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Turkish validity and reliability of the parental competence questionnaire in the paediatric hospital emergency setting (ECP-U)

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ABSTRACT

Aim: The aim of this study is to conduct Turkish validity and reliability study of the parental competence questionnaire in the paediatric hospital emergency setting.
Methods: This study is a descriptive, cross-sectional, correlational and methodological study. Participants were 624 parents with children aged 0–14 who presented to the paediatric emergency department between December 2023 and July 2024. The study was carried out in the emergency department of three hospitals in three different regions of Turkey. The data were collected by using the "demographic information form" and "parental competence questionnaire in the paediatric hospital emergency setting", "state and trait anxiety inventory", and "parental stress questionnaire". Explanatory and confirmatory factor analysis, Horn's parallel analysis, Catell's scree test, Cronbach's ordinal alpha coefficients and Pearson correlation were used in the data analysis.
Results: The mean age of the mothers included in the study was 34.63 ± 6.94, and the mean age of the fathers was 37.88 ± 7.83. The scale consisted of 18 items and three sub-dimensions: emotional management and expression, social support, and parental agency, explaining 60 % of the total variance. It was determined that the Cronbach's ordinal alpha coefficients of the scale factors were greater than 0.745. There is a negative correlation between the parental stress questionnaire, the state and trait anxiety inventory, and the parental competence questionnaire in the paediatric hospital emergency setting.
Conclusions: According to the results of this study, the parental competence questionnaire in the paediatric hospital emergency setting is a valid and reliable measurement tool for the Turkish population.

1. Introduction

Admission rates to Paediatric Emergency Departments (PED) are increasing day by day, and most of these admissions are for non-urgent conditions [1,2]. These admissions are often referred to as non-urgent visits and do not require paediatric ED-specific treatment and care-specific special resources [3]. Parents' perception of urgency and the thought that the child's condition would worsen are the main reasons for parental visits to the PED for non-urgent reasons[4]. Parents' perception of urgency and the thought that the child's condition would worsen leading parents to visit the PED[5], and this is an indicator of parental competence levels in emergencies. It is important to improve parental competence in reducing non-urgent visits to the PED [6]. However, parental competence should be assessed with valid and reliable measurement tools [7,8].

The relationship between parental competence and emergency department use is a significant area of research in the literature [9]; Montoro-Pérez, Richart-Martínez, et al., 2023). When parents are able to accurately assess their children's health status, possess sufficient knowledge about home care, and make appropriate decisions, unnecessary visits can be prevented[10]. Conversely, low parental competence has been demonstrated to increase visits for non-urgent reasons, increase the workload of healthcare professionals, and complicate the management of truly urgent cases in the emergency department [11]. Parents may perceive their child's condition as more serious than it actually is, often due to limited knowledge or heightened anxiety[5].

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This result indicates that parental competence is not merely an individual characteristic but also a critical factor influencing healthcare utilisation. Consequently, the accurate measurement and enhancement of parental competence exerts a direct influence on the quality of visits to PED, and is closely related to the effectiveness of child health services and the efficiency of resource utilisation within the healthcare system [9].

There is no measurement tool to evaluate parental competence in paediatric emergency settings in Turkey. Although there are many measurement tools related to parents, most of them have been validated in their contexts such as general competence and parenting adjustment [12,13,14]. The Perceived Mother-Parenting Self-Efficacy Scale covers mother-specific concerns including mother-infant connection, care practices and the belief in fostering favourable infant behaviours. Furthermore, this measurement tool was developed for the mothers of young children [14]. The Self-Efficacy Scale in Parenting Tasks addresses issues such as interest-care, discipline, play and routine. Similar to the other measurement tool, this scale was developed for parents with a child aged 24–48 months [12]. These scales were not evaluated in a clinical setting. The Parental Self-efficacy Scale was developed by Semerci et al. [13] for parents of children undergoing minor surgery. This scale also evaluates parental self-efficacy in understanding children's feelings about the surgical procedure and their comprehension of the procedure itself [13]. However, none of these measurement tools assess parental competence in paediatric emergency settings. Therefore, there is a need for a Turkish measurement tool to evaluate parental competence specifically in paediatric emergency settings. Parental Competence Questionnaire in the Paediatric Hospital Emergency Setting (ECP-U) was developed by [6] as a measurement tool containing 18 items for parents who are in PED for the treatment and care of their children in order to evaluate their own competence. It can be evaluated in two ways as four and five factors (Montoro-Pérez, Montejano-Lozoya, Escribano, Oliver-Roig, et al., 2023). It has been reported that there is a negative correlation between ECP-U and parental stress, as well as state/trait anxiety (Montoro-Pérez, Montejano-Lozoya, Escribano, Oliver-Roig, et al., 2023). This methodological study aimed to adapt the ECP-U, developed by Montoro-Pérez et al. (2023) for use with parents in PEDs who are involved in the treatment and care of their children. The aim of this study was to evaluate their perceived competence and to test the validity and reliability of the Turkish version of the scale. In line with this aim, the research questions are as follows:

H_1: The Turkish ECP-U has a valid structure for measuring parental competence.

H_2: The Turkish ECP-U is a reliable measurement tool for measuring parental competence.

2. Methods

2.1. Design and participants

This study employed a descriptive, cross-sectional, correlational and methodological design. It was conducted to adapt the ECP-U, originally developed for mothers and fathers, to the Turkish population and to perform psychometric analyses [15,16]. The study was carried out with parents of children between the ages of 0–14 who visited the PEDs of two tertiary education and research hospitals and one maternal and paediatric hospital in three different regions of Turkey.

Inclusion criteria:

(1) The child is aged between 0–14.

(2) The child and his/her parent visit the paediatric emergency department.

(3) The parent is willing to participate in the study.

(4) The parents are willing to complete the questionnaires. The sample was selected using a simple random sampling method. In intercultural adaptation studies of the scales, the recommended sample size is 5–10 times the number of items [17]). Given the 18 items in the ECP-U, the participation of 100 individuals was sufficient for this study. In scale development or adaptation studies, confirmatory factor analysis (CFA) should be conducted using a dataset separate from the one used for explanatory factor analysis (EFA) in construct validity. Thus, the validity of the structure identified through EFA is demonstrated using CFA with a different dataset. The data set for construct validity can be created in two ways. First, after collecting a sufficient number of sample size at a single time for both EFA and CFA, some of them (e.g. 50 %) can be randomly selected for EFA and the remaining part for CFA. Alternatively, two independent datasets collected at different times can be used, with one for EFA and the other for CFA [18]. The first option was preferred in this study. According to the current literature, it is recommended to collect data from at least 300 participants for both EFA and CFA [19]. In this study, data were collected from a total of 646 parents at three hospitals in three different regions of Turkey; 266, 203, and 177 participants from each hospital, respectively. After removing the non-normally distributed data, the analysis continued with the data from 624 parents. Following the elimination of non-normal data, the analysis proceeded with data from 624 parents. Outliers that do not meet the normal distribution assumption have the capacity to distort mean and variance calculations, inflate standard error estimates, and lead to misleading results in parametric analyses such as CFA. Therefore, the exclusion of these values from the analysis is necessary in order to ensure the reliability and consistency of the results [20]. For the construct validity of ECP-U, the total sample was randomly divided into two groups: 312 parents (subsample 1) for EFA and 312 parents (subsample 2) for CFA.

2.2. Data collection

The data for this study were collected between December 2023 and July 2024. The data were collected using the "demographic information form" and the "parental competence questionnaire in the paediatric hospital emergency setting", the "state and trait anxiety inventory", and the "parental stress questionnaire".

2.2.1. Demographic information form

This form included questions related to age, gender, educational status and perceived income.

2.2.2. Parental competence questionnaire in the paediatric hospital emergency department (ECP-U)

It was developed by Montoro-Pérez et al. (2023) to assess parental competence in paediatric emergency departments. It consists of 18 items and 5 sub-dimensions. To calculate the parental competence score, items 16, 17 and 18 should be scored reversely as follows: (1 = 5), (2 = 4), (3 = 3), (4 = 2), (5 = 1). The total possible scores range from 18 to 90. A lower score reflects a lower level of parental competence, while a higher score reflects a higher the level of parental competence.

2.2.3. State and Trait Anxiety Inventory (STAI)

It was developed by Spielberger [21], and adapted to Turkish society by Oner and Compte [22]. This Likert-type scale measures state and trait anxiety levels. It consists of 20 items, with high scores indicating higher anxiety levels and low scores indicating lower anxiety levels. The scale includes two sub-dimensions: state anxiety and trait anxiety, each consisting of 20 questions. The response options range from "None" to "Completely". The total score from both scales ranges from 20 to 80, with higher scores indicating increased anxiety levels.

2.2.4. Parenting Stress Scale (PSS)

The scale was developed by Aydoğan and Özbay [23] to measure mothers' parenting stress levels. It is a Likert scale consisting of 18 items and designed a single-dimension measure of the parent–child relationship and the characteristics of the child. The highest score on scale is 72, with higher scores indicating increased parental stress. The internal

consistency coefficient of the scale was reported as 0.96.

2.3. Cross-Cultural adaptation

The guideline established for the cross-cultural adaptation study of the ECP-U were followed. The adaptation process included translating the original form into Turkish, followed by back-translation into English, synthesizing the translated version, expert review, pre-testing and piloting of the form[15,16].

2.3.1. Translation and Back-Translations

The adaptation of the ECP-U scale to Turkish was carried out in several stages. Initially, the scale was developed in Spanish and subsequently translated into English by three PhD graduates who were native Spanish speakers and fluent in English. The three translations were reviewed by five Turkish faculty members who had completed their doctoral studies in the UK, and the translations were evaluated for consistency, completeness of expression, and meaning. In this stage, agreement among the experts was ensured through comparative analyses of content and terminology.

In the second stage of the project, the scale was translated from English to Turkish by two faculty members from the English Language and Literature and English Translation and Interpreting departments. The Turkish translation was subjected to a rigorous comparative analysis by the researchers, encompassing evaluations of semantic and grammatical accuracy. Additionally, the translation was checked for fluency, cultural appropriateness, and terminological consistency. The necessary corrections were made, resulting in the final Turkish text.

In the third stage of the project, the Turkish version was translated into English using a back-translation method. The procedure was carried out by a member of the nursing faculty who holds a PhD from a UK institution and is fluent in both English and Turkish. The back-translation was systematically checked for consistency with the original English text, loss of meaning, terminological compatibility, and cultural differences. Throughout this process, a range of evaluation methods were employed, including comparative analysis, expert evaluation, and semantic integrity checking. The implementation of these methodologies ensured that the Turkish version was consistent with the original scale in both meaning and content.

2.3.2. Synthesizing the translated version

At this stage, three translators discussed and synthesize the results of the translations. Starting with the original form, a synthesis was created by considering the translations provided by each translator. As a result, a common translation was produced.

2.3.3. Expert committee review

The scale was presented to a group of ten experts working in the field of Paediatric Nursing, who were tasked with the evaluation of its scope and content validity. The Turkish translated forms were presented to the experts, who were invited to rate each item on a scale of 1 (irrelevant) to 4 (very relevant). The experts were tasked with evaluating the items in terms of their relevance to the scale's objectives, understandability, clarity of expression, and applicability to child health care. The consistency of the assessments was examined, and the content validity ratio (CVR) was calculated at the item level, and the content validity index (CVI) was calculated at the scale level[24,25]. Following a thorough evaluation of the Turkish and English versions, it was determined that both were deemed to be suitable. The final version of the scale was subjected to a review process involving the involvement of linguists, who provided their approval. The present process was executed through the utilisation of a methodology that systematically collated expert opinions and evaluated content validity according to scientific criteria.

2.3.4. Pretest of ECP-U

Parents of 20 children, aged between one month and 18 years, who admitted the paediatric emergency department for the pre-test of ECP-U, were included in the study. The researchers contacted the parents and asked them to complete the forms in person. Parents were encouraged to fill out the form and provide feedback on any difficult-to-understand words or phrases. The researchers received the unclear words and items identified in the pre-test and consulted with experts for additional input. The final version of the form was decided based on the researchers' subjective judgment, informed by the experts' consultations.

2.4. Statistical analysis

SPSS 25.0 (IBM [26]was used for the analysis of descriptive data, while R software[27]was used to analyse the psychometric properties of the scale. It was decided whether the data were normally distributed by examining the skewness and kurtosis values. The distribution of the variables was considered normal when the skewness and kurtosis values were between −1.5 and 1.5[28]. The construct validity was evaluated using explanatory factor analysis (EFA) and confirmatory factor analysis (CFA). For EFA, Kaiser-Meyer-Olkin measure was considered acceptable if ≥ 0.70[29], and Bartlett's test of sphericity was used with $p < 0.05$ [30]. Horn's parallel analysis and Catell's scree test were used to determine the number of factors,[31,32]and the structure of ECP-U was determined using Promax oblique rotation. Internal consistency was assessed by calculating the Cronbach's ordinal alpha coefficients, which is considered more accurate for categorical response scales[33]. Hypothesis testing was performed using Pearson's correlation between the ECP-U, State and Trait Anxiety Inventory, and Parental Stress Scale (Fig. 1).

2.5. Ethical Considerations

Permission to adapt the ECP-U to Turkish was obtained from the author of original scale, Ńestor Montoro-Ṕerez, via e-mail. Ethical approval was obtained by the ethics committee of a university (Date: 16.11.2023, Reference no: 2023-SBB-0659). Permission was also obtained from the provincial health directorates in three different cities where the study was planned to be conducted. The study's aim and scope were explained in detail to the parents, and written consent was obtained from all participants. Participation in this study was voluntary, and parents were informed that they could withdraw at any time without affecting their children's treatment process.

3. Results

3.1. Sociodemographic characteristics

The sociodemographic characteristics of the sample are presented in Table 1. The mean age of the mothers was 34.63 ± 6.94, with the most educational level being high school (43.6 %). The mean age of the fathers was 37.88 ± 7.83, and the majority had a high school (48.1 %). The mean age of the children was 7.20 ± 4.65, with the majority being male (52.7 %). Most of the children attended nursery, accounting for 30.8 %. Additionally, 56.4 % of the parents reported a socioeconomic level equal to their income and expense.

3.2. Content validity

Expert opinions were obtained to test the content validity of the ECP-U. The CVR values of the items ranged from 0.75 to 1.00, and the overall CVI value of the scale was determined to be 0.79.

3.3. Structural validity

The results of the EFA indicated that the KMO value was ≥ 0.70, the Bartlett sphericity test was < 0.05, and the coefficient of determination was close to zero. The Kaiser-Meyer-Olkin sampling adequacy index was

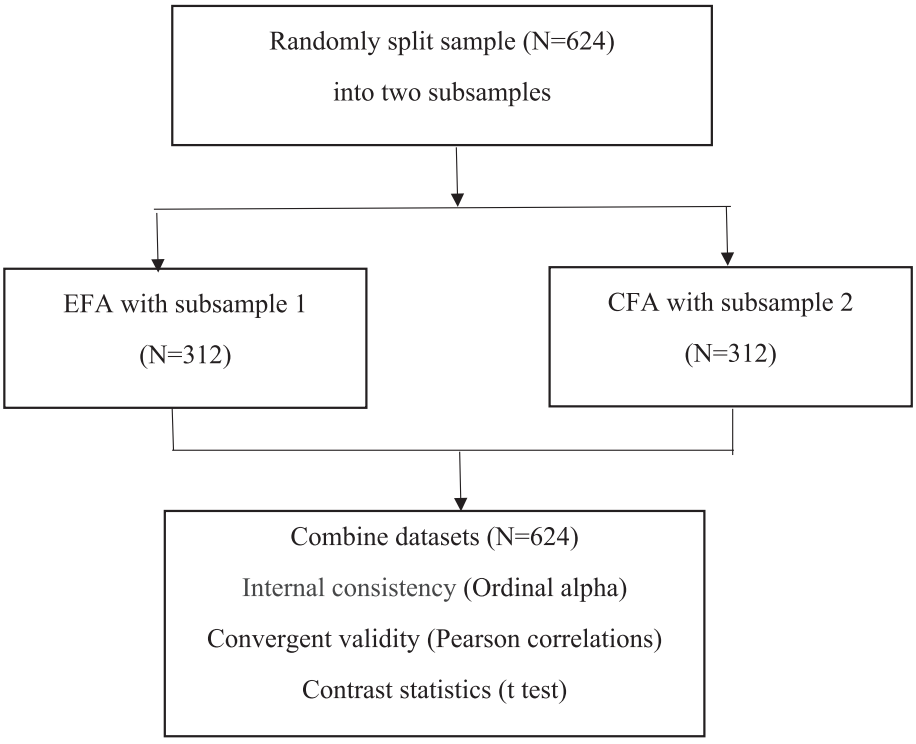

Fig. 1. Data analysis plan.

Table 1
Demographic characteristics of the participants (N = 624).

Demographic characteristics	
Age of mother, Mean ± SD	34.63 ± 6.94
Mother's educational status, n (%)	
Primary school	195 (31.2)
High school	273 (43.6)
Bachelor's degree	135 (21.6)
Postgraduate degree	21 (3.6)
Age of father, Mean ± SD	37.88 ± 7.83
Father's educational status, n (%)	
Primary school	98 (15.7)
High school	301 (48.1)
Bachelor's degree	197 (31.5)
Postgraduate degree	29 (4.7)
Child's age, Mean ± SD	7.20 ± 4.65
Child's gender, n (%)	
Female	293 (47.3)
Male	331 (52.7)
Child's educational status, n (%)	
Does not go to school	105 (16.8)
Nursery	193 (30.8)
Primary school	187 (29.9)
Secondary school	94 (15.0)
High school	45 (7.5)
Family income status, n (%)	
Income is less than expenditures	167 (26.7)
Income equal to expenditures	354 (56.4)
Income is more than expenditures	106 (16.9)

0.913, and the Bartlett test results were (gl = 3561.207, p < 0.001). These findings suggest that it is appropriate to continue with the EFA. A three-factor structure emerged because of Horn's parallel analysis and Catell's scree test (Table 3). The fit values obtained from the CFA results are presented in Table 4. The three-factor structure showed a perfect fit (χ 2/sd = 1.9; df = 121; CFI = 0.938; TLI = 0.914; RMSEA = 0.042). Based on the construct validity results, the content analysis of the items was performed, and the factors were named as follows: Factor 1 (Emotional Management and Expression), Factor 2 (Social Support), Factor 3 (Parental Agency) (Table 2).

Table 2
Item descriptive statistics (N = 624).

Items	Min	Max	Mean (±SD)	Skewness	Kurtosis
I1	1	5	4.19 (0.38)	−1.29	1.44
I2	1	5	4.25 (0.27)	−1.12	1.23
I3	1	5	4.54 (0.58)	−1.19	1.32
I4	1	5	4.13 (1.29)	−1.01	1.06
I5	1	5	4.52 (0.98)	−1.47	1.29
I6	1	5	4.74 (0.38)	−1.39	1.13
I7	1	5	4.02 (1.78)	−1.25	1.29
I8	1	5	4.58 (0.47)	−1.16	1.20
I9	1	5	4.82 (0.17)	−1.15	1.26
I10	1	5	4.37 (0.38)	−1.22	1.18
I11	1	5	4.91 (0.35)	−1.23	1.35
I12	1	5	4.43 (0.39)	−1.13	1.42
I13	1	5	4.16 (0.26)	−1.31	1.24
I14	1	5	4.50 (0.76)	−1.32	1.39
I15	1	5	4.39 (0.47)	−1.26	1.17
I16	1	5	4.20 (1.02)	−1.40	1.28
I17	1	5	4.92 (0.31)	−1.46	1.36
I18	1	5	4.38 (0.28)	−1.34	1.05

3.4. Internal consistency

The item-total correlations of the items ranged from 0.700 to 0.824. Cronbach's ordinal alpha coefficients for EPC-U were 0.866 for the total scale, and 0.745, 0.824 and 0.806 for Factors 1, 2 and 3, respectively. These results indicate that the EPC-U has good internal consistency for the total scale and its factors (Table 5).

3.5. Convergent validity

In the study, the convergent validity of the ECP-U, the correlation coefficients between the scales and the correlations between PSS and STAI were calculated and tested. The relationships between the ECP-U scale factors and the PSS and the STAI were examined (see Table 6).

Table 3
Exploratory factor analysis results (subsample 1, N = 312).

Items	Factor 1	Factor 2	Factor 3	Kaiser–Meyer–Olkin measure	Bartlett's test of sphericity	Eigenvalue	Explained variance
I1. When my child is irritable, I can identify the causes (e.g. I can tell if they are cranky because they are tired, hungry or sick).	**0.738**	0.094	−0.072	0.913	3561.207	2.178	59.982
I2. I help my child to recognise their emotions and name them (e.g. "Are you hungry?", "Are you lonely?")	**0.807**	0.170	−0.004		p < 0.001		
I3. I am able to put myself in my child's shoes (e.g., I understand their despair when they are hungry or in pain).	**0.809**	0.165	−0.030				
I4. When my child is stressed, they look to me to help them calm down (e.g. when they are scared or sick).	**0.760**	0.142	0.086				
I5. I am attentive to my child's needs and concerns at all times.	**0.768**	0.195	0.019				
I6. When parenting becomes difficult for me, I seek help from friends or family (e.g. when my child is sick and has to go to school, when I feel overwhelmed).	0.102	**0.648**	0.197				
I7. I identify and use resources or services in my community to help me with parenting (e.g. school, town hall, primary care centre, etc.)	0.272	**0.585**	0.048				
I8. If I have questions about a parenting issue, I ask for advice, guidance and help.	0.155	**0.704**	0.118				
I9. I take care of hygiene and care needs (e.g. brushing teeth, bathing, dressing).	**0.761**	0.188	−0.004				
I10. I get my child to eat a well-balanced diet for their age (e.g. vegetables, fruit, milk, etc.)	**0.734**	0.221	−0.083				
I11. I take my child for preventive health check-ups (e.g. immunisations, well-baby check-up, etc.)	**0.729**	0.268	−0.069				
I12. Our friends and family will help us if necessary.	0.297	**0.655**	−0.085				
I13. We can count on the support of others when something goes wrong.	0.196	**0.739**	−0.005				
I14. I believe that the decisions I make regarding the upbringing of my child are the right ones.	**0.674**	0.221	−0.134				
I15. Being a mother/father makes me feel fulfilled and happy.	**0.723**	0.260	−0.245				
I16. Being a mother/father has not been as fulfilling as I had hoped.	−0.100	0.110	**0.797**				
I17. Knowing how to care for my child is difficult for me.	−0.096	0.086	**0.874**				
I18. At times I find my circumstances overwhelming.	−0.004	0.054	**0.783**				
Factor correlations							
Factor 1	1						
Factor 2	0.526**	1					
Factor 3	0.277**	−0.187**	**1**				

Note: Factor 1 (Emotional management and expression), Factor 2 (Social support), Factor 3 (Parental agency), Negative items reversed.

Table 4
Statistical fits of the confirmatory factor analysis (subsample 1, N = 312).

Fitted Model	χ 2/sd	df	CFI	TLI	RMSEA
CM	1.9	121	0.938	0.914	0.042
SM	2.1	124	0.919	0.903	0.049

Notes: χ 2/sd = Chi-Square Test/ standart deviation, CFI: Comparative Fit Index, CI: Confident Interval, CM: Congeneric Measures; df: degrees of freedom, RMSEA: Root Mean Square Error Approximation, SM: Second Orden Model, TLI: Tucker-Lewis Index.

The analysis revealed significant correlations between certain factors. Specifically, a moderate negative correlation was observed between the ECP-U total score and the PSS (r = -0.334, d ≈ 0.70, p < 0.01). This finding suggests that as parenting competence increases, levels of stress experienced by parents decrease. Furthermore, a significant negative correlation was identified between Factor 1 (Emotional Management and Expression) and Factor 3 (Parenting Competence) of the ECP-U and the PSS (r = -0.314 and r = -0.283, d ≈ 0.65 and 0.58, p < 0.01). The relationships with STAI were generally small in effect size, and a moderate negative relationship was observed with Factor 3 (r = -0.236, d ≈ 0.48, p < 0.01) (Table 6).

3.6. Contrast statistics

Table 7 presents the mean values of the scale scores for fathers and mothers. There was no statistically significant difference between fathers and mothers regarding the total ECP-U score and its factors (p > 0.05).

Table 5
Item total correlations and Ordinal Alpha of ECP-U scale (N = 624).

Items	Item total correlations	Ordinal Alpha Factors	Total
I1	0.824		
I2	0.810		
I3	0.795		
I4	0.770		
I5	0.755	0.824	
I14	0.740		
I15	0.730		
I9	0.720		0.866
I10	0.710		
I11	0.700		
I6	0.745		
I7	0.735		
I8	0.720	0.745	
I12	0.710		
I13	0.705		
I16	0.806		
I17	0.790	0.806	
I18	0.775		

ECP-U: Parental Competence Questionnaire in the paediatric hospital emergency setting.

4. Discussion

This study was conducted to ensure the intercultural adaptation of the ECP-U and to evaluate its validity and reliability in Turkish. The scale has a three-factor structure, explaining 60 % of the total variance. The results revealed a high level of internal consistency (Cronbach's ordinal alpha coefficients for ECP-U, for the total score 0.866, and 0745,

Table 6
Correlations between ECP-U, PSS and STAI (N = 624).

Scales	ECP-U Factor 1	Factor 1 d	Factor 2	Factor 2 d	Factor 3	Factor 3 d	Total	Total d
PSS	**−0.314****	**−0.65**	**−0.084**	**−0.17**	**−0.283****	**−0.58**	**−0.334****	**−0.70**
STAI	**−0.108***	**−0.22**	**−0.100***	**−0.20**	**−0.236****	**−0.48**	**−0.045**	**−0.09**

ECP-U: Parental Competence Questionnaire in the Paediatric Hospital Emergency Setting, PSS: Parenting Stress Scale, STAI: State-Trait Anxiety Inventory, r values: Correlation coefficients, d values: Approximate Cohen's d effect size.

Table 7
Contrast statistics of ECP-U between mothers and fathers (N = 624).

ECP-U	Parents	Mean ± SD	Difference	Significance
Factor 1	**Mothers**	42.04 ± 8.22	1.357	0.176
	Fathers	40.87 ± 9.06		
Factor 2	**Mothers**	18.14 ± 4.62	1.340	0.181
	Fathers	17.51 ± 4.94		
Factor 3	**Mothers**	11.61 ± 3.52	−1.638	0.102
	Fathers	12.18 ± 3.53		
Total	**Mothers**	71.80 ± 11.75	1.001	0.317
	Fathers	70.57 ± 13.01		

ECP-U: Parental Competence Questionnaire in the Paediatric Hospital Emergency Setting.

0.824 and 0.806 for Factors 1, 2 and 3, respectively). These findings indicate that the ECP-U is highly valid and reliable for the Turkish population. In this study, the ECP-U formed a three-factor structure, which explained 60 % of the total variance. In contrast, in the study by Montoro-Pérez et al. (2023), the ECP-U formed two structures with four and five factors. In the five-factor structure, two items were grouped within one factor, leading to testing of a new four-factor structure. Since the fit indices were better and acceptable for the five-factor structure, this structure was ultimately accepted with the five factors explaining 53.0 % of the variance. In this study, however, the factors were grouped more clearly and with fewer factors. Thus, the Turkish version of the ECP-U consists of three factors.

This study yielded a three-factor structure: The first factor, which is entitled 'Emotional Management and Expression', the second factor, which is entitled 'Social Support', and the third factor, which is entitled 'Parenting Competence'. The results of EFA demonstrated the reliability and significance of the three-factor model. The results obtained provide substantial statistical support for the factor structure that was obtained [34,35,36,37]. Montoro-Pérez et al. (2023) proposed a five-factor structure: The first factor, entitled 'Emotional Management and Expression', is concerned with the ability to regulate one's emotions and communicate them effectively. The second factor, 'Passive Social Support', focuses on the receipt of emotional support from one's social network. The third factor, 'Parenting Competence', addresses the capacity to provide a nurturing environment for children. The fourth factor, 'Basic Needs and Care', pertains to the fulfilment of fundamental physical and emotional needs. The fifth factor, 'Active Social Support', emphasises the provision of assistance and support to others within one's social network. The results of the EFA indicated that the "Active" and "Passive Social Support" factors were integrated into a single factor, and that the "Basic Needs and Care" factor was incorporated into the "Parenting Competence" factor. The findings of the CFA study corroborated these mergers on statistical grounds, thereby demonstrating that the three-factor solution offered a superior fit.

The CFA results in this study generally confirmed the original five-factor structure of the Turkish version of the scale, and the model's fit indices were at acceptable levels [34,35,36,37]. Specifically, the CFI and TLI values were found to be within the designated good fit range, while the RMSEA value also remained within the acceptable limits. In the original study, analyses were conducted using the WLSMV method, testing the original five-factor model alongside a more parsimonious four-factor model (Montoro-Pérez, Montejano-Lozoya, Escribano, Oliver-Roig, et al., 2023). The results demonstrated that the CFI and TLI values were ≥ 0.90, signifying excellent fit, and the RMSEA value was ≤ 0.06, thereby meeting the criteria for acceptable fit. Upon evaluation of the two studies in conjunction, it was observed that the scale's factor structure was largely preserved in both studies, and the fit indices were satisfactory. Furthermore, the incorporation of error covariances enhanced the model's fit in certain sub-dimensions (Montoro-Pérez, Montejano-Lozoya, Escribano, Oliver-Roig, et al., 2023). In contrast, the original study, which involved the assessment of an alternative four-factor model, yielded a comparable level of model fit. This result suggests that the scale is applicable across different cultural contexts, but minor adaptations can contribute to model fit.

For the convergent validity of ECP-U, the relationship between PSS and STAI was examined. There were negative correlations between ECP-U, and both PSS and STAI. It is expected that parental competence decreases as parenting stress and general anxiety levels increase [38]. Similarly, in the study of Montoro-Pérez et al. (2023), negative correlations were reported between the total score and factors of ECP-U and both PSS and STAI. However, positive correlations were reported only between the "parental agency" factor of ECP-U and PSS. The correlation levels and patterns observed in this study are more consistent with the expected relationship between parenting stress, general anxiety levels, and parental competence [38].

Considering the increasing number of non-urgent visits to paediatric emergency departments and the fact that parental competence in emergencies may contribute to this trend, there is a significant need for measurement tools such as ECP-U (Montoro-Pérez, Montejano-Lozoya, Escribano, Oliver-Roig, et al., 2023). Therefore, it is anticipated that ECP-U, which has been validated and tested for reliability in Turkish in this study, will be widely used and prove valuable in evaluating parental competence among parents seeking treatment and care for their children in paediatric emergency departments.

It is important to highlight some of the differences and advantages of ECP-U compared to other parental competence scales. Most other scales primarily evaluate general competence and parenting adjustment [12,13,14]. Currently, there is no equivalent measurement tool in Turkey specifically designed to assess parental competence in clinical and paediatric emergency settings.

4.1. *Strengths and limitations*

PED visits are increasing in Turkey as well as in the world [4,39]. While some of these visits are necessary, non-urgent visits could be handled by other healthcare services, such as primary healthcare services [3]. Necessary arrangements need to be made in order to address this issue in Turkey [4]. Therefore, it is expected that this scale, whose validity and reliability have been tested in Turkish, will be widely used to evaluate parental competence in paediatric emergency settings in Turkey. Additionally, the scale's applicability all paediatric age groups enhance its usability. The relatively low number of scale items is also expected to make it easier for parents to use. To the best our knowledge, this study is the first to adapt this scale to a different culture other than Spanish culture. Despite the strengths of the study, there are limitations. Firstly, data collection was conducted over a single time period, which may prevent the results from reflecting changes over time and limit inferences of causality. Since adaptation studies of the original version

of the ECP-U in different cultures and languages have not been conducted cross-cultural comparisons could not be made. The results for ECP-U were only compared with those obtained by Montoro-Pérez et al. (2023).

5. Conclusion

The original Spanish version of the ECP-U, developed by Montoro-Pérez et al. (2023), demonstrates strong validity and reliability within its cultural context. However, to ensure its global applicability, further validation in different cultural settings, including Turkey, is essential. The Turkish version of the ECP-U benefits from a larger sample size and the consideration of cultural and linguistic differences, which enhances its relevance and usability for the Turkish population. It is recommended to use this scale to evaluate parental competence based on self-report in paediatric emergency departments in Turkey. Additionally, cross-cultural comparative studies of the scale could be conducted.

In view of the results, the Turkish version of the ECP-U scale can be employed not only in academic research but also in clinical practice. The assessment of parental competence levels, particularly within the context of paediatric emergency departments, has the potential to influence both the quality of care provided and the development of parent education programmes. The results of the scale can provide a baseline for the planning of the content of parent education programmes and for the review of implemented health policies. In addition, targeted counselling and information interventions can be designed for parents who have obtained high or low scores. This can facilitate parents' decision-making processes in emergency departments, prevent unnecessary visits, and enhance the effectiveness of child health services.

CRediT authorship contribution statement

Aylin Kurt: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Fatma Dinç:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Emine Güneş Şan:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Ahmet Butun:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Meltem Catalbas Acarsoy:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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