



Articles

Translation and Cross Language Validation of Passionate Love Scale Among Adults in Lahore, Pakistan

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Abstract

Objective of the present study was to translate and cross language validate the Passionate Love Scale (PLS) from English language to Urdu language using forward-back translation (Brislin, 1976) procedure. It is developed by Hatfield and Sprecher (1986). It has 15 self-reported and uni-dimensional items, with 9 points rating scale ranges from 1 = not at all true to 9 = definitely true. Results showed high level of Cronbach's alpha reliability coefficient $\alpha = 0.90$, test retest reliability ranged from $r = .73$ to $r = .96$ ($ps < .01$), item total correlation varying from $r = .50$ to $r = .74$ ($ps < .01$) and factor loading ranged from .39 to .73. Item difficulty was determined through the Rasch scaling analysis and construct validity of the Urdu PLS secured the same one-dimensional factor structure of the English PLS by retaining 15 items. It showed that the Urdu PLS is reliable and valid tool to measure the cognitive, emotional and behavioral components of passionate love in Pakistani cultural context. Implications of the study were also discussed.

Keywords: passionate love, Urdu translation, cultural context, Pakistan

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Passionate love is a powerful emotional state that is intensive in nature especially at the beginning of the romantic relationship. It is sometimes used as an alternative to the infatuation, love sickness, or obsessive love (Hatfield & Rapson, 1996). It influences the cognition, emotions, behavior and the physiological aspects of the individuals who fall in love. Cognition intensifies the intrusive thoughts and individual over concerned with the lover. It motivates them to change their priorities of life for the lover, to work for them and to serve them (Hatfield & Sprecher, 1986). They developed psychological dependency and seek emotional reassurance from the lovers. They feel elevated and euphoric in the presence of lover especially when the passionate love reciprocated and when the relationship with the other person is going well. Even the mere thought of lover's absence makes them miserable and they experienced mood swings. They have the desire for the complete union with other person including sexual attraction and arousal. Passionate love has an element of sexual desirability, even lust, but it is not limited to that (Culler, 2000).

Anthropologists, social psychologists and historians including neural, genetic, biological, and cultural experts, they investigated the cognitive, emotional, sexual and behavioral components of passionate love with children, adolescents, and adults along with unmarried and married couples (Cacioppo, Bianchi-Demicheli, Hatfield, &

Rapson, 2012; Cacioppo & Hatfield, 2013; Hatfield & Rapson, 2008a; Hatfield, Rapson, & Aumer-Ryan, 2008; Hatfield, Rapson, & Martel, 2007). They found that the love is a phenomenon of cultural universal as if it emerged in all human groups with only slight variations across human history (Al-Krenawi & Jackson, 2014; Fisher, Brown, Aron, Strong, & Mashek, 2010).

Researchers accounted the universal nature of passionate love (Cacioppo, Bianchi-Demicheli, Hatfield, & Rapson, 2012; Fisher, Brown, Aron, Strong, & Mashek, 2010; Hatfield & Rapson, 2008b; Hatfield, Rapson, & Martel, 2007; Jankowiak & Fischer, 1992). They found that at least one type of love (passionate love) is expected to have emerged in all societies and in every era of human history. Intensity of passionate love can vary according to the experience of an individual, biological characteristics and cultural context (Kim & Hatfield, 2004; Landis & O'Shea, 2000; Yildirim, Hablemitoglu, & Barnett, 2014).

Hatfield, Bensman, and Rapson (2012) reported in the article "A Brief History of Social Scientists' Attempts to Measure Passionate Love" that the concept of romantic love is as old as the existence of human being itself, but the idea of tool development on the passionate love was ignored till 1940's. Hatfield et al. enlisted 33 different scales of love with its necessary details in which Passionate Love Scale was selected to translate and validate from the source language (English) to target language (Urdu). Since, author claims the universality of the passionate love scale with the evidence that this scale has been translated into many languages such as Hernandez (2015) conducted research on the construct validity of Passionate Love Scale by using the data of 578 Brazilian individuals including both gender (men & women). Exploratory Factor Analysis retained the original one-dimensional factor structure of PLS which explained 64.2% of the common variance. Results indicated the significant level of internal consistency. Its scores were also positively associated with the Triangular Love Scale-R (Sternberg, 1997) and its subscales. Overall results showed that the Brazilian version of Passionate Love Scale is reliable and valid tool to measure the passionate love among the Brazilian population.

Feybesse, Neto, and Hatfield (2011) conducted a study on the adaptation of the Passionate Love Scale into the Portuguese population by using the data of 204 Portuguese university students. Results of Factor Analysis showed the single dimension and good internal consistency of the PLS. Findings of this article remained consisted with the original English version of PLS.

Moreover, Yildirim, Hablemitoglu, and Barnett (2014) conducted a study on the reliability and validity of a Turkish version of the Passionate Love Scale by using the data of 150 undergraduate students. Results indicated the good level of internal consistency in form of Cronbach's alpha reliability coefficient ($\alpha = .89$). Its factor loading ranged from .53 to .79 and item total correlation varied from .47 to .74. Confirmatory factor analysis retained the 15 items with single factor. Findings showed that the PLS is reliable and valid tool to measure the passionate love among Turkish population. They also found that 43.3% participants reported that they passionately loved at the time of the study, 33.3% that they had never passionately loved someone, and 23.3% indicated that they had previously been passionately in love with someone. According to their responses to the PLS, 30.7% of the participants reported that they were wildly, and even recklessly, in love, 29.3% felt less passion for their beloved, 21.3% occasionally felt passion for their beloved, 13.3% of the participants were tepid and felt passion infrequently, and 5.3% reported that the thrill of their love had faded away.

Feybesse (2015) validated the Passionate Love Scale in France by using the data of 190 students (women 53.2% and men 46.8%) of Paris Descartes University. Age ranges varied from 18 to 34 years old ($SD = 2.99$).

At the time of study 102 (53.7%) subjects were in love, 58 (35.8%) have been in love and 16 (8.4%) claimed that they have never been in love. Duration of the relationship varied from 23 to 47 months. Cronbach's alpha reliability coefficient for the 15 items version is .90. Therefore, it is the main objective of this study to translate and validate the passionate love scale from English language into Urdu language, to establish the cross language validation and determine the factor structure. Translation has made to avoid the linguistic barriers, cultural constraints and researcher's biasness. Moreover, to make it more comprehensible, functional, content and contextually equivalence according to the cultural context of Pakistan (Herdman, Fox-Rushby, & Badia, 1998; Laake, Benestad, & Olsen, 2007; Voracek, Fisher, Loibl, Tan, & Sonneck, 2008).

Objectives

The objectives of the current study were to translate and cross language validate the Passionate Love Scale (PLS) from source language (English) to target language (Urdu). It was achieved in three phases. In Phase I, forward back-translation (Brislin, 1976a) was carried out. In phase II, internal consistency was computed through test-retest reliability/cross language validation, Cronbach's's alpha reliability coefficient and item total correlation. In phase III, Factor structure of the Urdu PLS was determined through the Rasch Measurement Model (RMM) and Confirmatory Factor Analysis (Field, 2009).

The Passionate Love Scale (PLS)

The Passionate Love Scale (Hatfield & Sprecher, 1986) measures the cognitive, emotional and behavioral components of passionate love. It is a self-reported one-dimensional measure for young adults consisting of 15 items such as: "I would feel deep despair if he/she left me" by using 9 points rating scale; 1 = *not at all true* to 9 = *definitely true*. Its score calculated by mean or by sum of the ratings. All items are positively worded and not reverse scored. High scores on the PLS shows high level of passion and low score shows less intensity of passionate love. There are several ranges of scores such as 106-135 score indicate that the individual is wildly and recklessly involve in passionate love, 86-105 scores show the passion but comparatively less intense in nature, 66-85 scores depict infrequent gusts of desire, 45-65 scores reveal the tepid and infrequent passion, while 15-44 scores show that the thrill is gone. Cronbach's alpha reliability coefficient of the original PLS was reported $\alpha = .91$.

Phase 1: Translation of Passionate Love Scale

Brislin (1976a) forward-back translation method was used to translate the instrument from English language to Urdu language which was completed in the following four stages:

Procedure

Permission was taken from the original authors (Hatfield & Sprecher, 1986) for the translation of instruments which graciously granted. Stage I: It was requested to five bilingual experts to translate the instruments from English language to Urdu language independently by following the same guideline for translations (Brislin, 1976b). Stage II: Moreover, five bilingual committee members (2 M. Phil degree holders and 3 PhD scholars had taken from the department of Psychology Government College University Lahore) were approached to finalize the Urdu version PLS. Stage III: Three bilingual experts translated the Urdu version of all items into

English language without exposing them the original items. Two Urdu language experts evaluated the appropriateness of the Urdu language and sentence structure of the instrument. Stage IV: Test try out and pilot study was conducted.

Stage I: Forward Translations

For forward translations five bilingual experts (three PhD holders of English department and two M. Phil degree holders of psychology department of GC University Lahore) were approached. They have the expertise in item writing and translating instruments. It was requested to them to translate the content of the scales from English to Urdu language, while keeping its contextual meaning intact (see [Appendix](#) for details).

Stage II: Committee Approach

Committee approach was used to check the adequacy and compatibility between the English and Urdu language of the instruments. Committee comprised of $n = 5$ (2 women and 3 men) bilingual experts. Committee members assessed the accuracy of translation, contextual meaning, concept clarity, language difficulty, grammatical validation, sensitivity to regional discrepancies and evaluated. Five forward translations were compared based on three criteria (1) cultural context (2) conceptual translation (3) removing any surplus and inadequate words from the items.

Stage III: Back Translation / Reformulation of Equivalence

Three back translations were carried out to assess the ambiguities, inconsistencies and differences between target and source language. Three bilingual experts (did M. Phil in English department from GC University Lahore) of Urdu and English language were contacted for the back translations. Urdu translated version of scales was given to them instead of original instruments. After these translations, the same committee members that evaluated the forward translations were approached. They compared three back translations by using the criteria of conceptual equivalence, language difficulty, deleting extra words and make it more comprehensible according to the cultural context of Pakistan. It was finalized after minimizing the discrepancies of conceptual meanings. Two Urdu language experts (did Master in Urdu, from the Government College University Lahore) improved the quality of item structure. After expert evaluation of the back translations the instruments were sending back to the original authors. They were agreed with the back translations and did not suggest major changes.

Stage IV: Pilot study

Once finalizing the Urdu translated version of Passionate Love Scale (PLS) test try out was conducted on $n = 15$ individuals to identify the problematic and difficult items. After modification and improvement of the items, pilot study was conducted on $n = 50$ participants. Results of test try out showed that 98% of students found the questionnaire easy while 2% asked to clarify the meaning of some items (for example item number 4 "I would rather be with him/her than anyone else" and item number 6 "I yearn to know all about him/her) which were improved in the pilot study after consultation of the original author. Findings of pilot study revealed that 100% students found it easy to mark and understandable. Original item order was followed in the Urdu translated version of PLS.

Phase 2: Internal Consistency of Urdu PLS

Internal Consistency and Construct Validity of PLS were determined in the phase II. Internal consistency was included the cross language validation, Cronbach's alpha reliability coefficient and item total correlation respectively.

Method

Sample

Purposive sampling technique was used. The sample of cross language validation consisted of 60 volunteer and bilingual participants (15 in each group) with equal distribution of gender (30 women & 30 men). They were matched on their demographic variables such as age (19-60 years), gender (men & women), education (BA/ BSc/BSc (Hons) to PhD), marital status (married or unmarried), profession (employee or unemployed) and area (urban or rural).

Procedure

After seeking permission from the relevant authority, volunteer participants were approached in group forms. They were randomly divided into four groups (Urdu- Urdu, Urdu- English, English- English and English-Urdu) by taking all the ethical considerations (anonymity, confidentiality and right of withdraw) in account. Paper pencil method was used. They filled PLS along with demographic variables sheet. All these participants were approached again (for test-retest reliability) with the fifteen days gap by keeping all the conditions (same sitting arrangements, place, instructions, instruments, observer and objectives) standardized. It took average 10 to 15 minutes to complete both forms. Participants were debriefed and thanked for their cooperation.

Results

Cross Language Validation

Cross language validation (Naqvi & Kamal, 2010) was conducted to check the compatibility between the Urdu translated version of PLS and original scale. Table 1 indicates the highly significant positive relationship among each condition of test retest reliability especially the Urdu-Urdu version of Passionate Love Scale shows $r = .96$, $p < .01$, which is highly significant.

Table 1

Test-Retest Reliabilities of Urdu and English Version of the Passionate Love Scale (N = 60)

Scale	UE (n = 15)	EU (n = 15)	UU (n = 15)	EE (n = 15)
Passionate Love Scale	.73**	.75**	.96**	.89**

Note. UE = Urdu-English. EU = English-Urdu. UU = Urdu-Urdu. EE = English-English.

** $p < .01$.

Cronbach's Alpha Reliability

Results reported in Table 2 shows high level of Cronbach's alpha reliability coefficient on the scores of Urdu Passionate Love Scale ($\alpha = .90$) which is quite good and high.

Table 2

Mean, Standard Deviation and Cronbach's Alpha Reliability Coefficient of the Urdu Passionate Love Scale (N = 300)

Variables	Total items	Minimum Scores	Maximum Scores	M	SD	α
Passionate Love Scale	15	9	135	107.33	20.07	.90

Item Total Correlation

Results reported in Table 3 shows highly significant positive relationship between each item to item total correlation which means that the Urdu Passionate Love Scale is an internally consistent measure of passionate love and every item positively contributed to improve the reliability of the instrument.

Table 3

Item Total Correlation of Urdu Passionate Love Scale (N = 300)

Item #	Item	Item total correlation
1.	I would feel deep despair if he/she left me.	.69**
2.	Sometimes I feel I can't control my thoughts; they are obsessively on him/her.	.61**
3.	I feel happy when I am doing something to make him/her happy.	.61**
4.	I would rather be with him/her than anyone else.	.74**
5.	I'd get jealous if I thought he/she were falling in love with someone else.	.59**
6.	I yearn to know all about him/her.	.50**
7.	I want him/her physically, emotionally, mentally.	.74**
8.	I have an endless appetite for affection from him/her.	.63**
9.	For me, he/she is the perfect romantic partner.	.68**
10.	I sense my body responding when he/she touches me.	.60**
11.	He/she always seems to be on my mind.	.51**
12.	I want him/her to know me--my thoughts, my fears, and my hopes.	.66**
13.	I eagerly look for signs indicating his/her s desire for me.	.69**
14.	I possess a powerful attraction for him/her.	.66**
15.	I get extremely depressed when things don't go right in my relationship with him/her.	.68**

Note. Urdu version of the Passionate Love Scale (see Appendix for details).

** $p < .01$.

Phase 3: Factor Structure of the Urdu Passionate Love Scale

Sample

Purposive sampling technique was used. Data of 300 volunteer participants (50% men and 50% women) were used after full filling the all prerequisites of ethical considerations. Their age ranges varied from 19 to 60 years ($M = 21.13$, $SD = 11.31$). At the time of study, 60% were students and 40% employed. 30% were married, 20% engaged, 20% in relationship and 30% unmarried. 70% experienced love and 30% never experienced it yet. 186 participants have experienced passionate love at some point in life while 114 have never experienced it. Out of 300 respondents, 162 participants attempted the questionnaire by keeping in mind about their current beloved person, 24 responded according to their past experience of romantic love and 114 reported to never experience passionate love. 188 individuals madly and recklessly experienced passionate love, 60 experienced

less intensity of passionate love, 42 experienced occasional bursts of passion, 10 experienced halfhearted or infrequent passion and reported loss of thrill.

Results

Rasch Analyses on Passionate Love Scale (PLS)

In-depth psychometric evaluation of the Urdu Passionate Love Scale was determined through the Rasch measurement model (Bond & Fox, 2015; Hagquist, Bruce, & Gustavsson, 2009; Smith, Conrad, Chang, & Piazza, 2002). It is an item response theory model which helps to describe the required scaling properties of linear interval measurement and the response pattern observed in the data corresponds to the theoretical pattern expected by the model (Embretson & Reise, 2000; Tennant & Conaghan, 2007).

Table 4 shows the results of the Rasch analyses for the 15-item passionate love scale. It was found that item difficulty ranges from $\pm.55$ to ± 1.62 . All of the items showed acceptable infit values ranging from .55 to 1.49 (WMS less than 2.0), and outfit values ranging from .57 to 1.99. The entire scale reliability was .90, and person separation index was 2.33. It can be observed that all the statistics showed acceptable rating scale model fit. In addition, the threshold for rating scale (1 to 9) was between $\pm.01$ to $\pm.65$.

Table 4

Rasch Analyses for Passionate Love Scale, PLS (N = 300)

Item #	Item Description	Difficulty	SE	WMS	UMS	Load	R ²
1	Feel deep despair	-.55	.04	1.06	1.08	.61	.30
2	Can't control my thoughts	-.63	.04	1.15	1.39	.55	.28
3	I feel happy when	-1.43	.05	1.34	1.07	.53	.23
4	With him/her than anyone else	-1.41	.05	1.23	1.13	.48	.24
5	I'd get jealous if	-1.08	.04	1.44	1.46	.49	.15
6	I yearn to know all about	-1.24	.04	1.49	1.99	.39	.51
7	I want him/her	-1.12	.04	.70	.66	.71	.32
8	I have an endless appetite	-1.09	.04	.92	.84	.57	.40
9	Perfect romantic partner	-1.21	.04	.55	.57	.64	.34
10	I sense my body responding	-.66	.04	1.26	1.46	.58	.42
11	He/she always seems to be	-1.24	.04	.83	.80	.65	.21
12	I want him/her to know	-1.62	.05	.85	.94	.45	.47
13	I eagerly look for signs	-1.07	.04	.73	1.01	.69	.53
14	I possess a powerful	-1.32	.04	.71	.72	.73	.30
15	I get extremely depressed	-1.62	.05	.85	.73	.67	.45

Note. N = 300. WMS = Weighted Mean Square. UMS = Un-weighted Mean Square. Load = Standardized Factor Loading. R² = Squared Multiple Correlation.

Factor Structure of the Urdu Passionate Love Scale

The Confirmatory Factor Analysis (CFA) was employed to determine the factor structure of the Urdu translated versions of Passionate Love Scale (UPLS). It was used to measure the predetermined hypothesis, theory or empirical evidence based research (Campbell & Fiske, 1959; Cronbach & Meehl, 1955; Preedy & Watson, 2010). Software of Analysis of Moment Structure (AMOS 18) were used to measure the "good model fit" which means the suitability of the model and absolute fit indices follow the criteria of (1) Prior theory, model or hypothesis; (2) Variations; (3) Specification of latent variable; (4) relationship among latent variables; and (5)

Control conditions (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Results interpretation uses the values of Chi-square test (χ^2) (Jöreskog & Sörbom, 1989). It shows the discrepancies between perceived and estimated covariance matrices and scores near to zero represents the little bit variations on the observed and estimated scores. Chi-square test is sensitive to sample size, small sample may reject the appropriate model and large sample may retain the inappropriate model fit indices (Gatignon, 2010). This problem compensated with the Root Mean Square Error of Approximation (RMSEA). Its ranges varied from 0 to 1 and lesser values indicate the better model fit while $< .06$ represents the acceptable level of model fit (Hooper, Coughlan, & Mullen, 2008). Another criterion of goodness of fit index (GFI) is employed which determine the discrepancies between the assumed model and the observed covariance matrix. Its ranges varied from 0 to 1 and scores greater than .9 shows the satisfactory model fit (Baumgartner & Homburg, 1996).

The comparative fit index (CFI) deals with the difference between observations and hypothesized model. It also deals with the sample size problems existed in the chi-squared test normed fit index (Bentler, 1990). Its values varying from 0 to 1 and greater values ($< .95$) means better fit model (Hu & Bentler, 1999). Other criteria of Goodness-of-fit index (GFI) was used which represented the latent factors. Its values ranged from 0 to 1 and greater than .9 represent the acceptable level of model fit (Behling & Law, 2000). Analysis of Moment Structure (AMOS 18 software version) was used. Missing values were replaced with the mean before data was subjected to further analysis. In every model, basic factors were considered as latent variables and items were taken as observed values. Unseen factors were subjected as error of observed values. Path analysis was used to draw the diagrams and fit the variances and covariances matrix. Standardized regression weights were specified and factor loading $< .35$ was considered as acceptable value (Anastasi & Urbina, 1997; Field, 2009).

Results of Table 5 shows the Chi-Square value for Urdu Passionate Love Scale $\chi^2(51, N = 300) = 73.02, p < .02, CFI = .96, RMSEA = .05$ was close fit model. A non-significant χ^2 makes a good fit model and could result rejection of the null hypothesis. According to the Bentler (1995), with large sample size χ^2 become significant while with the small sample the assumption of the χ^2 test reveals an inaccurate probability. Results strongly supports that the Urdu Passionate Love Scale is close fit model (see Figure 1 for the graphical representation of the model)

Table 5

Chi-Square, Degree of Freedom and Stepwise Model Fit Indices of CFA for Passionate Love Scale (N = 300)

Scale	χ^2	df	GFI	CFI	RMSEA
15 items	73	51	.93	.96	.05

Note. GFI = Goodness-of-Fit Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of approximation.

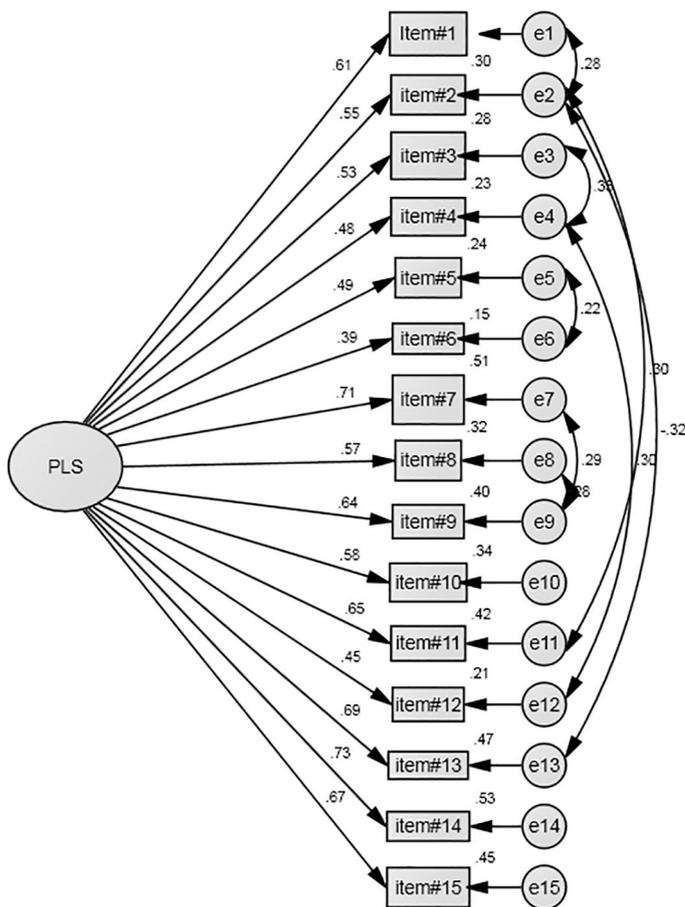


Figure 1. Path diagram for the Urdu version of Passionate Love Scale (PLS).

Note. Item 1-Item 15 in the Passionate Love Scale. In the figure, left sided arrows indicates the factor loading which is mentioned in Table 4 and right sided arrows show the R² while reciprocated arrows depicts the covariance between items.

Discussion

The main objective of the present study was to translate and cross language that validates the Passionate Love Scale (PLS) from English language to Urdu language. It was completed in three phases. In phase I, translation was done by using the standard procedure of forward back-translation (Brislin, 1976b). In phase II, internal consistency of the Urdu translated version of PLS was determined through test re-test reliability/cross language validation, Cronbach's alpha reliability coefficient and item total correlation. In Phase III, Item difficulty and factor structure of the Urdu PLS was calculated through the Rasch Measurement Model (RMM) and Confirmatory Factor Analysis (CAF).

First objective of the current study (phase I) was to translate the English version of PLS into Urdu Language by using the standard procedure of translation which was achieved successfully. Results of phase I (test try out) shows that participants interpret the item number 4 (I would rather be with him/her than anyone else) in terms of long term commitment like marriage. It means if they have given the chance to choose the partner/spouse they prefer to be married with the romantic partner rather than anyone else. While author develop this item in urge to spend preferable time with romantic partner in day to day life rather than anyone else like friends, family

or social gathering which was clear by the original author. It might be happened as an intimate relationship may differ in Pakistan due to collectivistic culture. Pakistani society differs from Western society in terms of socio-cultural features and social structure despite of rapid westernization (Kagitcibasi, 1990).

Respondent also found the problem in item number 6 (I yearn to know all about him/her) as they were reluctant to answer it and perceived it comparatively irrelevant to investigate the personal life of the lover or they might be threaten to violate the personal boundaries of the lover or think it is irrelevant to know the love as they accept him/her with all of his/her strength and weakness. But the author clarify its meaning in a sense that in passionate love it is natural wish to try to know the liking and disliking of lover so that to understand each other well. Or it might be happened due to empirically supported aspects of Asians culture which includes the aspects of collectivism, joint family system, and conformity to social norms, Islamic culture, personal restraint, reservation, and suppression of emotional expression (Kim, Atkinson, & Umemoto, 2001).

Second objective of this study was to determine the internal consistency of the Urdu version of PLS through test re-tests reliability/cross language validation, Cronbach alpha reliability coefficient and item total correlation. Findings showed the high level of internal consistency and test re-tests reliability/cross language validation of Urdu version of PLS. Findings were remains consistent with the previous literature (Feybesse, Neto, & Hatfield, 2011; Graham & Christiansen, 2009; Hatfield, Forbes, & Rapson, 2013; Hatfield & Sprecher, 1986; Yildirim, Hablemitoglu, & Barnett, 2014). Value of Cronbach's alpha reliability coefficient on scores of Urdu Passionate Love Scale was found quite high i.e. $\alpha = .90$ which considered the best (Tezbasaran, 1997). Split-half reliability coefficient of the PLS is .89 for the part I and .90 for the part II. This reliability remained same when the Spearman- Brown formula was applied. The internal consistency was further determined by calculating the inter-item and item total correlation for the Urdu translated version of Passionate Love Scale. Highly significant positive relationship was found between item-total correlations which means each item significantly contribute in the total scores of Urdu PLS.

Third objective of the present study was to determine the item difficulty and factor structure of the Urdu PLS. The Rasch model was used to determine the item difficulty and response pattern of the respondents on the current sample. It is an item response theory model which helps to make a linear interval scale, to fit the model. It is correspond with the theoretical and proposed expected model (Conrad et al., 2012; Tennant & Conaghan, 2007). Findings of the Rasch model showed the appropriateness of the results which remain consisted with the previous literature (Lange, Houran & Li, 2015; McCreary et al., 2013)

Factor structure of the Urdu Passionate Love Scale was determined through Confirmatory Factor Analysis (Cole, 1987). Results show the high level of factor loading. The criteria of $>.35$ for factor loading was followed. Item which scored below to $.35$ was excluded from the further analysis. Results of the present study showed that the ranges of the factor loading varying from $.39$ to $.73$. Therefore, Confirmatory Factor analysis was run on the 15 items and the results of CAF retains the original uni-dimensional factor structure of the Urdu Passionate Love Scale as described by the Hatfield and Sprecher (1986). Same factor structure of the PLS was found while it was translated from English to Portuguese, French, and Turkish (Feybesse et al., 2011; Yildirim, Hablemitoglu, & Barnett, 2014).

Limitations and Strength

Limited number of sample and undergraduate qualification of the participants may threaten the generalization of the results. Despite of these limitations, this study is important in a sense that it is the first study which translated the Passionate Love Scale from English language to Urdu language to measure the cognitive, emotional and behavioral aspects of passionate love.

Future Directions

Research scholars, who have interest to investigate the component of passionate love, can confidently use the Urdu version of Passionate Love Scale in Pakistani population. They could translate the 30-item version of PLS into Urdu language instead of first 15 items.

Conclusion

Translation and validation of Passionate Love Scale (PLS) from English language to Urdu language according to Pakistani Cultural context revealed that the 15-items Urdu Passionate Love Scale secured the original factor structure of the PLS. It supported the claim of universality of PLS. This scale will be helpful for the researcher, psychologists, family counselors, sociologists, and mental health professional while they want to investigate the emotional, cognitive and behavioral components of passionate love in Pakistani population.

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Competing Interests

The authors have declared that no competing interests exist.

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Appendix: Forward-Back Translations of Passionate Love Scale (PLS)

Original Item # 1:	Forward Translations	Backward Translations
<p>I would feel deep despair if he/she left me.</p> <p>Final Urdu Item</p> <p>اگر اس نے مجھے چھوڑ دیا تو میں انتہائی مایوس ہو جاؤں گا/گی۔</p>	<p>1-If this person leaves me then I will feel utterly disappointed.</p> <p>2-If he/she leaves me, I will be extremely hopeless.</p> <p>3-If he/she left me then I will be very disappointed.</p>	<p>1- میں بہت شدید مایوسی محسوس کروں گا/گی اگر وہ مجھے چھوڑ دے۔</p> <p>2- مجھے بہت شدید مایوسی محسوس ہوگی اگر اس نے مجھے چھوڑا۔</p> <p>3- میں بہت شدید مایوسی محسوس کروں گی، گا اگر وہ مجھے چھوڑ دے۔</p> <p>4- اگر وہ مجھے چھوڑ جائے تو میں گہری مایوسی محسوس کروں گا/گی۔</p> <p>5- اگر اس نے مجھے چھوڑ دیا تو میں انتہائی مایوس محسوس کروں گا/گی۔</p>
Original Item # 2:	Forward Translations	Backward Translations
<p>Sometimes I feel I can't control my thoughts; they are obsessively on him/her.</p> <p>Final Urdu Item</p> <p>کبھی کبھی میں اپنے خیالات کا پابند نہیں رہتا/تی اور یہ سب اس کے گرد ہی گھومتے ہیں۔</p>	<p>1-Sometimes I don't able to control my thinking about him/her and this is all about him/her.</p> <p>2-Sometimes I cannot control my thoughts; they revolve around the same water.</p> <p>3-Sometimes I cannot control my feelings about him/her.</p>	<p>1- کبھی کبھی میں محسوس کرتا/کرتی ہوں کہ میں اپنے خیالات کو کنٹرول نہیں کر سکتا/تی، سب وہی بار بار سامنے آتا۔</p> <p>2- کبھی کبھی مجھے محسوس ہوتا ہے کہ جو چیز چاہیے خیالات اس کے بارے میں ہیں میں انہیں قابو نہیں کر سکتا/تی۔</p> <p>3- کبھی کبھی میں محسوس کرتا/کرتی ہوں کہ میں اپنی حسی چیزوں کو قابو نہیں کر سکتا/تی اس کے بارے میں۔</p> <p>4- بعض اوقات میں محسوس کرتا/کرتی ہوں کہ میں اپنی سوچوں کو قابو نہیں کر سکتا/تی اس کے بارے میں۔</p> <p>5- اکثر اوقات میں اپنی سوچوں پر قابو نہیں کر سکتا/تی، جو حقیقتاً اس کے متعلق ہوتی ہیں۔</p>
Original Item # 3:	Forward Translations	Backward Translations
<p>I feel happy when I am doing something to make him/her happy</p> <p>Final Urdu Item</p> <p>جب میں اسے خوش کرنے کے لیے کچھ کر رہا ہوں تو مجھے خوش ہوتی ہے۔</p>	<p>1-When I do something for him/her, it gives me happiness.</p> <p>2-When I do something to make him/her happy, I feel very happy.</p> <p>3-I feel happy when I am doing something to please him/her.</p>	<p>1- جب میں اس کے لئے کچھ کر رہا ہوں تو مجھے خوش محسوس کرتا/کرتی ہوں۔</p> <p>2- جب میں اپنے خوش کرنے کے لئے کچھ کر رہا ہوں تو مجھے خوش ہوتی ہے۔</p> <p>3- میں خوش محسوس کرتا/کرتی ہوں جب میں اس کو خوش کرنے کے لئے کچھ کر رہا ہوں۔</p> <p>4- میں خوش محسوس کرتا/کرتی ہوں جب میں اسے خوش کرنے کے لئے کچھ کر رہا ہوں۔</p> <p>5- میں جب اسے خوش کرنے کی کوشش کرتا/کرتی ہوں تو مجھے خوش محسوس ہوتی ہے۔</p>
Original Item # 4:	Forward Translations	Backward Translations
<p>I would rather be with him/her than anyone else.</p> <p>Final Urdu Item</p> <p>میں کسی اور کی بجائے اس کے ساتھ رہنا چاہوں گا/گی۔</p>	<p>1-I will like to live with him/her instead of anyone else.</p> <p>2-I would love to live with no one else but him/her.</p> <p>3-I will prefer to live with him than anyone else.</p>	<p>1- میں کسی اور کی بجائے اس کے ساتھ رہنا چاہوں گا/گی۔</p> <p>2- میں کسی اور کی بجائے اس کے ساتھ رہنا چاہوں گا/گی۔</p> <p>3- میں کسی اور کی بجائے اس کے ساتھ رہنا چاہوں گا/گی۔</p> <p>4- میں کسی اور کی بجائے اس کے ساتھ رہنا چاہوں گا/گی۔</p> <p>5- میں کسی اور کی بجائے اس کے ساتھ رہنا چاہوں گا/گی۔</p>

Original Item # 5:	Forward Translations	Backward Translations
I'd get jealous if I thought he/she were falling in love with someone else. Final Urdu Item مجھے یہ سوچ کر کھلم ہوتی ہے کہ وہ کسی اور سے محبت کر رہا رہی ہے۔	1-I feel jealous thinking that he loves someone else. 2-I feel jealous to think even that he/she loves anyone else. 3-When I think that he/she is in love with another person I just fell jealous.	1-مجھے حسد ہوتا ہے جب میں یہ سوچتا/سوچتی ہوں کہ وہ کسی اور سے مجھی محبت کرنا تھا/کرتی تھی۔ 2-مجھے حسد ہوتا ہے کہ میں سوچوں کہ وہ کسی اور کی محبت میں گرفتار ہو رہا ہے۔ 3-مجھے حسد ہوتا ہے جب میں یہ سوچوں کہ وہ کسی اور کی محبت میں گرفتار رہتا/رہی تھی۔ 4-میں حسد ہوجاتا ہوں اگر میں سوچوں کہ اسے کسی اور سے محبت تھی۔ 5-اگر وہ کسی اور سے مجھے ملنے محسوس ہوتی ہے۔
Original Item # 6:	Forward Translations	Backward Translations
I yearn to know all about him/her. Final Urdu Item میں اس کے بارے میں سب کچھ جانا چاہتا/چاہتی ہوں۔	1-I want to know everything about him/her. 2-I wish to know each and everything about him/her. 3-I want to know everything about him/her.	1-میں اس کے بارے میں سب کچھ جاننے کا خواہش مند ہوں۔ 2-میں اس کے بارے میں سب کچھ جانا چاہتا/چاہتی ہوں۔ 3-میں اس کے بارے میں سب کچھ جانا چاہتا/چاہتی ہوں۔ 4-میری آرزو ہے کہ میں اس کے بارے میں سب کچھ جانوں۔ 5-میں اس کے بارے میں جاننے کے لیے تجسس ہوں۔
Original Item # 7:	Forward Translations	Backward Translations
I want him/her physically, emotionally, mentally Final Urdu Item میں اسے چاہتی/چاہتا ہوں، جسمانی اور ذہنی طور پر چاہتا/چاہتی ہوں۔	1-I like him emotionally, physically and mentally. 2-I love him/her by body, by soul and by passions. 3-I love him/her emotionally, physically and mentally.	1-میں اسے جسمانی، ذہنی اور ذہنی طور پر چاہتا ہوں/چاہتی ہوں۔ 2-میں اسے جسمانی، ذہنی اور نفسیاتی طور پر چاہتی ہوں/چاہتی ہوں۔ 3-میں اسے جسمانی، ذہنی اور ذہنی طور پر چاہتا/چاہتی ہوں۔ 4-میں اسے جسمانی، ذہنی اور ذہنی طور پر چاہتا ہوں۔ 5-میں اسے ذہنی، جسمانی اور جسمانی طور پر چاہتا/چاہتی ہوں۔
Original Item # 8:	Forward Translations	Backward Translations
I have an endless appetite for affection from him/her. Final Urdu Item مجھے اس کی محبت کی بے انتہا چاہت ہے۔	1-I have utmost desire for his/her love. 2-I have great desire for his/her love. 3-I need his love passionately.	1-مجھے اس کی طرف سے محبت کی بے انتہا خواہش ہے۔ 2-مجھے اس کی طرف سے لامحدود محبت کی طلب ہے۔ 3-مجھے اس کی طرف سے محبت کی اچھڑو طلب ہے۔ 4-مجھے اس کی طرف سے محبت کی اچھڑو دھونکنا ضروری ہے۔ 5-مجھے اس سے بے پناہ شفقت محسوس ہوتی ہے۔
Original Item # 9:	Forward Translations	Backward Translations
For me, he/she is the perfect romantic partner. Final Urdu Item وہ میرے لئے ایک مکمل رومانوی ساتھی ہے۔	1-He is a complete romantic companion for me. 2-He/she is a complete romantic mate for me. 3-He/she is a complete romantic companion for me.	1-میرے لئے وہ ایک مکمل رومانوی ساتھی ہے۔ 2-میرے لئے وہ ایک مکمل رومانوی ساتھی ہے۔ 3-میرے لئے وہ ایک مکمل رومانوی ساتھی ہے۔ 4-میرے لئے وہ ایک مکمل رومانوی ساتھی ہے۔ 5-میرے لئے وہ ایک مکمل رومانوی ساتھی ہے۔

Original Item # 10:	Forward Translations	Backward Translations
<p>I sense my body responding when he/she touches me.</p> <p>Final Urdu Item</p> <p>جب وہ مجھے چھتا / چھوتی ہے تو مجھے اپنا جسم جواب دے رہا ہے۔</p> <p>جب وہ مجھے چھتا / چھوتی ہے تو مجھے اپنا جسم جواب دتا ہو محسوس ہوتا ہے۔</p> <p>جب وہ مجھے چھتا / چھوتی ہے تو میں اپنے اندر جسمانی رد عمل محسوس کرتی ہوں۔</p>	<p>1-When he/she touches to me, I feel bodily response.</p> <p>2-When he touches me, I feel sensations throughout my body.</p> <p>3-When he/she touches me I feel strong bodily reaction in myself.</p>	<p>1-جب وہ مجھے چھتا / چھوتی ہے تو مجھے محسوس ہوتا ہے کہ میرا جسم جواب دے رہا ہے۔</p> <p>2-جب وہ مجھے چھتا / چھوتی ہے تو مجھے اپنا جسم جواب دتا ہو محسوس ہوتا ہے۔</p> <p>3-جب وہ مجھے چھتا / چھوتی ہے تو مجھے اپنا جسم (اس کا) جواب دتا ہو محسوس ہوتا ہے۔</p> <p>4-جب وہ مجھے چھتا / چھوتی ہے تو میں اپنا جسمانی رد عمل محسوس کرتی ہوں۔</p> <p>5-لگے چھوئے سے مجھے اپنے جسم میں ایسا ماحول محسوس ہوتے ہیں۔</p>
Original Item # 11	Forward Translations	Backward Translations
<p>He/she always seems to be on my mind.</p> <p>Final Urdu Item</p> <p>گھٹا ہے کہ وہ ہمیشہ میرے خیالات (ذہن) میں رہتا رہتی ہے۔</p>	<p>1-He is always on my mind.</p> <p>2-It seems as if he/she always remains in my thoughts.</p> <p>3-I think that he/she always remain in my mind.</p>	<p>1- گھٹا ہے کہ وہ ہمیشہ میرے ذہن میں رہتا / رہتی ہے۔</p> <p>2- گھٹا ہے کہ وہ ہر وقت میرے ذہن اور ماٹ میں ہے۔</p> <p>3- گھٹا ہے کہ وہ ہمیشہ میرے ذہن میں ہوتا ہے / ہوتی ہے۔</p> <p>4- گھٹا ہے کہ وہ ہمیشہ میرے ذہن میں رہتا / رہتی ہے۔</p> <p>5- وہ ہر وقت میرے خیالات پر سو رہتا رہتا ہے۔</p>
Original Item # 12	Forward Translations	Backward Translations
<p>I want him/her to know me--my thoughts, my fears, and my hopes.</p> <p>Final Urdu Item</p> <p>میں چاہتا / چاہتی ہوں کہ وہ مجھے میرے خیالات، میرے شرمات اور دیرری امیدوں کو جانے۔</p>	<p>1-I want to know him/her about myself, my thinking, my fears and my hopes.</p> <p>2-I wish that he/she knows about my thoughts, my feelings, my fears and my hope.</p> <p>3-I want him to know my thinking, my doubts and my hopes and expectations.</p>	<p>1- میں چاہتا / چاہتی ہوں کہ وہ مجھے میرے خیالات، میرے خوف اور امیدوں کو جانے۔</p> <p>2- میں چاہتا / چاہتی ہوں کہ وہ مجھے میرے خیالات، میرے شرمات اور میری امیدوں کو جانے۔</p> <p>3- میں چاہتا / چاہتی ہوں کہ وہ مجھے میرے خیالات، میرے خوف اور میری امیدوں کو جانے۔</p> <p>4- میں چاہتا / چاہتی ہوں کہ وہ مجھے میرے خیالات، میرے خوف اور میری امیدوں کو جانے۔</p> <p>5- میں اسے اپنے خیالات، خوف اور امیدوں سے آگاہ کرنا چاہتا / چاہتی ہوں۔</p>
Original Item # 13	Forward Translations	Backward Translations
<p>I eagerly look for signs indicating his/her desire for me</p> <p>Final Urdu Item</p> <p>میں اس کی چاہت کی نشانیوں کو بے نیے تلاش کرتی کرتی ہوں۔</p>	<p>1-I look for the signs of his love anxiously.</p> <p>2-I desperately try to find the symptoms of his/her love.</p> <p>3-I search his/her signs of love impatiently.</p>	<p>1- میں شوق سے وہ اشارے تلاش کرتی / کرتی ہوں جو اسے میری خواہش ظاہر کرتے ہیں۔</p> <p>2- میں شوق سے ان اشاروں کو تلاش کرتی / کرتی ہوں جس سے گھٹے کرے میری خواہش / چاہت ہے۔</p> <p>3- میں شوق سے وہ اشارے تلاش کرتی / کرتی ہوں جو ظاہر کریں کہ اسے میری خواہش ہے۔</p> <p>4- میں شوق سے وہ اشارے تلاش کرتی / کرتی ہوں جو بتاتے ہیں کہ اسے میری خواہش ہے۔</p> <p>5- میں اس کی طرف سے اپنے لیے دلچسپی کے آثار پر نظر رکھتا / رکھتی ہوں۔</p>

Original Item # 14	Forward Translations	Backward Translations
<p>I possess a powerful attraction for him/her.</p> <p>Final Urdu Item</p> <p>میں اس میں شہے کشش محسوس کرنا کرتی ہوں۔</p>	<p>1-I feel utmost attraction for him/her.</p> <p>2-I feel strong attraction in him/her.</p> <p>3-I feel intense fascination towards him.</p>	<p>1- میں اس کے لئے نیا دہ کشش رکھتا ہوں / رکھتی ہوں۔</p> <p>2- میں اس کے لئے شہے کشش رکھتا / رکھتی ہوں۔</p> <p>3- میں اس کے لئے شہے کشش رکھتا / رکھتی ہوں۔</p> <p>4- میں اس کے لئے شہے کشش رکھتا / رکھتی ہوں۔</p> <p>5- مجھے اس سے کشش محسوس ہوتی ہے۔</p>
Original Item # 15:	Forward Translations	Backward Translations
<p>I get extremely depressed when things don't go right in my relationship with him/her</p> <p>Final Urdu Item</p> <p>جب میرے اس کے ساتھ تعلق ٹھیک نہ ہو جاتا ہے تو میں انتہائی افسردہ ہوجاتا ہوں۔</p>	<p>1-When our something goes wrong in our relationship, I feel very happy.</p> <p>2-When my relation with him/her is spoiled, I feel extremely sad.</p> <p>3-When something goes wrong in my relations with him/her, it just makes me desperate.</p>	<p>1- میں بہت زیادہ مایوس ہوجاتا ہوں / ہوتی ہوں جب ہمارے تعلق میں چیزیں ٹھیک نہ ہوں۔</p> <p>2- میں انتہائی افسردہ ہوجاتا ہوں جب اس کے ساتھ میرے تعلق میں چیزیں ٹھیک نہ ہوں۔</p> <p>3- میں انتہائی افسردہ ہوجاتا ہوں جب اس کے ساتھ میرے تعلق میں چیزیں درست نہ ہوں۔</p> <p>4- میں انتہائی افسردہ ہوجاتا ہوں جب اس کے ساتھ میرے تعلق میں چیزیں درست نہ ہوں۔</p> <p>5- میں شہے باغی کا شکار ہوجاتا ہوں جب ہمارے تعلق ٹھیک نہ ہوجاتا ہے۔</p>

بارے مہرانی

مندرجہ ذیل بیانات کے مطابق مخصوص صورت حال کا تصور کریں اور درج ذیل میں دیے گئے 9 تا 1 کے پیمانے میں سے مناسب ہندسے کا انتخاب کرتے ہوئے اس شخص کے بارے میں سوچیں جسے آپ اس وقت بہت شدت سے یاد کرتے ہیں۔ اگر اس وقت آپ کو محبت نہیں تو اس آخری شخص کے بارے میں سوچیں جس سے آپ نے کبھی محبت کی۔ اگر آپ نے کبھی محبت نہیں کی تو اس شخص کے بارے میں سوچیں جس سے کبھی آپ سب سے زیادہ قریب ہوئے ابھی آپ کس کے بارے میں سوچ رہے ہیں۔

1. کوئی ایسا جس سے آپ کو کبھی محبت ہے۔ { }
- 2- کوئی ایسا جس سے آپ نے کبھی محبت کی۔ { }
- 3- مجھے کبھی کسی سے محبت نہیں ہوئی۔ { }

5	4	3	2	1
بالکل درست نہیں۔	کچھ حد تک درست نہیں۔	کافی حد تک درست نہیں۔	بہت حد تک درست نہیں۔	میں کچھ نہیں کہہ سکتا/سکتی

9	8	7	6
کچھ حد تک درست۔	کافی حد تک درست۔	بہت حد تک درست۔	بالکل درست

نمبر	کیا یہ صورت حال	کسی ایک کو Tick کریں
1	اگر اس نے مجھے چھوڑ دیا تو میں انتہائی باپس ہوجاؤں گا/گی۔	9 8 7 6 5 4 3 2 1
2	کبھی کبھی میں اپنے خیالات کا پتہ نہیں کر پاتا/پاتی اور یہ اس کے گرد ہی گھومتے ہیں۔	9 8 7 6 5 4 3 2 1
3	جب میں سے خوش کرنے کے لیے کر رہا رہی ہوں تو مجھے خوشی ہوتی ہے۔	9 8 7 6 5 4 3 2 1
4	میں کسی اور کی بجائے اس کے ساتھ رہنا چاہوں گا/گی۔	9 8 7 6 5 4 3 2 1
5	مجھے یہ سوچ کر مطمئن ہوتی ہے کہ وہ کسی اور سے محبت کر رہا رہی ہے۔	9 8 7 6 5 4 3 2 1
6	میں اس کے بارے میں سب کچھ جانتا/چاہتا ہوں۔	9 8 7 6 5 4 3 2 1
7	میں اسے جذباتی، جسمانی اور ذہنی طور پر چاہتا/چاہتی ہوں۔	9 8 7 6 5 4 3 2 1
8	مجھے اس کی محبت کی بے انتہا چاہت ہے۔	9 8 7 6 5 4 3 2 1
9	وہ میرے لئے ایک مکمل رہبانوی ساتھی ہے۔	9 8 7 6 5 4 3 2 1
10	جب وہ مجھے چھوڑا/چھوڑتی ہے تو میں اپنے اندر جسمانی ردعمل محسوس کرتا/کرتی ہوں۔	9 8 7 6 5 4 3 2 1
11	گلتا ہے کہ وہ ہمیشہ میرے خیالات (ذہن) میں رہتا/رہتی ہے۔	9 8 7 6 5 4 3 2 1
12	میں چاہتا/چاہتی ہوں کہ وہ مجھے، میرے خیالات، میرے خدشات اور میری امیدوں کو جانے۔	9 8 7 6 5 4 3 2 1
13	میں اس کی چاہت کی نشانیوں کو بڑی ہی بے تابی سے تلاش کرتا/کرتی ہوں۔	9 8 7 6 5 4 3 2 1
14	میں اس میں شدید کشش محسوس کرتا/کرتی ہوں۔	9 8 7 6 5 4 3 2 1
15	جب میرے پاس کے ساتھ تعلقات خراب ہوجاتے ہیں تو میں انتہائی افسردہ ہوجاتا/جاتی ہوں۔	9 8 7 6 5 4 3 2 1