The intolerance of uncertainty scale for children: Reliability, validity and adaptation study

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SUMMARY

Objective: The aim of this study is to adapt the Intolerance of Uncertainty Scale for Children (IUSC) into Turkish.

Method: The sample of the study consists of 282 children aged 7-12 (M= 9.55, SD = 1.81) and their parents (M= 36.84, SD = 7.04). The Uncertainty Intolerance Scale (IUSC) for Children-Parent Form and Spence Anxiety Scale for Children-Parent (SASC-P) Form were used. The Cronbach Alpha internal consistency and two half test reliability coefficients were calculated for the reliability of the IUSC. Confirmatory Factor Analysis (CFA) was conducted for construct validity and the relationships between the IUSC and the SASC-Parent Form for content validity were evaluated.

Results: The CFA analyzes revealed that the 12-item short form of the IUSC had good fit values, and one-factor and two-factor structure were confirmed. As a result of the analyzes significant correlations were found between the total score of the child and parent forms of IUSC-12 and the sub-factors of the SASC-P form, separation anxiety, panic attack, social phobia, obsessive compulsive disorder and agoraphobia scores (child form respectively, r = .25, r = .37, r = .40, r = .25, r = .25; p < .001; parent form respectively, r = .26 , r = .32, r = .43, r = .31, r = .22; p < .001). The reliability analyzes revealed that Cronbach Alpha coefficient for the child form of the IUSC-12 short form was .91 and for the parent form .91. The two half-test Spearman-Brown correlation coefficients were found to be r = .89 for the child form and r = .90 for the parent.

Discussion: The results show that parent and child form of the IUSC-12 short form provide reliable and valid results in evaluating the intolerance of uncertainty levels of children in Turkey.

Key Words: Intolerance of uncertainty, anxiety, middle and late childhood

INTRODUCTION

Intolerance of uncertainty (IU) refers to a relatively broad concept covering cognitive, emotional and behavioral responses to uncertainty experienced in daily life (1). IU, which is considered as a strong instinct to think, feel and behave negatively when faced with uncertain situations, has been defined in the most general sense as "the inadequacy of an individual's tendency to withstand an undesirable internal emotional state triggered by the lack or absence of significant, basic or sufficient information perceived by the individual in the current situation" (2). According to this definition, IU is the high probability of fear of the unknown when faced with the unknown. While positive thoughts towards uncertainty are associated with low level intolerance of uncertainty, negative thoughts towards uncertainty are thought to be associated with high level intolerance of uncertainty (3).

In individuals with high IU, it is predicted that perceptions of uncertainty may increase avoidance (to reduce discomfort and exposure to uncertain situations), thus creating a vicious cycle of negative perceptions such as uncertainty, avoidance and increased negative emotions and anxiety symptoms (4). Similarly, IU is considered to be an important determinant of trait anxiety level and the tendency to evaluate uncertain scenarios negatively, and

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therefore, one of the important cognitive factors that play a role in the emergence of Generalized Anxiety Disorder (GAD) (5,6). In the literature, IU has been studied as a predictor of anxiety (7,8,9) and intolerance of uncertainty has been found to have significant relationships with social anxiety disorder (10,11), panic disorder (12) and Obsessive Compulsive Disorder (OCD) (13). Similarly, in studies conducted with children and adolescents, it has been reported that IU is one of the main variables predicting the level of excessive anxiety (14,15). In addition, it has been reported that therapies targeting the IU show successful results in the treatment of many types of anxiety disorders (16,17,17,18,19,20,21).

Based on the important role of IU in anxiety disorders, the prevalence of scales developed to assess CT has increased significantly in the literature. It is seen that the first scale developed on this subject was developed by Freeston and colleagues (1) under the name of Intolerance of Uncertainty Scale (IUS) to be used in adults and adapted into Turkish (22). Due to some inconsistencies in the factor structure of this 27-item scale (23), a 12-item shorter form scale was developed based on the IUS (24) and it was observed that this shorter form was also used in subsequent studies (25,26). In Turkey, it has been observed that the Turkish validity and reliability study of this short form, which is used in adults over the age of 16, has been conducted (27). It can be said that other scales other than these scales have been developed in the literature and these scales help to better understand the concept by trying to address the changes in the definition of IU (28,29,30). Among these scales, it is seen that the scale dealing with disorder-specific intolerance of uncertainty (30) has been adapted into Turkish (31).

It is seen that all of the aforementioned scales for the assessment of IU have been conducted on samples of adults or university students and allow the assessment of IU in adults. However, the role of IU in anxiety disorders that also occur in children and adolescents has attracted the attention of researchers. In this context, Comer et al. (32) developed the Intolerance of Uncertainty Scale for Children (IUSC) to contribute to studies with children and adolescents. It consists of 27 items and has two parallel forms: Child and Parent Forms. This scale is used in children and adolescents between the ages of 7-17. The fact that the IU scale for children and adolescents has been developed relatively recently compared to the adult scale reveals that IU research with children and adolescents has increased in recent years. In studies conducted in this context, it has been found that IU is associated with GAD (33,34,35,36), social phobia (37,38,39,40), separation anxiety disorder (39,40), panic disorder, obsessive-compulsive disorder, GAD symptoms and healthy anxiety (40). A meta-analysis of 31 different studies on the relationship between anxiety and IU in children and adolescents revealed a significant relationship between IU and anxiety in both clinical and non-clinical samples (41). However, the fact that the correlations between the child and parent forms of the scale were weak in some studies and that it showed favorable psychometric properties only for children older than 9 years of age has led to some controversies. For example, it has been reported that the 12-item short scale of the IUSC is more appropriate for this age group, as in adults, but the reading levels of the scale items are still high for children aged 7-12 years (42).

In studies conducted to test the construct validity of the scale, it was observed that there were differences between the 27-item long form and the 12-item short form in terms of factor structures. Exploratory Factor Analysis (EFA) for the 27-item long form used for adults revealed five-factor (1), four-factor (43) and two-factor (44) structures. Again, it is noteworthy that 2-factor structures were confirmed in studies using Confirmatory Factor Analysis (CFA) methods for the 12-item short version used for adults (24,45). In a review study in which factor analysis studies related to the IUS scale were reviewed, it was stated that the 12-item scale that emerged in the EFA studies of the scale was suitable for two factors and this was confirmed by CFA. It was suggested that these factors could represent "approach" and "avoidance" responses to uncertainty (46). When the studies examining the construct validity of the IUSC were examined, it was seen that one-factor (42) and two-factor (39,47) constructs were confirmed as a result of the analyses conducted using the CFA method.

It is noteworthy that all these studies conducted with children and adolescents were conducted abroad. As mentioned before, it is seen that all three scales used in Turkey to measure IU are for adults. Therefore, it is seen that there is no existing measurement tool in Turkey for a sample other than adults, namely children and adolescents. Some social events (e.g., economic fluctuations, natural disasters, terrorist incidents) are also reported to have an impact on individuals' uncertainty levels (48). In this context, considering that such events are frequently experienced in Turkey due to its location and that we as a society are often faced with uncertain situations, it is thought that the level of tolerance for uncertainty in society may decrease. It is inevitable that children and adolescents, as well as adults, experience negative emotions caused by uncertainty. Therefore, the lack of a scale evaluating IU in children and adolescents in Turkey is thought to be a deficiency. Therefore, the main purpose of this study is to adapt The Intolerance of Uncertainty for Children (32) developed by Comer et al.

METHOD

Sample

The sample consisted of 282 children between the ages of 7 and 12 (mean = 9.55, SD = 1.81) and their parents between the ages of 20 and 60 (mean = 36.84, SD = 7.04). Of the children, 149 were female (52.8%) and 133 were male (47.2%). Of the parents of the children, 254 were female (90.1%) and 28 were male (9.9%). Detailed information including parents' education levels, children's grade and age levels are presented in Table 1.

Table 1. Characteristics of the Sample Group

Child Class	*n*	%	Child Age	*n*	%
Class 1	45	16.0	7	51	18.1
Class 2	42	14.9	8	52	18.4
Class 3	46	16.3	9	34	12.1
Class 4	26	9.2	10	37	13.1
Class 5	38	13.5	11	51	18.1
Class 6	52	18.4	12	57	20.2
Class 7	24	8.5			
Class 8	9	3.2			
Total	282	100	Total	282	100
Parent Education Level		*n*	%		
Primary School		34	12.1		
Middle School		16	5.7		
High School		81	28.7		
Licence		130	46.1		
Postgraduate		21	7.4		
Total		282	100		

Data Collection Tools

Child Information Form: This is an information form that includes comprehensive information on children's developmental history, social-psychological processes, information on their school success and demographic variables. It is an information form filled out by the parents/caregivers of the children and includes optional, fill-in-the-blank and open-ended questions.

Intolerance of Uncertainty Scale for Children (IUSC): Since there is no scale developed in the Turkish sample or adapted to the Turkish sample to measure the intolerance of uncertainty variable in children, 'The Intolerance of Uncertainty Scale for Children' developed by Comer et al. (32) will be adapted and used in the Turkish sample. The scale consists of 27 5-point Likert-type items and has two separate forms as parent and child form. It was developed for children between the ages of 7-17. The scale has demonstrated acceptable levels of sensitivity and specificity between anxiety disordered and control groups at cut-off scores of 50-54 and 52-55 for the child and parent versions, respectively (73% correctly identifying anxiety disorder; 78% identifying those without disorder). In addition, the internal consistency coefficient Cronbach's alpha was found to be .96 for the parent form and .92 for the child form (32). The internal consistency coefficients of the scales in this study are presented in the findings section.

Spence Anxiety Scale for Children (Parent Report): In order to measure another variable, anxiety, the Spence Anxiety Scale for Children (SASC)-Parent Form (50), which was adapted to Turkish culture by Orbay and Ayvaşık (49), will be used. The 38-item scale was adapted by studying mothers with children aged 7-12 years. The Cronbach's alpha value of the scale was reported as .88 and the two-half reliability was reported as .79 (49). In this study, the Cronbach alpha value of the scale was found to be .90.

Procedure

For the adaptation of the IUSC into Turkish and the validity and reliability studies, J. S. Comer, one

of the developers of the scale, was first contacted via e-mail and the necessary permissions were obtained. Back translation method was used to ensure the linguistic equivalence of the scale. The items of the scale were independently translated into Turkish by two linguistics experts. Then, the most appropriate one of these two translations was selected by the authors and the Turkish form of the scale was created. Afterwards, the Turkish form was translated into English by 2 experts independent of the translation and evaluation team, and the language validity was decided to be appropriate after the relevant controls were made, and the final forms of the scale (child and parent) were created. After the translation process was completed, permission was obtained from the Ethics Committee of Ankara Medipol University (Decision date: 23.01.2021, decision No: 001) and the data collection process started. Parents were reached via an internet-based platform (Google docs) and the scales were presented together with the informed consent form and demographic information form. In the informed consent form, parents were informed about the study, confidentiality conditions, possible risks, etc. and it was stated that they could leave the study at any time. After the parents filled out the form, the necessary instructions were given to the children to fill out the IUSC-Child form. The participants read the consent form, which included information about the issues mentioned, and their consent was considered to have been obtained when they clicked the "I Agree to Participate in the Study" button. After the relevant data were collected, the analysis process started.

Statistical Analysis

In line with the purpose of the study, criterion-dependent validity and confirmatory factor analysis methods were used in the validity analyses of the parent and child forms of the IUSC. For the reliability analysis of the scale, internal consistency coefficients were calculated and two-half test reliabilities were examined.

In order to test the factor structure of the IUSC, several CFA models were tested separately for both forms. These models were based on previous studies on the long and short forms of the scale. In this context, single factor, related two, four and five factor models were tested for the 27-item long form (24,43,44,45). On the other hand, for the short form consisting of 12 items, one-factor and related two-factor models were tested (39,42,47). In all confirmatory factor analyses, the AMOS (Analysis of Moment Structures; Version 21) statistical package program was used and these analyses were conducted using the maximum likelihood estimation method and covariance matrices. In CFA studies, the fit index values used to determine how well the tested or proposed models fit the data are as follows: The ratio of the chi-square value to the degrees of freedom (x^2/df) should be less than 5; CFI (Comparative Fit Index), GFI (Goodness of Fit Index) and RMSEA (Root Mean Square Error of Approximation) and SRMR (Standardized Root Mean Square Residual) values should be .08 or less (51). In addition, the BIC (Bayesian Information Criteria) value was calculated as another fit index criterion. According to this criterion, the model with the lowest BIC value is accepted as the best-fitting model (52).

RESULTS

Validity

Criterion-dependent validity method was used to test the construct validity of the IUSC. Within the scope of construct validity, the relationships between the scores obtained from the IUSC and the scores of the SASC-Parent Form were examined. In this context, Pearson Correlation Coefficients were calculated and compared and the related findings are presented in Table 2. As a result of the findings obtained, the correlation coefficients between the total scores of the parent and child forms of the IUSC and the sub-factors of the SASC-Parent Form were significant and their values ranged between .22 and .60.

Factor Analysis Findings

Before the factor analysis of the IUSC, the suitability of the data for the analysis was examined through Kaiser-Meyer-Olkin (KMO) coefficient and Barlett's test of sphericity. As a result of the analyses conducted separately for the parent and

Table 2. Pearson correlation coefficients between IUSC-Parent and Child Forms and SASC-Parent Form subtest factors

Variables	Mean	SS	1	2	3	4	5	6	7	8	9	10	11
IUSC-Parent	70.19 (30.86)	21.57 (10.16)	-(.97**)	.60** (.54**)	.93**	.52**	.55**	.51**	.26** (.26**)	.33** (.32**)	.45** (.43**)	.31** (.31**)	.22** (.22**)
IUSC-Child	65.67 (31.08)	20.96 (9.93)	(.26**)	- (.96**)	.52**	.60**	.93**	.90**	.28** (.25**)	.41** (.37**)	.44** (.40**)	.28** (.25**)	.30** (.25**)
IUSC-Parent-Forward	18.57	5.83			-	.84**	.48**	.46**	.24**	.29**	.42**	.32**	.21**
IUSC-Parent Inhibitor	12.51	4.51				-	.57**	.50**	.25**	.33**	.40**	.27**	.21**
IUSC-Child Forward	19.22	6.06					-	.81**	.21**	.36**	.36**	.26**	.25**
IUSC-Child Inhibitor	11.63	4.62						-	.26**	.35**	.40**	.23**	.23**
SASC-Seperation anxiety	16.88	4.65							-	.40**	.54**	.40**	.55**
SASC-Panic attack	11.94	3.24								-	.54**	.67**	.54**
SASC-Social Phobia	17.96	4.34									-	.48**	.40**
SASC-OCD	8.49	2.69										-	.54**
SASC-Agoraphobia	8.56	2.39											-

**P< .01 IUSC: Intolerance of Uncertainty Scale for Children, SASC: Spence Anxiety Scale for Children (Parent) OCD: Obsessive Compulsive Disorder
Note: The values in parentheses are the correlation values of the total score of the 12-item short form.

child forms, the KMO coefficient for the IUSC - Parent form was .94 and the x^2 value of Barlett's Test of Sphericity was 5116.83 (SD= 351, p = .000), while the KMO coefficient for the CBCL-Child form was .95 and the x^2 value of Barlett's Test of Sphericity was 9047.330 (SD= 351, p =.000). These values indicate that the data for both forms were normally distributed and thus suitable for factor analysis. In order to test the factor structure of the IUSC, six CFAs were conducted separately for the 27 and 12-item forms of both parent and child reports. While constructing these models, the models previously tested in the literature were used.

CFA Findings of the Parent Form

For the 27-item IUSC parent form, CFA findings revealed that one-factor, two-factor, four-factor, and five-factor models did not have adequate fit (Table 3).

CFA findings for the 12-item IUSC parent form revealed that one-factor [$x^2(54) = 248.707$, $x^2/df = 4.61$, CFI = .88, GFI = .87, RMSEA = .11; SRMR = .06, BIC = 384. 113] and two-factor [x^2 (53)= 247.065, $x^2/df = 4.66$, CFI = .88, GFI = .87, RMSEA = .11; SRMR = .06, BIC = 388.112] models did not have adequate fit. On the other hand, considering that these two models could be further improved, the error indices of the items

Table 3. Fit Index Values for the Models Tested

Models	x^2/df	CFI	GFI	RMSEA	SRMR	BIC
Parent form						
27 items single factor	4.32	.78	.70	.11	.07	1703.665
27 items two factors	4.32	.78	.70	.11	.07	1705.083
27 items four factors	4.22	.80	.73	.11	.07	1690.304
27 items five factors	4.83	.76	.71	.12	.14	1878.287
12 items single factor	4.61	.88	.87	.11	.06	384.113
12 items single factor modified	2.82	.95	.93	.08	.04	304.461
12 items two factors	4.66	.88	.87	.11	.06	388.112
12 items two factors modified	2.92	.95	.93	.08	.04	312.169
Child form						
27 items single factor	3.70	.80	.74	.10	.07	1502.332
27 items two factors	3.68	.80	.74	.10	.07	1311.017
27 items four factors	3.37	.83	.76	.10	.06	1426.605
27 items five factors	3.97	.79	.75	.10	.13	1608.968
12 items single factor	3.27	.92	.91	.07	.05	312.044
12 items single factor modified	2.48	.95	.93	.07	.04	278.991
12 items two factors	3.24	.92	.91	.09	.05	312.716
12 items two factors modified	2.47	.95	.93	.07	.04	281.501

CFI: Comparative Fit Index, GFI: Goodness of Fit Index, RMSEA: Root Mean Square Error of Approximation, SRMR: Standardized Root Mean Square Residual, BIC: Bayesian Information Criteria

Table 4. Standardized factor loadings and standard errors for tested models

		Child form N= 282		Parent form N=282	
IUSC factors	Items	Factor loading	SH	Factor loading	SH
Forward	7	0.58(0.60)	0.070(0.069)	0.56(0.55)	0.071(0.072)
	8	0.65(0.72)	0.062(0.061)	0.64(0.64)	0.065(0.065)
	10	0.58(0.51)	0.071(0.070)	0.55(0.57)	0.066(0.065)
	11	0.70(0.69)	0.063(0.062)	0.68(0.69)	0.066(0.066)
	18	0.65(0.69)	0.075(0.075)	0.63(0.65)	0.063(0.063)
	19	0.68(0.61)	0.069(0.069)	0.71(0.66)	0.061(0.062)
	21	0.71(0.61)	0.066(0.065)	0.68(0.71)	0.057(0.057)
Inhibitor	9	0.74(0.75)	0.061(0.060)	0.77(0.78)	0.060(0.061)
	12	0.66(0.80)	0.058(0.058)	0.66(0.63)	0.060(0.061)
	15	0.75(0.70)	0.061(0.061)	0.76(0.77)	0.061(0.061)
	20	0.76(0.77)	0.062(0.062)	0.76(0.80)	0.059(0.058)
	25	0.64(0.68)	0.064(0.064)	0.63(0.64)	0.065(0.065)

IUSC: Intolerance of Uncertainty Scale for Children,
Note: The values in parentheses are the values of the single-factor model.

predicted to provide a high change in the x^2 score were correlated. Accordingly, when the six highest error variances as a result of the correction indices (modification indices) suggested after the analysis for the one-factor model were associated respectively (items with associated error variance; m7-m10, m7-m8, m11-m12, m12-m19, m21-m25, m9-m25), it was seen that the changes in the x^2 value were significant, the final model was better and had acceptable values in terms of fit indices [$x^2(48)$= 135. 204, x^2/df = 2.82, CFI = .95, GFI = .93, RMSEA = .08; SRMR = .04, BIC = 304.461]. Similarly, when six error variances were associated for the two-factor model of the 12-item IUSC Parent form respectively (items with associated error variance; m7-m10, m7-m8, m11-m12, m10-m18, m21-m25, m9-m19), it was observed that the changes in x^2 values were significant, the final model was better and had acceptable values in terms of fit indices [$x^2(47)$= 137. 270, x^2/df = 2.92, CFI = .95, GFI = .93, RMSEA = .08; SRMR = .04, BIC = 312.169]. In this 12-item form, one-factor and two-factor models were compared with the chi-square difference test and it was found that the models compared did not differ significantly from each other in terms of fit ($p > .05$ for $\Delta x^2(1)$ = 2.066). All items loaded on the factors were found to be significant (Table 4).

CFA Findings of the Child Form

The 27-item CFA results for the child form of the IUSC revealed that the one-factor, two-factor, four-factor and five-factor models did not have adequate fit (Table 3).

The CFA findings for the 12-item child version of the 12-item IUSC showed a one-factor [x^2 (54) = 176.763807, x^2/df = 3.27, CFI = .92, GFI = .91, RMSEA = .07; SRMR = .05, BIC = 312. 044] and two-factor [x^2 (53)= 171.668, x^2/df = 3.24, CFI = .92, GFI = .91, RMSEA = .09; SRMR = .05, BIC = 312.716] models had an acceptable fit. Considering that these two models obtained in the child form as well as in the parent form could be further improved, the error indices of the items predicted to provide a high change in the x^2 score were correlated. Accordingly, when the three highest error variances as a result of the correction indices (modification indices) suggested after the analysis for the one-factor model were associated respectively (items with associated error variance; m9-m25, m19-m21, m9-m15), it was seen that the changes in the x^2 value were significant, the final model was better and had acceptable values in terms of fit indices [x^2 (51)= 126. 664, x^2/df = 2.48, CFI = .95, GFI = .93, RMSEA = .07; SRMR = .04, BIC = 278.991]. Similarly, when the three error variances were associated for the two-factor model of the 12-item Child version of the 12-item IUSC (items with associated error variance; m9-m25, m19-m21, m10-m12), it was observed that the changes in the x^2 values were significant, the final model was better and had acceptable values in terms of fit indices [x^2 (47)= 123. 527, x^2/df = 2.47, CFI = .95, GFI = .93, RMSEA = .07; SRMR = .04, BIC = 281.501]. In this 12-item form, one-factor and two-factor models were compared with the chi-square difference test and it was found that the models compared did not differ significantly from each other in terms of fit ($p > .05$ for $\Delta x^2(1)$ = 3.137). All items loaded on the factors were also

found to be significant (Table 4).

As a result, it was found that the 12-item short form had better fit indices than the long form in both parent and child forms and that there were no significant differences between single-factor and two-factor models in both forms (Table 3).

Reliability

Cronbach's alpha internal consistency coefficient and two-half test reliability coefficient were used to evaluate the reliability of the parent and child forms of the IUSC. The 27-item internal consistency coefficient for the parent form of the IUSC was .96 and the internal consistency coefficient for the child form of the IUSC was .95. When the two-half test reliabilities were evaluated, the reliability coefficient of the scale was .90 for the parent form and .92 for the child form. The internal consistency coefficient for the parent form of the IUSC-12 was .91 and for the child form of the IUSC-12 was .91. When the two-half test reliabilities were evaluated, the reliability coefficient of the scale was .90 for the parent form of IUSC-12 and .89 for the child form of IUSC-12.

DISCUSSION

It is important to use a valid scale in the evaluation of IU, which is an important factor that is studied in the evaluation of anxiety disorders and sometimes in the intervention programs of anxiety disorders. Although adaptation studies have been conducted in Turkey (22,27), the lack of such a scale in children and adolescents has been considered as a deficiency. Therefore, in this study, the adaptation of the IUSC, which is used to assess the IU levels of children and adolescents, was conducted in the Turkish sample. As a result of the reliability and validity analyses conducted in this context, it was found that the IUSC is a reliable and valid scale for use with children and adolescents in the Turkish sample.

Factor analyses were conducted separately on both parent and child forms of the scale to assess the construct validity of the IUSC. Similarly, considering the findings in the literature, CFA analyses were conducted on the 27-item long form and the 12-item short form. The analyses revealed that the 12-item short form had better fit index values in both parent and child forms (Table 2). When previous studies conducted with the IU scales were examined, it was reported that the 12-item short form (39,42,47) also yielded valid and reliable results in both adult (23) and child forms. In this study, the low concordance index scores of the form consisting of 27 items were consistent with the literature. As previously mentioned, due to some inconsistencies in the factor structure of the first 27-item IUS developed by Freeston et al. (1) (46), Carleton et al. (24) developed a 12-item shorter form scale based on the IUS and it was observed that this shorter form was started to be used in adults in subsequent studies (25,26). Similarly, it has been observed that the 12-item short form of the scales developed to assess IU in children (IUSC-12) yielded more valid results (39,42,47).

When the studies examining the construct validity of the IUSC were examined, it was seen that one-factor (42) and two-factor (39, 47) constructs were confirmed as a result of the analyses conducted using the CFA method. In this study, consistent with the aforementioned findings, it was found that the single-factor and two-factor structure of the IUSC-12 was confirmed in both child and parent forms (Table 2). In line with the findings, the validity of the one-factor model reveals that evaluations over the total raw score will give an idea about the level of intolerance of uncertainty in children. When the studies on the two factors of the IUS in both adult and child forms are examined, it is seen that these two factors are considered as "prospective" IU and "inhibitory" IU (24,26,39,46,53). In this study, the first factor, which included prospective items (m7, m8, m10, m11, m18, m19, m21) related to the beliefs that future events should be predictable and therefore uncertainty about the future is upsetting or disappointing, was named as "prospective/prospective" IU in parallel with the literature (Sample item 7: "Unexpected events upset me greatly"). This future-oriented factor has been reported to be associated with anxiety, GAD and OCD (26,39,53). The second factor, which includes items related to the present (m9, m12, m15, m20, m25) and is mostly discussed in the context of

uncertainty negatively affecting one's performance and including restrictive or inhibitory features, was named as "inhibitory" IU in line with the literature (Example item 15: "I cannot work very well when I am not sure about something"). The second factor, which is present-focused, has been reported to be mostly associated with disorders such as social anxiety (11), panic (24) and depression (20).

In the present study, in the evaluations conducted within the scope of content validity of the IUSC, it was observed that the relationships (r = .22 to .60) between the total scores of the parent and child forms of the IUSC-27 and IUSC-12 and all sub-factors of the SASC-Parent Form were significant. The relationships between the prospective and inhibitory sub-dimensions of the parent form of the IUSC-12 and the separation anxiety, panic attacks, social phobia, obsessive-compulsive disorder and agoraphobia sub-dimensions of the SASC-Parent Form (r = .21 to .42) were also significant. Similarly, the prospective and inhibitory sub-dimensions of the child form of the IUSC-12 were found to have significant relationships (r = .21 to .40) with all sub-dimensions of the SASC-Parent Form (Table 2). However, the coefficients of these relationships were found to be relatively low and moderate. In particular, the highest correlation coefficients in both parent and child forms were observed in the relationships with social phobia, panic disorder and obsessive-compulsive disorder, respectively. In the context of "prospective" and "inhibitory", which are the sub-dimensions of the IUSC-12, it was observed that no differentiation emerged according to the sub-factors of the SASC-Parent Form. In other words, both prospective and inhibitory sub-dimensions were found to have higher correlation coefficients with social phobia, panic disorder and obsessive-compulsive disorder than the other sub-dimensions of the SASC-Parent Form. Although some studies in the literature have reported that the sub-dimensions of the IUSC-12 are associated with different disorders (11, 28, 39), there are also studies with similar results to the findings of this study (32, 47). As a matter of fact, in the study of Comer et al. (32), it was found that the scores of the child form of the IUSC were most highly associated with physical symptoms, social anxiety, separation/panic and harm avoidance scales, respectively. Similarly, Zemestani et al. (47) found that the scores of the IUSC-child form were highly correlated with GAD, social phobia, panic disorder and OCD, respectively. All findings suggest that the content validity of the Turkish version of the IUSC-12 is supported in assessing anxiety and related problems in addition to assessing IU in children.

When the compatibility of the child and parent forms of the IUSC was examined, it was found that the correlation coefficient was at average values (long form r = .60; short form r = 54) in both the short and long forms over the total scores, unlike previous studies. When the studies in the literature are examined, it is seen that parent-child adjustment was found to be poor in many studies (32,42,47,54). Researchers have reported that a possible reason for this may be that some features of IU may not be observable by parents and that children may be in a better position to provide information about their own IU (32). In this study, it was found that parent-child adjustment was at an average level at the level of sub-factors of the IUSC-12. Especially the agreement in the "inhibitory" sub-dimension was found to be better than the "prospective" sub-dimension. This finding was consistent with previous studies reporting that parent-child adjustment is likely to be higher on observable symptoms because the "inhibitory" subscale refers to present-oriented symptoms and the "prospective" subscale refers to more future-oriented and abstract symptoms (47,54). In conclusion, both forms of the IUSC analyzed in this study provide consistent information on parents' and children's assessment of IU.

As a result of the evaluations made within the scope of the reliability of the IUSC, it was observed that the internal consistency coefficients were quite high in all versions (long and short) in both child (long form α = .95; short form α = .89) and parent (long form α = .96; short form α = .90) forms. Similarly, when the two-half test reliabilities were evaluated, it was found that the coefficients of both parent (α = .90) and child forms (α = .92) in the long version and parent (α = .91) and child (α = .91) forms in the short version were high. These findings reveal that the reliability of the IUSC is consistent with previous studies (32,39,42,47). All these findings reveal that the reliability of the

IUSC-12 is also high.

Considering the findings in the literature that IU is considered as an important transdiagnostic factor not only in anxiety disorders but also in other internalizing disorders (18,30,41,36), it is predicted that evaluations made on both the total score and the two factors of the IUSC-12 will provide useful information about the IU levels of children and adolescents with internalizing problems. Therefore, it can be said that researchers who want to use this scale in Turkey can make evaluations on both scores according to their own study protocols. In addition, it has been reported that approaches that reduce IU in intervention programs for anxiety disorders yield successful results (16,21). This suggests that assessing IU in children and adolescents may also contribute to the intervention process. However, it has also been reported that the 12-item short scale of the IUSC is suitable for children aged 7-12 years, but the scale items are too high for the reading levels of children in this age group (42). Similarly, although the present study revealed a moderate level of agreement in parent-child reports, it should not be ignored that studies in the literature have also shown poor agreement between parent-child reports of IUSC. Therefore, it should be kept in mind that the use of clinical observation and other behavioral assessment tools (including teacher and parent observations) in addition to self-report scales such as the IUSC in the process of evaluating IU in children will yield more useful results.

This study has a limitation in terms of its findings, primarily because it was conducted with a non-clinical sample. In other words, since data were collected from children without any anxiety disorder and other psychiatric diagnoses, generalizability to clinical samples will be limited. However, it should be emphasized that the period in which the study data were collected also has its own characteristics. The period in which the study data were collected coincided with the COVID-19 pandemic period, which affected Turkey as well as the rest of the world and had various restrictions. As a result of this, it is seen that the mean total scores of the parent and child forms of the IUSC were much higher compared to previous studies (32,39,42,47). Considering the finding that there was an acceptable level of sensitivity and specificity between the anxiety disordered and control groups (73% correctly identifying anxiety disorder; 78% identifying those without disorder) at cut-off scores of 50-54 and 52-55 for the child and parent versions, respectively, in the original form of the scale (32), it was thought that the intense uncertainties during the pandemic period were the possible reason for the high IU in the data collected in Turkey in this study. The fact that this situation emerged in both parent and child forms reveals that the uncertainty experienced during the COVID-19 pandemic reveals that IU is experienced intensely in children. As a result, the findings of this study are thought to contribute to the literature in terms of showing that IU also increases during periods of such uncertainties. Considering that IU is considered as a transdiagnostic factor in the context of its relationship with many internalizing disorders (18,30,36,41), it is thought that IU should also be considered in the increase of internalizing disorders in children during and after the pandemic process. The fact that the majority of the sample consisted of mothers should not be ignored when filling out the parent form. Considering the fact that mothers are generally responsible for the care of children in our country, it is thought that this limitation can be tolerated. Finally, it is thought that evaluating IU in future studies in both clinical and non-clinical samples and in a period when uncertainties are not common in the society will reveal more comprehensive results.

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