Familial Risk and Dowry Demand: Are they Causal Factors for Physical and Psychological Violence among Women? A Structural Equation Modeling

Thenmozhi Mani[1], B. Malavika[1,2], Rani Mohanraj[3], Subha Kumar[3], Melvin Joy[1,4], S. Marimuthu[1], Shankar Viswanathan[5], Shrikant I. Bangdiwala[6], L. Jeyaseelan[1,7]*

ABSTRACT

Background: In India, studies dealt with domestic violence have used linear or logistic regression to present risk factors. These methods do not allow studying the impact of intermediate variables on the path which could exert indirect or mediation effects on the outcome. This study investigated the direct and indirect effects of familial risk and dowry demand on physical and psychological violence through the mediating variables: alcohol use, women characteristics and social support. **Study design:** A population-based, cross-sectional household survey was conducted at seven sites in six states across India, based on 9938 women. **Methods:** Confirmatory Factor Analysis and Structural equation models were used to investigate the associations of familial risk, dowry demand and mediating variable use with physical and psychological violence. Models were assessed using goodness of fit statistics. **Results:** The direct and indirect relationship between familial risk and physical violence with regression coefficient was 0.323 and 0.100 respectively. Similarly, for psychological violence was 0.151 and 0.371 respectively. The dowry demand had indirect effect (0.209) on psychological violence through the mediating variables such as alcohol use, women characteristics, social support and physical violence as compared to direct effects (0.112). The model fit statistics had a moderately good fit with RMSEA=0.09, Chi square with p<0.001 and CFI 0.87. **Conclusion:** Despite the fact that the women were exposed to abuse during childhood period the mediating variables such as social support, women characteristics and Husbands alcohol use etc., have a significant role to play to contain the both physical and psychological violence.

Keywords: Violence, Familial risk, Dowry demand, Structural equation modeling, Direct effect, Indirect effects

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INTRODUCTION

The United Nations has declared domestic violence (physical and psychological) a human rights violation. Despite this recognition, the prevalence of violence has largely remained unchanged over the past 10 years or more. Given that the spousal violence is associated with negative consequences such as physical trauma, mental illness, psychosomatic illness, suicide, and even homicide.[1,2] While it is universal, its expressions vary regionally and culturally. The prevalence of psychological violence was 75%, 74%, and 43% in Bangladesh, Thailand, and Japan respectively.[3] Partner violence (physical and psychological) was low in Denmark, the UK, Ireland, and the USA.[4] A survey of women in Tamil Nadu and Uttar Pradesh indicated 37% and 44% prevalence of physical assault, respectively. A study of 10,000 Indian women found that 26% had suffered marital physical abuse throughout their marriage.[5]

Risk Factors

Demographic characteristics

Risk factors for violence have also been thoroughly reported in numerous studies. The IndiaSAFE study highlighted that women whose husbands drank alcohol, who were physically abused as children, or who saw their fathers beat their mothers, were more likely to experience spousal physical violence.[6] Women with greater education and occupation levels than their husbands were also shown to be more likely to be victims of domestic violence.[7] This study also emphasised the value of good social support in preventing spousal physical violence.

[1]Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India.

[2]Centre for Trials Research, College of Biomedical and Life Sciences, Cardiff University, Cardiff, United Kingdom.

[3]Samarth NGO, Chennai, Tamil Nadu, India.

[4]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Newcastle upon Tyne, United Kingdom.

[5]Department of Epidemiology and Population Health, Albert Einstein College of Medicine, Bronx, New York, USA.

[6]Department of Health Research Methods, Population Health Research Institute, Evidence and Impact, McMaster University, Canada.

[7]College of Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, UAE.

Corresponding Author: Dr. L. Jeyaseelan, College of Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, UAE. E-mail: prof.ljey@gmail.com

Dowry demand

Married women suffer severe harassment, not only from their spouses but also from their in-laws, because of unfulfilled dowry

demands.[7] Other studies from India have also underlined the close link between dowry and spousal violence, emphasizing the important role it plays in the power relations between spouses and their families.[8,9] Jeyaseelan *et al* (2007) found that the risk of dowry demand is greater for woman with higher education. This is because in India, parents of highly educated girls seek boys of equal or higher educational status for their daughters which in turn results in a commensurate increase in dowry demand. The dowry required to arrange such a marriage inflicts a burdens the bride's family.[5] A research in Bangladesh found that an increasing literacy rates correlated with increasing dowry demands.[10]

Familial risk

The association between witnessing violence in childhood and experiencing violence later on in life has been found in many studies in different regions.[11,12] A study conducted in Nigeria found that women who had witnessed inter-parental violence were more tolerant of the experience of violence and were more likely to be abused by their partners.[13] Another study from Pakistan also concluded that women who saw their mothers abused by their fathers were more likely to experience intimate partner violence(IPV).[14]

Alcohol use

Many studies have suggested an association between alcohol consumption and IPV.[15,16] Some studies have also reported that increased alcohol consumption contributes to more violence.[5,7,17] Although many studies have reported husbands alcohol use as a risk factor for the experience of spousal violence by the wife, they have mostly looked at a one-way relationship.[18,19]

Most research on these risk factors has employed linear and logistic regression. This sort of statistical analysis can only examine direct relationships between explanatory (exogenous) and outcome (endogenous) variables. They do not allow for estimation of indirect or mediation effects. From this perspective, investigations that view violence as a phenomenon with multiple causes must be examined and statistical analyses that enable such assessments are necessary. Only such an approach will allow us to comprehend violence as a network of interconnected risk factors. These observations may help inform more culturally relevant and may work in the real world. Therefore, the objective of this paper was to examine the direct and indirect relationships of familial risk and dowry demand on both physical and psychological violence through intermediate variables such as social support, husband's alcohol use and women characteristics using Structural Equation Modeling (SEM).

METHODS

A population-based, cross-sectional household survey was conducted during the period April 1998 to September 1999 by the Indian Clinical Epidemiology Network (IndiaCLEN) at seven sites in six states across India. The sites were New Delhi, Lucknow, Bhopal, Nagpur, Chennai, Trivandrum, and Vellore. Using Population Proportionate to Size (PPS) sampling, data were collected from rural, urban slum, and urban non-slum strata in the seven sites according to the guidelines of the 1991 census of India. A total of 9938 (rural 3611, urban slum 3155, urban non-slum 3172) woman aged between 15–49 years with at least one child where included

in the study.[5] This study was approved by the Institutional review board (Ref: R.C.Min.No.3722).

Constructs and Indicator Variables

The violence outcome measures of husbands towards their women in this study were behavior based and divided into two domains.

Physical Violence

Lifetime prevalence of physical violence was assessed based on four violence behaviors namely, slap, hit, kick and beat which was later grouped into three categories for the purpose of analyses.

(a) *'Any violence',* was defined as the perpetration of any one of the four physical violence behaviors by the partner

(b) *'Multiple violence',* was defined as the perpetration of two or more of the four physical violence behaviors by the partner;

(c) *'All violence'*, was defined as the perpetration of all four types of physical violence behaviors by the partner.

Psychological Violence

Seven psychological violence behaviors for lifetime and current prevalence were assessed. These seven behaviors were, insult, belittle or demean, threaten woman respondent, threaten someone the women respondent cared about other than herself, abandonment, caused her to feel fearful and husband's unfaithfulness.

Each question on physical and psychological violence had the following possible response: (a) never, (b) once or twice, (c) three or more.

Women characteristics

Women characteristics were assessed using multiple items in the questionnaire, namely, age, education and employment status.

Social support

Four potential sources of social support were assessed, namely, natal family, neighbors, husband and others. The type of social support assessed was exclusively emotional and physical, material support was not assessed. For hypothesis testing, a composite score from these four sources were used. For each source two scores were possible: '0' if the index woman reported no support from the source and '1' if she had received support, the range of scores was 0-4. No '0'; Low '1 or 2'; and High '3 or 4'.

Familial risk

Familial risks were assessed by asking the women to recall their personal childhood experiences of family violence behaviors, namely, experience of harsh physical punishment as a child and witnessing her father beat her mother.

Alcohol use

Husband's alcohol consumption was elicited from women who had been residing with their husbands for the past 12 months. The questions asked were, i) Does your husband ever drink alcohol? ii) Has he been drunk during the past year? iii) About how often

does he get drunk? The response options for first and second questions were Yes/No. The third question had 4 response options namely, "Teetotaller", "Not to Excess", "Occasionally Drunk" and "Regular". To simplify the interpretation, alcohol use was converted into a binary (Yes/No), where "Teetotaller" was labelled "No" and remaining options were labelled "Yes".

Dowry demand

Dowry refers to the payment of cash or provision of gifts by the bride's family to the bridegroom's family at the time of marriage. The groom's family often makes specific demands and these dowry demands do not just end with the marriage, but often continue on throughout the woman's marital life. Responses to questions on dowry demand were measured on a three-point continuum for satisfaction of dowry by the spouse, ranging from: 1 'very much', 2 'somewhat', and 3 'not at all'. To simplify the interpretation, the options were converted into a binary (Yes/No), where "not at all" was "No" and remaining options were labelled "Yes".

Hypothesized Relationships For The Model

This study focused on two hypotheses: The First was to determine if familial risk has a direct association with either physical or psychological violence. Furthermore, by including intermediate variables like dowry demand, social support, and women characteristics on the path, to determine whether these variables had an indirect effect on these outcome variables of violence. The second hypothesis was that the dowry demand exerts both a direct and indirect effect on physical and psychological violence.

Statistical Methods

Estimates with 95% confidence intervals and two proposed hypothesized SEM were presented. In the first model, study variables were familial risk with dowry demand, social support, and women characteristics on the path defining the relationship with the outcome variables, physical and psychological violence. In the second model, dowry demand with alcohol use, social support, and women characteristics on the path defining the relationship with physical and psychological violence. A Confirmatory Factor Analysis (CFA) was also done to assess the goodness of fit of all the domains.

Structural equation models were used to investigate associations of familial risk, dowry demand, social support, women characteristics and alcohol use with physical and psychological violence. There are two equations, namely the measurement model (latent variables) and the structural model, to study the relationship between the observed and latent variables on the outcomes. In this context, used observed variables that are direct measures and the latent variables that are derived by measurement equations using the linear combination of observed variables. For the specification of the structural equation, the latent variables were further classified as exogenous and endogenous variables. SEM was performed using R software, version 3.5.3 with Lavaan package. To assess the model, fit statistics was used such as chi-square with p-value which is expected to be >0.05, Root Mean Square Error of Approximation (RMSEA) which is expected to be ≤0.08 and comparative fit index and the Tucker Lewis index (CFI/TLI) which are expected to be closer to one. Missing data were excluded from the analysis.

RESULTS

Most of the women were in the age group of 21-29 years (39.2%) and 30-39 years (41.5%). A little over 44% had ≤5 years of education, about one fourth had undergone 10–12 years of education and 11% had undergone more than 13 years of education. Nearly 44% of women had experience violence and 26.3% had witnessed during childhood. Approximately 20% of the women had faced dowry demand and 40.4% of their husbands drank alcohol [Table 1].

Outcome Variables

The prevalence of any physical violence against women was 40%and among them 39.8%, 17.3%, 20.3%, and 20.4% experienced slap, kick, hit and beaten respectively. Similarly, prevalence of any psychological violence was about 49%, among them, 45%, 40.7%, 26.4%, 12.6%, 21.8%, 6.4%, and 9.6% had experienced being insulted, demeaned, threatened, having someone they knew being threatened, feeling afraid, being abandoned and husband's unfaithfulness respectively [Table 2].

Causal models

Figures 1 and 2 represents the proposed SEM and factor loadings of the latent variables. Similarly, Tables 2 and 3 shows the regression weights for the observed variables in Models I and II. The goodness of fit for each of the four domains is as follows. The physical violence domain with 4 items on physical violence demonstrated good fit (Chi-square p value <0.001, Bentler's CFI = 0.98, and RMSEA = 0.13). The psychological violence domain contained 7 items had the best fit with Chi-square p<0.001, CFI 0.87 and RMSEA 0.18. The domain on familial risk contained only 2 questions that had a moderate

Table 1: Distribution of socio-demographic variables of the women

Variables	N	%
Age of the women		
≤20	445	4.5
21-29	3888	39.2
30-39	4118	41.5
≥40	1468	14.8
Education		
≤5	4443	44.7
6-9	2183	22.0
10-12	2230	22.4
≥13	1082	10.9
Employment status		
Yes	2565	25.8
No	7373	74.2
Experienced violence during childhood		
Never	5596	56.3
Once or Twice	2598	26.1
Three or more	1744	17.5
Witnessed violenceduring childhood		
Yes	1584	26.3
No	4440	73.7
Dowry demand		
Yes	1894	19.5
No	7827	80.5
Husband's alcohol use		
No	5614	59.6
Yes	3813	40.4
Social support		
High	2677	26.9
Some	6858	69.0
None	403	4.1

Table 2: Distribution of latent variables with 95% confidence interval

Variables	N	Percentage (95% CI)
Physical violence - overall	4005	40.3 (39.3, 41.2)
Slap		
Yes	3953	39.8 (38.8, 40.7)
No	5985	60.2 (59.3, 61.2)
Kick		
Yes	1718	17.3 (16.5, 18.0)
No	8220	82.7 (82.0, 83.5)
Hit		
Yes	2014	20.3 (19.5, 21.1)
No	7924	79.7 (78.9, 80.5)
Beat		
Yes	2025	20.4 (19.6, 21.2)
No	7913	79.6 (78.8, 80.4)
Psychological violence- overall	4847	48.8 (47.8, 49.8)
Insult		
Yes	4468	45.0 (44.0, 45.9)
No	5470	55.0 (54.1, 56.0)
Demean		
Yes	4049	40.7 (39.8, 41.7)
No	5889	59.3 (58.3, 60.2)
Threaten		
Yes	2627	26.4 (25.6, 27.3)
No	7311	73.6 (72.7, 74.4)
Threat someone		
Yes	1257	12.6 (12.0, 13.3)
No	8681	87.4 (86.7, 88.0)
Afraid		
Yes	2168	21.8 (21.0, 22.6)
No	7770	78.2 (77.4, 79.0)
Abandoned		
Yes	638	6.4 (5.9, 6.9)
No	9300	93.6 (93.1, 94.1)
Unfaithful		
Yes	950	9.6 (9.0, 10.2)
No	8988	90.4 (89.8, 91.0)

fit with Chi-square p <0.001, CFI 0.99. The domain on women characteristics contained 5 items and also had a good fit with Chi-square p<0.001, CFI 0.91 and RMSEA 0.10.

(i) *Direct and indirect effects of familial risk on physical and psychological violence:* One point increase in familial risk there was 0.151 unit significant increase in psychological violence (p<0.001). Similarly, with a one unit increase in dowry demand, there was a 0.100 unit increase in psychological violence (p<0.001). The indirect effects of familial risk on psychological violence showed that familial risk, contributed to 0.371 psychological violence through dowry demand, social support, women characteristics and physical violence (p<0.001). Similarly, the indirect effect of dowry demand contributed to 0.158 in psychological violence through social support, women characteristics and physical violence [Table 3].

Familial risk contributed to 0.323 unit in physical violence (p<0.001). Similarly, in dowry demand contributed to 0.196 in physical violence (p<0.001). Also, there was a 0.226 in physical violence with through women characteristics (p<0.001). The indirect effect of familial risk on physical violence was 0.100 through dowry demand, women characteristics and social support (p<0.001). The model fit statistics had a moderately good fit with RMSEA=0.09, Chi square p value <0.001 and 0.86 CFI.

(ii) *Direct and indirect effects of dowry demand on physical and psychological violence:* The direct effect of dowry demand was 0.112, i.e. a one point in psychological violence

(p<0.001). Similarly, husband's alcohol use contributed to 0.100 in psychological violence (p<0.001). The indirect effect of dowry demand on psychological violence was 0.209 in psychological violence through alcohol use, social support and women characteristics (p<0.001). Similarly alcohol use contributed to 0.171 in psychological violence through social support, women characteristics and physical violence (p<0.001).

Dowry demand contributed to 0.206 in physical violence (p<0.001). Similarly, alcohol use contributed to 0.186 in physical violence (p<0.001). Also, there was a 0.326 point statistically significant increase in physical violence with women characteristics (p<0.001). Dowry demand contributed to 0.031 in physical violence (p<0.001). Similarly, the indirect effect of alcohol use on physical violence was 0.022 through women characteristics and social support (p<0.001). The indirect effect of women characteristics on physical violence via social support did not show any significant association [Table 3]. The model fit statistics had a moderately good fit with RMSEA=0.09, Chi square p value <0.001 and 0.87 CFI.

DISCUSSION

This study determines the causal association of familial risk and dowry demand on physical and psychological violence with risk factors as mediating variables. This is the first study in India that has attempted to explore such a causal association. The findings of this study shows that both familial risk and dowry demand had a direct and indirect effect on physical and psychological violence. Many studies have focused on the direct effect of social support on the lives of women affected by violence. These studies did not examine social support as a mediator of violence. This paper examined the role of social support as a mediating variable for both familial risk and dowry demand in the indirect causation pathway. This implies that women who have less social support are more likely to be victims of physical violence than women with more social support.

Machisa *et al* (2018) found a strong relationship between social support and psychological violence.[20] However, there was no direct or indirect causal link between social support and psychological violence in this study. This may be because women who face increasing levels of psychological violence may find it difficult to maintain friendships or alter their circumstances.[21] The lack of relationships between social support and psychological violence could also be attributed to the study's assessments of both.

Many studies show a link between a woman witnessing parental violence between as a kid and her own experience of violence as an adult[11,22]. The findings of this study are in agreement with those reported in the preceding literature. Alcohol consumption by the husband was found to be a strong risk factor for violence[5]. Using SEM, this study determined that the direct and indirect effect of alcohol use were significant, implying that alcohol is a strong risk factor of violence. The above discrepancy between the conclusions of this study and those of other studies is due to the statistical methodologies used. Most studies, the researchers have developed their own questionnaire to evaluate the various types of violence, making comparisons difficult. The majority of studies used linear or logistic regression to evaluate these types of data, which may not be the optimal statistical
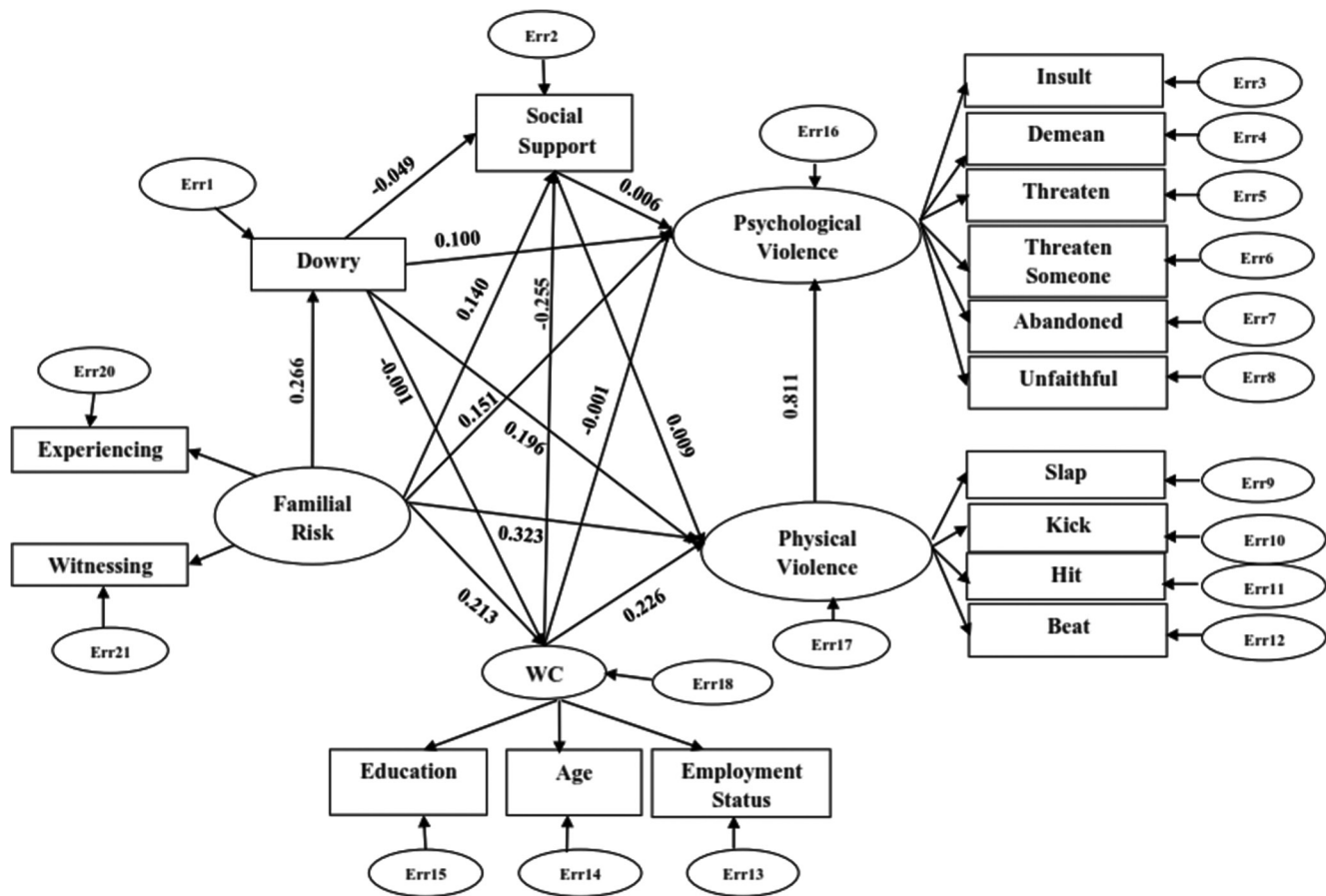
Figure 1: Structural equation model of familial risk on physical and psychological violence. Experience: Experienced violence during childhood, Witnessing: Witnessed violence during childhood, WC: Women Characteristics
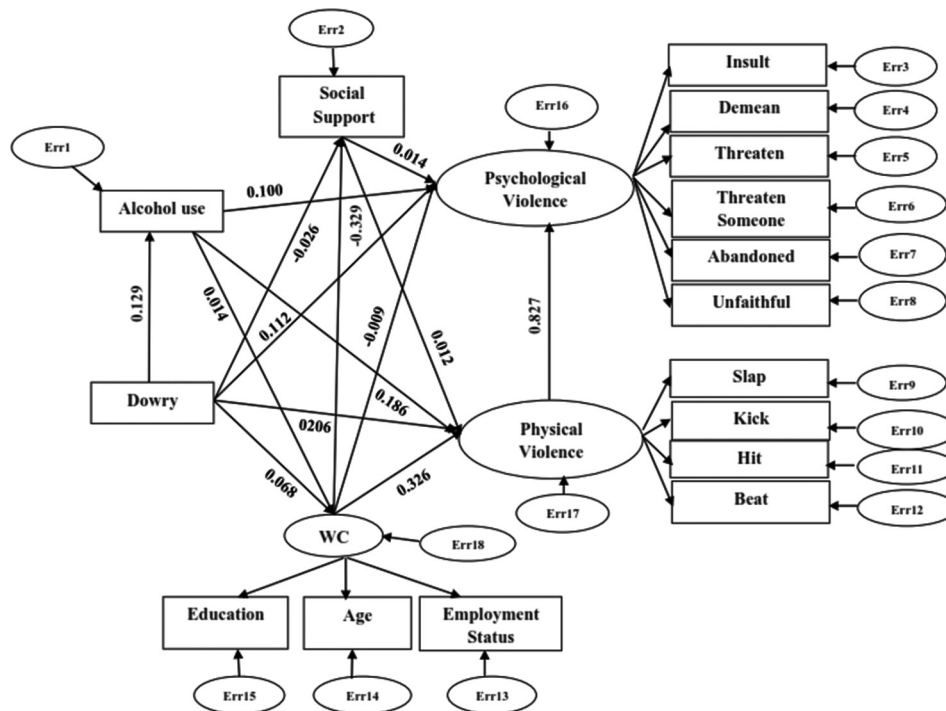

Figure 2: Structural equation model of Dowry on physical and psychological violence against women. WC: Women Characteristics

Table 3: Regression weight of the hypothesized model I (effect of familial risk on both physical and psychological violence) and hypothesized model II (effect of dowry on both physical and psychological violence) along with the standard error and *P* value

	Hypothesized Model I			Hypothesized Model II		
	Estimate	*Std. Error*	*P value*	*Estimate*	*Std. Error*	*P value*
Latent Variables						
Psychological violence						
Insult	1.000			1.00		
Demean	1.007	0.008	<0.001	1.004	0.008	<0.001
Threatened	0.749	0.009	<0.001	0.733	0.009	<0.001
Threatened someone	0.402	0.008	<0.001	0.384	0.008	<0.001
Afraid	0.589	0.009	<0.001	0.576	0.009	<0.001
Abandoned	0.206	0.006	<0.001	0.171	0.006	<0.001
Unfaithful	0.278	0.007	<0.001	0.249	0.007	<0.001
Physical violence						
Slap	1.000			1.00		
Kick	0.840	0.012	<0.001	0.830	0.012	<0.001
Hit	0.975	0.013	<0.001	0.973	0.013	<0.001
Beat	0.931	0.012	<0.001	0.923	0.012	<0.001
Familial risk						
Experiencing	1.000			-	-	-
Witnessing	0.606	0.042	<0.001			
Women characteristics						
Age	1.000			1.000		
Education	0.212	0.401	<0.001	-7.445	2.438	0.002
Employment status	-4.391	0.936	<0.001	0.280	0.082	0.001
Psychological violence						
Direct effects						
Dowry	0.100	0.009	<0.001	0.112	0.009	<0.001
Social support	0.006	0.009	0.527	0.014	0.008	0.102
Physical violence	0.811	0.020	<0.001	0.827	0.017	<0.001
Women characteristics	-0.001	0.014	0.989	-0.009	0.020	0.667
Familial risk	0.151	0.022	<0.001	-	-	-
Alcohol use	-	-	-	0.100	0.008	<0.001
Indirect effects						
Dowry	0.158	0.009	<0.001	0.209	0.008	<0.001
Social support	0.007	0.009	0.444	0.010	0.008	0.237
Women characteristics	0.180	0.037	<0.001	0.262	0.079	0.001
Familial risk	0.371	0.026	<0.001	-	-	-
Alcohol use	-	-	-	0.171	0.007	<0.001
Total effects						
Dowry	0.258	0.011	<0.001	0.320	0.010	<0.001
Social support	0.013	0.013	0.323	0.024	0.011	0.038
Physical violence	0.811	0.020	<0.001	0.827	0.017	<0.001
Women characteristics	0.180	0.036	<0.001	0.253	0.075	0.001
Familial risk	0.522	0.036	<0.001	-	-	-
Alcohol use	-	-	-	0.272	0.009	<0.001
Physical violence						
Direct effects						
Dowry	0.196	0.010	<0.001	0.206	0.009	<0.001
Social support	0.009	0.011	0.443	0.012	0.010	0.237
Women characteristics	0.226	0.046	<0.001	0.326	0.098	0.001
Familial risk	0.323	0.028	<0.001	-	-	-
Alcohol use	-	-	-	0.186	0.009	<0.001
Indirect effects						
Dowry	-0.001	0.006	0.903	0.031	0.006	<0.001
Women characteristics	-0.002	0.003	0.457	-0.004	0.004	0.267
Familial risk	0.100	0.016	<0.001	-	-	-
Alcohol use	-	-	-	0.022	0.005	<0.001
Total effects						
Dowry	0.195	0.009	<0.001	0.237	0.009	<0.001
Social support	0.009	0.011	0.443	0.012	0.010	0.237
Women characteristics	0.223	0.045	<0.001	0.322	0.097	0.001
Familial risk	0.424	0.031	<0.001	-	-	-
Alcohol use	-	-	-	0.208	0.008	<0.001
Other paths						
Social support						
Dowry	-0.049	0.013	<0.001	-0.026	0.012	0.034
Women characteristics	-0.255	0.053	<0.001	-0.329	0.102	0.001
Familial risk	0.140	0.031	<0.001	-	-	-
Dowry						

(Contd...)

Table 3: *(Continued)*

	Hypothesized Model I			Hypothesized Model II		
	Estimate	*Std. Error*	*P value*	*Estimate*	*Std. Error*	*P value*
Familial risk	0.266	0.029	<0.001	-	-	-
Alcohol use	-	-	-	0.129	0.011	<0.001
Women characteristics						
Dowry	-0.001	0.026	0.961	0.068	0.027	0.012
Familial risk	0.213	0.071	0.003	-	-	-
Alcohol use	-	-	-	0.014	0.017	0.401

technique to test causal relationships. The use of SEM is one of the main strengths of this study because it evaluates the direct and indirect effects of familial risk, dowry demand, alcohol use, social support, and other variables on violence. There was no literature that examined the familial risk, dowry demand, social support, and violence as latent constructs or used structural equation modeling in its data analyses.

Violence was found to be 30-40% prevalent in India according to the National Family Health Survey 2015-2016.[23] Even after two decades, the burden of violence and the risk factor profiles have not changed much. This implies that the causal model findings of this study are valid even today. There are few studies that are cross sectional studies in design have used SEM. These studies have explored the causal relationship between social support, husband's alcohol use etc. and violence.[24,25]

This was a cross-sectional study and thereby suffers from temporality. However, some of the risk factors which have studied may not have changed over a time. For example, the research variables familial risk and dowry demand existed before violence. In Further, only mothers-in-law whose daughters-in-law permitted to be interviewed were included in the study, implying that their relationship was stable and comfortable. Therefore, the effects of violence and risk factors are likely to be underestimated.

Conclusion

In summary, though the women were exposed to abuse during childhood the mediating variables such as social support, women characteristics and alcohol use by husband etc., have a significant role to play to contain the both physical and psychological violence. However, in alcoholism, the mediating variable dowry demand has enhanced the risk of violence.

Acknowledgements

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