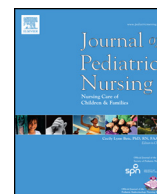




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The family-centered care assessment scale: Development and psychometric evaluation in a Turkish sample

Fatma Tas Arslan, PhD, Professor^a, Emine Geckil, PhD, Professor^b,
Muradiye Aldem, MSc, Research Assistant^{b,*}, Raziye Celen, MSc, Research Assistant^a

^a Selcuk University Faculty of Nursing in Konya, Turkey

^b Necmettin Erbakan University Faculty of Nursing in Konya, Turkey

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ABSTRACT

Purpose: The purpose of this study was to develop a family-centered care assessment scale for the parents of hospitalized children and to evaluate the psychometric characteristics of the new scale.

Method: This is a methodological study carried out in three phases. The study was conducted between on September 2017 and February 2018 with the parents of 360 children treated at the pediatric clinics of two medical faculty hospitals in Konya.

Design/Methods: The study was conducted with parents ($n = 360$). The data was collected via the Socio-demographic Information Form, the Family-Centered Care Scale (parallel form) and the draft scale developed by the researcher. Data was analyzed by construct validity index, exploratory and confirmatory factor analyses. End of the exploratory factor analysis FCCAS consisted of 21 items and three sub-dimensions. The content validity index was 0.92. The internal consistency coefficient (Cronbach's Alpha) was 0.94 for the total scale. The strong correlations was found between test and re-test ($r = 0.90, p < .001$). Confirmatory factor analysis has confirmed the three-factor structure.

Conclusion: In this study developed family-centered care assessment scale (FCCAS) is a valid and reliable measurement tool.

Practice implications: This scale can be used to evaluate family-centered care in pediatric clinics (excluding neonatal care units). It can be used as a measurement tool in descriptive and intervention studies examining family centered care.

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Introduction

Family-centered care (FCC) is a caring philosophy which places family at the center. The family takes an active role in the planning, implementation, and evaluation of the care and has a say in the care of the child as much as a health professional (Shields & Tanner, 2004; Boztepe, 2009; Conk, Başbakkal, & Yardımcı, 2018; Öztürk & Ayar, 2014; Shields, 2015; Feeg et al., 2016; Curtis & Northcott, 2017). FCC is defined as the cooperation between the child, family and healthcare professionals (Johnson & Abraham, 2012). The aim of family-centered care is to maintain the connection between the child and the family, to ensure that the family is effective in the care of the child, and to prevent or minimize the negative effects of hospitalization (Törüner & Büyükgöncü, 2012; Curley, Hunsberger, & Harris, 2013; Aykanat & Gözen, 2014; Çavuşoğlu, 2019; Feeg et al., 2016; Boztepe & Kerimoğlu Yıldız, 2017). The philosophy of family-centered care as family-centric

and its aim of ensuring the family's and child's care needs are met enable the development and implementation of an individualized plan of care unique to their needs.

FCC is based on four main concepts: honoring differences and respect, information sharing, family involvement in the care, and family collaboration. Honoring differences and respect refers to the respect shown by health professionals for the preferences and opinions of families resulting from their values, beliefs and cultural backgrounds. Information sharing involves healthcare professionals sharing information and developments in the child's condition and the treatment approach with families regularly and without prejudice. The concept of family involvement in the care refers to families taking part in the patient care based on their own choices and wishes and requires families to have the courage to make decisions about the patient. The concept of family cooperation refers to the cooperation between health professionals and families for the development of care-related programs (Johnson & Abraham, 2012; Kuo et al., 2012; Öztürk & Ayar, 2014; Shields, 2015). The principles of family-centered care are cooperating with the family acknowledging the permanency of the family in the life of the child,

* Corresponding author.

E-mail address: maldem@erbakan.edu.tr (M. Aldem).

respecting the cultural differences of the child and the family, sharing accurate information with the family continuously, meeting the developmental needs of the child and the family, and developing policies that provide emotional and financial support to families (Feeg et al., 2016; Shields, Pratt, Davis, & Hunter, 2007).

The implementation of family-centered care in line with these principles leads to some significant positive results such as reducing the stress experienced by the family, the child, and the healthcare professionals, shortening treatment time, and increasing satisfaction from the care (Boztepe, 2009; Boztepe & Kerimoğlu Yıldız, 2017; Conk et al., 2018; Watt et al., 2013). Due to these important benefits, the concept of family-centered care is becoming increasingly important in pediatric nursing, and nurses have started to focus on studies that may contribute to the development of family-centered care. This study is important in that it points to the necessity of implementing family-centered care. One of the most important issues that could contribute to the development of family-centered care in pediatric clinics is the evaluation of family-centered care practices. Methods that measure family-centered care are needed in order to prepare family-centered care protocols (Shields et al., 2007).

There are few family-centered care assessment tools reported in the literature (Alves, Severo, Amorim, Grande, & Silva, 2016; Bruce & Ritchie, 1997; Curley et al., 2013; Shields & Tanner, 2004). Family-Centered Care Questionnaire developed by Bruce and Ritchie (1997) was designed to assess to pediatric nurses' perceptions and practices of about family-centered care. The measurement tool developed by Shields and Tanner (2004) provides a community-based assessment instead of a hospital-focused assessment. The study of Alves et al. (2016) focused on care provided in newborn units and the needs of families and babies rather than the assessment of family-centered care. Family Centered Care Scale developed by Curley et al. (2013) was translated to the Turkish language and adapted for use with a Turkish sample by Altıparmak and Arslan (2016). The scale is useful in practice but offers a general perspective. When the existing scales were examined, these scales were thought to have some limitations in the evaluation of family centered care in pediatric clinics. These limitations are that the existing scales are community-based, focused on the perceptions and practices of nurses and are very general. In this study, it was planned to develop and test a new measurement tool that will enable nursing care given to hospitalized children to be evaluated by parents in terms of family centered care.

Methodology

Aim

This is a methodological study which aims at developing and validating a family-centered care assessment scale to evaluate the parents with a hospitalized child in a Turkish sample. Our research objectives are: (1) to develop a family-centered care assessment scale; (2) to assess the content validity of the scale; and (3) to evaluate its psychometric properties.

The sample and participants

The study was conducted in two medical faculty hospitals with pediatric clinics (general surgery, oncology, hematology, infectious diseases clinic, pediatric intensive care, endocrine, neurology) between September 2017 and February 2018 in Konya, Turkey. In these hospitals, children with acute and chronic diseases receive treatment and care. These children are admitted to pediatric clinics and intensive care units.

Several authors consider a sample size of 300 and above as appropriate to evaluate the dimensionality of a scale via factor analysis (Çokluk, Şekercioğlu, & Büyüköztürk, 2016; Geçkil & Tikici, 2015; Hinkin, 1995; Slavec & Drnovšek, 2012). Comrey and Lee (1992) point out that the exploratory factor analysis (EFA) works better with larger sample sizes.

Exploratory factor analysis (EFA) can be defined as a regular simplification of interrelated items. By performing EFA, the basic factor structure is defined. Confirmatory factor analysis (CFA) is a statistical technique that confirms the factor structure defined by EFA.

In our study, the total sample was 360 parents. Like Lau et al. (2006), we divided the parents into two groups for the EFA and the confirmatory factor analysis (CFA). We used non-probabilistic sampling to divide the 360 participants into Sample A ($n = 240$) for the EFA and Sample B ($n = 120$) for the CFA. The inclusion criteria were: (1) being the parent of a child who has been hospitalized for three or more days, and (2) being able to speak, read and write in Turkish language. The exclusion criteria were: (1) having been admitted to the emergency or neonatal intensive care unit.

Data collection tools

In this study, the following tools were used as presented below.

The Sociodemographic Information Form was designed by the research team to gather sociodemographic (age, level of education, occupation, income level, marital status, family structure, place of accommodation, number of children, age and gender of the patient) and clinical (diagnosis, the clinic, and the room type) information about the parents.

The Family-Centered Care Assessment Scale (FCCAS): FCCAS is a new measurement tool developed by researchers. CCAS was originally developed in the Turkish language. It was subsequently translated to English by two translators and reviewed by researchers. The scale developed for parents to assess the family-centered care consists of 21 items. The items were formatted using a five-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The scale is composed of three sub-dimensions which are support (10 items), collaboration (8 items), and respect (3 items). The lowest and highest scores that could be obtained from the scale are 21 and 105. The average response time of the scale is 15 min.

The Family-Centered Care Scale (FCCS) (Curley et al., 2013) was used to assess concurrent validity. The scale is a 7-item parent-report questionnaire designed for parents' assessment of the nursing care given during the hospitalization period. The Turkish adaptation of the scale was made by Altıparmak and Arslan (2016), and it includes the importance and the consistency subscales. In the importance subscale, the parents evaluate the extent to which the care given by the nurses is important, while in the consistency subscale, they evaluate the interest nurses show in child care. The total score is between 7 and 35 for both the importance and consistency subscales. A high total score indicates that family-centered care is applied. The scale has acceptable psychometric properties with internal consistency reliability (Cronbach $\alpha = 0.70-0.79$) (Esin, 2014).

Data analysis

In data analysis, for the mean, standard deviation, Pearson product-moment correlation, Cronbach's alpha reliability coefficient, and EFA calculations, IBM SPSS Statistics version 22.00 (IBM, 2013) was used. For confirmatory of structure LISREL 9.2 (Jöreskog & Sörbom, 2015) was used for the CFA. For all the analyses, the value of $p < .05$ was accepted as significant.

Questionnaire development and evaluation

The study was carried out in three phases which was described by Slavec and Drnovšek (2012) (Fig. 1).

Phase 1: defining the concept of the Family-Centered Care Assessment Scale

The research team has extensive experience working with hospitalized children and their families. They also have experience in family-

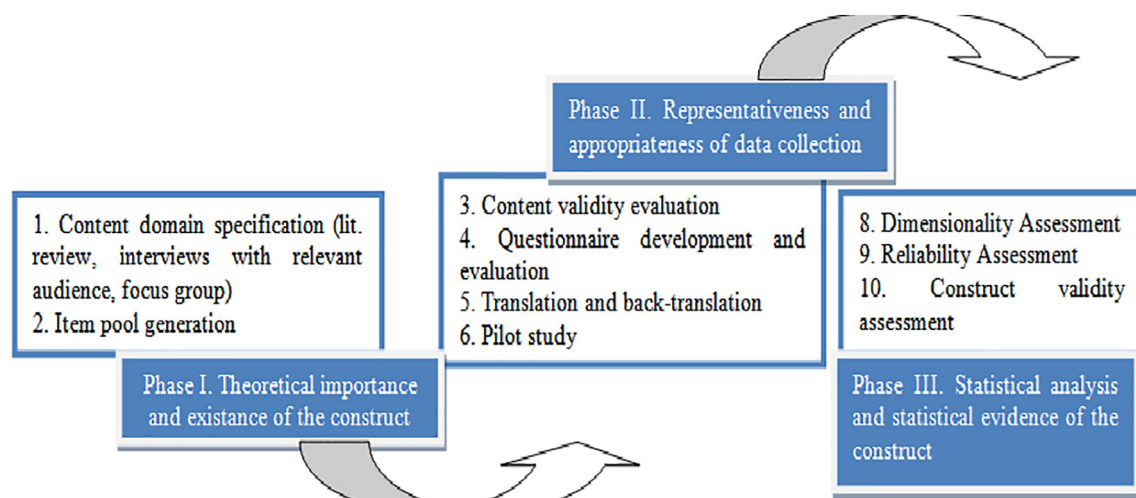


Fig. 1. Three phases in scale development (Slavec & Drnovšek, 2012).

centered care. Items of draft scale were elaborated and written up after four consensus meetings by researchers. The first version of the scale included 29 items on a five-point Likert scale.

Preliminary work focused on the comprehensive review of the literature on the four concepts of family-centered care. Scale items were formed according to themes and codes that emerged as a result of comprehensive interviews and literature review (Gill et al., 2014; Shields, 2010; Shields et al., 2007). Comprehensive interviews were conducted with the study team, pediatric nurses and parents of children with acute and chronic diseases. In the exploratory factor analysis, three sub-dimensional structures emerged. The three subscales of the new scale were named as support, cooperation and respect.

Phase 2: content validation

After the first version of the scale was generated, 13 experts (five pediatric nurses (>10 years of experience), eight faculty members) independently reviewed the items for interpretability, readability, and content validity. The experts evaluated the relevance of each item on the following scale: 1 (not relevant), 2 (somewhat relevant), 3 (quite relevant), and 4 (highly relevant). The content validity index (CVI) of the draft scale was calculated by dividing the number of items that were rated 3 or 4 by the total number of items. The final version of the draft scale included 23 items. The CVI was 0.92, which is an acceptable result (Davis, 1992). We piloted the draft scale on ten parents. At this stage, the items required only minor editing.

Phase 3: psychometric evaluation

This phase included the steps of item analysis, construct validity testing, and reliability assessment.

Item analysis

Item analysis was performed to evaluate the correlation degree of each item of the scale with the subscale total score. Items with a total correlation value <0.30 was discarded (Ferketich, 1991; Sun et al., 2018). The draft items were selected based on these criteria. Two items with a correlation value of <0.30 were removed.

Construct validity testing

Following the item analysis stage, EFA was conducted to evaluate the construct validity of the scale. In the EFA, Kaiser–Meyer–Olkin (KMO) value (>0.7) was used to evaluate whether the sample size was adequate (Çokluk et al., 2016). Bartlett's test of sphericity ($p < .05$) was used to determine whether the factor model was appropriate (Field,

2009; Yong & Pearce, 2013). An eigenvalue >1 was used to determine the number of factors to be extracted (Çokluk et al., 2016; Field, 2009).

When deciding on the number of factors, the total variance percentages and the scree plot slope graph are utilized (Çokluk et al., 2016; Mertler & Reinhart, 2016). High total variance explained is an indicator of good measure of the related concept or construct. It is considered important that the variables in the analysis explain 2/3 of the total variance (Geçkil & Tikici, 2015). Generally, explained variance between 0.40 and 0.60 is considered sufficient (Alpar, 2016). According to the scree plot, the number of components indicated by the point at which the slope begins to disappear or at which the line indicating the slope begins to flatten is considered as the number of factors (Mertler & Reinhart, 2016). Varimax rotation was used in this study because it produces more easily interpretable results (Costello & Osborne, 2005).

Factor loading shows the correlation between the item and the factor. The factor loading value should be above a certain value in order to keep the item which measures a certain construct while remaining under a factor (Çokluk et al., 2016). Gorsuch (1997) reported that items with factor loadings that were <0.5 should be deleted. In addition, Comrey and Lee (1992) and Çokluk et al. (2016) stated that items with factor loadings above 0.71 were the most appropriate. For items with factor loadings, we reviewed the content, theoretical interpretability of the items, and their relevance and significance to a factor, and determined whether to delete them (Shuman, Ploutz-Snyder, & Titler, 2018). An overlap is undesirable because an item is required to measure only one characteristic (Çokluk et al., 2016). In the study, two items with overlapping factor loadings were excluded from the scale. Finally, 21 items were kept in the FCCAS.

The computer program LISREL 9.2 was used to perform the CFA to explore the construct validity of the 21-item FCCAS. To investigate whether the model had a reasonable fit to the data, the cut-off values that were recommended by Çokluk et al. (2016) were used. The model fit was considered to be acceptable if the χ^2/df ratio was <3 and the root-mean-square error of approximation (RMSEA) value was <0.08.

In concurrent validity, the correlation between the draft scale and another scale is evaluated and the result of the correlation is expected to be high (Alpar, 2016; Çokluk et al., 2016). The concurrent validity of the FCCAS was examined based on the correlation between the FCCAS and the scores obtained from the FCCS.

Reliability assessment

The Cronbach's α of each subscale and of the FCCAS was calculated to assess the internal consistency. The Cronbach's α coefficient of 0.70 or above was accepted as an indicator of good reliability (Alpar, 2016;

Çokluk et al., 2016; De Vellis, 2016; Field, 2009). In the test-retest analysis, the values of >0.7 showed acceptable consistency and >0.8 showed good consistency (Alpar, 2016; Field, 2009).

The response bias of the scale was assessed with the Hotelling T^2 analysis (Şencan, 2005), and was found as Hotelling $T^2 = 450.743$ ($p < .001$). It was determined that there was no response bias in the scale.

Ethical considerations

The participants were informed about the aim of the study, and they voluntarily agreed to participate. They also signed the written informed consent form. A small number of parents (about 15) declined to participate due to time constraints. The research plan of this study was examined and approved by the Non-invasive Clinical Trials Ethics Committee, and the related permission was obtained from the hospital.

Results

The sample characteristics are described in Table 1.

Table 1
Sociodemographic of the parents and clinical characteristics ($n = 360$).

Variable	n	%
Parents (32.96 ± 7.68 age years)		
Mother	341	94.7
Father	19	5.2
Education		
Elementary school	169	46.9
Junior high school	94	26.1
Senior high school	59	16.4
University	38	10.6
Marital status		
Married	345	95.8
Divorced	15	4.2
Employment		
Yes	34	9.4
No	326	90.6
Family structure		
Parents families	94	26.1
One-parent family	261	72.5
Others	5	1.4
Family monthly income		
High	62	17.2
Middle	260	72.2
Low	38	10.6
Residence place		
City	224	62.2
Town	78	21.7
Rural	58	16.1
Sex of hospitalized child		
Male	210	58.3
Female	150	41.7
Disease condition		
Acute	198	55
Chronic	147	40.8
Critical	15	4.2
Room type		
Single bed	58	16.1
Double bed	169	46.9
Three and over	133	36.9
Pediatric wards		
General pediatric	203	56.4
Pediatric surgery	22	6.1
Pediatric infection	56	15.6
Pediatric oncology	37	10.3
Pediatric neurology	39	10.8
Pediatric intensive care	3	0.8
Child characteristics		
Child number	2.53 ± 1.13	
Child age	5.42 ± 4.85	

Item analysis

The item analysis revealed that the item-total correlations for each of the 21 items were >0.30 , which is statistically significant ($p < .001$) (Table 2).

Construct validity

A principal component analysis was used. The KMO value was 0.93, and the correlations between the items were significant according to Bartlett's test of sphericity ($\chi^2 = 2691.655$, $df = 253$, $p < .001$), which indicated that the FCCAS was appropriate for factor analysis. The factor eigenvalues were all higher than one on the three subscales of the FCCAS.

The factor loadings of the 23 items were over 0.50. Two items with overlapping factor loadings were excluded from the scale. Consequently, 21 items were retained in the FCCAS. The principal factor analysis of the 21 items is shown in Table 3. The three factors explained 57.51% of the variance in the FCCAS scores.

As shown in Fig. 2, the scree plot suggests a three-factor solution. When Fig. 1 is examined, it is observed that there are sudden declines in the line graph; the components are the factors numbered 1, 2 and 3; the graph becomes horizontal starting from factor 3; and the number of significant factors in the scale is 3.

CFA was conducted on the 21-item FCCAS (Fig. 3). The fit indexes were $\chi^2 = 316.13$, $df = 186$, $\chi^2/df = 1.70$ ($p < .001$). The Goodness of Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residuals (RMR), Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI), Non-normed fit index (NNFI) and Comparative Fit Index (CFI) were 0.812, 0.076, 0.087,

Table 2
Correlations between the item-total scores ($n = 240$).

Items	Item-total score correlations
Factor I: support	(r)*
1. The nurse supports me to be a part of the decisions about my child.	0.670
2. The nurse is aware of my needs (social, emotional, economic, etc.).	0.713
3. The nurse makes it easier for me to reach the resources I need.	0.625
4. The nurse respects our cultural differences (customs, traditions).	0.679
5. The nurse obtains my consent before the interventions to be made to my child (Peripheral intravenous catheter insertion, test, examination, etc.).	0.646
6. The nurse respects the privacy and confidentiality of my child.	0.631
7. The nurse guides/gives counseling in the care of my child.	0.757
8. The nurse sees me as a member of the health team.	0.705
9. The nurse supports other family members to visiting my child.	0.469
10. The nurse informs me about the medical interventions to be made to my child (Peripheral intravenous catheter insertion, test, examination, etc.).	0.630
Factor II: collaboration	
11. The nurse makes an honest statement about my child's condition.	0.590
12. The nurse answers my questions with interest.	0.699
13. The nurse gives information about the care of my child in a way that I can understand.	0.624
14. I can easily ask my questions to the nurse about my child.	0.595
15. The nurse makes me feel that I give good care of my child.	0.700
16. The nurse makes me feel that I have a say in my child's care.	0.679
17. The nurse asks me for my opinion about my child's condition.	0.601
18. The nurse welcomes us during hospitalization.	0.579
Factor III: respect	
19. The nurse calls my child by his/her name.	0.485
20. When the nurse comes into the room, she greets me and my child.	0.566
21. The nurse shows respect to the family members.	0.678

* $p < .001$.

Table 3
The distribution and factor loadings from a principal component analysis (Group A; n = 240).

Item	Mean ± SD	Item factor loadings
Factor I: support		
1. The nurse supports me to be a part of the decisions about my child.	3.87 ± 1.26	0.72 0.34 0.03
2. The nurse is aware of my needs (social, emotional, economic, etc.).	3.68 ± 1.34	0.70 0.28 0.25
3. The nurse makes it easier for me to reach the resources I need.	4.06 ± 1.16	0.69 0.20 0.19
4. The nurse respects our cultural differences (customs, traditions).	4.18 ± 1.07	0.69 0.33 0.12
5. The nurse obtains my consent before the interventions to be made to my child (Peripheral intravenous catheter insertion, test, examination, etc.).	4.02 ± 1.34	0.68 0.19 0.28
6. The nurse respects the privacy and confidentiality of my child.	4.32 ± 1.02	0.64 0.30 0.13
7. The nurse guides/gives counseling in the care of my child.	3.95 ± 1.31	0.60 0.49 0.19
8. The nurse sees me as a member of the health team.	3.39 ± 1.49	0.59 0.45 0.13
9. The nurse supports other family members to visiting my child.	3.17 ± 1.51	0.55 0.03 0.30
10. The nurse informs me about the medical interventions to be made to my child (Peripheral intravenous catheter insertion, test, examination, etc.).	4.30 ± 1.09	0.50 0.36 0.27
Factor II: collaboration		
11. The nurse makes an honest statement about my child's condition.	4.10 ± 1.16	0.17 0.73 0.10
12. The nurse answers my questions with interest.	4.30 ± 1.03	0.31 0.72 0.17
13. The nurse gives information about the care of my child in a way that I can understand.	4.38 ± 0.96	0.27 0.71 0.08
14. I can easily ask my questions to the nurse about my child.	4.24 ± 1.14	0.21 0.67 0.16
15. The nurse makes me feel that I give good care of my child.	4.04 ± 1.16	0.35 0.65 0.23
16. The nurse makes me feel that I have a say in my child's care.	4.20 ± 1.10	0.38 0.62 0.17
17. The nurse asks me for my opinion about my child's condition.	3.57 ± 1.50	0.19 0.56 0.38
18. The nurse welcomes us during hospitalization.	4.28 ± 0.93	0.22 0.54 0.34
Factor III: respect		
19. The nurse calls my child by his/her name.	4.15 ± 1.16	0.23 0.10 0.80
20. When the nurse comes into the room, she greets me and my child.	3.82 ± 1.33	0.21 0.34 0.64
21. The nurse shows respect to the family members.	4.15 ± 1.01	0.33 0.41 0.60
Total	4.01 ± 0.80	

Bold markings were made to draw attention to item factor loads.

0.059, 0.80, 0.893 and 0.90, respectively. These values indicate that the data fit the model and verify the three-factor structure; that the items and the sub dimensions of the scale are related to the scale; and that the items under each sub dimension adequately define their factor. Goodness of Fit indices of the Confirmatory Model are displayed in Table 4.

Concurrent validity

The sample used to test the concurrent validity of the FCCAS against FCCS was a sub-sample of 100 parents who answered the questions in both scales. The Pearson correlation analysis conducted between the FCCAS and the importance part of the FCCS (Parallel Form) revealed a weak positive significant relationship between these two scales ($r = 0.46, p < .001$), and a strong positive significant relationship between the consistency part ($r = 0.71, p < .001$).

Reliability

As shown in Table 5, the internal consistency coefficient for the entire FCCAS was 0.94, and >0.7 for all the factors (extremes: 0.72–0.90). The test-retest analysis was carried out with 34 parents. For test-retest analysis, the continuous method in which there is a 15-min waiting time between two measurements was preferred (Esin, 2014) considering the fact that the patients may be discharged from the hospital and it may not be possible to reach the parents fifteen days or a month later. A positive, very strong and significant correlation was found between the test-retest scores of the FCCAS ($r = 0.90, p < .001$).

Discussion

Family-centered care is one of the main philosophical views of pediatric nursing. It is important to ensure that the nursing care offered to children in pediatric clinics is presented in a family-centered framework. The study was carried out to develop and test a new measurement tool that will enable nursing care given to hospitalized children to be evaluated in terms of family-centered care. This scale evaluates

family-centered care from perspectives of parents. This scale can be administered to parents by nurses and administrators and can contribute to the improvement of care and clinical policies.

The scale was presented to the experts and it was finalized based on their suggestions. As a result of the evaluation made in order to determine the statements to be included in the scale, 23 items were selected to be included in the initial scale. As a result of the subsequent EFA, two overlapping items in the initial scale were eliminated, and eventually the final scale included 21 items and three sub-dimensions (support, collaboration, respect). The Cronbach's alpha of the scale is 0.94 and the Cronbach's alpha of the sub-dimensions is >0.70 . The scale has excellent reliability values (Çokluk et al., 2016). The CVI of the scale was found to be 0.92, which is satisfactory as it is over 0.80 (Davis, 1992).

When the temporal stability of the scale was examined, it was found that the scale did not change depending on time. To test construct validity, the exploratory and confirmatory factor analyses were conducted. The EFA analysis showed that the KMO values were above 0.80 and Barlett tests were significant. In the literature, these results indicate that the sample size is sufficient and appropriate for factor analysis (Çokluk et al., 2016; Field, 2009), and that the distribution of the data is homogeneous.

It was further found that the scale items explained $>50\%$ of the total variance and the factor loadings of all the items exceeded 0.50. According to the results of the CFA, the factor loadings of the FCCAS sub dimensions were higher than 0.50, and GFI, NFI, NNFI and CFI were ≥ 0.80 and RMSEA was <0.080 (Fig. 3). As stated in the literature, χ^2/df ratio lower than 3 points to a perfect fit (Çokluk et al., 2016; Field, 2009). Within this framework, it can be said that in this study χ^2/df ratio indicated a perfect fit. RMSEA value lower than 0.080 indicates good fit (Çokluk et al., 2016). The fit index was found to be good. GFI and AGFI indices higher than 0.95 point to a perfect fit, while indices higher than 0.90 indicate good fit (Alpar, 2016; Çokluk et al., 2016). In this respect, it can be said that GFI and AGFI values point to a weak fit. These values showed that the data were compatible with the model, confirmed the three-factor structure, and the items and the sub-dimensions of the scale were related to the scale, and that the items in each sub-dimension defined their own factor as sufficient. These results indicate that the scale has a high level of construct validity.

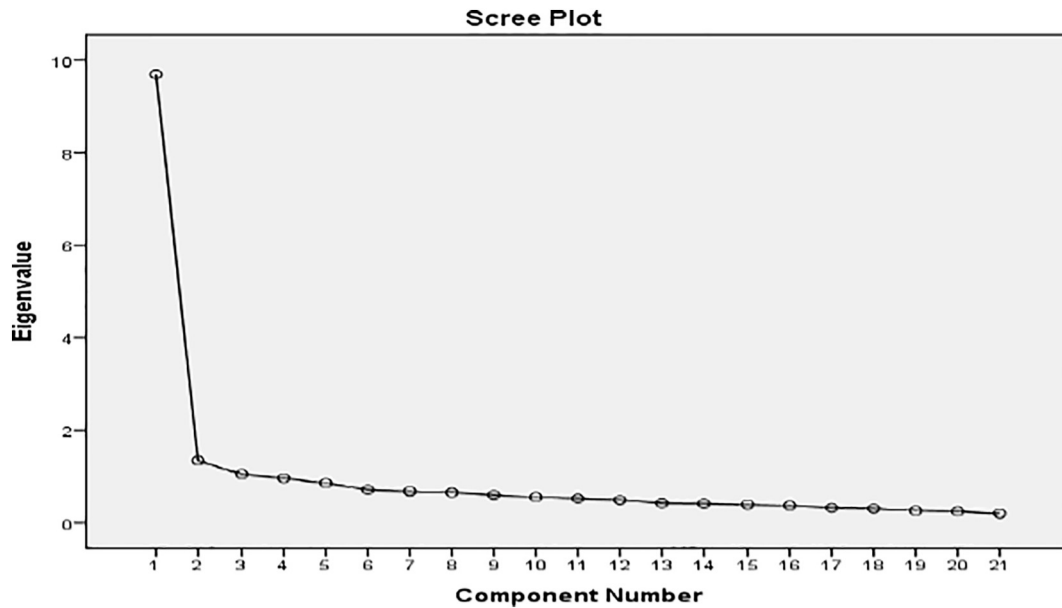


Fig. 2. Scree plot for the 21 items (excluding demographic items).

Limitations

The current study has several limitations. The primary limitation of this study was that the sample consisted of Turkish speaking parents

were derived from in Turkey. Secondly, the scale is a suitable tool for parents to evaluate family-centered care. The study was conducted in two large hospitals that accept patients from rural and urban areas. The results may be affected by Turkish healthcare system, the social and cultural characteristics of the participants and the health workers. Finally, another limitation is that the study relied solely on self-report.

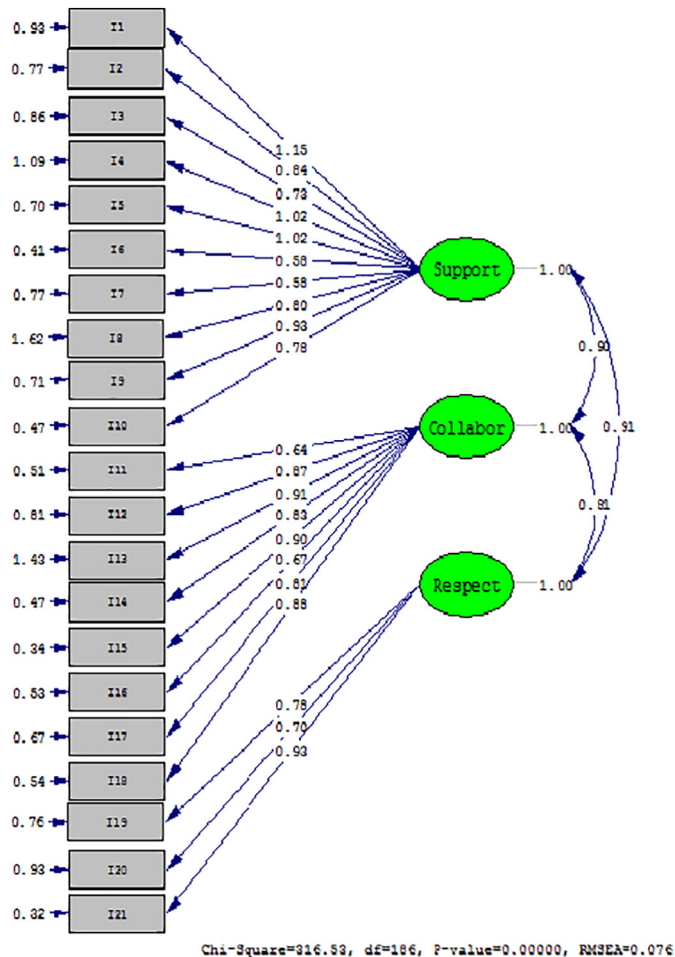


Fig. 3. Confirmatory factor analysis of the FCCAS (Group B; n = 120).

Conclusion

In this study, the FCCAS scale was developed to evaluate family-centered care, which is the most important care philosophy of pediatric nursing. The Family-Centered Care Assessment Scale consists of 21 items on a five-point Likert-type scale. The items were grouped under three subscales: support, collaboration, and respect. The lowest score is 21 and the highest score is 105. The total score mean was found 84.26 ± 16.98 (total items mean 4.01 ± 0.80). As a result of the validity and reliability analyses, it was found that the family-centered care scale is a valid and reliable measurement tool. This scale can be used to evaluate family-centered care in pediatric clinics (excluding neonatal care units). It can be used as a measurement tool in descriptive and intervention studies to improve family centered care. Family-centered care can be affected by health systems, and the sociocultural characteristics of caregivers and patients. In this study, the FCCAS that developed can be tested for its reliability and validity in different cultures and multicenter studies.

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Table 4
Goodness of fit indices of the confirmatory model.

Parsimony fit measures			Absolute fit measures		Incremental fit measures			
df	X ²	p value of X ²	X ² /df	GFI	RMSEA	AGFI	NNFI	NFI
186	316.53	p=.000	1.70	0.812	0.076	0.766	0.893	0.80

Notes: X², Chi-square; df, Degrees of Freedom; GFI, Goodness of Fit Index; RMSEA, Root Mean Standard Error Approximation; AGFI, Adjusted Goodness of Fit Index; NNFI, Non-Normed Fit Index; NFI, Normed Fit Index.

Table 5

The reliability and validity of the FCCAS (n = 360).

Variables	Support	Collaboration	Respect	Total
Cronbach's alpha	0.90	0.88	0.72	0.94

Declaration of Competing Interest

The authors declare no conflict of interest.

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Authorship contribution statement

Fatma Tas Arslan: conceptualization, methodology, validation, investigation, project administration, visualization, formal analysis, writing-review & editing, supervision. **Emine Geckil:** conceptualization, methodology, validation, investigation, project administration, formal analysis, writing-review & editing, supervision. **Muradiye Aldem:** conceptualization, methodology, data collecting, validation, writing-review & editing, supervision. **Raziye Celen:** conceptualization, methodology, data collecting, validation, visualization, writing-review & editing, supervision.

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