth assistance (SBA) among child married women compared to their adult married counterparts was also at decreased risk.

Our findings affirm that place of residence, women's education, household wealth index and religion are also important factors in determining MHCS use (these results are not shown in Table 2). Except Nepalese women, rural women of other countries were less likely to use MHCS. Women's education and household wealth was found to be positively associated with the utilisation of MHCS. Muslim women compared to their non-Muslim counterparts were less likely to use the selected indicators of MHCS.

Table 2. Prevalence and multivariate logistic regression showing adjusted odds ratio (AOR) of child marriage among ever married women aged 20–29, and country.

	Afghanistan		Bangladesh		India		Nepal		Pakistan	
Characteristics	%	AOR	%	AOR	%	AOR	%	AOR	%	AOR
Current age										
20–24	64.4	1.00	71.1	1.00	49.6	1.00	63.2	1.00	51.6	1.00
25–29	48.4	0.49[a]	64.7	0.75[a]	31.2	0.44[a]	46.6	0.45[a]	31.4	0.44[a]
Place of residence										
Urban	55.9	1.00	60.1	1.00	29.9	1.00	48.4	1.00	31.3	1.00
Rural	55.7	0.85[b]	71.1	1.12[c]	43.2	1.01	62.1	1.20[a]	43.0	0.69[a]
Women's education										
No education	57.1	1.00	76.3	1.00	54.3	1.00	71.0	1.00	53.1	1.00
Primary	57.7	0.93	77.5	1.03	50.7	0.89[a]	71.0	0.92	41.0	0.80[a]
Secondary	44.6	0.51[a]	68.9	0.79[a]	34.9	0.53[a]	48.7	0.31[a]	25.1	0.48[a]
Higher	38.8	0.42[a]	30.2	0.18[a]	9.3	0.15[a]	15.8	0.07[a]	7.3	0.14[a]
Wealth index										
Poorest	62.0	1.00	81.5	1.00	54.5	1.00	59.4	1.00	63.5	1.00
Poorer	55.5	0.76[a]	72.2	0.64[a]	47.5	0.85[a]	60.5	1.50[a]	44.4	0.49[a]
Middle	54.3	0.74[a]	68.7	0.61[a]	39.6	0.70[a]	60.2	1.21[c]	41.2	0.48[a]
Richer	53.3	0.71[a]	64.9	0.56[a]	28.9	0.51[a]	54.4	1.31[b]	24.8	0.25[a]
Richest	54.1	0.72[a]	53.4	0.47[a]	16.9	0.36[a]	32.0	1.12	16.6	0.20[a]
Religion										
Muslim	na	na	69.3	1.00	42.8	1.00	61.8	1.00	na	na
Hindu	na	na	58.8	0.65[a]	39.5	0.93	54.9	1.54[a]	na	na
Other	na	na	57.6	0.51[a]	28.3	0.65	43.9	0.91	na	na
Total	55.7	–	68.3	–	39.5	–	54.6	–		–

na: not available.
Level of significance: [a]$p < .01$, [b]$p < .05$, [c]$p < .10$.

Discussion and conclusions

In this study, we explored the influence of child marriage on the usage of MHCS among the prime reproductive aged women of five South Asian countries – Afghanistan, Bangladesh, India, Nepal and Pakistan. Results reveal that the prevalence of child marriage was highest in Bangladesh, followed by Afghanistan, Nepal, India and Pakistan. In the three countries – Bangladesh, Afghanistan and Nepal, more than

Table 3. Odds ratios with 95% confidence intervals for multivariate logistic regression models for Maternal Health Care Services utilisation when women were married-off before age 18.

	Received ANC services			
Country	At least once	≥4 times	Delivered child at hospital or clinic	Received skilled delivery assistance
Afghanistan	0.79 (0.73–0.89)[a]	0.84 (0.76–0.94)[a]	0.66 (0.62–0.71)[a]	0.74 (0.69–0.79)[a]
Bangladesh	0.81 (0.66–0.97)[b]	0.69 (0.58–0.81)[a]	0.69 (0.60–0.80)[a]	0.69 (0.59–0.79)[a]
India	0.78 (0.76–0.81)[a]	0.86 (0.84–0.88)[a]	0.69 (0.67–0.71)[a]	0.73 (0.71–0.75)[a]
Nepal	0.69 (0.55–0.87)[a]	0.72 (0.59–0.88)[a]	0.55 (0.47–0.66)[a]	0.58 (0.49–0.68)[a]
Pakistan	0.79 (0.62–1.01)[b]	0.90 (0.79–1.01)[a]	0.92 (0.80–1.04)	0.90 (0.79–1.03)[b]

Level of significance: [a]$p < .01$ and [b]$p < .05$.

half of the girls get marriage before they reach at their 18th birthday. Our findings are concurrent to the reports of the UNICEF (2014, 2018) and other studies conducted in different South Asian countries (Raj et al. 2009; Godha et al. 2013; Kamal and Ulas 2021).

Among others, place of residence, women's education, household wealth and religion are also identified as important determinants of child marriage in the study South Asian countries. Our results are consistent with those of previous studies that were conducted discrete way in different countries of South Asia (Godha et al. 2013; Kamal et al. 2015; Gautam 2019; Kamal and Ulas 2021). The prevailing social custom, religious faith, conservativeness and cultural practices in South Asian region strictly prohibit premarital sex and hence pregnancy (Zain et al. 2015). Along with traditional values, an important reason that is deeply embedded in the cultural norms in South Asian countries is to keep girls virgin until they come into sexual contact through marital bond, results in pervasiveness of higher incidence of child marriage in this region.

The results of the multivariate analyses of the usage of MHCS (at least one ANC visit, four or more ANC visits, child delivery at facility places and delivery assistance by medically trained personnel) showed significantly negative association with child marriage in the study countries. However, findings of this study are consistent with many earlier studies conducted in many developing countries including those of South Asia (Godha et al. 2013; Nasrullah et al. 2013; Ray et al. 2018; Sekine and Carter 2019). The results of a recent studies conducted on Nepalese women show that child marriage decreased the likelihood of ANC visits, skilled delivery attendance, facility-based delivery and postnatal care use compared to the women married as adult (Ray et al. 2018; Sekine and Carter 2019). Another study from India demonstrates same results of MHCS utilisation among the child married women (Ray et al. 2018). A study on Pakistani women suggests that child marriage was significantly associated with decreased likelihood of prenatal care by medical personnel and increased likelihood of delivery assistance by traditional birth attendants or unskilled medical providers (Nasrullah et al. 2013).

A plausible reason of low use rate of MHCS in the child married women is their limited empowerment, lack of decision-making power, limited access to household resources and restrictions of movement imposed by husband and other elder in-law family members. Obscure web of socioeconomic and cultural factors such as intra-household gender relations and gender norms may be underlying reasons between child marriage and low use of skilled MHCS. The girls married as a child are mainly controlled by in-laws family members, particularly by husband and mother-in-laws, which hinder them in making cohesive friendly network with others. Besides, due to limited social participation, child married women enjoys limited accessibility in social networks which deters them to getting adequate useful information regarding the benefits of skilled MHCS utilisation. Since child married women are mostly depended on their husband and in-laws family; hence, in many cases they cannot receive skilled MHCS timely. Women's subordinate position in the family of the South Asian region push them to be dependent on their husband and other in-law family members, results in substantial delays to seeking skilled MHCS in due time. Limited autonomy among the child married women often deters women to taking time-benefitting health care services (Sekine and Carter 2019).

The study has several limitations and strengths. First, the information provided by the respondents are self-reported and hence may be prone to recall biasness. Current age and age at first marriage of the women may be misreported. Second, the analyses of this study used cross-sectional data sets, and hence cannot infer causality between child marriage and the outcomes of interest. Third, due to lack of supply-side determining of availability of MHCS, we failed to include it as a possible confounding factor which might have substantial effect. Despite several limitations as mentioned above, the strength of the study is that it used nationally representative and standard DHS data sets of five countries which were collected by internationally trained enumerators and are generally used in research on public health related issues. Besides, unlike other studies that generally focussed on either adolescent or young women aged 20–24; we included the women of the prime reproductive age and analysed data for five countries to improve understanding the most recent pictures along with a comparison of the countries.

The results of the study provide that child marriage in South Asian country is still common place despite substantial improvements of socioeconomic status. To our knowledge, this is the first study which analysed standard DHS data sets of prime reproductive aged women of five South Asian countries which reveals that the influence of child marriage on the usage of MHCS is detrimental. The study findings provide important insights of the consequence of child marriage on the skilled MHCS utilisation and it has important implications

for planners, programme managers and policy makers. Since it is evident that women's education is a viable means of raising women's age at marriage and enhance to increase knowledge regarding benefits of the use of MHCS, efforts should be made to remain girls in schooling more. The marriage acts of the countries should be enacted properly to restrict child marriage not only for increasing MHCS use, also for individual wellbeing and overall development of each country.

Disclosure statement

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