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# ADAPTING THE SCALE OF COGNITIVE EMOTION REGULATION STRATEGIES FOR CHILDREN TO TURKISH: VALIDITY AND RELIABILITY STUDIES

*Research article*

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# ADAPTING THE SCALE OF COGNITIVE EMOTION REGULATION STRATEGIES FOR CHILDREN TO TURKISH: VALIDITY AND RELIABILITY STUDIES*

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## Abstract

This study aimed to adapt the Cognitive Emotion Regulation Strategies for Children Scale (CERQ-k) developed by Garnefski et al. (2007) into Turkish, and to carry out validity and reliability studies of the Turkish version for children aged between 9-12. The research was carried out with 657 students attending a Middle School in Istanbul's Pendik district in 2018. As research instruments, Personal Information Form and Cognitive Emotion Regulation Strategies for Children Scale were used to collect data. According to the result of the confirmatory factor analysis conducted to test the construct validity of the scale, it was concluded that the 9-factor structure was confirmed. In the reliability studies regarding the scale, it was found that the Cronbach's Alpha coefficients for the sub-dimensions were between 0.43 and 0.80 and the total correlation values for the items were between 0.16 and 0.66. It was found that the test-retest coefficient values of the sub-dimensions of the scale ranged from 0.36 to 0.67. Based on the findings obtained, it was concluded that the Turkish version of the Cognitive Emotion Regulation Strategies for Children Scale is valid and reliable for children between the ages of 9-12.

*Keywords:* Cognitive emotion regulation, scale, middle childhood, Turkish adaptation

## 1. Introduction

Emotion is defined as a short-term and biologically-based response to physical and social factors that result from interaction with the environment (Niedenthal, Barsalou & Krauth-Gruber, 2005, p. 22). The view that emotions have a functional role in human life is more accepted in today's world than in the past. However, it is also seen that emotions are categorized as pleasant or unpleasant, creating positive or negative effects. We acknowledge that what the same emotion serves in human life can vary from situation to situation. For example, according to an emotion state, it can serve the needs of the person; sometimes approaching needs, sometimes avoiding needs, and sometimes both (Power, 2010). Similarly, the degree of feeling of emotion plays a functional role in one case, while it may lead to undesirable consequences in another. For example, the feeling of low excitement of a football player just before the penalty-taking affects his performance positively, while the low excitement of the same player during the attack can negatively affect his performance

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(Oxendine, 1970). This example shows that the severity of the emotion can affect the performance of the individual in different ways, even in the same event.

In addition to the severity level of the emotion felt, the frequency of experiencing may affect the individual positively or negatively. For example; the frequency of experiencing a sense of joy decreases and the frequency of experiencing repulsion, anxiety, sadness, guilt, and anger may lead to an increase in the symptoms of depression (Vatan, 2017). Despite all this, emotions have a feature of being able to be regulated consciously or unconsciously. The individual can increase or decrease the severity and frequency of their emotions through emotion regulation. The duration of feeling the emotion experienced can be shortened or extended. However, the feelings about the event can be regulated, or some measures can be taken to prevent the emergence of emotions (Gross, 1998).

The individuals use some preliminary processes and reaction-oriented strategies while organizing their feelings. These strategies take place within internal or external processes (Gross, 1998). For example, in case selection and change of status, which are the preliminary process-oriented strategies; emotions can be regulated by selecting any situation or by making changes in the current situation. Therefore, the use of these two strategies is mostly related to the selection or regulation of the external environment. Besides, in the diffusion of attention, which is also a preliminary process-oriented strategy, the person can regulate her/his emotions by defocusing or focusing her attention on the event. In this strategy, emotion regulation is carried out mostly by using internal processes. In response-oriented strategies, the individual can regulate his emotions by performing some behaviors to target his emerging emotions (Gross and Thompson, 2007). To reduce the effect of the emotion that emerges as a result of an event, an individual's use of a substance can be given as an example of a reaction-oriented strategy.

Another way to regulate emotions is by attempting to change the meaning of the event in mind by creating cognitive change (Gross, 1999). Because, as a coping skill, people can evaluate their difficult experiences cognitively (Lazarus & Folkman, 1987). Therefore, Garnefski, Kraaij, and Spihoven (2001) discussed nine cognitive emotion regulation strategies in the context of a model which individuals use consciously against difficult and stressful life events. According to their study, the individual can influence their emotions and regulate their emotions by using these strategies. These strategies are; self-blame, acceptance, rumination, positive refocusing, refocus on the plan, positive reappraisal, putting in the perspective, catastrophizing, and blaming others are cognitive emotion regulation strategies.

Research results related to cognitive emotion regulation strategies show that some strategies affect the functionality of the individual positively (Bormann & Carrico, 2009; Wolgast, Lundh & Viborg, 2011; Rood, Roelofs, Bögels & Arntz, 2012), while some others affect the functionality of the individual negatively (Çelik & Onat-Kocabıyık, 2014; Garnefski, Kraaij & Vlietstra, 2008). Also, it is known that individuals in middle childhood use these strategies (Garnefski, Rieffe, Jellesma, Terwogt & Kraaij, 2007; Orgilés, Morales, Fernandez-Martinez, Ortigosa-Quiles, & Espada, 2018; Andres, Richaud de Minzi, Castaneiras, Canet-Juric & Rodriguez-Carvajal, 2018). For this reason, it is important to carry out the validity and reliability studies of the Turkish version by adapting a measurement tool into Turkish which aims to determine the level of use of cognitive emotion regulation strategies of individuals in middle childhood.

It is hoped that together with the measurement tool, which has been adapted, the practitioners will contribute to identifying the cognitive emotion regulation strategies used by the children in this period and to include more studies on these strategies with the interventions to be developed. Also, thanks to the scale of validity and reliability studies, it is

thought that the field researchers will be able to research to examine the cognitive emotion regulation strategies used by individuals in middle childhood. Therefore, the aim of this study is the adaptation of the Cognitive Emotion Regulation Strategies for Children Scale developed by Garnefski et al. (2007) into Turkish and determining the validity and reliability level of the Turkish version for children between the ages 9 and 12.

## 2. Method

### 2.1. Research Model

A general survey model was used in the research. Screening studies are studies that examine a situation that exists in the past or present, and reveal the characteristics of that situation without any intervention. In the general screening model, which is a kind of screening research, to generalize the universe, the characteristics of the sample or the sample group representing the universe are scanned. In this research model, singular and relational scans can be done separately or together (Karasar, 2012).

### 2.2. Universe and Sampling

The universe of the research consisted of children between the ages of 9 and 12. The sample of the study consists of 657 (294 girls, 363 boys) students who were continuing their education in Istanbul's Pendik district at Muhsin Yazıcıoğlu Middle School in the 2018-2019 academic year and whose ages were between 9 and 12. The sample of the research had a heterogeneous structure in terms of socio-economic and socio-cultural characteristics.

The test-retest reliability studies of the research were conducted on 52 students who continued their education at Muhsin Yazıcıoğlu Middle School in the 2018-2019 academic year.

### 2.3. Data Collection Tools

To collect data in the study, Personal Information Form, and Cognitive Emotion Regulation Strategies for Children Scale developed by Garnefski et al. (2007) were used.

*Personal Information Form***:** In the Personal Information Form developed by the researcher; the participants' gender, grade level, and year of birth were obtained.

*Cognitive Emotion Regulation Strategies for Children***:** The Cognitive Emotion Regulation Scale for Children (Cognitive Emotion Regulation Questionnaire-k) is a version of the Cognitive Emotion Regulation Scale (CERS) developed by Garnefski et al. (2001) for children aged 9-11. The scale aims to determine the level of cognitive emotion regulation strategies used by a person against a particular event or events in general, regardless of clinical or non-clinical distinction. The scale, consisting of 36 items and 9 sub-dimensions, has a five-point Likert-type rating (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). There are 4 items in each sub-dimension and the lowest score from a sub-dimension is 4 and the highest score is 20. The score obtained from a sub-dimension represents the level of the strategy used by the person regarding that sub-dimension. Sub-dimensions and sample items are as follows:

1. Self-blame: I think it's all because of me.
2. Acceptance: I think I cannot change what happened.
3. Rumination: I always want to understand why I feel this way about what happened.
4. Positive refocusing: I think of better things, not what happened.
5. Re-focus on the plan: I think about how I can change this situation.
6. Positive reappraisal: I think there are good things about what happened.

7. Putting into perspective: I think there are worse things in the world.
8. Catastrophizing: I always think this is the worst thing that can happen to me.
9. Blaming others: I think what happened is the fault of others (Garnefski et al., 2007).

### 2.4. Process

First of all, permission was obtained from Dr. Nadia GARNEFSKI via e-mail, one of the researchers who developed the scale, to make the adaptation studies of the Cognitive Emotion Regulation Strategies for Children Scale. Later on, the scale was translated separately by 5 experts who speak English. After this process, the translations were converted into a single table and the items that are thought to express the original items best were determined by a field and a language expert and then included in the scale. After obtaining the necessary permissions, the scale was applied to 180 students aged between 9-12 for piloting. During the piloting process, some changes were made on the form created by taking into consideration the feedback received from the students and the recommendations given by the assessment and evaluation specialist, and it was applied to 657 students to perform validity and reliability studies. Finally, the scale was applied to the group consisting of 52 students twice in 30 days intervals to perform the test-retest reliability study.

### 2.5. Data Analysis

Validity is related to the level of representation of the feature desired to be measured. A valid test must distinguish the property it measures from other properties and accurately measure it. Construct validity is one of the validity types. Factor analysis can be conducted to determine the construct validity of a scale (Büyüköztürk et al., 2016). Reliability, on the other hand, represents the stability between the independent measurements of the properties measured by a measuring tool and the extent to which the measurement results are free from random errors. The reliability level of a scale can be determined by calculating the reliability coefficient (Ergin, 1995: p. 138-139). Cronbach's Alpha coefficient is frequently used to determine the level of reliability related to psychological measurements (Kılıç, 2016). Also, to have an idea about the scale items, the correlation calculation between the scores obtained from the scale items and the overall score of the scale can be used (Büyüköztürk, 2016a: p. 183). Therefore, to determine the validity level of the scale, confirmatory factor analysis was performed and t values, error variances, and fit values were examined. To determine the reliability level of the scale, Cronbach's Alpha values for all tests and sub-dimensions and item-total correlation values for items were calculated. Finally, Spearman RHO analysis was performed to calculate the test-retest reliability of the scale. LISREL 8.7 and SPSS 22 programs were used in the analyses.

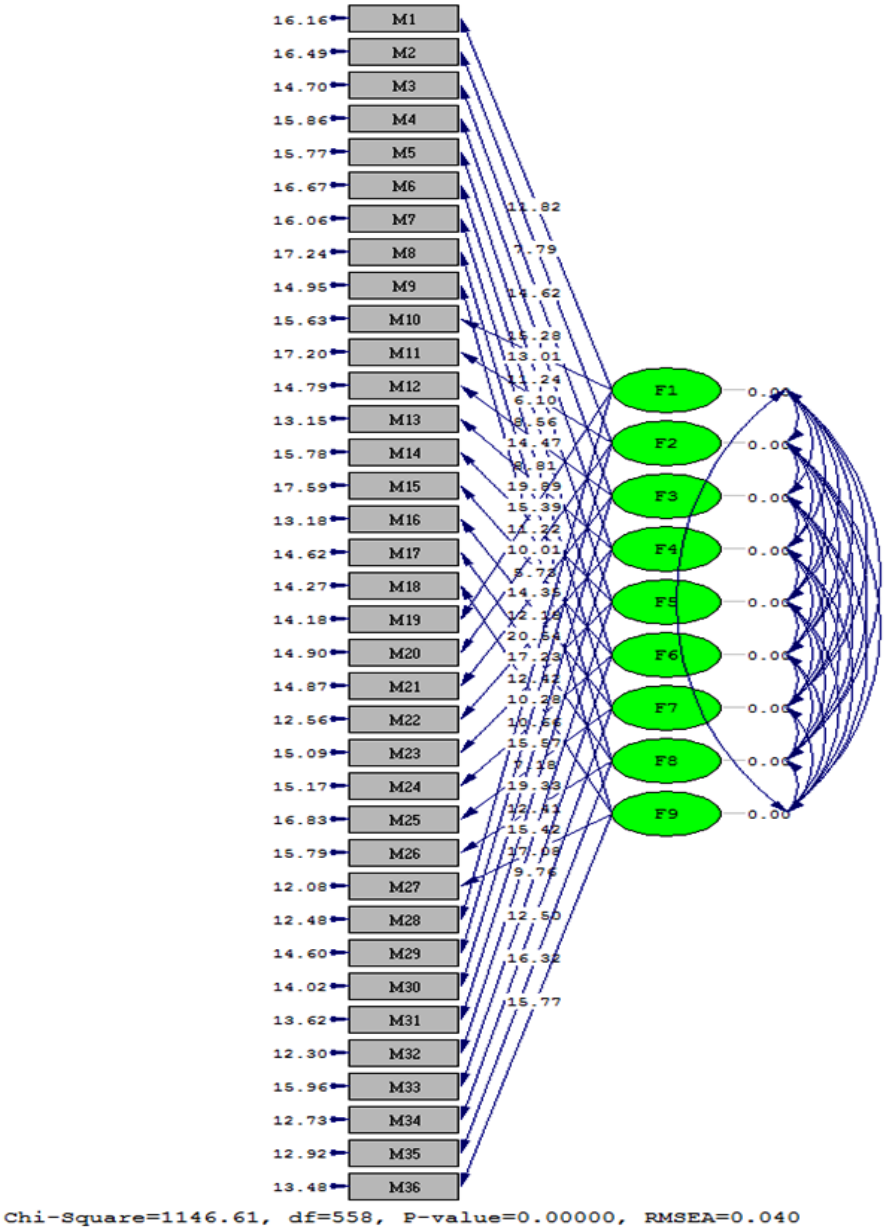
## 3. Findings

In this part of the study, the findings of the validity and reliability studies on the Cognitive Emotion Regulation Strategies for Children Scale are presented.

### 3.1. Findings Related to the Validity of the Scale

In the process of adapting a developed scale to different cultures, it is not necessary to perform exploratory factor analysis to determine the validity of the structure, and it is sufficient to perform confirmatory factor analysis. In a model representing independent structures from each other, the first-degree multi-factor model should be taken as a basis (Seçer, 2015). Figure 1 shows the path diagram of the Cognitive Emotion Regulation Strategies for Children Scale:

**Figure 1.** *Path Diagram of the Cognitive Emotion Regulation Strategies for Children Scale*




When the path diagram is examined, it is seen that the t values related to the scale items vary between 5.73-20.54 and are significant at the level of 0.01 (Çokluk, Şekercioğlu & Büyüköztürk, 2016). In Table 1, the fit values of the scale are included:

**Table 1.** *Cognitive Emotion Regulation Strategies for Children Scale Values*

| | $\chi^2$ | df | $\chi^2$/df | RMSEA | AGFI | GFI | CFI | RMR | NNFI |
|---|---|---|---|---|---|---|---|---|---|
| CERSFC | 1146.61 | 558 | 2.05 | 0.040 | 0.89 | 0.91 | 0.93 | 0.056 | 0.93 |

In Table 1, the ratio of chi-square value to the degree of freedom is less than 3, RMSEA value is less than 0.05, NNFI, CFI and GFI values are above 0.90, and RMR value is below 0.08 and AGFI value is above 0.85. Above mentioned values indicate an acceptable fit of the model (Sümer, 2000; Raykov & Marcoulides, 2000; Schermelleh- Engel &

Moosbrugger, 2003; Çokluk et al., 2016). These values show that the 9-dimensional structure of the Cognitive Emotion Regulation Strategies for Children Scale has been confirmed.

### 3.2. Findings Related to the Reliability of the Scale

Cronbach's Alpha values and corrected item-total correlation values related to Cognitive Emotion Regulation Strategies for Children are shown in Table 2:

**Table 2.** *Corrected Item Total Correlation and Cronbach Alpha Values for Cognitive Emotion Regulation Strategies for Children*

| Sub-dimension | Item Number | Item Total Correlation | Cronbach's α |
|---|---|---|---|
| Self-blame | i1 | 0,43 | 0,70 |
| | i10 | 0,43 | |
| | i19 | 0,50 | |
| | i28 | 0,57 | |
| Acceptance | i2 | 0,16 | 0,46 |
| | i1 | 0,24 | |
| | i20 | 0,34 | |
| | i9 | 0,32 | |
| Rumination | i3 | 0,50 | 0,71 |
| | i12 | 0,51 | |
| | i21 | 0,46 | |
| | i30 | 0,51 | |
| Positive Re-Focusing | i4 | 0,52 | 0,80 |
| | i13 | 0,66 | |
| | i22 | 0,66 | |
| | i31 | 0,61 | |
| Re-Focusing on the Plan | i5 | 0,33 | 0,63 |
| | i14 | 0,39 | |
| | i23 | 0,43 | |
| | i32 | 0,49 | |
| Positive Reappraisal | i6 | 0,20 | 0,43 |
| | i15 | 0,18 | |
| | i24 | 0,32 | |
| | i33 | 0,36 | |
| Putting in the Perspective | i7 | 0,30 | 0,55 |
| | i16 | 0,40 | |
| | i25 | 0,23 | |
| | i34 | 0,42 | |
| Catastrophizing | i8 | 0,28 | 0,61 |
| | i17 | 0,40 | |
| | i26 | 0,42 | |
| | i35 | 0,49 | |
| Blaming Others | i9 | 0,49 | 0,73 |
| | i18 | 0,51 | |
| | i27 | 0,60 | |
| | i36 | 0,51 | |
| General | | | 0,79 |

The overall internal consistency coefficient of the scale is 0.79. To say that a scale is a reliable measurement tool, the reliability coefficient value must be between 0.40 and 1 (Özdamar, 1999: p. 522). It is seen that all sub-dimensions of Cognitive Emotion Regulation Strategies for Children Scale are within the specified value range ($0.43 \leq \alpha \leq 0.80$). Item total correlation values of the scale ranged from 0.16 to 0.66. When the items whose item-total correlation value is below 0.30 are removed from the scale, the changes in the Cronbach's Alpha values of their sub-dimensions are shown in Table 3:

**Table 3** The Changes in the Reliability Coefficients of the Sub-Dimensions when items with Total Correlation Value Below 0.30 are Excluded from the Scale

| Item Number | Item Total Correlation | Cronbach's α Value of Item's Sub-dimension | Cronbach's α Value of Item's Sub-Dimension when Item Excluded from Scale |
|---|---|---|---|
| i2 | 0,16 | 0,46 | 0,48 |
| i6 | 0,18 | 0,43 | 0,40 |
| i8 | 0,28 | 0,61 | 0,62 |
| i11 | 0,20 | 0,46 | 0,41 |
| i15 | 0,24 | 0,43 | 0,42 |
| i25 | 0,23 | 0,55 | 0,56 |

When Table 3 is examined, when the 6th, 11th, and 15th items are excluded from the scale, the reliability coefficient values of the sub-dimensions of these items decrease; When items 2, 8 and 25 are excluded from the scale, there is no significant increase in the reliability coefficient values of the sub-dimensions of these items. Therefore, the fact that the related items remain on the scale does not pose any problem in terms of the reliability of the scale.

The reliability level of the scale can be determined by applying the scale to the same group twice in a certain time interval and calculating the correlation between the results (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2016: p. 113). The Spearman RHO Analysis performed to calculate the test-retest reliability of the Cognitive Emotion Regulation Strategies for Children is shown in Table 4:

**Table 4.** *Spearman RHO Analysis Results for the Calculation of Test-Retest Reliability of the Turkish Version of the Cognitive Emotion Regulation Strategies Scale for Children.*

| Sub-Dimensions | Test – Re-test Correlation Values |
|---|---|
| Self-blame | 0,67 |
| Acceptance | 0,43 |
| Rumination | 0,62 |
| Positive Re-Focusing | 0,65 |
| Re-Focusing on the Plan | 0,38 |
| Positive Reappraisal | 0,36 |
| Putting in the Perspective | 0,65 |
| Catastrophizing | 0,53 |
| Blaming Others | 0,63 |
| General | 0,61 |

Test-retest reliability correlation values for the sub-dimensions of the scale ranged from 0.36 to 0.67. These values show that there is a moderate relationship between the first application and the last application (Büyüköztürk, 2016b).

## 4. Discussion

In this study, the researchers aimed to adapt the Cognitive Emotion Regulation Strategies for Children Scale (originally named as Cognitive Emotion Regulation Questionnaire-k (CERQ-k)) developed by Garnefski et al. (2007) into Turkish and to carry out validity and reliability studies of the Turkish version for children aged between 9-12. Confirmatory factor analysis was performed in the validity studies of the scale. According to the results of the analysis, it was seen that the 9-dimensional structure of the scale was confirmed. This results of the study were similar to the original form of the scale and child and adult forms in many countries (Garnefski et al., 2007; Onat & Otrar, 2010; Perte & Miclea, 2011; Liu, Chen & Blue, 2016; Dominguez & Medrano, 2016; Orgilés et al., 2018). It was observed that the Cronbach's Alpha coefficient values related to the sub-dimensions of the Turkish version of the scale ranged between 0.43 and 0.80. The Cronbach's Alpha coefficients of the sub-dimensions of the original form of the scale were between 0.62-0.79 (Garnefski et al., 2007), the Cronbach's Alpha coefficients of the Spanish form were between 0.56-0.75 (Orgilés et al., 2018) and the Cronbach Alpha coefficients of the Chinese form were 0.66-0.73 (Liu et al., 2016). The reliability coefficient values for the sub-dimensions of the Turkish version of the scale are found to be similar with other versions. In the test-retest reliability study, it was found that there was a moderate positive correlation between the sub-dimensions (Büyüköztürk, 2016b). This finding is compatible with the original version of the scale and other versions (Garnefski et al., 2007; Liu et al., 2016; Orgilés et al., 2018).

Cognitive Emotion Regulation Strategies for Children Scale was examined in terms of item-total correlation values and it was found that the corrected item-total correlation value of 6 items (I2, I6, I8, I11, I15, I25) was below 0.30. When these items are examined, when the 3 items (I6, I11, I15) are removed from the scale, the reliability of their sub-dimensions decreases. Therefore, it was decided not to exclude the related items from the scale. When the other 3 items (I2, I8, I25) are removed from the scale, the reliability of the sub-dimensions they are in increases insignificantly. According to Özdamar (1999), it can be categorized at the low, medium, and high level provided that the reliability coefficient values are between 0.40 and 1. Removing related items from the scale does not change the reliability levels of the sub-dimensions they belong to. For example; When the 8th item was removed from the scale, the Cronbach's Alpha coefficient value of the sub-dimension maintain will maintain its medium level reliability. The same is true for items 2 and 25. In the Spanish form of the scale, it was decided that the item (I20) would remain on the scale since the item's total correlation value below 0.30 but did not affect the reliability level of the sub-dimension (Orgilés et al., 2018). In the form of the scale, which was confirmed in 8 sub-dimensions, it was found that the total correlation value of 3 items (M7, M25, M34) was below 0.30. However, the test-retest reliability level of the sub-dimensions containing the relevant items showed the highest level of loading except for the sub-dimension that should be present in terms of factor loading in the original form of the scale (7, M2, M8, M11, M21, M24, M30, M33). However, it was not excluded from the scale since they were placed in the sub-dimensions they were theoretically related to (Kurtoğlu-Karataş, 2019). In terms of total correlation values of the item, it was decided that items 2, 8 and 25 would remain on the scale and as a result, none of the 36 items were from the scale, since the findings included in the study were similar between the other forms of the scale and that the exclusion of the related items from the scale did not adversely affect the level of reliability.

As a result of the analysis, it has been concluded that the Turkish version of the Cognitive Emotion Regulation Strategies for Children Scale consisting of 9 sub-dimensions and 36 items is a valid and reliable measurement tool for children between the ages of 9-12. However, this research has some limitations. One of these limitations is that the scale is based on self-evaluation and the participants are assumed to answer the scale sincerely. Besides, within the scope of the research, the criterion-based validity of the scale was not examined. In other studies, the criterion-based validity of the scale can be tested.

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