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Adaptation, Validity and Reliability of The Leahy Emotional Schema Scale Turkish Version Based on Turkish University students and workers

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ABSTRACT

Adaptation, validity and reliability of the Leahy Emotional Schema Scale Turkish version based on Turkish university students and workers

Objective: Emotional schema concept is developed for determining beliefs and attributions about emotions. The aim of this study was to examine validity and reliability of the Turkish version of "Leahy Emotional Schema Scale" (LESS).

Method: The sample consisted of 436 participants including students, workers and their relatives from various faculties of two Turkish universities. Translation, back-translation and pilot assessment of LESS Turkish version completed. Socio-demographic data form, LESS Turkish version and short form of the Metacognition Questionnaire (MCQ-30) were administered to participants. For reliability of LESS test-retest correlation, split-half technique, Cronbach's alpha coefficient and item-dimension total score correlations were used. Principal component analysis and varimax rotation used for factor analysis and Pearson correlation analysis was used for convergent and divergent validity.

Results: The mean age of participants was 22.5±4.84 years (age range: 18-53 years) and 51.1% (n=223) were female. Statistically significant results supported LESS Turkish version's reliability. Item-dimension total score correlation analyses revealed statistically significant correlation coefficients that show high internal consistency (Cronbach alpha = 0.86). Factor analysis revealed that LESS Turkish version, as the original version, had 14 dimensions, and these explained 56.8% of the total variance. In five dimensions, factor analysis showed inconsistency with original version of LESS. For convergent and divergent validity, we compared related subscales of LESS and MCQ-30 and revealed significant relations.

Conclusion: The results of this study show that the Turkish version of LESS is a reliable and valid scale for the assessment of beliefs and attributions about emotions on non-clinical population.

Key words: Emotional processing, schema, metacognitive

ÖZET

Üniversite öğrencileri ve çalışanları örnekleminde Leahy Duygusal Şema Ölçeği'nin Türkçe uyarlaması, geçerlilik ve güvenilirliği

Amaç: Duygusal şema kavramı duygularla ilgili inançları ve tutumları belirleyebilmek amacıyla geliştirilmiştir. Bu araştırma, Leahy Duygusal Şema Ölçeği'nin (LDŞÖ) Türkçe'ye uyarlanmasını, Türkçe formunun geçerlilik ve güvenilirliğinin analiz edilmesini amaçlamaktadır.

Yöntem: Araştırma, iki ildeki üniversite öğrencileri, öğrenci yakınları ve çalışanlarından oluşan 436 gönüllü katılımcı üzerinde yapıldı. LDŞÖ'nün Türkçeye çevrilmesi aşamasında çeviri, geri çeviri ve pilot uygulama yapılarak ölçeğe son biçimi verildi. Katılımcılara; sosyodemografik özellikler formu, LDŞÖ ve Üst-Biliş Ölçeği-30 (ÜBÖ-30) uygulandı. LDŞÖ'nün güvenilirliği; test-tekrar test, test yarılama, Cronbach alfa katsayısı ve madde-alt boyut toplam puan korelasyonu ile analiz edildi. Faktör analizinde temel bileşenler yöntemi ve varimax rotasyonu kullanıldı. Örtüşme ve ayrışma geçerliliğini belirlemek için Pearson korelasyon analizi kullanıldı.

Bulgular: Araştırma örnekleminin %51.1'i (n=223) kadındı. Yaş ortalaması 22.5±4.84 ve yaş aralığı 18-53 olarak saptandı. İstatistiksel analizde, LDŞÖ Türkçe formunun güvenilirliğini destekleyen sonuçlar elde edildi. Madde-alt boyut toplam puan korelasyon katsayıları istatistiksel olarak anlamlı bulundu ve iç tutarlılığının yüksek olduğu tespit edildi (Cronbach alfa = 0.86). Faktör analizinde, orijinal formda olduğu gibi saptanan 14 alt boyut, toplam varyansın %56.8'ini açıkladı. Alt boyutların beşinde orijinal formla uyumsuzluk saptandı. LDŞÖ'nün örtüşme ve ayrışma geçerliğinin araştırılması için ÜBÖ-30 alt boyutları ile korelasyonuna bakıldı ve anlamlı ilişkiler elde edildi.

Sonuç: Araştırmanın bulguları, LDŞÖ Türkçe formunun klinik olmayan örneklem grubunda, duygulara yönelik şemaları ve tutumları geçerli ve güvenilir bir şekilde ölçtüğünü göstermiştir.

Anahtar kelimeler: Duygu işleme, şema, üst-biliş

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INTRODUCTION

Concept of emotion has not been mentioned until recently as it deserves in psychiatry and psychology practice although it is one of the basic needs of functionality of human life. Emotion concept has been getting more importance in evidence-based psychotherapy in recent years (1-3). Especially in cognitive-behavioral psychotherapy process, it is being thought that schemas and attitudes towards emotions may cause resistance to change of client (4). Emotional processing studies focusing on how people perceive and interpret his/her own emotions started to show their effects on therapeutic area by the contribution of emotional-based therapy and cognitive-behavioral therapy theoreticians. Studies of Wells who theorized meta-cognitive therapy showed the efficacy of this theory in several clinical conditions such as depression and generalized anxiety disorder (5-7). Greenberg who is the founder of emotional-focus therapy theory, attributed a central importance to emotional processing and achieved significant results in especially couples and depression therapy by this approach (8,9). Leahy (10) developed a model which he built over meta-cognitive mode of Wells et al. and defined the plans, approaches and strategies used in response to an emotion as "emotional schema". In the emotional schema model of Leahy, a series of interpretation processes and strategies are described when an unpleasant emotion is experienced. When an emotion appears, first step is attention towards that emotion. Second step in Leahy's model is emotional and cognitive avoidance from that emotion (11,12). This avoidance may occur as dissociation, binge-eating and alcohol consumption (4). Negative emotional strategies except avoidance were found to be related with depression, anxiety, post-traumatic stress disorder, worrying, maladjustment in partner relations and personality disorders (10-12).

Leahy Emotional Schema Scale (LESS) was developed to determine beliefs and attitudes towards emotions of individuals (4,10). By this scale, therapist may act as a guide to determine emotional schemas of the client and therapist can understand the attitudes of clients towards their own emotions more clearly. By this way, therapist can help to change misadjusting emotional interpretations within therapeutic intervention process and thus, adjustment of client during therapeutic process will increase. Although LESS was established for use of therapists during cognitive therapy process, it was also used to evaluate attitudes towards emotions in various studies (13,14). Aim of this study is to carry out validity and reliability study of Turkish version of LESS which evaluates emotions by a cognitive and experiential point of view and carry emotional schema theory to clinical practice. Validity and reliability of the scale should be investigated in clinical groups as well due to non-clinical nature of the sample group. We hope that approaches towards meta-cognitive interpretation of emotions will be beneficial for both psychotherapists and during cognitive-behavioral therapy process.

MATERIAL AND METHODS

Sample

Four hundred and thirty-six volunteers were recruited to the study. Participants consist of students who were studying at University of Turkish Chambers and Markets Association and Kastamonu University between May and June 2009, their relatives and employees. Required official approvals were taken from both universities. Inclusion criteria were being over 18 years old, being literate and volunteering to participate in the study. In our study evaluating meta-cognition towards emotions, exclusion criteria were defined as physical and mental disease which may cause any difficulty or inconsistency during administration of scales and presence of mental retardation.

Methods

Approval was obtained from the author of original scale for translation of LESS to Turkish and for studying it. After having translated the text to Turkish, scale

items were reverse-translated to English and then evaluated by four local psychiatrists who were trained on cognitive-behavioral therapy, currently working in this field and have advanced knowledge of English. In this assessment, recommending the most appropriate translation and forwarding their own recommendations when needed was aimed. After the evaluation, most appropriate translation was decided to be administered according to views of reviewers. Turkish translated text was re-translated to English by qualified experts and its consistency was controlled. Approved text was administered to 10 psychiatry residents by a preliminary study and final version of scale was prepared after correcting two items (no. 21 and 50) which were not exactly understood by participants.

Volunteers who met the inclusion criteria and informed about the study were first required to fill socio-demographic data form. Meta-Cognition Questionnaire-30 (MCQ-30) which was translated and validate in Turkish was administered to participants who met the criteria in order to examine the Turkish form and concurrent validity of LESS afterwards. In order to determine reliability of LESS and for test and re-test, scale was re-administered to 60 people out of participants, 30 days later.

Data Collection Tools

Socio-demographic Characteristics Form: It is a semi-structured form prepared to determine age, gender and educational characteristics and probable psychiatric disease of the sample.

Leahy Emotional Schema Scale (LESS): LESS consists of statements on how person copes with his/her beliefs and emotions about his/her own emotions. It is a Likert type scale and consists of a total 50 items. After the statement in each item is read, person ticks the most appropriate choice between 1 (very untrue of me) and 6 (very true of me). According to psychometric study by Leahy (10), the scale consists of 14 sub-dimensions each containing 2 to 7 items. These dimensions are defined as validation, comprehensibility, guilt, looking at emotions clearly, high values, not being controlled, feeling of numbness, desire to be rational, duration, consensus, acceptance of feelings, rumination, expression and blaming.

Items no. 1, 2, 3, 5, 7, 9, 10, 12, 16, 19, 20, 25, 27, 28, 29, 33, 36, 44, 45, 49 and 50 are inversely scored because they indicate functional/non-functional attitudes. Due to presence of sub-dimensions measuring functional and non-functional attitudes, total score of the scale cannot be calculated and sub-dimension scoring is evaluated separately. Validity and reliability of the original form of the test was shown in an adult psychiatric patient sample having anxiety disorder and depression. The scale can be used to reveal emotional schemas blocking therapeutic changes during psychotherapy process such as cognitive-behavioral therapies.

Meta-Cognitions Questionnaire-30 (MCQ-30): This scale was developed by Cartwright-Hatton and Wells (15). Wells and Cartwright-Hatton (16) published the short form of this questionnaire (MCQ-30) consisting of 30 items later on. Worries and intrusive thoughts of patients with generalized anxiety disorder, obsessive-compulsive disorder, hypochondriasis and panic disorder were interrogated and determining patients' reasons of dealing with these types of cognitive activities and problems related with these activities was aimed when preparing this scale. MCQ-30 consists of five factors which are conceptually different but related with each other. These five factors are positive beliefs, cognitive confidence, uncontrollability and danger, cognitive self-consciousness and need for control. All factors contain two common components of positive and negative meta-cognitive beliefs and meta-cognitive processes (selective attention, observing inner cognitive processes). After reading the statement at each item, participants tick the choice most appropriate for them on a Likert type grading scale between 1 (do not agree) and 4 (agree very much). Scores which can be taken from the scale are between 30 and 120 and the higher the score is the higher pathological meta-cognitive activity is (16). Psychometric properties of scale and adaptation, validity and reliability studies in Turkish sample were developed by Tosun and Irak (17).

Statistical Analysis

Data collected from participants were analyzed by SPSS (Statistical Package for the Social Sciences) 13.0 version software. To test Turkish version of LESS, Cronbach alpha coefficient was calculated. Suitability to factor analysis was evaluated by Bartlett's test and Kaiser-Meyer-Olkin (KMO) sampling adequacy assessment (18-20). Bartlett test requires $p<0.05$ value for suitability. KMO values are between 0 and 1 and require 0.6 value for factor analysis (21). Factor analysis was done by Basic Components Analysis and Varimax rotation methods. In order to determine convergent and divergent validity of LESS, its relationship between MCQ-30 scale was examined by Pearson correlation method.

RESULTS

Data were tested according to normality, linearity and homogenity of sample variances. Excessive scoring was also examined and presence of excessive ticking was also controlled for each participant.

Socio-demographic Characteristics

Men made up 48.9% (n=213) and women made up 51.1% (n=223) of participants. Mean age was 22.5 (±4.84) and age range was between 18 and 53. 97.7% of the participants were undergraduate students or graduated from university, 2.1% were graduated from high school and 0.2 were graduated from primary school.

Reliability Analyses

In order to determine reliability of LESS Turkish version, test-re-test method, Cronbach alpha correlation analysis and split-half methods were used.

For test-re-test analysis, LESS was re-administered 60 people out of the group 30 days later. Forty-seven tests out of 60 which were administered at T1 and T2 times were evaluated. Test-re-test correlation coefficients were between 0.37 (LESS-18) and 0.75 (LESS-39) for scale items.

In order to determine inner consistency between LESS items, Cronbach alpha correlation analysis method was used. In order to determine inner consistency coefficients, 436 tests completed at T1. Scores were taken from 403 tests that were fully completed. Cronbach alpha inner consistency coefficient was found $r= 0.86$ which was statistically significant for the whole test. Corresponding sub-dimension total scores and correlation coefficients of each of the 50 items were found highly statistically significant ($r= 0.48$-0.87, $p<0.01$) except item no. 33 ($r= 0.11$, $p<0.05$). These findings show that inner consistency of LESS is high.

In another reliability analysis by split-half, scale items were divided into two equal groups as odds and evens and correlation between test scores at each group were calculated. Reliability coefficients of one half of the test was found $r= 0.70$. This coefficient was accepted as the bottom limit of the reliability of the whole test. Reliability coefficient of the whole test is found by Spearman-Brown formula. This coefficient was found $r= 0.83$ in LESS Turkish version. These findings showed us that LESS Turkish form is a reliable scale for our country sample.

Validity Analyses

Structural Validity

Basic components method and Varimax conversion were used for Turkish adaptation for LESS for analysis of factor structure required to investigate structural validity. Kaiser-Meyer-Olkin sample suitability ($r= 0.85$, $p<0.001$) showed that data were suitable for factor analysis (Bartlett chi-square= 5586.14; $p<0.001$). For factor subtraction, 14 factor solution whose "eigenvalue" is over 1 was decided to be used. Fourteen significant factors explaining 56.88% of total variance at the end of analysis were found (Table 1). Nevertheless, results of factor analysis showed that factor structure of LESS Turkish form contains partial differences compared to original form. Sub-dimensions and their contents according to this are as follows:

Table 1: Factor analysis (Basic components method and varimax conversion)

Content	Initial Eigenvalue >1		
	Total	% Variance	Total %
1	2.77	5.55	5.55
2	2.61	5.22	10.76
3	2.53	5.07	15.83
4	2.24	4.48	20.30
5	2.21	4.42	24.72
6	2.16	4.33	29.05
7	2.12	4.25	33.30
8	1.94	3.87	37.17
9	1.89	3.78	40.95
10	1.73	3.45	44.40
11	1.63	3.25	47.65
12	1.62	3.23	50.88
13	1.58	3.16	54.04
14	1.42	2.85	56.90

Uncontrollability: This sub-dimension is present in both forms. Items no 7, 27 and 44, all make up this dimension in the original form. Items no. 13, 31 and 45 were added to these items in the Turkish version. This factor explained 5.54% of the total variance. Weakness against emotions: This sub-dimension takes place only in Turkish version. Items no. 6, 18, 19, 34 and 35 were accumulated in this dimension. This factor explained 5.21% of total variance. This factor was named as weakness against emotions by considering contents of accumulated items. Comprehensibility: This sub-dimension of original version of LESS is present in the Turkish version as well. This sub-dimension consists of items no. 5, 10, 3 AND 45 in the original version but items no. 5,10 and 12 in LESS Turkish version. This factor explained 5.06% of total variance. Avoidance from emotions: This sub-dimension takes place only in Turkish version. Items no. 1, 2, 20, 21 and 36 were accumulated in this dimension. This factor explained 4.47% of total variance. This factor was named as avoidance from emotions due to accumulated item contents. Rationality: This sub-dimension is present in both versions. Items no 17, 30 and 46 all make up this dimension in the original version. Items no 32 and 47 were added to this dimension in the Turkish version but item no 30 was not accumulated in this item. This factor explained 4.42% of total variance. Accepting emotions: This sub-dimension is present in both forms. Items no 2, 9, 12, 20, 28, 40 and 50 all make up this dimension in the original version. Items no 23, 33, 38, 40 and 42 were accumulated in the Turkish version. This factor explained 4.32% of total variance. Rumination: This sub-dimension is present in both versions. Items no 1, 24, 36, 37 and 48 all make up this dimension in the original version. However, items 1 and 36 were not accumulated under this sub-dimension in the Turkish version. Item no. 22 was also accumulated under this dimension in the Turkish version as well. This factor explained 4.24% of total variance. Dissimilarity: This sub-dimension takes place only in Turkish version. Items no 3, 11, 14, 15 and 16 were accumulated in this dimension. Contents of items making up this sub-dimension are consistent with schemas showing emotional experiences different from other people. This factor explained 3.87% of total variance. This factor was named as dissimilarity considering accumulated item contents. Neglecting emotions: This sub-dimension takes place only in Turkish version. Items no 49 and 50 were accumulated in this dimension. This factor explained 3.77% of total variance. This factor was defined as neglecting emotions considering accumulated item contents. Duration: This sub-dimension is present in both forms. Items no 13 and 29 make up this dimension in the original version. In the Turkish version, item no 13 is not accumulated in this dimension but item no 30 is. This factor explained 3.45% of total variance. Validation: This sub-dimension is present in both forms. Items no 8, 16 and 49 all make up this dimension in the original version. In the Turkish version, items no 16 and 49 is not accumulated in this dimension but item no 4 is. This factor explained 3.25% of total variance. Consensus: This sub-dimension is present in both forms. Items no 3, 19, 39 and 41 all make up this dimension in the original version. In the Turkish version, items no 3 and 19 are accumulated in this dimension. This factor explained 3.23% of total variance. Seeing emotions as dangerous: This sub-dimension takes place only in Turkish version. Items no 9 and 28 were accumulated in this dimension.

Nature of the items making up this sub-dimension emphasized that emotions can be harmful. This factor was named as "seeing emotions as dangerous" considering accumulated item contents. This factor explained 3.15% of total variance. Guilt: This sub-dimension is present in both forms. Items no 4, 14, 26 and 31 all make up this dimension in the original version. In the Turkish version, items no 4, 14 and 31 are not accumulated in this dimension but items no 25 and 43 are. This factor explained 2.84% of total variance.

Convergent Validity

Relationship between LESS and MCQ-30 scores were examined by Pearson correlation method in order to test convergent validity of LESS and significant correlations were found between sub-dimension of LESS and MCQ-30 scores (Table 2). For example, uncontrollability and danger sub-scales of MCQ-30 and uncontrollability and seeing emotions as dangerous sub-scales of LESS both emphasize that negative cognitive content or emotional experience cannot be controlled by the individual and this may be dangerous for the individual. A positive statistically significantcorrelation was found between these sub-dimensions ($p<0.01$). Results show that LESS Turkish version has convergent validity. As can be seen in Table 2, re-defined sub-dimensions in the Turkish version of LESS are statistically significantly correlated with each other as well.

Divergent Validity

Divergent validity is based on the principle of highly negative correlation of similar scales targeting to assess different tendencies (22). In order to evaluate divergent validity of LESS, relationship between its sub-scale scores and sub-scale scores of MCQ-30 was assessed by Pearson correlation method (Table 2). According to this, validation, comprehensibility and acceptance of feelings subscales of LESS which emphasize functional attitudes, and uncontrollability, danger and need for controlling thoughts sub-dimensions of MCQ-30 which emphasize non-functional attitudes were compared to show the difference between the attitudes towards meta-cognitive processes. Negative significant correlation was found between sub-dimension scores of both scales ($p<0.01$) and these findings supported divergent validity of the scale for Turkey.

Table 2: Relationship between LESS and MCQ-30 sub-dimensions

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.Validation	1																		
2.Weakness against emotions	-0.09	1																	
3.Avoidance from emotions	-0.05	0.10*	1																
4.Comprehensibility	0.26**	-0.45**	-0.03	1															
5.Uncontrollability	-0.28 **	0.52**	0.11*	-0.54**	1														
6.Demand for rationality	0.03	-0.08	-0.26**	0.11*	-0.12*	1													
7.Acceptance of feelings	-0.05	-0.18**	-0.25**	0.10	-0.12*	0.30**	1												
8.Rumination	-0.14 **	0.45**	0.28**	-0.43**	0.50**	0.21**	-0.26**	1											
9.Dissimilarity	-0.29 **	0.34**	-0.07	-0.43**	0.46**	-0.16*	-0.08	0.28**	1										
10.Denial of emotions	-0.15**	0.43**	0.13**	-0.39**	0.46**	-0.17**	-0.15**	0.43**	0.29**	1									
11.Duration	-0.20**	0.30**	0.10*	-0.23**	0.34**	-0.21**	-0.04	0.24**	0.23**	0.29**	1								
12.Consensus	0.04	-0.03	-0.06	0.05	0.01	0.04	-0.01	0.01	-0.06	-0.04	-0.04	1							
13.Seeing emotions as dangerous	-0.24**	0.32**	0.243**	-0.24**	0.38**	-0.23**	-0.09	0.36**	0.16**	0.34**	0.28**	0.02	1						
14.Guilt	-0.18**	0.24**	0.04	-0.29**	0.39**	-0.13**	-0.05	0.31**	0.32**	0.25**	0.25**	0.01	0.29**	1					
15.MCQ-30 positive beliefs	-0.13**	0.16**	0.13*	-0.04	0.20**	-0.20**	-0.11*	0.20**	0.11*	0.17**	0.13*	0.05	0.25**	0.12*	1				
16. MCQ-30 cognitive confidence	-0.05	0.03	0.07	-0.01	0.07	-0.02	-0.04	0.11*	0.07	0.09	0.01	0.10*	0.07	0.01	0.23**	1			
17. MCQ-30 uncontrollability and danger	-0.14**	0.36 **	0.09	-0.27**	0.36**	-0.16**	-0.12*	0.35**	0.24**	0.25**	0.10*	-0.09	0.17**	0.14**	0.28**	0.06	1		
18. MCQ-30 cognitive self-consciousness	-0.01	0.07	0.25**	-0.03	0.06	-0.22**	-0.27**	0.21**	0.01	0.14**	0.03	0.02	0.14**	-0.01	0.36**	0.09	0.21**	1	
19. MCQ-30 need to control thoughts	-0.17**	0.32**	0.07	-0.30**	0.40**	-0.17**	-0.17**	0.38**	0.25**	0.26**	0.16**	-0.03	0.33**	0.20**	0.40**	0.09	0.56**	0.27**	1

LESS: Leahy Emotional Schema Scale, MCQ-30: Meta-Cognition Scale-30, **p< 0.01, *p<0.05

Table 3: Relationship between sub-dimensions of LESS Turkish version and gender

Source	Dependent Variable	Sum of Type III Squares	df	Mean Squares	F	p	Partial Etha Square
Gender	Validation	0.38	1	0.38	0.061	0.805	0.00
	Weakness against emotions	928.15	1	928.15	30.915	<0.001	0.07
	Avoidance from emotions	44.52	1	44.52	1.670	0.197	0.00
	Comprehensibility	33.21	1	33.21	1.831	0.177	0.00
	Uncontrollability	7.70	1	7.70	0.165	0.685	0.00
	Demand for rationality	7.69	1	7.69	0.408	0.523	0.00
	Acceptance of feelings	5.25	1	5.25	0.390	0.532	0.00
	Rumination	155.46	1	155.46	7.742	0.006	0.02
	Dissimilarity	9.66	1	9.66	0.444	0.506	0.00
	Denial of emotions	20.27	1	20.27	2.328	0.128	0.01
	Duration	25.03	1	25.03	3.675	0.056	0.01
	Consensus	0.56	1	0.56	0.097	0.756	0.00
	Seeing emotions as dangerous	1.23	1	1.23	0.153	0.696	0.00
	Guilt	153.95	1	153.95	13.603	<0.001	0.03

LESS: Leahy Emotional Schema Scale, df: degree of freedom, For combined dependent variables: F (df=14, 389), For weakness against emotions and guilt: F (df=1, 402)

Table 4: Mean scores of LESS weakness and guilt sub-dimensions

				95% Confidence Interval	
Dependent variable	Gender	Mean	Standard Error	Lower limit	Upper limit
Weakness against emotions	Women	18.20	0.38	17.46	18.93
	Men	15.22	0.38	14.47	15.96
Guilt	Women	7.14	0.23	6.70	7.59
	Men	8.41	0.23	7.95	8.86

LESS: Leahy Emotional Schema Scale

Gender Effect

Variability of LESS sub-dimension scores according to gender was analyzed by multi-variable analysis of variance (MANOVA). Suitability of the sample for MANOVA was tested and Wilks' lambda was found significant after analysis (0.84, p<0.001). This finding showed that gender was significantly effective on sub-dimension scores of gender. For detecting on which sub-dimensions is gender effective, Bonferroni correction was used for probability of type 1 error and alpha value of 0.05 was divided by 14 which was the number of dimensions and threshold value for significance of 0.0035 was determined. LESS sub-dimensions of weakness against emotions and guilt varied according to gender at this level of significance (Table 3). When mean scores are considered, it was found that women felt themselves weaker than men towards their emotions but however, men felt themselves guiltier than women (Table 4).

DISCUSSION

Although high efficacy of cognitive-behavioral therapy was shown in several psychiatric disorders, many clients cannot complete therapy process (23). Leahy (10) formulated the mechanism underlying this disorder as emotional avoidance and fear of anxiety; he described strategies, plans and approaches of people to cope with their emotions by recommending emotional schema concept. Leahy describes the difference of his model from meta-cognitive model of Wells (5) as "emphasizing coping strategies" mentioned above. Leahy accepts the approach developed by Greenberg and Paivio (8) as "emotions contain cognition and provides access to them" valid as well.

In the factor analysis to determine validity and factor structure of items of LESS, solution with 14 factors was decided and at the end of analysis, 14 significant factors were obtained which explain 56.8% of total variance as in the original form, however, it was found that factor structure of Turkish version of LESS is not exactly the same with the original version. Due to inconsistency between original and Turkish versions, statistical analyses were reviewed, author of the original form was contacted and it was confirmed that same statistical methods were used. When the methods section of the original paper was reviewed, small number of participants was of note and it was thought that one of the main reasons of this inconsistency might have been this smaller number of participants. According to Nunnally (24), when developing a scale, recommended number of participants is 10 people per item. Some authors argued that this figure can be five participants per item (21). In the original LESS form this number is 1.06. In our study this figure was 8.72 per item. Another reason of inconsistency may be due to doing the original study with people with clinical disorders. Our study sample was composed of volunteers who were mainly university students. This indicates the need for a validity and reliability study of the Turkish version of the scale with a clinical sample. Another reason of difference in the factor structure of LESS Turkish version may be the sample group with a different linguistic and cultural structure. It was proposed that cultural and linguistic structure may cause emotions and cognitions to be perceived different (25,26).

In factor analysis, accumulations of some items were found different. For example, in the original study of LESS, item 22 could not be included in any sub-dimension (10). However, item no 22 ("I criticize my values when I feel myself bad or sad") was accumulated under rumination sub-dimension in the Turkish version. When item content is considered, this accumulation shows a perfect consistency. Because, criticizing own values and life in a ruminative way when feels him/herself sad is described as "depressive rumination" in the literature (26). Item no 48 ("I too much focus on my emotions or physical emotions") was accumulated under both rumination sub-dimension with 0.44 factor load and neglecting emotions with -0.44 factor load. However, when content of the item is considered, it meets a ruminative process. As recommended in studies with basic components method, when factor load is too close to each other, assignment to a suitable factor can be made by taking contents and characteristics assessed into consideration (27,28). In this context, content of item no. 48 was considered and due to close relationship between two factor loads, it was decided to have the scale of the item under rumination sub-scale like in the original version. Item no 28 (You should protect yourself from feeling some emotions) was accumulated under rumination sub-dimension by 0.40 factor load and under seeing emotions as dangerous sub-dimension by 0.38 factor load. At this point, content of item no. 28 was considered and due to close relationship between two factor loads, it was decided it to be under seeing emotions as dangerous sub-dimension.

In conclusion, out of 14 sub-dimensions described in the study of original version of LESS, expression, numbness, high values, clearly looking at emotions and blaming were not described in our study. After content analysis of accumulated items, instead of these sub-dimensions, seeing emotions as dangerous, avoidance from emotions, being different, neglecting emotions and weakness sub-dimensions were described. Inconsistency of sub-dimensions between versions may indicate the need to develop the scale from sub-scales perspective.

When relationship between LESS scores and gender is evaluated, weakness and guilt were found to be significantly correlated with gender. Women were found to feel themselves weaker towards emotions than men but men feel themselves guiltier than women when undesired emotions arise. No statistically significant difference was found between genders in other sub-dimensions.

CONCLUSION

Our finding showed that Turkish version of LESS is a valid and reliable tool to detect schemas of

people towards their emotions. High level of reliability of Turkish version indicates that aim of the scale is appropriate. We believe that Turkish version of LESS will fill an important gap in scientific practice of our country and pioneer further studies in this field.

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