

# Validity and Reliability of the Turkish Version of DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form

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## ABSTRACT

Validity and Reliability of the Turkish version of DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form

**Objective:** This study aimed to assess the validity and reliability of the Turkish version of DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form.

**Method:** The scale was prepared by carrying out the translation and back-translation of DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form. Study group consisted of 30 patients that have been treated in a child psychiatry clinic and diagnosed with posttraumatic stress disorder and 40 healthy volunteers that attended middle or high school at the study period. For the assessment, Child Posttraumatic Stress Reaction Index was also used along with DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form

**Results:** Regarding reliability analyses, Cronbach alpha coefficient for internal consistency was calculated as 0.918 while item- total score correlation coefficients ranged 0.595-0.837. Test-retest correlation coefficient was calculated as  $r=0.651$ . Concerning construct validity, one factor that could explain 67.7% of the variance was obtained. With respect to concurrent validity, the scale showed a high correlation with Child Posttraumatic Stress Reaction Index.

**Conclusion:** It was concluded that Turkish version of DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form could be used as a valid and reliable tool both in clinical practice and for research purposes.

**Keywords:** DSM-5, reliability, Severity of Acute Stress Symptoms—Child Age 11–17, validity



## ÖZET

DSM-5 Akut Stres Belirtileri Şiddet Ölçeği - Çocuk Formu Yaş 11-17'nin Türkçe güvenilirliği ve geçerliliği

**Amaç:** Bu çalışmada DSM-5 Akut Stres Belirtileri Şiddet Ölçeği Çocuk Formu'nun Türkçe sürümünün güvenilirliği ve geçerliliğinin çalışılması amaçlanmıştır.

**Yöntem:** DSM-5 Akut Stres Belirtileri Şiddet Ölçeği - Çocuk Formu Yaş 11-17'nin çevirisi ve geri çevirisi yapılarak ölçek hazırlanmıştır. Araştırma grupları çocuk psikiyatri kliniğinde tedavi gören ve travma sonrası stres bozukluğu tanısı alan 30 hasta ile ortaokul ve lise öğrencilerinden oluşan 40 sağlıklı gönüllüden oluşmaktadır. Değerlendirmede DSM-5 Akut Stres Belirtileri Şiddet Ölçeği Çocuk Formu Yaş 11-17'nin yanı sıra Çocuk ve Gençler için Travma Sonrası Stres Tepki Ölçeği kullanılmıştır.

**Bulgular:** Güvenilirlik analizlerinde Cronbach alfa iç tutarlılık katsayısı 0.918 ve madde - toplam puan bağıntı katsayıları 0.595 ile 0.837 arasında saptanmıştır. Test - yeniden test bağıntı katsayısı  $r=0.651$  olarak hesaplanmıştır. Yapı geçerliliğinde varyansın %67.7'sini açıklayan bir faktör elde edilmiştir ve ölçeğin orijinal yapısı ile uyumludur. Birlikte geçerlilikte Çocuk ve Gençler için Travma Sonrası Stres Tepki Ölçeği ile yüksek düzeyde bağıntı göstermiştir.

**Sonuç:** DSM-5 Akut Stres Belirtileri Şiddet Ölçeği - Çocuk Formu Yaş 11-17'nin Türkçe sürümünün hem klinik uygulamada hem araştırmalarda güvenilir ve geçerli biçimde kullanılabileceği gösterilmiştir.

**Anahtar kelimeler:** DSM-5, güvenilirlik, Akut Stres Belirtileri Şiddet Ölçeği-Çocuk Formu Yaş 11-17, geçerlilik

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## INTRODUCTION

It is known that psychological traumas are frequently observed in children and adolescents, and posttraumatic stress disorders experienced by these age groups attract much attention in terms of both research and clinical perspectives(1-3). The Acute Stress Disorder (ASD) on the other hand, which was defined as an explicit category in the Diagnostic and Statistical Manual of Mental Disorders -4th Edition (DSM-IV), has been relatively less researched especially in younger groups (4). ASD is generally defined as development of anxiety, dissociative, and other symptoms that are observed within one month of encountering an extreme traumatic stress source. The symptoms in ASD should arise and disappear between 2-30 days. If the symptoms persist even after the first 30 days, the diagnosis is changed to Post Traumatic Stress Disorder (PTSD) (5). Defining ASD diagnosis as an explicit category has also been useful to predict traumatized individuals with a high risk of developing PTSD and to start the treatment earlier (6). Due to the frequent occurrence of traumatic experiences in recent years and the frequent exposure of children to trauma, reliable and valid tools to be used on children are needed. The scales whose validity and reliability have been approved in our country are Child and Adolescent Posttraumatic Stress - Reaction Index (CPTS-RI), Clinician administered PTSD scale for Children and Adolescents, and Schedule for Affective Disorders and Schizophrenia for School Age Children- Present and Lifetime Version. These three scales are based on DSM-III, DSM-III-R and DSM-IV PTSD diagnostic criteria (7-9).

DSM, the most common system used in the categorization of psychiatric illnesses and disorders, published and regularly renewed by the American Psychiatric Association, has been published as the fifth edition. Trauma related disorders have been separated from the anxiety disorders category and a new category has been defined as "Trauma and stressor related disorders". In addition to ASD and PTSD, reactive attachment disorder and disinhibited social engagement disorder are included in this category (10). ASD

diagnostic criteria have gone through some alterations with DSM-5. Generally speaking, ASD's A and B diagnostic criteria have been defined more clearly and detailed. With the adjustments made in the A diagnostic criterion it is emphasized that not only the direct exposure, but indirect exposure to trauma can cause the related disorder as well. For the B diagnostic criterion, the symptoms that arise after the trauma have been separated and detailed by being defined in groups ("intrusion", "negative mood", "dissociative", "avoidance", and "arousal"). Another difference of DSM-5 from DSM-IV is, defining the time criterion for ASD not "minimum 2", but instead "minimum 3 days and persisting at most 1 month" (5,10).

Defining the PTSD diagnostic criteria in DSM-5 classification, separate criteria have been described for the children below 6 years old. The same separation was not made for ASD diagnostic criteria. But specific mentions of how these symptoms manifested in children were made in the definition of symptoms. Intrusion symptoms appear as repetitive play where the traumatic events are covered, ambiguous nightmares, and reenactment of the trauma in the play. In the case of young children, frightful reactions during exposure and reenactment are not required. Although the children tend to avoid situations that remind the trauma, clinical appearance might manifest in the form of dealing with reminding situations (10). In a study, each ASD symptom was described by 14% - 51% of children and adolescents. Impairment was reported by 41.4% of the cases. Avoidance of thoughts, conversations, or feelings (51.4%), altered sense of reality (42.5%), intrusive distressing memories (40.6%) have been reported to be the most common symptoms (11).

With the release of DSM-5 in 2013, new scales have been needed in both field research and daily psychiatric practice, for determining the severity of the illnesses and also monitoring the progress; and new assessment tools adapted to the new DSM-5 criteria were proposed for many psychiatric illnesses (12).

DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" is a 7-item self-report measure that assesses the severity symptoms of acute stress disorder

in children and adolescents. Another self-report measure whose validity and reliability has been approved in our country is Child and Adolescent Posttraumatic Stress Reaction Index. Posttraumatic Stress Reaction Index is a 20-item scale. It has been developed in correlation with DSM-III criteria. It is used for PTSD diagnosis as well (7). "Severity of Acute Stress Symptoms—Child Age 11–17" scale's uniqueness to ASD, being based on DSM-5 diagnostic categorization, its brevity and easily applicable nature are some of the superior features.

In this study, the goal is to demonstrate the reliability and the validity of the Turkish version of the "Severity of Acute Stress Symptoms—Child Age 11–17" scale.

## METHOD

For the Turkish language adaptation of the DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form, at first, the necessary permissions were obtained by HYB Publishing and Boylam Psychiatric Institution, owner of the translation and publishing rights of DSM-5 in Turkey. Translation process was performed by three psychiatrists (pediatric and adult). Once the translation has been checked and agreed on, it was translated back into English. Comparing this translation with the original scale, it was checked whether the terms used fit the concept. After it was approved, the scale's text was composed.

## Sample Group

The patients in Celal Bayar University Child Psychiatry outpatient clinic and healthy volunteers formed the study sample. The group with the higher psychiatric risk was composed of 30 adolescent patients at ages ranging 11-17 who have been diagnosed with DSM-5 posttraumatic stress disorder. Since ASD's main symptoms of ("Intrusion", "negative mood", "dissociative", "avoidance", and "arousal") are among PTSD symptoms as well, the clinical case group was formed by the patients followed up for PTSD. The diagnoses of the case

group were made by clinical interview based on DSM-5 criteria. Inclusion criteria were: being at ages 11-17, having met the DSM-5 diagnostic criteria for Posttraumatic stress disorder, and having the mental capacity to complete the study measures. An exclusion criterion for the study was: having a physical or a neurological illness requiring continuous therapy. The lower psychiatric risk sample was formed by middle and high school children. In order to have a sufficient sample size for the statistics, the sample group should be composed of subjects at least 5-10 times of items in the measure. The number of healthy student group was determined to be 40. Inclusion criteria for the control group were; being at the ages of 11-17, not meeting any mental or physical illness diagnosis criteria, and having the cognitive capacity to complete the study measures.

The ethics committee approval of the study was obtained from the Clinical Investigations Evaluation Committee of the Celal Bayar University Faculty of Medicine. The child and his/her parents who agreed to participate in the study were informed in and provided written informed consent form.

## Measures

DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17": This is a 7-item measure that assesses the severity symptoms of acute stress disorder in children ages 11–17 following an extremely stressful event or experience. The measure was designed to be completed by the child upon receiving a diagnosis of acute stress disorder (or clinically significant acute stress disorder symptoms) and thereafter, prior to follow-up visits with the clinician. Each item asks the child to rate the severity of his or her acute stress disorder during the past 7 days. The total score can range from 0 to 28, with higher scores indicating greater severity of acute stress disorder.

**Child/Adolescent Posttraumatic Stress - Reaction Index (CPTS-RI):** It has been developed by Pynoos et al. (13) to measure the severity of

posttraumatic stress disorder symptoms. CPTS-RI is a 20-item Likert scale designed to assess the stress reactions of children and adolescents after various traumatic experiences. The measure can be administered by the clinician or completed by the child as well. The total score indicates the severity of the PTSD symptoms: 12-24 mild, 25-39 moderate, 40-59 severe and above 60 being very severe. It has been shown that scores above 40 are correlated with a clinical PTSD diagnosis. The study of the reliability and the validity of the Turkish version was done by Erden et al. (7). In this study, the self-report version of the measure was used.

### Statistical Analyses

In the statistical evaluation, at first, to ensure there are no differences between the study groups from a clinical or a sociodemographic perspective, t-test was applied to numerical variables and Chi-square test to categorical variables. Pearson Chi-square test was applied to compare the categorical variables and Pearson correlation coefficients were calculated to determine strength and direction of the relation between the numerical variables. In all analyses,  $p < 0.05$  was taken as the threshold value for statistical significance.

In reliability analysis, Cronbach's alpha coefficients of the scale were calculated to evaluate internal consistency. Furthermore, the scale's reliability was revealed through its item-total score correlation coefficients.

In the study, 24 healthy subjects were administered the DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Scale a second time 2 weeks after the first administration and the test-retest correlation coefficients were used to establish the consistency of the test over the time.

For the construct validity of the scale, the data from all the study groups were utilized to set both an exploratory and a confirmatory factor analysis. First, Kaiser-Meier-Olkin Test and Bartlett Test were used to evaluate the sample's adequacy for the exploratory factor analysis. Exploratory factor

analysis was executed in accordance with the Principal Component Analysis procedure, utilizing Varimax Orthogonal Rotation and considering factors whose eigenvalues were greater than 1. Only items that had factor loadings greater than 0.4 have been included in further factor analysis. Exploratory factor structure was compared with the scale's original dimensional structure. In the case of the confirmatory factor structure, during the assessment of model suitability and the data's consistency model, different types of "goodness-of-fit" indexes were used (root mean square error of approximation [RMSEA] and comparative fit index [CFI]). RMSEA is an absolute fit index. An RMSEA value below 0.05 indicates a good fit, while 0.05-0.08 indicates an acceptable fit, 0.08-0.1 indicates a poor fit and a value above 0.1 indicates an unacceptable fit. CFI can vary between 0 and 1; and should be greater than 0.9. Furthermore, the correlation between DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form and CPTS-RI was examined in terms of concurrent validity.

## RESULTS

The study was conducted on 30 patients with posttraumatic stress disorder who referred to the CBU Child Psychiatry outpatient clinic, and 40 healthy volunteers. The sociodemographic and clinical characteristics of the study groups are shown in Table 1.

### Reliability Analyses

To assess reliability of DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17", internal consistency analysis was conducted using Cronbach alpha scores. Cronbach alpha was 0.918. Cronbach alpha for each item is shown in Table 2. Item-total score correlation coefficients ranged 0.595-0.837 (Table 2). Test-retest reliability was determined among the 24 volunteers and the correlation coefficient between the two-week applications were determined to be  $r = 0.651$  ( $p < 0.001$ ).

**Table 1: Sociodemographic data of the study group**

	PTSD Group (n=30)		Control Group (n=40)		p
	n	%	n	%	
Age (Mean±SD)	14.96±2.40		15.90±0.85		0.061
<b>Gender</b>					
Female	29	96.7	33	82.5	0.067
Male	1	3.3	7	17.5	
<b>Educational status</b>					
Ongoing	16	53.3	40	100.0	<0.001
Discontinued	14	46.7	0	0.0	
<b>Scores of the applied scales (Mean±SD)</b>					
DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Total Score	16.9±6.8		7.1±7.4		<0.001
Child/Adolescent Posttraumatic Stress Reaction Index Total Score	40.2±14.7		15.6±17.8		<0.001
<b>Duration of the disease</b>					
Newly diagnosed	1	3.3			
1-6 months	24	80.0			
Longer than 6 months	5	16.7			
<b>Administered</b>					
Antidepressant	25	83.3			
Antipsychotic	6	20.0			
Benzodiazepine	0	0.0			

PTSD: Posttraumatic stress disorder

**Table 2: "Severity of Acute Stress Symptoms—Child Age 11–17" Form item-Total score correlation coefficients, Cronbach alpha coefficients, factor loadings**

	Item-Total score correlation coefficients	Cronbach alpha coefficients	Factor loadings
ASS1	0.791	0.901	0.860
ASS2	0.837	0.896	0.896
ASS3	0.727	0.907	0.807
ASS4	0.792	0.901	0.857
ASS5	0.789	0.901	0.849
ASS6	0.595	0.921	0.681
ASS7	0.716	0.909	0.792

ASS: Acute Stress Symptoms

### Validity Analyses

Exploratory Factor Analysis was applied to the DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form to prove its construct validity. Prior to the Exploratory Factor Analysis, the Kaiser-Meyer-Olkin analysis applied in order to evaluate the sample's adequacy for the exploratory factor analysis, which yielded a coefficient of 0.895. Chi-square was calculated as 327.785 in the Bartlett Test ( $p < 0.001$ ). These findings indicated that the factor model was

**Table 3: DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form single factor confirmatory factor analysis results**

"Goodness-of-fit" indexes	DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Scale Child Form goodness-of-fit values
CFI*	0.964
RMSEA**	0.10

\*CFI: Comparative fit index, \*\*RMSEA: Root mean square error of approximation

suitable. In the factor analysis, a factor with an eigenvalue greater than 1 was obtained; eigenvalue was 4.379, accounting for 67.7% of the total variance (Table 2).

In the confirmatory factor analysis aiming to prove the scale's construct validity, the sample group's distribution was examined. In the confirmatory factor analysis, the calculated CFI and RMSEA values for the model constructed to fit the scale's one dimensional structure were 0.964 and 0.1, respectively (Table 3).

In the concurrent validity analysis of the DSM-5 "Severity of Acute Stress Symptoms—Child Age 11–17" Form and the CPTS-RI, the correlation coefficient was  $r = 0.785$  ( $p < 0.001$ ).

## DISCUSSION

In this study, the reliability and the validity of the Turkish Version of DSM-5 “Severity of Acute Stress Symptoms—Child Age 11–17” Form was examined and the Turkish version was proven to be applicable.

CPTS-RI is a 20-item Likert scale developed to assess the stress reactions of children and adolescents after various traumatic experiences. It has been shown to have an internal consistency coefficient of 0.75 and a test-retest correlation coefficient of 0.86 (7). In our study, the DSM-5 “Severity of Acute Stress Symptoms—Child Age 11–17” Form produced an internal consistency of 0.918 and its item-Total score correlation coefficients were determined to be 0.595–0.837 ( $p < 0.001$ ). This is accepted as a high correlation and a very high internal consistency. It indicates competency of the scale’s structure in representing the whole and that the items in the scale are complementary. Item-Total score correlation coefficients were determined to be high as well, proving the scale’s construct validity. Test-retest correlation coefficient was  $r = 0.651$  ( $p < 0.001$ ). Therefore, it is highly correlated and statistically significant. Considering these findings, it is determined that the scale can be reliably used.

Exploratory factor analysis was applied to the “Severity of Acute Stress Symptoms—Child Age 11–17” Scale. In our study, the factor analysis produced a factor with an eigenvalue greater than 1. This factor’s eigenvalue is 4.379, accounting for 67.7% of the total variance and fits the scale’s original structure. The conceptualization of acute stress symptoms in a one-factor structure ensures the scale’s high specificity to the set of acute stress disorder symptoms. Thus, the clinician will have obtained clear data, free from confounding factors, regarding the severity of the acute stress symptoms. The use of this scale will make it easier for the clinician to monitor the acute stress disorder severity. The second application in assessing the construct validity is the confirmatory factor analysis, where we examined the model suitability of the scale’s dimensional structure. It was observed that the scale’s dimensional structure fit the

model. Considering these findings, we can deduce that the scale has very high construct validity.

In the concurrent validity analysis, the scale’s correlation with the CPTS-RI was examined and was determined to be highly correlated ( $r = 0.785$ ,  $p < 0.001$ ). This result supports the scale’s validity.

Both the construct validity and the concurrent validity of the scale support the assumption that it can be validly practiced.

The primary limitation of this study is the relatively small number of the sample group formed by patients referred in a limited time period. Another limitation in the study is that, we have not performed a clinical interview, designed for a diagnostic research, on the control group. Additionally, the difference between the patient group and the control group in terms of education level should be taken into account when evaluating the differences obtained from the comparative analysis of the items in the measure. Though, all of the statistical analyses, in line with the study goals, could be performed in full using the given sample group. The advantage of the study on the other hand, was that the sample group represented the patients; therefore clinical applicability of the scale was revealed.

In conclusion, these findings prove the reliability and the validity of the Turkish version of DSM-5 “Severity of Acute Stress Symptoms—Child Age 11–17” Scale to use both in clinical practice and for research purposes.

Contribution Categories	Name of Author
Development of study idea	O.A., E.K., S.Y.S.
Methodological design of the study	O.A., E.K., S.Y.S.
Data acquisition and process	D.E., D.K., N.S.C., M.O.
Data analysis and interpretation	O.A., S.Y.S., H.O.E.
Literature review	S.Y.S., H.O.E., M.O., D.E., N.S.C., D.K.
Manuscript writing	S.Y.S., H.O.E., O.A.
Manuscript review and revision	O.A., E.K., S.Y.S., H.O.E., D.E., N.S.C., D.K., M.O.

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