Psychometric Properties of the Persian Version of the Coping with Children's Negative Emotions Scale

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Abstract

Background: Despite the importance of the parents’ role in socializing children, there is no specific tool in this field in Iran. The Coping with Children’s Negative Emotions Scale (CCNES) is a tool to assess the parents' responses to children’s emotions.

Objectives: This study evaluated the reliability and factor structure of a Persian version of the CCNES.

Methods: This study assessed the psychometrics of the CCNES with 400 mothers after translation/back-translation and adaptation into Persian. Mothers were recruited if they had a child aged 3 - 6 years old, lived in municipal district 6 of Tehran and scored less than 25 in the General Health Questionnaire.

Results: The results revealed the internal consistency and confirmed the test-retest reliability of the Persian version of CCNES. The exploratory factor analysis yielded a model with six subscales. The Cronbach’s alpha coefficients of the obtained factors ranged from moderate to good/very good: Distress Reactions (DR, 0.65), Punitive Reactions (PR, 0.80), Minimizing Reactions (MR, 0.80), Ignoring Reactions (IR, 0.8), Expressive Encouragement (EE, 0.84), Emotion-Problem Focused Reactions (EPFR, 0.88).

Conclusions: According to the results, the Persian version of CCNES is a reliable and valid instrument for mothers to assess their responses to children’s emotions. Similar research is recommended for fathers.

Keywords: Child, Coping Strategy, Emotions, Psychometrics, Scale, Socialization

1. Background

The parent-child relationship is the primary context in which children learn about their emotions, and parents’ responses to children’s emotions play a crucial role in shaping children’s understanding and regulation of their emotions (1). Considerable research supports relationships between parents’ supportive responses and children’s psychopathology (2). Recent research complicates these relationships in two ways. First, standard approaches which categorize strategies as “supportive” and “unsupportive” may be masking unique links between specific response strategies and children’s adjustment and second, there are cultural variations in how and why parents use specific strategies (3-5) and their links with children’s adjustment (6). In Western cultures, the dominant cultural script is to maximize positive emotions and minimize negative emotions and minimize their children’s positive emotions (8). These strong cultural differences point to the need for assessing the validity and reliability of instruments across different cultures to investigate children’s negative emotions. Though researchers have developed a variety of approaches and measures for assessing parents’ responses to children’s emotions, none have been as widely used, adapted, validated, and translated as the Coping with Children’s Negative Emotions Scale (CCNES). The CCNES is a self-report questionnaire developed and validated by Fabes et al. (9, 10) in a sample of American parents of 3- to 6-year-old children with six subscales that assess different kinds of parents’ reactions to their children’s emotion. The CCNES has been translated and adapted for use in Australia, Belgium, Brazil, China, France, Germany, India, Nepal, and South Korea (8, 11-17). However, relatively little research has addressed parents’ emotion socialization in the Middle East (18). Psychometrics of the CCNES in different countries led to an increase in new items based on the culture of that country e.g. in 2015, Mirabile added and...
Kosari F et al. validated a 7th subscale named "Ignoring Reactions" (IR) subscale (19). Mirabile mentioned that parents may ignore children's emotions as a form of emotion socialization, yet few parent-report scales assess this kind of response. Also observational assessments of caregivers demonstrate that ignoring is distinct from other emotion socialization responses. The factor analysis of Mirabile's study confirmed this hypothesis and made it a gold standard. There is no validated Persian version of the CCNES in Iranian population yet.

2. Objectives

Given the importance of the parent's support for children's negative emotions, limited research in the Middle East, and lack of a validated Persian version of the CCNES in Iranian population, we designed this research to translate and adapt the CCNES (seven subscale form) into Persian for use in an Iranian sample and to assess its psychometric properties. As no research has examined the factor structure of a Persian translation of the CCNES, we offer no a priori hypotheses about the factor structure.

3. Methods

3.1. Participants

A sample of 400 mothers of 3-6-year-old children were recruited from 10 kindergartens randomly selected from municipal district 6 of Tehran. To calculate the sample size for psychometric studies, it is recommended to have 2 to 20 subjects per item (20, 21), or a minimum of 100 to 250 subjects (22, 23). Our main scale, CCNES, has 12 items, so we deemed 400 subjects as appropriate.

3.2. Eligibility Criteria

Inclusion criteria were mothers with a child aged 3-6 years old, living in district 6 of Tehran and scoring less than 25 in the General Health Questionnaire. Exclusion criteria were scores of more than 25 in the General Health Questionnaire assessment and unwillingness to participate in the study.

In order to control the influence of general health problems on mothers' responses, all participants in the pilot and the main study completed the General Health Questionnaire (GHQ-28). In fact, we opted mother's good general health status (GHQ-28 score < 25) as an inclusion criterion. Participants scoring above the cutoff score of 25 (24) were excluded from data analyses (20 excluded, 400 retained). Fifty randomly selected participants completed the P-CCNES again.

Municipal district 6 is known for its residents from all socioeconomic strata in Tehran. Most mothers reported earning an "average" income (67.3%); mothers' highest education was master's degree (15.8%), bachelor's degree (41.8%), and high school diploma (26.8%). The majority of the mothers had one child (67.3%) or two children (31.3%).

3.3. Measures

Coping with Children's Negative Emotions Scale (CCNES). The CCNES is a self-report questionnaire developed and validated by Fabes et al. (9, 10) and has recently been revised to include an "Ignoring" subscale by Mirabile (19). This revised version consists of seven subscales each with 12 items that assess separate parental reactions to young children's negative emotions. For each item, a hypothetical scenario is presented in which the respondent's child feels upset (i.e., "If my child is panicky and can't go to sleep after watching a scary TV show, I would...”). Seven possible parental responses are provided (e.g., "Remain calm and not let myself get anxious," “Talk to my child about ways to make it hurt less.”). Utilizing a 7-point scale ranging from 1 (very unlikely) to 7 (very likely), the parent was asked to rate the likelihood of responding to the scenario in each of the seven possible ways. These subscales reflect seven qualitatively different responses to children’s negative emotional expressions: distress reactions (DR), punitive reactions (PR), minimizing reactions (MR), ignoring reactions (IR), expressive encouragement (EE), emotion-focused reactions (EFR), and problem-focused reactions (PFR). Previous research has demonstrated good test-retest and internal reliability and concurrent and construct validity (10, 19, 25). Mirabile study reported Cronbach’s alpha for the subscales respectively as 0.65, 0.72, 0.87, 0.85, 0.92, 0.80, and 0.78. Translation and adaptation procedures for the current study are described below.

3.4. General Health Questionnaire

This scale is a self-report screening measure used to detect possible psychological disorders (26). It has a variety of forms ranging from 12 items. Psychometric studies of its different versions revealed the highest degree of validity, sensitivity and specificity for the 28-item form as compared to other versions (27). Thus, we opted this version in the current study. The General Health Questionnaire (GHQ-28) consists of four subscales including somatic symptoms, anxiety and insomnia, social dysfunction, and depression. The Persian translation of the GHQ-28 has high construct validity and internal reliability (28). The present study obtained the Spearman-Brown coefficient of 0.90 and Cronbach's alpha of 0.91.
3.5. Procedures

The CCNES was translated into Persian by the authors. The translated questionnaire was examined by a Persian literature expert for language and cultural relevance. Then, the tool was reviewed by six Iranian psychologists to consider the cultural appropriateness of each item and all CVR and CVI indexes were appropriate. Additionally, the translated tool was used in a pilot study (n = 50) to generate reliability estimates for the subscales and qualitative feedback from respondents regarding the cultural appropriateness of the items. Allen & Yen (29) suggested 30-50 subjects for pilot and follow-up studies. Consistent with the recommendations of Ziegler & Bensch (24) to match the translation validation samples as close as possible to the original validation sample, the pilot study participants were sampled to match key sample demographics from the original validation study (10) regarding child age, parent gender, parent education, and parent income. Mothers with more than one child were instructed to only consider their 3-6-year-old child when answering questions. Results of the pilot study showed that Cronbach’s alpha scores for the seven subscales of the CCNES were as follows: DR = 0.60, PR = 0.83, MR = 0.80, IR = 0.85, EE = 0.82, EFR = 0.84, PFR = 0.80.

Pilot participants provided comments on the questionnaire relating to its ease of use and cultural appropriateness. All comments from the psychologists and pilot participants were reviewed by the authors to make additional changes to the wording of the items. For example, reverse-scored items were difficult to understand for most of the participants in the pilot study; thus, all reverse-scored items were reworded such that all items are now scored in the same manner.

Analysis of the psychometric properties of the P-CCNES consisted of (1) examining the factor structure of the P-CCNES; (2) examining the internal consistency and test-retest reliability of the P-CCNES subscales (extracted from factor analysis); (3) examining relationships of P-CCNES subscale scores with parent and child demographics, and (4) examining relationships among the P-CCNES subscales. Missing data were addressed using mean substitution. Less than 1% of the items were missing.

4. Results

A sample of mothers (n = 400, Mean age = 34 years, SD = 4 years) of 3-6-year-old children (Mean age = 4.9 years, SD = 1.18 years, 46% female) was analyzed according to the specific objectives.

4.1. Factor Structure

The factor structure of the Persian CCNES was analyzed using exploratory factor analysis by principal component analysis with varimax rotation. We identified a six-factor solution (KMO = 0.80, Bartlett’s test = 13674.83, df = 3486, P < .001) largely consistent with previous work with the exception that emotion-focused and problem-focused responses loaded onto one factor henceforth named Emotion-Problem-Focused Reactions (EPFR, see Appendix 1 in Supplementary File).

4.2. Internal Consistency and Test-Retest Reliability

Internal consistency was tested using Cronbach’s alpha, test-retest reliability by correlating initial and follow-up scores (see Table 1). The split-half reliability with Spearman-Brown coefficient was equal to 0.78. Cronbach’s alphas were acceptable for all scores (all alphas were 0.65 to 0.88), as were test-retest reliabilities (all rs were 0.83 to 0.95).

4.3. Relationships of CCNES with Parent and Child Demographics

Mothers’ use of punitive, minimizing, and ignoring reactions positively correlated with child age and number of children (see Table 2). Mothers’ education negatively correlated with distress reactions, punitive, and minimizing reactions and positively correlated with expressive encouragement. Mothers’ age negatively correlated with distress reactions. Family income was not statistically significantly correlated with any CCNES subscales, and there were no mean subscale differences across child genders.

4.4. Relations among CCNES Scales

We analyzed relationships among CCNES scales using correlation analysis (Table 3). Emotion-problem-focused reactions positively correlated with expressive encouragement. Likewise, distress, minimizing, punitive, and ignoring reactions were all positively correlated with one another.

5. Discussion

The aim of this study was to analyze the psychometric properties of the Persian version of CCNES (P-CCNES) in an Iranian sample of mothers. We know that the CCNES presents hypothetical scenarios in which a child or adolescent gets upset or angry. Parents or their children are asked to indicate the degree to which the parent responds to each scenario in six coping strategies with children’s negative emotions. These six coping strategies include both supportive and non-supportive coping responses, as well as
Table 1. Descriptive Data for the CCNES Scores on the Subscales: Issued from the Factor Analysis

<table>
<thead>
<tr>
<th>Descriptive Data</th>
<th>Mean ± SD</th>
<th>Observed Range</th>
<th>Cronbach’s Alpha</th>
<th>Test-retest Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressive encouragement (EE)</td>
<td>4.09 ± 1.15</td>
<td>1.00 - 7.00</td>
<td>0.84</td>
<td>0.91</td>
</tr>
<tr>
<td>Emotion-problem focused reaction (E-PFR)</td>
<td>5.61 ± 0.77</td>
<td>1.83 - 6.83</td>
<td>0.88</td>
<td>0.95</td>
</tr>
<tr>
<td>Distress reactions (DR)</td>
<td>3.04 ± 0.79</td>
<td>1.25 - 5.00</td>
<td>0.65</td>
<td>0.92</td>
</tr>
<tr>
<td>Punitive reactions (PR)</td>
<td>2.74 ± 0.97</td>
<td>1.17 - 6.08</td>
<td>0.80</td>
<td>0.90</td>
</tr>
<tr>
<td>Minimizing reactions (MR)</td>
<td>3.67 ± 1.03</td>
<td>1.00 - 6.83</td>
<td>0.80</td>
<td>0.83</td>
</tr>
<tr>
<td>Ignoring reactions (IR)</td>
<td>2.32 ± 0.89</td>
<td>1.00 - 6.25</td>
<td>0.80</td>
<td>0.88</td>
</tr>
</tbody>
</table>

Table 2. Relationships with Parent and Child Demographics: Issued from the Factor Analysis (n = 400)

<table>
<thead>
<tr>
<th>CCNES-P Subscale</th>
<th>Child’s Age</th>
<th>Child’s Gender</th>
<th>Number of Children</th>
<th>Maternal Education</th>
<th>Mother’s Age</th>
<th>Family Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressive encouragement (EE)</td>
<td>0.08</td>
<td>-0.02</td>
<td>-0.02</td>
<td>0.17</td>
<td>0.07</td>
<td>-0.01</td>
</tr>
<tr>
<td>Emotion-problem focused reaction (E-PFR)</td>
<td>-0.09</td>
<td>-0.01</td>
<td>0.007</td>
<td>0.09</td>
<td>0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>Distress reactions (DR)</td>
<td>0.01</td>
<td>0.006</td>
<td>0.002</td>
<td>-0.25</td>
<td>-0.11</td>
<td>-0.04</td>
</tr>
<tr>
<td>Punitive reactions (PR)</td>
<td>0.16</td>
<td>-0.09</td>
<td>0.10</td>
<td>-0.19</td>
<td>-0.04</td>
<td>-0.07</td>
</tr>
<tr>
<td>Minimizing reactions (MR)</td>
<td>0.14</td>
<td>-0.05</td>
<td>0.14</td>
<td>-0.11</td>
<td>-0.09</td>
<td>-0.07</td>
</tr>
<tr>
<td>Ignoring reaction (IR)</td>
<td>0.10</td>
<td>-0.03</td>
<td>0.12</td>
<td>-0.08</td>
<td>-0.008</td>
<td>-0.08</td>
</tr>
</tbody>
</table>

Table 3. Correlations Among CCNES-P subscales: Issued from the Factor Analysis (n = 400)

<table>
<thead>
<tr>
<th>CCNES-P Subscale</th>
<th>EE</th>
<th>E-PFR</th>
<th>DR</th>
<th>PR</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressive encouragement (EE)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Emotion-problem focused reaction (E-PFR)</td>
<td>0.48</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Distress reaction (DR)</td>
<td>-0.19</td>
<td>-0.20</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Punitive reaction (PR)</td>
<td>-0.008</td>
<td>-0.10</td>
<td>0.49</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Minimizing reaction (MR)</td>
<td>-0.08</td>
<td>-0.11</td>
<td>0.31</td>
<td>0.61</td>
<td>-</td>
</tr>
<tr>
<td>Ignoring reaction (IR)</td>
<td>-0.09</td>
<td>-0.11</td>
<td>0.19</td>
<td>0.54</td>
<td>0.43</td>
</tr>
</tbody>
</table>

P < 0.05, P < 0.01

how much the distress the negative emotions elicit in the parent. The six responses include (1) Problem-Focused (i.e. helping the child solve the problem that caused the distress); (2) Emotion-Focused (i.e. helping the child feel better); (3) Expressive Encouragement (i.e. actively encouraging children’s expression of negative emotions); (4) Minimization (i.e. discounting or devaluing the child’s negative emotions/problem); (5) Punitive (i.e. using verbal or physical punishment to control the expression of negative emotion) and (6) Distress (i.e. becoming adversely aroused/distressed by child’s negative emotion) (30).

Results demonstrated good internal consistencies and strong test-retest reliabilities for all subscales, consistent with previous work (10, 19). The test-retest reliabilities observed in the present study were higher than those in previous research (10), likely due to the shorter time delay in the present study, four weeks compared to four months. Based on the culture and setting of a country, each researcher developed some new items for CCNES. In their study in 2022 titled Parental Emotion Socialization: Relations with Adjustment, Security, and Maternal Depression in Early Adolescence, Waslin et al. reported that parents use the six traditional ES strategies (problem solving, emotion focused/comforting, encouragement, minimizing, punitive, and distress) with early adolescents, while also using three approaches not identified in studies of parents of younger children (self-regulation, parent seeking information, parent explaining). Also some ES strategies are context- and gender-specific. Mothers completed the Revised Coping with Children’s Negative Emotions Scale, adapted to include items assessing the three new strategies, and measures of child adjustment, attachment, and maternal de-
pression. The ES strategies loaded on three factors: Collaborative Coping, Negative Reactions to Child's Distress, and Low Expectation for Child's Self-Regulation. Negative Reactions to Child's Distress showed associations with children's internalizing, externalizing, and prosocial behavior, and child attachment, while Collaborative Coping was related to prosocial behavior. Their results point to the importance of investigating additional ES strategies in early adolescence (31).

Furthermore, P-CCNES scores were statistically significantly correlated with some mother and child demographics. Mothers’ punitive, minimizing, and ignoring responses to children's negative emotion were found to increase with children's age, consistent with Denham (32), possibly as a way of signaling that better regulation is expected. Consistent with previous findings (10), mothers who were less educated tended to report using higher levels of punitive, minimizing, and distress reactions to their children's negative emotions and less encouraging of children's expressions of emotions. In contrast to previous work (10), we found that more educated mothers tended to report experiencing less distress when exposed to their children's negative emotions. Iranian mothers with higher education tend to have fewer children than mothers with less education, which may allow them to regulate their own distress better and engage in more supportive exchanges with their children. Additionally, higher levels of education may equip mothers with information or resources (e.g., social problem solving) needed to respond sensitively and supportively in the face of child distress (33).

Our exploratory factor analysis results align well with the factor structure suggested by previous research (10). Indeed, similar to the findings of Fabes et al. (10), the emotion focused reactions and Problem focused reactions formed a single factor. Fabes et al. (10) considered these scales as theoretically distinct and suggested the need for additional research. Though the content of these strategies differs (i.e., emotion focused reactions focus on the child's negative emotions while problem focused reactions address an external cause of those emotions), parents rarely use just one method to cope with stress, and their attempts are often combinations of different methods (34-37). These factors may differentially predict child outcomes (8, 10) and are indeed theoretically distinct, but the present findings combined with the results of Fabes et al. (10) suggest that they are considered a single factor. As expected, the P-CCNES subscales related to one another in theoretically consistent ways. The correlations between the traditionally “supportive” and “non-supportive” strategies were generally weak and negative.

Due to the frequency of different psychological problems in children, it should be noted that a child's healthy status can affect their emotions and consequently affect their relationship with parents (38-41).

5.1. Strengths, Limitations, and Future Directions

This study involved a large sample size which hopefully makes the data more reliable. The sample includes only mothers, which is a common limitation across many research areas and populations, but it is a particular problem in Iran. Also, mothers in our study had an average social level making it hard to generalize the results to other categories of population. It is suggested to select different social classes in future studies to control social class variable. Besides, fathers should be involved in research. There is a common belief in Iranian culture that raising children physically and psychologically is the mother's duty and the father's role is mostly providing the financial needs of the family. Given the strong evidence that parent's gender affects emotion regulation (24) and emotion socialization (17, 30, 31), Iranian fathers should be engaged in different forms of emotion socialization even if they do not see themselves as key socializers. Another limitation in our research was the lack of evaluating children’s problems as a factor influencing the reactions and tolerance of mothers toward their children's negative emotions. We suggest to add an item regarding child’s problems in the questionnaire or to categorize mothers with/without child suffering problems in the statistical analysis process. Considering the mentioned issues reduces the rate of bias in the interpretation of the results.

Supplementary Material

Supplementary material(s) is available here [To read supplementary materials, please refer to the journal website and open PDF/HTML].

Footnotes

Authors' Contribution: Study concept and design: M. E., and F. K.; Analysis and interpretation of data: S. M., and F. K.; drafting of the manuscript: M. E., and F. K.; Critical revision of the manuscript for important intellectual content: M. S., and S. M.

Conflict of Interests: The authors declare no conflict of interest.

Data Reproducibility: The data presented in this study are openly available in one of the repositories or will be available on request from the corresponding author by this journal representative at any time during submission.
or after publication. Otherwise, all consequences of possible withdrawal or future retraction will be with the corresponding author.

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**Informed Consent:** The questionnaires were without names and all participants declared formal consent.

**References**


