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Development of the scale of pediatric nurses' attitudes towards advocacy roles: A validity and reliability study

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ABSTRACT

Objective: This is a methodological study aiming to improve a standardised tool to determine the attitudes of pediatric nurses regarding their advocacy role.
Method: Data were collected online to facilitate access to pediatric nurses from different regions and to reach a large sample group. The study was conducted between May and November 2024 with 540 pediatric nurses that met the inclusion criteria and agreed to participate. In the data collection phase, the "Introductory Information Form for Pediatric Nurses" and the "Attitude Scale on Advocacy Roles of Pediatric Nurses" were used. Psychometric properties of the scale such as content validity, face validity, construct validity and reliability were tested.
Results: The Scale of Pediatric Nurses' Attitudes Towards Advocacy Roles consists of 17 items in total, showing a four-factor structure which includes *"strength of advocacy", "rejection", "ownership",* and *"determination"*. The Cronbach α coefficient of the scale is 0.870.
Conclusion: The Scale of Pediatric Nurses' Attitudes Towards Advocacy Roles is a valid and reliable measurement tool.

Introduction

Although the concept of advocacy emerged historically within the legal system, it is argued that both ordinary individuals and professionals can use this skill to help others (Jugessur & Iles, 2009; Nsiah et al., 2019). In nursing practice, advocacy has been defined as a professional ideal. Ethical guidelines published by the American Nurses Association (ANA) and the International Council of Nurses (ICN) emphasise that nurses should respect their patients' autonomous decisions and act as their advocates (Hanks et al., 2019). When the concept of advocacy is examined in nursing literature, it is seen that there are broad and sometimes differing perspectives on this concept. Advocacy is defined within both an ethical and a legal framework; in more recent literature, it is considered one of the philosophical foundations of nursing practice (Spence, 2011). In the case of neonatal and pediatric nurses, the advocacy role often extends beyond infant patients to include their parents and families (Spence, 2011). When nurses support parents in decisions regarding their children's illnesses, pain, death, treatment processes, and future, they position themselves as existential advocates (Spence, 2011).

Advocacy in healthcare services has both a simple and a rather complex structure and often faces various ethical dilemmas (Munday et al., 2015). In nursing practice, advocacy is generally addressed within the framework of the concept of "patient advocacy" (Negarandeh et al., 2006). Patient advocacy depends on the nurse's ability to listen to, understand, and appropriately articulate the patient's needs (Munday et al., 2015). This advocacy is not only an individual attitude but also an ethical behaviour based on professional responsibility (Negarandeh et al., 2006; Vaartio et al., 2006). Patient advocacy in nursing is influenced by many variables, including individual factors, interpersonal relationships, the patient's medical condition, and the characteristics of the work environment (Tomaschewski-Barlem et al., 2015). Therefore, advocacy is not a fixed and universal action but rather a dynamic process shaped by context (Tomaschewski-Barlem et al., 2015). For this reason, it is quite difficult to define and standardize patient advocacy for nurses. The advocacy role in neonatal and pediatric nursing involves not only looking out for the best interests of the child but also supporting the child's self-advocacy. This ensures that ethical principles such as autonomy and best interests are upheld (Spence, 2011). Additionally,

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representing the views and values of parents and children is central to the advocacy role in this field (Spence, 2011).

Patient advocacy is defined as supporting the patient in the process of determining the meaning of health, illness, suffering or death, mediating and assisting in alleviating suffering, and protecting the welfare and interests of the patient in the health setting (Tomaschewski-Barlem et al., 2015; Vaartio et al., 2006; Vaartio et al., 2008). It is also defined as representing the patient and defending their rights, providing information to the patient and supporting them in the decisions they make as a result, protecting the patient from unnecessary worries, and valuing and appreciating the patient (Vaartio et al., 2006; Vaartio et al., 2008; Tomaschewski-Barlem et al., 2015). Patient advocacy in the field of nursing has been defined in different ways from past to present. While advocacy is described as "the philosophical basis and purpose of nursing" from one perspective, Kohnke (1980) states that advocacy is a kind of compassion and kindness in nursing practice and is a learnt skill that nurses will develop through different experiences (Kohnke, 1980; Motamed-Jahromi et al., 2012).

Although the awareness of advocacy as a concept in nursing has increased since 1970, the first movements of this idea emerged during the time of Florence Nightingale term (Davoodvand et al., 2016; Spence, 2011). Florence Nightingale laid the foundation for patient advocacy, emphasizing the importance of a safe and clean environment and defending basic human rights for all (Tadie et al., 2024). "The ANA Code of Ethics" identifies in article 3 the place of advocacy in nursing with this statement: "The nurse promotes, defends and seeks to protect the rights, health and safety of the patient" (American Nurses Association, 2025). The ICN, in its "Code of Ethics", calls on nurses to embrace advocacy as a fundamental role, stating that "The nurse advocates for equity and social justice in the distribution of resources, access to health care and other social and economic services" (National Council of State Boards of Nursing, 2016) (p.7). Furthermore, the United Nations "Convention on the Rights of the Child" emphasizes the need to consider the best interests of children and protect their rights, thereby establishing advocacy on behalf of children as an ethical responsibility (United Nations, 1989).

Patient vulnerability is cited as one of the key conditions requiring advocacy, and this vulnerability is particularly pronounced for pediatric patients (Munday et al., 2015). Nurses are responsible for the healthy growth and development of children physically, mentally, emotionally and socially within the family and society (Küçük Alemdar & Yılmaz, 2019). In this context, the pediatric nurse has obligations such as defending child rights, informing the child and the family about the patient and child rights, informing the child and the family about care and treatment, keeping safe the privacy of the child and the family, empathizing by understanding their emotions, and giving care by taking into account their traditional and cultural characteristics (Özakar Akça & Gözen, 2014). Pediatric nurses advocate for every child and family they encounter, such as sick term/preterm infants and their families, children and their families receiving treatment in hospitals, children with special needs and their families, and children living/working on the streets, by helping them make the best choices as a result of information (Wong & Hockenberry, 2015).

Although pediatric nurses are the greatest advocates for pediatric patients, studies evaluating this group's awareness and attitudes towards their advocacy roles are quite limited. Most of the studies in the current literature address the concept of advocacy in the general nursing context. In pediatric nursing, however, the focus is on limited and unique issues such as the conceptual definition of advocacy, the participation of neonatal nurses in ethical decision-making processes, and the insufficient reflection of theoretically defined advocacy roles in clinical practice (Charles-Edwards, 2001; Monterosso et al., 2005; Spence, 2011; Yehene et al., 2022). However, advocacy for pediatric patients requires a more complex and specialised approach due to such factors such as age, developmental level, and inability to express oneself. As a result of the literature review, no valid and reliable scale developed specifically to measure pediatric nurses' attitudes towards advocacy roles was found. This study aims to fill an important gap in the field by developing a measurement tool to determine pediatric nurses' attitudes towards advocacy roles. In this context, the Scale of Pediatric Nurses' Attitudes Towards Advocacy Roles Scale (SPNATAR) has been developed for use in both research and practice, enabling an objective assessment of pediatric nurses' attitudes regarding their roles in health advocacy. Thus, the aim is to strengthen advocacy in pediatric nursing and to establish basic strategies for protecting children's rights on scientific evidence.

Methods

Purpose and research design

This study was carried out to develop the SPNATAR and evaluate its psychometric properties. This study is a scale development study with a methodological design.

Study population and sample

The population of this study consists of nurses caring for pediatric patients. The sample size of the study was calculated using the formula of the number of items multiplied by the number of participants, with 10–30 participants being required for each item on the scale (Guadagnoli & Velicer, 1988; Nunnally, 1978). Therefore, the required sample size to include at least 10 participants for each item on the scale was determined to be 270 (27 items × 10 participants = 270). Participants were included in the study using the online snowball sampling method. The research announcement was shared via social media platforms and professional nursing groups; nurses who completed the survey were asked to refer other colleagues who were suitable for the study. Data were collected from 270 pediatric nurses who met the inclusion criteria for exploratory factor analysis (EFA) within the scope of construct validity and from another sample group of 270 pediatric nurses for confirmatory factor analysis (CFA). Thus, a total of 540 pediatric nurses participated in the study.

Inclusion criteria:

- Currently caring for the pediatric patients.
- Education can include health vocational high school, university, master's degree or PhD.
- Having Turkish as their native tongue.
- Volunteering to participate in the study.

Exclusion criteria:

- Failure to complete the questionnaire.

Development of the measurement tool

In the first stage of developing the scale, a literature review was conducted of nurses' advocacy roles, and attitude indicators towards advocacy roles were investigated. Studies were searched using the keywords nurse, advocacy role, and attitude in the PubMed, CINAHL, Scopus, WOS and Science Direct databases. The authors independently screened articles that met the review criteria, and the final selections were decided upon in a joint meeting. The studies examined regarding nurses' advocacy roles were categorised by identifying statements that could be used in the scale. Items consisting of appropriate statements were created by considering the theoretical structure of an attitude (dimensions of attitude: cognitive, emotional, behavioural, etc., intensity of attitude, etc.). A pool of 32 items was obtained from the literature. Validity and reliability stages were used during the development of the measurement tool.

Validity stages

Content validity

Expert opinion was sought for the content validity of the measurement tool. In terms of validity, according to the literature, the number of people ($n = 11$) whose expert advice should be sought can vary between 5 and 40 (Ayre & Scally, 2014). A total of 11 expert opinions were sought, including nine experts in the field of pediatric nursing, one expert in the field of measurement and evaluation, and one expert in the field of language. The content validity index (CVI) was measured using the Lawshe method (Lawshe, 1975). The experts were asked to evaluate the adequacy of the item pool in terms of content and whether the items appropriately represented the structure to be measured. The experts rated each item as 'Item is appropriate', 'Item is appropriate but needs revision', or 'Item is not appropriate' and added their suggestions regarding the items. Based on the experts' evaluations, the scale's CVI value was calculated, and items with a CVI of 0.75 or below were excluded (Lawshe, 1975).

Face validity

To examine the face validity of the scale, the draft scale was pretested by administering it to a sample of 15 pediatric nurses. The pretest was conducted to ensure that the items were relevant and easily understandable by the intended participants before applying the draft scale to a larger sample.

Construct validity

The construct validity of the scale was assessed using EFA and CFA. EFA was conducted to reveal the underlying factor structure of the items on the scale. CFA was used to test whether there was a sufficient relationship between the factors identified after EFA (Erkorkmaz et al., 2013).

Reliability stages

Internal consistency and test retest reliability were calculated in the study. Internal consistency was assessed using Cronbach's α reliability coefficient and item total correlations. In the test retest analysis, the scale was administered to 25 people and readministered to the same sample 14 days later.

Data collection

The data of the study were collected using the snowball sampling method through an online link (Google Forms). Announcements were made by the researchers to introduce the purpose of the study. The link to the online data collection form was published on social platforms (WhatsApp, Instagram, LinkedIn, etc.) and participants who met the inclusion criteria and volunteered were included in the study. Participant consent was requested as a prerequisite on the data collection form. For the participants who gave consent, the research questions were opened and they were expected to respond. The data collection form consisted of seven questions concerning personal information and a 27-item draft scale. The draft scale was a 5-point Likert scale with response options of *"strongly disagree", "disagree", "undecided", "agree"* and *"strongly agree"*. In the first phase, data were collected from 270 participants for EFA. After the construct was established, the next step taken was to verify the construct. At this stage, data were collected from 270 different participants for CFA. Data were collected from the total of 540 participants between May and November 2024.

Ethical considerations

This study was approved by the University of Health Sciences Gülhane Scientific Research Ethics Committee (Decision no: 2024–171 Date: 24.04.2024). Participants were given written information about the purpose of the study and their consent was requested as a prerequisite for completing the data collection form. The research was conducted in accordance with the Declaration of Helsinki.

Data analysis

The data for the study were collected online. It was considered that online snowball sampling could potentially create sampling bias, and this is clearly stated in the limitations section of the study. EFA and CFA were performed to test the validity of the newly developed measurement tool. Before factor analysis, the necessary checks were performed for missing data. In addition, since answering each question in the data collection form was made mandatory, the system prevented participants from leaving any question blank and moving on to the next question. This precluded the formation of missing data. EFA was conducted with Promax rotation in IBM SPSS Statistics 29 to determine the structure of the factors. Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity were used to determine whether the data were suitable for factor analysis (Bartlett, 1950; Kaiser, 1974). Good factorisability of the data was assessed with the KMO test having a criterion of ≥0.80 and with Bartlett's test of sphericity being statistically significant at the $p < .001$ level (Tabachnick & Fidell, 2013). When determining the number of factors, those with self values ≥1.0 were included and items with factor loadings ≤0.30 were excluded (Aksu et al., 2017).

To test the accuracy of the theoretical factor construct revealed by EFA, CFA was conducted using the IBM SPSS Amos 24 software package. In the CFA conducted for the structure formed after EFA, the goodness-of-fit indices of the normed chi-square index (χ^2/df), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the adjusted goodness of fit index (AGFI), the normed fit index (NFI), and the goodness of fit index (GFI) were used before making any changes in the model (Kline, 2023).

Internal consistency and test retest analyses were conducted to evaluate the reliability of the scale. Internal consistency was assessed using Cronbach's α coefficient and item test correlations. The Pearson correlation coefficient was calculated to test the stability of the attitude scores regarding the advocacy roles of pediatric nurses over time.

Results

Sample characteristics

The average age of the 540 nurses who participated in the study was 30.73 ± 6.83 years. Most of the 540 nurses were female (93 %) and had a bachelor's degree in nursing (72.2 %). The nurses who participated in the study reported that their mean duration of service was 8.29 ± 7.32 years and that they had worked as pediatric nurses for 5.65 ± 5.53 years (Table 1).

Validity analysis

Content validity

The CVI of the SPNATAR items was found to be 0.93 and five items with a CVI of 0.75 and below were removed. According to the expert opinions, the items were revised by the researchers and a 27-item draft scale was created.

Face validity

The 27-item draft scale was pretested on 15 pediatric nurses to examine its face validity. The nurses stated that the scale items were clear and understandable; accordingly, no items were removed or modified. The face validation improved the overall clarity and relevance of the scale for its intended users.

Table 1
Sociodemographic Characteristics ($n = 540$).

		n	%
Gender	Female	502	93
	Male	38	7
Marriage Status	Single	265	49.1
	Married	275	50.9
Having Children	Yes	191	35.4
	No	349	64.6
Education Status	Health Vocational High School	26	4.8
	University	390	72.2
	Master's Degree	94	17.4
	PhD	30	5.6
		Mean ± SD	
Age (years)		30.735 ± 6.8296	
Duration of Service as a Nurse (years)		8.2981 ± 7.32881	
Duration of Service as a Pediatric Nurse (years)		5.6552 ± 5.53284	

Construct validity

Exploratory factor analysis

The KMO value calculated to examine the relationship between the scale items in the study was found to be 0.929. Bartlett's test of sphericity was used to determine the multivariate normal distribution and statistical significance of the research data and the value was found to be significant ($\chi^2 = 2659{,}432$; df = 190; sig = 000).

Seven items with factor loadings lower than 0.30, loading on two or more factors with factor loadings higher than 0.30, or with a loading difference between factors lower than 0.10 were removed from the scale. Then, it was determined that the tested scale was divided into four factors with self values higher than one. The total variance accounted for by these four factors was 61.885 %. Factor loadings ranged between 0.60 and 0.98 in the first factor (eight items), 0.58 and 0.77 in the second factor (six items), .70and 0.87 in the third factor (three items), and 0.56 and 0.83 in the fourth factor (three items) (Table 2).

Confirmatory factor analysis

In order to confirm the structure of the four-factor and 20-item scale whose construct validity was tested, CFA was conducted on the second data set including 270 different participants. In CFA, fit indices were evaluated to test the validity of the model. To provide for the fit indices to be within the good fit or acceptable fit value reference ranges, items 18, 23, and 27 were removed in line with the modification suggestions (Fig. 1). After item extraction, the fit indices were $\chi^2/df = 1.574$ ($p < .001$); RMSEA =0.04; GFI =0.93; AGFI =0.90; CFI =0.95; NFI = 0.89 (Table 3).

After removing three items during CFA (I18, I23, and I27), the KMO calculated to analyse the relationship among the remaining 17 items was found to be 0.887, and the Bartlett test of sphericity value was also found to be significant ($\chi^2 = 1515.799$; $df = 136$; sig = 000). It was determined that the scale was divided into four factors with self values higher than one. The total variance accounted for by these four factors was 64.214 %. Factor loadings ranged between 0.62 and 0.88 in the first factor (seven items), 0.60 and 0.79 in the second factor (four items), 0.65 and 0.79 in the third factor (three items), and 0.56 and 0.81 in the fourth factor (three items). The items distributed in the subdimensions of the scale were analysed and defined as factor 1 *"strength of advocacy"*, factor 2 *"rejection"*, factor 3 *"ownership"*, and factor 4 *"determination"*.

Reliability analysis

In the study, internal consistency and time invariance reliability values were examined to determine the reliability level of the measurement tool.

Internal reliability

The Cronbach's α coefficient of the subdimensions ranged between 0.62 and 0.87 and the scale Cronbach's α coefficient was found to be 0.87. The item total correlation ranged between 0.23 and 0.72 (Table 4).

Test retest reliability

The test retest results of the scale are given in Table 5 for each subdimension and the total scale. The post-hoc power (1–β) was calculated using R Studio (packages 'semPower' and 'ICC.sample.size', R Core Team, 2022) based on an estimated intraclass correlation coefficient (ICC) = 0.89, number of ratings = 2, power = 80 % and a significance level of α = 0.05, and a total of 25 participants. The analysis showed that the study achieved an approximate post-hoc power of 98 %, indicating that the sample size was sufficient to detect a statistically significant ICC value under the given parameters.

Table 2
Factor loading and common factor variance of the SPNATAR (n = 270).

		Items	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	**I10**	I believe that the advocacy role in pediatric patients is indispensable.	0.696			
	I11	I believe that I provide better care by fulfilling my advocacy role.	0.608			
	I19	I think that the advocacy role increases child-parent-team communication.	0.764			
	I20	I believe that the advocacy role increases the child's right to speak in care.	0.706			
	I22	I believe that the advocacy role provides professional satisfaction.	0.811			
	I25	I collaborate with my teammates when it comes to advocacy.	0.984			
	I26	I think there should be policies regarding the advocacy role in the institution.	0.960			
	I27	I make efforts to strengthen my advocacy role.	0.756			
Factor 2	**I6**	It takes a lot of my time to fulfill the advocacy role in the care process.		0.682		
	I14	I give up my advocacy role to avoid problems with other healthcare professionals during the care process.		0.641		
	I18	I do not take the time to attend trainings for the advocacy role.		0.652		
	I21	I don't think an advocacy role is necessary.		0.583		
	I23	I think I have a hard time fulfilling my advocacy role.		0.696		
	I24	I fulfill an advocacy role only when legally obliged to do so.		0.779		
Factor 3	**I1**	When providing care, I see myself as an advocate for the child and the parent.			0.747	
	I2	I play an advocacy role for it is a requirement of my profession.			0.871	
	I3	I think the advocacy role is the most important role of the pediatric nurse.			0.709	
Factor 4	**I13**	I do not allow the environment and rules in which I work to hinder my advocacy role.				0.567
	I15	I fulfill my advocacy role even if the consequences are devastating.				0.838
	I17	Even if I get frustrated while fulfilling my advocacy role, I do not give up.				0.594
Self Value			7.840	2.140	1.237	1.160
Explained Variance			39.198	10.702	6.186	5.800
Total Explained Variance			%61.885			

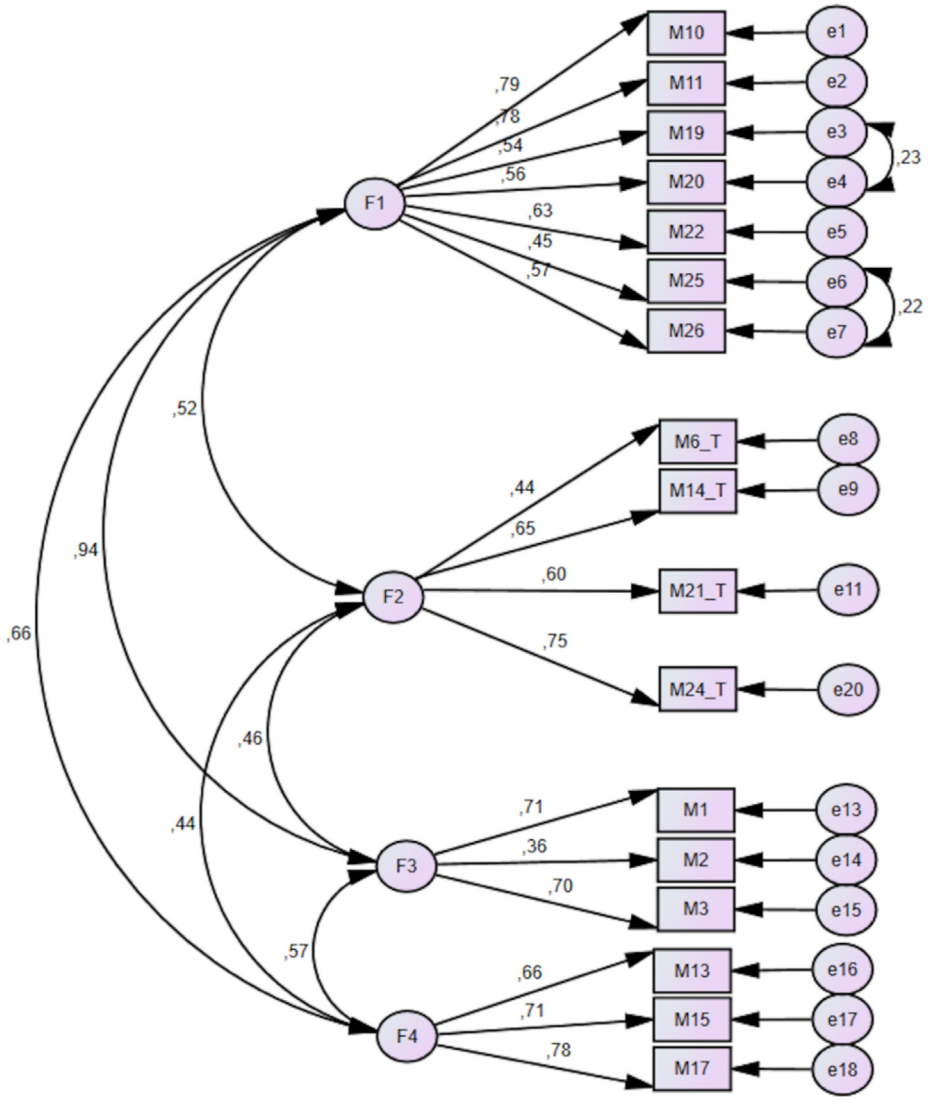

Fig. 1. Confirmatory Factor Analysis of the SPNATAR.

Discussion

It is very important for nurses to comprehend, reflect on, and develop their professional roles that are open to change and development in the protection and development of public health. Advocacy is one of the most fundamental roles of the pediatric nurse. Pediatric nurses can perform their roles effectively by being aware of the needs of the child and the family, the possibilities of optimal health care services in all circumstances and the possibilities of the family (Ball et al., 2010). However, the pediatric nurse's attitude towards their role may affect the fulfillment of her role. This study provides a valid and reliable instrument to determine pediatric nurses' attitudes towards their advocacy role.

Table 3
Model Fit Indexes of the SPNATAR.

Fit Indexes	Findings of the Study	Reference Intervals of Good Fit Value	Reference Intervals of Acceptable Value of Fit
χ^2	174.673	$0 \leq \chi^2 \leq 2df$	$2df < \chi^2 \leq 3df$
p	<0.01	$0.05 < p \leq 1.00$	$0.01 \leq p \leq .05$
χ^2/df	1.574	$0 \leq \chi^2/df \leq 2$	$2 < \chi^2/df \leq 3$
RMSEA	0.0461	0 < RMSEA ≤0.05	0.05 < RMSEA ≤0.08
GFI	0.930	0.95 ≤ GFI ≤ 1.00	0.90 ≤ GFI <0.95
AGFI	0.901	0.90 ≤ AGFI ≤1.00	0.85 ≤ AGFI<0.90
CFI	0.955	0.97 ≤ CFI ≤ 1.00	0.95 ≤ CFI < 0.97
NFI	0.890	0.95 ≤ NFI ≤ 1.00	0.90 ≤ NFI < 0.95

The KMO coefficient and Bartlett's test of sphericity were used to evaluate the relevance of the obtained data for factor analysis and the adequacy of the sample size for factor analysis. According to the results, the data had a multivariate normal distribution and the sample size was sufficient for factor analysis (Aksu et al., 2017). The explained variance ratio, which is an important indicator of construct validity, was considered sufficient to explain between 40 % and 60 % of the total variance in multidimensional scales (DeVellis & Thorpe, 2021). A higher explained variance ratio indicates stronger construct validity (Boateng et al., 2018). In this study, the four-factor structure with 17 items explained 64.214 % of the total variance, indicating a strong construct validity. Therefore, it can be considered that the scale has a powerful construct in determining the attitudes of pediatric nurses towards advocacy roles. In addition, the factor loadings of all items of the scale in EFA were above 0.30 and were compatible with the literature (DeVellis & Thorpe, 2021; Şencan, 2005).

In this study, the conceptual construct of the scale showed good fit according to the χ^2/df, RMSEA and AGFI fit indices, while the GFI and CFI fit indices indicated acceptable fit. However, the NFI fit index was

Table 4
Reliability Analysis of the SPNATAR ($n = 540$).

	Items	Item-Total Correlation	Reliability Coefficient
Strength of Advocacy (Factor 1)			0.878
I10	I believe that the advocacy role in pediatric patients is indispensable.	0.702	
I11	I believe that I provide better care by fulfilling my advocacy role.	0.723	
I19	I think that the advocacy role increases child-parent-team communication.	0.606	
I20	I believe that the advocacy role increases the child's right to speak in care.	0.583	
I22	I believe that the advocacy role provides professional satisfaction.	0.625	
I25	I collaborate with my teammates when it comes to advocacy.	0.526	
I26	I think there should be policies regarding the advocacy role in the institution.	0.583	
Rejection (Factor 2)			0.682
I6	It takes a lot of my time to fulfill the advocacy role in the care process.	0.235	
I14	I give up my advocacy role to avoid problems with other healthcare professionals during the care process.	0.400	
I21	I don't think an advocacy role is necessary.	0.443	
I24	I fulfill an advocacy role only when legally obliged to do so.	0.481	
Ownership (Factor 3)			0.624
I1	When providing care, I see myself as an advocate for the child and the parent.	0.562	
I2	I play an advocacy role for it is a requirement of my profession.	0.296	
I3	I think the advocacy role is the most important role of the pediatric nurse.	0.556	
Determination (Factor 4)			0.760
I13	I do not allow the environment and rules in which I work to hinder my advocacy role.	0.593	
I15	I fulfill my advocacy role even if the consequences are devastating.	0.477	
I17	Even if I get frustrated while fulfilling my advocacy role, I do not give up.	0.561	

just below the acceptable fit specified in the literature (Erkorkmaz et al., 2013) (Table 3).

Cronbach's α coefficient is a reliability measure that assesses the internal consistency of a scale. It is used to determine if the items measure the same characteristic and how well they relate to the subject to be measured (Field, 2024). When Cronbach's α coefficient approaches 1, it means that the internal consistency of the items increases (DeVellis & Thorpe, 2021; Erkuş, 2017; McNeish, 2018). In addition, a Cronbach's α coefficient of 0.60 or higher indicates acceptable internal consistency (Field, 2024; Shi et al., 2012). According to the internal consistency reliability results of the scale, Cronbach's α values were 0.87 for the total scale, 0.87 for the *strength of advocacy* subdimension, 0.68 for the *rejection* subdimension, 0.62 for the *ownership* subdimension, and 0.76 for the *determination* subdimension. Accordingly, the results show that the scale is highly reliable.

When the item total correlation is examined, the correlation between the score of each item and the total test score of the other items is determined. A high correlation value means that the item measures the concept in the same way as the other items in the test (Doğan et al., 2024; Spence & Rapee, 2022). If the correlation values between the items are above 0.20, the reliability of this scale is considered adequate (Briggs & Cheek, 1986). An analysis of this study determined that the item total score correlation coefficients of the scale were between 0.23 and 0.72.

Stability refers to the capacity of a measurement tool to produce reliable and consistent results over time (Heale & Twycross, 2015). The test retest method used to assess invariance consists of administering the same test to a sample of participants at two separate times and then measuring the correlation between the results to assess the stability of the measurement tool (Güngör, 2016). A correlation coefficient closer to 1 indicates stronger reliability, while values greater than 0.5 indicate robust reliability (Polit & Beck, 2020). The test retest correlation coefficients for the subdimensions were $r = 0.693$ ($p < .001$), $r = 0.620$ ($p < .001$), $r = 0.874$ ($p < .001$), and $r = 0.628$ ($p < .001$), respectively. The test retest correlation coefficient for the total score was found to be $r = 0.899$ ($p < .001$). These findings confirm that the scale shows high test retest reliability and consistency over time.

Table 5
Test retest Reliability of the SPNATAR.

SPNATAR Dimensions	Number of Items	Test Retest	
		r	p
Strength of Advocacy	7	r = 0.693	p < .001
Rejection	4	r = 0.620	p < .001
Ownership	3	r = 0.874	p < .001
Determination	3	r = 0.628	p < .001
SPNATAR	17	r = 0.899	p < .001

Limitations

This study has several limitations. Possible selection bias in the snowball sampling method and the collection of data through online platforms can be identified as limitations. This sample group may not be fully representative of the target population as participants were recommended by a specific group and those without online access could not participate in the study. The other limitation is that a sample of Turkish pediatric nurses to examine the psychometric properties and the results were based on the data of these nurses. To demonstrate the general validity and reliability of a scale developed within Turkish society and culture, the scale's validity should be tested other societies. The final limitation is that parallel scales were not used in the study. Therefore, criteria-based validity and simultaneous validity of the scale could not be calculated. On the other hand, one of the most important strengths of the study is that confirmatory factor analysis was conducted on different data sets.

Conclusion

This study confirmed that the SPNATAR is a valid and reliable scale for determining pediatric nurses' attitudes towards advocacy roles. This newly developed scale has a 17-item construct that measures the advocacy roles of pediatric nurses with cognitive, emotional, and behavioural attitude dimensions. The scale can be used in planned studies to determine which variables are effective in fulfilling the advocacy roles of pediatric nurses. In addition, in the light of the data obtained from pediatric nurses using the scale, it is thought that it will help in planning training and developing policies regarding the awareness of the advocacy role and the requirements for the attaitment of the role. The validity and reliability values of the developed scale can be tested again on different sample groups. As a result of the review of national and international literature, it is thought that the scale will make an important contribution to the literature since no measurement tool exists to measure the attitudes of pediatric nurses towards their advocacy roles.

CRediT authorship contribution statement

Berna Eren Fidanci: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Merve Cil:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Adnan Kan:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Dilek Yildiz:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

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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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