

Adapting Depression and Anxiety Questionnaire for Children into Turkish: Reliability and Validity Studies

Ismail Ay¹, Ismail Secer¹ & Mustafa Kerim Simsek²

¹Department of Educational Sciences, Atatürk University, Turkey

²Ministry of National Education, Turkey

Correspondence: Ismail Ay, Department of Educational Sciences, Atatürk University, Turkey. E-mail: ismailay@atauni.edu.tr

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Abstract

Purpose of this study is to adapt anxiety and depression questionnaire for children into Turkish culture and to analyze the psychometric characteristics of it on clinical and nonclinical samples separately. The study is a descriptive survey research. The study was conducted on two different sample groups, clinical and nonclinical. The clinical sample is formed of 205 individuals and the nonclinical sample is formed of 630 individuals. Through the study, anxiety and depression questionnaire for children, anxiety sensitivity index and obsessive compulsive disorder questionnaire for children were used. Experts' opinions were asked to provide language validity of the scale. Confirmatory factor analysis and criterion-related validity to analyze construct validity and internal consistency and split-half reliability analyses were done for reliability. In the direction of experts' opinions, construct validity of the scale was analyzed with simple confirmatory factor analysis and it was determined that the model fit of the two-factor structure of the scale gives good fit on both the clinical and nonclinical samples after determining that the language validity of the scale is provided. In criterion-related validity, it was determined that there are positive and significant relations between anxiety and depression questionnaire for children and anxiety sensitivity and obsessive compulsive disorder. The results of internal consistency and half-split reliability analyses also show that the scale has adequate reliability value.

Keywords: scale adapting, construct validity, confirmatory factor analysis, childhood depression

1. Introduction

Even though depression and anxiety disorders which are considered to be among the most important disorders are mainly considered to be intrinsic to adulthood, recently it has become a subject dealt and investigated in children (Cimino, Cerniglia, & Paciello, 2015; Johnco, Salaum, Lewin, McBride, & Storch, 2015; Waszczuk, Zavos, Antonova, Haworth, Plomin, & Eley, 2015). Depression is defined by American Psychiatric Association (APA) as a disorder which influences the function and daily life of and individual and which becomes prominent with loss of attention, sleep disorder, change of appetite-weight, exhaustion, psychomotor retardation, insignificance, guilt, attention problems and thought of death (Köroğlu, 2013; Sadock & Sadock, 2009; Türkçapar, 2013). As it is thought to be a disorder generally occurring after twenties, recent studies show that the roots of depression goes back to childhood and it is the most important and common problem encountered particularly in puberty (Cimino et al., 2015; Costello, Erkanli & Angold, 2006; Grunewald et al., 2015; Hamrin & Pachler, 2005; Lewinson et al., 2000; James, Wotton, Duffy, Hoang, & Goldacre, 2015; Şimşek, 2015). That is to say, studies dealing with depression in children and adolescents show that it is common among the children and adolescents between the rates of % 1-6 and % 20 (Bilal, 2005; Eskin, 2000; Grunewald et al., 2015; Gröholt et al., 2000; James et al., 2015; Lewinson et al., 2000; Sadock & Sadock, 2009). Starting from this evidence, it can be said that childhood depression is an important and serious psychological disorder for children and adolescents.

Anxiety disorders can be shown as another important psychological disorder in children and adolescents. Anxiety disorder contains disorders like excessive fear and worry and related behavioral disorders. Anxiety disorders discriminate itself from fear or worry which can be accepted to be normal developmentally with being persisting to continue out of the appropriate development stages and being excessive (Köroğlu, 2015; Sandin, Sanchez-Arribas, Chorot, & Valiente, 2015). Anxiety disorders generally contain ocd, panic disorder, separation

anxiety, generalized anxiety disorder and phobias. The findings of the study are as such to reveal that anxiety disorder is a disorder which is common both the children and the adolescents and adults (Ale, Mccharty, Rothschild, & Whiteside, 2015; Bruce et al., 1994; Kessler et al., 2005; Mellor, Majdandzic, & Bogels, 2015; Seçer, 2015; Wheaton, Deacon, McGrath, Berman, & Abramowitz, 2012). Sadock and Sadock (2009) asserts that the general prevalence of anxiety disorders is between 0.3% and 0.6% for ocd, 6.5% for generalized anxiety disorder, 4% for separation anxiety disorder and 2.2% for social phobia. The results obtained from several studies support this asserted view (Foa, Coles, Huppert, Pasupuleti, Franklin, & March, 2010; Geller et al., 1988; Kujawa, Glenn, Hajcak, & Klein, 2015; Leonard et al., 1992).

Although it was determined that depression and anxiety are common problems in the studies conducted on children and adolescents in Turkey, we could not reach a reliable and valid instrument to be used in survey researches. When analyzing the related literature, it was determined that Childhood Depression Scale developed by Öy (1994) is frequently used in survey researches for childhood depression. However, it was also determined that the scale has not been revised by considering particularly DSM-4 and DSM-5 diagnosis criteria and the reliability and validity studies of the scale has not been done. Similarly, we could not reach any instrument to be used in survey researches for anxiety disorder. In a compilation study conducted by Karakaya and Öztop (2013) anxiety disorder scales commonly used in the world are determined but it was stated that the adaptation of many of these scales into Turkish haven't been done.

In the light of the information mentioned above, the fact that there is not a reliable and valid instrument to be used in field researches for children and adolescent has become the main motivation source for this study. Thus, the aim of this study is to adapt Anxiety and Depression Questionnaire for Children developed by Ebesutani et al. (2012) into Turkish and to do reliability and validity studies of the scale. Bringing the scale in Turkish culture will contribute to fill the gap in this field considerably and it is also important that presenting such a scale whose reliability and validity has been proven to the field experts is important.

2. Method

2.1 Participants of the Study

The participants of the study are determined with appropriate sampling method and form two groups as clinical and nonclinical. The nonclinical sample groups consist of 630 students getting educated in schools in Erzurum city center. 340 of these students are girls and 290 of them are boys ($M=14.45$, $Ss=1.13$). The clinical sample of the study consists of 205 children and adolescents who applied to Ataturk University Research Hospital and Erzincan University Research hospital and who were diagnosed with depression and anxiety disorder. 90 of these individuals are girls and 115 of them are boys ($M=14.17$, $Ss= 2.1$). The age range of participants varies from 9 to 17.

2.2 Data Collecting Tools

Depression and Anxiety Questionnaire for Children: was developed by Ebesutani et al. (2012) and is a self-report measure with five-likert scaling. The scale consists of 25 items at total and two main dimensions as anxiety and depression. Anxiety dimension consists of 15 items aiming to measure generalized anxiety, separation anxiety, panic disorder, social anxiety and symptoms of obsessive compulsive disorders. Depression dimension consists of 10 items aiming to measure the basic depression symptoms. The construct validity of the scale was analyzed both on clinical and nonclinical samples and it was found that it gives good results on both samples.

Anxiety Sensitivity Index: is developed by Silverman et al. (2011) and adapted by Seçer and Gülbağçe (2013) into Turkish and is a five-likert scale. The scale consists of 15 items and 3 dimensions as physical, psychological and social anxiety disorder. The scale is appropriate for the children and adolescents at the age of 9-18. During the adaptation process of the scale, construct validity of the scale was analyzed with confirmatory factor analysis and it was determined that the fit indices of the scale is at good levels ($\chi^2/Sd = 1.06$, RMR: .032, CFI: .99, REMSEA: .023, SRMR: .023). For the reliability of the scale, internal consistency and test-retest analyses were done and it was found to be .86 and .84, respectively. Within this study, the model fit of the scale was re-analyzed and it was found as RMR: .030, SRMR: .033, MRSEA: .031, CFI: .98 ve $\chi^2/Sd = 2.06$. Reliability values were found as .91 for internal consistency and .88 for half-split reliability.

Obsessive Compulsive Disorder Questionnaire for Children: was developed by Foa et al. (2010) to determine the symptoms of ocd in children and adolescents between the ages of 11-18 and is a five-likert type scale adapted into Turkish by Seçer (2014). The scale consists of 21 items and 6 factors as obsession, cleanliness, ordering, hoarding, neutralization and doubt-checking. During the adapting process of the scale, CFA was done for construct validity and it was determined that the model fit indices of the scale are at good levels ($\chi^2/Sd = 1.69$,

RMR: .046, SRMR; .048, CFI=.98, RMSEA=.046). Internal consistency and half-split reliability analyses were done for the reliability of the scale and it was found as .86 and .82, respectively. The highness of the scores from each dimension of the scale indicates the highness of ocd symptoms. Within the context of this study, the model fit of the scale was re-analyzed and it was found as RMR: .041, MRSEA: .043, SRMR: .047, CFI: .98 ve $\chi^2/Sd = 1.15$. Reliability values were found as .87 for internal consistency and .84 for half-split reliability.

3. Findings

3.1 Pre-Applications and Findings related to Parametric Quality of the Data Set

The adaptation of the scale into Turkish was done in different stages. First, experts' opinions related to language validity of the scale were taken and then the first shape of the scale were given and it was applied on nonclinical sample consisting of 90 individuals as a pilot study and item-fits were analyzed. After item total correlations, construct validity of the scale was analyzed by applying it on 630-person nonclinical and 205-person clinical samples by doing factor analysis. After ensuring construct validity, reliability analyses were done on a 90-person sample. Extreme value, normality, linearity and multicollinearity analyses were done to determine whether the data set had the parametric quality for the analyses to be held. During the adaptation process of the scale, 650 nonclinical and 210 clinical samples at total were included but as it was determined that 20 of the questionnaires had many blank answers and 5 of them had extreme values which could affect the normality of the data set, it was decided to remove them from the data set (Seçer, 2013). After the removed data, reliability and validity studies were done on the data obtained from 630 nonclinical and 205 clinical samples.

3.2 Findings related to Construct Validity

The model fit of depression and anxiety questionnaire for children was analyzed with simple confirmatory factor analysis. As factor structure was tested as two-dimension and six-dimension in the original form of the scale, two different models were created in the Turkish form and the model fit of the scale was tested on clinical and nonclinical samples.

The construct validity of the scale was firstly tested through the data obtained from nonclinical samples and the obtained findings are indicated in Figure 1 and Table 1.

3.3 Findings Obtained from Nonclinical Sample

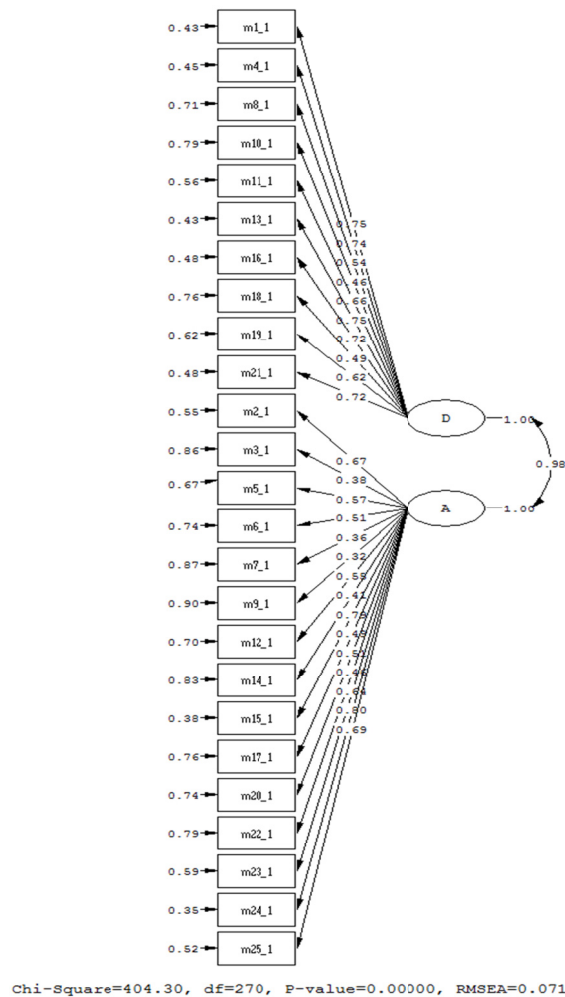


Figure 1. CFA result related to nonclinical sample

Upon analyzing the Figure 1 on which CFA result related to the two-factor structure of the scale can be seen, it can be said that the model fit indices and factor load values of the scale are at good levels. In addition to two-factor structure of the scale, six-factor structure of the scale was also tested and the obtained fit indices are indicated in Table 1.

Table 1. Findings obtained from nonclinical sample

Model	χ^2/sd	RMSEA	RMR	NFI	NNFI	CFI	IFI	RFI	GFI	AGFI
Model A Two-Factor Structure	1,49	.071	.065	.98	.98	.98	.99	.98	.92	.91
Model B Six-Factor Structure	3,13	.087	.085	.88	.89	.89	.90	.90	.83	.84

Considering the CFA fit indices indicated in Table 1, it can be seen that the model fit indices related to two-factor structure are at good levels (χ^2/sd : 1.49, RMR: .06, RMSEA: .07, SRMR: .07, CFI: .98). In spite of that, it can be seen that the model fit indices (χ^2/sd : 3.13, RMR: .085, RMSEA: .087, SRMR: .088, CFI: .89) of six-factor structure of the scale didn't give good fit (Kline, 2011; Marcoulides & Schumacher, 2001). It can be said that two-factor structure of the scale is more appropriate for Turkish culture in the direction of the data obtained from nonclinical sample.

3.4 Findings Obtained from Clinical Sample

The model fit of Depression and Anxiety Questionnaire for Children was analyzed with simple confirmatory factor analysis on clinical sample and the obtained findings are indicated in Figure 2 and Table 2.

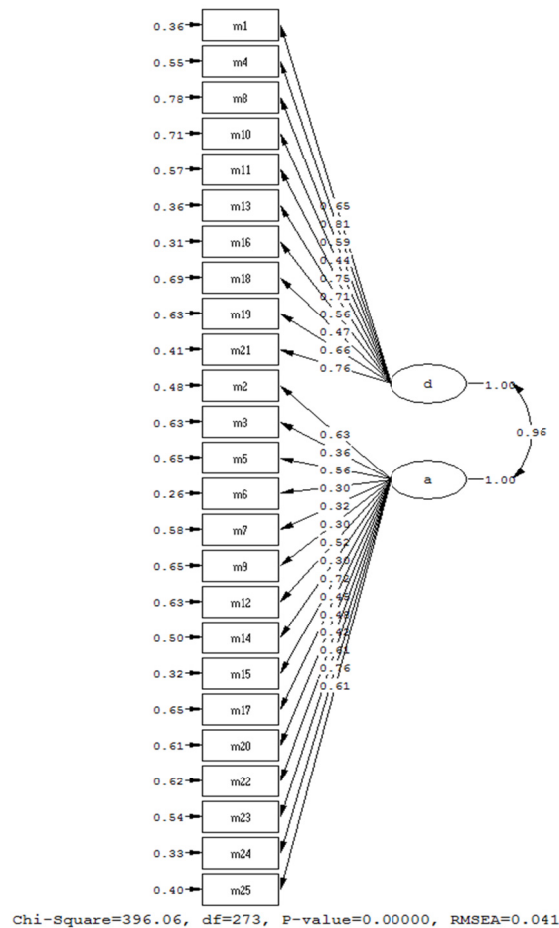


Figure 2. CFA results related to clinical sample

On analyzing the Figure 2 on which CFA result related to the two-factor structure of the scale can be seen, it can be said that the model fit indices and factor load values of the scale are at good levels. In addition to two-factor structure of the scale, six-factor structure of the scale was also tested on clinical sample and the obtained fit indices are indicated in Table 2.

Table 2. Findings obtained from clinical sample

Model	X/df	RMSEA	RMR	NFI	NNFI	CFI	IFI	RFI	GFI	AGFI
Model A Two-Factor Structure	1,45	.041	.036	.99	.99	.99	.99	.99	.94	.93
Model B Six-Factor Structure	3,35	.086	.085	.88	.85	.89	.90	.87	.83	.80

Considering the CFA fit indices indicated in Table 1, it can be seen that the model fit indices related to two-factor structure are at good levels (χ^2 /sd: 1.45, RMR: .03, RMSEA: .04, SRMR: .04, CFI: .99). In spite of that, it can be seen that the model fit indices (χ^2 /sd: 3.35, RMR: .085, RMSEA: .086, SRMR: .088, CFI: .89) of six-factor structure of the scale didn't give good fit (Marcoulides and Schumacher, 2001; Kline, 2011). It can be said that two-factor structure of the scale is more appropriate for Turkish culture in the direction of the data obtained from clinical sample (Marcoulides & Schumacher, 2001; Kline, 2011).

On analyzing factor load values of Depression and Anxiety Questionnaire for Children, it is seen that factor load values range between .32 and .80 for nonclinical sample, and they range between .30 and .81 for clinical sample. Considering that the lower limit of factor load values for psychological tests should be .30 and above (Tabachnick & Fidell, 1994; Kline, 2011; Seçer, 2015), it can be said that the factor load values are satisfactory in both samples. Considering CFA fit indices and item factor load values, it can be said that the construct validity

of Depression and Anxiety Questionnaire for Children is provided.

3.5 Criterion-Related Validity

The correlations between anxiety sensitivity and obsessive compulsive disorder questionnaire were analyzed for criterion-related validity of Depression and Anxiety Questionnaire for children, and the results are indicated in Table 3.

Table 3. The correlations between anxiety disorder and childhood depression and anxiety sensitivity and obsessive compulsive disorder

	Anxiety Disorder	Depression
Doubting-Checking	.65**	.45**
Obsession	.58**	.52**
Hoarding	.39**	.39**
Neutralization	.49**	.38**
Cleanliness	.46**	.26**
Ordering	.42**	.46**
Physical Sensitivity	.39**	.39**
Psychological Sensitivity	.65**	.55**
Social Sensitivity	.50**	.57**

When analyzing Table 3, it can be understood that Depression and Anxiety Questionnaire for Children has positive and significant correlations with anxiety sensitivity and obsessive compulsive disorder questionnaire. In the direction of these obtained evidence, it can be said that the scale has criterion-related validity.

3.6 Reliability

The reliability of depression and anxiety questionnaire for children was analyzed with internal consistency, split-half reliability and test-retest and internal consistency for depression was found as .87, split-half reliability as .83 and test-retest reliability as .91. Internal consistency in anxiety disorder dimension was found as .85, half-split reliability .81 and test-retest reliability as .87. Nunnally and Bernstein (1994) and Fraenkel et al. (2012) suggest that the reliability values should be at least .70 and above during scale developing process. Considering the results obtained from reliability analyses, it can be said that Depression and Anxiety Questionnaire for Children has adequate reliability.

4. Discussion, Results and Recommendations

4.1 Discussion

Depression and anxiety disorder has become subject of several studies as descriptive and correlational and has become an important (Costello, Erkanli, & Angold, 2006; Dopheide, 1981; Hamrin & Pachler, 2005; Lewinson et al., 2000; Sadock & Sadock, 2009; Şimşek, 2015) research field. In descriptive and correlational survey researches, data collecting tools have a critic role in revealing various aspects of the situation (Seçer, 2015). None the less, as a result of the literature review, we could not find any reliable and valid measuring instrument to measure childhood depression and anxiety disorder and thus the psychometric characteristics of Depression and Anxiety Questionnaire for Children were analyzed on clinical and nonclinical samples and it was tried to be adapted into Turkish culture. The adapting process of the scale was started with language validity and different language and field experts' opinions were asked. After providing language validity, pilot scheme was done and item fits and internal consistency of the scale were analyzed. As a result of the analyses done after the pilot scheme, it was determined that all the items are correspond to the scale and the scale has adequate internal consistency value. Considering that .30 for item total correlation and .70 for internal consistency are generally accepted (Robinson, Shaver, & Wrightsman, 1991) during scale developing and adapting process, confirmatory factor analysis was done to analyzed the factor model fit of the scale.

In CFA, two-factor and six-factor structure of the scale was tested separately on clinical and nonclinical samples and it was determined that the model fit and fit indices of two-factor structure of the scale are at good levels, however, model fit of six-factor structure of the scale is not at adequate level and it was decided that the scale has a two-factor structure (Hu & Bentler, 1999; Schumacher & Lomax, 2004; Marcoulides & Schumacher, 2001).

It can be said that the results obtained from the study are consistent with the results obtained from the original form of the scale (Ebesutani et al., 2013).

The findings obtained from criterion-related validity revealed important results. Within this context, correlations between Depression and Anxiety Questionnaire for Children and Anxiety Sensitivity and Obsessive Compulsive Disorder were analyzed and it was determined that both anxiety sensitivity and obsessive compulsive disorder have positive and significant correlations with depression and anxiety questionnaire for children. It can be said that this finding show that as anxiety sensitivity and ocd increases, depression and anxiety disorder can increase and these two variables are an important risk source in terms of childhood depression and anxiety disorder. Thus, it is thought that analyzing the predictive relations between these variables in further studies to be conducted on bigger sample groups can contribute to the field. Internal consistency, split-half and test-retest reliability analyses were done for the reliability of the scale and adequate values were obtained to determine the reliability of the scale. The findings obtained from the reliability analysis were evaluated as the scale both has internal consistency and split-half reliability and also reliable against time.

4.2 Conclusion

In the direction of the findings obtained from reliability and validity analyses, Depression and Anxiety Questionnaire for Children is a reliable and valid scale to be used in field researches and is a likert-type scale in which the items are graded as 0-4 and the scores from the scale range between 0 and 100. The highness of the scores for each of two dimensions indicates that the stated risk level is reached in terms of anxiety disorder and childhood depression.

4.3 Recommendations

In addition to the information above, we should mention the limitedness of this scale. Although both clinical and nonclinical sample group were formed, the study is limited to clinical sample consisting of individual from only two university hospitals in Erzurum and Erzincan, and nonclinical sample consisting of students in Erzurum city center. To form the necessary norms to use the scale in all over Turkey, it can be said that analyzing the psychometric characteristics of the scale on a more diverse sample from different cities and regions can reveal more useful results.

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