

# TURKISH VALIDITY AND RELIABILITY STUDY OF 'THE CHILDREN'S TRUST IN GENERAL NURSES SCALE'

Gülsüm Gülcenbay<sup>1</sup>, Türkan Turan<sup>1</sup>

<sup>1</sup> Pamukkale University, Faculty of Health Sciences, Department of Nursing, Denizli, Turkey

ORCID: G.G. 0000-0003-1261-6163; T.T. 0000-0002-8427-672X

**Corresponding author:** Gulsum Gulcenbay, E-mail: gulsum-g@hotmail.com

**Received:** 16.07.2024; **Accepted:** 27.01.2025; **Available Online Date:** 31.05.2025

©Copyright 2021 by Dokuz Eylül University, Institute of Health Sciences - Available online at <https://dergipark.org.tr/en/pub/jbachs>

**Cite this article as:** Gülcenbay G and Turan T. Turkish Validity and Reliability Study of 'The Children's Trust in General Nurses Scale'. J Basic Clin Health Sci 2025; 9: 309-318.

## ABSTRACT

**Purpose:** This research was a methodological study aiming to prove the validity and reliability of the Children's Trust in General Nurses Scale (CTGNS) in Turkish language.

**Material and Methods:** Our sample included a total of 221 students aged between 9 and 12 from 13 primary and secondary schools in the city center. An informed consent form and a family data collection form were sent to all families for data collection. The Turkish trust scale form and student data collection form were filled by the students. The content validity index was calculated, the Kaiser-Meyer-Olkin value and Bartlett's test were examined. For construct validity, exploratory factor analysis (EFA) was conducted to identify the scale's underlying structures, and confirmatory factor analysis (CFA) was performed to test the fit of the hypothesized model. For reliability, Cronbach's Alpha value ( $\alpha$ ) from internal consistency analysis was checked.

**Results:** The average age of the students was  $10.35 \pm 0.97$  years. The internal reliability Cronbach's Alpha value of the scale was found to be 0.72. The results of the Kaiser-Meyer-Olkin test and Bartlett's test were statistically significant. After the exploratory factor analysis, the scale was found to consist of three subscales: honesty, reliability, and emotionality. These subscales explained 56.76% of the total variance collectively, with the honesty subscale accounting for 19.53%, the reliability subscale for 19.15%, and the emotionality subscale for 18.02% of the variance. As confirmatory factor analysis revealed that the compatibility values of the scale with 9 items were RMSEA=0.068,  $p < 0.005$ , chi-square( $\chi^2$ ) = 69.23.

**Conclusion:** The study on the validity and reliability of 'The Children's Trust in General Nurses Scale (CTGNS)' in the Turkish language demonstrated that the scale is valid and reliable for use in Türkiye.

**Keywords:** child, nurse, trust, validity, reliability

## INTRODUCTION

Trust, defined as 'belief and attachment without fear, hesitation or doubt' (Turkish Language Association Dictionaries), is an essential substance that forms the basis of human relations (1, 2). Erikson describes trust as a psychodynamic process and the basic sense of belief in oneself and the world (3). Trust, due to its intangible nature, has a feature that can only be determined by feelings in relationships. The feeling of trust and insecurity is a significant issue, particularly

in the field of healthcare (4, 5). It is known that nurses working in health services are seen as reliable individuals in the eyes of adults due to their roles (6). Parents' trust in nurses is acknowledged, but when exploring the pediatric literature for information on children and trust in pediatric nursing practice, it becomes evident that this essential element needs to be formally recognized (6). In research-centered pediatric nursing (7), nurses participate in studies for healthy physical, cognitive, emotional, and social

growth and development of children within the family and society, as well as to protect them from diseases and to maximize their health (8). Pediatric patients experience varying degrees of stress due to their fears of physical harm, surgery, and separation from the family during their hospitalization (9).

Trust is not only a psychological concept but also a critical component within the context of healthcare. In pediatric nursing, trust plays a pivotal role as children's trust in nurses directly influences their cooperation and the quality of care during treatment processes. Studies suggest that establishing trust-based therapeutic relationships with children enhances their engagement and collaboration in care activities (10). Furthermore, trust in healthcare professionals is emphasized as a foundation for positive health outcomes and effective treatments. Therefore, pediatric nurses' ability to build trust with children contributes not only to psychological comfort but also to the overall effectiveness of the treatment process and patient satisfaction (11).

On the other hand, children aged 9-12 begin to distinguish good from bad, right from wrong, compassion from cruelty, generosity from selfishness, and they can make decisions about right and wrong situations. At this age, children's sensitivity to behaving correctly and honestly increases (12). According to the principle of honesty, which is included in the ethical principles of nursing, telling the truth in practice leads to respect, open communication, trust, and sharing responsibility. It is important for nurses to tell the truth in order to maintain the patient's trust since the patient-nurse relationship can be seriously damaged when the patient is lied to, and distrust can develop when the nurse ignores the patient's trust relationship. It has been observed that there is a similar attitude between children's trust in nurses and fear. Although it is assumed that a close relationship is assumed to exist between these two emotions, they are entirely different from each other structurally and conceptually. While trust in nurses includes certain expectations, fear of nurses has negative effects on them (13). While trust is seen as an important variable in terms of the personality and social development of the child, most of the research has been aimed at examining the trust of adults (14, 15).

Despite the abundance of scales translated into Turkish to measure trust in nurses, no scale has been found appropriate for use in children (15). The lack of a valid and reliable tool to measure children's trust in

nurses presents a significant gap in pediatric healthcare, hindering the development of interventions to enhance trust in nurse-child relationships. To address this, we conducted the Turkish validity and reliability study of "The Children's Trust in General Nurses Scale," introducing this essential tool to our country's pediatric health literature for the first time. We hope that this scale will play a significant role in future studies across various pediatric settings in Turkey, contributing to the assessment and self-evaluation of pediatric nurses who work closely with children and families, particularly those involved in family-centered care (16).

What is already known about this topic?

Trust, defined as 'belief and attachment without fear, hesitation or doubt', is one of the essential substances that form the basis of human relations (1).

What this paper adds?

The adaptation and validation of the Turkish version of CTGNS is a significant contribution to this study.

The result of this study might show us that different countries in the nursing field can use CTGNS.

The implications of this paper:

This study aimed to conduct a validity and reliability study of 'The Children's Trust in General Nurses Scale' (CTGNS) for the Turkish population, which developed to measure children's level of trust towards nurses.

In this way, it may be possible to evaluate the effectiveness of interventions in the treatment environment and to increase the quality of family-centered care by determining the reasons for children's trust in nurses and the results of the different foundations of the child's trust in nurses.

## MATERIAL AND METHODS

### Research Design

This study aimed to conduct a validity and reliability study of 'The Children's Trust in General Nurses Scale' (CTGNS) for the Turkish population, which was developed to measure the level of trust children have towards nurses.

### Participants and Sample

The study population included 13 primary and secondary schools in the city center. The sample size is usually 5 to 10 times the number of items. The sample of this methodological study consisted of 221 students and their families. The students' ages were

between 9 and 12. The data was collected from December 2018 to March 2019 using the CTGNS, which consists of 9 items, The Parent Data Collection Form and The Student Data Collection Form. Sample participations were selected using the 'Simple random sampling' method. Inclusion criteria were as follows: no history of mental illness or cognitive impairment, ability to communicate normally with language, and informed consent. Exclusion criteria were as follows: children who do not want to participate.

### Instruments

The study data was collected using the parent data collection form, the student data collection form, and The Children's Trust in General Nurses Scale (CTGNS).

The Children's Trust in General Nurses Scale: Developed by Ken J. Rotenberg (17), this scale was designed to measure children's trust in nurses. The original version of the scale consists of 9 items that assess the three bases of trust (Honesty/Reliability/Emotionality) on a 1-5 Likert Scale. It was initially validated with 128 students in England attending 5th and 6th grades of primary school. The scale's total score ranges from 9 to 45 points, while the sub-scores for each item range from 3 to 15 points. Higher scores indicate higher levels of trust in nurses. The Cronbach's alpha value for the scale was found to be 0.72.

### Parent data collection form

The CTGNS researchers created this form based on literature. It includes questions regarding the frequency of children's visits to health institutions in the last year and the children's level of trust or fear towards nurses. Parents are requested to provide answers the questions like "How much does your child trust nurses?" and "How much is your child afraid of nurses." The fear and trust questions are scored on a scale of 1 to 5 points, while the visit question is scored on a scale of 1 to 4 points. The correlation between the CTGNS and the Parent Data Collection Form was examined.

### Student data collection form

This form also created by the researchers, collects students' demographic data, including their name, age, class, and gender, alongside assessing their level of trust and fear towards nurses. Students are

requested to provide answers the questions like "How much do you trust nurses?" and "How much are you afraid of nurses? The fear and trust questions presented to the students were scored on a scale of 1 to 5 points. The correlation between the CTGNS and the Student Data Collection Form was analyzed.

### Procedure:

#### Application of Data Collection Tools

The schools, where permission was obtained for the study, were visited by the researchers one week before the application day, and the necessary permission documents and family data collection forms were sent to the families through the children. At the end of a week, the researchers revisited the schools and applied the data collection forms to the students whose consents were obtained by explaining the study to them during and between classes.

#### Language Adaptation and Assessment of Data Collection Tools

The translation of the CTGNS into Turkish was carried out independently by researchers and three translators who were fluent in English. All the translations were examined and then incorporated into a single form by the researchers. This Turkish form was back translated by a native English-speaking translator who could understand and speak both languages, residing and working in Turkey. After the back-translation, the items were reviewed by comparing the original and back-translated forms. Once compared in terms of grammar, the forms were made ready for expert opinions.

### Content Validity

A total of 10 pediatric nursing specialists with experience working with children were selected for the scope validity of the scale. The selection criteria for experts were working experience  $\geq 10$  years; bachelor's degree or above; extensive working experience in the children; and voluntary participation in this study. The experts calculated the scale's content validity index (CVI) value using the Davis technique.

### Analysis

Statistical analysis of research data was performed on SPSS and LISREL software packages. Percentages, means, and standard deviations of demographic data were calculated through descriptive statistics. For validity analysis, language

and content validity, construct validity (exploratory and confirmatory factor analyses), and correlations were examined. Internal consistency alpha value, scale item correlations, and test-retest were used for reliability analysis. The reliability of the scale over time was assessed using the test-retest technique. The test-retest procedure was conducted four weeks after the initial application. A group of 20 students, selected through simple random sampling from those who participated in the study, was re-administered the same scale. Statistical calculations were performed to determine the correlation between the scores obtained in the first application and the retest scores, using Pearson's correlation coefficient ( $r$ ) to assess the reliability coefficient of the scale.

### Ethical considerations:

Ethical approval was obtained from the Pamukkale University Non-Interventional Clinical Research Ethics Committee (Date: 24.07.2018, Decision No: 15). Necessary permissions were obtained via email from Ken J. Rotenberg, the developer of the scale. Written consent was obtained from the City Provincial Directorate of National Education for the schools where the research would be conducted, as well as from the families and children who participated.

### RESULTS

The mean age of the children participating in the study was  $10.35 \pm 0.97$  and half of them were male 50.2% ( $n=111$ ).

Distribution of children were given in the Table 1. The answers to the CTGNS are given in the Table 2.

The answers given to the question "How often did you take your child to any health institution in the past year (12 months)?" were as follows: 10% ( $n=22$ ) never and, 16.3% ( $n=36$ ) more than five times.

The answers given by the children to the question "How much do you trust the nurses?" were as follows: 10.9% ( $n=24$ ) I do not trust them at all and, 6.3% ( $n=14$ ) I trust them very much.

The answers given by the children to the question "How afraid are you of the nurses?" were as follows: 45.7% ( $n=101$ ) not afraid at all and, quite afraid, 2.3% ( $n=5$ ) very afraid.

The answers to the question "How much does your child trust the nurses?" by the families participating in the research were as follows: 10.4% ( $n=23$ ) does not trust at all, 3.2% ( $n=7$ ) trusts very much.

**Table 1.** Descriptive Characteristics of the Students Participating in the Study

Descriptive Characteristics (n=221)	Mean $\pm$ SD	Min.	Max.
Age	10.35 $\pm$ 0.97	9	12
Gender	Female	110	49.8%
	Male	111	50.2%

**Table 2.** The responses of the children to the CTGNS  
The responses of the children  
(n=221)

Scale Items	a- 5 point	b- 4 point	c- 3 point	d- 2 point	e- 1 point
Item 1 (Honesty)	14	28	78	83	18
Item 2 (Reliability)	13	33	24	111	40
Item 3 (Honesty)	7	28	32	96	58
Item 4 (Reliability)	15	28	22	105	51
Item 5 (Emotionality)	18	60	51	67	25
Item 6 (Emotionality)	22	35	35	79	50
Item 7 (Emotionality)	29	39	46	71	36
Item 8 (Honesty)	27	69	53	48	24
Item 9 (Reliability)	25	38	36	69	53

The answers to the question "How afraid is your child of nurses?" by the families were as follows: 44.8% ( $n=99$ ) not afraid at all and, 2.7% ( $n=6$ ) very afraid. In additional questions given by children and their parents for compare correlation to CTGNS are given in the Table 3.

**Table 3.** Correlations Between the Measures and CTGNS (with Means and SDs)

	Mean±SD	RelTN	HonTN	EmTN	CRTN	CRFN	PRTN	PRFN	FVMC
<b>CTGNS</b>									
<b>Total scale</b>	30.35±5.90	0.78 <b>P&lt;.01</b>	0.79 <b>p&lt;.01</b>	0.81 <b>p&lt;.01</b>	0.26 <b>p&lt;.01</b>	-0.16	0.14 <b>p&lt;.05</b>	-0.10	-0.02
<b>Reliability (RelTN)</b>	10.66±2.62		0.38 <b>p&lt;.01</b>	0.43 <b>p&lt;.01</b>	0.20 <b>p&lt;.01</b>	-0.08	0.10	-0.14	-0.01
<b>Honesty (HonTN)</b>	9.93±2.43			0.51 <b>p&lt;.01</b>	0.28 <b>p&lt;.01</b>	-0.13	0.15	-0.02	-0.05
<b>Emotional (EmTN)</b>	9.76±2.40				0.15 <b>p&lt;.05</b>	-0.18	0.07	-0.08	0.00
<b>Child reported</b>									
<b>Trust in nurses (CRTN)</b>	2.74±1.01					-0.23	0.37 <b>p&lt;.01</b>	-0.10	0.05
<b>Fear of nurses (CRFN)</b>	1.80±0.94						-0.17	0.42	0.06
<b>Parent reported</b>									
<b>Trust in nurses (PRTN)</b>	2.71±0.90							-0.36	0.10
<b>Fear of nurses (PRFN)</b>	1.79±0.92								0.12
<b>Frequency of Visiting</b>									
<b>Medical Centres (FVMC)</b>	2.76±0.84								

### Validity Analysis

The forms, which were evaluated by 10 selected experts, were reevaluated through the Davis technique. In our study, exploratory and confirmatory factor analyses were examined for the construct validity of the CTGNS. In addition, as a result of the literature review, it was seen that the trust scales developed on children were insufficient and in order to increase the validity of the scale, the original developers of the scale correlated the total scale with the trust reported by the child and the child's trust reported by the family (17).

A positive correlation was found between the total score and subscale scores of the CTGNS and the children's trust towards nurses in the statements of their families ( $r=0.78, 0.79, 0.81, p<.01$ ).

The KMO value was 0.74 and Bartlett's was found as  $\chi^2=312.48, p=0.00$  (Table 4). After the exploratory factor analysis, the scale explained 56.76% of the total variance in three sub-dimensions (Table 5). It explained 19.53% of the variance in the honesty sub-dimension, 19.15% in the reliability sub-dimension, and 18.02% in the emotional sub-dimension of the CTGNS.

The CFA was used to examine whether the structure of the CTGNS, which has 3 sub-dimensions and 9 items, was confirmed or not. For the acceptability of the CFA results, the t-values of the scale were calculated, the standard analysis and error variances were examined, and the other fit indices of the scale (Table 6) were examined (Chi-square ( $\chi^2$ )=69.23,  $sd=24$ , value=0.00000, RMSEA =0.093).

### Reliability Analysis

The Cronbach's Alpha value ( $\alpha$ ) of internal consistency of the scale, which consists of a total of 9 items, was found to be 0.72. Item-total scale reliability is given in Table 7. Considering the total correlations of the 9 items of the scale, item reliability coefficients were found to be between  $r=0.33-0.47$  except for the 7th item. In various studies, a item-total correlation value of 0.20 or higher is considered acceptable. In order to avoid deviating from the intended characteristics measured by the original scale, item 7 was not removed from the scale (17,18,19). The same scale was applied again to a group of 20 students selected by simple random sampling among the students participating in the research. The correlations obtained from the test-retest results were found to be positive and significant (Table 8).

**Table 4.** Kaiser-Meyer-Olkin Test and Bartlett's Test

KMO ve Bartlett's Test			
Kaiser-Meyer-Olkin Value		0,74	
Bartlett's Testi	Chi-square	312,48	
	Degree of freedom	36	
	Significance	0,00	

**Table 5.** Factor Analysis Results of CTGNS-TR

Factors	Standard Deviation	t-values	Error Variance
<b>Factor 1 (Honesty)</b>			
Item 1	0.51	6.64	0.74
Item 3	0.56	7.36	0.69
Item 8	0.63	8.29	0.90
<b>Factor 2 (Reliability)</b>			
Item 2	0.52	6.63	0.73
Item 4	0.62	5.56	0.79
Item 9	0.68	8.42	0.54
<b>Factor 3 (Emotionality)</b>			
Item 5	0.40	4.95	0.84
Item 6	0.63	9.29	0.94
Item 7	0.27	3.47	0.93

Notes. CTGNS-TR = Turkish version of the children trust in general nurses scale

## DISCUSSION

In order to adapt the scale to the Turkish language, translation and back translation was performed by expert translators. Then ten pediatric nursing specialists were selected for the scope validity of the scale. The CVI value of the scale was calculated as '1' as a result of the CTGNS and content validity index (CVI) evaluations, which were scored by the experts using the Davis technique. In addition, the statements were not found to be problematic by the experts and there was no request for correction. In the Davis technique, the value of the scale is expected to be greater than 0.80 to be acceptable. The value obtained as a result of CTGNS's content validity calculation showed that the scale has the power to represent the qualities it tries to measure at a very high level (20, 21).

In the original scale study, the total scale score was associated with the child-reported trust in nurses score and the family-reported children's trust in nurses score (17). A positive correlation was found between the feeling of trust in the nurse in the children's expressions and the trust in the nurse in the expressions of the families. A negative correlation was found between the children's trust towards nurses in the expressions of the families and the children's fear towards the nurses in the expressions of the families. In the original study in which the scale was developed, the desired positive significance between the correlations was also found in the validity study of the scale in Turkish.

Contrary to the positive relationship between the frequency of children's visits to a health center over the last year (12 months) and the original scale total scores, a negative relationship was found in the Turkish validity study of CTGNS. Obtaining a result contrary to the result found in the original scale can be associated with the fear of medical procedures in secondary school children in Turkey and the image of nurses in our country. Many studies have shown that the fear of medical procedures in children varies depending on the severity of the disease and the procedures, as well as the length of hospital stay (22, 23). In addition, the high workload of nurses in our country. The fact that they also loaded with duties outside their job descriptions scope cause the disruption decrease in their work quality. Therefore, it gives the impression that nurses do not fulfill their duties fully and on time, causing the image of nurses to degrade in the society (24, 25, 26).

The factor analysis suitability required for the construct validity of the CTGNS was measured with the Kaiser-Meyer-Olkin (KMO) test and Bartlett's tests (27, 28). KMO test result values of 0.80 and above are considered excellent. The calculated KMO value of 0.74 for CTGNS was between 0 and 1. Chi-square ( $X^2$ ) = 312.48 and  $p=0.00$ , which were found with the Bartlett's test were considered statistically significant. The results showed that the CTGNS had sufficient sample size for factor analysis, with sufficient correlation between the variables (27, 28). After the exploratory factor analysis of the CTGNS, which consists of a total of 9 items, the total scale explained 56.76% of the total variance in 3 sub-dimensions. Scale sub-dimensions were above the 5% variance value, which is considered valid for EFA. Since the sub-dimension eigenvalues of the CTGNS were found to be 1 and above, which is accepted in

the scale validity and reliability studies, the rate of value explained by the scale was accepted as sufficient. As a result of the analysis, whereas James P. Stevens (1996) accepted 75% and above, Robin K. Henson and J. Kyle Roberts (2006) accepted as 52% and above, most sources state the sufficient variance value to be between 40% and 60% (21, 29). The T-values calculated by CFA were found to be greater than 2.56 for each item. With this result, the items were found to be significant at the level of '0.01' and so no items were removed from the scale. Error variances were examined by performing CTGNS standard analysis after t-values. A high rate of error was detected for item 6 and item 7 error variances of

CTGNS. In some studies, it was observed that items with high error variances, but significant t-values were not removed from the scale. In order to preserve the initial structure of the scale, the 6th and 7th items of the CTGNS continued to be used as in the original research scale (21, 30).

As a result of standard analysis and examination of t-values, the chi-square of CTGNS with preserved items was calculated as ( $\chi^2$ ) =69.23, degrees of freedom (sd)=24, and p value was 0.00. The P value indicates the significance of the difference between the expected and observed covariance values, that is, the  $\chi^2$  value. The p value is expected to be insignificant in confirmatory factor analyses. The

**Table 6.** Goodness of Fit Test Results of CTGNS-TR

Fit Measure	Good Fit	Acceptable Fit	CTGNS-TR
GFI	$0.95 \leq \text{GFI} \leq 1$	$0.90 \leq \text{GFI} \leq 0.95$	0.93
AGFI	$0.90 \leq \text{AGFI} \leq 1$	$0.85 \leq \text{AGFI} \leq 0.90$	0.88
RMSEA	$0 < \text{RMSEA} < .05$	$0.05 \leq \text{RMSEA} \leq 0.10$	0.09
RMR	$0 \leq \text{RMR} \leq .05$	$0.05 \leq \text{RMR} \leq 0.08$	0.09
SRMR	$0 \leq \text{SRMR} \leq .05$	$0.05 \leq \text{SRMR} \leq 0.08$	0.07
CFI	$0.95 \leq \text{CFI} \leq 1$	$0.95 \leq \text{CFI} \leq 0.90$	0.91
NFI	$0.95 \leq \text{NFI} \leq 1$	$0.95 \leq \text{NFI} \leq 0.90$	0.87
NNFI	$0.95 \leq \text{NNFI} \leq 1$	$0.95 \leq \text{NNFI} \leq 0.90$	0.87

$\chi^2/\text{df}$

2.88

Notes. CTGNS-TR = Turkish version of the Children trust in general nurses scale; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation; RMR = Root Mean Square Residuals; SRMR = Standardized Root Mean Square Residual; CFI = Comparative Fit Index; NFI = Normed Fit Index; NNFI = Non-normed Fit Index; df = Degree of Freedom";  $\chi^2$  = Chi-square.

**Table 7.** Item-total Score of CTGNS-TR

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	27,07	29,50	0,39	0,69
Item 2	26,76	29,14	0,36	0,70
Item 3	26,58	28,44	0,45	0,68
Item 4	26,68	28,85	0,37	0,69
Item 5	27,26	29,22	0,33	0,70
Item 6	26,90	27,52	0,42	0,68
Item 7	27,14	29,31	0,27	0,71
Item 8	27,48	27,46	0,47	0,68
Item 9	26.96	26,830	0,45	0,68

significant p value obtained in the study was due to the large sample size, as in many studies. Since  $\chi^2$ , which is one of the fit indices, was not examined alone in the validity and reliability studies of the scale with a sample size of 200 and above, the  $\chi^2/\text{sd}$  value of the CTGNS was calculated. The  $\chi^2/\text{sd}$  value was found to be 2.88. Since this value was less than 3, it was accepted that the scale showed a perfect fit (21, 30). CTGNS (21, 30, 31, 32), whose other fit indices were examined and found to have an acceptable fit, was then compared with the fit indices obtained from the scale in the original study. It was observed that CTGNS could not reach the fit indices of the original scale, but it yielded close values (17). The difference in value between these fit indices was attributed to the result of revealing the scale factor pattern in the original research as a result of various quantitative and qualitative studies and determining the experimental evidence of the construct validity of the scale. It is accepted as normal since cross-cultural validity and reliability studies have certain differences (30).

Overall, the analyses and calculations helped us conclude that the CTGNS was a valid tool in the Turkish language. However, it is also important to question whether a measurement tool is reliable as much as it is valid (33). Reliability analysis was performed to demonstrate the reliability of CTGNS. The CTGNS Cronbach Alpha coefficient, consisting of 9 items, was found to be 0.72. A decrease in the number of items in the scales may cause a decrease in the alpha value. Since the calculated CTGNS Cronbach Alpha value was greater than the limit value of 0.60 used in many studies, and also greater than the value of 0.70, which was accepted for validity analyses, it was accepted that the CTGNS had internal consistency within itself (33, 21). Then, item-total score correlations were examined. Considering the total correlations of the CTGNS consisting of 9 items, item reliability coefficients were found to be between  $r=0.33$  and  $0.47$ , except for the 7th item. With values of  $0.30$  and above, it was observed that the items distinguished children well. Since none of the items were below  $0.20$ , they were not removed from the scale. The 7th item, showing the value of  $0.27$ , was found to be in the range of  $0.20$  to  $0.30$ , which can be used in the scale in mandatory situations (26). In addition, a value of  $0.20$  and above is considered sufficient for item-total correlation in various studies (18,19). Item 7 was not removed from the test in order to not deviate from the characteristics

**Table 8.** Test-retest Results of CTGNS-TR

	<b>r</b>	<b>p</b>
<b>CTGNS-TR</b>	0.95	.000
<b>Reliability</b>	0.89	.000
<b>Honesty</b>	0.90	.000
<b>Emotionality</b>	0.97	.000

of the CTGNS that were intended to be measured in the original scale (17).

Finally, a test-retest process was applied for the CTGNS reliability analysis. The Pearson coefficients (r) used for iterative measurements of the scale against time were found to be positive and statistically significant. With this result, it was determined that the CTGNS provided similar measurement values at different times (33, 34).

During the Turkish adaptation of the scale, intercultural differences were taken into account. Significant cultural differences, such as expectations related to healthcare services, societal norms regarding health, and perceptions of the role of healthcare professionals, were considered. Some of the cultural differences encountered include the structure of the healthcare system in Turkey, access to healthcare services, the public's perspective on healthcare workers (especially nurses), and differences in family decision-making processes.

Linguistic differences were one of the most prominent challenges in the cultural adaptation process. Some healthcare terms and expressions used in Turkey may have different meanings compared to their counterparts in the UK. During the translation of these terms, commonly used expressions in Turkish and public comprehensibility were prioritized, and explanations were added where necessary to ensure they were aligned with the local language. Additionally, some English terms were too specific to be directly translated into Turkish, so the most appropriate local equivalents were found and used.

Considering that cultural differences may affect the validity and reliability of the scale, the adaptations made ensured that the results were best suited to the characteristics of Turkish society.



The Turkish version of the CTGNS was determined to be a valid and reliable scale. The scale is the first measurement tool to measure nurse-child trust in the pediatric nursing literature in our country. CTGNS, which has been translated into Turkish, can be used as a simple objective measurement tool by pediatric nurses who are in close contact with children and families in future studies to be conducted in the field of pediatric nursing. In this way, it may be possible to evaluate the effectiveness of interventions in the treatment environment and to increase the quality of family-centered care by determining the reasons for the trust of children in nurses and the results of the different foundations of the child's trust in nurses.

**Acknowledgements:** This study was supported by Pamukkale University Scientific Research Projects Coordination Unit through project number 2018SABE040. The authors acknowledge the cooperation of the many principals, teachers, families and students who participated in this study.

Verbal Statement; 2019; İzmir; International Congress of Obstetrics and Gynecology; Turkish Validity and Reliability Study of The Child's Trust In General Nurses Scale [https://www.sbu.edu.tr/FileFolder/Dosyalar/23ac40b0/2020\\_12/kit-apy-5dd2d4f6.pdf](https://www.sbu.edu.tr/FileFolder/Dosyalar/23ac40b0/2020_12/kit-apy-5dd2d4f6.pdf)

**Author contribution:** Conception: GG. Design: GG, TT. Supervision: TT, GG. Funding: TT, GG. Materials: TT, GG. Data Collection: GG. Analysis: GG, TT. Literature Search: GG. Writing: GG. Critical Review: TT, GG.

**Conflict of interests:** There was no conflict of interest.

**Ethical approval:** Ethical approval was obtained from the Pamukkale University Non-Interventional Clinical Research Ethics Committee (Date: 24.07.2018, Decision No: 15).

**Funding:** No financial support was received for this study.

**Peer-review:** Externally peer-reviewed.

## REFERENCES

1. Bok S. Lying: Moral choice in public and private Life. Kindle Edition. New York: Vintage; 2011.
2. Govier T. Trust, distrust, and feminist theory. A Journal of Feminist Philosophy. Hypatia 2009;7(1):16 – 33.
3. Bernath MS, Feshbach ND. Trust: Theory, Assessment, Development and Research Directions. Appl Prev Psychol 1995; (4): 1-19.
4. Nortvedt P. Sensitive Judgement: an inquiry into the foundations of nursing ethics. Nursing Ethics 1998;5(5):385-386.
5. Charalambous A, Radwin L, Berg A, Sjøvall K, Patiraki E, Lemonidou C. An International Study of Hospitalized Cancer Patients' Health Status, Nursing Care Quality, Perceived Individuality in Care and Trust In Nurses: A Path Analysis. Int J Nurs Stud 2016; 61:176- 86.
6. Bricher G. Pediatric Nurses, Children and The Development of Trust. J Clin Nurs 1999; (8): 452–458.
7. Çavuşoğlu H. Çocuk Sağlığı Hemşireliği. 12th ed. Ankara: Sistem Ofset Basımevi; 2015.
8. Conk Z, Başbakkal Z, Balyılmaz H, Bolışık B. Pediatri Hemşireliği. Ankara: Akademisyen Yayınları; 2013.p.53-66.
9. Çavuşoğlu H. Kronik ve Ölümcül Hastalık Kavramları ile Hematolojik ve Onkolojik Sorunu Olan Çocuk ve Hemşirelik Bakımı. Ankara: Hürbilek Yayınları; 1992.
10. Mackay LJ, Chang U, Kreiter E, et al. Exploration of trust between pediatric nurses and children with a medical diagnosis and their caregivers on inpatient care units: A scoping review. J Pediatr Nurs 2024; 78:e1-e30.
11. Birkhäuser J, Gaab J, Kossowsky J, et al. Trust in the health care professional and health outcome: A meta-analysis. PLoS One 2017 Feb7;12(2):e0170988. doi: 10.1371/journal.pone.0170988.
12. Yiğit R. Çocukluk Donemlerinde Buyume ve Gelisme. 2nd ed. Ankara: Sistem Ofset Basımevi; 2009.
13. Salmela M, Aronen ET, Salanterä S. The Experience of Hospital-related Fears of 4 to 6 Years Old Children. Child Care Health Dev 2011;37(5):719-26.
14. Huz HH. Kanser Hastalarında Hemsirenin Varlığı, Hasta Hemsire Güven İlişkisi ve Kurum İmajı Algısı. Sağlık Bilimleri Enstitüsü: Hacettepe University. 2019.
15. Yücel SC, AY S. Reliability and Validity of a Turkish Version of The Trust in Nurses Scale. SBP Journal 2013; 41(10):1737-1745.
16. Aykanatı B, Gözen D. Çocuk Sağlığı Hemşireliğinde Aile Merkezli Bakım Yaklaşımı. Gümüşhane University Journal of Health Science 2014;3(1):683-695.
17. Rotenberg JK, Woods EE, Betts RL . Development Of a Scale to Assess Children's Trust in General Nurses. J Spec Pediatr Nurs 2015;20(4):298-303.
18. Hwang I. The Usability Of Item-Total Correlation As The Index Of Item Discrimination. Korean J Med Educ 2000;12(1): 45-51.
19. Can R. Türk Edebiyatı Dersine Katılıma Yönelik Tutum Ölçeğinin Geliştirilmesi. Journal of Uludağ University Faculty of Education 2016; 29(2):325-344.

20. Yurdağül H. Olcek Gelistirme Çalışmalarında Kapsam Gecerligi İcin Kapsam Gecerlik İndekslerinin Kullanılması. 14. Ulusal Eğitim Bilimleri Kongresi; 2005 Sept 28-40; Denizli, Turkey.
21. Seçer İ. SPSS ve LISREL İle Pratik Veri Analizi. Ankara: Anı Yayıncılık;2017.p.155-171, 211-223.
22. Dona L, Lucille F. Whaley, and Wong's Nursing Care of Infant and Children. St. Louis: Mosby; 1996.p.863- 893.
23. Yiğit R. Çocukluk Donemlerinde Buyume ve Gelisme.2nd ed. Ankara: Sistem Ofset Basımevi; 2020.
24. Langley GC, Kloppe H. Trust As a Foundation for The Therapeutic Intervention for Patients with Borderline Personality Disorder. J Psychiatr Ment Health Nurs 2005;12(1):23–32.
25. Dost A, Bahçecik AN. Hemşirelik Mesleğine Yönelik İmaj Ölçeği Geliştirilmesi. JAREN 2015;1(2): 51-59.
26. Ozaras G, Abaan S. Investigation Of the Trust Status of The Nurse–Patient Relationship. Nurs Ethics 2018;25(5):628-639.
27. Büyüköztürk S. Sosyal Bilimler İcin Veri Analizi El Kitabı. Ankara: Pegem Akademi; 2014.p.133-194.
28. Çelik EH, Yılmaz V. LISREL ile Yapısal Eşitlik Modellemesi. Ankara: Anı Yayıncılık; 2016.p.43-51, 105-165, 177-236.
29. Büyüköztürk S. Faktör analizi: Temel Kavramlar ve Ölçek Geliştirmede Kullanımı. Kuram ve Uygulamada Eğitim Yöntemi Dergisi 2002; 8(4):470-83.
30. Çokluk O, Şekercioğlu G, Büyüköztürk S. Sosyal Bilimler İcin Çok Değişkenli İstatistik SPSS ve LISREL Uygulamaları. Ankara: Pegem Akademi; 2018.p.177-246, 251-407.
31. Thompson, B. Exploratory and Confirmatory Factor Analysis: Understanding Concepts and Applications.1st ed. Washington DC: American Psychological Association; 2004.p.93–99.
32. Kline, R. B. Principles And Practice of Structural Equation Modeling. 4th Edition. New York: Guilford Publications; 2016.
33. Erefe İ. Hemşirelikte Araştırma. Ankara: Ofset Matbaacılık; 2012.p.65-84, 91-96, 125- 138, 139-150, 169-187.
34. Özgüven İE. Psikolojik Testler. Ankara: Nobel Yayıncılık; 2012.