

Research Paper

A Preliminary Evaluation of the Psychometric Properties of the Children's Coping Behavior Questionnaire (CCBQ)



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ABSTRACT

Objectives Children's and adolescents' coping styles are associated with distress and adjustment. Despite the significance and implications of children's coping responses, no accepted standard exists to measure children's coping behavior. The purpose of the present study was standardization and study of the psychometric properties of Children's Coping Behavior Questionnaire (CCBQ) in Northern Iran (Guilan).

Methods This was a correlation study and was implemented among 10- to 16-year-old students of Guilan. Among statistical population, 300 students (139 girls and 161 boys with an average age of 13.23) were selected using multistage sampling, and they responded to the items in CCBQ. To assess reliability and validity we used Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and convergent validity. The reliability was assessed by using two methods; Cronbach's alpha and test-retest. The face validity and construct validity of the questionnaire were approved by a professors of psychology.

Results Based on factor analysis using principal components and varimax rotation, final analyses revealed a 41-item coping measure with a 3-factor solution of "diversion", "ameliorative coping", and "destructive coping", which explained more than 60.9% of the total variance. Convergence validity of the questionnaire showed a satisfactory correlation in the total score of CCBQ. To determine concurrent validity with the CCBQ we used State-Trait Anxiety Children Inventory correlations that were satisfactory ($P < 0.05$). Cronbach's alpha and test-retest for the total scale were between 0.74 and 0.91. The measurement showed strong reliability and good preliminary validity data.

Conclusion Our results established that the Children's Coping Behavior Questionnaire is a reliable and valid method and is capable to be used in Iranian society to investigate emotional problems. Future studies need to be undertaken in a clinical population.

Key words:

Psychometric, factor analysis, Children's Coping Behavior Questionnaire

Extended Abstract**1. Introduction**

Coping skills apply to actions and cognitions that control stressful situations and change

into more specific behaviors as children or adolescents grow up [1, 2]. Through their investigations, Edger and Skinner (2003) showed that faced with a stressful event children are apt to draw on behavioral coping strategies, while adolescents are more likely to take a cognitive approach [3].

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According to Hernandez (2008), children and adolescents acquire coping skills more compatibility as they grow older [2]. Children's and adolescents' ability to control anxiety has a great influence on their conduct [4]. If they are made aware of the situations which cause anger or anxiety, they can prevent such conditions [6]. Accordingly, a parent who makes an effort to improve his/her child's ability to apprehend and control excitements is, in fact, helping to maintain his/her own mental health [7]. Therefore, to characterize excitements, a technique is firstly required to identify coping behaviors in children and adolescents; secondly, the proper method to control excitements must be taught to children and adolescents. The main objective of this study is to evaluate the reliability, validity, and structural equation modeling of Children's Coping Behaviors Questionnaire (CCBQ).

2. Method

To prepare the Persian version of the questionnaire, the questions were translated by two bilingual translators. After obtaining psychologists' confirmation, the provided questionnaire was conducted on a pilot basis on 16 teenagers. In case any sentence was unclear, it would be revised and rewritten. The method of this correlation study is factor analysis, and data has been collected using the Persian version of CCBQ in Guilan province. The sample consisted of 300 adolescents aged 10-16 years who lived in rural or urban areas of Guilan during the test. Their average age and the standard deviations were 13.23 and 1.75, respectively.

Factor analysis, structural equation modeling, and criterion validity were utilized simultaneously with state-trait anxiety children inventory to determine the validity of this questionnaire. Reliability study was also performed on 60 students by using internal consistency and a retest method at 2-week intervals. Additionally, the measurement tool was CCBQ, developed by Fernandez in 2008 for children aged 10-16 years. The questionnaire consists of 57 questions and 3 components. These components include "deviation from the problem" and "coping with the problem" to improve the situation or find a solution and express the emotions, and "destructive coping", most of whose responses are maladaptive [2].

3. Results

To confirm the extracted factors of the Persian version of CCBQ, the authors employed Confirmatory Factor Analysis (CFA). This method uses some indices, including the ratio of Chi square to its degrees of freedom, Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), and finally Root Mean Square Error of Approximation (RMSEA) [8, 9] (Table 1).

All the indices are of good value and confirm the three-factor structure of the Persian version of CCBQ. The ratio of chi square to its degrees of freedom investigates the hypothesis of coordination between this intended model and the covariance pattern of observed variables; this ratio was found to be 5.504. Moreover, GFI and AGFI indicate the relative values of variances and covariance that are explained by the model. The closer is the value to 1, the higher is GFI with respect to the observed data [10]. In this examined model, these values were respectively 0.92 and 0.807. AGFI for good patterns was measured in the range of 0.92-0.95. In this instance too, the closer is the value to 1, the better is the model's GFI. Besides, in the intended model this index estimated to be 0.93. Generally, root mean square error of approximation is 0.05 and lower for strong models, 0.05-0.08 for average models, and 0.1 and higher for weak models [24]. In this model, the index was 0.063.

Concurrent validity of the Persian version of CCBQ was calculated through the simultaneous implementation of the above questionnaire and the state-trait anxiety inventory for children. The results showed that there is a positive and significant correlation between the total score of the three CCBQ factors and the latter questionnaire. The Persian version of CCBQ was conducted on 60 participants at 2-week intervals. The value of this coefficient for the whole scale was 0.77. Specifically, the values were 0.84, 0.76, and 0.53 for the sub-scales of deviation from the problem, coping with the problem and destructive coping, respectively. Using Cronbach's alpha coefficients, the authors obtained an internal consistency ranging between 0.91 and 0.74. This value indicates that the reliability of CCBQ is high.

Table 1. Confirmatory factor analysis of CCBQ

Pattern	χ^2	df	df/ χ	P	GFI	AGFI	CFI	RMSEA
Three-factor structure	4513.490	820	5.504	0.001	0.92	0.807	0.91	0.063

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4. Discussion

Analyzing the Persian version of CCBQ demonstrated a three-factor structure with a high factor load in this scale. The first factor of CCBQ assesses behaviors based on deviation from the problem, which includes items such as evaluating family routines and support, positive thinking, spirituality, and distraction. In such a situation, family support for children and adolescents means changing the focus from the problem to other activities to stimulate positive thinking [11, 12].

The second factor of CCBQ is ameliorative coping with the problem to improve the situation. This improvement for children and adolescents can be achieved through finding some solutions for making balance in their lives. Hence, family, friends, and peers can function as some means of achieving this goal, and they can have an indirect effect on emotions [13, 14]. The third factor of CCBQ is destructive coping. Negative coping has the greatest impact on adjustment, especially after the stressors in life (2.25). Failure in controlling emotions can be an important factor in causing anxiety disorders [15, 16]. Moreover, deviation from the problem is compatible with social support, habits, as well as positive and spiritual thinking [2, 17]. Teaching children and adolescents to control their emotions helps them to become aware of how their behavior affects others. Thus, they gain sufficient awareness of inappropriate coping with the so-called “negative emotions”. This behavior is manifested by deviation from the problem and dealing with it. This suggestion is consistent with the results of previous studies [13, 16].

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Conflict of Interest

The authors declare no conflicts of interest.