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博士論文

Verifying the Indonesian Version of the Child Behavior Checklist
(インドネシア版小児行動チェックリストの妥当性について)

神戸大学大学院保健学研究科保健学専攻

Sri Hartini

Verifying the Indonesian Version of the Child Behavior Checklist

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Abstract

Background:

The Child Behavior Checklist for Ages 6–18 (CBCL/6-18) is widely used to assess emotional and behavioral problems in children in the USA and Europe. Given that Indonesia has a more traditional culture that is different from the USA and Europe, it is possible that the CBCL is not effective in assessing the emotional and behavioral problems of Indonesian children, due to a difference in culture. Moreover, the validity and reliability of the Indonesian version of the CBCL/6-18 have not been tested. The purpose of this study was therefore to test the validity and reliability of the Indonesian version of the CBCL/6-18.

Methods:

Three hundred and eight mothers of children attending public primary schools participated in this study by completing the self-administered questionnaire.

Results:

All items of the CBCL were positively correlated with total score (0.15–0.59), and total problems score had high internal consistency ($r = 0.94$). The correlations between questionnaire items and the eight subscales of the CBCL ranged from 0.10 to 0.74 and from 0.12 to 0.64 for the internalizing and externalizing scales, respectively ($P < 0.01$). The eight subscales of the CBCL had good internal consistency (0.61–0.87).

Conclusions:

The CBCL/6-18 is a valid and reliable instrument to measure emotional and behavioral problems in Indonesian children aged 6–12 years.

Keyword: CBCL/6-18, emotional and behavioral problems, validity, Indonesia, assessment

Introduction

The Child Behavior Checklist for Ages 6-18 (CBCL/6-18)) is widely used for assessing emotional and behavioral problems in children in the USA and Europe. It is a checklist administered to parents that assesses any emotional and behavioral problems in their children at the present and in the past 6 months. It consists of 118 items, which are divided into two broad scales (internalizing and externalizing scale) and eight subscales. The subscales withdrawn, somatic complaints, and anxiety are included in the internalizing scale, while rule-breaking behavior and aggressive behavior belong to the externalizing scale.

The CBCL has been translated into over 90 languages and used in many studies including cross-cultural studies.¹⁻³ Rescorla et al. analyzed the CBCL in > 31 societies and found that the mean score for total problems was within 1 SD of the overall mean in 19 of 31 societies. These findings indicate that parents' reports regarding their children's problems are similar in many countries, even if they have different cultural backgrounds.⁴

The validity of the CBCL has been demonstrated in previous studies. The average Cronbach alpha scores for 31 societies (55,508 samples) for total problems, internalizing, and externalizing were reported to be 0.93, 0.83, and 0.87, respectively. The means of the eight subscales ranged from 0.58 to 0.84.⁴ In a study on the validity of the CBCL/6-18 on 145 African-American participants, the correlations between withdrawn, somatic complaint, and anxiety with internalizing were 0.52, 0.55, and 0.79, respectively, while those between rule-breaking behavior and aggressive behavior with externalizing were 0.47 and 0.81 respectively. In addition, the correlations between the scales social problems, thought problems, and attention problems with total problems were 0.87, 0.64, and 0.74, respectively.⁵ The same type of studies have been conducted in a few Asian countries, and similar findings have been obtained. For example, in a study of 840 Singaporean people, the Cronbach alphas obtained for total problems, internalizing, and externalizing were high (0.96, 0.89, and 0.91 respectively; $p < .01$).⁶ Studies on the CBCL conducted in Hong Kong and Sri Lanka have also reported good

reliability and validity.⁷⁻⁸

The Indonesian version of the CBCL/6-18 was developed by Drs. Ariane B. Dessens and Frank Verhulst in 2007. The translation of the Indonesian version was completed independently in an early phase, but this translation was checked and granted an official license by the Achenbach System of Empirically Based Assessment (ASEBA) in the same year. The validity and reliability have not been proven. Given that Indonesia has a predominant Muslim population (237 million)⁹ and a culture that is different from the USA and Europe, it is possible that the CBCL is ineffective in assessing emotional and behavioral problems in Indonesian children. Indeed, in Indonesian society, people commonly live together with their extended families. In some families, aunts, uncles, and the caregiver live in the same house. Indonesia consists of many Islands and different local languages, but 87.2% of its citizens are Muslim, and cultural influences are shared throughout the diverse population. Education and business are conducted in the official Indonesia languages. More than 100 million people live on Java Island, and they share the same history and Javanese culture. People in this area speak both Indonesian and Javanese (in private life). We consider the people who live in this area to be representative of the general Indonesian population.

The purpose of this study was therefore to test the criterion validity and reliability of the Indonesian version of the CBCL/6-18.

Methods

Study design and subjects

This study used a cross-sectional design. The District of Sleman in the Yogyakarta Province was chosen as the study site. The present subjects were parents of typically developing children aged 6-12 years attending a public primary school. The inclusion criteria specified mothers of children who attended one of three selected public primary schools and who had no physical or intellectual disabilities. Students in Indonesia undergo medical and psychological examination when they enter primary school, and children diagnosed with physical or intellectual disabilities are referred to specialized schools.

Of the 308 mothers who participated in this study. 90.9% of mothers were Muslim, 7.5% were non-Muslim, and 1.6% did not disclose this information. Most of the mothers had obtained an education level beyond senior high school (primary school, 2.3%; junior high school, 27.9%, senior high school, 50.3%, undergraduate, 15.9%; and no answer, 3.5%). The selected schools were located in urban areas; 8.1% of mothers worked as government employees; 20.8% worked in a private company; and 66.5% worked in small shops as employee or owners (4.5% did not answer). Subject socioeconomic background was close to the Indonesian average.

Instrument

The Child Behavior Checklist (CBCL/6-18) was used.¹⁰ We obtained a site license agreement to utilize the Indonesian version of the CBCL/6-18 for the present study for Professor Thomas Achenbach. The CBCL/6-18 is an empirically derived behavior rating scale, applicable for children and adolescents between the ages of 6 and 18. Parent rate 118 items as 0, not true; 1, somewhat or sometimes true; or 2, very true or often true. The items are divided into eight CBCL scales (i.e. withdrawn, somatic complaint, anxious, social problems, thought problems, attention problems, rule-breaking behavior, and aggressive behavior). Withdrawn, somatic complaints, and anxious are grouped into the broad scale “internalizing” while rule-breaking behavior and aggressive behavior are grouped into the broad scale “externalizing”. Total problems include social problems, thought problems, and attention problems. Thirty-three items that could not be assigned to any of these scales are termed “other problems”. The sum from the eight subscales forms the total score.

Data collection

This study was conducted in Yogyakarta from February to April 2014. After briefing at the beginning of the study on how to fill in the forms and provide written informed consent, the parents of children aged 6-12 years completed the questionnaires. After completion, the questionnaires were checked for misplaced information.

Ethics

This study was approved by the Ministry of Education and Culture, Faculty of Medicine,

Gadjah Mada University, Medical and Health Research Ethics Committee (MHREC). The study was conducted in accordance with the Declaration of Helsinki 2008. Permission to conduct the study was granted by the local government of Yogyakarta Province.

Statistical analysis

Statistical analysis was performed using SPSS version 19.0 (IBM SPSS, IBM Armonk, New York, USA). Pearson's product moment was calculated to estimate the correlations between all items of the CBCL with the CBCL scales, total problem, internalizing, and externalizing. The internal consistency of CBCL was measured by calculating Cronbach alpha.

Results

Validity of CBCL

Correlations between CBCL items and CBCL total score.

All items had good positive correlations with the total score ($r=0.15-0.59$). The range of the correlations between withdrawn, somatic complaints, anxious, social problems, thought problems, attention problems, rule-breaking behavior, and aggressive behavior respectively with total score were 0.32-0.50, 0.15-0.55, 0.26-0.59, 0.26-0.51, 0.26-0.51, 0.34-0.59, 0.17-0.55, and 0.35-0.59, respectively (Table 1). The lowest item correlation with total score was drug use ($r=0.17$; $P<0.01$), while temper tantrum and nervous had the highest correlation with total score ($r=0.59$; $P<0.01$).

Cross-item correlation with CBCL scales.

Cross-item correlation with CBCL scales, total problems, internalizing, and externalizing was analyzed separately. The items of the CBCL are divided into CBCL scales (i.e. withdrawn, somatic complaints, anxious, social problems, thought problems, attention problems, rule-breaking behavior, and aggressive behavior). The correlation between CBCL items with the CBCL scales ranged from 0.10 to 0.74. The highest correlation was between physical problem-nausea (without known medical cause) and somatic complains ($r=0.74$; $P<0.001$). Meanwhile, physically attacking people and aggressive behavior had the lowest correlation ($r=0.10$). With regard to the top 10

highest correlations, five items correlated with the CBCL scales, somatic complaints, and one item correlated with attention problems. The 10 highest cross-item correlations with the CBCL scales are shown in Table 2

Cross-item correlations.

The eight CBCL scales are divided into total problems, internalizing, and externalizing. Withdrawn, somatic complaints, and anxious are included in internalizing, while rule-breaking behavior and aggressive behavior belong to externalizing. Total problems include social problems, thought problems, and attention problems. The correlation between CBCL items and total problems, internalizing, and externalizing ranged from 0.12 to 0.64 ($p < 0.01$). The 10 highest correlations between CBCL items and total problems, internalizing, and externalizing ranged from 0.58 to 0.64 (Table 3). Among these, “poorly coordinated” was the only item that was correlated with total problems ($r = 0.58$).

Cross-scale correlations

The correlations among the subscales, total problem, internalizing, and externalizing are shown in the table 4. Withdrawn, somatic complaints, and anxious were highly and positive correlated with internalizing ($r = 0.83, 0.77, \text{ and } 0.92$ respectively), while rule-breaking behavior and aggressive behavior were highly and positive correlated with externalizing ($r = 0.82 \text{ and } 0.97$, respectively). Furthermore, social problems, thought problems, and attention problems were highly and positive correlated with total problems ($r = 0.75, 0.72, \text{ and } 0.93$, respectively).

Reliability of the CBCL

The internal consistency reliability of the CBCL total problems score was 0.94. The eight syndrome scales of CBCL had good internal consistency (0.61-0.87). Six of them (withdrawn, somatic complains, anxious, attention problems, rule-breaking behavior, and aggressive behavior) had high internal consistency whereas social problems and thought problems had internal consistency < 0.70 . Thought problems had the lowest internal consistency and aggressive behavior had the highest. Cronbach alpha coefficients for total problems, internalizing, and externalizing were 0.84, 0.89, and 0.89

respectively (Table 5). The internal consistency of total problems score was the same for both girls and boys (0.88). Internal consistency of eight CBCL scales in girls and boys had the same range (0.85-0.87), whereas the range of Cronbach alpha for total problems, internalizing, and externalizing was higher in boys than girls (0.84-0.91 vs 0.83-0.90); Table 6).

Discussion

This is the first report to test the criterion validity and reliability of the CBCL/6-18 on an Indonesian population. The present study is important because children from Indonesia and the USA differ on the frequency with which negotiation and disengagement are exhibited during conflicts. French *et al.* reported that Indonesian children disengaged from conflicts more often than did US children, whereas US children more frequently reported using negotiation¹¹. Other types of social behavior, such as friendships among Indonesia youth, appear somewhat less close, more centered on instrumental aid, less focused on enhancement of worth, and more extensive and less exclusive than those of US youth.¹² Moreover, Indonesian and US adolescents differ on aggressive behavior; Indonesian adolescent boys tend to be more physically aggressive than US adolescents.¹³ It was thus assumed in the present study that US and Indonesian children differ in behavior, especially in social problems and aggressive behaviors. Given that the behaviors of Indonesian children are so different from those of US children, it is necessary to confirm whether the questionnaire developed in the USA can be applied to the assessment of emotional and behavioral problems in Indonesian children.

This study focused on the correlations among CBCL/6-18 items with total score, CBCL scales, and the broad scales of internalizing and externalizing. All CBCL items were found to have good positive correlations and the eight syndrome scales have good internal consistency. The number of the people, including children with emotional distress is increasing in Indonesia.¹⁴ The Indonesian version of the CBCL/6-18 could be useful for assessment of emotional and behavioral problems in Indonesian children, but few studies have examined the validity of the CBCL/6-18 in Muslim countries in a limited number of samples. Rahman *et al.* reported the range of internal consistency of

the CBCL/6-18 in Kuala Lumpur as 0.70-0.95.¹⁵ Among Iranian children, the CBCL/6-18 has shown high reliability, with good positive correlations among all scales.¹⁶

In the cross-correlation, all subscales that belong to the internalizing scale (withdrawn, somatic complaints, and anxious) had good positive correlations with the internalizing (0.83, 0.77, 0.92, respectively). Similarly, those scales that form the externalizing scale (rule-breaking behavior and aggressive behavior) had good positive correlations with externalizing scales. This indicates that Indonesian children suffer from internalizing and externalizing problems similar to those experienced by African-American children.⁵ In contrast, a study conducted in Sri Lanka found a higher score for externalizing problems compared with that for internalizing problems.⁸ The overall results of the present study, however, indicate that the CBCL/6-18 is a valid instrument that could be used to measure emotional and behavioral problems in Indonesian children aged 6-12 years in clinical and research settings.

In the present study, nervous (attention problem scale) and temper tantrum (aggressive behavior scale) provide the strongest discrimination with total score, while drug use (social problems scale) provides the lowest discrimination with total score. These findings are consistent with the result from Singapore, that attention problems (poor academic performance and difficulty in concentration) provide the strongest discrimination.⁶

The present internal consistency of the total problems score (0.94) is higher than that reported by Doost et al. in Iran (0.91),¹⁶ but it is lower than that in the USA (0.97).¹⁰ The present Cronbach alphas for total problems, internalizing, and externalizing were very high (0.84, 0.89, and 0.89, respectively), similar to those reported by Achenbach (0.97, 0.90, and 0.94, respectively).⁴ The coefficients for each of these three scales were relatively large ($\alpha \geq 0.80$). These findings demonstrate that the CBCL is appropriate for assessing emotional and behavioral problems in Indonesian children. In the present study, alpha scores of total problem, internalizing, and externalizing in boys and girls (0.85-0.87) were higher than that reported in Sri Lanka (0.67-0.79 for girls and

0.66-0.79 for boys).⁸

In the present study six CBCL scales had high internal consistency (>0.70) and two scales (social problems and thought problems) had internal consistency <0.70. This is consistent with the finding from Japan, which found seven CBCL scale with high internal consistency and one (thought problems) with internal consistency <0.70.¹⁷ Finally, this result is consistent and similar in validity and reliability compared with the USA, Europe, Asia, and other Islamic countries. The present study was conducted in the central part of Java Island, because the culture of this area prevalent in Indonesia. More than 80% of the people in this area send their children to the public school nearest home. The public schools accept children from a range of different religious and economic backgrounds, but the most important limitation of this study is related to the sheer diversity of Indonesia. We focused on a sample from a very limited geographic area, and should therefore be cautious of overgeneralization.

Conclusion

This is the first study to evaluate the validity and reliability of the CBCL/6-18 in Indonesian children aged 6-12. CBCL/6-18 has good validity and high reliability for Indonesian children. The Indonesian version of the CBCL/6-18 is therefore suitable for assessing emotional and behavioral problems in Indonesian children aged 6-12 years.

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Table Legends

- Table 1. Correlations between CBCL items and CBCL total score (n=308)
- Table 2. The 10 items with the highest correlations with CBCL scales (n=308)
- Table 3. The 10 items with the highest correlations with total problem, internalizing, and externalizing (n=308)
- Table 4. Correlation among CBCL scales, total problems, internalizing, and externalizing.
- Table 5. Internal consistency of the CBCL scales (n=308).
- Table 6. Internal consistency of the CBCL scales vs gender

Table 1. Correlation between CBCL items and CBCL total score (N=308)

Withdrawn			Thought problems		
No.	Item of CBCL	r	No.	Item of CBCL	r
42	Would rather be alone than with others	.39**	9	Has obsessions	.42**
65	Refuses to talk	.43**	40	Hears sounds	.26**
69	Secretive, keeps things to self	.47**	66	Repeats certain acts	.51**
75	Too shy or timid	.46**	70	Sees things	.29**
80	Stares blankly	.36**	80	Stares blankly	.36**
88	Sulks a lot	.50**	84	Strange behavior	.37**
102	Underactive	.49**	85	Strange ideas	.26**
103	Unhappy	.50**			
111	Withdrawn	.32**			
Somatic complaints			Attention problems		
No.	Item of CBCL	r	No.	Item of CBCL	r
51.	Feels dizzy	.43**	1.	Acts too young for his/her age	.34**
54.	Overtired	.55**	8.	Cannot concentrate	.49**
56a.	Aches or pains	.25**	10.	Cannot sit still	.43**
56b.	Headaches	.33**	13.	Confused	.49**
56c.	Nausea	.39**	17.	Daydreams	.36**
56d.	Problem with eyes	.15*	41.	Impulsive	.52**
56e.	Rashes	.32**	45.	Nervous	.59**
56f.	Stomachaches	.43**	46.	Nervous movements	.41**
56g.	Vomiting	.33**	61.	Poor school work	.49**
56h.	Other	.25**	62.	Poorly coordinated	.49**
			80	Stares blankly	.36**
Anxious			Rule- breaking behavior		
No.	Item of CBCL	r	No.	Item of CBCL	R
12.	Complains of loneliness	.49**	26.	Does not seem to feel shame	.51**
14.	Cries a lot	.43**	39.	Hangs around	.27**
32.	Feels that she/he has to be perfect	.26**	43.	Cheats	.55**
33.	Feels that no one loves him/her	.49**	63.	Prefers being with other kids	.32**
34.	Feels that others are out to get him/her	.35**	67.	Runs away	.33**
35.	Feels worthless or inferior	.46**	72.	Sets fires	.29**
41.	Impulsive	.52**	81.	Steals at home	.36**
45.	Nervous	.59**	82.	Steals outside	.36**
50.	Too fearful or anxious	.53**	90.	Swears	.44**
52.	Feels too guilty	.53**	96.	Thinks about sex	.20**
71.	Self-conscious	.47**	101.	Skips school	.29**
89.	Suspicious	.56**	105.	Uses drugs	.17**
103.	Unhappy	.50**	106	Vandalizes	.43**
112.	Worries	.40**			
Social problems			Aggressive behavior		
No.	Item of CBCL	r	No.	Item of CBCL	R
1.	Acts too young for his/her age	.34**	3.	Argues a lot	.52**
11.	Clings to adults	.40**	7.	Braggs	.41**
25.	Does not get along with other kids	.26**	16.	Behaves cruelly	.47**
38.	Gets teased a lot	.46**	19.	Demands a lot attention	.52**
48.	Not liked by other kids	.51**	20.	Destroys his/her own things	.49**
55.	Overweight	.31**	21.	Destroys things in his/her family	.46**
62.	Poorly coordinated	.49**	22.	Disobedient at home	.57**
64.	Prefers being with younger kids	.37**	23.	Disobedient at school	.41**
68.	Screams a lot	.46**	37.	Gets into many fights	.35**

74.	Showing off or clowning	.36**	57.	Physically attacks people	.35**
			86.	Stubborn	.58**
			87.	Has sudden changes in mood	.50**
			93.	Talks too much	.45**
			94.	Teases a lot	.51**
			95.	Throws temper tantrums	.59**
			97.	Threatens people	.43**

* P<0.05; ** P<0.01. CBCL, Child Behavior Checklist

Table 2. The 10 items with the highest correlations with CBCL scales (N = 308)

Item No.	Item	Scale	Correlation
56 c	Physical problem: nausea (without known medical cause)	Somatic complaints	.74**
56f	Physical problem: stomachaches (without known medical cause)	Somatic complaints	.71**
56b	Physical problem : headaches (without known medical cause)	Somatic complaints	.69**
69	Secretive, keeps things to self	Withdrawn	.68**
56g	Physical problem: vomiting (without known medical cause)	Somatic complaints	.66**
45	Nervous	Anxious	.65**
50	Too fearful or anxious	Anxious	.64**
8	Cannot concentrate	Attention	.63**
51	Feels dizzy or lightheaded	Somatic complaints	.63**
75	Too shy or timid	Withdrawn	.62**

** $P < 0.01$. CBCL, Child Behavior Checklist

Table 3. The 10 items with the highest correlations with total problem, internalizing, and externalizing (N= 308)

Item No.	Item	CBCL total problem, Internalizing and Externalizing	Correlation
95	Throws temper tantrums	Externalizing	.64**
22	Disobedient at home	Externalizing	.63**
86	Stubborn	Externalizing	.63**
45	Nervous	Internalizing	.61**
94	Teases a lot	Externalizing	.61**
50	Too fearful or anxious	Internalizing	.60**
43	Cheats	Externalizing	.60**
3	Argues a lot	Externalizing	.60**
52	Feels too guilty	Internalizing	.59**
62	Poorly coordinated	Total problems	.58**

** $P < 0.01$. CBCL, Child Behavior Checklist

Table 4. Correlation among scales, total problems, internalizing, and externalizing

Scale of CBCL	Internalizing	Withdrawn	Somatic	Anxious	Social	Thought	Attention	RBB	Aggressive	Externalizing	Total problem
Internalizing	1.00										
Withdrawn	.83** ^a	1.00									
Somatic	.77** ^a	.47** ^a	1.00								
Anxious	.92** ^a	.71** ^a	.55** ^a	1.00							
Social	.59**	.51**	.36**	.61**	1.00						
Thought	.58**	.56**	.37**	.55**	.47**	1.00					
Attention	.71**	.58**	.44**	.74**	.73**	.57**	1.00				
RBB	.60**	.58**	.38**	.58**	.52**	.57**	.61**	1.00			
Aggressive	.65**	.56**	.42**	.65**	.61**	.52**	.69**	.66** ^b	1.00		
Externalizing	.69**	.69**	.44**	.68**	.68**	.57**	.72**	.82** ^b	.97** ^b	1.00	
Total problems	.74**	.74**	.46**	.75**	.75**	.72**	.93**	.66**	.72**	.76**	1.00

**P<0.01. ^a internalizing subscale; ^c externalizing subscale. CBCL, Child Behavior Checklist

Table 5. Internal consistency of the CBCL scales (n=308)

CBCL Scales	α
Withdrawn	.72
Somatic complaints	.74
Anxious	.80
Social problems	.62
Thought problems	.61
Attention problems	.73
Rule-breaking behavior	.72
Aggressive behavior	.87
Internalizing	.89
Externalizing	.89
Total problems	.84
Total problems score	.94

CBCL, Child Behavior Checklist

Table 6. Internal consistency of the CBCL scales vs gender (n=308)

CBCL Scales	Present study	
	Girls (n = 163)	Boys (n = 145)
Total problems	.84	.91
Internalizing	.90	.84
Externalizing	.83	.84
Withdrawn	.86	.87
Somatic complaints	.86	.87
Anxious	.85	.85
Social problems	.86	.87
Thought problems	.87	.87
Attention problems	.86	.86
Rule-breaking behavior	.87	.87
Aggressive behavior	.85	.85
Total problems score	.88	.88

CBCL, Child Behavior Checklist