Original Article

Interpersonal Emotion Regulation Questionnaire (IERQ) in Persian speaking population: adaption, factor structure and psychometric properties

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Abstract

Introduction: In this study, we sought to validate a brief measure to assess interpersonal emotion regulation in students. The aim of this study was validation of Persian (Farsi) translation of this inventory.

Methods: Participants were 392 Persian speaking students from Ferdowsi University students by quota sampling. Participants completed interpersonal emotion regulation questionnaire, Kashdan emotional styles scale and stress, depression, anxiety and attachment styles of Collins. In order to determine the reliability of the questionnaire Cronbach's alpha method was used, also confirmatory factor analysis method, content validity and construct validity were used to determine the validity of the questionnaire.

Results: The results indicated that there is a positive and significant correlation between IERQ and secure attachment subscale. It means that students' predominant emotional styles are considered as adjustment and it is mostly used by people to control their emotion regulation. Alpha coefficient was 0.88 for internal consistency of IERQ. Also, the results of confirmatory factor analysis indicated that the structure of the questionnaire is significantly fitted with data and all fitting indexes may confirm the model.

Conclusion: It can be interfered from the results of the research that 20-item form of interpersonal emotion regulation questionnaire is sufficiently reliable and validated among Persian speaking students. So, this questionnaire is a useful tool for determining inter-personal emotion regulation.

Declaration of Interest: None.

Key words: Interpersonal, Emotion regulation, Validity, Reliability.

Introduction

Among all existence aspects of human being, emotions have special place. In psychology, attention and growing desire toward emotions are achieved as the result of understanding the effects and importance of emotions on individuals growth, evolution and mental health; so that emotions have been considered and studied as one of the basis in different contexts such as motivation (1), social interactions (2), self-regulation (3) and mental health (4).

Classical approaches have investigated emotions form the perspective of biological

factors. The first approaches regarding emotions emphasize on adapting functional nature(5). For example, fear warn us to escape from danger and anger prepare the individual to attack the invader (6); but nowadays adaptive function of emotion is more prominent and it refers to the role of emotions in integrity of other parts of organism (7). When we talk about emotion and coherence, the emotion-regulation may occur. Emotion regulation means applying some approaches that may keep the level of optimal motivation, so subject can positively and desirably interact with his or her surrounding (8). Thompson (1994) is one of the early pioneers in emotion regulation and describe it as «an internal and external process which is responsible for monitoring, assessing and changing emotional responds to reach purposes». This description indicates that changing responds may not also occur in subjects' interpersonal level (internal) and by self-regulating strategies, but also in the subjects' interpersonal processes (external) through absorption and involving relationships. (9)

Emotions also have effect on organizing social behaviors and are called as interpersonal emotion regulation. Expressed emotional signs by child such as laughing and crying have effect on caregiver's behavior and mutually emotional reactions of others may regulate emotional responds of the child. Despite special place of interpersonal emotion regulation, the most attentions of researchers have focused on interpersonal level (Siegel, 2010). It is the fact that what occurs between the brains of people may have many effects on what occurs inside the brain of each person (10).Although interpersonal emotion regulation has specific effect on subjects' mental health, it has not been considered by researchers as much as interpersonal emotion regulation (11) and most of worked subjects were around some subjects such as academic emotions (12, 13) cognitive regulation among children (14-16) or inter-personal emotion regulation (17). Available tools were mostly in consistent with these subjects.

Cognitive emotion regulation questionnaire was regulated by Garnefski et al., (2001)(18) in Poland and in the format of English and polish (19). Cognitive emotion regulation questionnaire multi-dimensional is a questionnaire to recognize subjects' cognitive coping strategies after experiencing situations and negative events. Psychometric properties of this tool have been validated in Iran by Besharat (2014) and Aminabadi et al., (2011) and the results indicate the appropriate validity and reliability of the questionnaire (20, 21). Adequacy indicator validation of cognitive emotion regulation was also carried out by Samani and Sadeghi (2010) and the results of factor analysis indicated a seven-factor structure by the method of main components.

These seven factors include positive refocusing/planning, positive assessing/view development, blaming others, blaming self, thought rumination, disastrous and acceptance, so the results of alpha coefficient and retesting indicates the validity of the questionnaire (22). Coping strategies of the present research are divided in two categories of «more adjusting» and «less adjusting» and its name was changed to positive and negative cognitive strategies in further studies by other researchers. There are also positive and significant relationship between more adjusting or positive cognitive strategies and mental health and there are negative relationship between negative or less adjusting cognitive strategies and mental health and there are positive relationship between depression and anxiety (17, 23, 24). Despite these questionnaires have appropriate information, the role of relationships and social supports are not considered. There was no questionnaire in Iran to study students' interpersonal emotion regulation. Due to the importance of youth, the subject may pass adolescent and experience more independent life, on the other hand, the subject experiences social interactions in a wider level, also the situation of a student may be considered as a source of mental pressures, so the student need to regulate emotions in interpersonal level to cope effectively with challenges and barriers. First of all, it would be better to study the students' ability in interpersonal emotion regulation to reach more accurate cognition in this context and preventive or interventional measures must be implemented if recognize any disorder or disability.

Interpersonal emotion regulation questionnaire (2016) is considered as one of the contributory tool for having more accurate study. It contains 20 items in five degree Likert scale to measure following four factors: increasing emotion, perspective positive relaxation, and social modeling. Five items would be considered per factor. The results of the present research showed acceptable psychometric properties for **IERO** questionnaire (11). Interpersonal emotion regulation questionnaire is considered as a modern research since it considered positive adjusting strategies, goes beyond interpersonal level and studies a recently entered population to the period of youth. According to the importance of inter-personal emotion-regulation and the fact that in our country there is no tool to study inter-personal emotion-regulation of students, the present research has targeted the students' interpersonal emotion regulation normalization.

Method

The sample consisted of 392 volunteer students of Ferdowsi University of Mashhad. Sampling method was quota. Research community includes several faculties. academic sub-groups, and two genders to consider rata contribution with each mentioned sub-groups of the society. Faculties were given a definite proportion of student each. Selected individuals were asked to complete the questionnaires after reading and completing consent form. The population contained 34% male and 65% female in the age range of 18-42. They were selected from some fields of as humanities. mechanical such engineering, agriculture and sciences.

Interpersonal emotion-regulation questionnaire (IERQ): The questionnaire used (in the study) has been devised by Hofmann. It has 20-item self-report scale and has four subscales as follow: increasing positive emotions. perspective taking, relaxation and social modeling. The measures of 1, 2, 3, 4 and 5 are graded respectively for each statements of «never», «seldom», «sometimes», «often» and «always (11). Exploratory factor analysis with maximum likelihood estimation and promax (oblique) rotation was conducted, following the guidelines of Costello and Osborne (2005). The most appropriate factor solution was determined by combination of the scree test (Cattell 1966), the Kaiser-Guttman rule (i.e., number of factors with Eigenvalues), strength of parameter estimates (i.e., factor loadings) and the interpretability of each factor.

In order to utilize this instrument in the present research, it was translated to Farsi and English by a person fluent in English and both versions were compared by several psychologists.

Depression, anxiety and stress scale (DASS) was developed by Lovibond and Lovibond (1995) (24). Cronbach's alpha coefficient is

reported as 0.81 for depression, 0.73 for anxiety, and 0.81 for stress in a norm sample with 717 individuals. Also, it is reported in a sample of 400 individuals in Mashhad as 0.70 for depression, 0.66 for anxiety, and 0.76 for stress (23). Also, correlation coefficient of Beck depression questionnaire, perceived stress scale (PSS) and Zung anxiety scale were obtained respectively as 0.66, 0.49 and 0.67.

Kashdan and Hofmann emotional scales questionnaires included 20 items and its 5 degree Likert scale range includes «completely agree» to «completely disagree». It includes three components or subscales of secrecy, adjustment and tolerance respectively including 8, 7 and 5 questions. Cronbach's alpha coefficient for Concealing, Adjusting and Tolerating was obtained as 0.70, 0.75 and 0.50 in a sample of 350 individuals and 0.81 was considered as its total reliability(25). In general, indicators of the construct validity were satisfactory for the main components analysis and Cronbach's alpha reliability. The results of confirmatory factor analysis also indicate the three factor emotional styles (GFI=0.87. CFI=0.90. IFI=0.90 RMSEA=0.079).

Collins and Rid attachment questionnaire includes self-assessment (1990)communication skills and self-descriptive style of forming relationships, as well as it includes 18 items measuring by marking 5 degree Likert scale. Three subscales were found as secure attachment, Avoidant attachment and ambivalent/anxiety attachment with 6 items. Cronbach's alpha measures were reported equal or more than 0.80 in samples with 173, 130 and 100 individuals and it indicates high validity of the test. On the other hand, the validity of the test in the research of Pakdaman (2004) was found by a re-test as correlation between two implementations (26). Collins and Rid have obtained 0.80 as the validity of the questionnaire. Also, Talaeian and Wazpoor (2003) indicated 0.95 as the reliability of test by re-test method(27).

Procedure

This questionnaire was implemented along with questionnaires of emotional, depression, anxiety, stress, and attachment styles after translating, language adaptation and content

validity of interpersonal emotion regulation questionnaire. The research participants often completed the questionnaires in 20 minutes. After data collection, confirmatory factor analysis was carried out with four factors on interpersonal emotion regulation questionnaire's items. Total reliability and tests were calculated by Cronbach's alpha. Finally, the relationship between interpersonal emotion regulation and attachment styles, depression and emotional styles, anxiety and stress were obtained by correlation analysis.

Results

The obtained data were analyzed by SPSS and LISREL software to adapt the test. The validity of this tool was calculated by confirmatory factor analysis, convergent and divergent validity and reliability with the method of internal consistency. Findings of the research begins with the authentication of reliability and validity and then a descriptive report would be presented, finally other evidence structures of this scale would be reported.

Confirmatory factor analysis for determining the fit of four-factor model to the data

To determine the fit of the model with data ,a confirmatory factor analysis was used. Confirmatory factor analysis results have been shown in the following figure.

In this model, the factor loadings for each item have been presented on the related factor. As it has been shown all items have factor loadings higher than 0.30 on the relevant factors that are statistically and practically significant. According to Thompson' proposal (28), a subset of the overall fit indices including chi-square, normed fit index(NFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) are the most important fit indices. So, the mentioned indices were calculated for the present study. The results of chi-square statistics showed that the amount of this statistics is significant at p≤0.001 and it indicates poor fit of the model to the data. However, since chi-square is very sensitive to the participant size, is not an accurate index to determine the fit, and this uncertainty leads to

developing other indices for evaluating the fit of the model (29). The amount of normed fit index (NFI) and comparative fit index (CFI) can be between zero and one. Values of 0.95 and higher are considered acceptable. NFI and CFI values in this study are 0.98 and 0.99, respectively. According to the criteria of 0.95 and higher, these values confirm the model. The second root mean square error of approximation (RMSEA) shows the mean of remainings between observed correlation/ covariance of the participant and expected model of the population. Lohlin considers values lower than 0.08 as a good fit, 0.08 to 0.10 as an average fit and higher than 0.10 as a poor fit (28). The value of RMSEA was calculated ...65 for the present study and indicates good fit of the model with data.

Determining convergent and divergent validity for interpersonal emotionregulation questionnaire

In order to determine convergent and divergent validity of IERQ, correlation test was utilized. Kashdan emotion styles questionnaire and Collins attachment styles and DASS questionnaire were used as convergent and divergent validity criteria (table 1). The results are presented in the following table.

As it is presented in the above table, IERQ had significant positive correlations (convergent validity) with secure attachment adjustment subscales ranging from 0.05 (Soothing) to 0.40 (Enhancing Positive Affect). So, student's dominant emotional style is considered as adjustment and most of students use this style to control their emotions. Other subscales including Avoidant attachment, depression, anxiety and stress (divergent validity) had significant negative correlations ranging from -0.01 (Perspective Taking) to -0.26 (Enhancing Positive Affect). Correlation coefficient indicates that IERQ has very close relationship with above-mentioned provisions, so convergent and divergent validity of interpersonal emotion-regulation questionnaire has been confirmed.

The correlation was measured between IERQ subscales and also total score was in the range of 0.73 to 0.83. There was positive correlation total score in all subscales.

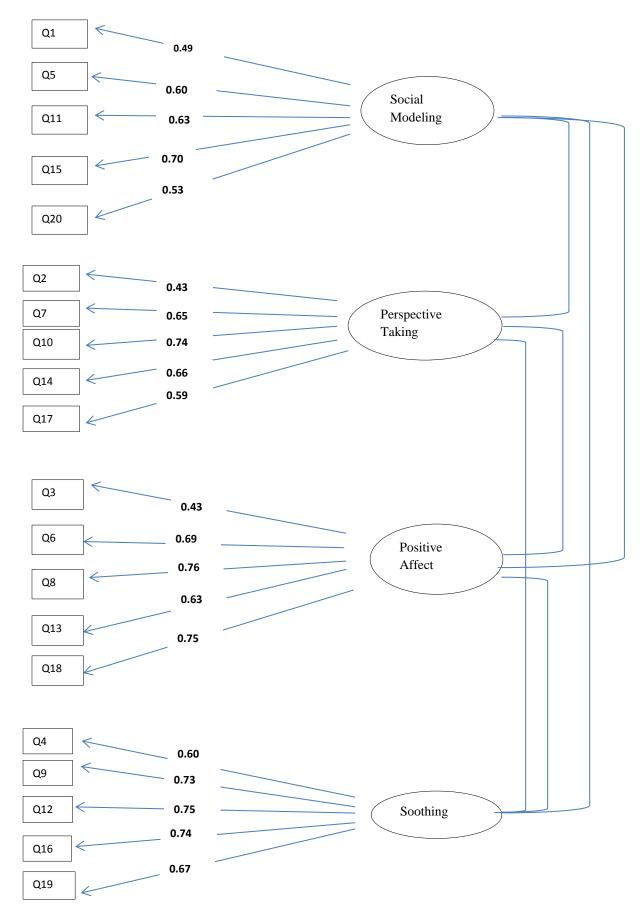


Figure 1. Results of confirmatory factor analysis (factor loadings and correlations among components)

Table 1. Determining convergent and divergent validity for inter-personal emotion regulation questionnaire

Variable	Enhancing Positive Affect	Perspective Taking	Soothing	Social Modeling	Total score
IERQ					1
Enhancing Positive Affect	1				0.73
Perspective Taking	0.37	1			0.81
Soothing	0.40	0.57	1		0.78
Social Modeling	0.48	0.67	0.46	1	0.83
RAAS					
Secure attachment	0.40	0.08	0.16	0.19	0.26
Avoidant attachment	0.01	-0.06	-0.14	0.04	0.04-
Ambivalent/anxiety attachment	0.16	0.05	0.16	0.09	0.19
ASQ					
Secrecy	0.04	-0.008	-0.12	0.03	0.01
Adjustment	0.29	0.10	0.05	0.21	0.22
Tolerance	0.09	0	0.08	0.09	0.06
DASS					
Depression	-0.26	-0.06	-0.007	-0.17	-0.18
Anxiety	-0.18	-0.01	0.05	-0.10	-0.09
Stress	0.002	-0.02	0.06	-0.09	-0.01

The reliability of IERQ questionnaire

To evaluate the reliability of IERQ questionnaire, internal consistency was utilized. Also, to evaluate internal consistency, Cronbach's alpha coefficient was used. 0.88 was measured for Cronbach's alpha in the present research by calculating internal consistency for IERQ. Internal consistency was obtained as 0.74 for enhancing positive

affect, 0.73 for perspective taking, 0.77 for soothing and 0.70 for social modeling.

Descriptive report for IERQ questionnaire Due to demographic variables, mean and standard deviation is presented in table 2 for four IERQ subscales. The difference between mean scores based on t-test was not significant for independent groups and in no one of subscales.

Table 2. Mean and Standard deviation differentiated with subgroup

Subscale	Enhancing Positive Affect	Soothing	Perspective Taking	Social Modeling
Demographic Variable	Mean(standard deviation)	Mean(standard deviation)	Mean(standard deviation)	Mean(standard deviation)
Female	(3.62)18.68	(4.04)15.44	(3.86)15.46	(3.72)16.60
Mail	(66.3)16.70	(3.36)14.47	(2.91)14.46	(3.03)15.58
Single	(3.90)18.26	(3.99)14.94	(3.74)15.03	(3.75)16.59
Married	(3.62)17.83	(3.65)15.96	(3.05)15.91	(3.27)16.59
Native	(3.39)18.31	(3.20)15.04	(3.47)15.68	(3.25)16.48
Non – native	(3.99)18.66	(4.44)15.14	(3.81)15.07	(3.89)16.35

Conclusion

Carried out researches about emotion regulations seem rich and impressive, but there are fewer studies in adults' inter-personal emotion-regulation, especially students.

Carried out researches were mostly about inter-personal emotion regulation, especially cognitive emotion regulations. But, what is more important is that there are relationships between inter-personal emotion regulation and

primary attachment between children and their mother. So, in order to study convergent validity, Collins attachment styles questionnaire was used. It indicated that people with secure attachment have better interpersonal emotion regulation (30).

Zaki and Williams (2013) stated that there are four major issues in determining interpersonal regulations: A) determining when interpersonal emotion regulation would be existed and when it would not, B) Discriminating between interpersonal emotion regulation and immediate emotional results from social interactions. C) A general classification in the level of interpersonal emotion regulation based on the fact that if people use their social interactions to regulate their emotions. D) Determining various processes areas forming interpersonal emotion regulation (31).

The studies showed that social supports are considered as a very important factor in predicting individuals' mental health. Social support refers to material and psychological resources and it is necessary to reinforce the individual's ability to cope with stress (32). Social isolation and perceived loneliness are featuring as social supports and are considered as a powerful predictor for the lack of individual's emotional health (2, 5, 12). In return, social support act as a shield against stress and anxiety and it leads to more flexibility and resistance against hardships. Mechanisms through which social supports effect on emotional health and it has been findings recognized by of cognitive neuroscience. Since there are neurological relationships between brain's components and layers and isolated mode experiences have changed, and there are relationships between interpersonal emotion regulation process and different areas of the brain, the person would gain an integrated mind (10).

Findings indicate the adaptation of these tools with Iranian culture and society. An Iranian and normalized version of the questionnaire, 0.88 Cronbach's alpha coefficient was obtained. There are four subscales and each one includes 5 questions as follow: increasing positive emotions (individual's tendency to find individuals with positive emotions such as happiness and pleasant), perspective taking

(communicating with people reminding him or her not to be worried and there are people living in much worse situations), relaxation (refuge to others to be understand by them, utilizing their sympathy and become relax), social modeling (learning from some methods that others would carry out in similar situations). As is evident, in all subscales people are considered as resources to reduce and regulate emotions. The positive significant relationship between secure attachment, adjustment, interpersonal emotion regulation and the negative relationship between anxiety and depression scales with interpersonal regulation are consistent with emotion research theories.

Berking emotion regulation skills questionnaire was consistent with the present research and it was validated by Mohammadi et al.. The results showed that general index of the questionnaire has high negative correlation with all four mental health factors, it also has high positive correlation with the scale of difficulty in Gratz emotion regulation(23). Grass and John emotion regulation scale was also carried out on catholic students of Milan University. Its Persian version was also normalized by Ghasempoor et al. (2012) and has acceptable psychometric features (24). Self and others emotion regulation was also validated in Sheffield University by Niven et al. (2011) and has confirmed factor analysis of a four factor structure and reported pleasant (33).Generally, psychometric features obtained evidence show that there are negative significant relationship between strategies of cognitive emotion regulation and anxiety and depression score, as well as subscales of inefficient cognitive regulation has positive relationship with anxiety and depression and it is consistent with the present research findings.

Generally, findings of the present research are noteworthy since it provides different conceptual patterns from previous researches and it simplified social supports to be utilized in different methods by individuals. These findings are usable in two levels. The first level is for determining the interactions of the individuals and utilizing social interactions to the benefit of emotion regulation as much as

possible. If someone has low abilities in interpersonal emotion regulation, he or she may enter the second level. The next level is considered for presenting interventional patterns. So that subscales with low score would be utilized for the next interventions and also to increase interpersonal emotion regulation.

Some of the present research limitations are considered interpersonal as emotion regulation, emotional styles and depression, anxiety and attachment symptoms assessed by self-report questionnaires. There are the possibilities of inadvertent errors in less or more reporting of indexes in implementing self-report questionnaires, so it is suggested to use qualitative methods such as interviewing or observing in the future researches. Additionally, the studied population students was normalized, another suggestion is to study future researches in other populations. Also, it is suggested according to interpersonal emotion regulation and mental health to do some training for reducing communicational problems, behaviors and increasing social skills.

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