

The Level of Expressed Emotion (LEE) Scale (Short Version): The Turkish Validity and Reliability Study in Patients Admitting to Dermatology Clinic

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ABSTRACT:

Purpose: The purpose of the present study was to determine the Turkish validity and reliability of the LEE Scale (short version) in patients admitted to the Dermatology Clinic, and to ensure its use in patient evaluations for dermatology and other branches.

Material and Methods: The LEE Scale (short version) had 38 items, and was developed originally in English. The scale was translated into Turkish by following the proper translation steps. The Turkish scale that was created was applied to the patients. A total of 510 people, 279 of whom were women (54.7%), and 231 men (45.3%), applying to Sivas Cumhuriyet University Hospital Dermatology Clinic were included in the study. The internal structure consistency and test-retest reliability were measured for reliability analyses. The Cronbach's Alpha Coefficient was estimated for internal consistency. The scale was applied to 50 patients twice, at baseline and two weeks later for test-retest reliability, which was also statistically evaluated with the Pearson Correlation Test. The Exploratory Factor Analysis was performed to evaluate the construct validity of the scale. The significance level was taken as $p < 0.05$.

Results: The ages of the patients included in the study ranged between 18 and 72, and the mean age was 28.2 ± 9.6 . The Cronbach-Alpha Coefficient was found to be 0.915 in the internal structure consistency measurement. The correlation coefficient was calculated as $r = 0.868$ in test-retest reliability. The total LEE scale (short version) score was a mean \pm SD of 59.6 ± 14.2 .

Conclusion: It was concluded in the present study that the LEE Scale (short version) is a measurement tool that can be used in a reliable and valid manner for the evaluation of emotional expressions of individuals who have dermatological diseases.

Keywords: Expressed Emotion, Turkish version, Validation, Reliability, Dermatology

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INTRODUCTION

Expressed Emotion (EE) is the measurement of the attitudes and behaviors of family members towards the diseased family member, and is evaluated as the measurement of the emotional quality of family life and the emotional atmosphere of the home environment. High Expressed Emotion scores involve severe criticism, hostility, or emotional over-interest in the patient (Hale et al., 2007).

The skin is an organ that reflects unrevealed conscious or unconscious emotions and mediates nonverbal communication. It is known in our present day that mental and social problems have impacts on

the onset and exacerbation of many skin diseases, and mental problems occur secondarily to chronic skin diseases. The mental factor affects the course of diseases and even their treatments (Koo et al., 2000; Dalgard et al., 2018).

The relations between expressed emotions and some psychiatric and physiological diseases such as psoriasis, schizophrenia, epilepsy, depression, diabetes, obsessive-compulsive disorder, eating disorders and asthma were examined; and the relations between high emotional expression and diseases were shown in many studies. It was reported in previous studies that cultural structure,

socioeconomic level, and gender of parents are associated with EE (Ortiz, 2001; Tüzer et al., 2003).

Previous studies conducted on schizophrenia show that families with low EE levels can cope with problems better, and families with high EE levels have difficulty in coping with problems, illnesses, and patients (Butzlaff and Hooley, 1998).

The Level of Expressed Emotion (LEE) Scale is a self-assessment tool that was developed by Cole and Kazarian (1988) to understand the emotional state between a patient and a person important to the patient, and to rate some aspects of this relationship. Items are in the form of “true, often true, often false, and false”. It is filled in by patients considering their relations with an important family member (key relative) in the last 3 months. It has a total of 60 items (Cole & Kazarian, 1988). The validity-reliability study and the Turkish adaptation of the scale and were conducted by Berksun (Öksüz, 2017). Gerlsma et al. (1997) developed the 38-item short version of the LEE Scale, which consists of 4 subscales; interventionism, lack of emotional support, irritability, and criticism, and its language is English (Gerlsma and Hale, 1997).

In our study, the purpose was to determine the Turkish reliability and validity of the LEE Scale (short version) in patients admitting to the Dermatology Clinic, and to ensure that it is used in patient evaluations in dermatology and other branches.

MATERIAL AND METHODS

Ethics

The Ethics Committee approval was obtained from the Ethics Committee of Sivas Cumhuriyet University (2013-05/38). The purpose and contents of the study were explained to patients, and informed consent forms were obtained from volunteers.

Subjects

The present study was conducted with patients admitted by Sivas Cumhuriyet University Hospital Dermatology Clinic; and 510 patients (279 female, 231 male) were included.

Patients who were illiterate, who had a history of psychological illness, or any condition that could affect their ability to understand the conditions of the study, and patients who were under 18 years of

age were excluded from the study.

Level of Expression of Emotion (LEE) Scale (Short Version)

The 38-item short version of the LEE Scale was developed by Gerlsma and Hale in 1997. The scale consists of 38 questions, and 4 sub-dimensions, which are the interventionism dimension (7 items), the lack of emotional support dimension (19 items), the irritability dimension (7 items), and the criticism dimension (5 items). The response options are structured as “true, often true, often false, and false”. The source language of the scale is English. The scale examines the attitudes of patient relatives to the patient. The English language versions of the LEE scale (short version) are presented in Appendix 1.

Translation Process

- The author who developed the scale was contacted through e-mail, and the necessary permission was obtained for the scale to be adapted into the Turkish language and to conduct the validity and reliability study of it.
- Firstly, the scale was translated into Turkish by 3 experts, two from Dermatology and one from Linguistics fields. The resulting 3 texts were combined into a common text by 2 different dermatology physicians. This text was then translated into English by a bilingual person.
- Then, the English language of the text was reviewed by the committee that consisted of linguists, clinicians, and academicians, and the language validity of the scale was approved. With this scale, whose language validity was provided, a pilot scheme was applied to 20 people, the scale was evaluated in terms of intelligibility, and the final version was created.

Statistical Analysis

The data were analyzed by the SPSS version 22.0 statistical package.

Internal consistency, test-retest reliability, item-total score correlations were used for reliability analysis. Internal consistency was tested using the Cronbach α value, whereas total-score and item-score relationships were explored by using the

Pearson correlation analysis. The scale was administered to 50 patients twice, at the beginning and two weeks later for test-retest reliability, which was statistically evaluated with the Pearson Correlation Test.

Validity analysis was carried out using the construct and convergent validity. Construct validity was tested by using the principal components factor analysis; convergent validity by Pearson correlations. The significance level of the p value was taken as $p < 0.05$.

RESULTS

The study group consisted of 510 people, 279 women (54.7%), and 231 men (45.3%). The ages of the patients included in the study ranged between 18 and 72, and the mean age of the patients was 28.2 ± 9.6 .

When the educational status of the patients was evaluated, it was found that 398 (78.2%) were university graduates, 59 (11.5%) were high school graduates, and 53 (10.3%) were primary school graduates.

Firstly, the Kaiser-Meyer-Olkin (KMO) Coefficient was calculated to determine the adequacy of the sampling size and whether the data were suitable for Exploratory Factor Analysis, and the Bartlett's Sphericity Test was used. The KMO Coefficient was calculated as 0.928 in the application, and as a result of the Bartlett Test, it was found that the sampling size and the data were suitable for the Exploratory Factor Analysis with $\chi^2 = 6755.66$, $p < 0.001$ values.

In evaluating the reliability of LEE scale, an internal consistency analysis was conducted and the Cronbach's Alpha Coefficient score was 0.915.

When the corrected item-total correlation values were considered, items 4, 10, 19, 22, 27, 28, 30, and 33 were removed from the scale since their factor load value was lower than 0.45.

The first factor explained 22.478% of the total variance, the second factor 13.062%, the third factor 9.169%, and the fourth factor 7.593% of it (Table I). The cumulative amount of variance that was explained by the eigenvalues was 52.301% of the total variance, which is quite good (very close to 60%, which is considered the best lower limit) (Karagöz, 2016). For this reason, the model provided

construct validity.

For reliability analysis, the test-retest was applied in 50 patients, who were selected by the Simple Random Sampling Method. The questionnaire was applied again after 2 weeks to the same group. The level (degree) of the Pearson Correlation Coefficient between the first and second applications was found to be 0.868 (86.8%). There was a very strong (very high) positive correlation between the first and second applications.

Data from the 510 patients were analyzed with factor analysis with a rotational method of varimax, and four factors were extracted: lack of emotional support (questions 1, 2, 3, 7, 8, 9, 13, 17, 21, 24, 25, 32, 36, 38); criticism (questions 5, 14, 15, 18, 29, 34, 35, 37); intrusiveness (questions 11, 16, 20, 26, 31) and irritability (questions 6, 12, 23).

The total LEE scale score was a mean \pm SD of 59.6 ± 14.2 points. The values for individual domains were (mean \pm SD) 1.60 ± 0.55 for the lack of emotional support domain, 2.06 ± 0.67 for the criticism domain, 2.68 ± 0.66 for the intrusiveness domain and 2.19 ± 0.80 for the irritability domain. The correlation coefficients between the total LEE scale and its subscales varied between 0.261 and 0.860. A high level correlation was detected between the total LEE scale and its subscales ($p < 0.05$) (Table 2).

DISCUSSION

Expressed emotion is evaluated as a measure of the emotional quality of family life and as the emotional atmosphere of the home environment. Expression of emotion is also defined as the determinant of the family's attitude and point of view towards the patient, and it is considered as an important factor that can negatively or positively affect the course of the disease (Hoste and le Grange, 2008; Devaramane et al., 2011; Jie et al., 2018).

The skin is an organ creating a border between the internal and external environments of a person, and plays important roles in the reflection of our emotions and behaviors. It is seen that psychiatric disorders accompany approximately 40% of dermatological diseases. This rate is quite high when compared to the general population (Ermertcan et al., 2004).

Table 1. Factor analysis results of the LEE scale

Subscales	Items	Factor Value	Variance (%)	Cumulative Variance (%)
Factor 1	Item 3	0,804	22,478	22,478
	Item 13	0,780		
	Item 7	0,754		
	Item 8	0,717		
	Item 24	0,707		
	Item 32	0,698		
	Item 21	0,697		
	Item 1	0,694		
	Item 38	0,687		
	Item 9	0,678		
	Item 17	0,614		
	Item 2	0,522		
	Item 36	0,520		
	Item 25	0,480		
Factor 2	Item 34	0,720	13,062	35,540
	Item 35	0,689		
	Item 14	0,672		
	Item 29	0,599		
	Item 15	0,564		
	Item 37	0,507		
	Item 5	0,504		
	Item 18	0,466		
Factor 3	Item 20	0,758	9,169	44,708
	Item 16	0,715		
	Item 11	0,653		
	Item 31	0,540		
	Item 26	0,501		
Factor 4	Item 23	0,720	7,593	52,301
	Item 12	0,699		
	Item 6	0,533		

Table 2. Pearson correlation analysis between LEE scale domains

LEE	Lack of emotional support	Criticism	Intrusiveness	Irritability
	r	r	r	r
Lack of emotional support				
Criticism	0.596***			
Intrusiveness	0.386***	0.441***		
Irritability	0.470***	0.476***	0.261***	
Total LEE	0.842***	0.860***	0.507***	0.658***

***p<0.05

It is already known that those who are exposed to inadequate care, neglect, or abuse in their childhood carry the risk of self-harm, and the traumatic experiences, which occur in this period, cause that many psychosomatic and psycho-dermatological diseases appear (Gupta et al., 2005).

The emotional state can be the cause or trigger of the disease in many dermatological diseases. The persistence of the dermatological disease that affects the quality of life and cosmetic problems

regarding the body image might also affect the emotional state causing comorbid psychiatric problems (Konstantinou, 2019).

It has been reported that emotion expressed is high in psoriasis patients. The LEE scale should be used in the evaluation of the family environment of the patients, and psychosocial support should be provided in cases with high emotional expression and patient-family interaction in psoriasis patients (Hayta et al., 2018; Chen et al., 2014).

The LEE Scale (short version), whose original form was developed by Gerlsma et al. (1997) consisting of 38 items and 4 sub-dimensions, was adapted into Turkish culture. Internal consistency and test-retest methods were used to measure the reliability of the scale. In internal structure consistency, the Cronbach's Alpha Coefficient was found to be 0.915 for the entire scale, and the correlation coefficient was $r=0.868$ ($p<0.001$) in the test-retest method. The results show that the Turkish reliability of the scale is provided. When the corrected item-total correlation values are considered, items 4, 10, 19, 22, 27, 28, 30, and 33 of the scale were removed from the scale since their factor load value was lower than 0.45 (Saraç et al., 2019).

The Exploratory Factor Analysis was used for the validity study of the scale. According to the factor matrix table, questions 1, 2, 3, 7, 8, 9, 13, 17, 21, 24, 25, 32, 36, and 38 were grouped under the first factor; questions 5, 14, 15, 18, 29, 34, 35, and 37 under the second factor; questions 11, 16, 20, 26, and 31 were grouped under the third factor; and questions 6, 12, and 23 under the fourth factor structure. By considering the meanings of the items in the factors and by making use of the transformative factor loads, in line with the original scale, the questions in the first factor were grouped under the "lack of emotional support" dimension, the questions in the second factor under the "criticism" dimension, the questions in the third factor under the "intrusiveness" dimension, and the questions in the fourth factor under the "irritability" dimension.

A high correlation was detected between the total LEE scale (short version) score and the LEE subscale scores, and it was shown that the entire scale has a significant relation with the subscales. This result supports the validity of the scale.

CONCLUSION

When all the psychometric characteristics of the LEE Scale (short version), which was adapted into Turkish culture are considered, it was concluded that the scale is a measurement tool that can be used in a reliable and valid manner for the evaluation of expressed emotion levels of patients with dermatological diseases.

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Conflict of Interest

There is no conflict of interest among the authors of the article.

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Appendix 1. The English-Language The Level of Expressed Emotion (LEE) Scale (Short Version)

Items	Untrue	Somewhat untrue	Somewhat true	True
1. Try to reassure me when I'm not feeling well	(4)	(3)	(2)	(1)
2. Are sympathetic towards me when I'm ill or upset	(4)	(3)	(2)	(1)
3. Are considerate when I'm ill	(4)	(3)	(2)	(1)
4. Can see my point of view	(4)	(3)	(2)	(1)
5. Often accuses me of making things up when I'm not feeling well	(4)	(3)	(2)	(1)
6. Are understanding if I make a mistake	(4)	(3)	(2)	(1)
7. Make me feel relaxed when they are around	(4)	(3)	(2)	(1)
8. Understand my limitations	(4)	(3)	(2)	(1)
9. Try to make me feel better when I'm ill	(4)	(3)	(2)	(1)
10. Hear me out	(4)	(3)	(2)	(1)
11. Are tolerant with me, even when I'm not meeting their expectations	(4)	(3)	(2)	(1)
12. Make me feel valuable as a person	(4)	(3)	(2)	(1)
13. Accuse me of exaggerating when I say I'm unwell	(4)	(3)	(2)	(1)
14. Calm me down when I'm upset	(4)	(3)	(2)	(1)
15. Will not help me when I'm upset	(4)	(3)	(2)	(1)
16. Are willing to gain more information to understand my condition, when I'm not feeling well	(4)	(3)	(2)	(1)
17. Will take it easy with me, even if things aren't going right	(4)	(3)	(2)	(1)
18. Don't know how to handle my feelings when I'm unwell	(4)	(3)	(2)	(1)
19. Expect the same level of effort from me, even if I don't feel well	(4)	(3)	(2)	(1)
20. Fly off the handle when I don't do something well	(4)	(3)	(2)	(1)
21. Get irritated when things don't go right	(4)	(3)	(2)	(1)
22. Make matters worse when things aren't going well	(4)	(3)	(2)	(1)
23. Get upset when I don't check in with them	(4)	(3)	(2)	(1)
24. Can cope well with stress	(4)	(3)	(2)	(1)
25. Can't think straight when things go wrong	(4)	(3)	(2)	(1)
26. Are able to be in control in stressful situations	(4)	(3)	(2)	(1)
27. Are always nosing into my business	(4)	(3)	(2)	(1)
28. Have to know everything about me	(4)	(3)	(2)	(1)
29. Are always interfering	(4)	(3)	(2)	(1)
30. Butt into my private matters	(4)	(3)	(2)	(1)
31. Often check up on me to see what I'm doing	(4)	(3)	(2)	(1)
32. Insist on knowing where I'm going	(4)	(3)	(2)	(1)
33. Don't pry into my life	(4)	(3)	(2)	(1)
34. Are critical of me	(4)	(3)	(2)	(1)
35. Get annoyed when I want something from them	(4)	(3)	(2)	(1)
36. Show me that they love me	(4)	(3)	(2)	(1)
37. Try to change me	(4)	(3)	(2)	(1)
38. Usually agree with me	(4)	(3)	(2)	(1)