DEVELOPMENT AND VALIDATION OF ABUSE BY IN-LAWS QUESTIONNAIRE AMONG FEMALES IN PAKISTAN

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ABSTRACT:

Background: The involvement of in-laws in abusing females directly or provoking the spouse to subject his wife with abuse is very common and has short and long term implications on worsening a woman's physical, psychological and emotional wellbeing. There was no tool available to assess in-laws abuse among females.

Objective: To develop the questionnaire for in-laws abuse and validate it among women of local population

Materials and Methods: This study was done in three stages (I) development of tool (II) validation of tool using Exploratory Factor Analysis (EFA) and (III) Confirmatory Factor Analysis (CFA) for confirmation and finalization of the tool. A total of 125 females with mean age of 26.4±2.1 years were included for EFA. The Face and content validity of the designed tool was ensured. Principal Component Analysis with Varimax rotation method was used for item reduction. Initially 25 items were included in the study against four factors which was reduced to 22 items after EFA. For CFA, data from 250 women were taken and analyzed for pathway analysis, the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and other indices using PLS software. P-value ≤ 0.05 was considered significant.

Results: After elimination of three items, a tool with 22 items was developed and found to be reliable to assess in-laws abuse. It encompassed four factors named Fear, verbal, control and physical abuse. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was 0.913 and Bartlett's test of Sphericity was statistically significant for the finalized questionnaire (p-value=0.000). The mean age of total 250 females included in CFA was 30.644±6.05 years. The

pathway analysis and several model fit indices showed satisfactory alignment of all 22 items demonstrating that questionnaire was confirmed to be valid to assess the level of abuse by in laws.The tool was also reliable overall Chronbach Alpha=0.962) as well as in individual factors (Chronbach Alpha=0.925, 0.918, 0.901 and 0.887).

CONCLUSION: This study concludes that the developed questionnaire is a reliable and valid tool for assessment of abuse by in laws on females.

Keywords: Validation, reliability, exploratory factor analysis, domestic abuse, in-laws abuse, violence

INTRODUCTION:

Domestic abuse among women is a global societal issue.[1, 2] World Health Organization (WHO) defines domestic violence against women as verbal, physical, psychological and sexual abuse perpetuated by spouse/partner, family, acquaintance or strangers. [3] The commonest types of domestic violence is Intimate Partner Violence (IPV) also referred to as spouse abuse sometimes. It includes both physical and non-physical abuse and may pose serious health threats to the victims [4] However, the role of in-laws in aggravating or even provoking the spouse to subject his partner with abuse is unavoidable.[5] One WHO study that included data from 10 countries reported an estimated prevalence of physical spouse abuse to be 15-71%. [6]

The etiology of domestic abuse among married women is different in Asia, especially Southeast Asia, compared to Europe. [7] Where in Europe, the main perpetrators of domestic violence is the romantic or marital partner, in Asia, however, in-laws have direct or indirect role in insinuating violence against women. [8] A number of studies have reported that conflict with the in-laws is an independent risk factor for victimized wives and is significantly associated with abuse against women in Asia. [9, 10] Prevalence of in-laws abuse among pregnant females is also common in this region.[11] In one Indian study, almost 26.3% pregnant females reported violence by in-laws. [12] They also reported that women suffering from intimate partner violence during pregnancy or six months postpartum are five times more likely to report in-laws abuse as well in the same duration. [12] One Pakistani study reported that 97% females reported verbal and 57.5% reported physical abuse by in-laws. [13]

Some of the commonest reasons for in-laws abuse include general disliking for the woman, dissatisfaction with the amount of dowry, financial conflicts, control, infertility and not having a son. [13, 14] The abuse by in-laws includes both physical and non-physical types and has been reported to compromise women's health in terms of, but not limited to, reduced amount of rest, malnutrition, emotional stress, forced heavy domestic labor, refusal to visit healthcare facility during antenatal or postnatal period and limited care for the child.[15]

The current study was designed to develop the questionnaire for in-laws abuse and validate it among females of local population. Despite of alarmingly high prevalence of in-laws abuse reported in Pakistan and worldwide, women generally remain mum due to societal pressure and stigma. Due to this, the presence and magnitude of in-laws abuse is still unclear and so is its impact on short and long term of maternal physical, psychological and emotional health. Unfortunately, no standard tool to assess the abuse in quantifiable manner has yet been established locally. Therefore, it was imperatively needed to devise a questionnaire for abuse by in-laws and validate it on local population.

MATERIALS AND METHODS:

Study Design: Validation of Questionnaire

Study Population and Setting: The target population for this study was females aged 15 to 35 years visiting Lady Aitcheson hospital, Lahore. The females were approached and briefed about the research and those who gave their consent and fulfilled the inclusion criteria were included. As per Kline's rule, the sample size for EFA should be 5-10 subjects per item. So according to desired 25 items, the number of subjects selected were 125. For the purpose of CFA, Kline's rule for minimum sample size determination was used again. Although the minimum number of participants for CFA should be 10-20 subjects per item, [16] which meant a minimum of 220 participants. However, a total of 250 subjects were used to collect data.

Development of In-Laws Abuse Questionnaire: The first stage was the development of proforma. Although usual practice is to consult related literature and already published tools, however, no standard tool was available for adaptation[17, 18]. Therefore, general literature was consulted extensively along with observation of the local population to construct this

questionnaire. [12, 19] Moreover, special visits were made to women shelter homes to interview female victims of spouse abuse about their experiences and observations. All authors contributed in development of questionnaire by making their own drafts that were later combined, refined and finalized into the first version of questionnaire containing 30 questions initially. Meetings were organized both in person and online to discuss duplicate, irrelevant or vague questions. The draft was then analyzed by group of expert panelists including one gynecologist, one psychologist, one social worker and one biostatistician. Their expert opinion was considered for content validity and upon their advice and consensus of authors the final version of questionnaire was reduced to 25 items.

Item Generation: There was no local or international tool available specifically for in-laws abuse therefore the items were generated from common modes of abuse used by in-laws against women. The components of fear, control, verbal and physical abuse were considered while generating items. The responses against each item were recorded on a five point likert scale (1-Never, 2-Rarely, 3-Sometimes, 4-often, 5-very much). Two psychological experts, one gynecologist and one senior public health expert were consulted as well to ensure face and content validity.

Ethical Statement: The study was approved by Ethical Committee of Unisza (REC # UniSZA/UHREC/2019/114), Malaysia and data collection permission was taken form Lady Aitcheson Hospital, Lahore, Pakistan.

Data Collection: Data collection was started after taking ethical approval from ethical committee of UniSZA, Malaysia and Aitcheson Hospital, Lahore. First, data was collected from 10 participants for the purpose of face validity. Their opinion was taken through focus group discussion with the main theme of discussion being the content, level of language and understanding of the terms used in questionnaire. With consensus of all participants, it was decided that the questionnaire was adequately satisfactory in all domains. Finally, for the main data collection, females visiting outpatient department (OPD) of the hospital were approached and briefed about the purpose of research. Informed consent was taken from willing participants and face-to-face interviews were conducted. If needed, they were also helped to understand questions better by the interviewer.

Data Analysis

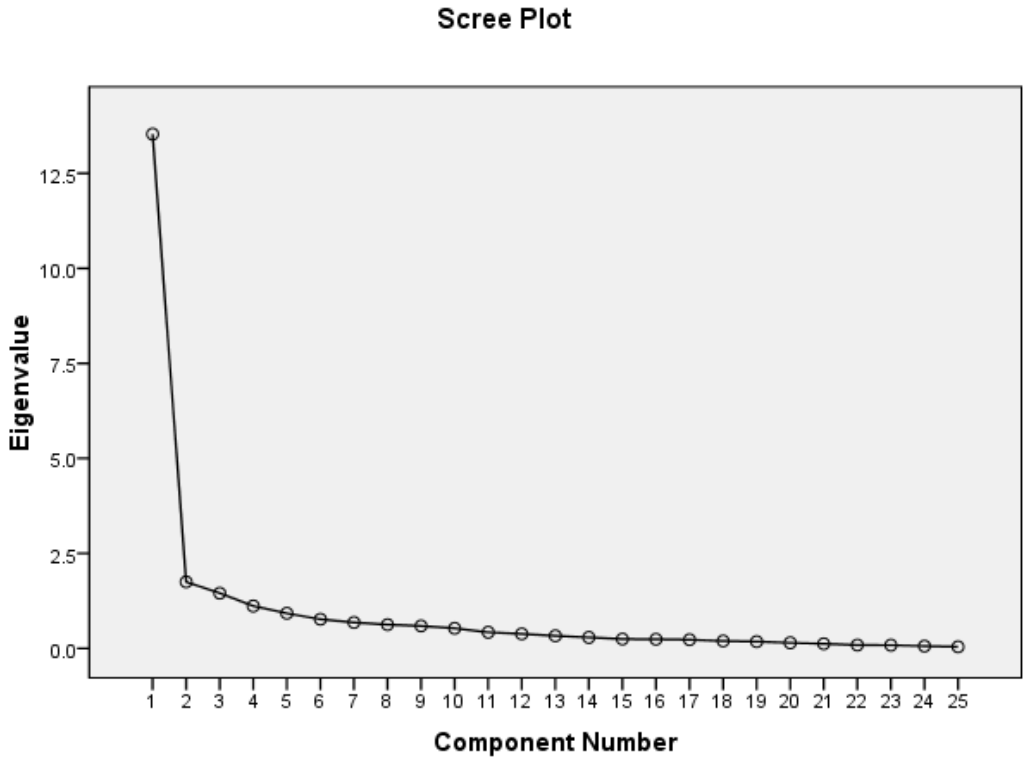
All data was entered, cleaned and analyzed in SPSS version 23. AMOS version 24 was used for further analysis. Kaiser-Meyer-Olkin (KMO) test was applied for factorability of data and Barttlet's test was also used to find significance of adequacy of sampling. In Exploratory Factor Analysis (EFA), Principal Component Analysis (PCA) was used to see correlation and component matrix was made. For rotation and control of cross loading of items, varimax rotation method was used. Eigenvalues and communalities were reported for assessment of variance explained by items. Whenever wrong, poor, or cross-loading was detected among items, they were dealt by eliminating from questionnaire. After finalizing the questionnaire, Chronbach's Alpha was applied to see internal consistency. After the results of EFA, total number of items were reduced to 22. The modeling was done and the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and others was calculated. The pathway was made using four domains with respective items in each domain. The four domains constituted questions about fear, control, verbal and physical abuse.

RESULTS

Content and Face Validity: The first stage was to develop the questionnaire. Studies recommend a thorough literature review and opinions of experts in the field.[18, 20] For this purpose, literature was consulted extensively and the expert opinion of two gynecologists and one public health expert was also taken. The authors were assigned the task to formulate a set of questions individually and then these were combined to see any duplicate or similar questions which were merged into a single synonymic item. For items with confusion, disagreements or any controversy, consensus was made after discussion. The final version was developed after several meetings. The finalized questionnaire was then pretested on 20 subjects for their response about the wording and content of questionnaire and were reported satisfactory and adequate. Therefore the first finalized draft contained 25 questions on 4 factors including verbal abuse, physical abuse, fear and control.

Descriptive Statistics: This study was conducted on 125 females with a mean age of 26.4±2.1 years, mode parity of 2 and commonest mode of delivery as Normal delivery (55%), followed by Cesarean section (40%) and other mode of deliveries (5%).

Exploratory Factor Analysis: The adequacy of the sample was tested using Kaiser-Meyer-Olkin (KMO) test and was found statistically adequate (0.909) and factorability of items included was checked by Bartlett's test of sphericity which was also statistically significant (p-value <0.001). These results mean further analysis through EFA was appropriate to be carried out on this data. The method of Principal Component Analysis was opted for extraction of factors and checking the communalities. The level of communalities was greater than 0.5 in 24 items, hence indicating the variance explained by factors was adequate. Similarly, the eigenvalues of all four factors were greater than 1 (7.047, 5.917, 3.577 and 1.308 respectively). Cumulative variance explained by these four factors through rotated sum of squares was 71.39% with highest explained variance being 28.186% and least being 5.231%. After the 25 items were analysed through PCA for component matrix, one item (Q19) was only question loaded on one factor and two items (Q22 and Q23) showed values less than 0.5. The issue related to these three items could not be resolved even after rotation through varimax rotation method. Subsequently, these three items were deleted and rest of the 22 items were re-analyzed. **(Graph-1)**



Graph-1: Scree-plot of First Version of Tool

The reduced questionnaire with 22 items was again subjected to KMO and Bartlett's test and were found to be significant as the value for Bartlett's test was 0.000 and for KMO it was 0.913. The communalities as well as eigenvalues were also considerably high. **(Table-1)**

Table-1: Descriptive Statistics for different items

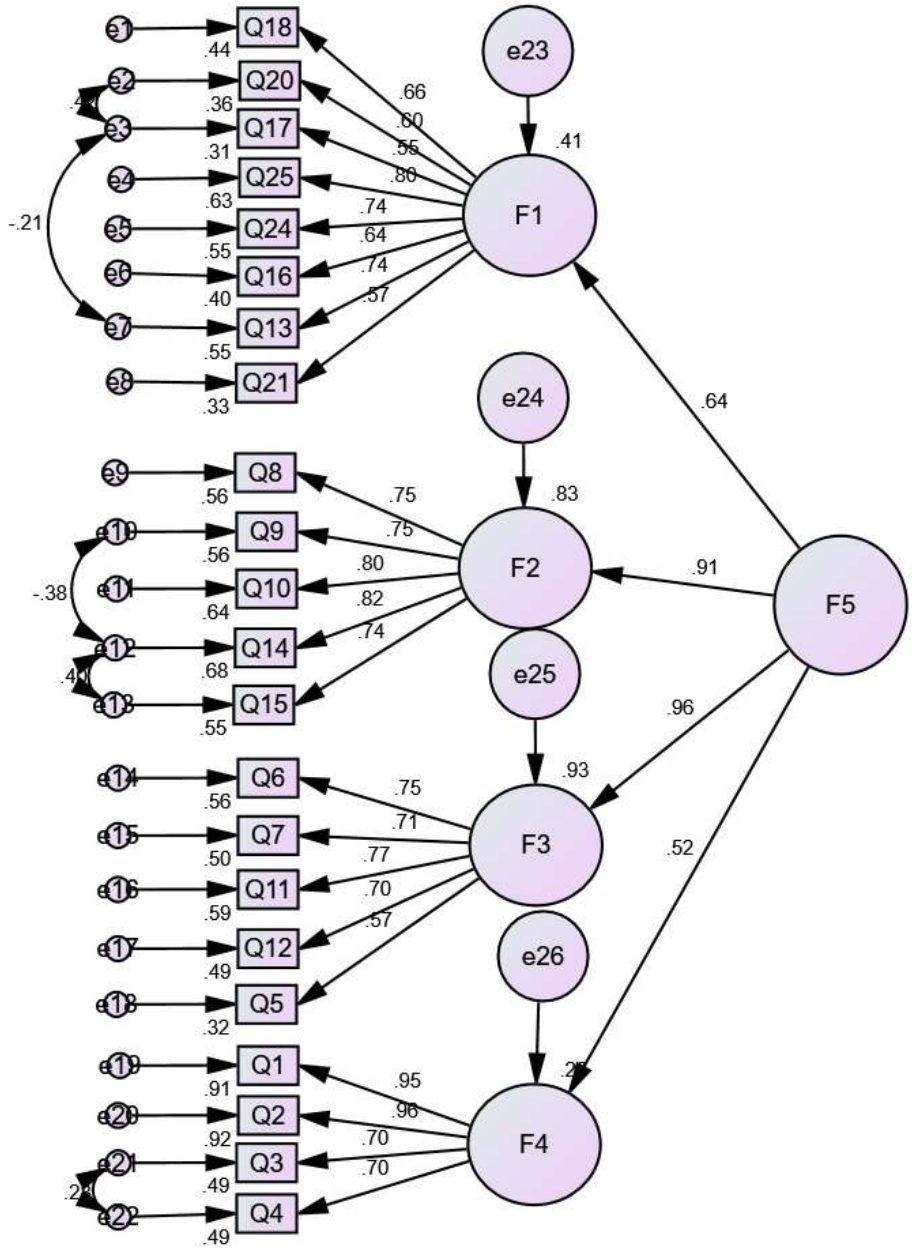
	Mean	Standard Deviation	Communalities
Q.1	3.77	.960	.863
Q.2	3.70	1.016	.895
Q.3	3.16	1.132	.652
Q.4	2.52	1.104	.711
Q.5	1.99	1.132	.681
Q.6	1.42	.891	.806
Q.7	1.36	.797	.746
Q.8	1.70	.823	.665
Q.9	2.08	.858	.726
Q.10	1.74	.899	.707
Q.11	1.32	.758	.756
Q.12	1.35	.891	.792
Q.13	1.75	.839	.632
Q.14	1.46	.757	.759
Q.15	1.46	.778	.730
Q.16	2.32	.912	.703
Q.17	2.82	1.110	.753
Q.18	2.30	1.057	.704
Q.19	1.15	.441	.781
Q.20	2.08	.768	.636
Q.21	1.45	.665	.673
Q.22	1.50	.829	.415
Q.23	1.26	.537	.614
Q.24	1.84	.677	.724
Q.25	1.68	.725	.723

The cumulative variance explained by four factors through rotated sum of squares was now 75.991%. The four factors considered of 8 items in first factor, 5 in second and third factors each and 4 items in fourth factor. **(Table-2)**

Table-2: Rotated Factor Loading of Finalized Tool Using Varimax Rotation

Items	Factor 1	Factor 2	Factor 3	Factor 4
Q.18	.818			
Q.20	.754			
Q.17	.748			
Q.25	.719			
Q.24	.698			
Q.16	.685			
Q.13	.590			
Q.21	.556			
Q.15		.819		
Q.14		.818		
Q.9		.546		
Q.8		.534		
Q.10		.526		
Q.12			.561	
Q.11			.552	
Q.7			.892	
Q.6			.839	

Q.5	.50	
Q.2		.890
Q.1		.865
Q.3		.702
Q.4		.587



Graph-2: Pathway analysis

Table-3: Fit Indices of CFA Model [n = 250]

Model	CMIN/D.F	p-value	SRMR	RMSEA	CFI	GFI	TLI	AIC	BIC
	2.63	<0.001	0.876	0.081	0.91	0.842	0.886	632.57	643.57

Confirmatory Factor Analysis (CFA): The mean age of total 250 females included in CFA was 30.644±6.05 years, with normal delivery in 52%, C-section in 44% and other mode of deliveries in 4% whereas mode parity was 3. The pathway was made using four domains with respective items in each domain. The four domains constituted questions about fear, control, verbal abuse and physical abuse. The pathway showed satisfactory alignment of all 22 items with all regression weights above 0.5 meaning items were statistically good enough to explain their respective domains. **(Graph-2)** Multiple model fit indices were calculated to assess the model fit summary and were found to be in acceptable range statistically. Hence these values demonstrated that questionnaire was confirmed to be valid to assess the level of abuse by in laws. **(Table-3)**

Reliability Analysis: The final version of the questionnaire after deducing one item was then subjected to reliability analysis by applying Chronbach's alpha. The individual reliability of each domain was significant as 0.925, 0.918, 0.901 and 0.887. Moreover, the questionnaire was statistically reliable enough overall (chronbach's alpha= 0.962). Therefore, the tool is reliable for assessment of inlaws abuse among females. The final version of the tool is given in **Annexure-1**.

DISCUSSION:

Violence by in-laws is a critical and very common issue worldwide specifically more prevalent in developing countries.[21] Studies conducted in various cities of Pakistan have reported in laws abuse ranging from 15% to upto 90% including emotional, physical as well as financial abuse.[10, 22, 23] whereas another Indian study reported significant emotional and physical abuse by in-laws as well.[24] This particular study also stated that a significant association exists between emotional abuse by in laws and intimate partner violence. [24] Another study reported that women who went through domestic abuse in hands of their husbands also suffered from in laws abuse.[25] Among the in-laws, the role of mother in law is the most documented one in perpetuating violence against daughter in laws. [5]The dynamics of power and control are the basic motives behind this behavior.[26]

Despite of many studies indicating in laws abuse being a significant issue, not enough stress has yet been given to this aspect. To the best of our knowledge, there is no polished tool so far to assess the violence by in laws This study, therefore, was conducted to develop and validate a tool for assessment of in laws abuse among females. This tool addressed emotional and physical abuse, blackmailing and insulting victim's family in particular considering these as commonest issues. Initially, 25 items were added in this tool comprising of four factors. But due to cross loadings and less values in PCA, three items were excluded and the finalized questionnaire comprised of 22 items. CFA is considered as confirmatory analysis technique to validate the tool through pathway analysis and using some model fit indices.[27] CFA analysis in this study resulted in satisfactory results. The final version of the questionnaire was statistically valid and reliable to assess the abuse by in laws. However, there are few limitations of this study as well. One being that the sample collected was single-centric. Multi-centric study using this tool may yield a better insight into the phenomenon and dimensions of in-laws abuse. Still, the tool itself is sufficiently reliable to be used in assessment of abuse by in laws among females with the given analysis as well.

CONCLUSION:

This study concludes that the developed questionnaire is a reliable and valid tool for assessment of abuse by in laws among females.

ANNEXURE-1: FINAL VERSION OF THE VALIDATED TOOL

ABUSE BY IN-LAWS QUESTIONNAIRE

Please tick the most appropriate level of behavior/ action you face by your in-laws

(The more the total score is, the higher the level of abuse. Score range 25-125)

	Question	5 Very much	4 Often	3 Sometimes	2 Rarely	1 Never
1	You feel controlled by your in laws					
2	You feel your husband is controlled by your in laws					
3	You feel scared or anxious in front of them					
4	They belittle or insult you in front of others					
5	They insult or embarrass natal family					
6	Demanded any dowry before marriage					
7	Demand money/materials/favors from natal family					
8	Pressure you husband to leave you					
9	Pressure your husband to marry other women					
10	They don't let you meet with your family or friends					
11	They ask your husband to insult you					
12	They ask your husband to beat you					
13	They impede your eating					
14	They impede your rest time					
15	Keep your kids away from you					
16	They impede your medical needs or medicines					
17	Intentionally ignore you if you are sick or unwell					
18	They force you to do house chores you don't want to do					
19	They intentionally keep you short of money					
20	They control your sexual life with husband (To have or not to have sex)					
21	They insult or beat you in front of your husband					
22	They threaten to harm you or your kids if you report their abuse					

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