Original Article

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Normative Data and Psychometric Properties of the Child Behavior Checklist and Teacher Rating Form in an Iranian Community Sample

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Abstract

Objective: The objective of this study was to determine the normative data and psychometric properties of the parent and teacher rating form of the child behavior checklist (CBCL) in an Iranian community sample.

Methods: A sample of 6-12 year old students was randomly selected from ten elementary schools in Tehran, Iran. The parent's and teacher's versions of CBCL were accomplished. Clinical interview and the kiddie schedule for affective disorders and schizophrenia – present and lifetime version, Persian version (K-SADS-PL-PV) were used to evaluate the validity and the cut-off point of CBCL and the teacher rating form (TRF).

Findings: Among 600 recruited students with mean age of 9.11 years (SD=1.45), 54.16% were girls (n=325). Girls had significantly lower scores in Attention Problems, Delinquent Behavior, Aggressive Behavior, Externalizing and Total Problems than boys (P<0.01). The relation was significant between the CBCL Internalizing and students' ages (β=0.124, P=0.002). The Internal consistency, the correlation among the CBCL and TRF scales, and the inter-rater correlations for CBCL/TRF scales were good to high for most indices and subscales. Based on the receiver operating characteristics (ROC) analysis the best convergences were between the CBCL Attention Problems subscale and attention deficit hyperactivity disorder (ADHD) diagnosis, the CBCL Total Problems and any disorders, the CBCL Externalizing and ADHD+ODD diagnosis. The sensitivities and specificities of the CBCL subscales were higher than the TRF except for Externalizing/ADHD+ oppositional defiant disorder (ODD) which was reverse.

Conclusion: These results support the multicultural CBCL/TRF findings. CBCL is a useful instrument to consider ADHD and any disorders in community samples.

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Key Words: Child Behavior; Psychometric; Attention Deficit Hyperactivity Disorder; Checklist

Introduction

Cross–cultural studies which have focused on differences among cultures are being replaced by multicultural perspectives. The multicultural assessment of child and adolescent psycho-pathology takes into account both individual and

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group differences and similarities of various populations. After obtaining the normative samples from diverse populations, new individuals could be compared with the norms of relevant populations using the similar measurements. The multicultural research has shown that the differences within populations are larger than the differences between populations. This discrepancy has been resulted from the diverse data derived from broadband instruments like the child behavior checklist (CBCL) and the strengths and difficulties questionnaire (SDQ) all over the world [1].

There are several studies which have compared the data of CBCL among societies [2-10]. They have reported small (1-5%) to medium (6-9%) effect sizes (ES) for the differences for five and three syndromes of CBCL 1991, respectively [4,5]. Verhulst et al found ESs of 3-8% for differences among seven societies when compared their problem scales scores of 1991 youth self report (YSR) scores [6].

Achenbach System of Empirically Based Assessment (ASEBA) was developed in 2001 from CBCL [11]. The findings of 2001 ASEBA scales scores from the administration of CBCLs in 31 countries, the teacher rating form (TRF)s in 21 societies, and the YSRs in 24 societies were published. In a review by Rescorla, et al their data showed small to medium ESs for differences among societies, like previous studies mentioned above. Achenbach et al [1] mentioned that the multicultural ASEBA findings had some important points:

1) Existence of a relatively narrow range of mean scores on problems scales across very diverse societies.
2) Overlap of the distributions of problem scores from all societies with each other.
3) Similarity of age, gender, and socioeconomic status effects on problem scores in many populations.

Iranian data on teachers' and parents' reported emotional and behavioral problems has been reported in the article published by Rescorla et al [12,13]. The paper has compared the internal consistency alpha coefficients, mean scores, age and gender differences, response rates, and data collection methods for parents' and teachers' reports in different countries. Iran was among the 19 societies which their means of Total Problems scores were within 1 standard deviation (SD) of the averaged mean. Other Iranian properties of the CBCL and TRF were consistent with most of other countries [15].

A great pool of information has already been produced from multicultural research using the ASEBA system. Nonetheless additional psychometric properties and studies on cultures and populations for more accurate and comprehensive approach to multicultural research are needed. This study was designed to find the normative data and psychometric properties of CBCL and TRF in an Iranian community sample, to be compared with the multicultural ASEBA findings.

Subjects and Methods

Participants and Procedure:

Phase I: We selected three central geographic regions of Tehran through random cluster sampling. In each region ten elementary schools and in each school four students in each grade (1 to 5) were recruited. Then the CBCL accompanying with a written consent form were sent to the students' homes. If the parents agreed to continue participating in the next stage of the study, they would sign the form. The questionnaires were gathered after two weeks and the parents of the unreturned ones were contacted by the researchers. If they agreed, they would complete the CBCLs within the next week. If they did not, the students were replaced randomly by new ones to accomplish the sample of each school. For each student whose parents had completed the CBCL, the TRFs were completed by the teacher.

Phase 2: After gathering and analyzing the CBCLs and TRFs data, we recruited randomly 15% of children whose Total Problems scores of the CBCL were above 65 and 15% of the students whose same scores were under 65 (the reported cut-off for Total Problems T-score by Achenbach's manual). Then they were asked to come to Roozbeh Hospital to be interviewed by a board certified child and adolescent psychiatrist to

diagnose psychiatric disorders according to DSM-IV classification. To confirm the probable diagnoses, the kiddie schedule for affective disorders and schizophrenia, present and lifetime version, Persian version (K-SADS-PL-P) was used by a fellow in child and adolescent psychiatry who was blind to the CBCL scores of the participants. The validity and cut-off points of CBCL and TRF were considered with regard to clinical diagnoses.

This study is a part of a larger project carried out from 2006 to 2007 and some of its results have been published before[16]. The main study was approved by the Department of Research at Tehran University of Medical Sciences which approved the ethical issues of the research as well.

Measures:

Child Behavior Checklist (CBCL): This is a 113 item questionnaire completed by parents about their children (Parent Rating Form). There are a teacher form filled in by teachers (TRF) and a youth self report form (YSR) as well. Items are scored on a three-point scale. A total score, externalizing and internalizing scores, as well as eight subscales are derived from this questionnaire. It is a well known, worldwide used dimensional rating scale psychometric properties of which have been reported in most countries[17,18].

Kiddie Schedule for Affective Disorders and Schizophrenia for School–Age Children - Present and Lifetime Version - Persian Version (K-SADS-PL-PV): The K-SADS-PL is a semi-structured interview for assessing psychiatric diagnoses in children and adolescents. It assesses the present and lifetime status of psychiatric disorders as well as the severity of the symptoms. Kaufman et al introduced the K-SADS-PL from K-SADS-P according to the fourth edition of DSM [19].

K-SADS-PL is capable of generating 32 DSM-III-R and DSM-IV Axis I child and adolescent psychiatric disorders. Diagnoses are made as definite, probable (greater than or equal to 75% of symptom criteria met), or not present. The different components of the K-SADS-PL are described comprehensively in Kaufman's and Ambrosini's articles [19,20]. The K-SADS-PL-PV has been validated by Shahrivar et al in Iran [21]. Based on their study the specificities were more than 81% for all disorders and the sensitivities for most major diagnoses were between 75% and 100%. The kappa agreements for most diagnoses were higher than 0.4 and the test-retest reliabilities were between 0.38 and 0.87.

Statistical analysis:

Statistical analysis was performed using the SPSS (release 11.5). Through the descriptive statistics the prevalence of the subscales and indices were calculated. T-test and analysis of variance were used to evaluate the relationship among dependent and independent variables respectively. Pearson correlation test was done to find the correlation between parent and teacher questionnaires. Alpha Cronbach was used to find the internal consistency of the CBCL and TRF. Using the ROC (receiver operating characteristics) analysis, the sensitivity and specificity of the CBCL and TRF subscales were calculated to find the appropriate cut-off scores comparing with the clinical diagnosis as the gold standard.

Findings

Of 681 CBCL forms which were sent to parents, 600 were completed. The students consisted of 325 girls (54.16%) and 275 boys (45.88%). Their mean age was 9.11 years (SD=1.45) with minimum of six and maximum of 12. A total number of 52 children and their parents participated in the second phase of the study. Among these participants, 25 and 27 students had Total Problems scores higher and lower than the Achenbach's cut off, respectively.

Table 1 shows the mean scores and standard deviations of eight problem subscales, Internalizing, Externalizing and Total Problems based on parent and teacher reports separately. It also compares these scores between girls and boys. The scores of Attention Problems, Delinquent Behavior, Aggressive Behavior, Externalizing and Total Problems were significantly higher in boys (P<0.01). The regression analysis showed that there was not any significant relation between students' ages and the parents' and teachers' rated Total Problems and externalizing scores. But this relation was significant between the parents' reported

Table 1: Mean Scores (standard deviations) of the CBCL and TRF in the population and by gender

Subscales	Total (n=600) Mean (SD)		Girls (n=325) Mean (SD)		Boys (n=275) Mean (SD)		*P*-Value	
	Parent	Teacher	Parent	Teacher	Parent	Teacher	Parent	Teacher
Somatic Complaints	1.23 (2.08)	0.84 (1.63)	1.23 (1.92)	0.87 (1.66)	1.23 (2.26)	0.81 (1.60)	1	0.6
Withdrawn	2.15 (2.66)	2.48 (2.93)	2.12 (2.90)	2.37 (2.77)	2.18 (2.35)	2.60 (3.11)	0.8	0.3
Anxious/ Depressed	4.87 (3.76)	3.24 (3.77)	5.00 (3.95)	5.84 (4.61)	4.72 (3.53)	6.21 (4.85)	0.4	0.3
Social Problems	2.58 (2.32)	6.01 (4.72)	2.51 (2.33)	2.92 (3.60)	2.66 (2.31)	3.62 (3.24)	0.4	0.05
Thought Problems	1.03 (1.58)	1.15 (1.81)	1.19 (1.71)	0.93 (1.58)	0.90 (1.46)	1.43 (2.01)	0.05	0.01
Attention Problems	4.40 (3.88)	6.65 (7.62)	4.01 (3.64)	5.89 (8.46)	4.86 (4.09)	7.54 (6.74)	0.01	0.01
Delinquent Behavior	2.40 (2.74)	2.01 (2.42)	2.10 (2.21)	1.60 (1.96)	2.74 (3.21)	2.49 (2.80)	0.01	0.01
Aggressive Behavior	6.64 (5.69)	7.33 (8.84)	5.93 (5.03)	5.99 (7.42)	7.47 (6.28)	8.90 (10.05)	0.01	0.01
Internalizing	8.09 (6.55)	9.15 (7.64)	8.17 (5.47)	8.93 (7.46)	8.01 (6.65)	9.47 (7.85)	0.8	0.4
Internalizing T score	53.84 (10.08)	56.00 (19.15)	53.51 (9.58)	54.41 (9.79)	54.24 (10.64)	57.87 (26.12)	0.4	0.05
Externalizing	9.10 (8.32)	9.24 (10.58)	8.06 (7.38)	7.47 (8.47)	10.33 (9.18)	11.33 (12.33)	0.01	0.01
Externalizing T score	49.38 (11.12)	48.94 (12.63)	49.28 (10.08)	47.89 (11.15)	49.50 (12.26)	50.18 (4.10)	0.8	0.05
Total Problems	37.45 (22.10)	37.05 (25.23)	27.53 (19.45)	26.83 (23.12)	31.70 (23.38)	33.43 (28.86)	0.01	0.01
Total Problems T score	44.94 (18.56)	45.41 (20.81)	52.57 (10.30)	51.55 (11.62)	53.34 (12.11)	53.92 (13.94)	0.6	0.09

Internalizing score and the students' ages (β=0.124, *P*=0.002).

With regards to the fathers' characteristics, the higher their academic levels, the lower were the teachers reported scores of children in all subscales (*P*<0.05), total T-scores (*P*=0.03), Externalizing (*P*=0.003) and Internalizing (*P*=0.006). This was the same for all subscales of the parents reported scores except for Withdrawn, Somatic Complaints, Thought Problems and Aggressive Behavior.

In terms of mothers' characteristics, the higher their educational level, the lower were the scores on parents' reported Social Problems (*P*=0.001), Attention Problems (*P*<0.001) Anxious/Depressed (*P*=0.04), Thought Problems (*P*=0.005), Internalizing (*P*=0.03), Externalizing (*P*=0.03) and Total Problems (*P*<0.001). All CBCL scores were significantly higher (*P*<0.01) in children of house keeper mothers except for Delinquent Behavior. However, TRFs showed significantly higher scores just in Withdrawn (*P*=0.01), Internalizing (*P*=0.05) and Total Problems (*P*=0.05) of the children of unemployed mothers.

Internal Consistency:

Internal consistencies (coefficient of Cronbach) were 0.91 for both parent and teacher reports which showed high reliability.

Correlations among the CBCL subscales: Table 2 shows the correlations among all subscales of TRF and CBCL separately. The highest correlations were between Internalizing and Anxious/ Depressed, Total Problems, Somatic Complaints and Withdrawn. It was the same for Externalizing and Aggressive Behavior, Total Problems, Delinquent Behavior and Attention Problems.

Inter-rater correlations for the CBCL/TRF subscales:

All subscales of the TRF and CBCL were significantly correlated (*P*<0.01) which showed a

Table 2: Correlations among the child behavior checklist and teacher rating form scales and Subscales

		Withdrawn	Somatic Complaints	Social Problems	Anxious/ Depressed	Thought Problems	Attention Problems	Delinquent Behavior	Aggressive Behavior	Total Problems	Internalizing	Externalizing
Withdrawn	Parent	1										
	Teacher	1										
Somatic Complaints	Parent	0.39	1									
	Teacher	0.47	1									
Social Problems	Parent	0.40	0.39	1								
	Teacher	0.61	0.46	1								
Anxious/ Depressed	Parent	0.50	0.49	0.64	1							
	Teacher	0.47	0.46	0.67	1							
Thought Problems	Parent	0.44	0.43	0.49	0.54	1						
	Teacher	0.41	0.45	0.53	0.60	1						
Attention Problems	Parent	0.42	0.45	0.72	0.65	0.56	1					
	Teacher	0.58	0.47	0.59	0.77	0.51	1					
Delinquent Behavior	Parent	0.38	0.43	0.52	0.55	0.55	0.60	1				
	Teacher	0.37	0.39	0.36	0.56	0.57	0.60	1				
Aggressive Behavior	Parent	0.32	0.38	0.56	0.64	0.55	0.71	0.69	1			
	Teacher	0.29	0.37	0.47	0.73	0.61	0.74	0.69	1			
Total Problems	Parent	0.56	0.61	0.76	0.81	0.70	0.84	0.76	0.84	1		
	Teacher	0.61	0.55	0.69	0.81	0.64	0.86	0.68	0.79	1		
Internalizing	Parent	0.70	0.73	0.63	0.89	0.59	0.67	0.57	0.60	0.86	1	
	Teacher	0.82	0.66	0.92	0.67	0.56	0.67	0.44	0.47	0.76	1	
Externalizing	Parent	-0.38	0.43	0.59	0.66	0.61	0.69	0.84	0.90	0.85	0.63	1
	Teacher	0.32	0.39	0.47	0.74	0.63	0.76	0.79	0.90	0.82	0.49	1

All correlations were significant at $P<0.01$

good cross-informant agreement between the corresponding subscales.

Discriminative validity:

Table 3 and 4 summarize the information derived from the performance of CBCL and TRF scales regarding the results from the ROC analysis based on clinical diagnosis and K-SADS interview, respectively. As the tables show, the most sensitive and specific subscale is the CBCL Total Problems. With regards to Total Problems scores it seems that the raw score of 26.5 could be considered as the cut off point with 68% sensitivity and 91% specificity.

The specificity of Attention Problems for attention deficit hyperactivity disorder (ADHD) was higher based on CBCL compared to TRF. Reversely, the TRF specificity of the Externalizing was higher than its counterpart on CBCL for ADHD+ oppositional defiant disorder (ODD). It seems that CBCL Internalizing was more sensitive than TRF Internalizing.

For ADHD, the parents reported Attention Problems scale yielded the greatest area under curve (AUC)s (0.88 for clinical diagnoses and 0.80 for K-SADS). It means that there is an 88% chance that the Attention Problems score of a randomly selected child with ADHD will be higher compared to a child without ADHD. This index was 0.70 based on TRF. Similarly, ADHD+ODD were best predicted by the Externalizing. The CBCL Total Problems scale best predicted any disorders. Internalizing was fair in predicting anxious and depressed children.

Discussion

This study was done to provide the validity and reliability and normative data of the child behavior checklist (parent and teacher report forms) in an Iranian sample. Our study seems to provide support for many consistencies between the Iranian results of the CBCL/TRF and the findings of other countries.

Rescorla et al[14] reported that the CBCL means of 31 countries ranged from 13.1 for Japan to 34.7 for Puerto Rico. They showed that the Iranian mean (27.5, reported by Minai[15]) was among 19 societies scored within 1 SD (5.7) of the averaged mean of 22.5. But our mean Total Problems score was 37.45 (SD=22.10). This high score may be due to the parents' high expectations about their children's behavior or lower thresholds for tolerating their kids.

In comparison with mean scores of TRF in 21 countries for ages 6-11 years, Rescorla et al [12] found that Iran, Thailand and Jamaica had the highest Total Problems mean scores. These results were the same on the Externalizing mean scores. Mean Total Problems score based on TRF in our study was 37.05 (SD=25.23), which was higher than the average mean of Rescorla's results (21.6±6.2). Although the multicultural ASEBA findings have shown that the ESs for differences among societies on the Internalizing exceeded for Externalizing [1], but our Internalizing findings were similar to the other societies.

In most countries, boys have been scored significantly higher than girls for CBCL and TRF

Table 3: TRF Subscales at the Optimum Cut-off Scores for diagnosis based on the ROC Curve Analysis

TRF Subscales	Diagnosis	Total Problems/ Any Disorders		Externalizing/ ADHD + ODD		Attention Problems/ ADHD	Internalizing/ Anxiety/ Depressive Disorders	
		Raw Score	T- Score	Raw Score	T- Score	Raw Score	Raw Score	T- Score
Cut-off	**Clinical**	20	50.5	9.5	53.5	7.5	8.5	58
	K-SADS	22.5	51.5	9.5	52.5	7.5	7.5	56
Sensitivity	**Clinical**	63%	61%	60%	60%	58%	50%	54%
	K-SADS	63.5%	63%	62%	67%	58%	52%	52%
Specificity	**Clinical**	55%	55%	75%	84%	70%	50%	56%
	K-SADS	50%	53%	73%	77%	70%	45%	45%
AUC	**Clinical**	0.664	0.657	0.705	0.713	0.705	0.502	0.549
	K-SADS	0.502	0.498	0.728	0.734	0.686	0.450	0.503
P-value	**Clinical**	0.009	0.1	0.01	0.01	0.01	1	0.5
	K-SADS	1	1	0.02	0.004	0.02	0.5	0.9

TRF: Teacher Rating Form / ROC: Receiver Operating Characteristics / ADHD: Attention Deficit Hyperactivity Disorder / ODD: Oppositional Defiant Disorder / K-SADS: Kiddie Schedule for Affective Disorders and Schizophrenia / AUC: Area Under Curve

Table 4: CBCL Subscales at the Optimum cut-off Scores Based on the ROC Curve Analysis

TRF Subscales	Diagnosis	Total Problems/ Any Disorders		Externalizing/ ADHD + ODD		Attention Problems/ ADHD	Internalizing/ Anxiety/ Depressive Disorders	
		Raw Score	T- Score	Raw Score	T- Score	Raw Score	Raw Score	T- Score
Cut-off	**Clinical**	26.5	53.5	12	54	7.5	5.5	54.5
	K-SADS	26.5	53.5	12	54	6.5	6.5	54.5
Sensitivity	**Clinical**	68%	63%	65%	65%	63%	68%	55%
	K-SADS	64%	64%	67%	67%	68%	57%	57%
Specificity	**Clinical**	91%	91%	65.5%	65.5%	94%	40%	63%
	K-SADS	50%	57%	68%	68%	74%	59%	65%
AUC	**Clinical**	0.779	0.782	0.771	0.772	0.882	0.559	0.656
	K-SADS	0.561	0.560	0.782	0.785	0.808	0.551	0.562
P-value	**Clinical**	0.009	0.004	0.001	0.001	<0.001	0.5	0.4
	K-SADS	0.4	0.5	0.001	0.001	<0.001	0.5	0.4

CBCL: Child Behavior Checklist / ROC: Receiver Operating Characteristics / ADHD: Attention Deficit Hyperactivity Disorder / ODD: Oppositional Defiant Disorder / K-SADS: Kiddie Schedule for Affective Disorders and Schizophrenia / AUC: Area Under Curve

Externalizing and Attention problems [12,-14]. In our study, boys obtained significantly higher scores on Attention Problems, Delinquent Behavior, Aggressive Behavior, Externalizing and Total Problems. Although Rescorla [12,14] showed an exception for nearly equal mean scores for CBCL and TRF and YSR Attention Problems in Iranian girls and boys, but our study did not replicate their results.

Comparisons of TRF with CBCL findings in 31 countries showed that the mean Total Problems scores were very similar but the Internalizing findings were less consistent across many countries [12]. It was concluded that parents more likely than teachers reported Internalizing Problems for girls compared to boys. Our study did not show any differences between CBCL and TRF results on girls' and boys' Internalizing and its three syndromes (Anxious–Depressed, Withdrawn, Somatic Complaints).

With increase of age the Somatic Complaints, Anxious/Depressed, and Internalizing scores of our participants increased significantly. It may be due to the lower prevalence of internalizing syndrome in younger girls and expected increase in its onset during the adolescence. The most consistent age effects across societies, especially on the CBCL [12] were increase of Internalizing and decrease of Externalizing with age. Based on these findings the increased mean of total problems in our study could be interpreted by

a) the higher scores of externalizing compared to internalizing between the ages 6 and 11 years, and

b) the increase of internalizing and decrease of externalizing scores after the age of 11.

Although we did not consider the SES of families in our study, the parents' education and job in our study provided interesting results. The lower level of parents' education correlated with higher CBCL and TRF Externalizing and Total scores of their children. It was true about the higher scores of parent reported Internalizing but not teacher reported ones. The house keeper mothers had children with higher scores on Internalizing and Total Problems subscales of CBCL. The level of education could affect the parents' expectations and attributions about their kids' behaviors and symptoms or their understandings of the items of the checklist.

The internal consistency of CBCL and TRF Total Problems in our study (0.91) was higher than that reported by Minai [15] in Iran (0.83-0.85), but lower than that was reported in USA sample (0.97) [11] and multicultural research (0.94) [1]. The correlations among the CBCL and TRF subscales were consistent with known co morbidities.

The significant correlation between the CBCL/TRF scales in our study shows its good cross-informant agreement on children's behavior, which is similar to the inter-rater correlations for USA and the average of all societies [12].

In our sample, based on ROC analysis, the best convergences were between CBCL Attention Problems subscale and ADHD diagnosis regarding to both clinical and structured interviews. The convergence between CBCL Total Problems subscale and any disorders based on the clinical diagnosis was good. This was the same between CBCL Externalizing and ADHD+ODD diagnosis by K-SADS and clinical diagnosis. Taken together,

these findings support the utility of the CBCL to identify the youths who have the symptoms of ADHD and ODD or any disorders. The results of AUCs for TRF subscales were lower than the corresponding percentages of the CBCL subscale. These findings suggest the higher discriminative validity of the CBCL than the TRF in the diagnosis of these disorders. Chen et al found similar results regarding the high discriminative power of the CBCL Attention Problems subscale for ADHD [22]. Hudziak et al confirmed the predictive power of the Attention Problems subscale for ADHD and the utility of low T-Scores (55) for efficiently discrimination of cases from no cases [23]. Biederman et al showed that the CBCL Delinquent Behavior and Aggressive Behavior subscales predicted the structured interview derived diagnoses of conduct and bipolar disorder, the Anxious/Depressed and Aggressive Behavior subscales predicated major depression, and the Anxious/Depressed and Attention Problems subscales predicted anxiety disorders. They approved the CBCL as a screening tool to identify co morbid and non-co morbid cases of ADHD in a pediatrically referred population, as well [24].

In a study by Bird et al [25] using the CBCL to screen childhood psychopathology in the community, they suggested that for children 6-11 years old, the CBCL and TRF were equally informative but for the 12-16 year old adolescents, the CBCL provided better information and a distinct screening advantage over the TRF and YSR. Our study showed that for 6-11 year old children, parents gave more accurate information than teachers who spent less time with their students.

Our results showed that specificities of the Attention Problems, Total Problems and Externalizing subscales were consistently higher than their sensitivities. These findings suggest that these subscales perform better to rule out than to rule in the diagnosis of ADHD, any disorders, and ADHD+ODD. This finding limits the utility of the CBCL as a screening instrument, because the false positive cases lead to unnecessary follow up interventions. Our findings regarding the correlations among the CBCL and TRF subscales were consistent with the other studies.

In almost all the subscales which were analyzed based on ROC curve, we found that the sensitivities and specificities of the CBCL subscales including Internalizing were higher than the TRF except for the Externalizing/ ADHD+ODD which was more specific according to TRF. Rescorla et al [12,14] suggested that across many countries, teachers and parents report similarly the externalizing behaviors of children but they vary in detecting the internalizing symptoms. This variation was more prominent across societies, and seems to be more culturally bound.

Our study was done on 6-11 year old children, so its findings could not be generalized to other age groups of the populations. Besides, it covered an urban community of the metropolitan capital city of Iran who were Persian speaking. This is a good idea to administer the CBCL/TRF to people in other cities with different languages and subcultures.

Conclusion

This study supports most multicultural CBCL/TRF findings. The boys obtained significantly higher scores on Externalizing and Total Problems. With increase of age Internalizing scores of our participants increased significantly. CBCL and TRF results on girls' and boys' Internalizing scores were the same. The sensitivities and specificities of the CBCL subscales were higher than the TRF except for Externalizing. CBCL is a valid and reliable instrument to consider psychiatric disorders in community samples.

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Conflict of Interest: None

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Appendix

فهرست مشکلات رفتاری کودکان (والدین)

Child Behavior Checklist (CBCL)

والدین گرامی:

در زیر فهرستی از رفتارها و حالات مختلف آورده شده است. چنانچه هر کدام از آنها در مورد کودک یا نوجوان شما در حال حاضر یا در طول ۶ ماه گذشته وجود داشته است، آن را با علامت ☒ مشخص نمایند.

ردیف	بلی (۲)	بعضی مواقع (۱)	خیر (۰)	موضوع	کد
۱				بچه‌گانه‌تر از سن خود رفتار می‌کند.	
۲				حساسیت (آلرژی) دارد (نوع حساسیت را توضیح دهید).	
۳				زیاد جرو بحث می‌کند.	
۴				آسم یا تنگی نفس دارد.	
۵				اگر کودک یا نوجوان پسر است می‌پرسیم «مثل دخترها رفتار می‌کند». اگر کودک یا نوجوان دختر است می‌پرسیم «مثل پسرها رفتار می‌کند».	
۶				بیرون از توالت مدفوع می‌کند. در هر مکانی آب دهانش را می‌اندازد (تف می‌کند).	
۷				مغرور است و از خودش تعریف می‌کند.	
۸				نمی‌تواند حواسش را جمع کند، نمی‌تواند توجه‌اش را برای مدت طولانی نگه‌دارد.	
۹				بعضی فکرها را نمی‌تواند از ذهنش خارج کند (فکر وسواسی).	
۱۰				نمی‌تواند آرام بنشیند، بی‌قرار است یا زیاد فعال است.	
۱۱				به بزرگسالان می‌چسبد، یا خیلی به آنها وابسته است.	
۱۲				از تنهایی شکایت می‌کند.	
۱۳				گیج یا سردرگم است.	
۱۴				زیاد گریه می‌کند.	
۱۵				با حیوانات بی‌رحم است.	
۱۶				نسبت به دیگران بی‌رحم است، زورگو است و دیگران را آزار می‌دهد.	
۱۷				خیال‌پردازی می‌کند یا در افکار خودش غرق می‌شود.	
۱۸				عمداً به خودش صدمه می‌زند یا قصد از بین بردن خود را دارد.	
۱۹				دلش می‌خواهد به او زیاد توجه کنند.	
۲۰				وسائلش را خراب می‌کند.	
۲۱				وسائل دیگران را خراب می‌کند.	
۲۲				در خانه نافرمانی می‌کند (حرف گوش نمی‌دهد).	
۲۳				در مدرسه نافرمانی می‌کند (حرف گوش نمی‌دهد).	
۲۴				خوب غذا نمی‌خورد.	
۲۵				با بچه‌های دیگر سازگاری ندارد.	
۲۶				از رفتار بد خود، پشیمان نمی‌شود.	
۲۷				حسود است.	
۲۸				آت و آشغال می‌خورد (منظور شیرینی و تنقلات نیست) توضیح دهید.	
۲۹				از حیوانات، وضعیت‌ها، موقعیت‌ها یا بعضی جاهای خاص (غیر از مدرسه) می‌ترسد (توضیح دهید از چه می‌ترسد).	
۳۰				از رفتن به مدرسه می‌ترسد.	
۳۱				از اینکه فکر بدی به سرش بزند یا عمل بدی انجام دهد، می‌ترسد.	
۳۲				احساس می‌کند که باید از هر جهت بی‌عیب و نقص باشد.	
۳۳				احساس می‌کند که هیچ‌کس او را دوست ندارد.	
۳۴				احساس می‌کند دیگران او را تعقیب می‌کنند.	
۳۵				احساس بی‌ارزشی می‌کند، خودش را کمتر از آنچه هست می‌پندارد.	
۳۶				زیاد به خود صدمه می‌زند، مستعد آسیب دیدن است.	

ردیف	بلی (۲)	بعضی مواقع (۱)	خیر (۰)	موضوع	کد
۳۷				زیاد جنگ و دعوا می‌کند.	
۳۸				زیاد سر به سرش می‌گذارند و زیاد مورد آزار وتمسخر دیگران قرار می‌گیرد.	
۳۹				دور و بر بچه‌هایی می‌گردد که دردسر، درست می‌کنند.	
۴۰				صداهایی می‌شنود که وجود خارجی ندارند (دیگران قادر به شنیدن آنها نیستند).	
۴۱				بدون فکر عمل می‌کند.	
۴۲				تنهایی را دوست دارد.	
۴۳				دروغ می‌گوید، حیله‌گری و تقلب می‌کند، دیگران را گول می‌زند.	
۴۴				عادت به ناخن جویدن دارد.	
۴۵				زیاد حساس است، زود عصبی و هیجان‌زده می‌شود.	
۴۶				حرکات و پرش‌های غیرارادی در اندام بدن خود دارد.	
۴۷				خواب‌های وحشتناک می‌بیند.	
۴۸				بچه‌های دیگر او را دوست ندارند.	
۴۹				یبوست دارد.	
۵۰				بسیار ترسوست و مضطرب می‌شود.	
۵۱				احساس سرگیجه می‌کند.	
۵۲				زیاد احساس گناه می‌کند.	
۵۳				زیاد غذا می‌خورد (پرخوراست).	
۵۴				بیش از اندازه احساس خستگی می‌کند.	
۵۵				اضافه وزن دارد.	
۵۶				از مشکلات و ناراحتی‌های جسمی زیر در خود شکایت دارد (مشکلاتی که به نظر پزشکان جسمی نبوده و علت عصبی دارد).	
				الف: درد در نقاط مختلف بدن	
				ب: سردرد	
				ج: حالت تهوع، احساس حال به هم خوردن	
				د: ناراحتی چشمی	
				ه: جوش یا دیگر مشکلات پوستی	
				ح: سایر ناراحتی‌ها (قید گردد)	
۵۷				بی‌دلیل با دیگران کتک‌کاری می‌کند.	
۵۸				با بینی، پوست یا دیگر قسمت‌های بدنش ور می‌رود و آنها را زخم می‌کند.	
۵۹				با آلت تناسلی خود در حضور دیگران ور می‌رود و بازی می‌کند.	
۶۰				با آلت تناسلی خود زیاد بازی می‌کند.	
۶۱				در درس خواندن ضعیف است.	
۶۲				دست و پا چلفتی است.	
۶۳				ترجیح می‌دهد با بچه‌های کوچکتر از خودش باشد.	
۶۴				ترجیح می‌دهد با بچه‌های بزرگتر از خودش باشد.	
۶۵				از صحبت کردن با افراد غریبه خودداری می‌کند.	
۶۶				خودش را مجبور به بعضی اعمال می‌بیند (اعمال وسواسی).	
۶۷				از منزل فرار می‌کند.	
۶۸				زیاد جیغ می‌کشد.	
۶۹				مرموز و تودار است، مطالب را توی خودش نگه می‌دارد.	
۷۰				چیزهایی را می‌بیند که وجود خارجی ندارند (دیگران قادر به دیدن آنها نیستند)	
۷۱				به خودش شک دارد و سریع شرمگین می‌شود.	
۷۲				آتش افروزی می‌کند.	
۷۳				مشکلات جنسی دارد (توضیح دهید).	

ردیف	بلی (۲)	بعضی مواقع (۱)	خیر (۰)	موضوع	کد
۷۴				خودنمایی یا دلقک بازی می‌کند.	
۷۵				خجالتی و کم روست.	
۷۶				کمتر از بچه‌های دیگر می‌خوابد.	
۷۷				در طول روز یا شب بیشتر از دیگر بچه‌ها می‌خوابد.	
۷۸				با مدفوع خود بازی می‌کند.	
۷۹				در صحبت کردن و در بیان کلمات مشکل دارد (مثلاً لکنت زبان دارد).	
۸۰				بدون هدف به جایی خیره می‌شود.	
۸۱				در منزل بدون اجازه وسایل را برمی‌دارد (دزدی می‌کند).	
۸۲				خارج از منزل بدون اجازه وسایل را برمی‌دارد (دزدی می‌کند).	
۸۳				چیزهایی را که احتیاج ندارد جمع می‌کند.	
۸۴				رفتارهای عجیب و غریب دارد (توضیح دهید).	
۸۵				عقاید عجیب و غریب دارد (توضیح دهید).	
۸۶				کله شق و یکدنده است.	
۸۷				در خلق و یا احساساتش تغییرات ناگهانی دارد.	
۸۸				زیاد قهر می‌کند و اخمو است.	
۸۹				بدگمان و شکاک است.	
۹۰				فحش می‌دهد یا در صحبت‌هایش، کلمات زشت و وقیحانه به کار می‌برد.	
۹۱				می‌گوید از زندگی سیر شده است و حرف‌های مأیوس کننده می‌زند.	
۹۲				زیاد صحبت می‌کند.	
۹۳				در خواب را ه می‌رود یا صحبت می‌کند (توضیح دهید).	
۹۴				دیگران را مسخره و اذیت می‌کند.	
۹۵				بد خلق یا تندمزاج است.	
۹۶				راجع به مسائل جنسی زیاد فکر می‌کند.	
۹۷				مردم را تهدید می‌کند.	
۹۸				انگشت شست خود را می‌مکد.	
۹۹				فوق‌العاده به تمیزی و مرتب بودن اهمیت می‌دهد.	
۱۰۰				در خواب رفتن مشکل دارد.	
۱۰۱				از مدرسه گریزان است و فرار می‌کند.	
۱۰۲				کم‌فعالیت و کم انرژی است.	
۱۰۳				ناراحت، غمگین، و افسرده است.	
۱۰۴				بیش از حد پر سر و صدا است.	
۱۰۵				مواد مخدر مصرف می‌کند.	
۱۰۶				خرابکاری می‌کند.	
۱۰۷				در روز شلوارش را خیس می‌کند.	
۱۰۸				شب ادراری دارد.	
۱۰۹				ناله می‌کند.	
۱۱۰				اگر کودک یا نوجوان پسر است «آرزو می‌کند دختر باشد». اگر کودک یا نوجوان دختر است «آرزو می‌کند پسر باشد».	
۱۱۱				با دیگران ارتباط برقرار نمی‌کند و گوشه‌گیر است.	
۱۱۲				نگران است.	
۱۱۳				چنانچه کودک یا نوجوان مشکلات دیگری دارد که در فهرست بالا نیامده آنها را بنویسید. ۱- ۲- ۳-	