

## Regular Article

# Reliability and validity of the Turkish version of the adolescent dissociative experiences scale

SULEYMAN SALIH ZOROGLU, MD,<sup>1</sup> VEDAT SAR, MD,<sup>2</sup> UMRAN TUZUN, MD,<sup>3</sup>  
HAMDI TUTKUN, MD<sup>4</sup> AND HALUK ASUMAN SAVAS, MD<sup>4</sup>

Departments of <sup>1</sup>Child and Adolescent Psychiatry and <sup>4</sup>Psychiatry, Gaziantep University Faculty of Medicine, Gaziantep, <sup>2</sup>Clinical Psychotherapy Unit and Dissociative Disorders Program at Department of Psychiatry and <sup>3</sup>Department of Child and Adolescent Psychiatry, Istanbul Medical Faculty, Istanbul University, Istanbul, Turkey

### Abstract

The Adolescent Dissociative Experiences Scale (A-DES) is designed to measure dissociation in adolescents. The present study aimed to assess the reliability, validity, and psychometric characteristics of the Turkish version of the A-DES. The Turkish version of the A-DES was administered to 20 patients with a dissociative disorder, 24 patients with post-traumatic stress disorder (PTSD), 31 patients with anxiety disorder, 31 patients with mood disorder, 24 patients with attention deficit–hyperactivity disorder (ADHD), and 201 non-clinical participants. The internal consistency and the test–retest correlation of the A-DES were excellent. The mean total score of A-DES was 6.2 in dissociative disorder, 3.9 in PTSD, 2.1 in anxiety disorder, 2.4 in mood disorder, 2.5 in ADHD groups and 2.4 in non-clinical participants. There was a statistically significant difference between dissociative patients and other diagnostic groups on the A-DES total score. The good psychometric characteristics of the A-DES among Turkish participants support its cross-cultural validity.

### Key words

adolescence, childhood, dissociation, PTSD, reliability, trauma, validity.

## INTRODUCTION

The clinical literature on adolescents with dissociative disorders (DD) describes them as seriously disturbed and polysymptomatic. They commonly present with depression, anxiety, suicidality, self-mutilation, learning difficulties, auditory hallucinations, aggression and sexual promiscuity. Many have acquired multiple comorbid diagnoses over repeated evaluations, including depression, conduct disorder, borderline personality disorder, attention deficit–hyperactivity disorder, and post-traumatic stress disorder.<sup>1–6</sup>

Although DD usually begins in childhood, less than 3% of the diagnoses of the disorder are made in children under 12, and less than 8% are made in adolescents between the ages of 12 and 19.<sup>7</sup> Differential

diagnosis of DD is complicated in child and adolescent population because of a number of reasons. The low index of suspicion among clinicians due to the lack of a DD category among childhood psychiatric disorders in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV), atypical clinical presentations, a smaller ‘window of diagnosability’ among children than adults, and unawareness of children about their dissociative symptoms and trauma-related memories make a diagnosis difficult. Given the fact that treatment is much more successful in childhood,<sup>7,8</sup> early recognition of the disorder has vital importance.

Various symptom checklists and screening instruments have been developed to aid the clinician in eliciting dissociative symptomatology in adults (e.g. Dissociative Experiences Scale),<sup>9</sup> and in children (Child Dissociative Checklist<sup>10</sup>), and their Turkish versions have been shown to be valid and reliable measures.<sup>11,12</sup> Given the complexity of differential diagnosis during adolescence, a self-reporting adolescent dissociation scale would be helpful in screening for pathological dissociation in disturbed adolescents

Correspondence address: Salih Zoroglu, Gaziantep Universitesi, Tip Fakultesi, Cocuk ve Ergen Psikiyatrisi ABD, 27070, Gaziantep, Turkey. Email: zoroglus@hotmail.com

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in clinical settings. And also in research settings, it would be a useful tool for examining the developmental trajectories of both normal and pathological dissociation during the teen years, being a critical life period.<sup>13</sup>

The purpose of the present study was to test the validity and reliability of the Turkish version of the Adolescent Dissociative Experiences Scale (A-DES) so that it will facilitate studies about childhood DD. Furthermore, Turkish clinicians will have a useful screening instrument to detect pathological dissociation in children.

## METHODS

### About the scale

The A-DES is a screening instrument developed by Armstrong *et al.* in order to detect dissociative behavior in children between 11–17 years of age.<sup>13</sup> In North America, reliability and validity of the A-DES has been demonstrated in two different studies.<sup>13,14</sup> In the present validation study we used the first and current version (version 1) of A-DES.

The A-DES is a 30-item self-report measure. Items are neutrally worded so as not to upset adolescents. The answer response format is a 0–10 scale, anchored at the ends with ‘never’ (0) and ‘always’ (10). The total A-DES score is equal to the mean of all item scores. The subject circles the number that best describes how often a given experience happens. On the title page, respondents are instructed not to count experiences that occur under the influence of alcohol or drugs. Items in the A-DES can be grouped into four domains reflecting basic aspects of dissociation: dissociative amnesia (items 2, 5, 8, 12, 15, 22, 27); absorption and imaginative involvement (items 1, 7, 10, 18, 24, 28); passive influence (items 4, 14, 16, 19, 23); and depersonalization and de-realization (items 3, 6, 9, 11, 13, 17, 20, 21, 25, 26, 29, 30). Within the domain of depersonalization and de-realization, items 3, 9, 21, and 29 reflect dissociated identity and 11, 20, and 26, refer to dissociated relatedness.

The A-DES was first translated into Turkish by three of the authors (SSZ, UT, and HT) independently and a consensus on the translation was then formed. In following, back-translation to English was performed by two instructors in English at University Foreign Language School. The back-translated and original form of the A-DES were evaluated and found to be highly similar regarding meaning and grammar by author Vedat Sar, who had extensive clinical and research experience in DD. A modification was carried out after a pilot study was conducted

on 19 normal subjects, five dissociative identity disorder (DID) and six dissociative disorder not otherwise specified (DDNOS) patients.

### Participants

The subjects who participated in the present study included 20 patients with DD, 24 patients with post-traumatic stress disorder (PTSD), 31 patients with anxiety disorder, 31 patients with mood disorder, 24 patients with attention deficit–hyperactivity disorder (ADHD) and 201 subjects as a non-clinical control group. All diagnoses were made according to DSM-IV criteria.<sup>15</sup>

The dissociative disorder cases were patients who had been diagnosed with DID or DDNOS and were in treatment in the Child and Adolescent Psychiatry Clinics in Istanbul and Gaziantep. All dissociative patients were interviewed at least three times clinically before they were included in the study. All DDNOS cases belonged to the first of the DDNOS types defined in the DSM-IV. This was the ‘predissociative identity disorder’ condition which does not meet the DID criteria exactly, but demonstrates a high degree of similarity in clinical presentations.

In the DD group all patients reported at least one type of childhood abuse and/or neglect or witnessed violence. Sixty percent of the DD cases revealed sexual abuse by a family member or relative, with an age of onset of 5.2 years ( $SD = \pm 1.3$  years) and mean duration of 2.9 years ( $SD = \pm 3.1$  years). In 85 percent of the cases, at least one type of the reported traumatic experience was verified by an observer, or only by the abuser. The mean age of onset for traumatic experiences was 3.2 years ( $SD = \pm 3.4$  years). These patients suffered 3.2 types of categorical traumas in average.

The PTSD patients consisted of 24 adolescents who were survivors of the Marmara Area earthquake (17 August 1999), which caused nearly 24 000 casualties. The subjects were from the cities of Gölcük and Adapazari, the most affected places in the disaster. These adolescents had been admitted to an outpatient clinic 2–3 months after the earthquake, being referred by their therapists because of severe PTSD. Anxiety disorder cases were participants of a research and treatment program in the adolescent outpatient clinic. Thirty-one patients who were diagnosed as having either one or some of separation anxiety disorder, obsessive–compulsive disorder, social phobia, panic disorder and generalized anxiety disorder according to DSM-IV were available for the study. There were 31 participants who had a mood disorder. Twenty of these were diagnosed as having depressive disorder,

and four as having bipolar mood disorder. The ADHD subjects were patients in the Child and Adolescent Psychiatry Department of Gaziantep University. For anxiety and mood disorder and ADHD groups, the subjects who had reported abuse and/or neglect were excluded from the study. The subjects of the non-clinical group were all students of a high school in Istanbul who did not report any psychiatric admission. Among 212 adolescents, 11 were excluded due to a history of psychiatric treatment or inadequate report on the scale. All of the remaining 201 adolescents participated in the study. We did not collect any information on childhood trauma histories in the non-clinical group because the school administration did not approve such an inquiry.

### Procedures

All of the participants were informed that the purpose of the study was to investigate the frequency of the experiences described in the questionnaire and written informed consent was obtained. For all diagnostic groups, the scale was completed during a hospital visit. In school, instructions were read orally and students were assured that participation would be anonymous and voluntary. Instructions for the completion of the measures were read by the students. They completed the A-DES with demographic and socioeconomic data forms that are evaluated in a five-level system, based on the revenue index of the Officer Trade Union of Turkey.

### Data analysis

Non-parametric methods were used in statistical analysis because a number of the groups were small and the frequency of dissociative experiences and disorders in the young population were not known sufficiently. Cronbach's alpha, Guttman split-half and

Spearman–Brown methods were used to measure reliability. Correlations of the items with the item-corrected total score and test–retest reliability were calculated using Spearman rank–order correlations. For test–retest reliability, the scale was performed in a 2-week interval for 29 subjects consisting of different diagnostic groups and controls. Criterion-referenced concurrent validity was tested using Kruskal–Wallis to compare the A-DES scores of different diagnostic groups. Then, pairwise comparisons were made using the Mann–Whitney *U*-test. Bonferroni correction for multiple comparisons was used.

## RESULTS

### Characteristics of demographics and Adolescent Dissociative Experiences Scale scores

The DD group consisted of 13 girls and seven boys and their mean age was 16.0 years (range: 12–17 years). The sociodemographic characteristics of each group, such as number, gender, mean age, age range and average socioeconomic status, are shown in Table 1. There was no significant statistical difference between groups in age ( $\chi^2=7.7$ , d.f.=5;  $P>0.05$ ), or economic level ( $\chi^2=2.4$ , d.f.=5;  $P>0.05$ ). The average monthly income ranged from \$200 to \$400 for all participants.

The mean ( $\pm$ SD) and median scores of the groups were as follows. The DD group: mean, 6.20 ( $\pm$ 1.98); median, 6.60; PTSD group: mean, 3.94 ( $\pm$ 1.54); median, 4.12; anxiety disorders group: mean, 2.13 ( $\pm$ 1.70); median, 1.83; mood disorders group: mean, 2.35 ( $\pm$ 1.37); median, 2.46; ADHD group: mean, 2.52 ( $\pm$ 1.32); median, 2.33; and non-clinical control group: mean, 2.43 ( $\pm$ 1.63); median, 2.06, respectively. Table 2 shows descriptive data of the A-DES and subscales scores. In each of the groups there was no significant difference between boys and girls.

**Table 1.** Sociodemographic characteristics of the participants

Group	<i>n</i>	Age	Gender (F/M)	SES
Dissociative disorder	20	16.0 $\pm$ 1.1	13/7	2.2 $\pm$ 0.4
PTSD	24	15.9 $\pm$ 0.9	13/11	2.1 $\pm$ 0.6
Anxiety disorder	31	16.1 $\pm$ 1.4	17/14	2.5 $\pm$ 0.5
Mood disorder	31	15.8 $\pm$ 1.28	22/9	2.5 $\pm$ 0.7
ADHD	24	15.8 $\pm$ 1.68	6/18	2.6 $\pm$ 0.7
Non-clinical group	201	16.1 $\pm$ 1.21	122/78	2.4 $\pm$ 0.8
Total subjects	331	16.0 $\pm$ 1.32	194/137	2.4 $\pm$ 0.8

F, female; M, male; SES, socioeconomic status; PTSD, post-traumatic stress disorder; ADHD, attention deficit–hyperactivity disorder.

**Table 2.** A-DES and subscales scores in various diagnostic groups

Group	<i>n</i>	Mean ± SD	Median	Range	a	b	c	d
DD	20	6.20 ± 1.98	6.60	3.27–9.87	5.27	6.28	6.36	6.65
PTSD	24	3.94 ± 1.54	4.12	0.73–6.63	3.12	4.52	4.23	3.78
Anxiety disorders	31	2.13 ± 1.70	1.83	0.0–6.93	1.24	2.73	2.16	1.99
Mood disorders	31	2.35 ± 1.37	2.46	0.33–5.40	1.80	3.13	2.54	2.25
ADHD	24	2.52 ± 1.32	2.33	0.67–4.87	1.77	3.24	2.58	2.54
Non-clinical group	201	2.43 ± 1.63	2.06	0.0–8.23	1.83	3.28	2.49	2.25

a, mean score of amnesia subscale; b, mean score of absorption and imaginative involvement subscale; c, mean score of passive influence subscale; d, mean score of depersonalization and derealization subscale; DD, dissociative disorder; PTSD, post-traumatic stress disorder; ADHD, attention deficit–hyperactivity disorder.

**Table 3.** Reliability measures

Group	<i>n</i>	Cronbach's alpha	Guttman split-half	Spearman–Brown.
DD	20	0.80	0.75	0.77
PTSD	24	0.90	0.83	0.84
Anxiety disorders	31	0.93	0.89	0.90
Mood disorders	31	0.88	0.80	0.80
ADHD	24	0.85	0.84	0.86
Non-clinical group	201	0.92	0.86	0.89
Total populations	331	0.93	0.88	0.89

DD, dissociative disorder; PTSD, post-traumatic stress disorder; ADHD, attention deficit–hyperactivity disorder.

### Reliability measures

In a 2-week interval the test–retest reliability coefficient of the A-DES scores was 0.91 ( $n=29$ ;  $P=0.000$ ). Thus, the A-DES score was stable over an interval of 2 weeks. Cronbach's alpha coefficient for all of the population was 0.93; for the DD group it was 0.80; for the PTSD group it was 0.90; for the anxiety disorders group it was 0.93; for the mood disorders group it was 0.88; for the ADHD group it was 0.85 and for the non-clinical control group it was 0.92. Cronbach's alpha coefficients for the subscales were as follows: amnesia, 0.85; absorption, 0.72; passive influence, 0.73; and depersonalization/de-realization, 0.82. Additionally, the Guttman split-half coefficient was 0.88 and the Spearman–Brown coefficient was 0.89 for the whole scale over the total population (Table 3). These coefficients indicate that the A-DES is an internally consistent measure across all test populations.

### Validity measures

Validity is concerned with establishing evidence for the use of a particular instrument in a particular setting with a particular population,<sup>16</sup> and is more dif-

icult to measure than reliability.<sup>10</sup> The first step was to determine if A-DES scores could be accounted for by variables other than group membership. There was a significant negative correlation between A-DES score and age (Spearman's rho = -0.15;  $P=0.012$ ;  $n=331$ ) for all of the subjects. The same was not valid for psychiatric diagnostic groups, but it was valid for the non-clinical control group (Spearman rho = -0.16;  $P=0.028$ ). There was no significant correlation between A-DES scores and socioeconomic status, age and education of parents, and number of siblings. There were no significant gender differences in A-DES scores in the participants overall and in any subgroup.

For the overall study group the Spearman rank-order correlations were calculated between each item and item-corrected A-DES scores to establish partial construct validity of the scale. These coefficients ranged from 0.34 to 0.81 and all correlations reached a significance level of  $P<0.001$ .

Criterion-referenced concurrent validity was tested with Kruskal–Wallis to compare A-DES scores and subscale scores across different groups. The tests yielded for A-DES scores a  $\chi^2$  of 59.8 (d.f.=5,  $P=0.000$ ), for subscale of amnesia a  $\chi^2$  of 48.19 (d.f.=5,  $P=0.000$ ), for subscale of absorption and imaginative

**Table 4.** Post hoc pairwise comparisons by group, Mann–Whitney *U*-test<sup>†</sup> (tie-corrected *Z* score)

	Controls	ADHD	Mood disorder	Anxiety disorder	PTSD	DD
Median	2.06	2.33	2.46	1.83	4.12	6.60
Controls		NS	NS	NS	-4.19**	-6.3**
ADHD			NS	NS	-3.05*	-4.93**
Mood disorder				NS	-3.58**	-5.42**
Anxiety disorder					-3.35**	-5.11**
PTSD						-3.32*

ADHD, attention deficit–hyperactivity disorder; PTSD, post-traumatic stress disorder; DD, dissociative disorder.

\* $P < 0.003$ ; \*\* $P < 0.001$ ; NS, not significant ( $P > 0.003$ ).

<sup>†</sup>The adapted level of alpha is  $P = 0.003$  when the Bonferroni method is applied.

involvement a  $\chi^2$  of 35.33 (d.f. = 5,  $P = 0.000$ ), for subscale of passive influence a  $\chi^2$  of 53.2 (d.f. = 5,  $P = 0.000$ ), and for subscale of depersonalization/de-realization a  $\chi^2$  of 54.3 (d.f. = 5,  $P = 0.000$ ). Post hoc pairwise comparisons were then performed with Mann–Whitney *U*-test for A-DES scores with Bonferroni correction, yielding the results in Table 4. Each one of the DID and PTSD groups is different from the others. Similarly, each one of the anxiety disorders, mood disorders, ADHD and non-clinical control groups is significantly different from the other groups, although they do not differentiate across each other.

## DISCUSSION

This is the first study outside of North America to compare adolescent subjects of DD with other diagnostic categories using the A-DES. The results of the present study provide support for the reliability and validity of the Turkish version of the A-DES. The high split-half reliability and Cronbach's alpha provide evidence that the measure has good internal consistency. Furthermore, high test–retest reliability indicates that the A-DES is able to measure consistently over time.

In previous studies the mean score of A-DES was determined to be the following:<sup>1–3,6,13,14</sup> DD group, 4.9; sexual abuse group, 3.4; physical and sexual abuse group, 3.7; mood disorder group, 2.2; PTSD group, 3.7; non-abused group, 2.1. The present study found similar mean scores for DD (6.2), PTSD (3.9), anxiety disorder (2.1), mood disorder (2.4), ADHD (2.5) and non-clinical (2.4). The A-DES was also able to discriminate between DD patients from various diagnostic groups and controls from the point of pathological dissociation. All four subscales of the A-DES were able to differentiate the DD group from the others.

In two previous studies wherein the reliability and validity of the A-DES were demonstrated, Cronbach's alpha was 0.93 and 0.89 and the test–

retest reliability coefficient was 0.73.<sup>13,14</sup> In the present study Cronbach's alpha was 0.93 and the test–retest reliability coefficient was 0.91. Therefore, the present study has produced highly similar scores for DD and other psychiatric disorders and control groups compared with those obtained in previous studies conducted in North America.

Although the gender distribution was different in the groups, there was no significant difference in the A-DES scores between genders in all of the groups in the present and previous studies. In the present study we found that A-DES scores were negatively correlated with age significantly as a whole and in the control group. In the other diagnostic groups this relationship was not found. This findings replicate those of several studies in which it was indicated that level of dissociation decreases with age.<sup>1,10,12,17</sup>

It has been demonstrated that a combination of measures of general dissociativity and peritraumatic dissociation (i.e. report of dissociative symptoms in the immediate traumatic context) proximal to a traumatic event, increases the tendency of an individual to subsequent development of PTSD. Putnam found that patients with PTSD score higher than patients without PTSD on dissociation measures, and one-half of PTSD patients have significant dissociation as much as patients with DD.<sup>1,18</sup> A situation accordant with the previous studies, the present PTSD patients have scores that are significantly higher than that of other diagnostic groups and controls, and lower than that of the DD group.

The nature and severity of dissociative experiences of patients with DD in Turkey assessed with the A-DES are similar to that of cases reported in North America. The similarity of our data, derived from a population that has more difficulty in reaching psychiatric care (due to poverty, lack of education and insurance, and lower availability of psychiatrists), less public awareness of DD, and no exposure to systemic

psychotherapy, to findings in North America clearly demonstrates that DD cannot be considered as a simple iatrogenic artifact, a culture-bound syndrome or a phenomenon induced by media influences. We conclude that pathological dissociation might occur across different parts of the world and develop in similar settings. If the A-DES does prove to be reliable and valid upon several population and cultures, it may be useful for several purposes across the world. Because A-DES was designed to measure dissociation in several different areas of normative dissociative phenomena such as dissociative amnesia, depersonalization, de-realization, and absorption, researchers may be able to use the scale to study normative processes in the adolescent population as a means of understanding various aspects of adolescent cognitive and emotional development and consciousness. Furthermore, The A-DES might be useful as a screening measure in some settings to identify those adolescents who are experiencing high levels of dissociation and might aid clinicians by helping to detect psychological symptoms that may be related to abuse or trauma histories.

In conclusion, our data demonstrate that the Turkish version of the A-DES is a reliable measure with good stability over a 2-week test-retest interval and with excellent internal consistency. The A-DES readily differentiates subjects diagnosed with DD from controls and from other diagnostic groups. Moreover, the scores of DD cases and those of other groups were similar to the findings reported in North America.

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