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Disruptive Behavior Disorders Rating Scale: Turkish Adaptation, Validity and Reliability Study

Yıkıcı Davranış Bozuklukları Değerlendirme Ölçeği: Türkçe Uyarlama, Geçerlik ve Güvenirlik Çalışması

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ABSTRACT

Objective: The aim of this study was to adapt the Disruptive Behavior Disorders Assessment Scale into Turkish and to perform validity and reliability analyzes for the evaluation of disruptive behavior disorders in children and adolescents.
Method: To evaluate the construct validity of the scale, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were applied. With AFA, the underlying factor structure of the scale items was examined; the accuracy of the obtained model was tested with DFA.
Results: As a result of AFA, a four-factor structure was determined and this structure was confirmed by CFA. The scale consists of 42 items in total. The total variance explained by the Disruptive Behavior Disorders Rating Scale is 54.95%. The scale was applied to a sample group of 480 people. The overall Cronbach Alpha coefficient of the scale was found to be .91. The internal consistency coefficients of the subscales ranged from .71 to .88. The lowest score that can be obtained from the scale is 0, and the highest score is 126. High scores indicate that the symptoms of disruptive behavior disorders are more intense in the individual.
Conclusion: Disruptive Behavior Disorders Assessment Scale is a valid and reliable measurement tool that can be used to evaluate disruptive behavior disorders in children and adolescents.
Keywords: Conduct disorder, attention deficit hyperactivity disorder, validity, reliability, oppositional defiant disorder, disruptive behavior disorders, scale adaptation

ÖZ

Amaç: Bu çalışmada, çocuk ve ergenlerde yıkıcı davranış bozukluklarının değerlendirilmesine yönelik olarak Yıkıcı Davranış Bozuklukları Değerlendirme Ölçeği'nin Türkçeye uyarlanması, geçerlik ve güvenirlik analizlerinin yapılması amaçlanmıştır.
Yöntem: Araştırmada ölçeğin yapı geçerliliğini değerlendirmek amacıyla açımlayıcı faktör analizi (AFA) ve doğrulayıcı faktör analizi (DFA) uygulanmıştır. AFA ile ölçek maddelerinin altında yatan faktör yapısı incelenmiş; elde edilen modelin doğruluğu DFA ile test edilmiştir.
Bulgular: Yapılan AFA sonucunda dört faktörlü yapı belirlenmiş ve bu yapı DFA ile doğrulanmıştır. Ölçek toplamda 42 maddeden oluşmaktadır. Yıkıcı Davranış Bozuklukları Değerlendirme Ölçeği'nin açıkladığı toplam varyans %5,95'tir. Ölçek, 480 kişilik bir örneklem grubuna uygulanmıştır. Ölçeğin genel Cronbach alfa katsayısı ,91 olarak bulunmuştur. Alt ölçeklerin iç tutarlılık katsayıları ,71 ile ,88 arasında değişmektedir. Ölçekten alınabilecek en düşük puan 0, en yüksek puan ise 126'dır. Yüksek puanlar, bireyde yıkıcı davranış bozukluklarına ilişkin belirtilerin daha yoğun olduğunu göstermektedir.
Sonuç: Yıkıcı Davranış Bozuklukları Değerlendirme Ölçeği çocuk ve ergenlerde yıkıcı davranış bozukluklarını değerlendirmede kullanılabilecek geçerli ve güvenilir bir ölçme aracıdır.
Anahtar sözcükler: Davranış bozukluğu, dikkat eksikliği ve hiperaktivite bozukluğu, geçerlik, güvenirlik, karşıt olma karşıt gelme bozukluğu, yıkıcı davranış bozuklukları, ölçek uyarlama

Introduction

Disruptive Behavior Disorders refer to a group of conditions characterized by persistent patterns of conflict between children and their peers, family members, or authority figures. This group includes diagnoses such as Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD). These disorders are categorized under the section "Disruptive, Impulse-Control, and Conduct Disorders" in the DSM-5 and are characterized by behaviors involving defiance, noncompliance, anger, rule-breaking, aggression, and, in some cases, illegal activities (APA 2013).

ADHD is a chronic neurodevelopmental disorder that manifests through symptoms of inattention and/or hyperactivity-impulsivity. Typically emerging before the age of seven, ADHD is often observed in childhood and may persist into adulthood, although its etiology remains not fully understood (Anderson et al. 2012). ADHD is

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categorized into three subtypes: Predominantly Inattentive Type (e.g. difficulty completing tasks, careless mistakes, frequent loss of belongings);Predominantly Hyperactive/Impulsive Type (e.g. excessive motor activity, difficulty remaining seated, interrupting others), and; Combined Type, where both symptom domains are present. Given its significant impact on academic, social, and occupational functioning, early diagnosis and intervention are of critical importance (APA 2013). As noted by Hautmann et al. (2009), failure to implement appropriate interventions for ADHD can lead to chronic problems and the development of disruptive behavior issues. This not only affects the child's development but may also result in serious societal consequences in adulthood, such as poor social relationships, academic underachievement, substance use, and violence in close relationships.

According to the DSM-5, Oppositional Defiant Disorder (ODD) is characterized by a persistent pattern-lasting at least six months-of age-inappropriate, negative, hostile, and defiant behaviors. In contrast, Conduct Disorder (CD) involves more severe and goal-directed behaviors that violate the basic rights of others and breach major age-appropriate societal norms or rules (APA 2013).

Disruptive behavior problems constitute a significant reason for referrals to child mental health services. These issues not only affect the individual but also lead to functional impairments in family dynamics, school environments, and broader society (Burt et al. 2018; Thompson and Ni Bhrolchain 2013). Commonly observed during preschool and early school years, these disorders cause a variety of challenges in children's home and school lives, such as difficulties following rules, problems with peer relationships, conflicts with authority figures, learning difficulties, and behavioral maladjustment (Loona and Kamal 2011).

Studies indicate that approximately 4.6% of children aged 3-17 have a history of Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD), while 3.5% continue to experience similar behavioral problems (Perou et al. 2013). According to a meta-analysis of various studies, both aggressive and non-aggressive behaviors in boys are associated with an increased risk of engaging in violent and non-violent criminal activities during adolescence (Broidy et al. 2003). Additionally, ADHD is widely recognized as a strong predictor for the development of both ODD and CD (Loeber 1990). Behavioral disorders are reported to be more prevalent among boys than girls, with diagnostic ratios commonly ranging between 3/1 and 4/1 (Loeber et al. 2000).

While behaviors such as externalizing, aggression, and rule-breaking can be considered part of typical developmental processes, persistent and excessive disruptive behavior patterns may negatively affect children's functioning and lead to long-term problems. For instance, a seemingly minor conflict-such as a parent requesting a child to clean their room and the child refusing-can evolve into a reinforcement of negative behavior if the parent gives in. In such cases, interventions that strengthen the parent-child relationship, reinforce appropriate behaviors, and support consistent discipline practices become increasingly important.

Given the high comorbidity of disruptive behavior disorders, careful assessment and diagnosis are essential. To ensure the accuracy of such diagnoses, it is crucial that the assessment tools used are both reliable and valid. Therefore, the adaptation of assessment instruments into different languages requires not only direct translation but also cultural and conceptual adaptation. The process of adapting a scale from one language to another involves more than linguistic translation-it necessitates a comprehensive adaptation process. Typically, this includes forward-backward translation procedures, expert reviews, and pilot testing. Beaton et al. (2000) emphasize that "items should not only be linguistically translated, but also culturally adapted to preserve the conceptual content validity of the instrument." In other words, items should be modified so they convey the same meaning across different cultural contexts, and the new version must then be subjected to detailed statistical validation procedures.

In the field of social sciences, Exploratory Factor Analysis (EFA) is a frequently used statistical method for scale development and adaptation, aiming to identify latent constructs underlying observed variables. In cases where the theoretical structure of the relationships among items is not clearly definedsuch as the number of factors or item-factor associations-EFA serves as a foundational technique (Orçan, 2018). As the name implies, EFA helps to "explore" the dimensional structure of the data (Hayton et al. 2004).

In contrast to EFA, Confirmatory Factor Analysis (CFA) is applied when there is a strong theoretical model to test whether the proposed factor structure fits new data. Within scale development processes, it is recommended to apply CFA to test the validity of the factor structure previously identified through EFA (Worthington and Whittaker 2006). However, the implementation of CFA in adaptation studies varies: some studies apply both EFA and CFA, while others rely solely on CFA (Orçan 2018). In adaptation, it is crucial to determine whether the factor structure of the original scale can be reproduced consistently in the new context. Furthermore, internal consistency coefficients (e.g. Cronbach's alpha) and composite reliability indices should be calculated. Item-total

correlations should be examined, and criterion-related validity should be assessed by analyzing correlations with other validated instruments (Cortina 1993, Streiner 2003).

Parent-report rating scales are commonly used to assess the presence and severity of symptoms. For instance, the Child Behavior Checklist (CBCL) and the Strengths and Difficulties Questionnaire (SDQ) are widely used tools adapted into Turkish for evaluating children's mental health status (Güvenir et al. 2008, Diken et al. 2009). The Disruptive Behavior Disorders Rating Scale (DBDRS) is distinct from other behavioral assessment tools due to its specific focus on disruptive behaviors and its examination of home–school behavioral discrepancies. Based on parent reports, the scale is widely used in clinical screenings to assess the severity of symptoms related to ADHD, Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD).

The DBDRS has been adapted for international use. For instance, the scale has been successfully translated and validated in countries such as the Netherlands, South Korea, Pakistan, Georgia, and Nigeria (Oosterlaan et al. 2000, Ofovwe and Ofovwe, 2010, Loona and Kamal 2011, Bzhalava and Inasaridze 2017). More recently, Fosco et al. (2023) examined the scale's factor structure and measurement validity across different age and gender groups, offering updates to improve its applicability. These studies collectively demonstrate that the DBDRS is a reliable and culturally adaptable instrument for assessing disruptive behavior problems in children across various cultural contexts. Caregivers play a critical role in identifying behavioral issues in children. Therefore, adapting such scales to the Turkish cultural context is expected to provide significant contributions to early diagnosis and intervention.

The purpose of this study is to adapt the DBDRS into Turkish and to conduct validity and reliability analyses. The aim is to enable the rapid, valid, and reliable screening of disruptive behavior disorders in children, thereby facilitating early intervention in both clinical and research settings. The main contribution of this study to the literature is the provision of a culturally adapted, psychometrically robust assessment tool for evaluating disruptive behavior disorders in childhood within Turkey. The research hypothesis posits that the Turkish version of the DBDRS will demonstrate strong validity and reliability.

Method

This study is descriptive in nature and aims to examine the adaptation, validity, and reliability of the Disruptive Behavior Disorders Rating Scale in Turkish. Initially, the scale was translated into Turkish using a forward–backward translation procedure, and linguistic and cultural equivalence was evaluated through expert review. Subsequently, EFA and CFA were conducted to assess construct validity. Reliability was evaluated using Cronbach's alpha coefficients and item–total correlations.

Sample

The inclusion criteria for this study required participants to have a child between the ages of 5 and 12, to voluntarily agree to participate in the research, and not to have any physical or psychiatric disorder that could hinder their participation. Conversely, individuals who did not have a child within the 5–12 age range, who refused to participate, who had a condition preventing participation, or who provided incomplete or inconsistent responses on the scale were excluded from the study. An unequal cluster sampling method was employed. The sample consisted of parents who were actively caring for children aged 5 to 12. Participation was entirely voluntary. The inclusion criteria also required that participants be free from any psychiatric or physical condition that would interfere with their involvement in the study and that they be the primary caregivers of children within the specified age range. Parents who declined to participate or who completed the scale incompletely were excluded from the study. The study sample consisted of a total of 480 parents living in various regions of Turkey, all of whom had children of primary school age. Participants ranged in age from 28 to 53, with a mean age of 38.6. In terms of age distribution, 23.9% were between 28 and 35 years, 49.8% were between 36 and 43 years, and 26.3% were between 44 and 53 years. The majority of participants were female (87.7%), while 12.3% were male. Regarding educational attainment, 4.0% had completed primary school, 2.7% middle school, 20.8% high school, 17.1% held an associate degree, 43.3% had a bachelor's degree, 8.8% had completed a master's degree, and 3.3% had earned a doctoral degree.

An analysis of the gender distribution of the participants' children showed that 46.5% were female and 53.5% were male. Regarding school grade levels, 8.3% of the children were attending kindergarten, 22.3% were in first grade, 15.0% in second grade, 19.0% in third grade, 14.8% in fourth grade, 7.3% in fifth grade, and 13.3% in sixth grade. In terms of the caregiver role, 86.9% of the participants identified as the biological mother, 12.3%

as the biological father, and 0.8% as a foster mother. Descriptive statistics related to the participants are presented in Table 1.

Table 1. Descriptive characteristics of the study group (n=480)	
Variable	**n (%)**
Age	
28–35	115 (23.9)
36–43	239 (49.8)
44–53	126 (26.3)
Gender	
Female	421 (87.7)
Male	59 (12.3)
Educational Level	
Primary school	19 (4.0)
Middle school	13 (2.7)
High school	100 (20.8)
Associate degree	82 (17.1)
Bachelor's degree	208 (43.3)
Master's degree	42 (8.8)
Doctorate	16 (3.3)
Child's Gender	
Female	223 (46.5)
Male	257 (53.5)
Child's Grade Level	
Kindergarten	40 (8.3)
1st Grade	107 (22.3)
2nd Grade	72 (15.0)
3rd Grade	91 (19.0)
4th Grade	71 (14.8)
5th Grade	35 (7.3)
6th Grade	64 (13.3)
Relationship to the Child	
Biological mother	417 (86.9)
Biological father	59 (12.3)
Foster mother	4 (0.8)

Procedure

The necessary ethical approval for conducting this research was obtained from the Sinop University Human Research Ethics Committee (Decision No: 2025/166). The "Disruptive Behavior Disorders Rating Scale" used in this study had not been previously adapted into Turkish. Therefore, in the initial phase of the study, the process of translation and cultural adaptation of the scale was carried out. Relevant permissions were obtained via email from the original developers of the scale.

The original English version of the scale was translated into Turkish by two academics specializing in social work who were part of the research team. Following the initial translation, an evaluation group was formed, consisting of two language experts fluent in both English and Turkish, as well as three practitioners working in the fields of child development, child psychiatry, and social work. This group discussed the semantic integrity, conceptual equivalence, and cultural appropriateness of the translations and made necessary revisions based on their recommendations. With the group's approval, the Turkish form was finalized and then back-translated into English by two independent translators with advanced English proficiency. The back-translations were compared with the original scale to assess content consistency. Meaning shifts and conceptual inconsistencies were identified, and revisions were made on relevant items. This process was carried out meticulously to ensure the Turkish version was valid both linguistically and conceptually. The final Turkish version of the scale was thus established.

The final Turkish form was piloted with a group of 30 parents selected from regions with diverse socioeconomic backgrounds. During the pilot application, the clarity of the items, the time required to complete the form, and the technical functioning were evaluated. Based on feedback from participants, final adjustments to the scale were made. Following these processes, data collection on a larger sample was initiated to evaluate the psychometric properties of the scale.

Data collection took place between May and June 2025. Data were gathered through both online and face-to-face methods. This dual approach was preferred to reach a wider participant pool and to increase access to individuals from varied socioeconomic and cultural backgrounds. Participants were included regardless of region or socioeconomic status. The online data collection utilized a digital form created via Google Forms, which was distributed to participants through social media channels and email. For face-to-face data collection, Guidance and Research Centers in various provinces were visited, and direct interviews were conducted with volunteer parents. Collaboration was maintained with the directors and assistant directors of these centers. Additionally, researchers employed snowball sampling, reaching participants through teachers within their networks.

In the face-to-face data collection phase, practitioners were responsible for distributing the scales to participants and ensuring the forms were completed fully, without directly administering the scales themselves. The study was conducted in accordance with the ethical principles outlined in the Helsinki Declaration, and participant data were securely stored on protected cloud servers.

Although the data collection tools were structured to require complete responses from all participants, some data loss occurred. Out of 600 participants, 120 were excluded due to incomplete responses or failure to meet the inclusion criterion of having a child aged 5-12 years. Therefore, these participants were removed from the dataset. The final sample consisted of 480 participants. The average completion time for the form was approximately 15 minutes. Technical controls were implemented to prevent multiple submissions from the same device, allowing each participant to submit data only once. Throughout the research process, confidentiality and voluntary participation principles were strictly upheld.

Measures

In this study, data were collected using a Personal Information Form and the Disruptive Behavior Disorders Rating Scale.

Personal Information Form

The Personal Information Form was developed by the researchers based on a literature review and consists of questions designed to determine the sociodemographic characteristics of the participants. The form includes information such as the participant's gender, age, education level, marital status, number of children, relationship to the child (i.e. caregiver identity), and the child's age, gender, and grade level.

Disruptive Behavior Disorders Rating Scale

The Disruptive Behavior Disorders Rating Scale (DBDRS) was developed by Pelham et al. (1992) to assess symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD). The scale was created based on DSM-IV diagnostic criteria and aims to measure disruptive behavior disorders in children through parent and teacher evaluations. In this study, the aim was to adapt the updated Turkish version of the scale, revised by Fosco, Babinski, and Waschbusch (2023), and to evaluate its psychometric properties. The current version intends to provide normative data based on caregiver assessments and to re-examine the factor structure of the scale. Unlike the original study, which focused only on teacher reports and male children, the updated version includes assessments for female children and parent reports. Additionally, the symptoms covered by the scale were reviewed and updated according to DSM-5 criteria, with some items removed and content revised.

The Disruptive Behavior Disorders Rating Scale consists of 45 items divided into four subscales. The ADHD-Inattentive subscale includes 9 items related to inattention, the ADHD-Hyperactivity/Impulsivity subscale includes 9 items, the Conduct Disorder subscale contains 16 items, and the Oppositional Defiant Disorder subscale has 8 items. Items are rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (very much). Subscale scores are calculated by averaging the relevant items. Higher scores on the subscales indicate greater severity of the corresponding symptoms. Additionally, the ADHD subscales can be used to evaluate whether diagnostic criteria for Combined Type ADHD are met. If at least six items are marked on the ADHD-Inattentive subscale and at least six on the ADHD-Hyperactive/Impulsive subscale, the child meets the criteria for Combined Type ADHD. The Conduct Disorder subscale covers symptoms related to behaviors such as aggression, property destruction, deceitfulness/theft, and serious rule violations.

Statistical Analysis

The data obtained in this study were analyzed using SPSS version 22. CFA was conducted to test the construct

validity of the scale, and AMOS version 24 software was utilized for the CFA analyses. Various statistical methods were employed to analyze the data collected. Participants' demographic and descriptive information were summarized using descriptive statistics such as frequency, percentage, mean, and standard deviation. To examine the structural validity of the scale, both EFA and CFA were performed. The internal consistency reliability of the scale was evaluated using Cronbach's Alpha. Additionally, the scree plot obtained from the EFA results was examined to determine the number of factors. A significance level of $p < 0.05$ was accepted for all analyses.

Item discrimination was assessed by calculating item-total correlations, with a cutoff value of 0.30 considered acceptable (Clark and Watson, 1995). To evaluate the normality of the data distribution, skewness and kurtosis values were examined; these values were found to range between -1.96 and +1.96, indicating that the data were normally distributed (Tabachnick and Fidell 2007).

EFA was applied to reveal the factor structure of the scale. Prior to EFA, the suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. CFA was then conducted to confirm the factor structure obtained from EFA. All analyses were performed using data collected from parents with children aged 5 to 12 years, in line with the target age group of the original scale adaptation.

The sample size was determined based on the rule of having at least 10 participants per scale item (Hair et al. 2010). For a 45-item scale, a minimum of 450 participants was targeted. The final sample size exceeded the recommended minimum levels for factor analyses, thus deemed statistically adequate. To evaluate model fit in CFA, goodness-of-fit indices such as Chi-square/degrees of freedom ratio (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), and Standardized Root Mean Square Residual (SRMR) were examined.

The internal consistency of the scale was also assessed via Cronbach's Alpha coefficient. Additionally, to support the convergent validity and construct validity of the scale, the Average Variance Extracted (AVE) and Composite Reliability (CR) values were calculated. According to the literature, AVE values above 0.50 and CR values above 0.70 are considered acceptable (Hair et al. 2010; Fornell and Larcker, 1981). However, some studies suggest that AVE and CR values between 0.40 and 0.50 may also be deemed acceptable (Huang et al. 2013).

Results

Exploratory Factor Analysis

In this study, EFA was conducted to determine the factor structure of the Disruptive Behavior Disorders Rating Scale. To assess the suitability of the analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were applied. The KMO value was found to be 0.86, Bartlett's Test yielded a chi-square (χ^2) value of 6415.320 with 861 degrees of freedom (df), and a significance level of $p = .000$. These results indicate that the sample size was sufficient and the data were appropriate for factor analysis (Büyüköztürk 2014).

Principal component analysis with varimax orthogonal rotation was employed in determining the factors, as recommended in the literature (Field 2013). Factors with eigenvalues greater than 1 were retained, and the scree plot was examined. Additionally, the criterion that each factor should explain at least 5% of the total variance was applied. A cutoff value of 0.30 was used for factor loadings.

As a result, four factors consistent with the original scale were identified (Table 2). These factors explained a total of 54.97% of the variance. The factors and their corresponding items are as follows:

1. Inattention/Attention Deficit Symptoms Factor: Comprised items 9, 18, 23, 27, 29, 34, 37, 42, and 44, reflecting difficulties in sustaining and focusing attention.
2. Hyperactivity/Impulsivity Symptoms Factor: Included items 1, 7, 12, 19, 22, 25, 30, 33, and 35, representing excessive motor activity and difficulties with impulse control.
3. Oppositional Defiant Symptoms Factor: Contained items 3, 13, 15, 17, 24, 26, 28, and 39, indicating behaviors of defiance and resistance toward authority.
4. Conduct Disorder Symptoms Factor: Comprised items 6, 20, 31, 32, 36, 40, 45, 16, 41, 4, 8, 43, 2, 11, 38, and 5, encompassing more severe behavioral problems.

Items numbered 10, 14, and 21, which belong to the DSM-3-R diagnostic system, were excluded from scoring according to DSM-IV and DSM-5 criteria, despite remaining in the original scale. This exclusion aligns with the literature and was maintained in the Turkish adaptation to ensure compatibility with current diagnostic standards.

Table 2. Explatory Factor analysis and reliabilty analysis results of the Disruptive Behavior Disorders Rating Scale: item factor loadings and ve item-total correlations

Factor	Item Number	Factor Loadings	Item-Total Correlation
Factor 1 (Inattention / Attention Deficit Symptoms)	37	.841	.714
	44	.817	.710
	42	.802	.693
	29	.759	.687
	23	.753	.657
	34	.695	.642
	9	.647	.632
	27	.568	.561
	18	.526	.522
Factor 2 (Hyperactivity / Impulsivity Symptoms)	33	.751	.744
	35	.722	.711
	30	.681	.654
	12	.637	.613
	22	.618	.596
	25	.593	.578
	19	.507	.498
	1	.376	.365
	7	.322	.311
Factor 3 (Oppositional Defiant Symptoms)	13	.627	.603
	3	.597	.581
	17	.494	.478
	15	.451	.433
	28	.428	.411
	26	.426	.404
	39	.396	.383
	24	.372	.369
Factor 4 (Conduct Disorder Symptoms)	31	.846	.836
	41	.832	.822
	32	.822	.810
	40	.794	.786
	6	.778	.765
	16	.677	.656
	36	.631	.612
	45	.623	.596
	38	.611	.576
	8	.587	.565
	43	.585	.562
	20	.563	.551
	4	.548	.536
	11	.522	.510
	2	.521	.508
	5	.492	.487

As shown in Table 2, some items have factor loadings ranging between 0.32 and 0.37. These items were retained because their item–total correlation coefficients exceeded the predetermined threshold of .30 and they conceptually represent the symptoms that the scale aims to measure. The reliability level of the Disruptive Behavior Disorders Rating Scale was examined using the Cronbach's Alpha coefficient. A total of 42 items were subjected to reliability analysis both as a unidimensional scale and separately across the four identified factors (Table 3).

As evidence of internal consistency, the Cronbach's Alpha reliability coefficient obtained for the scale was calculated as 0.91. Reliability coefficients above 0.70 are considered to indicate high reliability (Özdamar 2013)

and are generally regarded as acceptable (Büyüköztürk 2014). Based on these findings, it can be concluded that the Disruptive Behavior Disorders Rating Scale demonstrates a high level of reliability.

Table 3. Cronbach's alpha level of the Disruptive Behavior Disorders Rating Scale

Scale and Subfactors	Cronbach Alpha
Disruptive Behavior Disorders Rating Scale Total Score	.912
Inattention/Attention Deficit Symptoms	.886
Hyperactivity/Impulsivity Symptoms	.852
Oppositional Defiant Symptoms	.816

Cronbach's Alpha = Internal Consistency of the Scale ≥0.70.

The eigenvalue of the first factor, which explains the highest amount of variance, was 11.426 and accounted for 27.20% of the total variance. The second factor had an eigenvalue of 4.317, explaining 10.28% of the variance. The third factor's eigenvalue was 2.318 and explained 5.52% of the variance. The fourth factor had an eigenvalue of 1.951 and accounted for 3.15% of the variance. Collectively, these four factors explained 54.97% of the total variance in the construct of interest. As explained in the data analysis section, these values fall within the acceptable range as indicated in the literature. Furthermore, the scree plot obtained supports the four-factor structure (Figure 1).

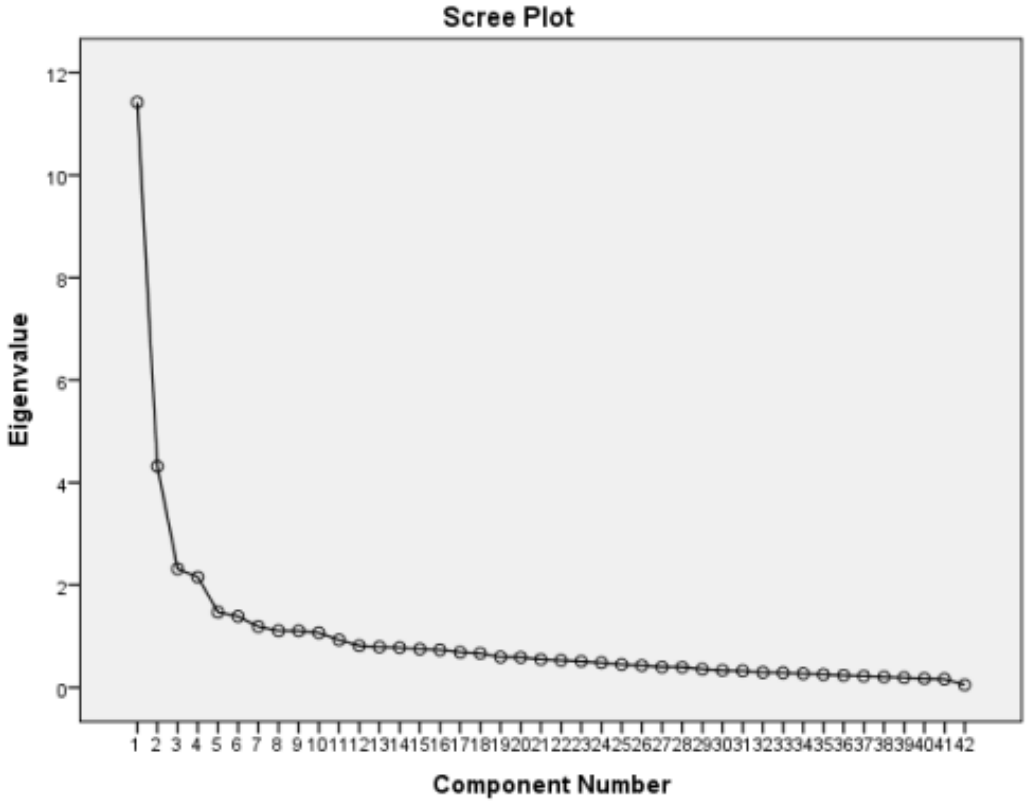

Figure 1. Scree plot obtained from the Exploratory Factor Analysis of the Disruptive Behavior Disorders Rating Scale Data

Confirmatory Factor Analysis

CFA was conducted to verify the factor structure of the Disruptive Behavior Disorders Rating Scale (DBDRS) determined by the EFA. The resulting model is presented in Figure 2. When examining Figure 2, the chi-square (χ^2) and degrees of freedom (df) values obtained from the CFA were $\chi^2 = 246.75$, ($df = 70$, $p < .01$). The χ^2/df ratio being below 3 indicates excellent model fit (Jöreskog and Sörbom, 1993; Sümer, 2000; Kline, 2005). In this study, the fit index χ^2/df was calculated as 3.52. According to the literature, this value is generally considered to represent "good or acceptable fit" within the range of 2–5, while values below 2 indicate "excellent fit" (Tabachnick and Fidell 2007). This result suggests that the model achieves an acceptable level of fit; however, it should be noted that these findings are based solely on this sample and cannot be directly generalized to the broader population. Additional fit indices are presented in Table 4, providing further information to evaluate the model's adequacy.

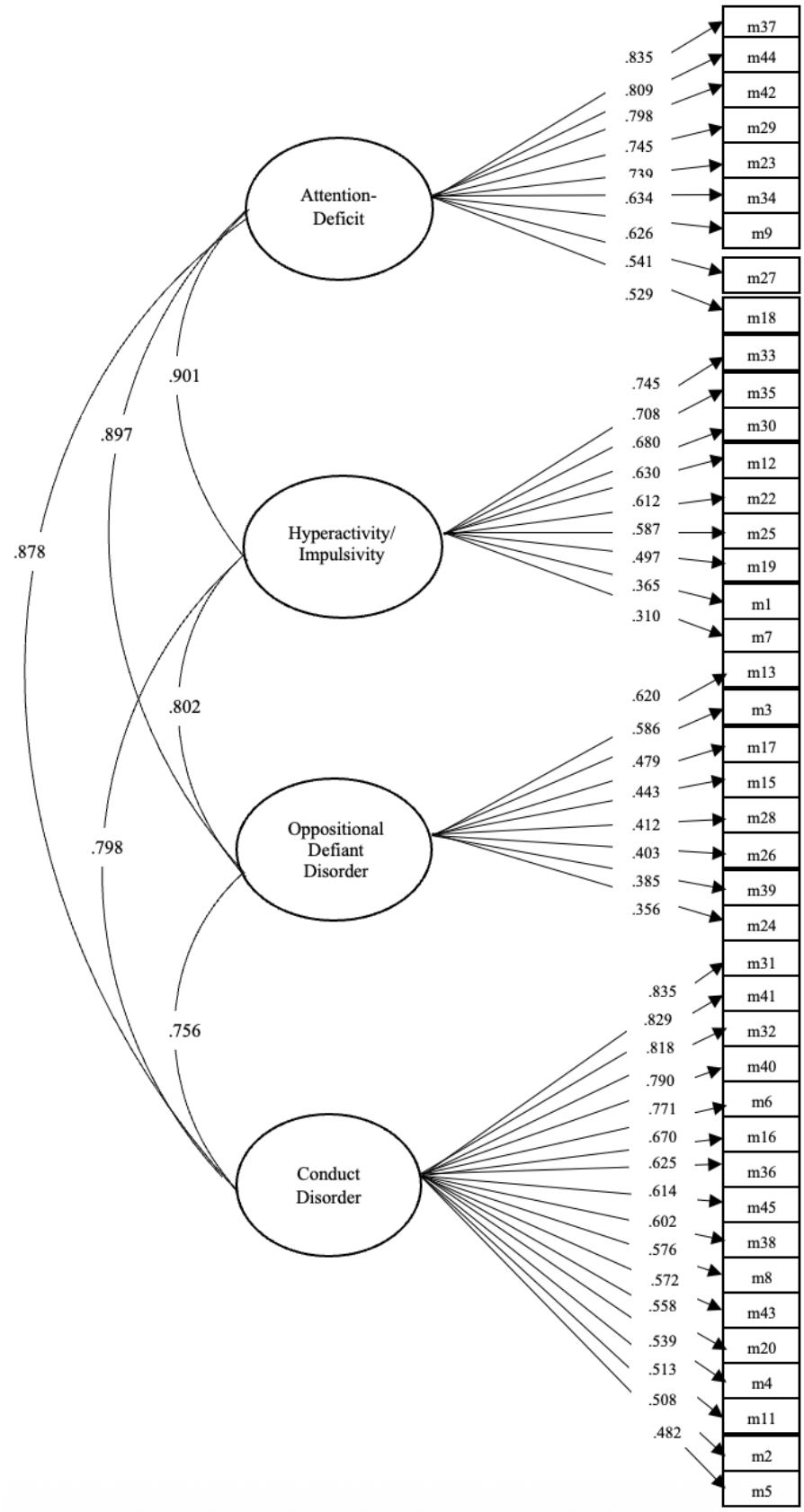

Figure 2. Confirmatory factor analysis model of the Disruptive Behavior Disorders Rating Scale (standardized estimates)

χ^2 = Chi-square, df = Degrees of freedom, (χ^2/df between 2 and 3 indicates acceptable fit), p-value = Significance level (p > 0.05), RMSEA = Root Mean Square Error of Approximation (RMSEA ≤ 0.05 indicates excellent fit, ≤ 0.08 indicates acceptable fit)

Table 4. Fit ındex values of the model after Confirmatory Factor Analysis								
χ^2	sd	χ^2/sd	RMSEA	AGFI	RMR	CFI	NFI	IFI
246.75	70	3.52	0.061	0.90	0.037	0.92	0.91	0.95

Chi-square (χ^2), degrees of freedom (df), the ratio of chi-square to degrees of freedom (χ^2/df), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Incremental Fit Index (IFI), Root Mean Square Error of Approximation (RMSEA), and Root Mean Square Residual (RMR) are commonly used fit indices in confirmatory factor analysis

One of the most commonly used fit indices for CFA is the Root Mean Square Error of Approximation (RMSEA). An RMSEA value of 0.05 or lower indicates excellent fit between the model and the data, while values up to 0.08 are considered acceptable. In CFA, an Adjusted Goodness of Fit Index (AGFI) above 0.80 and a Root Mean Square Residual (RMR) value below 0.10 are regarded as indicators of an acceptable model fit to the empirical data. Additionally, Comparative Fit Index (CFI), Normed Fit Index (NFI), and Incremental Fit Index (IFI) values of 0.90 or higher demonstrate good fit of the model with the data. These indices collectively suggest a strong model fit and a robust relationship between the model and observed data (Bentler 1990, Hu and Bentler 1999, Hu and Şimşek 2007; Çokluk et al. 2010; Vieira 2011).

The primary goal of CFA is to assess the degree to which a pre-specified model fits the observed data (Sümbüloğlu and Akdağ 2009). In this study, the fit indices obtained from CFA confirmed the four-dimensional structure of the Disruptive Behavior Disorders Rating Scale. The construct validity of the scale was thoroughly examined; both exploratory and confirmatory factor analyses indicated that the four-factor structure was significantly preserved in the sample. Moreover, the high internal consistency coefficients support that the scale is a reliable measurement tool.

Discussion

This study aimed to adapt the Disruptive Behavior Disorders Rating Scale into Turkish. The scale was administered to a sample of 480 parent participants, and based on the results of the exploratory factor analysis, a 42-item form supporting a four-factor structure was retained. Confirmatory factor analysis was also conducted to test the construct validity, which further supported the accuracy of this four-factor structure. The overall Cronbach's Alpha reliability coefficient of the scale was calculated as .91, indicating a high level of reliability for the Disruptive Behavior Disorders Rating Scale. The lowest possible total score on the scale is 0, while the highest total score is 126. Higher scores indicate a greater severity of symptoms related to disruptive behavior disorders.

Both exploratory and confirmatory factor analyses revealed that the original factor structure of the scale was meaningfully preserved in the Turkish sample. This finding demonstrates the cultural adaptability of the scale and the high validity of the items in assessing behavioral disorders among children and adolescents living in Turkey. Similar studies in the literature on the adaptation of scales related to disruptive behavior disorders have also reported that factor structures are preserved and validity and reliability findings are robust (Küçük Doğaroğlu 2013, Akkuzu 2020, Sisman et al. 2021, Gür and Çakmak 2022).

The internal consistency coefficients of the Disruptive Behavior Disorders Rating Scale were found to be high for all factors as well as for the overall scale, supporting the scale as a reliable measurement tool. In similar studies, scales measuring disruptive behavior disorders typically show Cronbach's Alpha values above 0.70, and the high reliability coefficients obtained in this study are consistent with these standards in the literature. This suggests that the Disruptive Behavior Disorders Rating Scale can reliably measure symptoms of disruptive behavior disorders in children and adolescents.

The scale items are grouped under four factors and organized to comprehensively cover their respective symptoms. This factor structure reflects the multidimensional nature of disruptive behavior disorders and provides valuable information as an auxiliary tool in clinical assessments. The preference for multifactorial structures in similar scales in the literature highlights the importance of this approach for both diagnostic and intervention processes (Dereboy et al. 2007, Ergene et al. 2018).

There is also a tendency in the international literature to retain items. Qin et al. (2022), while discussing the factor loading threshold, cite Ondé et al. by stating, “An item with a factor loading greater than 0.30 should be retained to reduce the risk of omitting essential content that the instrument is intended to measure.” This approach suggests that items with lower loading values can still be preserved if they represent important content within the scope of the scale, ensuring content validity. In similar scale adaptations, items with factor loadings around 0.30 have generally not been excluded for the sake of maintaining content integrity. For instance, in the adaptation of the Career Wisdom Scale by Yıldız Şen and Aral (2025), although items 17 and 20 had factor loadings of 0.415 and 0.465 respectively, these values being above 0.30 led to their retention to preserve the theoretical structure and content comprehensiveness of the scale. Studies also indicate that the scale is a short

yet comprehensive and relatively accurate instrument for identifying the core symptoms of Inattention/Attention Deficit, Hyperactivity/Impulsivity, Oppositional Defiant, and Conduct Problems (Lee et al. 2022). Furthermore, since there are no separate scales for parent and teacher assessments, it is suggested that the scale can be used by both groups (Loona and Kamal 2011).

The findings of this study provide a valid and reliable measurement tool, especially for professionals working in social work, psychology, and psychiatry. Results obtained from the Disruptive Behavior Disorders Rating Scale demonstrate that the scale can serve as an effective auxiliary tool in clinical assessments, thereby facilitating more accurate identification of childhood behavioral problems and the development of intervention strategies. Similarly, Loona and Kamal (2011) emphasized that the scale would be beneficial for researchers working in the field of developmental psychopathology and would facilitate screening and diagnosis of children with disruptive behavior disorders.

This study has some methodological limitations. Primarily, during the data collection process, both online (Google Forms) and a limited number of face-to-face methods were used concurrently. Although online tools have provided access across different socioeconomic and geographic groups, it should be considered that using different data collection methods may have systematic effects on response behavior, which could potentially influence measurement outcomes. Therefore, future studies are recommended to comparatively test possible differences between data collection methods or to collect data using a single method (e.g. through mode separation analyses or multiple group tests for data collection methods). Secondly, the sample distribution is relatively unidirectional: the vast majority of participants were mothers (87%). This raises uncertainties about the scale's validity for fathers or other caregiver groups. Future studies should aim to include fathers and different caregiver groups in a balanced manner to allow for the evaluation of the scale's generalizability across caregivers. Some studies have collected data not only from parents but also concurrently from children, teachers, and families or at least from teachers and families (Oosterlaan et al. 2000, Ofovwe and Ofovwe 2010, Loona and Kamal,2011, Bzhalava and Inasaridze 2017). Such diversity enables complementary information from different sources, leading to more reliable results. However, in this study, only the parent form was adapted into Turkish. Therefore, evaluations based on a single information source limit the contribution of the scale in the diagnostic process. At this point, it is recommended that when the teacher form of the scale is also adapted into Turkish, data be collected simultaneously from children, parents, and teachers. Thirdly, both EFA and CFA were conducted on the same sample. This practice may hinder independent testing of the obtained factor structure on different samples and limit the generalizability of the results. To provide stronger evidence in the future, it is suggested to split the sample into two independent validation samples or to apply multiple group CFA (measurement invariance tests).

The fourth limitation concerns some items having relatively low factor loadings. These items were retained because their item-total correlations exceeded the predetermined threshold of 0.30 and they were considered to represent the symptoms the scale aims to measure from a content/conceptual perspective. However, since no items were removed, sensitivity analyses evaluating the impact of item removal on the scale's internal consistency and model fit (e.g. the effect of removing individual items on Cronbach's α and CFA fit indices) were not performed. Reporting such sensitivity analyses in future studies will allow decisions regarding the reformulation or stepwise removal of low-loading items to be empirically grounded. Fifth, the study is based on cross-sectional data collection; therefore, test–retest reliability and the stability of the scale over time could not be examined. Additionally, criterion-related validity was not assessed through correlation analyses with other validated scales measuring similar constructs, which limits the comprehensive evaluation of the scale's external validity. Future research is recommended to include longitudinal designs, clinical diagnostic confirmations, and comparative analyses with criterion measures. Sixth, no prior power analysis was conducted in this study. This is mainly due to participants being recruited online on a voluntary basis, the sample size not being predetermined with certainty, and the study being a scale adaptation project. This represents one of the study's limitations. Finally, measurement invariance of the scale across different demographic and regional groups was not tested, leaving uncertainty regarding cultural and regional generalizability. Therefore, it would be appropriate for subsequent studies to examine structural equivalence by gender, caregiver type, data collection method, and region using multiple-group CFA.

Overall, despite these limitations, the study carefully conducted the cultural adaptation process and provided foundational validity and reliability evidence for the Turkish version of the Disruptive Behavior Disorders Rating Scale. The proposed additional analyses and more diverse samples will strengthen these fundamental findings and create a more robust basis for broader applications of the scale.

Conclusion

In conclusion, the adaptation process of the Disruptive Behavior Disorders Rating Scale into Turkish has been successfully completed. Supporting the scale with further studies across diverse demographic groups and clinical samples will contribute significantly to the assessment of behavioral disorders among children and adolescents living in Turkey. Additionally, future research is recommended to expand on longitudinal validity studies, sensitivity analyses with pre- and post-intervention measurements, comparisons across different regions and socioeconomic groups, and concurrent validity studies with other psychometric instruments. Such studies will enhance the clinical utility and research reliability of the scale.

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Addendum 1. Disruptive Behavior Disorders Rating Scale / Parent-Caregiver Form Turkish Version

The form below has been prepared to assess the behavior of your child or the child in your care. The form contains statements that will help determine the child's behaviors in daily life and the frequency of these behaviors. Please read each item carefully and select the option that best reflects how often your child exhibits the behavior described. This information will be used to assess the child's development and to help plan appropriate support when needed.

	Hiç	Çok az	Oldukça	Çok fazla
1. Başkalarının sözünü keser veya onların işlerine karışır (örneğin, konuşmalara veya oyunlara karışır)	0	1	2	3
2. Gece evden kaçmıştır.	0	1	2	3
3. Yetişkinlerle tartışır	0	1	2	3
4. Mal veya ayrıcalık elde etmek ya da sorumluluktan kaçmak için yalan söyler (yani başkalarını kandırır).	0	1	2	3
5. Ev halkı ile fiziksel kavgalar başlatır.	0	1	2	3
6. İnsanlara karşı fiziksel olarak acımasız (gaddar) davranmıştır.	0	1	2	3
7. Aşırı derecede konuşur.	0	1	2	3
8. Zarar gören kişilerle doğrudan yüz yüze gelmeden onların değerli eşyalarını çalmıştır (örneğin, zorla girmeden yapılan mağaza hırsızlığı)	0	1	2	3
9. Dışsal uyaranlarla kolayca dikkati dağılır	0	1	2	3
10. Muhtemel sonuçları göz önünde bulundurmadan, heyecan arayışı gütmeden fiziksel olarak tehlikeli davranışlarda bulunur (örneğin, yola bakmadan koşar)	0	1	2	3
11. Okuldan kaçar (yani okulu asar)	0	1	2	3
12. Elleri veya ayakları kıpır kıpırdır ya da oturduğu yerde kıpırdanır.	0	1	2	3
13. Kindar ve intikamcıdır.	0	1	2	3
14. Küfür eder veya argo dil kullanır.	0	1	2	3
15. Yapmış olduğu hatalar veya uygunsuz davranışlar için başkalarını suçlar.	0	1	2	3
16. Başkalarının eşyalarını kasıtlı olarak tahrip eder (eşyaları ateşe verme dışında).	0	1	2	3
17. Yetişkinlerin taleplerine veya kurallarına açıkça karşı çıkar veya bunlara uymayı reddeder.	0	1	2	3
18. Doğrudan kendisiyle konuşulduğunda dinlemiyor gibi görünür	0	1	2	3
19. Sorular tamamlanmadan önce düşünmeden cevap verir/	0	1	2	3
20. Ev halkından olmayan diğer kişilerle (örneğin okulda veya mahallede akranlarıyla) fiziksel kavgalar başlatır.	0	1	2	3
21. Bir faaliyeti bitirmeden diğerine geçiş yapar	0	1	2	3
22. Boş zaman aktivitelerini sessizce oynama veya yapmada zorluk çeker.	0	1	2	3
23. Detaylara yeterince dikkat etmez; okul ödevlerinde, işte veya diğer etkinliklerde dikkatsizce hatalar yapar.	0	1	2	3
24. Öfkeli ve kırgın hisseder.	0	1	2	3
25. Oturması beklendiği durumlarda oturduğu yerden kalkar.	0	1	2	3
26. Alıngandır ya da başkaları tarafından kolayca sinirlendirilir.	0	1	2	3
27. Talimatları yerine getirmez ve okul ödevlerini, ev işlerini ya da iş yerindeki görevlerini tamamlayamaz (bu durum muhalif olma amacıyla ya da talimatları anlayamamaktan kaynaklanmaz)	0	1	2	3
28. Öfkesine hakim olamaz.	0	1	2	3
29. Görevlerde veya oyun aktivitelerinde dikkatini sürdürmede zorlanır.	0	1	2	3
30. Sırasını beklemekte zorlanır.	0	1	2	3
31. Birini cinsel eyleme zorlamıştır.	0	1	2	3
32. Başkalarına zorbalık yapar, tehdit eder veya gözdağı verir.	0	1	2	3
33. Genellikle hareket halindedir veya sanki bir motor tarafından çalıştırılıyormuş gibi davranır.	0	1	2	3
34. Görevler veya etkinlikler için gerekli eşyaları kaybeder (örneğin oyuncaklar, okul ödevleri, kalemler, kitaplar veya araç-gereçler).	0	1	2	3

35. Uygun olmayan ortamlarda aşırı derecede etrafta koşuşturur veya tırmanır (Ergenlerde ve yetişkinlerde ise bu durum, dışarıdan görülmeyip içten gelen bir huzursuzluk hissi şeklinde olabilir.)	0	1	2	3
36. Hayvanlara fiziksel olarak zarar verir	0	1	2	3
37. Uzun süreli zihinsel çaba gerektiren görevlerden (örneğin okul çalışmaları veya ödevler) kaçınır, hoşlanmaz ya da bu tür görevleri yapmakta isteksizdir.	0	1	2	3
38. 13 yaşından önce başlayarak, ebeveynlerinin yasaklarına rağmen geceleri dışarıda kalır.	0	1	2	3
39. İnsanları kasıtlı olarak rahatsız eder/	0	1	2	3
40. Bir kişiye doğrudan yaklaşarak çalma davranışı gösterir (örneğin; gasp, çanta kapma, zorla alma, silahlı soygun)	0	1	2	3
41. Ciddi zarar vermek amacıyla kasıtlı olarak yangın çıkardı.	0	1	2	3
42. Görevleri ve aktiviteleri organize etmede zorluk çeker.	0	1	2	3
43. Başkasının evine, binasına veya arabasına zorla (izinsiz) girmiştir.	0	1	2	3
44. Günlük aktivitelerde unutkanlık yaşar.	0	1	2	3
45. Başkalarına ciddi fiziksel zarar verebilecek bir silah kullanmıştır (örneğin, sopa, tuğla, kırık şişe, bıçak, tabanca).	0	1	2	3

Addendum 2. Disruptive Behavior Disorders Rating Scale / Parent-Caregiver Form Assessment Guide

The method to determine whether Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) diagnoses meet DSM-5 criteria is as follows:

Symptom Count Method: Symptoms related to each disorder are counted based on the Disruptive Behavior Disorders Rating Scale. This method directly indicates which diagnostic criteria the child meets.

Please note: Items numbered 10, 14, and 21 belong to DSM-III-R and should not be included in the DSM-5 diagnostic scoring.

Method: Symptom Counting

To determine whether a child meets the DSM-5 criteria for ADHD, ODD, or CD, the items marked as "pretty much" or "very much" by the parent or caregiver are counted. This process should be done separately for each category.

Note: Symptom counting alone is not sufficient; functional impairment and other DSM-5 diagnostic criteria should also be evaluated.

Attention Deficit Hyperactivity Disorder (ADHD)

ADHD – Inattention Symptoms

Relevant items: 9, 18, 23, 27, 29, 34, 37, 42, 44

For an ADHD – Predominantly Inattentive Type diagnosis, at least 6 of these items must be marked as "pretty much" or "very much" by the parent and/or caregiver.

ADHD – Hyperactivity/Impulsivity Symptoms

Relevant items: 1, 7, 12, 19, 22, 25, 30, 33, 35

For an ADHD – Predominantly Hyperactive/Impulsive Type diagnosis, at least 6 of these items must be marked as "pretty much" or "very much" by the parent and/or caregiver.

ADHD – Combined Type:

If at least 6 items from both inattention symptoms and hyperactivity/impulsivity symptoms are met, the criteria for ADHD – Combined Type are fulfilled.

Note: Functional impairment caused by symptoms should be observed in at least two settings (e.g. school and home).

Oppositional Defiant Disorder (ODD)

ODD Symptoms

Relevant items: 3, 13, 15, 17, 24, 26, 28, 39

According to DSM-5 criteria, at least 4 of these items must be marked as "pretty much" or "very much" by the parent and/or caregiver to diagnose ODD.

Conduct Disorder (CD)

Aggression toward people and animals: Relevant items: 5, 6, 20, 31, 32, 36, 40, 45

Destruction of property: Relevant items: 16, 41

Deceitfulness or theft: Relevant items: 4, 8, 43

Serious violations of rules: Relevant items: 2, 11, 38

Note: According to DSM-5 criteria, for a CD diagnosis, symptoms in each subcategory must meet the appropriate threshold..