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Original Research Article

Detrimental effects of intimate partner violence on the nutritional status of children: insights from PDHS 2012-2013

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ABSTRACT

Background: Endemicity of intimate partner violence (IPV) against women is established globally. Children are directly dependent on mothers for care and nourishment. Literature has shown inconsistent association between IPV and nutritional status of children, and no nationwide study has been conducted in Pakistan to test this association. Thus, we aimed to do a secondary data analysis on Pakistan Demographic Health Survey (PDHS 2012-13) to explore the association of IPV and the nutritional status of children.
Methods: This secondary data analysis was conducted on nationally representative data of PDHS 2012-13. All four provinces, including Islamabad Capital Territory and Gilgit Baltistan districts were taken, and two stage stratified random sampling was performed. The conflict tactics scale (CTS) was used to quantify Intimate Partner Violence (IPV), and its emotional and physical dimensions.
Results: This study included mother-child dyads (n=1851) who completed the domestic violence module in PDHS. The lifetime prevalence of intimate partner violence was almost 40% among married women of reproductive age group. About 20% of women reported emotional violence and 2.5% women reported physical violence only. However, 16% of the women reported having suffered from both emotional and physical violence. Women who suffered from emotional violence had children with significantly higher odds of being underweight (OR, 95% CI: 1.57, 1.04-2.36) and stunted (OR, 95% CI: 1.54, 1.05-2.24) respectively. IPV was not found to be significantly associated with occurrence of wasting in children.
Conclusions: Policy implications towards this issue call for establishing programmes and laws to protect women and children from the detrimental effects of violence. Provision of initiatives which focus on women autonomy and empowerment via increased access to education and economic opportunities.

Keywords: Intimate partner violence, Nutritional status, Domestic violence, Pakistan, Malnutrition

INTRODUCTION

Endemicity of intimate partner violence (IPV) against women is established globally and is alarmingly high. One in every three women suffer from IPV at least once in her lifetime.[1] IPV is defined as, "a pattern of physical, sexual and/or psychological abuse by a person with whom the victim has had an intimate relationship".[2] Its presence has been established worldwide, across nations, various settings, cultures, religions, class and creed, with the burden being higher in low and middle income countries.[1] A multi-center study conducted by World Health Organization (WHO) reported 30% global ever lifetime prevalence of IPV.[3]

While the rates of violence may differ across the nations, their health consequences are similar. It has both acute and long-term effects on physical, mental and

psychological health. Research has shown that negative effects continue long after the abuse stops.[1] The presence of this menace in homes which are considered to be "safe heaven" for any individual, perpetually has devastating effects not only on the victims but also harms their children. As mothers are the primary caregivers of their young children, IPV leads to impairment in nutritional status and growth of children under 5 years of age.[4-6] Studies estimate that approximately 170 million stunted children in low and middle income countries may be effected by indirect effects of such violence.[4] A study conducted in Liberia demonstrated wasting and stunting in children whose mothers were victims of IPV.[5] Children who are exposed to maternal violence may have higher stress levels which in itself leads to decreased metabolic rate and nutritional and functional growth.[4] A cross sectional study conducted in India in mother-child dyads revealed higher odds of stunting in those children who were exposed to maternal violence.[6]

In Pakistan IPV has not been recognized as a social evil and a grave public health issue, owing to its deep roots within social, cultural and religious values and norms. There is wide social acceptance and very little hue and cry is raised as it is generally considered as a family's private matter which should not be interfered with.[7] Various studies from across different socio-economic strata have shown that 20-70% women in Pakistan suffer from it.[8-10]

Literature has shown inconsistent association between IPV and nutritional status of children. There is no nationwide study available in Pakistan which assesses this association. This gap in evidence led us to do a secondary data analysis on the PDHS 2012-13 to explore the association of IPV and the nutritional status of children.

METHODS

Study design and population

This secondary data analysis was conducted on nationally representative data of Pakistan demographic and health survey carried out from October 2012 to December 2013. For this survey, all four provinces, ICT Islamabad and Gilgit Baltistan districts were included. Due to security concerns and chaos FATA, AJK and other military restricted areas not included in the study.

To obtain a representative sample throughout Pakistan, the sampling technique employed was two stage stratified random sampling. First stage comprised of selecting 500 primary sampling units (PSUs) through probability proportional to size sampling. A total of 248 enumeration blocks from urban frame and from the rural frame 252 villages were included. The second stage encompassed fixed criteria of 28 households from each PSU, through systematic random sampling, which gave a total sample of 14000 households (6944 urban and 7056 rural). Oversampling was done from ICT, Baluchistan and GB to compensate for overall low population. Oversampling was later on then adjusted by applying weights.

Sub-sample for intimate partner violence

Amongst the 14000 households, every third house was preselected for the administration of the domestic violence module. In order to maintain confidentiality, from each household only one woman was selected. Ever married women in the reproductive age group of 15-49 years were considered eligible. In those situations, where more than one participant was eligible Kish method was applied to select one participant. A total of 3743 women were eligible and 3687 were successfully interviewed. For the study, we included all cases of children whose anthropometric measurements were available. Therefore, a total of 1851 women and children dyads were included in our study.

Measurement tool

The conflict tactics scale (CTS) was used in the PDHS 2012-13 to quantify domestic violence. CTS is the oldest and most widely used instrument for measuring IPV, although it is not culture specific. It covers the domains of emotional, physical and sexual violence.

Variables

Dependent variable

The questions used for recording information regarding emotional violence were:

- Does your husband say or do something to humiliate you in front of others?
- Does your husband threaten to harm you or someone you care about?
- Does your husband insult you or make you feel bad about yourself?
- Does your husband frequently accuse you of being unfaithful?
- Does your husband not permit you to meet your female friends?
- Does he insist on knowing where you are at all times?
- Does your husband try to limit your contact with your family?
- Are you afraid of your husband?

Seven questions were used to record the information of physical violence:

- Does your husband ever push you, shake you or throw something at you?
- Does your husband ever slap you?
- Does your husband ever twist your arm or pull your hair?

- Does your husband ever punch you with his fist or with something that could hurt you?
- Does your husband ever kick you, drag you or beat you up?
- Does your husband try to burn you or choke you on purpose?
- Does your husband threaten or attack you with a knife, gun or other weapon?

The responses to the questions were coded as *yes* or *no*. The *yes* response was further categorized into *often, sometimes, yes but not in the last 12 months*, and *no response*. For our analysis, all sub-categories except *no* were taken as *yes*. The *no response* was also taken as a *yes* with the assumption that the women in Pakistan tend to hide the violence inflicted on them by their husbands. All the cases for whom there was missing information to even a single question were eliminated from the dataset, leaving behind a sample size of 3666 ever married women. If the women gave a positive answer to at-least 2 questions of emotional violence or physical violence, they were considered to be a victim of emotional or physical violence respectively. Although the questions of sexual violence were included in the instrument, yet no data was collected in this domain.

Independent variables

The risk factors assessed for their association with violence were the place of residence, husband's age, occupation and educational status, husband's alcohol intake, woman's occupation and educational status, number of live sons borne by the woman and the wealth index. The age of the husband (in years) was grouped as 15-25, 25-35, 35-45 and >45. Educational attainment was grouped into no education, primary, secondary and higher education. The occupational status of the husband and the wife was taken as not employed, employed in unskilled work (household and domestic work, agricultural self-employed, unskilled manual work) and skilled work (professional, technical, managerial, sales, services, skilled manual). The variable of wealth index was constructed from a list of household assets.

Statistical analysis

The analysis was done on Stata version 13. Frequencies and weighted proportions were reported for all the variables. The survey command '*svy'* was used to adjust for multistage sampling strategy of PDHS. Multi-collinearity among the variables was assessed using Cramer's V. Univariate binary logistic regression was run to assess the association between IPV and nutritional status of children. 95% Confidence Interval (CI) were calculated and p value <0.05 was considered statistically significant.

WHO anthro plus software was used for calculating z scores for underweight, stunting and wasting amongst under 5-year-old children. If the z scores were *less than -2* the children were considered as underweight, stunted and wasted respectively.

RESULTS

This study included mother-child dyads (n=1851) who completed the domestic violence module in PDHS. About 50% of the women were from the middle age group, and 55.3% of them were illiterate. 40% of the women belonged to lower wealth quintiles and 71.8%of them were unemployed. Majority of the participants belonged to Punjab (57.8%), and 67% resided in rural areas. Almost 67% of the women had 2 or more children less than 5 years of age. All the children included in the study were from 1- 59 months age group. Majority (53%) were boys, with 58.8% being ever vaccinated. Almost 27% had diarrhea in the past two weeks. 32.3% of children were underweight, 46.2% were stunted and 14.1% were wasted (Table 1).

Table 1: Socio-demographic characteristics of mother-children dyads, PDHS 2012-13.

Characteristics	Frequency (n=1851)	Weighted (%)	(95% CI)
Mother			
Current age			
16-25 years	500	31.9	(28.4-35.5)
26-35 years	967	49.8	(46.2-53.3)
36-50 years	384	18.2	(15.9-20.8)
Region			
Punjab	533	57.8	(54.6-61.0)
Sindh	415	22.9	(20.5-25.5)
KPK	352	13.8	(12.1-15.7)
Baluchistan	235	4.1	(3.3-5.0)
Gilgit-Baltistan	188	0.72	(0.60-0.88)
Islamabad Capital Territory	128	0.39	(0.32-0.48)
Residence			
Rural	1040	67.9	(64.6-71.0)
Urban	811	32.0	(28.9-35.3)

Continued.

Characteristics	Frequency (n=1851)	Weighted (%)	(95% CI)
Educational status			
No education	995	55.3	(51.8-58.7)
Primary education	289	16.8	(14.3-19.7)
Secondary education	350	18.3	(15.8-21.1)
Higher education	217	9.4	(7.7-11.4)
Occupation of respondents			
Does not work	1438	71.1	(67.5-74.5)
Skilled work	188	11.0	(9.0-13.4)
Unskilled work	225	17.8	(14.8-21.3)
Wealth index			
Poorest	417	22.7	(19.6-26.1)
Poorer	377	20.5	(18.0-23.2)
Middle	338	18.1	(15.7-20.9)
Richer	380	21.9	(19.1-24.9)
Richest	339	16.6	(14.1-19.3)
Body mass index			
<18	155	11.1	(9.0-13.6)
18-25	1018	56.2	(52.8-59.6)
>25	678	32.6	(29.5-35.7)
Husband education level			
No education	563	32.3	(29.2-35.6)
Primary	249	18.0	(15.0-21.5)
Secondary	620	32.8	(29.7-36.1)
Higher education	419	16.7	(14.6-19.1)
Gender			
Male	951	53.2	(49.7-56.6)
Female	900	46.7	(43.3-50.2)
Age of the child			
Till 1 year	555	31.4	(28.3-34.6)
1-2 years	427	23.9	(21.0-27.0)
2-3 years	406	22.2	(19.1-25.7)
3-4 years	275	13.9	(11.8-16.2)
4-5 years	188	8.4	(6.8-10.3)
Breastfeeding duration			
0-6 months	443	25.8	(22.8-29.0)
6-12 months	491	25.3	(22.5-28.4)
Greater than 12 months	917	48.7	(45.2-52.2)
Birth weight of the child			
<2.5 kg	615	34.6	(31.2-38.2)
2.5-4 kg	982	51.8	(48.2-55.3)
>4 kg	254	13.5	(11.4-15.8)
Ever had vaccination			
Yes	1094	58.8	(55.2-62.3)
No	757	41.1	(37.6-44.7)
Child recently had diarrhea			
Yes	467	27.0	(24.0-30.1)
No	1384	72.9	(69.8-75.9)
Underweight	554	32.3	(29.0-35.9)
Stunting	861	46.2	(42.7-49.8)
Wasting	254	14.1	(11.9-16.6)

Table 2: Prevalence (frequency and weighted proportions) of intimate partner violence, PDHS 2012-13.

Characteristics	Frequency (n=1851)	Weighted (%)	(95% CI)
No intimate partner violence	1109	60.9	(57.5-64.1)
Only physical violence	53	2.5	(1.80-3.50)
Only emotional violence	371	20.0	(17.4-22.8)
Both emotional and physical violence	318	16.4	(14.2-18.9)

Table 3: Association between IPV and malnutrition of children, PDHS 2012-13.

Characteristics	Underweight cOR (95% CI)	P value	Stunting cOR (95% CI)	P value	Wasting cOR (95% CI)	P value
Emotional violence						
Absent	1		1		1	
Mild	1.57 (1.04-2.36)	0.031	1.54 (1.05-2.24)	0.024	1.14 (0.69-1.87)	0.594
Moderate	1.00 (0.67-1.50)	0.978	1.20 (0.83-1.74)	0.312	1.15 (0.66-1.99)	0.603
Severe	1.24 (0.81-1.91)	0.311	1.57 (1.04-2.37)	0.032	1.11 (0.61-2.00)	0.721
Physical violence						
Absent	1		1		1	
Present	0.94 (0.68-1.29)	0.721	1.13 (0.84-1.51)	0.391	0.98 (0.65-1.49)	0.949

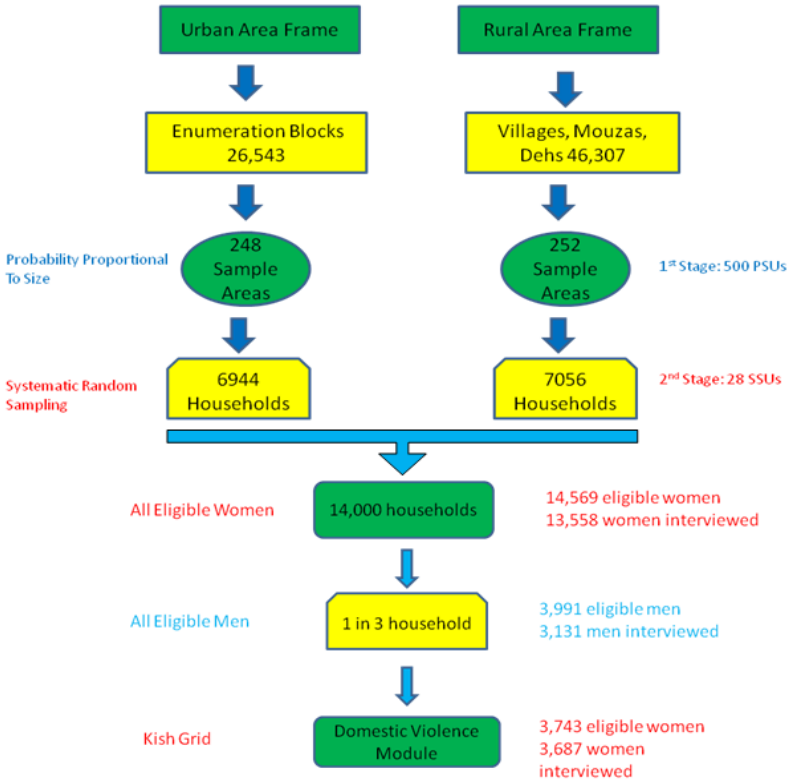

Figure 1: Schematic representation of sampling strategy for PDHS 2012-13.

The lifetime prevalence of intimate partner violence was almost 40% among married women of reproductive age group. About 20% of women reported emotional violence and 2.5% women reported physical violence only. However, 16% of the women reported having suffered from both emotional and physical violence (Table 2).

We tested the association between malnutrition in children (underweight, stunting and wasting) and IPV. Women who suffered from emotional violence had children with significantly higher odds of being underweight (OR, 95% CI: 1.57, 1.04-2.36) and stunted (OR, 95% CI:1.54, 1.05-2.24) respectively. IPV was not found to be significantly associated with occurrence of stunting in children (Table 3).

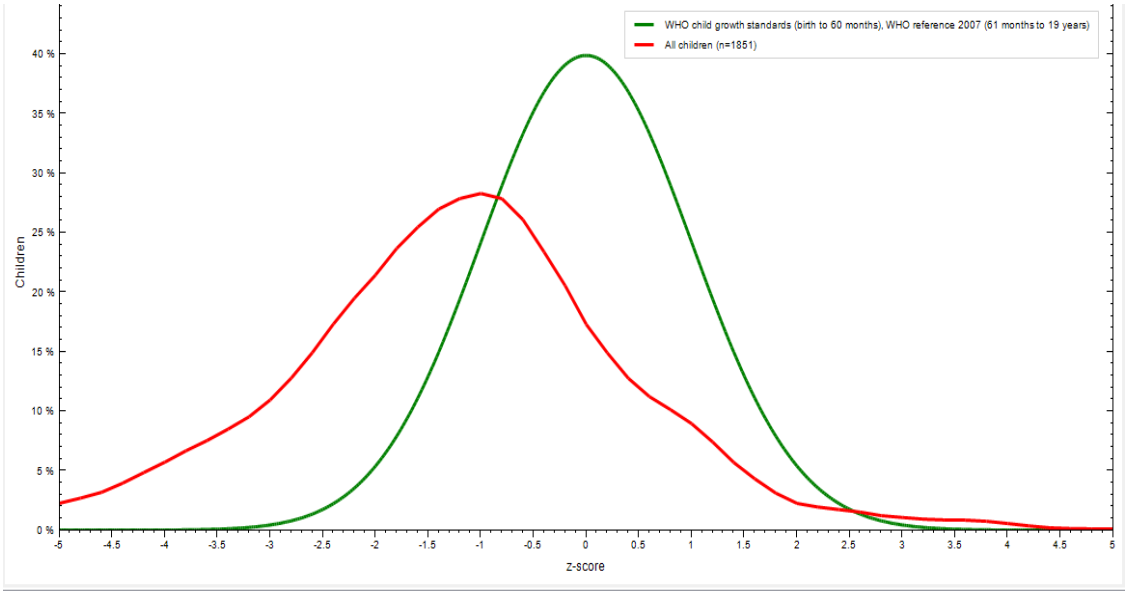

Figure 2: Z-scores for weight-for-age of children (n=1851).

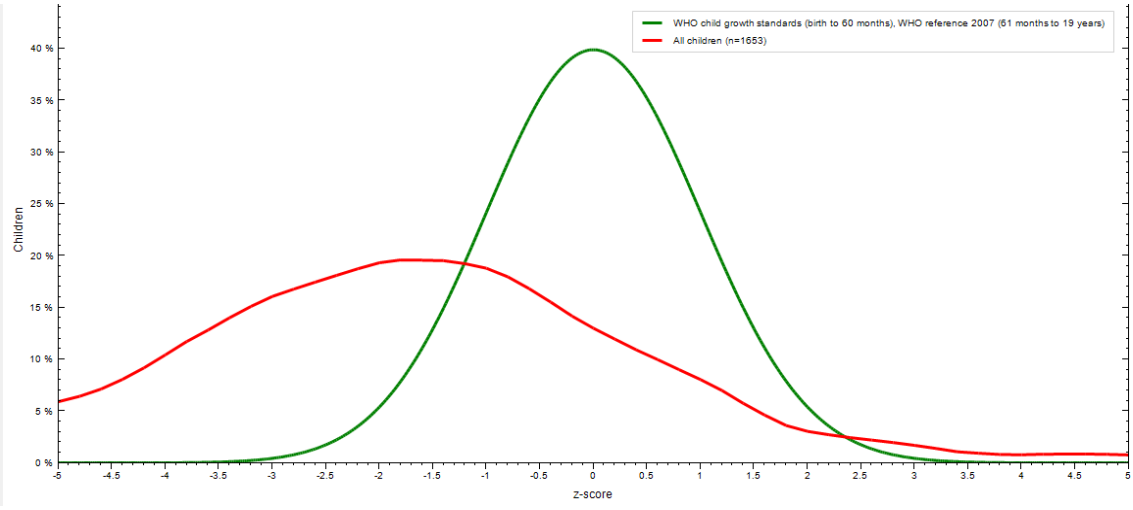

Figure 3: Z-scores for height-for-age of children (n=1851).

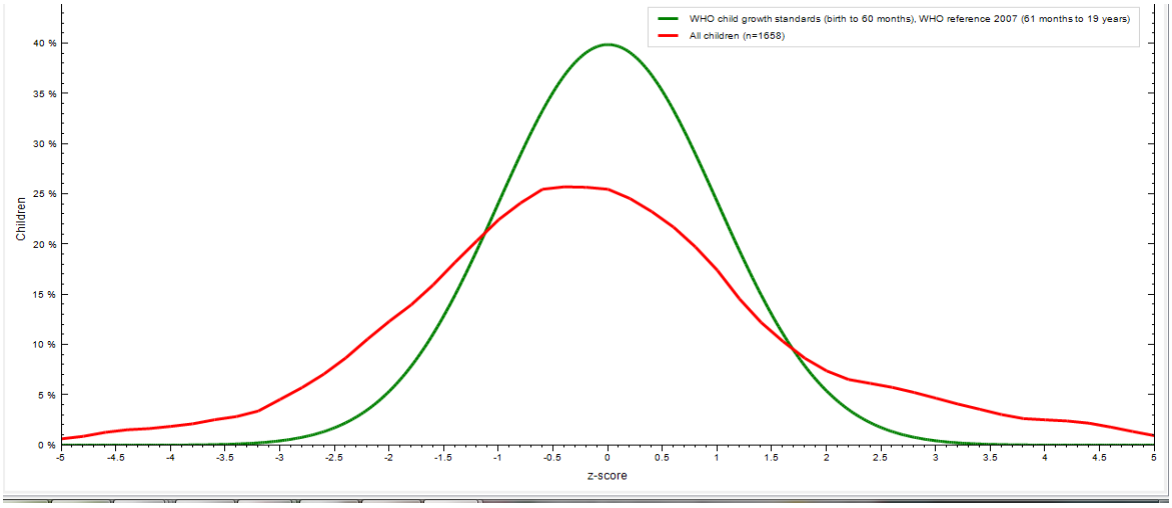

Figure 4: Z-scores for BMI of children (n=1851).

Z-scores of weight-for-age (Figure 2) and height-for-age (Figure 3) in children show that our study population was lagging behind when compared to WHO child growth standards. Z-scores for BMI (Figure 4) however revealed that our population performed in line with WHO standards.

DISCUSSION

Intimate partner violence (IPV) is a significant issue worldwide with known detrimental effects on the mental and physical health of women.[1] The effect of IPV on children has recently come up on the agenda, due to the close nature of mother child relationship. Huge gaps still exist in the literature regarding the nature of association, however since the children are directly exposed to maternal violence due to their dependence on their mothers as caregivers they are at high risk.[5] Even wider gaps in this regard exist in developing countries and South East Asia region, despite high prevalence of IPV and malnutrition. This study therefore added new information to literature from a national level data collected from Pakistan, on IPV, along with information on all individual and household level confounders and objectively measured anthropometric indices.[11]

Our results have revealed significant positive association between malnutrition in children under 5 years and maternal violence especially emotional violence. This positive relationship was evident for overall (underweight) and long term (stunting), which severely hampers the growth of these children with severe consequences in adulthood. These findings are similar to a study conducted in Liberia in which children who were exposed to maternal domestic sexual violence showed low mean for height and 2.6 times more likely to be stunted.[5] Similar finding was also reported by a study conducted in India from a nationally representative data in which maternal violence led to 1.2 times higher odds of underweight children.[12] This can be explained by the fact that violence leads to have psychological stress on mothers and hence they are unable to take care of the young children who are dependent on them. It also leads to the stress in children and hence effecting their growth and nutrition.[13]

Women residing in rural areas had children with higher odds of malnutrition. Pakistan has a Patriarchal society, with males considered as the superior gender due to the economic social and cultural dependence on them. Men are the decision makers in the houses with no say of the women. Inflicting abuse on their spouse is socially and culturally acceptable. This phenomenon is more profound in the rural areas. Society also contributes to this as, interfering within husband wife's matter is not considered as appropriate. Women also find it normal to be violated and do not consider it as reportable.[7] Younger mothers with lesser education and having lack of empowerment are more easier to oppress. Poverty and food insecurity are also factors which lead to disputes and violence at homes and known to have direct associations with malnutrition.[6,12]

The strengths of our study are that it is amongst the first ones conducted in Pakistan which has tried to establish the effects of IPV on children's growth. Another important is that it is coming from a nationally representative data, therefore the findings are generalizable. Our study has some limitations too. As this is a secondary data analysis of a cross sectional survey, it is not an ideal design for establishing this association. The purpose of this PDHS was not to establish this association therefore the confounders were not controlled. This calls for conducting more longitudinal studies to establish causality. Another limitation is that data on sexual violence which is a very important element was not available, and its prevalence is thought to be much higher, but due to cultural barriers it is not reported. Another limitation is on the self-reported data of violence, which can affect due to recall bias or some events not reported out of fear or shame.

CONCLUSION

Extensive and joint efforts need to be channelized towards reduction of violence against women, which would not only be beneficial for women health, but it would also contribute in improving the growth, health and future of the children. This can be substantiated by empowering the women and providing them with education and job opportunities, hence making them financially independent. Policy implications towards this issue call for establishing programmes and laws to protect women and children from the detrimental effects of violence. Provision of initiatives which focus on women autonomy and empowerment via increased access to education and economic opportunities.

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