

## RESEARCH ARTICLE

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# Validity and Reliability of the Affective Lability Scale-18 (ALS-18) Turkish Form in the Non-Clinical Group

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## ABSTRACT

**Objective:** Affective lability, which is an important aspect of mood dysregulation, is seen in many psychiatric conditions. The aim of this study is to examine the psychometric properties of the Affective Lability Scale-18 in the Turkish sample of the non-clinical group.

**Method:** A total of 615 individuals (312 females and 303 males) who did not have a past or current psychiatric disorder were included in the study. The participants were administered sociodemographic data form, Affective Lability Scale-18, Difficulties in Emotion Regulation Scale, and Beck Depression Inventory. The participants were divided into 4 groups; a pilot group, EFA (exploratory factor analysis) group, CFA (confirmatory factor analysis) group and test-retest group.

**Results:** The factor analysis conducted for the construct validity of the scale, revealed similar results to that of the original scale. The Cronbach's alpha internal consistency coefficient was 0.92 for the EFA group and 0.92 for the CFA group. The test-retest reliability coefficient was 0.82. Difficulties in Emotion Regulation Scale (DERS) and Beck's Depression Inventory (BDI) were used to measure validity. The correlation between the total scores of participants on the ALS-18 and their scores on the DERS and BDI was determined to be positive and moderate ( $r=0.38$ ,  $r=41$ ).

**Conclusion:** The Affective Lability Scale-18 in the Turkish sample, three sub-dimensions, anxiety/depression, depression/elevation, anger and the general factor all have sufficient internal consistency and it has been demonstrated that the scale can be applied in our country to evaluate the situations in which affect variability is evaluated.

**Keywords:** Affective Lability, Emotion Dysregulation, Validity, Reliability, Turkish, Affective Lability Scale

## INTRODUCTION

Studies to date have suggested that emotional dysregulation may be associated with the development and maintenance of various psychiatric disorders and maladaptive behaviors (Svaldi et al. 2012, Contardi et al. 2013). An important aspect of emotional dysregulation is the abnormally frequent, intense and large-scale affect lability in affective states (Thompson et al. 2011). Affective lability is common in many psychiatric conditions and is a primary feature of several types of psychopathology, including bipolar affective disorder and borderline personality disorder (Benazzi ve Akiskal 2005, Reich ve ark. 2011, Aminoff ve ark. 2012).

Depue et al. (1981) reported the use of a questionnaire called the General Behavior Inventory (GBI) to assess current

cyclothymia and its predictive validity to identify individuals at risk for bipolar disorder. Despite its high reliability and validity, the GBI measure only examines the changes between anxiety and depression. For disorders such as borderline personality disorder and intermittent explosive disorder, euthymia and depression, euthymia and anger are important areas of change in affect that are not assessed by the GBI. The Affective Lability Scale-54 (ALS-54), a questionnaire of 54 items is a scale used to determine lability in affect and is developed to assess change in various dimensions of emotional functioning (Harvey et al. 1989). The scale was developed by creating items that describe a person's transition from normal (euthymic) mood to other emotional states such as depression, hypomania and anger. The ALS-54 consists of six interconnected conceptual scales: depression, anxiety, hypomania, depression/anxiety, anger and biphasic emotion (depression/hypomania). More

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specifically, the ALS-54 measures lability including euthymia and alternations between depression, anxiety, anger and hypomania, as well as between hypomania and depression and between anxiety and depression (Harvey et al. 1989). Oliver and Simons (2004) regarded the 54-item ALS-54 as long and created an 18-item short form of the Affective Lability Scale-18 (ALS-18). The ALS-18 consists of a three-factor model of affect lability; each factor retains at least two items from each of the original six subscales of the ALS-54 and has been shown to be highly correlated with the original ALS-54 total score (Oliver and Simons 2004). In a study conducted on this subject, people diagnosed with DSM-IV Axis-2, cluster B personality disorders reported significantly higher affect lability scores compared to people with cluster A or C disorders. Thus, these individuals reported significantly more affect lability than the healthy control participants (Amy et al. 2010).

The same scoring model by diagnostic group, total score, and comparable effect sizes for each subscale were found using the ALS-54. This suggests that both versions of the Affect Lability Scale are equally valid in detecting group differences ( $g_2$ s of 0.27-0.38 for the ALS-18 and 0.32-0.39 for the ALS-54) (Amy et al. 2010).

Bipolar affective disorder can be difficult to distinguish clinically from BPD (Bolton and Gunderson 1996) and there is recent evidence that patients with BPD are often misdiagnosed as having bipolar disorder (Zimmerman et al. 2010). There is evidence that patients with BPD display higher levels of anger and impulsivity compared to patients with bipolar II disorder (Wilson et al. 2007). In another study measuring affect lability in bipolar affective disorder and borderline personality disorder, it was reported that the patients in the bipolar group had significantly higher scores on the euphoria-enthusiasm subscale of ALS-54, while patients in the borderline personality disorder (BPD) group had significantly higher scores on the anxiety-depression subscale of ALS-54 (Reich, D. B et al. 2011).

Based on the results presented above and given that the psychometric properties of the Turkish version of the ALS-18 (and the original 54-item version) have not yet been investigated, the aim of our study was to investigate the factor structure, validity, and reliability of the Turkish version of the ALS-18 in a sample of adults without mental disorders as a first step for cross-cultural validation of the questionnaire and to test whether a three-factor model is appropriate, in line with previous studies (Look et al. 2010, Aas et al. 2015, Weibel et al. 2017).

## METHOD

Name of the institution from which the Ethics Committee report was received: Alanya Alaaddin Keykubat University

Faculty of Medicine, Clinical Research Ethics Committee Number and date of the approval document : 10354421-2021/03-08 10.02.2021

### Study Population

In the study, procedures were carried out on 4 groups of participants: pilot group, EFA (exploratory factor analysis) group, CFA (confirmatory factor analysis) group and test-retest group. A total of 756 people were reached, and 141 of them who had previously received psychiatric treatment and were still taking psychiatric medication at the time of scale administration were excluded from the study. The first group in which the pilot study of the scale was conducted included 254 (Female= 129, Male=125) adults who did not have any mental disorder. Of the individuals who participated in the study, 31.1% (79) were unmarried and 68.9% (175) were married. Of the participants; 13 (5.1%) were students, 208 (81.9%) were employed, 20 (7.9%) were unemployed and 13 (5.1%) were retired.

In the original study, two separate samples were established for exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The EFA sample included 282 individuals

who did not have any mental disorders (Female=145, 51.4%; Male=137, 48.6%). Between the ages of 18 and 65, the average age of the individuals in the EFA group was  $40.51 \pm 11.51$ . In the EFA group of 302 (Female=151, 50%; Male=151, 50%) individuals, the mean age was  $41.50 \pm 12.53$  (Min=18, Max=81). 99 (35.1%) of the individuals in the EFA sample were married while 183 (64.9%) were not. In the CFA sample, the status of being married (N=98, 32.5%) and not being married (n=204, 67.5%) was similar. The majority of participants in the EFA and CFA samples stated that they were working (nEFA=225, 79.8%, nCFA=217, 71.9%). In terms of the education levels of the participants in the main study, the majority were university graduates (nEFA=174, 61.7%, nCFA=185, 61.3%), followed by those with postgraduate education (nEFA=79, 28%, nCFA=81, 26%). 0.8). It was observed that there were relatively fewer people with high school education or less (nEFA=29, 10.3%, nCFA=36, 11.9%).

The last research group was the group consisting of 31 people (Female=16, 51.6%, Male=15, 48.4%) for whom the test-retest reliability procedures of the scale were performed. In this group, the mean age was  $31.7 \pm 10.01$ , and the rate of married people was 38.7% (n=12) while the rate of unmarried people was 61.3% (n=19). In terms of their educational level, 77% (n=24) were university graduates. It is seen that the groups included in the research did not differ in terms of demographic variables. The demographic information of the participants and the results of the Chi-Square test, which examines the differences between the groups, are presented in Table 1.

### Data Collection Tools Used in the Research

**Affective Liability Scale-18 (ALS-18):** It was developed by Oliver and Simons (2004). Amy et al. (2010) examined its psychometric properties. ALS is an 18-item Likert-type self-report questionnaire that measures affective liability in 3 dimensions: perception of changes in affect and related cognition, perception of physiological changes, and perception of behavioral changes. In ALS, each item is rated on a 4-point scale (0-3), ranging from “not at all applicable” to “very applicable”. ALS-18 measures three different liability between euthymia and affective states (Anxiety/Depression, AD; Depression/Elation, DE; and Anger). As the score increases, the level of affective liability increases. The ALS-18 has been shown to have good internal consistency and adequate test-retest reliability. Test-retest analysis demonstrated adequate consistency over time over a 30-day period. Consistency over time estimates have been found to be between 0.56 and 0.79 for women and 0.48 and 0.86 for men (Oliver and Simons 2004).

**Beck Depression Inventory (BDI):** The Beck Depression Inventory (BDI) was developed by Beck and his colleagues in 1961 to determine the degree of depressive symptoms (Beck et al. 1961). The validity and reliability study in Türkiye was conducted by Hisli in 1988. BDI is a scale consisting of a

total of 21 questions, with each answer scored between 0-3 (Hisli 1988). Accordingly, the total score of the scale varies between 0-63. When 17 and above is accepted as the cut-off point, the sensitivity of the scale in predicting depression requiring treatment was found to be over 90% (Hisli 1988).

**Difficulties in Emotion Regulation Scale (DERS):** The Difficulties in Emotion Regulation Scale was originally developed by Gratz K. L, and Roemer L (2004) for use in adults and was designed clinically to assess difficulty in emotion regulation. Adaptation studies into Turkish were carried out by Rugancı and Gençöz (2010). The Cronbach's Alpha internal consistency coefficient of the scale was found to be 0.94. The test-retest reliability of the scale was found to be 0.83, while the Guttman split-half reliability coefficient was found to be 0.95 (Rugancı R. N and Gençöz T 2010). The scale consists of 36 items and items 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, 34 of the scale are reverse coded. As the scores from the scale increase, the difficulty in emotion regulation increases.

### Procedure of Research

For the adaptation study of the scale, an attempt was first made to contact Oliver and Simons, but when communication could not be established, Janine D. Flory, who studied the

**Table 1.** Demographic Characteristics of Participants

Variable	Pilot Sample		EFA Sample		CFA Sample	
	f	%	f	%	f	%
Gender						
Female	129	50.8	145	51.4	151	50.0
Male	125	49.2	137	48.6	151	50.0
Educational Level						
Primary school	6	2.4	5	1.8	1	0.3
Secondary school	4	1.6	3	1.1	4	1.3
High school	25	9.8	21	7.4	31	10.3
University	129	50.8	174	61.7	185	61.3
Postgraduate	44	17.3	43	15.2	47	15.6
Doctorate	46	18.1	36	12.8	34	11.3
Marital Status						
Unmarried	79	31.1	99	35.1	98	32.5
Married	175	68.9	183	64.9	204	67.5
Occupation						
Student	13	5.1	17	6.0	24	7.9
Employed	208	81.9	225	79.8	217	71.9
Unemployed	20	7.9	17	6.0	25	8.3
Retired	13	5.1	23	8.2	36	11.9

EFA: Exploratory Factor Analysis, CFA: Confirmatory Factor Analysis

psychometric properties of the Affective Liability Scale-18, was contacted in 2010 and the necessary permissions were obtained. Then, the translation process from the original form of the scale, English, to Turkish was started. The translation process was carried out by the researcher and two translation experts, and the translation results were examined by a translation expert. The items that were thought to best express each item were adopted. The Turkish form was reviewed with a faculty member from the field of psychological counseling, suitability of each item to Turkish was discussed and necessary changes were made. Finally, in order to determine the comprehensibility of this translation, it was applied to a group of 20 university students and the scale was finalized as a result of the feedback received. Sociodemographic data form, Affect Liability Scale-18, Difficulties in Emotion Regulation Scale, Beck Depression Inventory were sent to and completed by the participants online. Inclusion criteria were being between the ages of 18-65, while exclusion criteria were illiteracy or refusal of informed consent, prior psychiatric treatment, current use of psychiatric medication, and the presence of any condition affecting the ability to participate in the assessment.

Kaiser-Meyer-Olkin (KMO) test results were one of the criteria used to test sample size in scale development studies. A KMO value of less than 0.50 is considered poor, between 0.50-0.60 is acceptable and greater than 0.60 is considered good (Harrison et al. 2021). Considering these criteria, it is seen that the pilot (n= 254, KMO=0.92), EFA (n=282, KMO=0.91) and CFA (n=302, KMO=0.79) samples are of sufficient size. For the test-retest reliability assessment, the affect liability scale and the difficulties in emotion regulation scale were administered twice at 4-week intervals to participants who had not previously received psychiatric treatment and were not currently taking psychiatric medication. Participants did not receive any reward for completing the forms.

### Data Analysis Methods Used in Research

The data of the study were analyzed with IBM SPSS 26.0 and AMOS 20 package programs. Exploratory and confirmatory factor analyses were used for validity analyses, and internal consistency, split-half of the test and test-retest techniques

were used for reliability analyses. The Skewness and Kurtosis coefficients were used to examine whether all data conformed to normal distribution and the values are reported in the results section. There are many goodness of fit indices in determining the adequacy of the model tested by CFA. The most commonly used ones are Chi-Square Goodness, Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR). The measures determined for these values in the literature (Doll ve ark. 1994, Hu ve Bentler 1999, Bryne 2010, Bayram 2013) are summarized in Table 2.

## RESULTS

### Results from the Pilot Study of the Affective Liability Scale-18 (ALS-18)

The pilot study was conducted after the language validity procedures in order to apply the items to a large sample group, to obtain opinions (qualitatively) and to pre-test the validity and reliability analyses. For the pilot study, 254 (Female=129, Male=125) adult individuals were reached. The Skewness and Kurtosis coefficients were used to test whether the data were suitable for normal distribution, and it was determined that the values obtained (Kurtosis=-0.55, Skewness=0.12) were within the appropriate ranges (Tabachnick and Fidell 2015).

In the analyses conducted within the scope of the pilot study, it was determined that the factorability of the scale had appropriate values (KMO=0.92 and Barlett  $\chi^2=2286.39$ ,  $sd=153$ ,  $p<0.001$ ). Accordingly, an exploratory factor analysis was conducted. It was found that the scale was loaded on three factors similar to the original form and this three-factor structure explained 51.10% of the total variance. Although it is seen as a limitation in scale adaptation and development studies, confirmatory factor analysis was performed on the same data set in the pilot study and the goodness of fit values of the three-factor structure with the data set obtained from the sample were checked. In the CFA procedures, the goodness of fit values determined when the

**Table 2.** Fit Index Criteria

Fit Index	Perfect Fit	Acceptable Fit
$\chi^2/sd$	$0 \leq \chi^2 /sd \leq 2$	$2 \leq \chi^2 /sd \leq 3$
GFI	$0.90 \leq GFI \leq 1.00$	$0.85 \leq GFI \leq 0.90$
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.80 \leq AGFI \leq 0.90$
CFI	$0.97 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.97$
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$
SRMR	$0 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.10$

$\chi^2/sd$ =Ki Chi-Square Goodness, GFI= Goodness of Fit Index, AGFI= Adjusted Goodness of Fit Index, CFI= Comparative Fit Index, RMSE= Root Mean Square Error of Approximation and SRMR= Standardized Root Mean Square Residual.

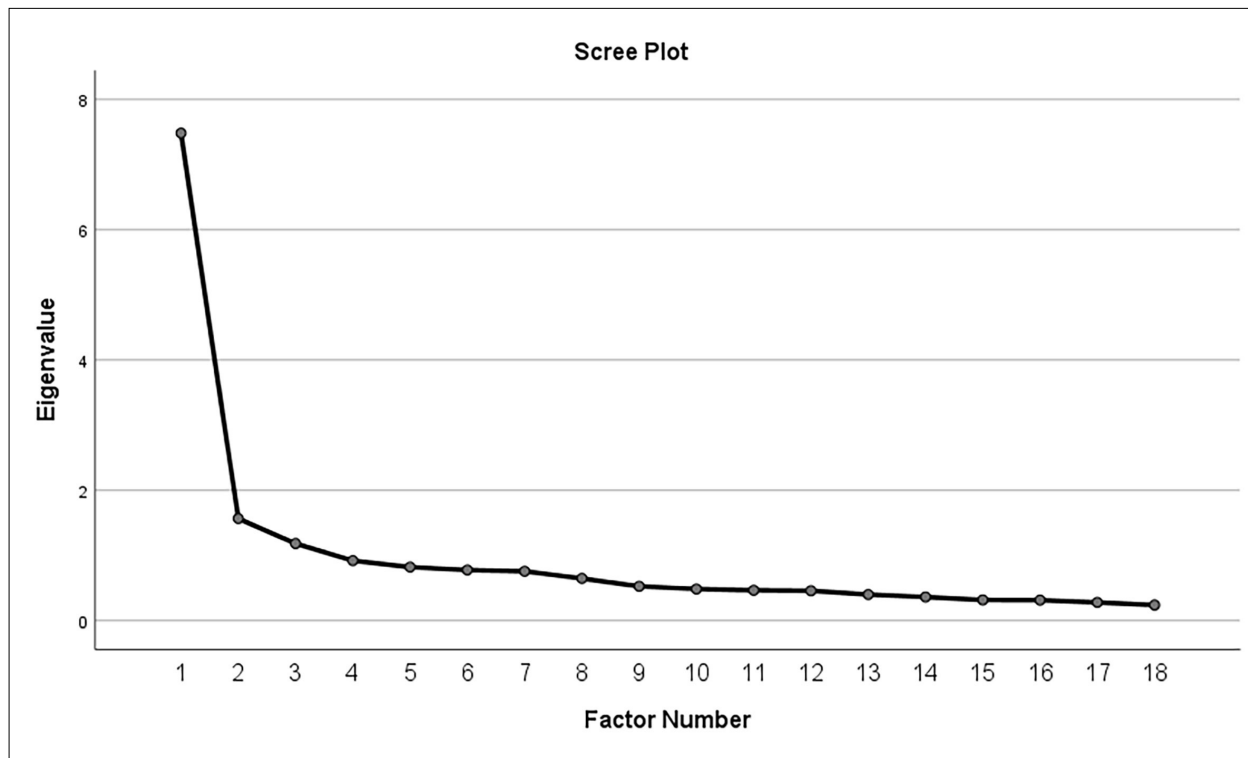


Figure 1. Scree Accumulation Chart Showing the Factor Structure of the ALS-18

relevant modifications were performed were  $\chi^2/sd=2.41$  ( $\chi^2=311.92$ ,  $sd=129$ ,  $p<0.001$ ),  $GFI=0.88$ ,  $AGFI=0.84$ ,  $CFI=0.92$ ,  $RMSEA=0.08$  and  $SRMR=0.05$ . In this respect, it can be concluded that the three-factor and 18-item model obtained from the Turkish sample shows a good fit with the data. The standardized coefficients showing the relationship between the items and their factors ranged between 0.58 and 0.80 and all of them were significant at 0.01 level. Based on these results and the opinions of the participants, language adjustments were made on only a few items, and the process of conducting the actual study of the scale on a larger sample was initiated.

### Results from the Main Study of the Affective Liability Scale-18 (ALS-18)

#### Structural Validity of ALS-18

Before proceeding with the analysis, it was examined whether the data obtained for the ALS-18 were suitable for normal distribution, and the Kurtosis values were found to be -0.66, -0.56 and Skewness values were found to be -0.04, -0.09 for the EFA and CFA samples, respectively. It was observed that the obtained Skewness and Kurtosis coefficients were within the ranges ( $\pm 1$ ) specified by Tabachnick and Fidell (2015).

Exploratory factor analysis procedures were carried out to test the construct validity of the ALS-18. For this purpose, firstly, KMO and Bartlett's values of the EFA sample were examined and it was seen that the sample fit was sufficient

(KMO=0.91) and the scale items had a multivariate normal distribution ( $c2=2323.93$ ,  $sd=153$ ,  $p<0.001$ ). Additionally, the cross-correlations of the scale items in the anti-image matrix were examined and it was determined that the values ranging between 0.88 and 0.95 were of sufficient magnitude ( $>0.50$ ) (Tabachnick and Fidell 2015). The scree accumulation chart showing the ALS-18 factor structure is shown in Figure 1.

In order to determine the factor structure of the scale, Principal Axes Analysis, which is preferred when sub-factors are related to each other, was used. As a result of the analysis performed with the Promax rotation method, a three-factor structure with an eigenvalue above 1 emerged. In the three-factor structure which explained 48.42% of the total variance consistent with the original form of the scale, item distributions were similar to the original form and the pilot study. The factors in which the items in the scale are included, the common variance of each item and their correlations with the total score are shown in Table 3. As seen in Table 3, the first factor explains 38.80% of the variance, the second factor explains 38.80% and the third factor explains 5.82%. The first sub-factor was named "Anxiety-Depression", the second "Depression-Elation" and the third "Anger", similar to the original scale.

The goodness of fit values of the 3-factor structure obtained from the exploratory factor analysis of the ALS-18 with the data set obtained from a different sample were checked by confirmatory factor analysis. The goodness of fit values determined in the CFA procedures with the

**Table 3.** Factor Analysis Results of ALS-18

Item	Factor Loadings			Common	Variance
	I	II	III		
Factor I. Anxiety/Depression					
1. At times I feel just as realized as everyone else and then within minutes I become so nervous that I feel light-headed and dizzy.	0.67			0.48	0.54
2. One minute I can be feeling OK and then the next minute I'm tense, jittery, and nervous.	0.81			0.67	0.68
3. Many times I feel very nervous and tense and then suddenly feel very sad and down.	0.73			0.63	0.69
4. Sometimes I go from feeling extremely anxious about something to feeling very down about it.	0.59			0.47	0.56
5. I shift back and forth from feeling perfectly calm to feeling uptight and nervous.	0.49			0.54	0.68
Factor II. Depression/Elation					
6. There are times when I have very little energy and then soon afterwards, I have the same energy level as most people.		0.34		0.29	0.52
7. Sometimes I can think clearly and concentrate well one minute and then the next minute I have a great deal of difficulty concentrating and thinking clearly.		0.55		0.45	0.58
8. I switch back and forth between being extremely energetic and having so little energy that it's a huge effort just to get where I'm going.		0.42		0.49	0.66
9. There are times when I feel absolutely wonderful about myself but soon afterwards I often feel that I am just about the same as everyone else.		0.65		0.46	0.58
10. I shift back and forth between being very unproductive and being just as productive as everyone else.		0.75		0.51	0.54
11. Sometimes I feel extremely energetic one minute and then the next minute I might have so little energy that I can barely do a thing.		0.51		0.50	0.65
12. There are times when I have more energy than usual and more than most people and then soon afterwards I have about the same energy level as everyone else.		0.71		0.48	0.56
13. At times I feel that I'm doing everything at a slow pace but then soon afterwards I feel that I'm no more slowed down than anyone else.		0.56		0.30	0.45
Factor III. Anger					
14. I frequently switch from being able to control my temper very well to not being able to control it very well at all.			0.60	0.50	0.61
15. There are times when I feel perfectly calm one minute and then the next minute the least little thing makes me furious.			0.58	0.55	0.65
16. Frequently, I will be feeling OK but then I suddenly get so mad that I could hit something.			0.65	0.55	0.59
17. There are times when I am so mad that I can barely stop yelling and other times shortly afterwards when I wouldn't think of yelling at all.			0.72	0.47	0.52
18. There are times when I'm so mad that my heart starts pounding and/or I start shaking and then shortly afterwards I feel quite relaxed.			0.59	0.37	0.50
Self-worth	0.69	6.98	1.05		
Variance Explained (%)	3.80	38.80	5.82		

relevant modifications are  $\chi^2_{sd}=1.91$  ( $\chi^2=242.738$ ,  $sd=127$ ,  $p<0.001$ ),  $GFI=0.92$ ,  $AGFI=0.89$ ,  $CFI=0.95$ ,  $RMSEA=0.06$  and  $SRMR=0.05$ . In this respect, it can be concluded that the three-factor and 18-item model obtained from the Turkish sample shows a good fit with the data. The standardized coefficients showing the relationship between the items and their factors vary between 0.55 and 0.75 and all of them are

significant at 0.01 level. The factor loadings of the model are shown in Figure 2.

### Criterion-Related Validity

Difficulties in Emotion Regulation Scale and Beck Depression Inventory were used for criterion validity of ALS-18. Pearson correlation coefficient was used to test the relationship

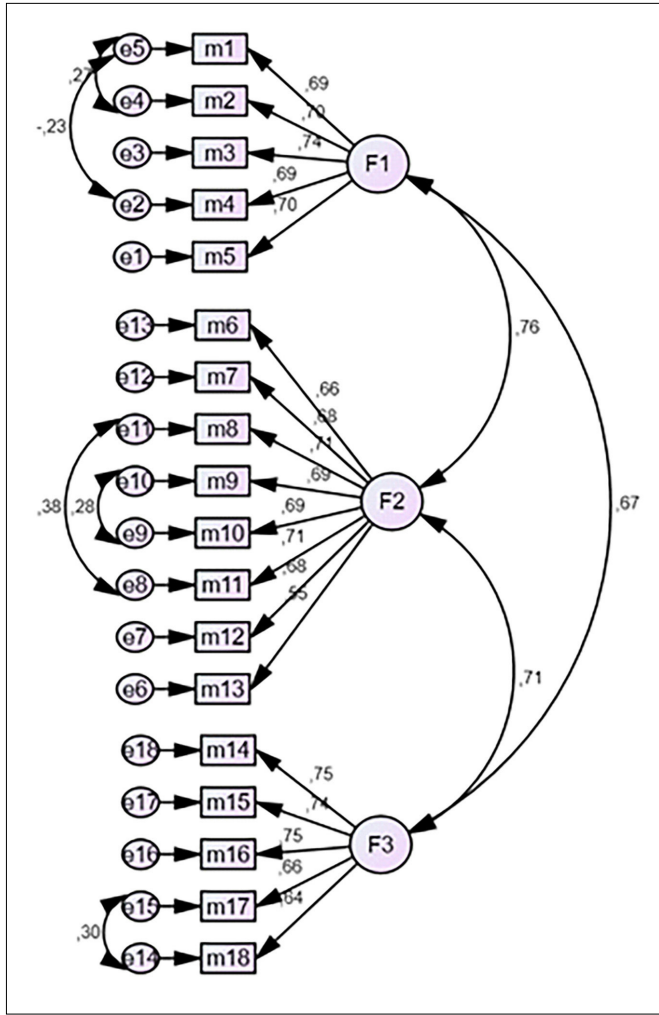


Figure 2. Factor Distribution of ALS-18.

between normally distributed scales. The correlation between the total scores of the participants in the EFA sample on the ALS-18 and their scores on the DERS was positive and moderate ( $r=0.38, p<0.01$ ). There was also a positive and moderately significant relationship between ALS-18 and Beck Depression Inventory ( $r=.41, p<0.01$ ). The relationships between the sub-factors of the ALS-18 and the scores of the criterion scales are given in Table 4.

**Reliability Analysis of ALS-18**

In order to test the reliability of the Turkish version of ALS-18, Cronbach's alpha internal consistency coefficient and split-test reliability were calculated separately for EFA and CFA samples and the results are summarized in Table 5. The Cronbach's alpha internal consistency coefficient obtained for the whole scale consisting of 18 items was 0.92 for both groups. The Cronbach's alpha internal consistency coefficients calculated for the sub-factors were 0.85 and 0.83 for "Anxiety/Depression", 0.85 and 0.87 for "Depression/Elation", 0.82 and 0.84 for "Anger" in the EFA and CFA samples, respectively. The reliability coefficient of the ALS-18, which was calculated by dividing it into two halves, was 0.89 and 0.87 for the EFA and CFA groups, respectively. The split-half reliabilities of the subscales ranged between 0.79 and 0.89.

Test-retest correlations were examined to test the consistency of the scale over time. Therefore, the scale was administered to a smaller group at four-week intervals and the results were analyzed. The test-retest reliability of the scale was performed on 31 participants (Female=16, 51.6%, Male=15, 48.4%). In

Table 4. Inter-scale Relationships

	M (SD)	1	2	3	4	5	6
1. ALS-18	35.43 (9.15)	1					
2. Anxiety/Depression <sup>a</sup>	9.62 (3.18)	0.87**	1				
3. Depression/Elation <sup>a</sup>	16.61 (4.43)	0.90**	0.66**	1			
4. Anger <sup>a</sup>	9.20 (2.90)	0.82**	0.64**	0.59**	1		
5. Difficulties in Emotion Regulation Scale	85.43 (11.75)	0.38**	0.36**	0.34**	0.28**	1	
6. Beck Depression Inventory	6.68(4.54)	0.41**	0.34**	0.42**	0.28**	0.17**	1

\*\*p<0.01. a=Sub-dimensions of the ALS-18

SD: Standard deviation 1. ALS-18, 2. Anxiety/Depression, 3. Depression/Elation, 4. Anger, 5. Difficulties in Emotion Regulation Scale, 6. Beck Depression Inventory.

Table 5. Reliability Analysis Results of ALS-18

Factor	Internal Consistency (Cronbach's Alpha)		Split Half Test	
	EFA Group	CFA Group	EFA Group	CFA Group
Total ALS-18	0.92	0.92	0.89	0.87
Anxiety/Depression	0.85	0.83	0.81	0.78
Depression/Elation	0.85	0.87	0.87	0.89
Anger	0.82	0.84	0.72	0.77

EFA: Exploratory factor analysis CFA: Confirmatory factor analysis

this group, the mean age was  $31.7 \pm 10.01$ , and the rate of married people was 38.7% ( $n=12$ ) while the rate of unmarried people was 61.3% ( $n=19$ ). In terms of their educational level, 77% ( $n=24$ ) were university graduates.

Before proceeding to test-retest analyses, whether the initial and post-tests of the scale were parametric or not was examined with Skewness and Kurtosis coefficients (Initial test Skewness=0.70, Kurtosis=-0.15; Post-test Skewness=-0.63, Kurtosis=0.30). It was found to be normally distributed. In the Pearson correlation, it was determined that the test-retest reliability coefficient of the ALS-18 was at a high level with 0.94. The correlations between the four-week interventions calculated for the sub-dimensions were similarly highly correlated with 0.95, 0.82, 0.94, respectively. In this regard, it can be said that the reliability of ALS-18 against time is high.

## DISCUSSION

In this study, the psychometric properties of the Turkish sample of the Affective Lability Scale-18, which was developed by Oliver and Simons (2004) to determine the lability in affect, were examined in a group without mental disorders between the ages of 18-65. In this sample, CFA showed that the three-factor model consisting of Anxiety/Depression, Depression/Elation, Anger had an acceptable fit. This suggests that other samples of ALS-18 (Amy et al. 2010, Aas et al. 2015, Weibel et al. 2017, Contardi et al. 2018) are in line with previous studies assessing its structure. The study results may also support the existence of a higher-order general factor as generally reported in the literature (Amy et al. 2010, Aas et al. 2015, Weibel et al. 2017, Contardi et al. 2018). Although the correlations between the three sub-dimensions of ALS-18, namely Anxiety/Depression, Depression/Elation and Anger, were high in the findings of Oliver and Simons (2004), they were moderate in this study, similar to the findings of Contardi et al (2018). Factor loadings in all sub-dimensions were similar to the findings of Oliver and Simons (2004) and slightly lower than the findings of Contardi et al. (2018). It was observed that the results obtained in the pilot group were similar to the results obtained in the actual study. The four weeks apart test-retest correlation coefficient was found to be as high as 0.82. Overall, these data may indicate the discriminant validity of the subscale scores (Amy et al. 2010). The three sub-dimensions of Anxiety/Depression, Depression/Elation, Anger and the overall factor, all have adequate internal consistency. The ALS-18 subscales and the overall factor were significantly associated with concurrent measures of depression and difficulties in emotion regulation. The results of this study are consistent with the findings of Contardi et al. (2018) and partially inconsistent with the findings of Oliver and Simons (2004). Oliver and Simons (2004), for example, reported significant but

negative correlations between the ALS-18 and the Center for Epidemiological Studies Depression Scale in a non-clinical sample of university students, but did not explain why (Oliver and Simons 2004). Similar to this study, Contardi et al. (2018), who administered the Beck Depression Inventory (BDI) and Difficulties in Emotion Regulation Scale (DERS), reported that the ALS-18 subscales and the general factor were significantly associated with concurrent measures of depression and difficulties in emotion regulation. Similar to this study, Weibel et al. (2017), who applied a short version of the Beck Depression Inventory (BDI), reported a significant and positive correlation between the total score of ALS-18 and BDI. The positive relationship between depression and affective lability suggests that people with high lability may experience stages of depression (Weibel et al. 2017). Similar to Look et al. (2010), Weibel et al. (2017), Kalantzi et al. (2022), the factors in this study discriminated well in groups without mental disorders. In another study in schizophrenia group, similar to this study, a significant and independent relationship was found between depressive symptoms and affective lability (Høegh et al. 2020). Correlations between ALS-18 and DERS are also generally moderate. This means that the relationship between affective lability and difficulties in emotion regulation may be complicated due to its partial independence (Contardi et al. 2018). Oliver and Simons (2004) reported that it was not clear how useful this tool would be when applied to clinical populations where lability in affect is a primary concern, as they developed the ALS-18 from relatively high-functioning undergraduate students, but in the following years, Høegh et al. (2020) in their study with psychosis and bipolar spectrum disorder, Amy et al. (2010) in their study with axis-2 personality disorders and other personality disorders, Weibel et al. (2017) in their study with attention deficit hyperactivity disorder have shown that its application in clinical populations may be useful.

### Limitations of the Study

The results of this study should be interpreted under some limitations. ALS-18 is a self-report instrument prone to recall and response bias. Moreover, due to the cross-sectional nature of the study, causation cannot be determined. Since the sample of the study consisted of individuals without clinical diagnosis, differential function analysis could not be performed.

## CONCLUSION

The results of this study show that the Turkish version of the ALS-18 can provide valid and reliable assessments of affective lability among adults. The three sub-dimensions of Anxiety/Depression, Depression/Elation, Anger and the general factor, all have adequate internal consistency, and it has been

demonstrated that the scale can be applied in our country to evaluate situations where affective lability is present. Additional studies with psychometric reliability assessments in groups with psychiatric pathology such as psychosis with affective lability, bipolar affective disorder, depression and borderline personality disorder are needed to obtain clear recommendations for its use and research in clinical practice.

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