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VALIDITY AND RELIABILITY OF PERSIAN VERSION OF THE EMOTION REGULATION SKILLS QUESTIONNAIRE

Azizi Alireza[1], Mohammadkhani Parvaneh[2*], Pourshahbaz Abbas[3], Doulatshhi Behruz[4], Saba Moghaddam[5]

1. Candidate in Clinical Psychology, Department of Clinical Psychology, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran.

2. Corresponding Author: Professor of Clinical Psychology, Department of Clinical Psychology, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran. Email: parmohamir@yahoo.com

3,4. Assistant professor of Clinical Psychology, Department of Clinical Psychology, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran.

5. Master of General Psychology, Allameh Tabataba'i University, Work in Private office

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ABSTRACT

Objectives: Emotion Regulation Skill Questionnaire (ERSQ) is a self-report scale that assesses individual differences in emotion regulation skills. Despite the extensive use of this questionnaire, there is no study about psychometric properties of the Persian version of ERSQ. Therefore, the aim of this study is to investigate the psychometric properties of ERSQ in Iranian population.

Method: using quota sampling, we asked a community sample of 427 to respond to ERSQ, Five Facet Mindfulness Questionnaire, Difficulties in Emotion Regulation Scale and Emotion Regulation Questionnaire. SPSS (Version 23) was used for data analysis. For data analysis, exploratory factor analysis and Pearson correlation coefficient were used.

Results: Exploratory factor analysis yielded 8 factors of attention to feelings, bodily perception of sensations, clarity, understanding of feeling, acceptance and tolerance of feeling, readiness to confront unwanted emotions, self-support and modification. These factors accounted for 53.27% of the total variance. Alpha Coefficients for attention to feelings, bodily perception of sensations, clarity, understanding of feeling, acceptance and tolerance of feeling, readiness to confront unwanted emotions, self-support and modification were in the range of 0.67 to 0.88. The results of convergent validity revealed that reappraisal, observing, describing, act aware, Non-judging and Non-reacting had significant positive correlation with ERSQ. Also, nonacceptance of emotional responses, difficulties engaging in goal directed behavior, impulse control difficulties, Lack of emotional awareness, Limited access to emotion regulation strategies and Lack of emotional clarity had significant negative correlation with ERSQ.

Conclusions: emotional regulation skills questionnaire has acceptable psychometric properties and can be used in Iranian population. However, further studies are needed to evaluate other aspects of the ERSQ like CFA.

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Introduction

Thompson (1994) defined the emotion regulation as "extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (1). To date, many studies have examined the relationship between the ability to regulate emotion and mental health. The findings provide two important points: first, The inability to effectively regulate emotions has serious risks to mental health and secondly,. Improving emotional regulation skills is a promising pathway for improving mental health (2).

There is high comorbidity between emotional regulation deficits and symptoms of psychopathology (3, 4). These deficits are not just symptoms of these psychopathologies, but are also considered as antecedents of these ones (5, 6). Thus, Barking (2010)

Corresponding Author: Mohammadkhani, Parvaneh, Email: parmohamir@yahoo.com

developed Adaptive Coping with Emotions (ACE) Model on the basis of emotion regulation deficits in various mental disorder and interaction of these skills with the mental health (7).

The ACE-based adaptive emotion regulation is considered as a situation-dependent interaction between a set of skills including (a) the ability to be consciously aware of emotions, (b) the ability to identify and label emotions, (c) the ability to identify what causes and maintains emotions, (d) the ability to modify emotions in an adaptive manner, (e) the ability to accept and tolerate emotions in the case of no possible change to them, (f) the ability to approach and confront with situations triggering negative emotions, and (g) the ability to provide self-support coupled with compassion in the face of challenging emotions (2).

Cross-sectional studies indicate that there is a significant correlation between ACE model skills and mental health in non-clinical samples. Clinical samples have reported less successful use of these skills than clinical sample (8). Improvement in the use of these skills during cognitive-behavioral therapy led to a further reduction in symptoms (9). In this model, the ability to modify, accept and tolerate negative emotions is considered to be the most important emotional regulation skills. These three skills have a significant role in identifying the non-disorder against disorder, predicting the severity of the pathological symptoms in the pre-treatment stage, and predicting the change in symptoms (9). Also, a significant predictor of relapse during and after alcohol dependence treatment was reported to be able to tolerate negative emotions (5).

Emotional Regulation Skills Questionnaire (ERSQ) consists of 27 items that assesses emotional regulation skills over the last week. Developing of this questionnaire is based on ACE model. Scoring of this questionnaire is based on 5-point Likert scale from "never" to "almost always". The questionnaire contains nine sub-scales, including attention to feeling, bodily perception of feeling, clarity of feeling, understanding of feelings, acceptance of feelings, tolerance of feelings, preparation for confrontation with unwanted emotions, self-support and modification. The internal consistency values for the Trait version were between 0.71 to 0.83 for the Trait version, and 0.72 to 0.81 for the Prolonged-State version. For the overall scale, the internal consistency was 0.93 for the trait and 0.90 for the scales of the state version. The test-retest reliability for the subscales was between 0.58 to 0.76 for the trait version and between 0.48 and 0.74 for the State version. The values for the total scale were 0.78 (T) and 0.75 (PS). Sensitivity to changes in this scale has been similarly highlighted in multiple cases undergoing psychotherapy (10).

The factor analysis showed the 5-factor structure for Trait version, based on Eigenvalue values above the one. These subscales loaded together: (a) clarity, understanding and body perception, (b) resilience and acceptance, and (c) self-support and modification. The confirmatory factor analysis indicated a satisfactory fit to the ERSQ-27 nine-factor solution. The fit of the five-factor model proposed by the EFA was acceptable, but was significantly worse than the nine-factor model. For the State version, the EFA results in a 6-factor solution whose structure was less clear than in the Trait version. In the confirmatory factor analysis, a satisfactory to acceptable fit was obtained for the nine-factor model. As with the Trait version, the Fit of the nine-factor model was better than the one of the six-factor solution approached by EFA. The inter-correlations of the subscales ranged from 0.13 to 0.72 (T) and 0.10 to 0.63 (S), respectively, and corresponded to the theoretically expected contexts (10).

Self-report of emotion regulation, regardless the effects of previous adjustment, predicted subsequent adjustment; whereas emotional adjustment did not predict subsequent emotion regulation. Therefore, the skills measured by the ERSQ do not reflect the symptoms of psychological problems (6). In line with theoretical expectations, a negative and significant correlation is reported between the ERSQ-awareness and difficulties in emotion regulation scale (DERS)-lack of awareness (r=-0.69), the ERSQ-clarity and DERS-limited clarity (r=-0.68), and ERSQ-acceptance/tolerance and DERS-lack of acceptance (r=--0.52) as well as ERSQ-modification and DERS-limited access to emotion regulation strategies (r=-0.70). In addition, ERSQ-acceptance and tolerance is negatively and significantly correlated with the subscale of suppression in meta-cognitive regulation scale (MERS) (r=-0.59) and there is also negative correlation between the ERSQ-modification and the expectancy of successfully regulating negative affect subscale of Negative Mood regulation Scale (NMR) (r=-0.71) (8).

Ford and Mause (2015) believe that cultural values can greatly affect people's emotional regulation. Given this questionnaire has been developed in German culture, it is necessary to evaluate the psychometric properties of this questionnaire in Iranian culture. This questionnaire assesses the emotional regulation skills more comprehensive than other emotional regulation questionnaires. Therefore, in this study, the reliability, factor structure and the validity of the questionnaire are discussed (11).

Materials and Method Participants

This was a cross-sectional study using quota sampling. Accordingly, 450 people from Tehran community were selected. The choice of participants' ratio was based on information from the Statistical center of Iran. The data was collected in such a way that the age, gender and educational level of the sample represent the Tehran community. Data clean up and omitting 23 outliers using Mahalabonis and other methods to detect the outliers revealed 427 participants (48.2% females and 51.8% males). The mean age of the participants was 38.25 (SD =9.71) with 19 as the minimum and 63 as the maximum age.

Measures

Emotion Regulation Skills Questionnaire (ERSQ): The questionnaire includes 27 items assessing emotion regulation skills over the past week on a 5-point Likert-type scale (from "never" to "almost always"). The questionnaire also contains nine sub-scales including attention to feelings, bodily perception of sensations, understanding of feeling, acceptance of feeling, tolerance of feeling, readiness to confront unwanted emotions, self-support, as well as modification. For the overall scale, the internal consistency was 0.93 for the trait and 0.90 for the scales of the state version. The test-retest reliability for the subscales was between 0.58 to 0.76 for the trait version and between 0.48 and 0.74 for the State version. (10). In line with theoretical expectations, a negative and significant correlation is reported between the ERSQ-awareness and difficulties in emotion regulation scale (DERS)-lack of awareness (r=-0.69), the ERSQ-clarity and DERS-limited clarity (r=-0.68), and ERSQ-acceptance/tolerance and DERS-lack of acceptance (r=--0.52) as well as ERSQ-modification and DERS-limited access to emotion regulation strategies (r=-0.70). In addition, ERSQ-acceptance and tolerance is negatively and significantly correlated with the subscale of suppression in meta-cognitive regulation scale (MERS) (r=-0.59) and there is also negative correlation between the ERSQ-modification and the expectancy of successfully regulating negative affect subscale of Negative Mood regulation Scale (NMR) (r=-0.71) (8).

Five Facet Mindfulness Questionnaire: This questionnaire is a 39-item scale based on factor analysis of several questionnaires. Scoring of this questionnaire is based on a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true) (12). It has adequate to good reliability, with alpha coefficients ranging from .75 to .91 for the facets (13). It assesses the Five facets: observing, describing, act aware, non-judging, and non-reacting. Observing facet evaluates the ability to observe internal experiences and responses to stimuli. Describing facet assesses the ability to labeling on thoughts and feelings. Act aware facet assesses the tendency to conscious actions as opposed to automatic functioning. Non-judging facet measures the tendency to accept internal states as opposed to judging thoughts and emotions as good or bad. Finally, Non-reacting facet Measures the tendency to process emotional stimuli without reacting to them. In Iranian population, The five factor structure of the questionnaire was confirmed. Furthermore, test-retest reliability in Five Facet Mindfulness Questionnaire were between 0.76 and 0.86 (14).

Emotion Regulation Questionnaire (ERQ):

This questionnaire has developed by Grass & John (2003). It contains 10 items consisting of 2 subscales: reappraisal and suppression. Scoring of this questionnaire is based on a 7-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha coefficient for reappraisal and suppression subscales were 0.79 and 0.73, respectively (15). The internal consistency of reappraisal and suppression subscales in samples of Iranian students was 0.76 and 0.71, respectively. The test-retest reliability of reappraisal and suppression subscales was 0.67 and 0.64, respectively (16).

Difficulties in Emotion Regulation Scale (DERS):

This scale contains 36 items consisting of six subscales: (1) Nonacceptance of emotional responses (NONACCEPTANCE), (2) Difficulties engaging in goal directed behavior (GOALS), (3) Impulse control difficulties (IMPULSE), (4) Lack of emotional awareness (AWARENESS), (5) Limited access to emotion regulation strategies (STRATEGIES) and (6) Lack of emotional clarity (CLARITY). This measure scores based on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The test–retest reliability coefficients for NONACCEPTANCE, GOALS, IMPULSE, AWARENESS, STRATEGIES and CLARITY subscales were 0.69, 0.57, 0.68, 0.89 and 0.80, respectively. Cronbach's α indicate that the DERS has high internal consistency (α = 0.93). Item-total correlations ranged from r = 0.16 to r = 0.69 (17). In Iranian population, exploratory factor analysis results revealed eight factors for this scale. six factors were consistent with previous subscales and two other factors were omitted due to the loading of only one item. Cronbach's alpha coefficients for subscales were between 0.86 and 0.88. test-retest reliability coefficients after one week of the test was between 0.79 to 0.91 (12).

Procedure

Initially, the English version of ERSQ was translated and back-translated by two bilingual experts in Persian. Then these two versions were compared by a native English speaker. Then, Translated version was edited based on his comments. This version was presented to two professors of the University of social Welfare and Rehabilitation Sciences familiar with the subject of emotion regulation. The final version was edited based on their comments. Subsequently, ERSQ was presented to the subject. They were informed about the purposes of this study. They were assured that their information would remain confidential and were not compelled to participate in research. In the end, participants completed the questionnaires.

Data analysis

The main purpose of this study was to determine the factor structure of ERSQ through confirmatory factor analysis. Other purpose of this study was to determine reliability of ERSQ through test-retest reliability and Cronbach's alpha. Also, Validity of the present questionnaire was assessed through convergent and divergent criteria. It is assumed that the ERSQ subscales negatively correlated with DERS subscales and ERQ-suppression subscale and positively correlated with FFMQ subscales and ERQ-reappraisal subscale.

Result

The Kaiser – Meyer – Olkin value (0.79), which provides a measure of sample adequacy, exceeded the recommended value of 0.7 (17). a suggested value of 0.7. Also, the Bartlett' s test of sphericity is significant supporting the factorability of correlation matrix (16). The results of KMO and Bartlett' s test are presented in Table 1.

Table 1- KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.79
Bartlett's Test of Sphericity	Approx. Chi-Square	2051.00
	Df	351
	Sig.	.00

To determine the number of factors of the questionnaire, eigenvalues were used. Exploratory factor analysis resulted in 8 factor based on eigenvalues >1. Factor 1 to factor 8 explained 18.10, 6.14, 5.87, 5.52, 4.97, 4.52, 4.16 and 3.96, respectively. Items of tolerance and acceptance factor loaded on one factor and generate one factor. Table 2 presents the items and factor loading on 8 underlying factors. All factor loading were higher than 0.3. All items loaded on Relevant factor, except for item 5 (Relevant to tolerance and acceptance factor) that a greater factor loading on factor 7 (self-support). Also

Alpha Coefficients for attention to feelings, bodily perception of sensations, clarity, understanding of feeling, acceptance and tolerance of feeling, readiness to confront unwanted emotions, self-support and modification and total score were 0.72, 0.70, 0.67, 0.77, 0.88, 0.77, 0.70, 0.79 and 0.82, respectively. These Coefficients almost in the range of acceptable recommended value for Cronbach's alpha reliability except for the understanding subscale (18). To assess test-retest reliability of ERSQ, the questionnaire was given to 80 participants after 2 week. Test-retest correlations for attention to feelings, bodily perception of sensations, clarity, understanding of feeling, acceptance and tolerance of feeling, readiness to confront unwanted emotions, self-support and modification and total score were 0.63, 0.59, 0.62, 0.60, 0.46, 0.68, 0.57, 0.70 and 0.64

Table 2 - Exploratory Factor Analysis of the Emotion regulation scale in Iranian Sample

	Component							
	1	2	3	4	5	6	7	8
Question1						.680		
Question2		.303	.632					
Question3					.545			
Question4	.600							
Question5	.386	.314					.485	
Question6						.554		
Question7								.463
Question8		.717						
Question9							.727	
Question10			.628					
Question11					.709			
Question12				.672				
Question13						.691		
Question14						.357		.598
Question15				.313			.535	
Question16		.507						
Question17	.65							
Question18	.531							
Question19				.564				
Question20					.850			
Question21			.697					
Question22		.613						
Question23	.474	.409						
Question24								.735
Question25						.553		
Question26	.669							
Question27							.567	

The zero order correlation between ERSQ and its subscale are presented in table 3. As hypothesized, a negative and significant correlation is reported between ERSQ-awareness and DERS-lack of awareness (r=-0.22), ERSQ-clarity and DERS-limited clarity (r=-0.14), and ERSQ-acceptance/tolerance and DERS-lack of acceptance (r=--0.20) as well as ERSQ-modification and DERS-limited access to emotion regulation strategies (r=-0.32). In addition, a positive and significant correlation is reported between ERSQ subscales and Observing, Describing; Act aware, Non-judging and Non-reacting. As hypothesized, a positive and significant correlation is reported between ERSQ total score and Observing (r= 0.35), Describing (r= 0.40); Act aware (r= 0.33), Non-judging (r= 0.33) and Non-reacting (r= 0.37).

	SE	**AT**	**CL**	**UN**	**AC/TO**	**CON**	**SUP**	**MOD**	**total**
Reappraisal	.306**	.251**	.229**	.289**	.407**	.264**	.273**	.367**	.480**
Suppression	-.258**	-.201**	-.188**	-.208**	-.359**	-.257**	-.270**	-.276**	-.394**
NONACCEPTANCE	-.159**	-.293**	-.283**	-.121*	-.204**	-.176**	-.221**	-.249**	-.306**

GOALS	-.156**	-.161**	-.135**	-.163**	-.277**	-.165**	-.140**	-.221**	-.286**
IMPULSE	-.223**	-.223**	-.219**	-.234**	-.367**	-.235**	-.241**	-.292**	-.420**
AWARENESS	-.220**	-.287**	-.271**	-.230**	-.346**	-.250**	-.262**	-.302**	-.420**
STRATEGIES	-.238**	-.285**	-.236**	-.227**	-.358**	-.296**	-.259**	-.324**	-.444**
CLARITY	-.185**	-.161**	-.141**	-.258**	-.235**	-.120*	-.163**	-.203**	-.254**
Observing	.205**	.152**	.175**	.192**	.351**	.254**	.197**	.307**	.358**
Describing	.251**	.194**	.174**	.205**	.324**	.239**	.296**	.293**	.408**
Act aware	.188**	.109*	.122*	.179**	.302**	.217**	.170**	.297**	.337**
Non-judging	.190**	.146**	.143**	.178**	.249**	.179**	.227**	.272**	.333**
Non-reacting	.232**	.201**	.199**	.230**	.309**	.208**	.238**	.284**	.377**

**: $p < 0.01$ and *: $p < 0.05$

SE: sensations, AT: attention, CL: clarity, UN: understanding, AC/TO: acceptance and tolerance, con: readiness to confrontation, SUP: suppression, MOD: modification, NONACCEPTANCE: Nonacceptance of emotional responses, GOALS: Difficulties engaging in goal directed behavior, IMPULSE: Impulse control difficulties, AWARENESS: Lack of emotional awareness, STRATEGIES: Limited access to emotion regulation strategies, CLARITY: Lack of emotional clarity.

Discussion

This study aimed to investigate factor structure and reliability and criterion validity of ERSQ. The results of this study showed that ERSQ has 8 factors in Iranian population. Attention to feelings, bodily perception of sensations, understanding of feeling, acceptance and tolerance of feeling, readiness to confront unwanted emotions, self-support and modification were eight factors that resulted from exploratory factor analysis. Acceptance and tolerance items loaded on one factor and generate one factor.

Berking and Znoj (2008) proposed a five and six-factor structure in exploratory factor analysis. Also, based on ACE model they proposed a nine-factor structure with better fit indices (RMSEA= 0.055 and CFI = 0.93 for nine-factor solution, RMSEA = 0.068 and CFI = 0.89 for five-factor model and RMSEA = 0.066 and CFI = 0.88). Fujisato and colleague (2017) found that a two-factor structure might be a more accurate model of emotion regulation skills, although a nine-factor structure was theoretically assumed (19). They believed that nine-factor model did not statistically obtain through EFA in previous studies (8, 10). This study has obtained a 8-factor structure using EFA and factor loading in each item is acceptable. Fujisato and colleague (2017) believe that the Japanese culture might be affected the results of the present study. Because in Japanese culture, much emphasis is placed on the effect of one's emotions on others and the emotions of the individual are basically regarded. Therefore, this different developmental process might have effect the structure of the ERSQ.

In present study, internal consistency and test-retest reliability of ERSQ subscles reported in acceptable range. Internal consistency of "acceptance and engagement" and "awareness and understanding" in Fujisato and colleague (2017) study has reported excellent in both the clinical ($\alpha = 0.95$ and 0.94) and non-clinical subsamples ($\alpha = 0.96$ and 0.95). Test-retest reliability for "acceptance and engagement" and "awareness and understanding" was adequate in the non-clinical (0.76 and 0.74, respectively) and clinical subsamples (0 .77 and 0.72, respectively). In Berking and Zonj (2008) study, Consistency values for the Trait version were between 0.71 to 0.83 for the Trait version, and 0.72 to 0.81 for the Prolonged-State version. Also, The test-retest reliability for the subscales was between 0.58 to 0.76 for the trait version and between 0.48 and 0.74 for the State version. Therefore, the results of this study are in line with past research.

As hypothesized, reappraisal, observing, describing, act aware, Non-judging and Non-reacting had significant positive correlation with ERSQ and non-acceptance of emotional responses, difficulties engaging in goal directed behavior, impulse control difficulties, Lack of emotional awareness, Limited access to emotion regulation strategies and Lack of emotional clarity had significant negative correlation with ERSQ. Similar result found in past studies (8, 10, 19, 20).

Limitations

The most limitation of the present study is community sample. This sample effects generalizability of the result to broader and clinical population. Also, all study variables assessed by self-report questionnaire and these scales could be affected by biases. Since, present study sample was community sample, it is important to repeat this study with clinical samples. To our knowledge, this was the first study to assess the psychometric properties of ERSQ in Iranian population, so we recommend future studies conduct CFA to assess the fitness of the multicomponent nature of ERSQ.

Conclusion

Emotion Regulation Skill Questionnaire is only self-reported measure that assesses general emotion skill. The present findings suggest that the Persian version of the ERSQ has 8-factor structure and acceptable validity and reliability in a sample of Iranian population. This study demonstrates that a significant variance of emotional skills construct explain by ERSQ in Iran's cultural context. With respect to the importance of this construct in many mental disturbances, ERSQ could be used in many situations.

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Conflict of Interest: All authors declare that there is no conflict of interest.

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