

Estimating the Validity and Reliability of Gottman Questionnaires of "Couple Trust Measurement"

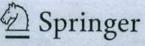
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Estimating the Validity and Reliability of Gottman Questionnaires of "Couple Trust Measurement"

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Abstract

Despite the efficacy and the recognition in the field of couple therapy, there is little in the literature that discusses the integration of couple therapy. The purpose of this study was estimating the validity and reliability of "Couple Trust Measurement" questionnaire, designed by John Gottman. The statistical population was all the married couples of Bojnourd, and the study sample was consisted of two groups of married men and women (278 and 308) who were selected by using cluster random sampling. To estimate the questionnaire validity, different methods were used; calculating the correlation of the score of each item with the total score, Cronbach's alpha, and the split-half coefficient. To investigate the scale reliability, these methods were performed; exploratory factor analysis, principal components, confirmatory factor analysis, maximum likelihood. The convergent reliability was investigated by calculating the Pearson correlation between the couple's trust measurement scale and the perceived relationship quality components inventory (PRQC) and Thompson and Walker's marital intimacy scale 1983 (MIS). Multivariate analysis of variance was used to analyze the scale reliability based on the gender and the number of marital years. SPSS 17 and AMOS.20 software was used for statistical analysis. The results showed that "Couple Trust Measurement" questionnaire has high reliability and validity, thus it can be used as reliable and valid tools to measure the couple trust in Iran.

Keywords Gottman Questionnaires · Cronbach's alpha · Couple Trust Measurement

Introduction

In recent years, quality of life was the subject of most psychological health researchers (Daker-White and Donovan 2002; Gottman et al. 2013). Quality of marital life depends on marital satisfaction (Gottman and Gottman 2017; Shapiro

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et al. 2000) and adjustment which in turn are an important function of sexual satisfaction. Adjustment between couples affects different aspects of life including mental and physical health (Buehlman et al. 1992; Sivandian et al. 2016). Research has shown that there are many expectations of any romantic relationship and it seems that the issue of loyalty and trust (Holton 1994) is a fundamental component of any long-term relationship (McNulty et al. 1981). Trust is the foundation of (marriage) common life that forms the relationship and is like a stick that keeps the relationship; hence, confidence in couples allows them to feel secure, so that they can feel safe enough to communicate with their spouse safely. A committed relationship is a contract of mutual trust, respect, education and support. Anything that violates this contract is a treason and a betrayal (Gottman and Silver 2012).

Recently, family and especially marriage specialists and therapists have been focusing on issues of mutual trust between spouses (Gottman 1979, 1981, 1982, 1993, 1994, 1998, 1999, 2002, 2004, 2011, 2015; Gottman and Ringland 1981; Gottman and Roy 1990; Gottman and Levenson 2002;

Gottman et al. 2002; Gottman and Silver 2016). Despite the above-mentioned efficacy and the recognition in the field of couple therapy, there is little in the literature that discusses the integration of couple therapy. Brown (2001) indicated that trust, as a source of social capital (Fukuyama 2010; Kim et al. 2012), is one of the most desirable qualities in any close relationship, and is often considered to be an ideal relationship with love and commitment as the central core. The pure relationship between couples depends on mutual trust mutual trust, in turn, has a close relationship with intimacy (Giddens 2011). Newton (2001), Burke et al. (2007), and Erden (2009) indicated that social life without trust will be intolerable and even impossible. Also, trust requires continuous accumulation and updating of the experience. Harris et al. (2008) in a qualitative research concluded that friendship, trust and love are the fundamental components of a solid marriage. Lahno (2004) indicated that trust have three different aspects: behavioral, cognitive and affective aspect. Perrone and Worthington (2001) declared that by increasing the cooperation and interaction of couples (mutual trust), the negative impact of women's work on marital satisfaction decreases (Greeff 2000; Saginak and Saginak 2005; Smith and Shoho 2007; Smith and Peterson 2008; Norris and Zweigenhaft 2009).

Generally, there are two key ingredients in the success or failure of each relationship: trust and commitment. There is a fundamental principle of sustainability that acts as an antidote to the treaty. This is the principle of trust. Trust is not an obscure feature between two individuals. Trust is, in fact, a particular situation, both of which require changing their behavior to another. Each degree of confidence in each other is greater, the couples care more about each other (Gubbins et al. 2010). They have the support of their love, and the other side has the same feeling. In a relationship of trust, couples feel happy with the success of the other party and feel bad about her/his discomfort (Gottman and Silver 2012). Without a trusted life, a person will experience severe anxiety and eventual disintegration. The existence of trust causes one to experience peace, security, freedom, and independence among others and with others (Putnam 2000). It seems that when couples trust each other, they can deeply understand each other and express their knowledge with love to one another, and as a result, real intimacy arises between them (Gottman and Gottman 2017). One of the features of happy couples is a friendly and affable relationship between them. When there is no trust between couples, their intimacy diminishes, resulting in anger, fear, loneliness, and distrust. This damage remains as part of the active memory of individuals and prevents the couples from effectively communicating with each other. Therefore, trust between couples is the basis for establishing close relationships between them (Babcock et al. 2013; Gottman and Silver 2012; Shapiro and Gottman 2005). Confidence disappears by lying, hiding emotions from one another, violence (Bradley and Gottman 2012), alcohol and drugs, false promises, and most importantly sexual misconception. Changing behaviors that create distrust are very complex and tied together (Cloke 2013; Gottman and Gottman 2017).

Researchers have recognized trust's influence on coordination and control at marital satisfaction and adjustment. Regarding the importance of wives' trust in marital relations, various studies have also been conducted on the role of trust in interpersonal relationships (Lewicki et al. 2006). Garanzini et al. (2017), following eleven sessions of the Gottman method couples therapy for both gay male and lesbian couples, accessed two significant improvements in relationship satisfaction. Trust and intimacy are factors that affect the stability and instability of a marriage (Stemberg and Barnes 1985; Flanagan 1999; Bogaert and Sadava 2002; Marchese; Jeanfreau 2009; Touesnard 2009; Cheung et al. 2014). Tokuda et al. (2009) examined the relationship of trust in two vertical and horizontal levels with the health of individuals in Asia and concluded that younger, married, high-income and high-educated individuals enjoy high levels of trust in their personal and social relationships.

Considering the importance of marriage and family health and the fundamental role of trust in couples' relationships (Barnacle and Abbott 2009), the existence of a suitable tool for evaluating a trust is felt more than ever. Researchers have developed a variety of tools to measure and evaluate trust between couples. To do this, for the first time, Rempel et al. (1985), formulated a measure of trust in the interpersonal relationships of the spouses. This scale examines three components: predictability, trust, and loyalty (Lyon 2002). Fletcher (2002) invented the inventory of the Perceived Relationship Quality Components Inventory (PRQC) in 2002. This inventory is an 18 point Likert-Scale with anchors that ranges from 1 (not at all) to 7 (completely). Also have 6 subscales of satisfaction, commitment, intimacy, trust, sex excitement and love. The Cronbach's alpha for the sub-scales in Fletcher's research is equal to 0.91, 0.96, 0.86, 0.78, 0.86 and 0.89 respectively. The total Cronbach's alpha is 0.85. In Iran, Nilfrooshan estimated the Cronbach Alpha by gender (0.95 in women and 0.94 in men). Khaje et al., (2013) determined the inner consistency of mentioned inventory by the Cronbach's alpha. The Cronbach's alpha for the sub-scales in Fletcher's research was earned equal to 0.92, 0.84, 0.92, 0.94, 0.91 and 0.98 respectively.

The Driscoll scale has 20 item and measures feelings about the spouse, about their perceived love, spousal trust-worthiness, neediness, and parental interference (Driscoll et al. 1972). The scale of interpersonal trust in the scale of work was made by Cook and Wall (1980). On this scale, 3 subscales including predictability, goodwill, and honesty are highly correlated with trust. The construct validity and internal reliability of the three sub-scales varied from 0.73

to 0.86 and the Cronbach's alpha were 0.80, indicating that this scale could be used.

Gottman is one of the most well-known therapists who assess and measure trust between couples. Gottman provides us with an incredible insight into the very workings of our physiology. While working with couples and treating marital problems, Gottman proceeded to measure the amount of trust (David 2015; Glaeser et al. 2000), rebuilding trust and its role in preventing the temptation of love between couples. Gottman (2012) studied couples for 24 h in his "love lab" and looked at the usual relationships between couples and had good reasons to call a "breakthrough" as a secret killer of relationships. In his love lab, he has measured the confidence of couples with various tools, including recorded videos, trust calculators, and a questionnaire entitled "Assess your trust". The questionnaire designed by Gottman for this purpose consists of 42 questions and each of the questions examines the trust of couples in a different aspect of marriage life (Hicks et al. 2004). This inventory is a 42 point Likert-Scale with anchors that ranges from 1 (strongly agree) to 5 (strongly disagree). Given the valuable results of Gottman and colleagues research at Love Lab, to measure the couples' trust in recent years, Gottman's research and activities in building trust, as well as the assessment of trust between couples and also, given that most of the other trust measurements of the researchers in this field belong to before 1900, this questionnaire seems to be a good tool for measuring couples' confidence. Therefore, the present study aims to investigate the validity and reliability of "Couple Trust Measurement" designed by Gottman in recent years, with the aim of making this questionnaire an appropriate tool for assessing the trust of couples in Iranian society.

Research Method

This research is a survey research. The population of the study consisted of all married women and men in Bojnourd with a population of about 205,000 who live in the city in 2017. The sample consisted of two groups of married women and men in Bojnourd, selected randomly by cluster sampling. To select the sample people, first, all the places and situations that married women and men could have been there, were identified including offices, schools, public places, banks, universities, and other places. Then several locations were randomly selected, which included: six primary and secondary schools, six banks, three universities, five government volunteers, six hairdressers, three health centers, three parks, two scientific and cultural centers and two technical and vocational center. In the next step, the classes and groups were selected randomly in schools, universities, vocational, scientific and cultural centers. After the presence of the researcher in each of the places, in case of cooperation and the possibility of group implementation, the questionnaires were performed in a group between married women and men. If the group was not able to perform, the questionnaires were completed individually. Occasional times were selected in places like hairdressers, banks, health centers and parks. The researcher was present in due time and the questionnaires were conducted individually by the audience and the staff. In a few administrative places such as banks and offices, the director of the center held a meeting and the questionnaires were implemented in a group. It should be noted that it was previously coordinated with each of the departments and places and the staff of each of the centers was already prepared to respond to the questionnaires.

In general, 580 questionnaires were conducted among married people in Bojnourd. In order to accurately assess the validity and reliability of the questionnaires, these numbers were divided into two groups. In the first group (272 cases), 50.7% were female and 49.3% were male. These ratios in the second group (308 people) were 50.6 and 49.4%, respectively.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration (Rickham 1964) and its later amendments or comparable ethical standards.

Participants were informed that their participation in the study was voluntary and was not connected to their place of employment. Participants had the right to withdraw from the study without any negative consequences. Participants were also advised that there were no known risks involved in completing the survey (Costa et al. 2017).

Research Tool

The research tool is a self-report questionnaire "Couple Trust Measurement" which John Gottman (2012) has developed it to assess the trust of couples and has implemented it in his world-renowned Love Lab. The questionnaire consists of 42 questions and is graded in the 5-level Likert method (Strongly agree, agree, Neutral, disagree and strongly disagree). In questions Nos. 4, 15, 25, 26, 31, 35, and 39, score 1 is awarded to the "Strongly Agree" option and Score 5 is awarded to "Strongly Disagree" option and in the rest of Questions, the scores are reversed. As this questionnaire has been implemented by Gottman and only in his Love Lab, hence, the validity of this questionnaire has not been evaluated.

Data Collecting and Analyzing Procedure

After collecting the data, the validity of the scale was calculated by calculating the correlation of the score of each statement with the total score, Cronbach's alpha, and the splithalf reliability coefficient. In the validity of the scale, the exploratory factor analysis was performed with the principal component model and confirmatory factor analysis by the maximum likelihood exponential method. The convergent reliability was investigated by calculating the Pearson correlation between the couple's trust measurement scale and the Perceived Relationship Quality Components Inventory (PRQC) and Thompson and Walker's Marital Intimacy Scale 1983 (MIS). Multivariate analysis of variance was used to analyze the scale reliability based on the gender (Maddux and Brewer 2005; Karhina et al. 2016) and the number of marital years. SPSS 17 and AMOS.20 software was used for statistical analysis.

Results

As mentioned earlier, the statistical population of the present study consisted of two groups of couples who were studied in two studies. In the first group (272 cases), 50.7% were female and 49.3% were male. These ratios in the second group (308 people) were 50.6 and 49.4%, respectively. The demographic description of the samples by age, duration of the marriage, the number of children and the level of education is given in Table 1.

The collected data from the first sample participants (272 people) were first examined in terms of the ability to recognize the terms. Thus, the correlation of the score of each statement with the total scale score was examined. The initial results indicate that the power of the diagnosis of all the statements was correct and desirable (correlation coefficients ranged from 0.17 to 0.81). According to these results, none of the terms were deleted at this stage. In the following, to explore the Exploratory Factor Analysis with the pattern of the Principal components, it was paid to calculate the Kaiser Meyer Olkin masseur (KMO) and Bartlett's test of sphericity on the data obtained from scale implementation.

The results showed that with a KMO value of 0.94 and a rejection of null hypothesis in Bartlett's test of sphericity $(p=.0001, \, \mathrm{df}=861, \, \chi^2=7129.45)$, there are conditions for factor analysis. The analysis of the main components, taking into account factor load greater than 0.35, yielded eight factors with a special value higher than 1 and the explaining variance equal to 64.48%. This structure had the confusing phrases or factor loadings of less than 0.35. Also, the scree test also did not support this structure. Based on this, several analyses were conducted to remove inappropriate phrases. Finally, with the deletion

Table 1 Demographic indicators

Indicator	First study		Second study		
	Frequency	%	Frequency	%	
Age (year)					
20-30	100	36.9	105	34.1	
31-40	126	46.5	137	44.5	
41-50	35	12.9	43	14	
51-60	10	3.7	23	7.5	
Duration of marriage (year)				
1-3	59	21.8	70	22.9	
4-6	47	17.3	44	14.4	
7–9	38	14	42	13.7	
10-12	47	17.3	41	13.4	
13-15	28	10.3	34	11.1	
16-18	11	4.1	13	4.2	
19-21	16	5.9	25	8.2	
≥ 21	25	9.2	37	12.1	
Number of children					
0	90	33.1	83	27.1	
1	69	25.4	85	27.8	
2	94	34.6	107	35	
≥ 3	19	7	33	10.7	
Education					
Under the diploma	15	5.5	11	3.6	
Diploma	47	17.3	49	15.9	
Associate degree	33	12.1	42	13.6	
Bachelor	134	49.3	139	45.1	
Masters	38	14	54	17.5	
Ph.D	5	1.8	13	4.2	

of 23 phrases, a three-factor structure was obtained that explained 63.24% of the total variance. But this structure was not supported by the scree test; one factor has two terms, and its second and third factors only account for 12% of the variance. Accordingly, due to the removal of many phrases, weak structure, and non-conformance of the extracted structure with theoretical foundations, in line with the prominent factors in the scree test, the analysis was limited to the structure of an agent. The initial results showed that the terms 5, 6, 7, 8, 21, 26, 27 and 34 had factor loadings less than 0.35. Accordingly, the analysis was repeated to remove these terms. The final structure with 34 terms and the special value of 16.43% resulted in the explained variance equal to 48.33%. The scree test supported this template. The descriptive indexes, the amount of subscription, and the factor loading for each statement are given in Table 1. As shown in Table 1, the phase 10 (I know my wife will always be an intimate friend with me) has the highest factor loading (0.85). The phrase 39 (I afraid my wife goes to aberration) also has the lowest factor load (0.45). In sum, the results show the validity of



exploratory factor and the consistency of the structure with the original version.

In order to investigate the validity of the confirmatory factor, the structure of 34 statements was tested on the second sample data (308) of the participant. The analysis in this field was performed using Amos software and applying the maximum likelihood exponential method. The related analyzes showed that all phrases in the structure of 34 phrases had a factor loading of at least 0.49 and a maximum of 0.79 on the overall factor and all the coefficients were significant (p < 0.01). Fitness indices showed a desirable fit of the model $(\chi 2/df = 1.35, GFI^1 = 0.9, AGFI^2 = 0.86, NFI^3 = 0.92,$ $CFI^4 = 0.98$, RMSEA⁵ = 0.03). The acceptable level for a good model in the ratio of Chi square to freedom degrees $(\chi 2/df)$ is less than 2, RMSEA is less than 0.05 and in other indices is more than 0.90 (Hooman 2016). These indices indicate the appropriateness of the appropriate validity of scale factor.

In the study of the reliability of the scale, the correlation of each statement with the total score (Table 1), Cronbach's alpha and the coefficient of split-half were investigated. As shown in Table 1, all phrases have a moderate and higher correlation with the total score of the scale. The phrases 10 (I know my wife will always be an intimate friend with me) the phrase 39 (I afraid my wife goes to aberration) have the highest (0.85) and the lowest (0.44) correlation with the total score of the scale, respectively. Cronbach's alpha and split-half coefficients and also descriptive indexes in the first and second studies are presented in Table 2.

The results of Table 2 show that the scale in both studies has an acceptable reliability. The convergent reliability was investigated by calculating the Pearson correlation between the couple's trust measurement scale and the perceived relationship quality components inventory (PRQC) and Thompson and Walker's marital intimacy scale 1983 (MIS) on the data from the second study (308 people). The results of this analysis are presented in Table 3. The positive and significant correlations between the studied factors show the convergent validity of the couples' trust assessment scale.

In assessing the validity of the criterion of Couples Trust Measurement Scale, the differences in sex, age and marriage duration were analyzed using single-variable variance analysis. After deleting the fling data, the results of the assumptions survey showed that the distribution of couples' trust by gender, age and duration of marriage is normal ($p \ge 0.05$). Levene's test of equality of error variances showed that there

is equality between groups by gender (p=0.25, F=1.48), age (p=0.11, F=2.03) and duration of marriage (p=0.08, F=2.18). Once these assumptions were realized, multi-variable variance analysis was performed. The results showed that there was no significant difference in according to age (p=0.73, F=0.43). Differences based on gender and years of marriage are presented in Table 4.

The results of the above table show that there is a significant difference in couples' confidence in terms of gender $(p \le 0.01)$ and marriage duration $(p \ge 0.05)$. The mean comparison shows that men have a higher mean. The comparison of the means according to the duration of the marriage also showed that the highest and the lowest mean were observed in 1–3 and 16–18 years after marriage after marriage, respectively. Tukey's post hoc test did not show significant differences between two groups (Table 5).

Discussion and Conclusion

The purpose of this study was estimating the validity and reliability of "Couple Trust Measurement" questionnaire, designed by John Gottman. The statistical population was all the married couples of Bojnourd, and the study sample consisted of two groups of married men and women (278 and 308) who were selected by using cluster random sampling. To estimate the questionnaire validity, different methods were used; calculating the correlation of the score of each item with the total score, Cronbach's alpha, and the split-half coefficient. To investigate the scale reliability, these methods were performed; exploratory factor analysis, principal components, confirmatory factor analysis, maximum likelihood. The convergent reliability was investigated by calculating the Pearson correlation between the couple's trust measurement scale and the perceived relationship quality components inventory (PRQC) and Thompson and Walker's marital intimacy scale 1983 (MIS). Multivariate analysis of variance was used to analyze the scale reliability based on the gender and the number of marital years. SPSS 17 and AMOS.20 software were used for statistical analysis. The initial results indicate that the detection power of all the phrases was correct and desirable (correlation coefficients ranged from 0.17 to 0.81). According to these results, none of the terms were deleted at this stage. In the following, to explore the exploratory factor with the pattern of the main components, it was paid to calculate the Kaiser Meyer Olkin masseur (KMO) and Bartlett's test of sphericity on the data obtained from scale implementation. The results showed that with a KMO value of 0.94 and a rejection of null hypothesis in Bartlett's test of sphericity (p = 0.0001, df = 861, $\chi^2 = 7129.45$), there are conditions for factor analysis. The analysis of the main components, taking into account factor load greater than 0.35, yielded eight factors with a special

¹ Goodness of Fit Index (GFI).

² Adjusted Goodness of Fit Index (AGFI).

³ Normed Fit Index (NFI).

⁴ Comparative Fit Index (CFI).

⁵ Root Mean Square Error of Approximation (RMSEA).

Table 2 Results of factor analysis of form 34 factors of couples trust measurement scale

Phrases	Mean	Std. deviation	Subscribe	Factor load	Correlation with total score
1. When I'm with my wife, I feel safe	4.33	0.9	0.45	0.66	0.63
2. My wife is loyal to me	4.55	0.73	0.4	0.63	0.61
3. My wife supports me in financial matters	4.28	0.95	0.34	0.58	0.55
4. Sometimes I'm not comfortable with my wife	3.56	1.3	0.23	0.48	0.45
9. My wife makes sense emotionally	4.17	1.07	0.51	0.72	0.69
10. I know my wife will always be an intimate friend with me	4.22	0.99	0.72	0.85	0.83
11. My wife is committed to the welfare of our children	4.46	0.78	0.41	0.64	0.61
12. In difficult times, I can count on my wife to sacrifice for me and my family	4.3	0.95	0.55	0.74	0.72
13. My wife is doing homework	3.93	1.23	0.23	0.48	0.46
14. My wife will work hard to increase our financial security	4.13	1.08	0.37	0.61	0.58
15. My wife does not respect me	4.34	0.9	0.59	0.77	0.74
16. My wife makes me sexually desirable	3.94	1.01	0.4	0.63	0.6
17. My wife cares about my feelings when making decisions	4.05	0.98	0.69	0.83	0.81
18. I know that when I'm sick, he cares for me	4.23	0.98	0.59	0.77	0.74
19. When we get into trouble, he works with me to improve our relationship	4.11	1.05	0.67	0.82	0.8
20. My wife supports me emotionally	4.17	1.01	0.7	0.83	0.81
22. My wife meets a romantic one	3.56	1.21	0.43	0.66	0.63
23. My wife is kind to my family	4.05	0.98	0.55	0.74	0.72
24. When I'm upset or angry, I can count on my wife	3.87	1.14	0.63	0.79	0.77
25. My spouse makes me ridiculous and humiliating	4.25	1.03	0.27	0.52	0.49
28. I have power and influence in this regard (marital relationship)	4.17	0.85	0.45	0.67	0.64
29. My wife respects me with others	4.39	0.85	0.65	0.81	0.78
30. He helps me in taking care of the child	4.12	1.01	0.28	0.53	0.52
31. I cannot trust him completely	4.11	1.15	0.34	0.58	0.57
32. He is loyal to his promises	4.03	1.02	0.45	0.67	0.65
33. He adheres to morality	4.29	0.93	0.47	0.69	0.66
35. My wife will hit my trust	4.07	1.15	0.35	0.59	0.58
36. My wife is kind to me	4.24	0.92	0.65	0.81	0.79
37. In discussions, I can assure him that he really listens to me	3.92	1.04	0.59	0.77	0.75
38. He respects my dreams and shares them	3.87	1.05	0.68	0.83	0.81
39. I'm afraid my wife will go to aberration	3.86	1.21	0.2	0.45	0.44
40. His words and behavior are based on the values that are acceptable to both of us	3.86	1.02	0.54	0.74	0.72
41. She/he often plays love with me	3.84	1.12	0.39	0.62	0.59
42. I can count on him in creating a sense of family and society	4.19	0.96	0.68	0.83	0.81

Table 3 Descriptive indexes and reliability coefficients of couples trust assessment scale

Group	Minimum	Maximum	Mean	Std. deviation	Cronbach's alpha	Split-half
First study (272)	47	170	138.49	24.72	0.96	0.93
Second study (308)	63	170	140.90	20.96	0.96	0.94

value higher than 1 and the explaining variance equal to 64.48%. This structure had the confusing phrases or factor loadings of less than 0.35. Also, the Scree test also did not support this structure. Accordingly, several analyzes were conducted to remove inappropriate phrases. Finally,

with the deletion of 23 phrases, a three-factor structure was obtained that explained 63.24% of the total variance. But this structure was not supported by the scree test; one factor has two terms, and its second and third factors only account for 12% of the variance. Accordingly, due to the removal of



Table 4 Correlation coefficients of couples' trust, components of PRQC and MIS

Variables	1	2	3	Mean	Std. deviation	
1.The total score of PRQC	v =			106.52	21.43	
2.Intimacy scale	0.87**	-		5.68	1.33	
3. Confidence between couples	0.71**	0.78**	-	140.90	20.96	

^{**}p < 0.01, *p < 0.05

Table 5 Descriptive indexes and results of multi-variable variance analysis of couples' trust, based on gender and duration of marriage

Group	N	Mean	SD	SS	df	MS	F	p
Gender								
Woman	144	139.50	17.27	4363.32	1	4363.32	16.39	0.0001
Man	150	147.21	15.34					
Duration of	marriage							
1-3	69	148.73	14.47	4027.26	7	575.32	2.11	0.04
4-6	42	141.74	15.26					
7-9	39	140.15	18.22					
10-12	40	142.80	17.98					
13-15	33	139.88	18.11					
16-18	13	135.31	16.09					
19-21	24	146.50	20.79					
≥ 21	32	144.56	12.81					

SD standard deviation, df degrees of freedom, MS mean squares, SS sum of squares

many phrases with weak structure, and non-conformance of the extracted structure with theoretical foundations, in line with the prominent factors in the scree test, the analysis was limited to the structure of an agent. The initial results showed that the terms 5, 6, 7, 8, 21, 26, 27 and 34 had factor loadings < 0.35. Accordingly, the analysis was repeated to remove these terms.

The final structure with 34 terms and the special value of 16.43% resulted in the explained variance equal to 48.33%. The Scree test supported this template. As shown in Table 1, the phrase 10 (I know my wife will always be an intimate friend with me) has the highest factor loading (0.85). Also, The phrase 39 (I afraid my wife goes to aberration) also has the lowest factor load (0.45). In sum, the results shows the validity of exploratory factor and the consistency of the structure with the original version.

In order to investigate the validity of the confirmatory factor, the structure of 34 statements was tested on the second sample data (308) of the participant. The analysis in this field was performed using Amos software and applying the Maximum Likelihood Exponential Method. The related analyzes showed that all phrases in the structure of 34 phrases had a factor loading of at least 0.49 and a maximum of 0.79 on the overall factor and all the coefficients were in acceptable significant level (p < 0.01). Fitness indices showed a desirable fit of the model ($\chi^2/df = 1.35$, GFI = 0.9, AGFI = 0.86, NFI = 0.92, CFI = 0.98, RMSEA = 0.03). The acceptable level for a good model in the ratio of Chi square

to freedom degrees (χ^2 /df) is less than 2, RMSEA is less than 0.05 and in other indices is more than 0.90 (Hooman 2016). These indices indicate the appropriateness of the appropriate validity of scale factor. In the study of the reliability of the scale, the correlation of each statement with the total score (Table 1), Cronbach's alpha and the coefficient of split-half were investigated. As shown in Table 1, all phrases have a moderate and higher correlation with the total score of the scale. The phrases 10 (I know my wife will always be an intimate friend with me) the phrase 39 (I afraid my wife goes to aberration) have the highest (0.85) and the lowest (0.44) correlation with the total score of the scale, respectively. The results were consistent with the research by Nilfrooshan et al. (2010).

The convergent reliability was investigated by calculating the Pearson Correlation between the couple's trust measurement scale and the Perceived Relationship Quality Components Inventory (PRQC) and Thompson and Walker's Marital Intimacy Scale 1983 (MIS) on the data from the second study (308 people). The positive and significant correlations between the studied factors showed the convergent validity of the couples' trust assessment scale. These results are consistent with the results of Stemberg and Barnes (1985), Flanagan (1999), Bogaert and Sadava (2002), Jeanfreau (2009), Touesnard (2009) and Cheung et al. (2014).

In assessing the validity of the criterion of Couples Trust Measurement Scale, the differences in sex, age and marriage duration were analyzed using single-variable variance analysis. After deleting the fling data, the results of the assumptions survey showed that the distribution of couples' trust by gender, age and duration of marriage is normal $(p \ge 0.05)$. Levene's Test of Equality of Error Variances showed that there is a equality between groups by gender (p=0.25, F=1.48), age (p=0.11, F=2.03) and duration of marriage (p = 0.08, F = 2.18). Once these assumptions were realized, one-variable variance analysis was performed. The results showed that there was no significant difference in relation to age (p=0.73, F=0.43). The results of the above table showed that there is a significant difference in couples' confidence in terms of gender $(p \le 0.01)$ and marriage duration $(p \ge 0.05)$. The mean comparison shows that men have a higher mean. The comparison of the means according to the duration of the marriage also showed that the highest and the lowest mean were observed in 1-3 and 16-18 years after marriage after marriage, respectively. Tukey's Post Hoc test did not show any significant difference between two groups. Therefore, due to the normal distribution of couples' trust by gender, age, and duration of the marriage, this scale has a good standard of validity.

Some other scholars have also addressed the difference in trust between women and men. Based on the results of the research of Safiri and Mohammadi (2006), the married women's confidence in their husbands was less than average. Murray et al. (2000) investigated the relationship between loyalty and trust among women and men and found that one of the main components of positive thinking about others, is ensuring that others are accessible and responsive, especially when you need it. The results of this research showed a high correlation between trust and loyalty in women so that the correlation coefficient of the two elements of trust and loyalty in women were 0.43 and 0.45 and in men were 0.29 and 0.34 respectively. In general, the results of this study indicates that the validity and reliability of "Couple's trust measurement" questionnaire, designed by John Gottman, is good and suitable.

Considering that various methods were used to estimate the reliability of this questionnaire, including calculating the correlation of each score with the total score, Cronbach's alpha and the two-half-coefficient, as well as on the scale validity, exploratory factor analysis was accomplished by principal components and also confirmatory factor analysis was done by maximum likelihood method, and the convergent reliability was investigated by calculating the Pearson correlation between the couple's trust measurement scale and the Perceived Relationship Quality Components Inventory (PRQC) and Thompson and Walker's Marital Intimacy Scale 1983 (MIS), as well as Multivariate analysis of variance, was used to analyze the scale reliability based on the gender and the number of marital years, and also analyzes were done on two different groups, so it can be concluded with certainty that different methods of assessing the validity and reliability of the present questionnaire indicate its credibility and its high validity in Iran and it can be used in Iranian society and in specialized research and specialized clinics of couples. As trust between couples establishes the basis for family relationships and health, this questionnaire will be of great help to research and therapeutic approaches to improve couples' relationships and assess their degree of trust

The research has been subjected to limitations as with other studies. Gottman had carried out this questionnaire in his Love Lab and as a clinical work, and no research has been carried out in other countries or in Iran so that its credibility and validity are clear and can be cited; this can be considered as an innovation in the present research. Also during the implementation of the questionnaires, a large number of questions and questionnaires are likely to cause fatigue and lack of motivation for responding to questions. Therefore, it is suggested that in the future researches, the questionnaire should be run alone and without the peer forms, and then its validity and reliability should be calculated again. On the other hand, the present study has been conducted on two sample groups of 278 and 302 people. It is suggested that future research is done on two distinct groups and with a large number of sample individuals.

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Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest

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باسمه تعالى





فرم خودارزیابی مقاله ژورنالی (ترسمتانی)

همكار ارجمند

با توجه به اهمیت داوری صحیح مقاله ها، خواهشمند است به پرسش های زیر با دقت پاسخ دهید. همچنین، گزارش طرح های پژوهشی، پایان نامه کارشناسی ارشد و رساله دکتری خود را به ضمیمه مدارک تسلیم دارید. درخواست می شود لطفا به همپوشانی آثار، توجه ویژه ای مبذول فرمایید.

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