Original Article

Scale on Jealousy: Construction and establishment of psychometric properties

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Objective: To develop a reliable scale on Jealousy.

Methodology: This cross sectional study was conducted at Department of Psychology, University of Gujrat. Initially, a pool of 50 items was generated through intensive literature review and brain storming sessions. 34 items were selected after expert's opinion. The scale was administered on 140 respondents whom were selected conveniently. Later on, pilot study was carried out by using 34 items scale which resulted into 23 items after retaining highly correlated items ($r \geq .5$). Finally, scale was administered on 250 respondents. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were carried out for structure exploration and confirmation. The reliability of the scale was established.

Results: EFA resulted into three factors comprising of 13 items. Further, CFA was carried out and the model fit summary showed all indices in highly acceptable ranges after the deletion of one more item (CFI=.952, GFI=.945, IFI= .953, TLI=.938, p=.001)). EFA, with restriction of single factor resulted into 13 items with significance p value (.000) and model fit summary of CFA confirmed the structure after deletion of two more item (CFI=.923, GFI=.930, IFI= .924, TLI=.901). The reliability of subscales ranges from .62 to .80 while reliability of full scale was .80. Reliability of the single factor scale on jealousy was .84

Conclusion: A reliable scale of jealousy was successfully developed with 12 items with three subscales and 11 items with no subscale. (Rawal Med J 202;45:136-139).

Keywords: Jealousy, exploratory factor analysis, confirmatory factor analysis.

INTRODUCTION

Jealousy is a negative emotional, behavioral and cognitive reaction which is triggered when valued person show anticipated or actual interest or have relationship with some other person who is regarded as an interloper.[1] Sufferer shows expression of fear, anger and sadness to regain his or her allegiance and affection.[2]

Jealousy can be of different types; in spouse, in siblings, in friendship and in work. There are number of previously developed scale in different context in order to measure different type and level of jealousy such as Interpersonal Jealousy Scale,[3] Spouse Emotional Jealousy Scale,[4] Collective Jealousy Scale[5] and Sport Jealousy Scale.[6] There are also two indigenously developed scale on jealousy in context of Pakistan; Jealousy Scale for wives[7] and Jealousy and Envy scale.[8] Still, there is limited number of culturally appropriate scale as compare to other most prevalent issues. Moreover, one of aforementioned is restricted to assess wives only. So, aim of current study was to develop an indigenous scale in urdu in order to overcome the shortage of reliable and culturally appropriate scale as culture learning influence situations which trigger jealousy and the way in which it is expressed.

METHODOLOGY

This cross sectional correlational study was conducted at Department of Psychology, University of Gujrat from January 2, to April 5, 2019. Ethical approval was obtained from the Departmental Research Review Committee and an informed consent was taken from all study participants. The study comprised of following steps:

Step 1. Generation of item pool: Items were generated in Urdu language based on empirical data

not on specific model or theory. Initially, researcher developed item pool consisting of 50 items through extensive study of literature and brain storming session with subject experts whom have understanding of construct jealousy.

Step 2. Expert evaluation: Item pool of 50 items were thoroughly evaluated by experts who discarded 16 items, modified 9 and finally 34 were retained.

Step 3. Try out of scale: 34 items scale was administered on 140 respondents with age 17 -25 years. After correlating each item with total scale scores, 23 items were retained

Step 4. Exploratory and Confirmatory factor analysis: 23 items scale was administered on 250 respondents whom age ranges from 17 to 24 (mean=19.68). After going through EFA, 23 items scale resulted into 13 items grouped in three factors i.e. cognitive jealousy, behavioral jealousy and emotional jealousy with factor loading of .5 and above. Further, CFA was carried out to confirm the structure obtained during EFA and the model fit summary confirmed the structure after deletion of 1 item. Later on, EFA was run on 23 items with the restriction of single factor which resulted into 13 items and CFA confirmed the structure after deletion of two items.

Procedure: Convenient sampling technique was used. The participants were asked to carefully read and choose the appropriate responses.

Statistical Analysis: The data were analyzed by using SPSS version 21 and AMOS-21 for windows. EFA was implied to dig out underline factors of data set.[9] After item total correlation, 23 items were administered on 250 individuals. Bartlet's test and Kaiser Meyer-Olkin (KMO) were used to determine whether the sample was adequate to proceed with factor analysis.[10]

Table 1. Item-total correlation of 34 item scale on jealousy (N=140).

Item no	*r*
1	.442**
2	.450**
3	.399**
4	.445**
5	.436**
6	.526**
7	.527**
8	.689**
9	.415**
10	.624**
11	.528**
12	.607**
13	.468**
14	.511**
15	.591**
16	.448**
17	.508**
18	.490**
19	.488**
20	.641**
21	.678**
22	.716**
23	.589**
24	.465**
25	.638**
26	.674**
27	.659**
28	.684**
29	.640**
30	.620**
31	.685**
32	.682**
33	.684**
34	.629**

**Correlation is significant at the 0.01 level (2-tailed)

RESULTS

Table 1 depicts the item total correlation of 34 item scale on jealousy. Value of correlation coefficient ranges from .415-.716. Table 2 shows the factor loading of 13 item scale on Jealousy after varimax rotation with three factors. Factor loading ranges from .509-.750

KMO's value was 0.83 and Bartlett's Test of Sphericity was significant (<0.001) which indicate the adequacy of data. Besides adequacy, data should be normally distributed [11]. In this regard skewness and kurtosis were calculated. Values of Skewness and kurtosis were .843 and -.07 respectively. 13 items were retained with factor loading equal and above .5.

Table 2. Factor Loading of 13 item scale on Jealousy after varimax rotation (N=250).

Sr. No	Item No	Cognitive Jealousy	Behavioral Jealousy	Emotional Jealousy
1	4		.730	
2	5		.750	
3	6		.688	
4	7		.706	
5	11	.644		
6	12	.664		
7	13	.737		
8	14	.738		
9	15	.655		
10	16	.625		
11	17			.509
12	19			.741
13	20			.662

Three factors solution gone through CFA and it confirms the structure obtained during EFA as result showed all model fit indices values are in acceptable range. Model summary showed CFI= .95, IFI .95, GFI=.94 and TLI= .94 with p-value .001 that indicate good model fit.

EFA was also carried out by restricting the 23 items on single factor. Single factor solution resulted into 13 items as well with factor loading from .505-.654. One factors solution gone through CFA and it confirms the structure obtained during EFA (Single factor) as result shows all Model fit indices values are in acceptable range. Model fit summary of single factor scale was: CMIN/DF= 2.27, CFI= .923, GFI=.930, IFI= .924, TLI= .901 and p=.000

DISCUSSION

In our study, after the generation of item pool and try out sessions EFA and CFA were applied. In order to check sample adequacy, KMO's and Bartlett's test were carried out. KMO's value was 0.83 thus we could be confident about appropriateness of factor analysis on current data as KMO's value 0.6 and above considered as acceptable.[12] Value of Bartlett's test should be less than .05 as it indicates that data do not produce an identity matrix. Value in current data is .001 which is significant and acceptable.[11,12] Skewness of current data is .84 while kurtosis is -.070. Both values fall under acceptable range as value of skewness and of kurtosis -2 to +2 considered as acceptable.[13]

EFA resulted into 13 items with three factors (Cognitive, Behavioral and emotional). Items with below .5 factor loading and factors with one or two items were discarded. Confirmatory factor analysis confirms the structure obtained during exploratory factor analysis after deletion of one item. Hence ١2 items were found reliable to use. Model summary showed: CFI= .95, IFI .95, GFI=.94 and TLI= .94 with p-value .001 that indicate good model fit. So, results showed significant model fit as values greater than .90 indicate a reasonably satisfactory fit of the model and a value of .95 or above is more appreciated.[14]

EFA with single factor resulted into 13 items and CFA confirms the structure as value of comparative fit index given by CFA is .92 with p-value .000 and value above than .90 may indicate as satisfactory. Similarly, value of GFI, IFI and TLI are respectively .93, .92 and .90 with satisfactory fit.[14]

Scale of jealousy comprised of three factors and its overall reliability is .80. Subscale of Cognitive Jealousy contained 5 items with reliability .80. Behavioral jealousy subscale consisted of 4 items with the reliability .77. Emotional Subscale contained 3 items and its reliability is .62. Even a single item in factor may be sufficient in order to measure a construct.[15] Further, reliability values of .70 or greater is considered as statistically significant.[16] According to the statistically acceptable limits the values of newly developed scale of Jealousy was in significant ranges.

CONCLUSION

A reliable scale on jealousy is successfully developed with 12 items with having three subscales and scale on jealousy with single factor comprised of 11 items.

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Analysis and interpretation of the data: Saima Riaz, Safoora fatima
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Conflict of Interest: None declared
Rec. Date: Jul 10, 2019 Revision Rec. Date: Nov 2, 2019 Accept Date: Dec 6, 2019

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