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Utilization of maternal and child health care services in North and South India: does spousal violence matter?

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Abstract: Spousal violence emerged as a major public health concern over the past few decades as its consequences on the health of victims are profound. Infliction of violence during pregnancy is even more detrimental as it might cause serious injuries to women and their unborn children. Violence during pregnancy can restrict access to proper health care and affect the health of mother and child. However, the role of spousal violence on utilization of pregnancy care services is not well explored in India where both fertility and spousal violence are high. In the present study, we used data of selected North and South Indian states from the National Family Health Survey (2005–2006) to examine the relationship between experience of spousal violence by young married women and utilization of maternal and child health care services. A marked regional variation was observed in MCH care utilization and levels of violence, where the South Indian states performed better than the North. Spousal violence was a significant factor determining MCH care use. Women who had experienced any form of physical/sexual violence were less likely to receive full ante natal care than non-abused women and the association was stronger in the South. Women experiencing any physical/sexual violence were also less likely to avail institutional delivery in the North. Emotional violence had similar constraining effects on MCH care use in the South. Integration of violence screening and counselling with MCH programs could be helpful to address the needs of abused pregnant women and provide essential care.

Keywords: spousal violence, maternal and child health care services, ante natal care, institutional delivery, India

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1. Introduction

Quality care during pregnancy and child birth is essential to ensure health and well-being of both the mother and the child. A majority of the maternal deaths associated with pregnancy complications and child birth result from lack of access to and receipt of routine health care and emergency health care services (Fawole, Shah, Fabanwo *et al.*, 2012; Ibeh, 2008) and this is particularly so in

sub-Saharan and south Asian countries (UNICEF, 2008; WHO, 2014). For the sake of maternal and child welfare, it is pertinent to understand the role of women's educational attainment, employment status, economic status, geographic accessibility to and availability of health care services and women's ability to decide how to spend their own earnings for self health care (Mohanty and Pathak, 2009; Navaneetham and Dharmalingam, 2002; Ram and Singh, 2006; Furuta and Salway, 2006; Olufunmilayo and Adeoye, 2015). Women's education, mobility, access to economic resources, status in the household, decision making authority, economic condition of the family, and geographic region are some important determinants of maternal health care utilization (Furuta and Salway, 2006; Singh, Rai and Singh, 2012). In societies that are driven by men, husband's supportive stance is also considered to be an essential component in increasing utilization of maternal and child care services (Chattopadhyay, 2011). It is argued that poor communication between couples and gender inequality constraint women's access to health care services. In this regard, spousal violence can be seen as a manifestation of unequal power relations between men and women in a marriage.

Spousal violence is any abuse or violent action that occurs between two individuals in a close relationship like marriage and has many forms including physical aggression or assault, sexual and emotional abuse, controlling or domineering (WHO, 2012). Although the term spousal violence involves both men and women, with either sex as the perpetrator, the majority of abuses are perpetrated by men against their female partners (Krug, Dalhberg, Mercy *et al.*, 2002). Societies with a strong patrilineal-patrilocal-patriarchal foundation deny equality between men and women. Biased gender role attitudes prevailing in the traditional patriarchal societies force women to be domesticated and build perceptions of social roles that confine women to the four walls of a household dwelling, with activities centred on bearing and rearing of children and caring for the family. In such environments, women who are at the receiving end of physical, sexual and emotional abuse, learn to accept it as the "husband's right" (Visaria, 2000).

Spousal violence has emerged as an important public health concern in both developed and developing nations, mainly in African and Asian countries including India, as it leads to poor physical, reproductive and mental health outcomes for women and has far reaching consequences on children as well (Campbell, 2002; Ellsberg, Jensen, Heise *et al.*, 2008; Silverman, Decker, Gupta *et al.*, 2009). Intimate partners who are physically violent may interfere with the receipt of healthcare services by their female counterparts (McCloskey, Williams, Lichter *et al.*, 2007). Existing literature in South Asia and Africa suggests that presence of violence in a household may reduce the utilization of maternal and child health care services resulting in poor health status of both the mother and the child (Monemi, Pena, Ellsberg *et al.*, 2003). Studies in Bangladesh and Nigeria found that intimate partner violence plays a significant role in lowering the utilization of reproductive health services among women and concluded that in addition to a wide range of socio-demographic factors, preventing physical and sexual violence needs to be considered as an important psychosocial determinant to increase utilization of reproductive health care services (Ononokpono and Azfredrick, 2014; Rahman, Nakamura, Seino *et al.*, 2012). Using the Women's Reproductive Histories Survey (WRHS) in 2002 a study reveals that in India, among nuclear families, women with better marital relationships are more likely than their counterparts to use antenatal care services and deliver in a health-care facility (Allendorf, 2010).

Violence during pregnancy could be associated with negative pregnancy outcomes through its constraining effects on women's use of preventative or curative health services (Koski, Stephenson and Koenig, 2011). It was observed that women who experienced physical violence during pregnancy were less likely to receive prenatal care, a home-visit by a health worker for a prenatal check-up, at least three prenatal care visits, and less likely to initiate prenatal care early in the pregnancy (Koski, Stephenson and Koeing, 2011). The goal of prenatal and ante natal care services is to maximize the health outcomes of both the mother and the child. Proper care of the mother and education given to the mother during pregnancy are extremely important to ensure positive effects on maternal health as well as pregnancy outcomes. Therefore, a lack of prenatal care correlates to

increased risks of premature births, low birth weight, neonatal and infant mortality, and maternal mortality (Hossain and Hoque, 2005; Nigussie Mariam and Mitike, 2004).

In India, 35% ever married Indian women aged 15–49 years reported to have experienced domestic violence in various forms in the hands of their intimate partners (IIPS and Macro International, 2007) and this depicts the poor condition of women even within families. The presence of violence within intimate relationships like marriage, leaves women in extremely powerless condition, lacking the ability to take decisions. This may in turn reduce proper utilization of health care services by them. Therefore, studying the association of spousal violence and health care utilization calls for special attention. The present paper aims to examine how the level of maternal and child health (MCH) care utilization differs in North and South Indian states by experience of spousal violence and to what extent the experience of spousal violence plays a role in determining the utilization of full ANC and institutional delivery for young married women.

The rationale behind looking into North and South India separately is the prevailing cultural and social heterogeneity. Cultural norms and behaviours in India are diverse; extent of patriarchy is also varied and is directed by regionally prescribed social systems. The Southern part of the country allows women to have more exposure to the outside world, more voice in family life, and more freedom of movement than that of the North (Jejeebhoy, 2000; Jejeebhoy and Sathar, 2001). These prevailing societal norms and beliefs account for low status and esteem of women within the family, in the society and even to the self. This stratified gender relations in the Northern society has come out to be more narrow in acknowledging women's values and their decision making power, constraining their every move and access to resources and conferring them the status of a mere product in the traditional dowry market (Dyson and Moore, 1983; Jejeebhoy and Sathar, 2001; Jejeebhoy, 2002). The ideology of male supremacy legitimises the use of force as the vehicle to display the male power over them (Jewkes, 2002) and the violent turn up of an intimate relation, as mentioned by many authors, is an extension of the belief that men have an eternal right to control women's behaviour (Visaria, 2008; Campbell, Webster, Koziol-Mclain *et al.*, 2003; Monemi, Pena, Ellsberg *et al.*, 2003; Parish, Wang, Lauman *et al.*, 2004).

In addition to the cultural differences, the well documented North-South divide also exists on various development indices and this has been prevailing in the country consistently over a long period of time (Dyson and Moore, 1983). It is argued that there exists a considerable gender disparity in terms of life expectancy at birth, various health outcomes like maternal and child mortality, female literacy and female work participation where South Indian states perform better; this in turn depicts a distinct regional imbalance in terms of women's position in the family and their vulnerability (Dyson and Moore, 1983). Powerlessness among women is more acute in North India (Karve, 1965). Women in the North have relatively lower autonomy, freedom of movement, exposure to the outside world, control over material and economic resources, and property inheritance rights than the women in the South especially after marriage (Jejeebhoy and Sathar, 2001). As gender equity is closely associated with the use of health care services, it is assumed that, in the North Indian states, the level of maternal and child health care utilization will be lower and the effect of spousal violence on MCH care utilization will be stronger in comparison to the South Indian states.

2. Data and Methods

2.1 Study Sample

We used data from the third round of Indian Demographic Health Survey (DHS) known as National Family Health Survey — NFHS-3, 2005–2006. A sample of currently married women, aged 15–30 years from few Indian states, selected on the basis of high incidence of spousal violence, was considered for analysis. The first group of selected states were Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh with 60.8%, 49.1%, 50.2%, and 45.0% ever married women experiencing spousal vi-

olence respectively. These four states were combined as North Indian states and were referred as the North states henceforth. The second group of states consisted of Maharashtra, Andhra Pradesh, and Tamil Nadu with the level of spousal violence at 33.4%, 36.8%, and 44.1% respectively. These three states were grouped as South Indian states and were referred as the South states (IIPS and Macro International, 2007). The selection of states was based on the higher incidence of spousal violence in order to avoid the variations in the prevalence of spousal violence and to compare its effects on the utilization of MCH care services.

The sample for this study was young married women, aged 15–30 years, with at least one live birth in the five years prior to the survey. The sample size was 4,837 for the North and 3,304 for the South. According to national survey (IIPS and Macro International, 2007) a majority of the ever married women interviewed for domestic violence schedule, reported that the perpetrator of physical violence were their husband and also spousal violence was mostly experienced by women at lower ages, i.e., below 30 years (IIPS and Macro International, 2007). Therefore, we restricted the sample to young (15–30 years) married women. On the other hand, NFHS-3 collected information on different components of antenatal care (ANC) for the most recent birth and on delivery care for all births in the last five years preceding the survey. So, women who had at least one birth in the five years preceding the survey were considered for analysis.

2.2 Analytical Approaches

2.2.1 Conceptual Framework

A conceptual framework (Figure 1) was developed to represent the possible linkages among different sets of variables included in the study. The main outcome of interest was MCH care utilization with full ANC and institutional delivery as the two selected indicators. It was conceptualized that utilization of MCH care would be determined through the interplay of a set of covariates like respondents' basic background characteristics, their empowerment and supportive social environment. Domestic violence was considered as an important intermediate factor that might influence health care utilization. The different variables included in the study are described below.

Outcome Variables

The major outcomes of interest were receipt of full antenatal care (ANC) and institutional delivery for the most recent birth. Full ANC was defined as receipt of three or more antenatal check-ups (with the first check-up in the first trimester of pregnancy), two or more Tetanus Toxoid (TT) injections

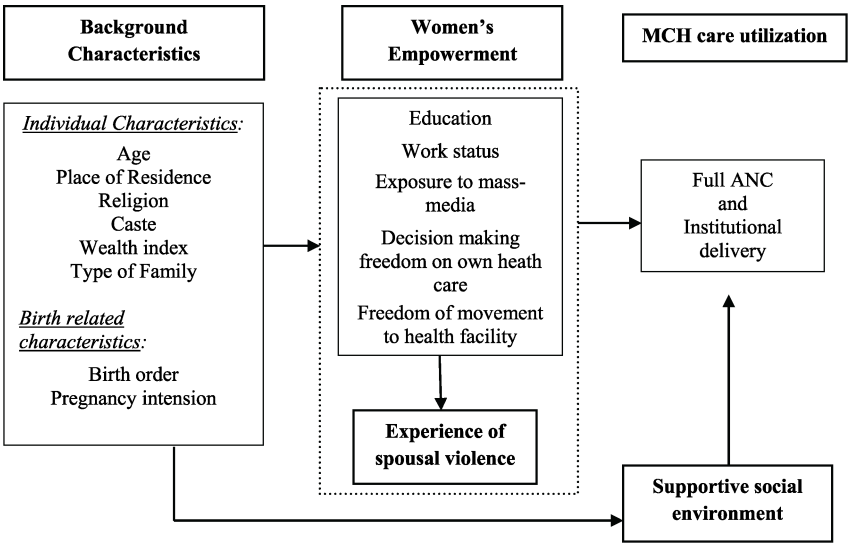

Figure 1. Conceptual Framework

and receipt of Iron and Folic Acid (IFA) tablets or syrup for three or more months (IIPS and Macro International, 2007). Women who had received all these services were coded as '1' (full ANC) and '0' (no/ partial ANC) otherwise.

Delivery conducted in a medical institution or health centre was considered as an institutional delivery and institutional delivery or home delivery assisted by a doctor/nurse/LHV/ANM/other health professional was termed as 'safe delivery' (WHO, 2006). If the delivery took place in any medical institution the variable was coded as '1' and '0' otherwise.

Covariates

In the present study, a range of socio-economic and demographic factors that were likely to be associated with MCH care use were controlled. Background characteristics of the respondents included individual characteristics like age, place of residence, religion, caste, wealth index and type of family. Two important birth related characteristics — birth order and pregnancy intension — were also included as they had direct associations with the utilization of MCH care.

Women's empowerment is a key factor for both women's and children's welfare (World Bank, 2012). In the present study, we included women's educational attainment, working status, exposure to mass media (any digital or print media), women's ability to take decisions regarding their own health, freedom of movement to health facility and most importantly, the experience of spousal violence as the components of women's empowerment. The third set of factors included supportive social environment which comprised of availability of money for health care, presence of female provider at the health facility, geographic accessibility (distance to health facility), presence of husband during ANC check-up and getting advice on delivery care during ANC check-up. It was assumed that these three sets of confounding factors would determine the utilization of MCH care services by young married women.

Physical/sexual Violence and Emotional Violence

Spousal violence was considered as a component of women's empowerment and an intermediate factor determining the use of MCH care. There were nine forms of physical and sexual violence perpetrated by a husband: slapping, twisting arms or pulling hair, pushing/shaking/throwing something at wife, punching with fists or with something that could hurt wife, kicking/dragging/beating up, trying to choke/burn on purpose, threatening/attacking with a knife or a gun or any other weapon, physically forcing to have sexual intercourse even when wife did not want to, and forcing wife to perform any sexual act that she did not want to. Respondents who said 'yes' to any of the nine forms of physical or sexual violence were considered as abused women; abused women were given a code of '1' and '0' for the non-abused. For emotional violence, female respondents were asked whether their husbands ever said or did anything to humiliate her in front of others, threatened to hurt or harm her or someone close to her and insulted her to make her feel bad about herself. Respondents who answered 'yes' to any of the three forms of violence were considered to be emotionally abused and coded as '1'; for those who said 'no' to all questions, '0' was assigned.

Analysis

Analyses were performed separately for the North and South states to consider the regional variation in the utilization of maternal health care services. The analytical part of the paper had three distinct sections. First section dealt with the MCH care utilization in the two regions. Various indicators depicting the levels of MCH care utilization were presented graphically. The second section presented the situation of women's empowerment with special focus on spousal violence in both regions. The last section examined the association of background characteristics, women's empowerment and supportive social environment with the utilization of MCH care services with a special focus on spousal violence by applying binary logistic regressions.

3. Results

Selected socio-economic and demographic characteristics of the study population are presented in

Table 1 The major difference between the North states and the South states was observed by their rural-urban residence and wealth status. In the North states, 81% of the selected women were from rural areas and only 19% were from urban areas, whereas in the South states 41% were from urban

Table 1. Characteristics of young married women in selected North and South Indian states, based on NFHS-3 (2005–06).

Sample characteristics	North Indian States (%)	South Indian States (%)
Socio-economic characteristics:		
Age (in completed years)		
15–19	9.0	7.5
20–24	42.4	46.9
25–29	48.6	45.7
Religion		
Hindu	83.5	83.3
Non-Hindu	16.5	16.7
Caste		
General	20.2	27.3
Scheduled Caste & Scheduled Tribe	29.4	27.6
Other Backward Classes (OBC)	50.3	45.1
Place of Residence		
Urban	19.3	41.2
Rural	80.7	58.8
Wealth index		
Poor	58.4	28.7
Middle	18.3	25.0
Rich	23.3	46.3
Type of Family		
Nuclear	50.8	55.3
Joint	49.2	44.7
Components of women's empowerment:		
Education		
No education	63.0	26.8
Primary	12.8	15.7
Secondary and higher	24.2	57.5
Work status		
Not working	72.9	64.8
Working	27.1	35.2
Media exposure		
No exposure	41.8	15.3
Any exposure	58.2	84.7
Allowed to go to the health facility alone		
No	63.6	47.5
Yes	36.4	52.5
Has say in decision making in own health care		
No	44.7	36.4
Yes	55.3	63.6
N	***4837***	***3304***

Note: Sample refers to young married women aged less than 30 years who gave birth in last 5 years preceding the survey.
Selected North Indian States: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; Selected South Indian States: Maharashtra, Andhra Pradesh and Tamil Nadu.

areas and around 59% were from rural areas. Proportion of women belonging to poor economic strata was 58% in the North followed by rich (23%) and middle class (18%). Whereas, in the South the situation was quite different; proportion of women belonging to upper wealth index was more (46%) than the poor (29%) and middle class (25%). Regional variation in the components of women's empowerment was evident from the results. Women in the South states had higher educational attainment, mass media exposure, higher mobility and decision making power compared to the North states. More than half of the women (52.5%) from the South had freedom to go to health facility unescorted and around 64% women could make decisions on own health care. In the North, the corresponding values were 36% and 55% respectively.

Levels of MCH care utilization varied across regions where the South states performed better across all indicators of MCH care. Receipt of all recommended types of ANC for the last live birth **(**Figure 2**)** was higher in the South. Receipt of delivery care (Figure 3) was higher among women in the South as compared to the women in the North. In the South, 71% women delivered their last child in a health centre, 22% gave birth to their last surviving child at home assisted by some trained health personnel and only 7% delivered at home without any trained birth attendant. In the North the corresponding figure to institutional delivery was disproportionately lower (23.4%). Home delivery assisted by some trained health personnel was the highest (56.4%) in the North and more than 20% of women delivered at home without any assistance from trained health personnel. Male involvement in maternal care (Figure 4) was also found to be higher in the South states compared to the North. For instance, when in the North 57% of women going for any ANC visit were accompanied by their husbands in the last pregnancy, it was around 73% in the South.

Table 2A presents the level of spousal violence in the two regions and depicts a regional variation in the experience of spousal violence. More than half (51.6%) of the women in the North states experienced any form of spousal violence (physical/sexual/emotional) ever in their lives and 39% experienced so in the last 12 months. The corresponding values were 34% and 26% respectively among women in the South states. Experience of physical violence was the highest (45.7%) among

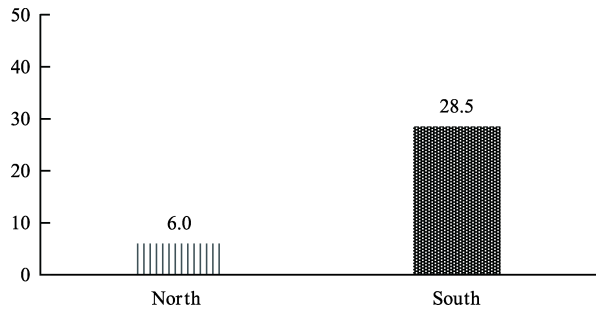

Figure 2. Receipt of Full Ante Natal Care by women in North and South India.

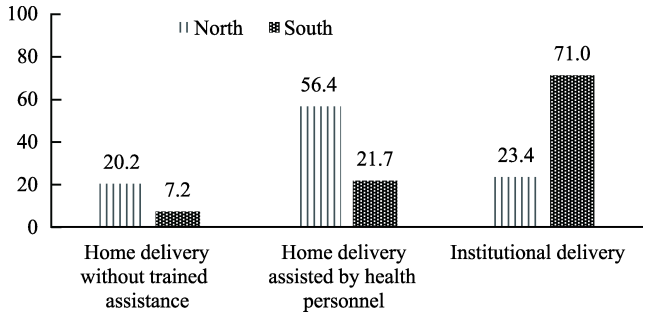

Figure 3. Types of Delivery Care received by women in North and South India.

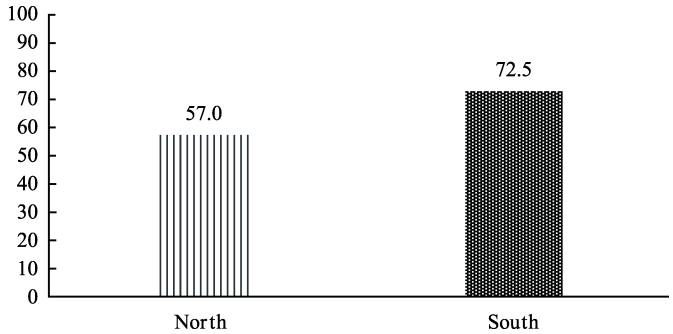

Figure 4. Support received from husband during ANC check-ups in North and South India.

all types of violence in the North states followed by emotional (19.1%) and sexual violence (14.7%). The prevalence was lesser among the South states for all three types of violence; around 32% women ever experienced physical violence, 14% reported emotional violence and only 2% experienced sexual violence. A similar regional pattern was observed in case of experience of spousal violence in the last 12 months. Among different forms of physical violence, slapping was the most common form followed by twisting of arm, pushing/shaking/throwing something that could hurt the respondent, kicking/dragging/beating up and punching with fist. In case of sexual violence, forced sex was the most prevalent form than any other forceful sexual act. On the other hand, being humiliated in front of others was the most common form of emotional violence. The overall prevalence of spousal violence in its various forms (physical, sexual and emotional) was higher in the North states compared to the South states.

There was a significant association among different forms of spousal violence in both regions (Table 2B). Those who had experienced sexual and emotional violence ever in their lives were also prone to experience physical violence in both regions. Similarly, women experiencing physical and sexual violence also faced emotional violence in both regions. Proportion of women experiencing sexual abuse among those who had experienced physical and emotional violence was greater in the North. It can be concluded that experience of sexual and emotional violence occurred together with physical violence.

Table 2. Prevalence of spousal violence in selected North and South Indian states, based on NFHS –3 (2005–06).

A. Experience of spousal violence by various forms:	North (%)	South (%)
Physical Violence		
Any physical/sexual/emotional violence	51.6	33.8
Physical/sexual violence	48.7	31.7
Physical violence	45.7	31.6
sexual violence	14.7	2.4
Emotional violence	19.1	14.0
Any physical/sexual/emotional violence	39.1	26.4
Physical violence in the past 12 months	32.4	24.0
Experienced Sexual violence in the past 12 months	12.0	2.2
Physical/sexual violence in the past 12 months	36.4	24.3
Emotional violence in the past 12 months	14.4	10.8
Push/shook/threw something	17.2	8.6
Slap	44.7	30.5
Punch	14.0	6.0
Kick/drag	14.1	8.7
Strangle	2.5	0.6
Threatened	1.1	0.5
Twisted	18.6	12.8
Sexual violence		
Forced sex	14.1	2.3
Other sexual acts	5.3	1.4
Emotional violence		
Humiliated	15.5	12.2
Threatened to harm	5.9	4.9
Insulted	9.8	5.8

B.	Ever experienced any Physical violence (%)		Ever experienced any Sexual violence (%)		Ever experienced any Emotional violence (%)		N =	
	North	South	North	South	North	South	**North**	**South**
Ever experienced any Physical violence			25.7	7.4	34.7	37.3	**2171**	**1063**
Ever experienced any Sexual violence	79.9	96.7			47.4	53.3	**665**	**89**
Ever experienced any Emotional violence	83.0	84.3	36.5	9.3			**915**	**421**

Note: Sample refers to young married women aged less than 30 years who gave birth in last 5 years preceding the survey.
Selected North Indian States: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; Selected South Indian States: Maharashtra, Andhra Pradesh and Tamil Nadu.
Associations were found significant in the Chi-square test; $p<0.001$

The bi-variate associations between different components of MCH care and experience of spousal violence were presented in Tables 3A and 3B. Results revealed that there was a significant regional variation in the utilization of selected components of MCH care services by experience of spousal violence. Abused women were more prone to delay their entry into antenatal care in the North states;

Table 3. Indicators of maternal and child health care by women's experience of spousal violence in selected North and South Indian states, based on NFHS-3 (2005–06).

A.	*Ever experience of any physical/sexual violence*			
	North (%)		**South (%)**	
	Experienced	Not experienced	Experienced	Not experienced
Antenatal Care for last live birth:				
Number of antenatal visits				
At least 3 visits	25.8	34.6	79.4	86.7
Timing of 1st antenatal check-up				
< 4 months (1st trimester)	42.9	47.5	64.2	75.0
Receipt of tetanus toxoid injections				
At least 2 TT injections	68.9	74.8	86.0	89.0
Receipt of iron & folic acid tablets				
Received for 90 & more days	8.2	16.3	31.2	44.4
Delivery care for last live birth:				
Institutional delivery	21.1	29.1	64.6	75.8
Safe delivery	31.7	38.7	72.1	81.8
B.	*Ever experience of any form of emotional violence*			
Antenatal Care for last live birth:				
Number of antenatal visits				
At least 3 visits	29.0	31.0	76.7	85.7
Timing of 1st antenatal check-up				
< 4 months (1st trimester)	44.0	46.0	64.3	72.8
Receipt of tetanus toxoid injections				
At least 2 TT injections	71.0	72.1	87.9	88.1
Receipt of iron & folic acid tablets				
Received for 90 & more days	7.9	13.4	29.4	42.0
Delivery care for last live birth:				
Institutional delivery	20.8	26.2	59.8	74.3
Safe delivery	31.7	36.1	68.2	80.4

Note: Values are in percentages.
Selected North Indian States: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; Selected South Indian States: Maharashtra, Andhra Pradesh and Tamil Nadu.

women who had experienced any form of physical or sexual violence, only 26% of them had gone for at least 3 ANC visits as compared to 35% of those who had not experienced violence. The proportion of women entering ANC during 1st trimester was lesser (42.9%) among the abused women than that of the non-abused women (47.5%). Receipt of at least 2 Tetanus Toxoid (TT) injections and Iron and Folic Acid (IFA) tablets for 90 days or more were also smaller (68.9% and 8.2% respectively) if the women were abused than their non-abused counterparts (74.8% and 16.3% respectively). Likewise in the South states, receipt of ANC care declined if the respondents experienced any physical/sexual violence.

In case of delivery care it was found that institutional delivery and safe delivery were also lower among abused women in both regions. In the North states 21% and 32% of the abused women went for institutional and safe delivery respectively, compared to 29% and 39% of the non-abused women. Similarly, in the South a smaller proportion of the women who had experienced spousal violence, delivered their last child in any health centre (65%) and availed safe delivery care (72%) compared to those who did not experience spousal violence (76% and 82% respectively). Experience of emotional violence also had similar constraining effects on MCH care utilization in the two regions. Thus, a negative association between experience of spousal violence and the utilization of MCH care service utilization was evident.

Results from binary logistic regression (Table 4) revealed that in the North states, women who had experienced any form of physical or sexual violence were 21% less likely (OR= 0.79) to use all recommended types of ANC care compared to women who had not experienced any violence. In the South similar association was observed; abused women were 32% (OR= 0.68) less likely to use full ANC. Quite interestingly, the constraining effects of spousal violence on receipt of full ANC was stronger in the South states. In the North states women who had experienced any physical/sexual violence were less likely to have an institutional delivery (i.e., deliver their child at a medical institution) or a home delivery assisted by a doctor, nurse, lady health worker, auxiliary nurse midwife, or other health professionals. Association of physical/sexual abuse and delivery care was not significant for the South states. Experience of emotional violence also had a negative relation with antenatal care service utilization in the South states; women facing any emotional violence were 22% less likely to receive full ANC (OR= 0.78) although the association was relatively weak. Likelihood of undergoing safe delivery was around 30% lower (OR= 0.70) for those women who had experienced emotional violence in South states. The association between emotional violence and utilization of maternal care was not significant for the North states.

When women's background characteristics, and supportive social and environmental factors were controlled, it was observed that women's empowerment played a crucial role in the utilization of MCH care services. Women with primary or higher levels of education were nearly 1.5 to 3 times more likely to receive full ANC and avail institutional delivery in both regions. Women's health care decision making was an important factor for receipt of full ANC and institutional delivery; women who had say in the decision on own health care were 1.3 times more likely (OR=1.30) to receive full ANC in the South and 1.2 times more likely (OR=1.20) to deliver in health facilities in the North. Women's ability to go to health facility unescorted improved utilization of ANC and delivery care in the North states. Any exposure to mass media also significantly increased the likelihood of receiving full ANC in South and institutional delivery in both regions. Birth order was the most important demographic factor determining the utilization of MCH care services in both regions. Mothers of higher birth order children, i.e., second and 3+ orders, were significantly less likely to receive all recommended types of ANC and deliver in institutions in both regions. To a certain extent, unwanted pregnancies also affected the receipt of ANC and delivery care in the North states, although the association was weak.

Table 4. Odds ratios for receiving all recommended types of ANC services and availing institutional delivery among young married women (15-30 years) who gave birth during last five years preceding the survey in selected North and South Indian states.

	All recommended types of ANC		Institutional delivery	
	Exp(B)		Exp(B)	
	North	South	North	South
Ever experience of violence:				
Any form of physical/sexual violence				
No (1.00)				
Yes	0.789^{+}	0.680***	0.992*	1.119
Any form of emotional violence				
No (1.00)				
Yes	0.978	0.776 $^{+}$	1.265	0.701*
Women's empowerment:				
Education				
No education (1.00)				
Primary	1.611*	1.443*	1.327**	1.412*
Secondary and higher	2.562***	1.958***	1.791***	3.026***
Work status				
Not working (1.00)				
Working	1.228	1.214*	1.002	0.869
Allowed to go to the health facility alone				
No (1.00)				
Yes	1.382**	0.922	1.165 $^{+}$	1.169
Has say in decision making in own health care				
No (1.00)				
Yes	0.838	1.298**	1.204*	1.015
Media exposure				
No exposure (1.00)				
Any exposure	1.108	2.302***	1.219 $^{+}$	1.430*
Birth related factors:				
Birth order				
1 (1.00)				
2	0.478***	0.794*	0.515***	0.608***
3+	0.278***	0.596***	0.339***	0.474***
Pregnancy intention				
Wanted (1.00)				
Not wanted	0.668*	0.985	0.854 $^{+}$	1.178

Note: Control variables (not presented in the table) include different socio-economic characteristics (age of the mother, place of residence, religion, caste, and wealth index), supportive social environment (father's presence during ANC and advice for safe delivery) and availability & accessibility of services (money, distance and female health provider).

Selected North Indian States: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; Selected South Indian States: Maharashtra, Andhra Pradesh and Tamil Nadu. (1.00) Reference category; *** p<0.001, ** p <0.01, * p <0.05, $^{+}$ p <0.10

4. Discussion and Conclusions

The study brought out a few important factors that influenced the utilization of maternal health care services. One of the most important factors was the mother's education level. The present study found a very strong influence of secondary and even primary level education on the antenatal care

and delivery care. Increasing education level ensured better utilization of healthcare services. As suggested by many other studies, education empowers women over their circumstances in life through proper knowledge and awareness. Educated women may have better communication with family members, especially with husbands, and they may have the understanding of the value of skilled health care which altogether may provide them the decision-making capacity to go for proper health care for themselves, their children and other family members. Educated women have the power to influence others' decisions very subtly with their own knowledge, and ability to handle adverse situations through in-depth understanding on different matters (Allendorf, 2010; Celik and Hotchkiss, 2000; Furuta and Salway, 2006; Navaneetham and Dharmalingam, 2002; Singh, Rai and Singh, 2012). Women's autonomy does not have much effect on MCH service utilization (Singh, Rai and Singh, 2012), but when its components like the ability to take decision on own health care, freedom to go to the health facilities, media exposure are considered separately, women's autonomy is found to be positively related to utilization of health care services. Women who have the ability to decide on own healthcare related issues are more likely to receive antenatal care and safe delivery care (Bloom, Wypij and Dasgupta, 2000). Birth order and, to some extent, unintended pregnancies of the women negatively influenced MCH service utilization. These results were consistent with the findings from other studies (Singh, Rai and Singh, 2012; Celik and Hotchkiss, 2000; Santhya, Jejeebhoy and Ghosh, 2008). The possible reasons behind this may be the fact that usually people become more concerned about the first pregnancy due to the chances of many related complications and non-experience of the mother but for later pregnancies mothers may feel more confident and knowledgeable about the pregnancy care and related matters. This may restrict them to go for skilled care during subsequent pregnancies. Sometimes higher birth order means that the family size is bigger and economic constraints can also be a major hindrance in this regard to receive health care service utilization (Raj, Saggurti, Balaiah *et al.*, 2009).

Spousal violence is not a very relevant factor in explaining the use of all the maternal health care services, especially in the case of institutional delivery. The differences found in use of MCH care services between women who did and did not experience spousal violence can probably be explained to a large extent by other factors such as education, wealth status, birth order and exposure to mass media. However, in case of availing ANC services, experience of physical/sexual violence had a strong negative influence. Therefore, any form of spousal violence can be considered as an important determinant of the well-being of women and children in the North and South Indian states. Experiencing violence in the hands of their intimate partners tends to lower the self-esteem among women and they in turn become reluctant to take proper care of themselves (Higgins, 2011). These women lack physical, mental and financial freedom and decision-making authority to avail health care services during pregnancy. The presence of violence also reduces their power to negotiate for their own rights, make right choices in life and thus it may eventually affect their access to quality health care (Singh, Mahapatra and Datta, 2008).

A regional disparity in the levels of utilization of health care services clearly came out from the study. The selected South Indian states performed better than the North Indian states in this regard, irrespective of the levels of spousal violence. Such differences could partly be linked to the regional diversity in terms of availability of resources and the states' socioeconomic progress (Dyson and Moore, 1983). The states covered under the North Indian region namely Rajasthan, Madhya Pradesh, Uttar Pradesh and Bihar are Empowered Action Group States (EAG) or priority states as referred by the Government of India. These states are characterized by low female literacy, poor exposure to mass media, low age at marriage, high fertility and lower status of women. However, when the indicators of development status were controlled, spousal violence still had similar negative effects on MCH care use in both regions. It is worth mentioning that contrary to our hypotheses, spousal violence had a stronger influence in reducing the receipt of full ANC care and institutional delivery among women in the South Indian states. The reason for such stronger influence in the South is that, when acceptance of spousal violence is culturally embedded its occurrence is also high, as observed

in the North (Bauer, Rodriguez, Quiroga *et al.*, 2000; Chandrasekaran, Krupp, George *et al.*, 2007; Hughes, 2004). In such cases, the victims do not perceive themselves to be victimised and tend to accept violence as a justified action by husbands (Heise, Ellsberg and Gottmoeller, 2002). Given this attitude towards domestic violence from the victims themselves, it is not surprising that nearly 51% of the married men and 54% of married women think that beating of wives is acceptable for certain specific reasons, particularly if she disrespects her in-laws (IIPS and Macro International, 2007). This type of attitude is more in the Northern part of the country than the South. On the other hand, when incidence of violence is less in society (as in the South states), women tend to feel more victimised and isolated and thus the impact of such violence becomes manifold, as we observed in the South Indian states. Consequently we see that the effect of violence on lowering MCH care utilization is more serious among the victims in the South rather than in the North.

One potential drawback, that needs to be taken into account, is that the present study used cross-sectional data. Due to the nature of data, the major limitation of the analysis was our inability to understand the exact temporal relationship between occurrence of violence and the utilization of MCH care. We were unable to determine whether the violence occurred before or after the MCH care utilization. However, women's age was restricted to 15–30 years in order to take care of this temporality issue. In India, at older age groups, i.e., above 30 years, incidence of violence reduces gradually. The chances of pregnancy also decline significantly as the women grow older (IIPS and Macro international, 2007). The median age at marriage in India is less than 20 years and the first onset of spousal violence is within first 2 years of marriage (IIPS and Macro International, 2007). Thus, by considering young married women we tried to capture recent episodes of spousal violence as well as recent pregnancy.

The present study highlighted the constraining effects of spousal violence on the uptake of maternal and child health care services among young married women in India and thus the issue of spousal violence calls for attention from the policy makers and stakeholders on priority basis. First and foremost the reproductive and child health programs should address spousal violence in order to improve health and well-being of women coming to the facilities for treatment. Integration of violence screening with the MCH care programs could be helpful in identifying the victims, providing proper care and support to them and thus improving the coverage of health care services simultaneously. Promoting women's empowerment by specifically improving female education is a key to combat incidence of violence as well as increase the awareness and utilization of health care services in the long run. Since education and media exposure have a very strong association with health care utilization across the regions, it is necessary for the national level policies to use print and digital media and target educational institutes in order to create awareness about MCH programs among women. Along with focusing on the victims, policies should also focus on the perpetrators of violence. Involvement of men in the reproductive and child health programs and counselling them can also be a key in reducing intimate partner violence. Policies aiming at gender sensitization at early ages, i.e., among school students, during marriages and in health centres are also imperative. Promoting existing policies and laws of violence prevention through media, advertising the importance of MCH care services with its short and long term implications, encouraging men to be a part of the MCH care programs and above all strengthening women's voice against spousal violence are the need of the hour.

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Author Contributions

Atreyee Sinha and Aparajita Chattopadhyay have jointly led the paper. Aparajita Chattopadhyay played a key role while conceptualizing the paper. Atreyee Sinha analyzed the data, drafted the first manuscript and also revised the manuscript subsequently. Aparajita Chattopadhyay helped with her inputs in revising the paper.

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