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Title: Association between Child Marriage and Utilization of Maternal Health Care Services in India: Evidence from a Nationally Representative Cross-Sectional Survey

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Abstract

This paper aims to examine the association between child marriage and utilization of maternal health care services and to provide implications for policy and practice. A total number of 190,797 ever-married women who have at least one live birth during the last five years preceding the survey date were used from the National Family Health Survey, 2015-16 for the analysis of the data. The results of the study reveal that women who married below 18 years were significantly less likely to have at least four ANC (aOR: 0.82, 95% CI: 0.777 – 0.873), ANC within first three months of pregnancy (aOR: 0.81, 95% CI: 0.765 – 0.867), institutional delivery (aOR: 0.74, 95% CI: 0.692 – 0.794), delivery by skilled health personnel (aOR: 0.77, 95% CI: 0.717 – 0.826), and postnatal check-ups within six weeks after delivery (aOR: 0.79, 95% CI: 0.752 – 0.840) than those married at 18 years or later after accounting for relevant socio-demographic characteristics. This study suggests increase in age at marriage which may have positive impact on the use of maternal health care services that eventually reduces the risk of maternal morbidity and mortality.

Keywords: Child Marriage; Antenatal care; Delivery care; Postnatal check-ups; India.

Introduction

The incidence of maternal morbidity and mortality remains pervasive in developing countries including India. Mortality related to pregnancy and childbirth is the leading causes of death among young married women in developing countries (WHO, 2004). Inadequate utilization of maternal health care services significantly contributed to maternal mortality (Murray and Lopez, 1997; Thaddeus and Maine, 1994).

A range of socioeconomic and demographic factors influence utilization of maternal health care services (Abbas and Walkar, 1986; Bhatia and Cleland, 1995; Celik and Hotchkiss, 2000; Govindasamy and Ramesh, 1997; Navaneetham and Dharmalingam, 2002; Obermeyer and Potter, 1991; Ochako et al., 2011; L. Singh et al., 2012; P. K. Singh et al., 2012; Tarekegn et al., 2014). Many studies have indicated the importance of household-level, village-level, and community-level factors in determining utilization of maternal health care services (Babalola and Fatusi, 2009; Navaneetham and Dharmalingam, 2002). However, education, wealth status, women's empowerment, and working status have been considered as the most important determinants of maternal health care utilization.

In a patriarchal society like India where gender inequality and discrimination against girls is deeply-rooted in the society, the practice of child marriage is widespread. The high incidence of child marriage attributed to poor socioeconomic status, lack of education, and social-cultural norms (ICRW, 2007; Nour, 2009). Child marriage increases the risk of unintended pregnancy, pregnancy termination (Adhikari et al., 2009; Godha et al., 2013; Nasrullah et al., 2014a; Raj et al., 2009) and several other adverse pregnancy outcomes (Paul, 2018) which further leads to high maternal mortality and morbidity (Nasrullah et al., 2014b; Raj, 2010; Raj et al., 2010). Several studies have reported that women who married as minor are more likely to have poor economic status, lower educational attainment, and reside in rural areas (Mathur et al., 2003; Raj et al., 2009; UNICEF, 2005). Moreover, poor, rural, less educated, and lower autonomous women are less likely to use maternal health care services (Adjiwanou and LeGrand, 2014; Chakraborty et al., 2003; Govindasamy and Ramesh, 1997; Haque et al., 2012; Navaneetham and Dharmalingam, 2002; Rai et al., 2012; Sado et al., 2014).

The pathways through which child marriage affects utilization of maternal health care services are manifold. Child marriage often leads to early childbearing among adolescent mother (Choe et al., 2005). Adolescent pregnancy and childbearing are susceptible to high maternal mortality because they have increased risk of complications during pregnancy,

labor, and postpartum period (Conde-agudelo et al., 2005). Early married women have less power and status in the society (Jensen and Thornton, 2003). Evidence from several countries has reported that lower autonomous women have less access to use health care services (Bloom et al., 2001; Mistry et al., 2009; Rai et al., 2012), which in turn, increases the risk of high maternal morbidity and mortality. Moreover, lack of education among child married women leads to lower use of contraception which further increases the risk of unplanned pregnancies and pregnancy termination resulting high mortality among young married women. Therefore, it is crucial to understand the impact of child marriage on the utilization of maternal health care services to reduce the risk of high maternal morbidity and mortality among married adolescents.

There is paucity of research on the linkages between child marriage and utilization of maternal health care services. However, the problem of high child marriage and maternal mortality is pervasive in developing countries like India. Therefore, the current study aims to examine the association between child marriage and utilization of maternal health care services among the married women aged 15-49 years who had one or more live births during the last five years preceding the survey date after accounting for relevant socio-demographic characteristics.

Methods

Data source

This study utilizes the data from the fourth round of the National Family Health Survey conducted in 2015-16. NFHS-4 is a nationally representative sample survey of more than six lakh households based on population and housing census of India, 2011. NFHS-4 was selected sample using a stratified two-stage sampling design comprising of 28,586 clusters; 8,397 in urban, 20,059 in rural, and 130 from slums list provided by Municipal Corporation Offices (MCOs). In the first stage, clusters were selected using probability proportional to clusters size. In the second stage, 22 households from each cluster were selected with an equal opportunity systematic selection from the household listing. A detailed description of the sampling procedure is provided in the final report of National Family Health Survey-4 (NFHS-4, 2015-16). The NFHS-4 successfully interviewed 699,686 women aged 15-49 years with a response rate of 97%, and 112,122 men aged 15-54 years with a response rate of 92%. The current study is based on 190,797 ever-married women aged 15-49 years who have at least one live birth during the last five years preceding the survey date.

Measures

Maternal health care utilization

Utilization of maternal health care has been assessed through indicators of pregnancy care, delivery care, and postnatal care. Pregnancy care has been measured from an adequate number of antenatal visits and timing of the first antenatal visit (WHO, 2016). At least four antenatal visits during pregnancy are considered as adequate number of antenatal visits. The proper timing of first antenatal visit is defined as the antenatal visit(s) within first three months of pregnancy. Delivery attended by a trained person or in an institutional setting is considered as 'safe delivery' according to the recommendation of World Health Organization standards (WHO, 2007). Delivery by a trained person was defined whether delivery assisted by a doctor, ANM/nurse/midwife or other health worker. In contrast, delivery by the unskilled person was defined as those assisted by a traditional health worker (*Dai*), friends/relatives or other person. Institutional deliveries were defined as those deliveries occurred in a medical institution such as government hospital, dispensary, primary health centre, community health centre or sub-centre, non-governmental hospital and private clinic. In addition, postnatal check-up within six weeks after birth is considered as a postnatal care indicator as per the recommendation of World Health Organization (WHO, 2013).

Child marriage

Child marriage is the main predictor variable in the present study. Child marriage is defined as the marriage or union below 18 years of age (Mathur et al., 2003). Therefore, women's age at marriage has been categorized into: ≤ 18 years and ≥ 18 years. Further, age group of child marriage is divided into: ≤ 14 years and 15-17 years to assess the impact of child marriage on the utilization of maternal health care at the disaggregate level.

Study covariates

Various socio-economic and demographic predictors such as place of residence (urban and rural), respondent's current age (15-19, 20-24, 25-29, 30-34, and 35+ years), social groups (SCs/STs, OBCs, and other), religion (Hindu, Muslim, and other), region (north, central, east, north-east, west, and south), women's education (no education, primary, secondary, and higher), husband's education (no education, primary, secondary, and higher), working status (not working and working), mass media exposure (no exposure, partial

exposure, and full exposure), and wealth quintile of household (poorest, poorer, middle, richer, and richest) have been included in the analyses. Women's media exposure has been constructed by access to information from newspaper and magazine, radio, and television. On the basis of this three exposure ever-married women is categorized into three groups such as no exposure (if women do not have access any of these exposure), partially exposure (if women have access at least two exposures), and full exposure (if women have access to all the three exposures). Household wealth quintile has been calculated from ownership of household assets including consumer items and dwelling characteristic. A score has been generated for each individual using principal component analysis and categorized into five quintiles, each represents 20% of the score, between 1 (poorest) and 5 (richest).

Statistical Analyses

Bivariate and multivariate analyses are carried out to assess the relationship between child marriage and maternity care among ever-married women aged 15-49 years who had at least one live birth during the last five years preceding the survey. Bivariate analyses are applied to examine the nature of the association between maternal health care utilization by socioeconomic and demographic predictors. Binary logistic regression has been used to examine the association between child marriage and indicators of maternal health care utilization, namely, at least four antenatal visits, first antenatal visit within first trimester, institutional delivery, delivery assistance by skilled health personnel, and postnatal check-up within six weeks of delivery. The regression results are presented by the estimated odds ratio with 95% confidence interval. Appropriate sample weights are used to perform the analyses of the study. All analyses are carried out using stata version 12.1 (StataCorp LP, College Station, Texas).

Results

Table 1 provides socioeconomic and demographic characteristics of sample women for the analysis of the present study. The majority of the sample women are lives in rural areas (70.3%), belongs to the socially backward classes (OBCs: 43.6%; SCs/STs: 31.4%), practiced Hindu religion (78.9%), and the age group 20-24 years (31.3%) and 25-29 years (37.6%). Forty-seven percent of the sample women have education up to secondary level. However, a considerable proportion of the women have no formal education (27.6%). The

majority of the women are currently not working (83%), have no or very limited exposure to mass media, and residing in the lower quintile of household wealth.

Table 1
Socio-demographic characteristics of sample women

Characteristic	Percentage	Number of women
Type of place of residence		
Urban	29.7	47,814
Rural	70.3	1,42,983
Age (years)		
15-19	3.4	5,898
20-24	31.3	56,181
25-29	37.6	70,162
30-34	18.3	37,309
35+	9.3	21,247
Social groups ^a		
Scheduled Caste/Scheduled Tribe	31.4	73,007
Other backward classes	43.6	74,033
Other caste	20.3	34,692
Religion		
Hindu	78.9	1,38,263
Muslim	16.1	29,300
Christian	2.1	15,192
Other	2.9	8,042
Region		
North	13.2	36,071
Central	25.7	52,936
East	25.4	39,222
Northeast	3.9	28,808
West	13.1	13,881
South	18.7	19,879
Respondent's educational level		
No education	27.6	55,105
Primary	13.5	26,696
Secondary	47.0	88,847
Higher	12.0	20,149
Partner's educational level ^a		
No education	16.4	5,603
Primary	13.9	4,622
Secondary	54.3	18,302
Higher	15.3	4,753
Respondent's current working status ^a		
Not working	83.0	27,519
Working	17.0	5,891
Exposure to mass media		
No exposure	24.6	49,336
Partial exposure	67.7	1,26,851
Full exposure	7.7	14,610
Wealth Index		
Poorest	23.4	46,753
Poorer	21.2	43,710
Middle	19.9	38,369
Richer	19.0	33,198
Richest	16.6	28,767
Total	100.0	1,90,797

^a Sample size is not equal to total women due to missing cases

Table 2 shows percentage distribution of maternal health care utilization among ever-women aged 15-49 years during the last five years preceding the survey by socioeconomic and demographic characteristics. Significant differences were found in the usage of maternal health care by age, place of residence, caste, religion, region, women's and husband's education, working status, mass media exposure, and wealth status.

Table 2

Percentage distribution of maternal health care utilization by socio-demographic characteristics of ever-married women aged 15-49 years who had at least one live birth during the last 5 years preceding the survey date.

Characteristic	At least four ANC	ANC within first trimester	Institutional delivery	Delivery by skilled health personnel	PNC within six weeks after birth
Type of place of residence					
Urban	67.1	76.3	90.5	91.3	72.0
Rural	45.2	67.5	77.5	80.0	57.1
Age (years)					
15-19	54.5	67.1	85.0	86.4	61.9
20-24	53.5	70.3	84.4	86.2	63.7
25-29	53.4	71.6	82.3	84.3	62.8
30-34	50.5	70.3	79.7	81.8	60.7
35+	39.6	65.7	69.1	72.4	51.1
Social groups					
Scheduled Caste/Scheduled Tribe	48.1	67.1	77.2	79.5	57.7
Other backward classes	48.6	71.2	82.3	84.2	62.0
Other	61.8	74.1	86.1	87.8	67.8
Religion					
Hindu	51.3	70.2	83.1	84.7	62.7
Muslim	49.3	70.0	72.1	76.2	53.2
Christian	63.1	74.6	81.4	83.3	68.3
Other	67.0	71.5	84.4	88.1	71.8
Region					
North	50.5	74.8	85.6	88.0	66.9
Central	32.0	63.9	73.6	75.0	52.9
East	41.9	63.0	72.6	77.7	50.1
Northeast	49.3	64.7	71.3	75.0	53.7
West	72.3	77.5	91.2	90.9	72.1
South	78.9	78.8	96.1	95.8	79.5
Respondent's educational level					
No education	28.2	61.0	63.7	67.9	43.2
Primary	45.7	65.3	75.6	78.8	54.6
Secondary	61.6	73.0	89.4	90.4	69.5
Higher	73.7	80.8	97.0	96.6	80.8
Partner's educational level					

No education	33.9	63.3	62.9	68.0	42.5
Primary	47.3	62.8	74.6	77.3	54.1
Secondary	58.7	73.4	86.7	87.7	67.3
Higher	71.4	79.8	95.3	95.1	78.1
Respondent's current working status					
Not working	55.3	71.8	83.5	85.1	63.6
Working	53.0	70.9	77.0	79.1	60.2
Exposure to mass media					
No exposure	24.6	58.6	62.8	67.1	40.7
Partial exposure	60.1	73.0	86.8	88.2	67.8
Full exposure	64.5	74.5	93.1	93.7	73.5
Wealth Index					
Poorest	25.2	58.0	61.3	65.7	40.1
Poorer	44.7	64.2	77.1	80.0	54.8
Middle	57.7	71.3	86.9	88.2	66.9
Richer	66.5	76.0	91.9	92.7	74.0
Richest	73.9	81.5	96.2	96.1	79.7
Total women	1,88,943	1,56,755	1,90,337	1,90,797	1,89,380

Abbreviation: ANC, Antenatal care; PNC, Postnatal care

Note. Weighted percentage

Table 3 presents percentage distribution in the utilization of maternal health care services by child married and adult married women. Overall, 51.8%, 70.4%, 81.5%, 83.5%, and 61.9% of the ever-married women aged 15-49 years had at least 4 ANC, ANC within 3 months of pregnancy, institutional delivery, delivery by skilled health personnel, and postnatal check-up within six weeks of delivery, respectively. There were significance differences in maternity care services between child married and adult married women ($p < 0.001$). Child married women reported lower ANC visits compared to adult married women (42.2% vs. 58.08%). The first ANC visit within three months of pregnancy was significantly lower among the child married women than the women who married at later age (65.27% vs. 73.33%). Moreover, the proportion of institutional delivery is lower among the women married as minor than those married in adulthood (74.38% vs. 86.2%). Similarly, Women who married before 18 years of age were less likely to report delivered by skilled health personnel compared with those married at 18 years or later (77.45% vs. 87.51%). Child married women reported a substantially lower proportion of postnatal check-up within six weeks after delivery compared to adult married women (53.32% vs. 67.49%).

Table 3

Differential usage of maternal health care services among child married and adult married women aged 15–49 years who had at least one live birth during the last 5 years preceding the survey in India.

Utilization of maternal health care	Overall N (weighted %)	Child marriage N (weighted %)	Adult marriage N (weighted %)	<i>p</i> -value
At least 4 ANC				<0.001
No	96945 (48.2)	43840 (57.8)	53105 (41.92)	
Yes	88056 (51.8)	25361 (42.2)	62695 (58.08)	
ANC within the first trimester				<0.001
No	45773 (29.64)	18431 (34.73)	27342 (26.67)	
Yes	108339 (70.36)	34808 (65.27)	73531 (73.33)	
Institutional delivery				<0.001
No	40511 (18.47)	19938 (25.62)	20573 (13.8)	
Yes	145790 (81.53)	49568 (74.38)	96222 (86.2)	
Delivery by skilled health personnel				<0.001
No	36174 (16.46)	17893 (22.55)	18281 (12.49)	
Yes	150575 (83.54)	51805 (77.45)	98770 (87.51)	
Postnatal check-up within six weeks of delivery				<0.001
No	75683 (38.11)	34311 (46.68)	41372 (32.51)	
Yes	109754 (61.89)	34996 (53.32)	74758 (67.49)	

p-value is calculated from Pearson chi-square test.

N= sample size

Sample size may not correspond to the percentages because of weighted analyses.

Table 4 presents regression results for the association between child marriage and utilization of maternal health care services. Crude analyses revealed that women who married below the age of 18 years were significantly less likely to have at least four ANC (OR: 0.53, 95% CI: 0.517 – 0.537), ANC within first three months of pregnancy (OR: 0.68, 95% CI: 0.668 – 0.699), institutional delivery (OR: 0.47, 95% CI: 0.454 – 0.476), delivery by skilled health personnel (OR: 0.49, 95% CI: 0.478 – 0.503), and postnatal check-up within six weeks of delivery (OR: 0.55, 95% CI: 0.540 – 0.561) than those women who married at 18 years or above.

Moreover, after adjusting for relevant socioeconomic and demographic characteristics child marriage was significantly associated with lower likelihood of at least four ANC (Adjusted OR: 0.82, 95% CI: 0.777 – 0.873), ANC within first three months of pregnancy (Adjusted OR: 0.81, 95% CI: 0.765 – 0.867), institutional delivery (Adjusted OR: 0.74, 95% CI: 0.692 – 0.794), delivery by skilled health personnel (Adjusted OR: 0.77, 95% CI: 0.717 – 0.826), and postnatal check-ups within six weeks after delivery (Adjusted OR: 0.79, 95% CI: 0.752 – 0.840).

Table 4

Binary logistic regression models for the association between child marriage (below 18 years) and utilization of maternal health care services among women aged 15-49 years who had at least one live birth during last 5 years preceding the survey date in India

Outcome variables	OR (95% CI)	Adjusted OR (95% CI)
At least 4 ANC		
No ^a		
Yes	0.53 (0.517 - 0.537)*	0.82 (0.777 - 0.873)*
ANC within the first trimester		
No ^a		
Yes	0.68 (0.668 - 0.699)*	0.81 (0.765 - 0.867)*
Institutional delivery		
No ^a		
Yes	0.47 (0.454 - 0.476)*	0.74 (0.692 - 0.794)*
Delivery by skilled health personnel		
No ^a		
Yes	0.49 (0.478 - 0.503)*	0.77 (0.717 - 0.826)*
Postnatal check-up within six weeks of delivery		
No ^a		
Yes	0.55 (0.540 - 0.561)*	0.79 (0.752 - 0.840)*

Abbreviation: OR, Odds Ratio; CI, Confidence Interval.

* p<0.01

^a Reference category

Adjusted analyses are controlled for age (years), place of residence, social groups, religion, region, women's and partner's educational level, work status, exposure to mass media, and wealth index.

For more precise analysis, a separate assessment was carried out to examine the association of child marriage with utilization maternal health care services where women's age at first marriage was categorized into three groups, ≤ 14 years, 15-17 years, and ≥ 18 years. The odds of having at least four ANC visits and ANC in first three months of pregnancy were significantly lower for women who married at ≤ 14 years, and 15-17 years of age compared to those women married at ≥ 18 years. Similarly, women who married at ≤ 14 years, 15-17 years were significantly lower likelihood of institutional delivery, delivery assistance by skilled health personnel, and postnatal check-ups within six weeks of delivery than those married at ≥ 18 years even after controlling for relevant socio-demographic characteristics (Table 5).

Table 5

Binary logistic regression models for the association between child marriage (married at ≤ 14 years and 15-17 years) and utilization of maternal health care services among women aged 15-49 years who had at least one live birth during last 5 years preceding the survey date in India

Maternal health care indicators	OR (95% CI)	Adjusted OR (95% CI)
At least 4 ANC		
≤ 14 years	0.36 (0.350 - 0.373)*	0.69 (0.633 - 0.762)*
15-17 years	0.60 (0.592 - 0.617)*	0.87 (0.820 - 0.930)*
≥ 18 years ^a	1.00	1.00
ANC within the first trimester		
≤ 14 years	0.60 (0.582 - 0.627)*	0.77 (0.701 - 0.853)*
15-17 years	0.71 (0.696 - 0.731)*	0.83 (0.774 - 0.886)*
≥ 18 years ^a	1.00	1.00
Institutional delivery		
≤ 14 years	0.36 (0.343 - 0.368)*	0.69 (0.623 - 0.759)*
15-17 years	0.52 (0.507 - 0.534)*	0.77 (0.710 - 0.826)*
≥ 18 years ^a	1.00	1.00
Delivery by skilled health personnel		
≤ 14 years	0.38 (0.370 - 0.398)*	0.73 (0.656 - 0.802)*
15-17 years	0.54 (0.529 - 0.559)*	0.79 (0.731 - 0.853)*
≥ 18 years ^a	1.00	1.00
Postnatal check-up within six weeks of delivery		
≤ 14 years	0.43 (0.415 - 0.441)*	0.72 (0.659 - 0.781)*
15-17 years	0.61 (0.593 - 0.619)*	0.83 (0.777 - 0.876)*
≥ 18 years ^a	1.00	1.00

Abbreviation: OR, Odds Ratio; CI, Confidence Interval.

* $p < 0.01$

^a Reference category

Adjusted analyses are controlled for age (years), place of residence, social groups, religion, region, women's and partner's educational level, work status, exposure to mass media, and wealth index.

Discussion

The present study provides important insights into the association between child marriage and utilization of maternal health care services in the Indian context. The findings of the study showed that about 11% and 40% of the ever-married women who had at least one live birth during the last 5 years preceding the survey date were married before 15 and 18 years of age, respectively. Several studies have confirmed that these early married women are predominantly lived in rural areas, belonged to a backward section of society, poor and uneducated. The results of the current study demonstrated that child marriage was

significantly associated with indicators of prenatal care (at least four antenatal visits and first antenatal visit within three months of pregnancy), delivery care (institutional delivery and delivery assistance by skilled health personnel), and postnatal care (postnatal check-up within six weeks after delivery). Women who married before 18 years of age were significantly less likely to use maternal health care services than those who married at 18 years or later even after accounting for socioeconomic and demographic factors. Further, disaggregation of child marriage showed that women married at ≤ 14 years and 15-17 years were less likely to have at least four ANC, ANC within first trimester, institutional delivery, delivery by skilled health personnel, and postnatal check-ups within six weeks of delivery.

The findings of the present study are consistent with previous studies conducted in India and elsewhere (Godha et al., 2016, 2013; Nasrullah et al., 2013; Raj, 2010; Santhya et al., 2010). For instance, a study of young married women aged 20-24 years in selected South Asian countries reported that the number of antenatal visits, delivery by skilled health personnel, and delivery at an institutional setting is lower among the women who married at age ≤ 14 years and 15-17 years than those married at age ≥ 18 years (Godha et al., 2013). In a separate analysis, Godha et al. found that association between child marriage and utilization of maternal health care services depends on parity and place of residence across various lower-middle income countries (Godha et al., 2016). Nasruallah et al.'s study demonstrated similar findings on the association of child marriage with prenatal care, antenatal care, and delivery care in Pakistan (Nasrullah et al., 2013). Additionally, the findings of the study also indicate that women's socioeconomic status significantly determines the utilization of maternal health care. Education and economic status were found to be the most significant factors of maternal health care utilization (see appendix). Utilization of maternal health care was inadequate among the poor, lower education, and the women who were residing in impoverished areas. The lower use of maternal health care services substantially increases the risk of obstetric complications such as pre-eclampsia, eclampsia, hemorrhage, prolonged/obstructed labor, and postpartum infections which are the major causes of maternal death. Therefore, reduction in socioeconomic vulnerabilities may lead to substantial improvement in maternal health care utilization.

Limitations

The findings of the study should be interpreted with caution because of some limitations. The data for the present study including age at first marriage is based on self-reported which are prone to recall bias and social desirability. The current study was unable to assess the causal relationship because of the cross-sectional nature of data. This study did not account for village level and community level factors of maternal health care utilization in adjusted analysis. Such factors have previously been studied for the determination of maternal health care utilization in many countries. However, the current study has included only relevant socioeconomic and demographic factors of maternal health care utilization in multivariate analysis. Moreover, husband's educational level and women's current working status variable have a large number of missing cases. Therefore, inclusion of these variables in multivariate analyses reduces the number of sample in the models.

Implication for practice and policy

This study has found that age at first marriage was significantly associated with utilization of maternal health care suggests increase in age at marriage which may have large impact on improving maternal health care utilization. Moreover, education and wealth status was found be significant impact on the utilization of maternal health care services suggests improvement in educational attainment and job opportunities. In addition, government's maternal health care utilization programme should focus among the women who are living in rural areas, have no or very lower level of education, belonging in socially backward community, and economically poor.

Conclusions

This study indicates that delay in marriage significantly improves the utilization of maternal health care services. To ensure the adequate utilization of maternal health care services, the practice of child marriage must be eliminated by intervening policy and programme especially in rural areas and socio-economically backward women where the incidence of child marriage is highly prevalent.

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