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Psychometric properties of the Turkish version of the parental competence scale for parents of children with autism

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ABSTRACT

Background: Parental competence is an important concept in increasing the quality of care provided to individuals with special needs and the quality of life of parents. This study was aimed to evaluate the psychometric properties of the Turkish version of the Parental Competence Scale designed for parents of children with autism spectrum disorders.

Method: This methodological study was conducted with 433 parents of children with autism between November 2021 and February 2023. Information Form, the Parental Competence Scale for Parents of Children with Autism, and the Parental Self-Efficacy Scale were used to collect the data. The data were assessed using content and construct validity, item analysis, confirmatory factor analysis, and internal consistency. Guidelines for reporting reliability and agreement studies (GRRAS) were adhered to in the study.

Findings: The content validity index of the scale was 0.93. Item-total score correlation values ranged from 0.338 to 0.846. As a result of confirmatory factor analysis, the two-factor structure of the scale consisting of 19 items was confirmed. Factor loads were >0.30 and fit indices were >0.80. The Cronbach's alpha coefficient of the Turkish version of the scale was 0.85, and the Cronbach's alpha values of its sub-dimensions were 0.71 and 0.79.

Conclusion: The parental competence scale for parents of children with autism is a valid and reliable measurement tool for Turkey.

Practice implications: Pediatric nurses, all health professionals, special education professionals and teachers can use this scale in interventional studies aiming to evaluate or improve the competencies of parents with autistic children in the future.

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Introduction

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental disorder that characterized with deficits in social interaction and communication and restricted, repetitive behaviors and interest (Center for Disease Control and Prevention, 2023; Kirkpatrick et al., 2019). ASD, the prevalence rates of which have increased in recent years, has become an important public health problem (Salari et al., 2022; Wahdan et al., 2023). ASD prevalence rates are around 0.6% worldwide. It is also stated that it is 1.7% in Australia, 1% in America and Africa, 0.5% in Europe and 0.4% in Asia (Salari et al., 2022). There are reportedly over 36.000 autistic individuals living in Turkey, despite the fact that the prevalence of ASD is yet unknown (Ministry of Health, 2019). Due to the increase in the prevalence of ASD, institutions providing health

services to individuals with ASD and specialists and teachers working with these individuals may encounter many difficulties (McGuire, 2016). The burden of ASD continues to extend beyond familial and individual consequences and impact communities and healthcare systems as a whole (Hai et al., 2023).

One of the major issues with children who have autism is their inability to care for themselves and their dependence on others. Additionally, ASD-related cognitive, behavioral, and social problems have a severe impact on both children's and their parents' quality of life (Bal et al., 2015; Mohammadi et al., 2020). These negativities cause physical, psychological, and social problems in both parents and family members by affecting the caregiving competence of parents (Al-Farsi et al., 2016; Mohammadi et al., 2020). The process of diagnosis, identifying suitable intervention and educational programs, and managing everyday symptoms and behaviors are challenging for parents of autistic children. In addition to these, parents also have to deal with their kids' damaging behaviors like tantrums, disobedience, aggression, and self-harm (Iadarola et al., 2018; Mathew et al., 2019). As a result, parents of autistic

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children experience greater stress and have lower competencies in parenting than parents of typically developing children (Corcoran et al., 2015; DePape & Lindsay, 2015). Another study stated that parents of children with autism experience more parenting stress and their physical and mental health is at risk (Greenlee et al., 2023).

Psychological competence is defined as having sufficient knowledge and skills to perform tasks successfully and effectively (Mohammadi et al., 2019). On the other hand, parental competence refers to how competent and confident the parents feel about dealing with their children's problems (Arellano et al., 2019). The affection of parental efficacy is a construct that has a significant impact on parental well-being, especially in children with autism (Mathew et al., 2019). Additionally, it is clear that the competence of parents affects the social, emotional, and educational development and growth of children (Marshall & Long, 2010; Mohammadi et al., 2019).

Although the studies have focused on the difficulties of caring for a child with autism; families, especially mothers reported that they were ignored by health services (Heydari et al., 2015; Samadi & McConkey, 2011). A qualitative study revealed that parents caring for a child with autism experienced feelings of disappointment, sadness, and isolation (Uddin & Ashrafun, 2023). Another study found that higher family cohesion and increased parental self-efficacy were linked to parental stress. The study emphasized the importance of parental self-efficacy as a coping resource to reduce parental stress (Kishimoto et al., 2023). It was observed in the literature that parental competence scales developed for parents of children without disabilities were typically utilized to assess the parental competence of parents owning children with autism (Baker-Ericzén et al., 2005; Keen et al., 2010; Sarabi, 2011). In some studies, parental self-efficacy scales, which are one of the main predictors of parental competence, were used (Demirören & Bingöl, 2022; Heydari et al., 2015). These differences may limit the assessment of parental competence. There are few measurement tools in the international literature designed to assess the competence of parents of children with autism (do Vale Costa e Silva et al., 2022). Among these, the Parental Self Efficacy Scale (Guimond et al., 2005) is the most frequently used instrument in studies in Turkey. This tool was adapted for parents of children with moderate and severe intellectual disability (Cavkaytar et al., 2014). To the best of our knowledge, the national literature lacks any tool designed or modified to measure competency specifically for parents of children with autism. However, while writing this article, researchers noticed that the parent efficacy scale was used as a data collection tool in an unpublished study conducted with parents of children with autism in Turkey. In the related study, the Cronbach Alpha coefficient of the scale was 0.70 and the number of items was 14 (Vural, 2021). In this our study, the reliability coefficient is higher and the number of items removed is less. In addition, unlike the other study (Vural, 2021), a scale based on parental competence is also used for criterion validity, and different analyzes were made for reliability.

Parental competence for children with ASD includes good communication skills and providing appropriate emotional and social support to the child. Parenting competence requires patience, flexibility and sensitivity to the child's needs (Alnasraween et al., 2023). Developed by Mohammadi et al. (2020), "The Parental Competence Scale in Parents of Children with Autis" is a multidimensional scale designed specifically for the parents of children with autism, emphasizing the perception of parenting. It is recommended to use standardized measurement tools to reflect the competency and experiences of parents with autistic children (Mohammadi et al., 2020). There is a need for valid and reliable assessment tools that address the multidimensional structure of the concept of parental competence (Alnasraween et al., 2023; Mohammadi et al., 2020). In studies, tools measuring parental competence with appropriate psychometric properties and objectivity should be used (Alnasraween et al., 2023). In Turkey, no measurement tool designed specifically for parents of children with autism and used to measure parental competence has been found. It was thought that the

adaptation of this scale (Mohammadi et al., 2020) into Turkish will contribute to obtaining objective and standard data on the efficacy perceptions of parents with autistic children from a parental perspective. In this context, this study was carried out to evaluate the Turkish psychometric properties of the "Parental Competence Scale in Parents of Children with Autism".

Materials and methods

Study design

Methodological design was used in this study. The reporting of this study was performed using "Guidelines for Reporting Reliability and Agreement Studies (GRRAS)" (Kottner et al., 2011).

Sample size and participants

The sample of the study consisted of parents with a child diagnosed with autism residing in two provinces (Afyonkarahisar and Eskişehir) in the Western and Central Anatolian regions of Turkey between November 2021 and February 2023.

Convenience sampling was used to include parents in the study whose autistic children attended Special Education and Rehabilitation Centers within the stated dates and who met the criteria for inclusion. It is advised to use a sample size that is 5–10 times larger than the number of scale items when adapting scales (Anthoine et al., 2014; Brown, 2015). Additionally, the sample size was calculated with the formula ($n = s^2 \cdot Z_{\alpha}^2 / d^2$) proposed for survey researches (Sekaran, 2003). Standard deviation $s = 1$, effect size $d = 0.1$ and $Z_{0.05} = 1.96$ (for significance level $\alpha = 0.05$) were used as parameters in the formula and minimum sample size was calculated as 384 parents. Accordingly, a total of 440 questionnaires were applied taking into account incomplete and incorrect data.

Inclusion criteria for the study were determined as; parents who were willing to participate in the study, spoke Turkish, had no auditory and visual disabilities, and provided care for a child with autism. Seven parents were excluded from the study (three parents did not want to participate in the study, two parents did not complete the survey, and two other parents had less than three months since their child was diagnosed with autism).

Data collection tools

Information form

Following an extensive literature review, the researchers developed the questionnaire used in this study (Benedett et al., 2021; Mohammadi et al., 2020). The questionnaire consisted of two parts. The first part included the sociodemographic characteristics of the parents (age, gender, education level, occupation, income level, etc.), while the second part included the demographic characteristics of the child with autism (age, gender, date of diagnosis, etc.).

Parental competence scale in parents of children with Autism

The scale used in this study was developed by Mohammadi et al. (2020). It evaluated the competencies of parents of children with autism. The scale consisted of 25 items and two sub-dimensions (adapting to the current situation, excellence in care). Parents rated each item using a 5-point Likert scale (1 = Very low, 5 = Very high). The total score on the scale varied between 25 and 125. High scores indicated more competence for parents. The Cronbach Alpha reliability coefficient of the scale was 0.9.

Parental self-efficacy scale

This scale was developed by Guimond et al. (2005) to assess the self-efficacy of parents of children with disabilities. It was a 7-point Likert-type rating scale consisting of a total of 17 items. The scale was first

adapted into Turkish by Diken (2009) in Turkey and used to evaluate the self-efficacy perceptions of Turkish mothers who had a child with delayed language skills. Later, the same scale was adapted to Turkish by Cavkaytar et al. (2014) for the parents of children diagnosed with severe and moderate intellectual disabilities. The Cronbach Alpha internal consistency coefficient of the scale was stated as $\alpha = 0.95$ (Cavkaytar et al., 2014). In this study, the Cronbach Alpha internal consistency coefficient of the scale was determined as $\alpha = 0.91$.

Validity and reliability stages

Translation and cultural adaptation

The English text created by the authors of the scale was used in the language validity study of the Parental Competence Scale for Parents of Children with Autism. The steps of the linguistic validity procedure included translating the scale from English to Turkish and then back again. First, the scale was independently translated into Turkish by three distinct linguists who were fluent in both Turkish and English. Three academics who were familiar with the scale's terminology and had prior experience gathering data from parents of autistic children reviewed the scale after it had been translated into Turkish, and one item underwent minor revisions. Due to this, the term "autism center" was changed to "special education and rehabilitation center" in the ninth item of the original scale. The reason for this is that these educational institutions in Turkey do not use the term "autism center" explicitly. The author was informed about the alterations, and her approval was obtained. A Turkish language specialist validated the scale's use of Turkish. A linguist who speaks English as their first language translated the Turkish scale back into English. Another linguist compared the Turkish and English scales and came to the conclusion that there was no distinction in the meaning of the scale items, and the scale's language validity was completed.

Content validity

After the language adaptation of the scale was made, the content validity was evaluated with the expert opinion method. The content validity index (CVI) is the most widely used index in quantitative evaluation. Content validity consists of taking expert opinion to determine whether the items in the measurement tool are suitable for the purpose of measurement and whether they represent the area to be measured (Şencan, 2005). In order to examine the content validity of the scales, it is recommended to take at least three expert opinions (Morgado et al., 2017).

For content validity in this study, the opinions of 10 specialists in autism and caring were gathered. Four academics from the field of special education teaching who had experience working with autistic children, four academics from the field of pediatric nursing who had experience working with parents of children with special needs, and two experts in special education made up the expert group. The scale was sent to the experts via e-mail. The experts were briefed on the relevant measurements and concepts. Content validity of the scale was calculated using the Polit and Beck Content Validity Index (CVI). On a scale of 1 to 4, experts were asked to rank the intelligibility of each scale item. "Totally suitable" was 4 points, "quite suitable" 3 points, "somewhat suitable" 2 points, and "not suitable" 1 point (Almanasreh et al., 2019).

Pilot-test

It was recommended to apply the scale to a group of approximately 20–30 people after expert opinions were provided (Şencan, 2005). In this study, after receiving expert opinions, the scale was applied to 30 parents with autistic children who agreed to participate in the study. These parents had similar characteristics to the participants in the sample group, but they were not included in the sample. Parents did not give negative feedback on intelligibility, readability, and responsiveness. In the pilot application, the intelligibility of the scale was determined to be sufficient, and then it was applied to the full sample.

Data collection

The information was gathered through face-to-face interviews with parents of autistic children attending Special Education and Rehabilitation Centers in two provinces in Turkey's Western and Central Anatolian regions. Two of the researchers went to special education and rehabilitation facilities three times a week during weekdays, and between 9:00 and 17:00 at the weekends to gather information from volunteers. The duration of each participant's data collection was on average 8 to 10 min.

Statistical analysis

IBM SPSS Statistics for Windows (Version 22.0. Armonk, NY: IBM Corp) and AMOS 21 package programs were used to analyze the data. Descriptive statistics on sociodemographic information collected from parents were presented as frequency, percentage, and mean values. The level of significance for the analysis of the data was determined as 0.05.

The Polit and Beck Content Validity Index (CVI) was calculated for the content validity of the Turkish version of the scale in this study. Confirmatory factor analysis (CFA) was performed to examine the construct validity of the scale.

Internal consistency was examined for the reliability of the scale. It was evaluated by using the Cronbach Alpha reliability coefficient, split-half, item-total score correlations, and Hotelling's T-squared test. For item distinctiveness, a 27% upside-down item analysis was performed. Pearson correlation coefficients between the scale adapted for criterion-related validity and the Parental Self-Efficacy Scale (Cavkaytar et al., 2014) were calculated.

Ethical considerations

In order to conduct the research, permission was taken from the scale owner (Mohammadi et al., 2020) via e-mail. Ethics committee approval was obtained from the Scientific Research and Publication Ethics Committee of a university (Date: 20/10/2021 Protocol No: 08/05), and permission was provided from the institutions. Participants were informed about the purpose of the study. Written and verbal consent was obtained from the parents who agreed to participate in the study. This study was conducted and performed in accordance with the ethical rules stated in the Declaration of Helsinki (Morris, 2013).

Results

Sociodemographic characteristics of parents and children

A total of 433 parents of children with autism completed the questionnaire. It was determined that the mean age of the parents participating in the study was 38.6 ± 7.23 , 73.9% of them were female and 92.8% of them were married. 61.9% of the participants were university graduates or higher. 50.3% of the participants were housewives, 75.3% were nuclear family type and 60.0% had equal income-expenditure levels. 38.6% of the participants had 2 children.

The mean age of the children with autism cared for by their parents was 8.93 ± 5.64 , and 68.4% were male. It was determined that 69.3% of the children were diagnosed with autism for >12 months. Furthermore, 41.1% of the participants stated that their spouses supported them when they were providing care, whereas 16.2% mentioned that they had no help from anyone during the caregiving process. 15.5% of the participants stated that they received medical diagnoses for conditions like high blood pressure, diabetes, etc. after learning their child had autism.

Validity

Content validity

For the scale's content validity, experts were consulted. Each item's scale content analysis and item content analysis were calculated

individually. I-CVI was 0.90 and S-CVI was 0.96, and they were found to be consistent (Shi et al., 2012).

Item total score correlations

As a result of the analysis made with the items in the scale, it was determined that the item-total score correlation coefficients varied between $r = 0.338$ and 0.846 .

Construct validity

In scale adaptation studies, the factor pattern was clear for the adapted scale. Therefore, it could be verified without performing EFA again (Özdamar, 2017). Goodness-of-fit statistics of the conceptual model of the scale were tested with CFA. According to the Confirmatory Factor analysis, it was determined that the structural equation modeling results of the scale were significant at the $p = 0.000$ level and that the scale was associated with the existing scale structure with two factors (Factor 1: Adapting to the current situation, Factor 2: Excellence in care). As a result of factor analysis, six items with a factor load value of 0.30 that reduced model fit were excluded from the design (Excluded items were 1, 6, 7, 10, 14, 16). In the model, covariance was created between the errors of the same factor. According to the results of the first level multi-factor analysis, when the goodness of fit indices of the relevant scale was examined, it was found that the root mean square error of approximation (RMSEA) showed an acceptable fit with 0.061, and a perfect fit with χ^2 (Cmin/df) being 2.625 (Simon et al., 2010; Wong & Carlbäck, 2018). In addition, when the other goodness-of-fit indices of the scale were examined, it could be said that it had an acceptable fit criterion with the values of CFI = 0.881, AGFI = 0.879, IFI = 0.882. The CFA results presented in Table 1 and Fig. 1 showed that the scale confirmed its intended structure.

Reliability

Internal consistency

The Cronbach alpha coefficient of the Turkish version of the scale was 0.853. This indicated a high level of internal consistency among the scale items. Alpha values for the sub-dimensions of the scale were calculated as 0.717 and 0.798 for factor 1 and factor 2, respectively (Table 2).

For split-half analysis, the items were divided into two with odd and even sequence numbers (Baykul, 2015). According to the two-half analysis, Cronbach's alpha value in the first half was 0.729, Cronbach's alpha value in the second half was 0.752, the Spearman-Brown coefficient was 0.872, the Guttman's split-half coefficient was 0.868, and the correlation coefficient between the two halves was 0.772 (Table 2).

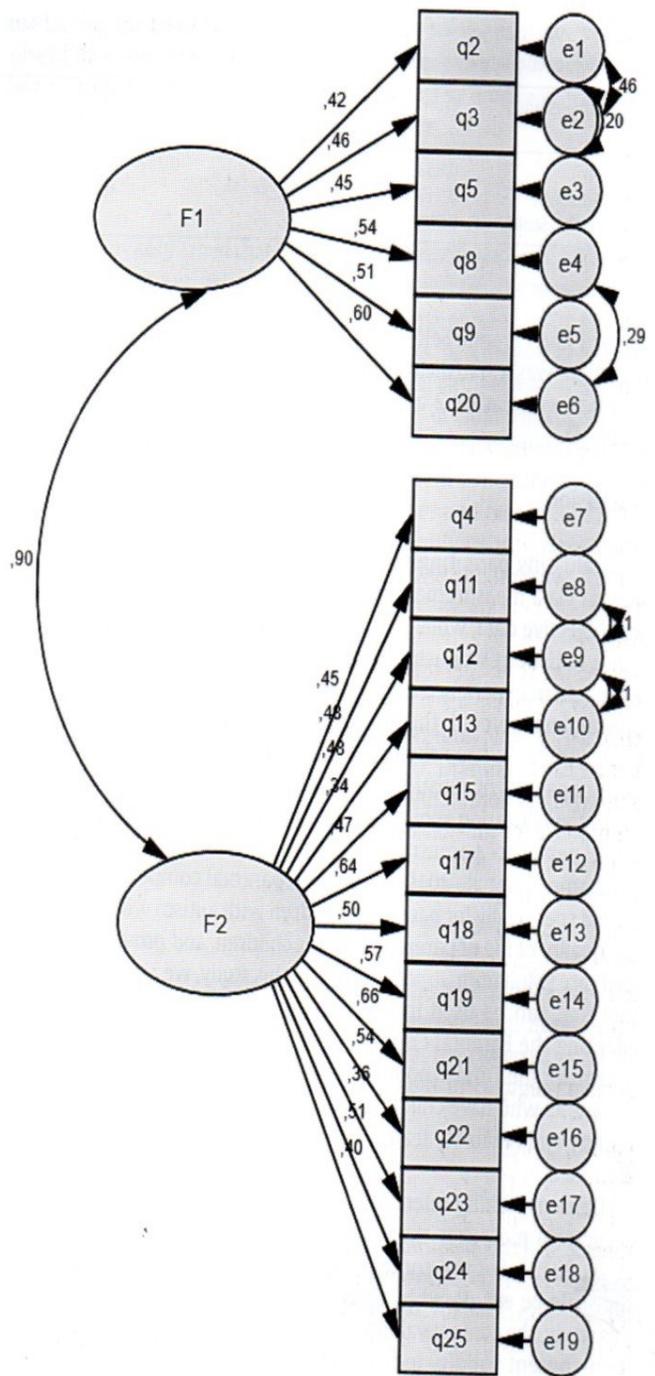


Fig. 1. Confirmatory factor analyses of two-factor model.

Table 1
Model fit indices of the scale (n: 433).

Fit Measure	Good Fit	Acceptable Fit	Goodness of Fit Statistics	Result
χ^2/df^a	$0 \leq \chi^2/df \leq 3$	$3 \leq \chi^2/df \leq 5$	2.625	Good fit
RMSEA ^b	$0.00 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	0.061	Acceptable
GFI ^c	$0.90 \leq GFI$	$0.85 \leq GFI$	0.907	Good fit
CFI ^d	$0.95 \leq CFI$	$0.85 \leq CFI$	0.881	Acceptable
IFI ^e	$0.90 \leq IFI \leq 1.00$	$0.80 \leq IFI$	0.882	Acceptable
AGFI ^f	$0.90 \leq AGFI$	$0.85 \leq AGFI$	0.879	Acceptable
NFI ^g	$0.90 \leq NFI$	$0.80 \leq NFI$	0.822	Acceptable
TLI ^h	$0.90 \leq TLI$	$0.80 \leq TLI$	0.860	Acceptable

^a Degree of free.
^b Root mean square error of approximation.
^c Goodness of fit index.
^d Comparative fit index.
^e Incremental fit index.
^f Adjusted goodness of fit index.
^g NFI: Normed fit index.
^h Tucker-lewis index.

According to the responses given by parents, the calculated means ($\bar{X} \pm SD$) for the genereal scale, adapting to the current situation and excellence in care dimensions were 4.43 ± 0.41 , 4.40 ± 0.51 and 4.44 ± 0.42 . All these values were above 3 in the 5-point Likert score and the competence of the parents is high (Table 2).

The minimum value required for the item-total score correlation to be sufficient was specified as 0.30 (Alpar, 2013). The item-total score correlations of the parents' responses to the scale items were examined and it was determined that there was no item below 0.30. The scale item-total correlations were between 0.33 and 0.84 and were found to be statistically significant ($p < 0.05$) (Table 3).

The homogeneity of the answers given by the parents was evaluated with the Hotelling T^2 test. The results showed no response bias on the scale (Hotelling $T^2 = 198,246$; $p = 0.000$). The answers given by the parents were found to be reliable.

A statistically significant positive and moderate correlation was found between the Parental Self-Efficacy Scale and the Parental Competence Scale for Parents of Children with Autism ($r = 0.539$). A statistically significant positive and moderate correlation was found between

Table 2

Results of the reliability analyses of the scale and sub scale (n: 433).

Sub-dimensions	Cronbach α	First half of Cronbach α	Second half of Cronbach α	Spearman-Brown	Guttman split-half	Correlation between two halves	M \pm SD (Min-Max)
Scale Total	0.853	0.729	0.752	0.872	0.868	0.772	4.43 \pm 0.41 (1.05–5.00)
First Sub Scale	0.717						4.40 \pm 0.51 (1.17–5.00)
Second Sub Scale	0.798						4.44 \pm 0.42 (1.00–5.00)

Factor 1 and Parental Self-Efficacy Scale ($r = 0.532$). It was determined that there was a statistically significant positive and high-level correlation between Factor 2 and Parental Self-Efficacy Scale ($r = 0.809$) (Table 4).

Discussion

Evaluating parenting perceptions of parents having children with autism via a measurement tool will contribute to obtaining standard and objective data, while at the same time making it possible to establish a holistic relationship with families. As the parents of children with autism experience more stress than the parents of children with typical development, their perception of efficacy decreases (Yamada et al., 2007). To keep the balance, it's critical to assess the parenting skills of parents of autistic children. Health professionals and specialists in special education should be aware of how people with autistic children perceive parenting and the elements that influence it (Mohammadi et al., 2019). The use of parental competence scales designed specifically for parents of children with autism will help improve the quality of life of parents and their children, and provide individualized care (Mohammadi et al., 2020). In this study, we aimed to develop a tool that can be used in scientific research and clinical settings by adapting the Parental Competence Scale for Parents of Children with Autism for the Turkish population. This tool measures the competencies of parents who have children with autism. In this part of the study, the validity and reliability features of the Turkish version of the scale were discussed.

Content validity refers to the degree to which a measurement tool accurately measures the construct it aims to evaluate (Tabachnick et al., 2013). For the content validity index, it is recommended that the scale be evaluated by three to ten experts (Polit et al., 2007). In this study, the content validity of the scale was evaluated by ten experts. Item-content validity index (I-CVI) and scale-content validity index

(S-CVI) were used to evaluate expert opinions. In our study, it was determined that the item-content validity index ranged between 0.90 and 1.00, and the scale-content validity index was 0.96. In the literature, it was recommended that the content validity indexes should be above 0.80 (Polit et al., 2007; Şencan, 2005; Yusoff, 2019). The original study of Mohammadi et al. (2020) had a content validity index of 0.85, and it had similar features to our study. As a result, it was seen that the Turkish version of the scale was understandable and content validity was ensured.

In addition to content validity, it was recommended to test construct validity to determine the validity of measurement tools (Carpenter, 2018). In the scale adaptation studies, it was stated that since the factor design of the scale was clear, it could be validated without performing explanatory factor analysis. As a result of confirmatory factor analysis, the theoretical structure of the relevant model was explained and tested whether it was sufficient or not (Özdamar, 2017). In this study, the construct validity of the scale was carried out with confirmatory factor analysis on the two-factor structure suggested in the original scale study (Mohammadi et al., 2020). Various fit indices including χ^2/df , RMSEA, GFI, CFI, IFI, AGFI, NFI, and TLI were used to evaluate the fit of the model. For an acceptable fit in the literature, χ^2/df value is expected to be less than five, RMSEA value should be 0.08 and below, GFI, NFI, TLI values being 0.80 and above, CFI and IFI values should be 0.85 and above (Brown, 2015; Tabachnick et al., 2013). In our study, the values were found to be: $\chi^2/df = 2.625$, RMSEA = 0.061, goodness-of-fit indices (CFI, GFI, AGFI, IFI) > 0.85, and other indices (TLI and NFI) > 0.80. These results showed that our study had an acceptable level of goodness-of-fit. In addition, factor loads of all sub-dimensions obtained as a result of CFA are expected to be above 0.30 (Özdamar, 2017; Wong & Carlbäck, 2018). According to the CFA results in this study, three items in the first sub-dimension (1, 6, and 7 items) and three items in the second sub-dimension (10, 14, and 16 items) were excluded from the design. In the model, covariance was created between the errors of the same factor. Similarly, in the original study, researchers found fit indices >0.80 and an RMSEA value <0.08 (Mohammadi et al., 2020). Accordingly, the results were similar to the original tool. The scale model obtained as a result of the given indices is concordant and applicable to Turkish society.

Homogeneity test is used to examine whether the scale measures the targeted concepts correctly in validity and reliability studies (Celik & Bektas, 2020; Özdamar, 2017). The homogeneity of the answers given by the parents in the sample to the scale items was evaluated with the Hotelling T^2 test. (Hotelling $T^2 = 198.246$; $p = 0.000$). Unfortunately, a direct comparison was not possible as there was no evaluation of the Hotelling T^2 test in the original scale study by Mohammadi

Table 3

The item-total score correlations of the scale (n: 433).

Items	Item-scale total score correlations (r)*	Corrected item-total correlations (r)*	t	p
q2	0.521	0.433	16.355	0.000*
q3	0.523	0.459	16.832	0.000*
q5	0.396	0.445	14.481	0.000*
q8	0.462	0.391	10.329	0.000*
q9	0.396	0.532	10.629	0.000*
q20	0.433	0.460	9.056	0.000*
q4	0.402	0.406	6.587	0.000*
q11	0.467	0.549	10.550	0.000*
q12	0.486	0.305	12.304	0.000*
q13	0.342	0.343	10.609	0.000*
q15	0.392	0.443	8.666	0.000*
q17	0.547	0.492	8.763	0.000*
q18	0.407	0.536	8.110	0.000*
q19	0.474	0.498	6.227	0.000*
q21	0.572	0.362	11.372	0.000*
q22	0.461	0.527	10.676	0.000*
q23	0.338	0.460	7.269	0.000*
q24	0.463	0.492	9.524	0.000*
q25	0.347	0.466	9.181	0.000*

* $p < 0.05$.**Table 4**

Criteria validity of the instrument with the Parental Self-Efficacy Scale.

	Parental Self-Efficacy Scale
Adapting to the current situation (Factor 1)	0.532*
Excellence in care (Factor 2)	0.809*
Parental Competence Scale for Parents of Children with Autism	0.539*

* $p < 0.01$.

et al. (2020). However, based on the test result obtained in our study, it could be said that there was no response bias in the scale.

One of the criteria used to evaluate scale reliability is internal consistency. The most commonly used parameter for this is the Cronbach alpha reliability coefficient and it is recommended to be between 0.60 and 1.00. A value between 0.80 and 1.00 indicates that the scale is quite reliable (Nunnally & Bernstein, 2010). In this study, the Cronbach's alpha value for the whole scale was 0.853, and it ranged from 0.717 to 0.798 for the sub-dimensions. This result showed that the Turkish version of the scale was similar to the original scale and had high internal consistency (Mohammadi et al., 2020). The scale is a reliable tool to assess the competence of parents with children with autism.

The other method in which internal consistency is evaluated is the split-half method. In this analysis, Cronbach alpha values are expected to be >0.70, Spearman-Brown and Guttman Split-Half coefficients to be >0.80, and a strong and significant correlation between the two halves is expected (Nunnally & Bernstein, 2010; Özdamar, 2017). Our study results showed that both halves had Cronbach alpha values >0.70, and coefficients >0.80. These results showed that the scale adequately represented the construct to be measured and that the items were correlated to each other. Unfortunately, it was not possible to compare the results because the original study (Mohammadi et al., 2020) did not provide any findings for this analysis.

In the study, item-total score correlations were examined for the distinctiveness power of the items. Item-total score analysis explains the correlation between the scores obtained from the scale items and the total score of the scale (Şencan, 2005). The minimum value should be >0.30 and positive (Alpar, 2013). In this study, item-total test correlation values of all items were found to be between 0.338 and 0.846. Similarly, this value was >0.30 in the original study (Mohammadi et al., 2020). This result showed that all the items were correlated to each other and that the items could measure parental competence.

Limitations

Although this study has its strengths, it has some limitations. It should be noted that the research was conducted in special education and rehabilitation centers in two different cities and regions of Turkey. This may increase the risk of selection bias and limit the generalizability of the findings. Participation from public health facilities that provide care for kids with autism could broaden the scope of our findings. In addition, the reason for choosing two provinces as the center of this study is that these provinces have a pioneering history in the field of special education, host a sufficient number of special education and rehabilitation centers, and have a high density of children with autism. Conducting the study in different regional and city centers may strengthen our findings.

One of the other limitations of the scale is that there was no validity and reliability study in different languages, so cross-cultural comparisons could not be made. Also, due to the lack of specific data on the original scale, direct comparisons between the present study and the original study were not possible.

To confirm and generalize the findings of this study, it is recommended to investigate different regions and sample groups. Since parental competence is a multidimensional concept that includes cultural components, mixed-pattern studies using qualitative and quantitative designs should be conducted to evaluate the competence of parents of children with autism in future studies.

Implications to practice

With the use of this study, Turkish pediatric and public health nurses, pediatricians, other health care professionals, special education specialists, and psychologists will have a legitimate and trustworthy method to gauge the level of parental competence for autistic children. With the use of this tool, aspects of the care process that the parents feel

are lacking can be revealed. The tool can improve the care given to caregivers, in cross-regional and cross-cultural comparisons, and in the creation of education and intervention programs to empower parents in future research.

Conclusion

This study confirmed that the Parental Competence Scale for Parents of Children with Autism is an objective, valid, and reliable measurement tool for assessing parental competence among parents in Turkey. The research results revealed that Turkish parents' perceptions of parental competence are high. In addition, the parental competence scale is the first Turkish efficacy scale specific to parents of children with autism. The scale is a user-friendly self-report tool that contributes to the assessment of parents' competencies with different dimensions. By incorporating this scale into their practices; nurses and researchers in the field of special education and health can identify existing deficiencies and develop intervention programs to increase and improve parents' competencies.

Credit statement

Study conception and design: HNÇÖ; Acquisition of data: HNÇÖ; ÇT, GA; Analyses and interpretation of data: HNÇÖ; Drafting of manuscript: HNÇÖ, GA; Critical revision: HNÇÖ, GA, ÇT. All authors approved the final manuscript. All authors alone are responsible for the content and writing of the article.

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Ethics statement

The study was approved by the Afyonkarahisar Health Sciences University ethical committee and was conducted in compliance with the Declaration of Helsinki (Date: 20/10/2021 Protocol No: 08/05).

Declaration of Competing Interest

The authors declare no conflicts of interest.

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