

Inter-Linkages between Spousal Violence and Nutritional Status of Children: A Comparative Study of North and South Indian States

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Abstract

In the context of higher rates of child malnutrition and widespread occurrence of spousal violence in India, the present study aimed to explore whether maternal experience of spousal violence have any association with nutritional status of their children using data on selected North and South Indian states from the National Family Health Survey (2005-2006). Our findings from bi-variate and multivariate analysis established spousal violence, which indicates the position of women within family, as a significant factor determining child nutritional status in both regions. Children whose mothers had experienced any form of physical/sexual violence were significantly more likely to be underweight compared to non-abused women. Higher educational attainment among mothers significantly reduced the likelihood of under nutrition among their children. On the other hand, higher body mass index which reflects better health status of mothers also had a significant effect in reducing the chances of malnutrition among children. Thus, the study provided adequate evidences to establish the fact that health and social status of women are critical in determining nutritional status among children. Elevating women's power relative to men's is strongly recommended to reduce malnourishment among children. Integration of violence screening and counselling with MCH programmes could be helpful in addressing the specific needs of women and children and provide essential support.

Keywords: Spousal violence; Nutritional status; Underweight; Regions; India

Introduction

Adequate nutrition is critical for a child's growth and development, especially during the first few years of life i.e. from birth up to two to three years of age. Nearly half of all deaths in children under 5 are attributable to under nutrition [1]. In 2016, globally there were 155 million children under 5 years of age stunted, 52 million wasted add child malnutrition after and is widespread in South Asia and sub-Saharan Africa [2]. Although child malnutrition is rampant both in Sub-Saharan Africa and South Asia, it is particularly more in South Asia referred to as the 'Asian enigma' [3]. Nutritional deficiency in children is an outcome of interplay of various factors; different socio-economic and demographic factors include household economic status, maternal literacy and fertility [3-5]. In addition to that, it is argued that mothers, as the primary caregivers, play a crucial role in determining nutritional status of children [6] and women's autonomy gained importance in this regard. The more independent mothers are to make decisions related to food, feeding practice, health care of child and allocation of household resources towards her children, the more likely her children are to be nourished [6,7] and less likely to experience deaths [8]. Under nutrition among children is often associated with marital disharmony because childcare is not only affected by a mother's direct actions but also through her social relationships with others who facilitate the care a child gets in the family [9]. In this context women's experiences of spousal violence is considered as an integral part of their autonomy as it may restrict their freedom and choices and make them highly disempowered to receive proper health care for themselves which may affect their own health as well as nutritional status of their children [3,6]. In this context, the present study tried to find out the possible linkages, if any, between nutritional status of the child and mothers experience of spousal violence in the selected states of India.

Spousal violence is defined as any abuse or violent action that occurs between two individuals in a marriage. Spousal violence has many forms including physical aggression or assault, sexual and

emotional abuse, controlling or domineering [10]. The perpetration of violence by males is deeply rooted in the ideology of male dominance over women and the gender role attitudes prevailing in most south Asian countries. On the other hand, women who consider domestic violence as legitimate may have accepted violence as inevitable as a result of intergenerational transmission of the gender norms [6].

Spousal violence has emerged as an important public health concern during past few decades. The health consequences of spousal violence extend beyond mothers and translate into health consequences for their children and may be an important causal factor in child malnutrition [11]. Studies suggest that battered women are two to four times more likely to deliver low birth weight babies, which seriously affects the survival chances of the baby during infancy [12,13]. Women experiencing violence within marriage have poor status within family that leads to weaker control over household resources, tighter time constraints, less access to information and health services, poorer mental health, and lower self-esteem [3]. These factors are thought to be closely tied not only to women's own health but also to children's birth weight and the quality of care they receive [14-17]. A study in Nicaragua, based on Demographic Health Survey data, pointed out that children of battered women are malnourished, less likely to receive full immunization against childhood diseases and more prone to have disease like diarrhoea [18]. Another study in Latin American countries

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confirmed that women's experience of domestic violence increases the risk of child stunting significantly [19]. Similarly, Roushdy [20] add that after found experience of domestic violence by mothers is associated with lower height for age among their daughters.

Studies found the similar associations between poor status of women and health of their children in India. A study conducted by Jejeebhoy [21], in rural Uttar Pradesh and Tamil Nadu, found that occurrence of child death below age five were more among mothers who have experienced violence because they had less autonomy, less decision making power and less access to resources. Another study in North India found similar associations between perinatal and neonatal mortality among children whose mothers had experienced violence [22]. It may seem to be unclear as to how violence experienced by mothers leads to child death. The possible explanation as revealed in many works is that violence is associated with a very important adverse outcome of low birth weight babies which is a leading cause of infant deaths in the developing world. A study in rural Karnataka revealed that children of battered mothers received less food indicating low bargaining power of women on behalf of their children [23]. Mothers who have experienced physical and sexual violence are more likely to experience infant and child deaths, spontaneous abortions or still births than their counterparts, as have been revealed by many nationwide as well as state level research findings [24-26]. Ackerson and Subramanian's work on India revealed that there is a statistically significant association between domestic violence and chronic malnutrition among women and children. This also finds support from the findings of Sethuraman et.al. [27], a study on tribal rural community in south India. Another study by Singh et al. [28] revealed that there are significant differences between battered and non-battered women in terms of antenatal check-ups, safe delivery, immunization of children, birth-weight and pregnancy intention. The review of literature strongly suggests that reducing maternal experience of spousal violence is an important goal for improving child's health and survival, yet gaps in the current knowledge exist, further confounded by issues with how spousal violence affects nutritional status of children and the cross-cultural variations.

According to recent literature and existing national level figures, the situation of both child malnutrition and spousal violence are quite alarming in the Indian subcontinent. The prevalence of child malnutrition in India is amongst the highest levels found in any country in the world and almost twice that of Sub-Saharan African countries [29], despite its progress in food production, disease control, economic and social development [30]. In case of child malnutrition, India ranked 117 among 119 countries [31]. According to the two rounds of National Family Health Survey (1998-99 and 2005-06) estimates, around 50% of children under age 3 years were short for their age (stunted), and 43% were underweight for their age during the late nineties which declined to 45% and 40% respectively by 2005-06 [32]. India has been referred as an "economic powerhouse and nutritional weakling" [33] pointing towards the failure of economic growth to reduce the burden of malnutrition. On the other hand, India is amongst those south Asian countries where spousal violence is widely prevalent. According to national survey reports, around 37 percent of ever married women aged 15-49 years reported lifetime experience of any form of physical or sexual spousal violence in 2005-06 [32] which has reduced to 29 percent in 2015-16 [34]. Therefore, studying the association of spousal violence and nutritional status of children calls for special attention.

India is a country where the society has a very strong patriarchal foundation with non-egalitarian gender relations and women are

literally powerless in every sphere of their lives. The highly stratified gender norms, discrimination of girl child right from the initiation of her life in mother's womb are very closely associated with Indian culture. However, there exists a typical regional dichotomy in socio-demographic and cultural realms, termed as the 'North-South divide' [35]. The North Indian culture is characterized by widespread early marriages among girls, low female literacy and lower female autonomy which add makes before them powerless both within family and in the society. This powerlessness renders them vulnerable to different kinds of ill treatments such as controlling behaviour by husbands, infliction of violence within marriage etc. The Southern part of the country sanctions more exposure to women to the outside world, more voice in family, and more freedom of movement than the North [36,37]. Apart from the cultural differences, this regional imbalance is also prominent in various development indices consistently over a long period of time and South Indian states perform better in this regional imbalance [36]. The cultural and social heterogeneity makes it pertinent to look into North and South India separately. As gender equity is closely associated with the health of population, it is assumed that, in the North Indian states, the level of nutritional status among children will be poorer and the effect of spousal violence on child nutrition will be stronger in comparison to the South Indian states.

Under this backdrop, the present study attempted to understand the roles of spousal violence in determining nutritional status of children in India.

Methods

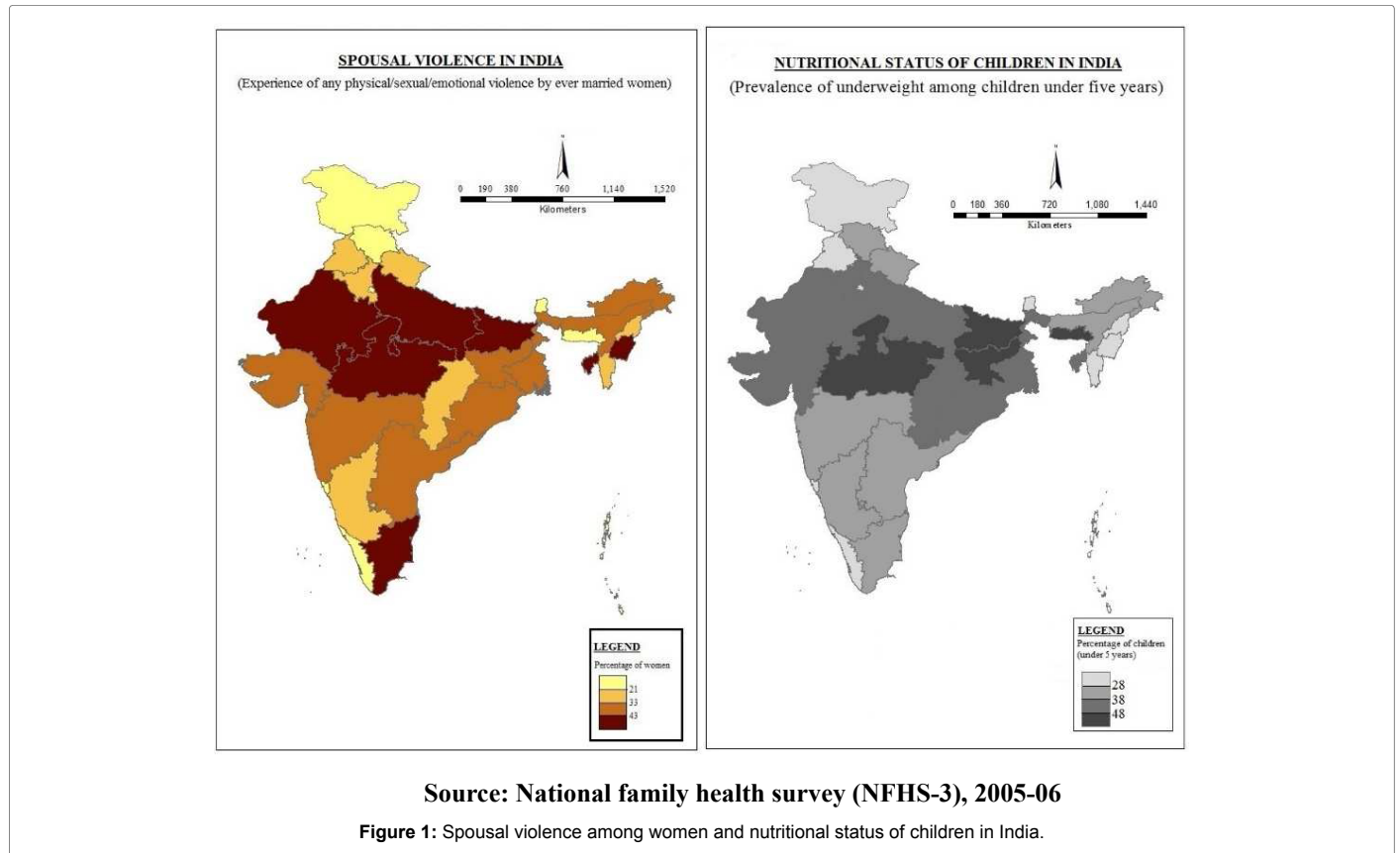
Study sample

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 (Figure 1). 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 violence 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 [32]. The selection of states was based on higher incidence of spousal violence in order to avoid the variations in the prevalence of spousal violence and to compare its effects on the nutritional status of children.

The analysis for nutritional status was done using the kid's data file on the children who were born during last five years preceding the survey to currently married mothers (aged 15-30 years) who were selected and interviewed in domestic violence module. For analysis of nutritional status of children under five years of age the sample were 7625 and 4533, North and South states respectively.

Conceptual framework

A conceptual framework (Figure 2) was developed to represent the possible linkages among different sets of variables included in the study. The main outcome of interest was child health outcomes with nutritional status of children as the main indicator. It was conceptualized that health of the children would be determined through the interplay of a set of covariates like mothers' basic background



characteristics (individual and birth related), empowerment and their own health status. Spousal violence was considered as an important intermediate factor that might influence health of the children. The different variables included in the study are described below.

Outcome variables

Different variables considered as the predictor of child nutrition status were birth weight, size of the baby at the time of birth; these two variables are said to be important indicators of child's vulnerability to childhood diseases and survival chances [32]. If size of the baby was reported to be very large/ larger than average/average the response was coded as '0' normal and it was '1' less than average for responses like very small, less than average. On the other hand if the baby weighed less than 2500 g, it was coded as '0' (low birth weight) and '1' if weight was equal to or more than 2500 g.

Three important indicators of child nutrition based on anthropometric measures were a) height for age (stunting), b) Weight for height (wasting) and c) Weight for age (underweight). These three indicators were expressed in standard deviation units (Z-scores). Children were considered as 'chronically/severely stunted and malnourished' if the height-for-age Z-score was below -2SD and it represented long term effects of malnutrition in the population. Similarly, when weight-for-height Z-score was below -2SD children were considered to be acutely/severely wasted. Weight for age was a composite index for the previous two and took into account both acute and chronic malnutrition. If Z-score was below -2SD it is grouped as severely/chronically underweight and coded as '1' and it is '0' otherwise. In the present analysis this indicator was used as an outcome variable for assessing the nutritional status. Other indicators mentioned above

were included in the bi-variate analysis only.

Explanatory variables

Different socio-economic and demographic characteristics were included as the intermediate variables. These variables were grouped as birth related factors: which included birth order (categorized as first, second and three or more), Preceding birth interval (categorized as '0' first birth order, '1' birth order 2/3 and <24 months, '2' birth order 2/3 and >=24 months, '3' birth order >=4 and <24 months & '4' birth order >=4 and >=24 months); pregnancy intention based on the information whether the last child was desired at that time when the woman was pregnant with it (response is coded as wanted '1', if the child was desired at that time and not wanted '2' if wanted later or not at all). Sex of the child was coded as '1' for males and '2' for females.

Factors indicating women's empowerment [39] included women's educational level (no education, primary, secondary and higher); work status (working '1' and not working '0'); media exposure (no exposure '0', any exposure '1') depending on the frequency how often the respondents read newspaper, watch television and listen to the radio. Autonomy index was developed based on the information of decision making power in terms of own health care, household purchases, visiting family/relatives, husband's earning; mobility in terms of going to market, health facility, places outside community and access to money. If the respondent participated in household decisions either alone or jointly with husband or someone, have access to money and can move unescorted (i.e. alone) the response is coded as '1' (yes) and it is '0' (no) otherwise. Autonomy index was a summative index with values ranging from 0 to 9; a score less than 5 were grouped as 'low autonomy' and otherwise as 'high autonomy'.

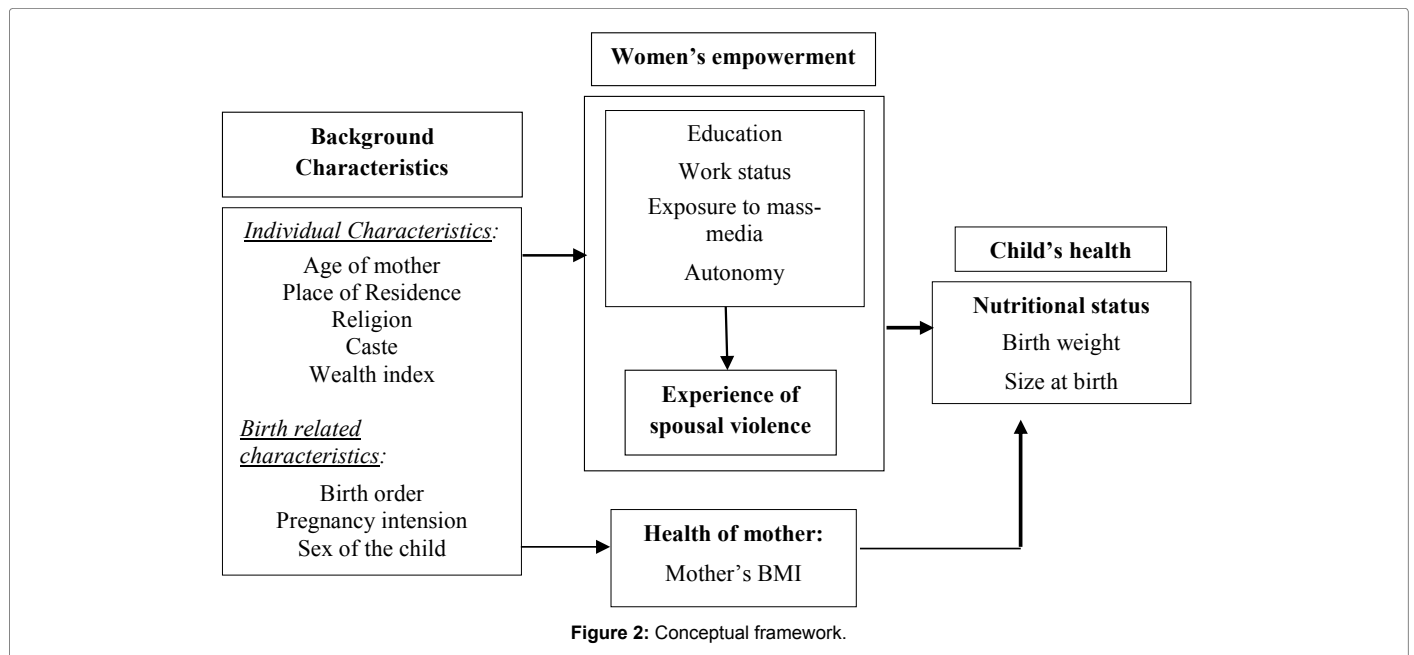


Figure 2: Conceptual framework.

Mothers' body mass index (BMI) was another variable to assess the nutritional status of the mother. It was grouped as '0' less than 18.5 kg/m² and '1' 18.5 kg/m² or more.

Other socio-economic variables included in the analysis were current age of the mother, mothers age at first birth (coded as '0' for 20 years or less and '1' for more than 20 years), religion, caste, and economic status i.e. wealth quintile.

Physical/sexual violence and emotional violence

Spousal violence was considered as a component of women's empowerment and an intermediate factor determining the child nutritional status. 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 nutritional status of children. The analytical part of the paper had two distinct sections. First section dealt with the child nutrition in the two regions by incidence of spousal violence. The last section examined the association of background characteristics and women's empowerment with the nutritional status

of children with a special focus on spousal violence by applying binary logistic regressions. The analyses were done using SPSS (Version 21.0) statistical package.

Results

The bi-variate associations between different components of child health status and experience of spousal violence were presented in Table 1. Results revealed that there was a significant regional variation in the indicators of child health by experience of spousal violence. Children of abused women were more prone to have poor health status in the North Indian states. The standard indicators for assessing nutritional status of the children depicted that, if mothers had experienced any physical/sexual or emotional violence ever in their life, the children were at higher risk of getting poor nutritional status. While prevalence of stunting, wasting and underweight were 53%, 23% and 49% respectively among children of physically/sexually abused mothers in North Indian states, the corresponding values were 45%, 20% and 40% among children of non-abused mothers. In South Indian states the same trend was observed. In case of emotional violence similar associations were found. Other important indicators of child health were size of the baby at birth and birth weight. Children whose mothers experienced any physical/sexual or emotional violence were more prone to be smaller than the normal size and have low birth-weight.

Nutritional status of the child was analysed on the basis of prevalence of underweight. Underweight depicts chronic and severe malnutrition among children. Table 2 revealed that the percentage distribution children who are underweight by background characteristics of mother. Under-nutrition was more prevalent among children of younger mothers. Mothers living in rural areas had larger proportions of malnourished children. Prevalence of under-nutrition decreased with improving economic status. Underweight was much higher for higher birth order children in both the regions. While it was 40% and 28% among first order children in North and South states respectively, it increased to 48% and 35% respectively for third or more order. Children born out of unintended pregnancies were

	North Indian states				South Indian states			
	Ever experience of any physical/sexual violence		Ever experience of any emotional violence		Ever experience of any physical/sexual violence		Ever experience of any emotional violence	
	Yes	No	Yes	No	Yes	No	Yes	No
Percentage of children below -2 SD for height/age (stunted)	53.3	45.2	52.3	48.6	41.6	36.2	44.3	36.9
Percentage of children below -2 SD for weight/height (wasted)	22.5	20.2	25.3	20.4	14.1	14.8	14.5	13.5
Percentage of children below -2 SD for weight/age (Underweight)	49.0	40.1	50.4	43.1	34.4	28.1	35.5	29.2
n [#]	3165	3292	1258	5203	1291	2538	513	3316
Size of the baby at birth (less than average)	22.5	19.9	25.9	20.1	24.8	17.6	29.5	18.3
n [#]	3755	3865	1495	6129	1500	3033	589	3944
Birth weight:								
< 2500 g.	28.7	27.2	28.4	27.6	18.1	22.7	19.2	21.7
>= 2500 g.	71.3	72.8	71.6	72.4	81.9	77.3	80.8	78.3

Note: Values in percentages; [#] Refers to un-weighted cases.

Selected North Indian States: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; Selected South Indian States: Maharashtra, Andhra Pradesh and Tamil Nadu.

Table 1: Nutritional status of children under five years of age by mother's experience of spousal violence, 2005-06.

more undernourished than those who were wanted. Malnourishment was more for female children in the North Indian states. Women's empowerment was another important dimension. Malnourishment among children decreased with increase in mother's education level and exposure to mass media. But malnourishment was higher for the children of working mothers. Mothers' health condition revealed that underweight was more among children whose mothers had low BMI. Experience of spousal violence by mothers was also significantly associated with higher incidence of underweight among their children in both the regions.

Considering the differentials in the levels of underweight across different socioeconomic and demographic factors and mothers' experience of violence, binary logistic regression analysis was applied to understand the linkages between experience of violence by mothers and under-nutrition of children after controlling for all other important factors that may influence the nutritional status of children (Table 3). It was clear from the multivariate analysis that even after controlling for the probable effects of different socio-economic and demographic factors, mothers' experience of spousal violence was positively associated with the risk of being underweight among children. In both the regions, children of those mothers who had experienced physical/sexual abuse were significantly at higher risk of being underweight; in North Indian states children were 1.1 times more likely (OR=1.13, p<0.05) and in South Indian states they were around 1.3 times more likely (OR=1.26, p<0.01) to be malnourished if their mothers had experienced any spousal violence ever in their lives. It is worth mentioning that, the effects of spousal violence on prevalence of underweight among children under five years was stronger in the South Indian states. Emotional violence had a weak but significant positive effect on child nutritional status in North Indian states; children were more likely to be underweight if their mother experienced any emotional spousal violence (OR=1.14, p<0.10).

Apart from experience of violence by mothers, there were some other important determinants like, birth related factors: higher birth order children were more likely to suffer from underweight (OR=1.16, p<0.05 in North Indian states and OR=1.22, p<0.10 in South Indian states) but the relation was weak. Female children in the North states were at a higher risk of being under nourished (OR=1.09, p<0.10).

Women's empowerment also played an important role in this regard. Mothers' educational attainment was an important factor that reduced the risk of child's under nourishment significantly in both the regions. Whereas, for working mothers, children were more susceptible to be malnourished (OR=1.16, p<0.05 and OR=1.22, p<0.05) in North and South Indian states respectively. Mass media exposure among mothers significantly reduced the chance of being underweight among children in South Indian states (OR=0.69, p<0.01). Another important factor was health of the mother which had a very strong association with child's nutritional status. If mother's nutritional status was good, the child was less likely to be underweight (OR=0.62, p<0.001 in North and OR=0.58, p<0.001 in South).

Discussion of Findings

The study brought out a few important factors that influenced the nutritional status of children. Findings underscore that spousal violence experienced by mothers is an important predictor of poor nutritional status of the children; children are chronically/severely malnourished, if their mothers have experienced any physical or sexual violence. Relation between maternal experience of violence, especially during pregnancy and morbidity like low birth weight of the baby, small size is well documented by existing studies [12,13,39]. Maternal experience of violence affects the survival status of the children too and this finding conforms to similar findings from other researches in Indian context [21,22, 26,28]. Nutritional deficiency, small size of the baby at birth and lower birth weight are considered as two important predictors of death during the initial phase of life [32].

Presence of violence in intimate relationships emerges from a process of unequal power relations in the household, extreme dominance over females and in turn may reduce their control over resources like access to money, access to food and most importantly health care, for themselves as well as her children. The poor mental and physical state of the mother, resulting from the occurrence of violence, may be detrimental to the appropriate care giving to their children, who rely completely on their mothers during the initial years of life for growth and development. Family conflict may have a serious impact on the health status of the children sometimes directly as explained by the 'risky family environment model' [40]; exposure to recurrent

	North Indian States		South Indian States	
		n [#]		n [#]
Socio-economic characteristics:				
Age of the mother	**			
<25	46.1	3134	30.4	1988
25 & above	43.2	3328	29.9	1841
Religion			**	
Hindu	44.6	5263	31.0	3030
Non-Hindu	44.2	1199	26.2	799
Caste	**		***	
General	39.2	1364	25.8	1078
Scheduled Caste & Scheduled Tribe	50.8	1938	38.8	1039
Other Backward Classes (OBC)	43.3	3158	27.2	1704
Place of Residence	***			
Urban	37.9	2237	26.9	2265
Rural	46.0	4225	32.3	1564
Wealth index	***		***	
Poor	51.7	3176	40.0	810
Middle	41.5	1161	33.1	915
Rich	32.4	2125	22.6	2104
Birth related factors:				
Birth order	***		***	
1	39.7	1875	27.5	1648
2	45.6	1825	30.7	1426
3+	47.5	2762	35.0	755
Pregnancy intention	§		*	
Wanted	42.6	5183	27.7	3289
Not wanted	45.0	1279	30.5	540
Sex of the child	***		§	
Male	42.5	3372	31.2	2056
Female	46.8	3090	28.9	1773
Women's empowerment:				
Education	***		***	
No education	49.7	3753	39.5	866
Primary	39.6	871	34.5	564
Secondary and higher	35.1	1838	24.9	2399
Work status	***		***	
Not working	42.9	4819	26.8	2775
Working	49.7	1643	37.0	1054
Autonomy	*			
Low	43.7	3159	30.2	1327
High	45.9	3186	30.1	2464
Media exposure	***		***	
No exposure	50.0	2341	44.7	462
Any exposure	41.1	4121	27.6	3367
Health factors:				
Mother's BMI	***		***	
< 18.5 kg/m ²	52.6	2500	38.5	1258
>= 18.5 kg/m ³	38.9	3922	25.3	2551
Ever experience of violence:				
Any form of physical/sexual violence	***		***	
No	40.1	3292	28.1	2538
Yes	49.0	3165	34.4	1291
Any form of emotional violence	***		***	
No	43.1	5203	29.2	3316
Yes	50.4	1258	35.5	513

Note: # refers to un-weighted cases.

The associations have been found significant in the Chi-square test;

***p<0.001, **p<0.01, *p<0.05, §p<0.10.

Selected North Indian States: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; Selected South Indian States: Maharashtra, Andhra Pradesh and Tamil Nadu;

Table 2: Percentage of children born during the last five years preceding the survey, who are underweight by mothers' background characteristics, 2005-2006.

	Odds Ratio	
	North Indian States	South Indian States
Birth related factors:		
Birth order		
1 [®]		
2	1.162*	1.088
3+	1.154 [§]	1.215 [§]
Pregnancy intention		
Wanted [®]		
Not wanted	0.985	0.897
Sex of the child		
Male [®]		
Female	1.091 [§]	0.956
Women's empowerment:		
Education		
No education [®]		
Primary	0.759**	0.992
Secondary and higher	0.644***	0.758**
Work status		
Not working [®]		
Working	1.156*	1.219*
Autonomy		
Low [®]		
High	1.027	1.072
Media exposure		
No exposure [®]		
Any exposure	0.938	0.694**
Health factors:		
Mother's BMI		
< 18.5 kg/m ²		
> 18.5 kg/m ²	0.620***	0.577***
Ever experience of violence:		
Any form of physical/sexual violence		
No [®]		
Yes	1.134*	1.264**
Any form of emotional violence		
No [®]		
Yes	1.143 [§]	0.962

Note: The control variables include different socio-economic characteristics (age of the mother, place of residence, religion, caste, wealth index).

Selected North Indian States: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; Selected South Indian States: Maharashtra, Andhra Pradesh and Tamil Nadu.

[®]Reference category; ***p<0.001, **p<0.01, *p<0.05, [§]p<0.10.

Table 3: Odds ratios of being severely/ chronically underweight among children under five years of age, 2005-2006.

family conflicts can “disturb child’s stress responsive biological regulatory systems, which are important for physical and mental health [41]. ‘Women’s position in the household’, ‘quality of family relationships’, autonomy and empowerment of women influence their access to proper utilization of maternal care services - like receiving all recommended antenatal services during pregnancy, delivery under trained supervision to ensure safe motherhood [42,43]. The pathway through which spousal violence affects child nutrition indicates an indirect causation firstly through maternal stress, mental health, behavioral risks, physical health and malnutrition among mothers as well as through stress experienced by the child, possible impairment of mother’s ability to breastfeed and in general compromising the mother’s ability to care for the child [41].

It is worth mentioning that spousal violence had a stronger influence in deteriorating children’s nutritional status in the South Indian states. The reason for such stronger influence in the South could be that, when acceptance of spousal violence is closely intertwined in the society its occurrence is also high as observed in the North; in such cases, the victims tend to accept spousal violence as husband’s right [44]. On the other hand, when incidence of violence is less in a society (as in the South states) and overall status of women is high, women tend to have more self-esteem and feel more victimised. Thus the impact of violence becomes manifold in the case of South Indian states. Consequently, we see that the effect of spousal violence on affecting child nutritional status was stronger among the victims in the South rather than in the North as also found by Sinha and Chattopadhyay [45] in their study on influence of spousal violence on utilization of maternal and child health care services. Studies suggest that regional differences in women’s status accounts for much of the regional imbalances in child nutrition and health outcomes and the comparatively strong influence of women’s status in South Asia takes us toward explaining the ‘Asian enigma’ [3].

Poor health condition of the mothers may limit the children’s access to proper nutrition through proper dietary intake and result in severe malnutrition among them and restrict improper growth. Mothers with poor health may not be able to produce sufficient milk which is a very essential component of the child’s diet up to a minimum of one year of age and is an important determinant of the future health status of the children. In Indian households limited access to food is also another aspect of violent relationships and mother in such condition lack the power to decide the proper nutritional diet both for her as well as the children. Thus, poor nutritional status among children is a major cause of higher occurrence of deaths of children before completing five years of age [40].

On the other hand, there are some other factors which are closely linked with child health. Women’s education is an important factor in determining the utilization of health care and the health status of the child as well. Having better knowledge about the health care issues and better understanding of the value of health care, educated mothers can provide their children proper care and nutrition which will determine their health status. Education may foster positive values and attitudes towards the use of modern health care services. Educated women are likely to use subtle means to influence the decision of other family members in the case of health and health care specifically of the children [46]. In the present study it has been found that children of working women are more likely to be underweight, which is contrary to the idea that working women are supposed to have better empowerment and thus nutritional status of the children of these empowered mothers should be better, as indicated by other studies also [47]. At this point the nature of work that the woman does may be an important dimension to be considered. Sometimes the low wage employment is not able to create the benefits of empowerment. As suggested by some studies, poor women working as daily wage laborers are at higher risk of experiencing child under-nutrition and mortality [48].

Health of the mother is another determinant of child’s nutritional status. Children of those mothers, who have poor health as expressed by low body mass index, are more likely to be nutritionally poor. Studies suggest that under-nutrition is often inter-generational in nature that affects the health of the mother and the child throughout their life cycle [49,50].

Conclusion

One potential research limitation is that the present study is based on a cross-sectional data which limited any causal inference. The exact timing of occurrence of spousal violence could not be ascertained. We were unable to determine whether the violence occurred before or after the measurement of child's nutritional status. However, to overcome this shortcoming, women's age was restricted to 15-30 years. Facts from national survey suggest that in India, incidence of violence reduces gradually at older ages i.e., above 30 years. The chances of pregnancy also decline significantly as the women grow older [32]. On the other hand, 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 [32]. Therefore, by considering young married women, aged less than 30 years, we captured recent episodes of spousal violence as well as recent pregnancy. In spite of having these shortcomings, the present study effectively brought out the significant association between spousal violence and nutritional status of children. The findings of present study conform to the general socio-cultural context of Indian society, where women face discrimination throughout their life cycle. The persisting inequality between man and woman and the lower status of women are the major driving force behind the nutritional status and health of children. Therefore, it is recommended that by elevating women's power both in family and community, children's nutritional outcomes can be effectively altered. Education, as has been found in the study is an important area focusing on which may be useful in this regard. Propagating gender equality among men and women through education can be helpful in challenging the prevailing gender biased norms of the society and prevent them from transgression into the future generations. On the other hand, the linkage found between maternal experience of violence and nutritional status of children is another dimension that needs proper attention. Integration of violence screening with the maternal and child health care programmes can be helpful in exploring the risk factors related to coverage of health service and child health as well as providing proper counseling to the victims. This integrating approach may be useful to understand the short term and long term effects of spousal violence and address these issues in a better way.

References

1. UNICEF (2017) UNICEF Data: Monitoring the situation of children and women. UNICEF, New York.
2. World Health Organization (WHO) (2017) Global Health Observatory (GHO) data: Child malnutrition.
3. Smith LC, Ramakrishnan U, Ndiaye A, Haddad L, Martorell R (2003) The importance of women's status for child nutrition in developing countries. International Food Policy Research Institute (IFPRI) Research Report [3]. Washington, DC: IFPRI. PP 1-164.
4. Svedberg P (2007) Child Malnutrition in India and China. 2020 Focus Brief on the World's Poor and Hungry People. Washington, DC: IFPRI, pp: 1-4.
5. Mazumder S (2010) Determinants of inequality in child malnutrition in India. *Asian Population Studies* 6(3): 307-333.
6. Carlson GJ, Kordas K, Murray-Kolb LE (2014) Associations between women's autonomy and child nutritional status: A review of literature. *Maternal and Child Nutrition* 11(4): 1-31.
7. Engle P, Menon P, Haddad L (1999) Care and nutrition: Concepts and measurement. *World Development* 27: 1309-1337.
8. Hossain MB, Phillips JF, Pence B (2007) The effect of women's status on infant and child mortality in four rural areas of Bangladesh. *Journal of Biosocial Science* 39: 355-366.
9. Whyte SR, Kariuki PW (1991) Malnutrition and gender relations in Western Kenya. *Health Transit Review* 1: 171-87.
10. World Health Organization (2012) Intimate partner violence: understanding and addressing violence against women.
11. Sobkoviak RM, Yount KM, Halim N (2012) Domestic violence and child nutrition in Liberia. *Social Science & Medicine* 74: 103-111.
12. Stark E (1981) Wife abuse in the medical setting: An introduction for health personnel. Monograph 7. Washington, DC: Office of Domestic Violence.
13. Bullock LF, McFarlane J (1989) The birth-weight/battering connection. *The American Journal of Nursing* 89(9): 1153-1155.
14. Parker B, McFarlane J, Soeken K (1994) Abuse during pregnancy: Effects on maternal complications and birth weight in adult and teenage women. *Obstetrics and Gynecology* 84(3): 323-328.
15. Valdez-Santiago R, Sanin-Aguirre LH (1996) Domestic violence during pregnancy and its relationship with birth weight. *Salud Publica Mexicana* 38(5): 352-362.
16. Curry M, Perrin N, Wall E (1998) Effects of abuse on maternal complications and birth weight in adult and adolescent women. *Obstetrics and Gynecology* 92: 530-534.
17. Farnandez F, Krueger PM (1999) Domestic violence: Effect on pregnancy outcome. *Journal of the American Osteopath Association* 99(5): 254-256.
18. Rosales OJ (1999) Encuesta Nicaraguense de Demografia y Salud [SPA] [1998] Nicaraguan Demographic and Health Survey]. Managua, Nicaragua: Instituto Nacional de Estadisticasy Censos.
19. Heaton TB, Forste R (2008) Domestic violence, couple interaction and children's health in Latin America. *Journal of Family Violence* 23: 183-193.
20. Roushdy R (2004) Intra-household resource allocation in Egypt: does women's empowerment lead to greater investments in children? Population Council, West Africa and North Asia Region. Working Paper 0410 11, 306.
21. Jejeebhoy SJ (1998) Association between wife-beating and fetal and infant death: Impressions from a survey in rural India. *Studies in Family Planning* 29(3): 300-308.
22. Ahmed S, Koenig MA, Stephenson R (2006) Effects of domestic violence on perinatal and early childhood mortality: Evidence from North India. *American Journal of Public Health* 96(8): 1423-1428.
23. Ganatra B, Coyaji KJ, Rao VN (1996) Community cum hospital based case control study on maternal mortality. Pune, India, Kem Hospital Research Centre, p: 62.
24. Johnson N, Sengupta M (2008) Do battered mothers have more foetal and infant deaths? Evidence from India. PSC Research Report No.08-634.
25. Ackerson LK, Subramanian SV (2009) Intimate partner violence and death among infants and children in India. *Pediatrics* 124(5): e878-e889.
26. Koenig MA, Stephenson R, Acharya R, Barrick L, Ahmed S et al. (2010) Domestic violence and early childhood mortality in rural India: Evidence from prospective data. *International Journal of Epidemiology* 39(3): 825-833.
27. Sethuraman K, Lansdown R, Sullivan K (2006) Women's empowerment and domestic violence: The role of socio-cultural determinants in maternal and child under-nutrition in tribal and rural communities in South India. *Food Nutrition Bulletin* 27: 128-143.
28. Singh A, Mahapatra B, Dutta S (2008) Spousal abuse and infant and child mortality in India. *Asia-Pacific Population Journal* 23(2): 33-54.
29. Pathak PK, Singha A (2011) Trends in malnutrition among children in India: Growing inequalities across different economic groups. *Social Science and Medicine* 73(4): 576-585.
30. Pathak PK, Singh A (2009) Geographical variation in poverty and child malnutrition in India. In: Singh KK, Yadava RC, Pandey A editors. *Population, poverty and health: Analytical approaches* (pp. 183e206). New Delhi, India: Hindustan Publishing Corporation.
31. Braun JV, Ruel M, Gulati A (2008) Accelerating progress toward reducing child malnutrition in India - A concept for action. Washington, D.C. USA: International Food Policy Research Institute (IFPRI).

32. International Institute for Population Sciences (IIPS) and Macro International (2007) National Family Health Survey (NFHS-3), India, 2005-06. Vol. 1, Mumbai: IIPS.
33. Haddad L (2009) Introduction – Lifting the Curse: Overcoming Persistent Under nutrition in India. *Institute of Development Studies, Bulletin* 40(4): 1-129.
34. International Institute of Population Sciences & ICF International. National Family Health Survey (NFHS- 4), 2015-16, India Fact Sheet. Mumbai: IIPS.
35. Dyson T, Moore M (1983) On kinship structure, female autonomy, and demographic behaviour in India. *Population and Development Review* 9(1): 35-60.
36. Jejeebhoy SJ (2000) Women's autonomy in rural India: its dimensions, determinants, and the influence of context. In: Harriet B Presser, Gita Sen editors. *Women's Empowerment and Demographic Processes: Moving Beyond Cairo*. New York: Oxford University Press.
37. Jejeebhoy SJ, Sathar ZA (2001) Women's autonomy in India and Pakistan: The influence of religion and region. *Population and Development Review* 27(4): 687-712.
38. Jejeebhoy SJ, Abhishek Singh, Santhya KG, Mohanty S, Acharya R, et al. (2009) Spouse Selection Practices and Gender Relations within Marriage among Young People in Tamil Nadu: Findings from the Youth in India: Situation and Needs Study. Paper presented at the XXVI IUSSP International Population Conference, Marrakech, Morocco.
39. McFarlane J, Parker B, Soeken K (1996) Abuse during pregnancy: Associations with maternal health and infant birth weight. *Nursing Research* 45(1): 37-42.
40. Repetti RL, Taylor SE, Seeman TE (2002) Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin* 128(2): 330-366.
41. Yount KM, DiGirolamo AM, Ramakrishnan U (2011) Impacts of domestic violence on child growth and nutrition: A conceptual review of the pathways of influence. *Social Science and Medicine* 72: 1534-1554.
42. Furuta M, Salway S (2006) Women's position within the household as a determinant of maternal health care use in Nepal. *International Family Planning Perspective* 32(1): 17-27.
43. Allendorf K (2010) The quality of family relationships and use of maternal healthcare services in India. *Studies in Family Planning* 41(4): 263-276.
44. Heise L, Ellsberg M, Gottmoller M (2002) A global overview of gender-based violence. *International Journal of Gynaecology and Obstetrics* 78(1): S5-S14.
45. Sinha A, Chattopadhyay A (2016) Utilization of maternal and child health care services in North and South India: Does spousal violence matter? *International Journal of Population Studies* 3(1): 1-16.
46. Mullany BC, Hinde MJ, Becker S (2005) Can women's autonomy impede male involvement in pregnancy health in Kathmandu, Nepal? *Social Science and Medicine* 61(9): 1993-2006.
47. Merchant SM, Udipi SA (1997) Positive and negative deviance in growth of urban slum children in Bombay. *Food and Nutrition Bulletin* 18: 323-36.
48. Abbi R, Christian P, Gujral S, Gopaldas T (1991) The impact of maternal work status on the nutrition and health status of children. *Food and Nutrition Bulletin* 13: 20-25.
49. Hauvast JL, Jules Tolboom JM, Emmanuel Kafwembe M, Rosemary Musonda M, Mwanakasale V et al. (2000) Severe linear growth retardation in rural Zambian children: The influence of biological variables. *American Journal of Clinical Nutrition* 71: 550-559.
50. Allen L, Gillespie S (2001) What Works? A Review of the Efficacy and Effectiveness of Nutrition Interventions. In United Nations Administrative Committee on Coordination/Standing Committee on Nutrition and Asian Development Bank: Geneva.