SCIENTIFIC RESEARCH ARCHIVES

International Journal of Science and Technology Research Archive

ISSN: 0799-6632 (Online)

Journal homepage: https://sciresjournals.com/ijstra/

(RESEARCH ARTICLE)

Family centered care in pediatric cardiac surgery departments: Nurses' perceptions

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International Journal of Science and Technology Research Archive, 2025, 08(01), 017-022

Publication history: Received on 31 October 2024; revised on 11 December 2024; accepted on 13 December 2024

Article DOI: https://doi.org/10.53771/ijstra.2025.8.1.0066

Abstract

Background: Family-centered care (FCC) in pediatric healthcare settings holds significant implications for hospitalized children and their family, as well as for healthcare providers, particularly nurses. This study aims to explore the perceptions of Pediatric Nurses (PN) working in Pediatric Cardiac Surgery departments regarding FCC.

Materials and Methods: A cross-sectional study was conducted between November 2021 and July 2022 at two pediatric hospitals and a Cardiac Surgery Center in Athens, Greece. The Family Centered Care Questionnaire–Revised (FCCQ-R) was utilised to assess nurses' perceptions of FCC. This questionnaire consists of 45 items divided in 9 subcategories accessing the current nursing practice and the perceived necessity of FCC. Data analysis was performed using SPSS-28, with a significance level set at $\alpha=0.05$.

Results: 62 nurses were recruited. Most nurses were female (93.5%), with 41.9% aged between 31 and 40 years. Mean scores for the necessity scale and current scale were 25.93 (±5.26) and 17.85 (±4.25), respectively, with Cronbach's alpha coefficients of 0.942 and 0.937, respectively. Predictors of the current scale score included age group 51–60 years ($\beta=4.62$, $p=0.010$) and necessity scale score ($\beta=0.26$, $p=0.016$), whilst predictors of the necessity scale score included years of experience ($\beta=-7.31$, $p<0.001$) and daily scale score ($\beta=0.35$, $p=0.019$).

Conclusions: Nurses acknowledge the importance of FCC dimensions but may encounter challenges in consistently applying them in their work. Further strategies may be required to bridge this gap and enhance the integration of FCC principles into pediatric nursing practice.

Keywords: Family-centered care; Pediatric cardiology; Children; Congenital heart disease

1. Introduction

Family-Centered Care (FCC) is a care model that emphasizes the involvement of pediatric patients and their families in the decision-making process regarding the care they receive [1]. The benefits of FCC encompass heightened parental satisfaction, mitigation of pediatric patients' discomfort and pain, and attenuation of adverse effects associated with hospitalization [2]. While healthcare professionals acknowledge the advantages of parental involvement within the FCC framework, they encounter challenges in its seamless integration into routine clinical practice [3]. This study seeks to explore the perceptions of Greek pediatric nurses working in cardiac surgery departments regarding FCC implementation.

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2. Material and methods

2.1 Selection and Description of Participants:

A cross-sectional study was undertaken between November 2021 and July 2022 to investigate nurses' perceptions within cardiac surgery departments. Nurses employed in two pediatric hospitals and a pediatric cardiac surgery center were recruited using convenience sampling, adhering to specific selection criteria:

- Nurses employed within Pediatric Cardiovascular Intensive Care Units, Pediatric Intensive Care Units, and Pediatric Cardiology Departments.
- Nurses classified as permanent staff members.
- Nurses possessing a minimum of one year of professional experience.
- Willingness to participate voluntarily in the study.

2.2 Instrument

The Family Centered Care Questionnaire–Revised (FCCQ-R), developed in 1987 [4] and revised in 1997 by Bruce & Ritchie [5], was utilised to assess nurses' perspectives on FCC. Permission to use the questionnaire was obtained by the revision team.

The questionnaire comprises two sections:

- A demographic and professional data form capturing age, gender, years of service, employment position, education level, and work unit.
- The FCCQ-R scale, consisting of 45 items measuring participants' perceptions on the current implementation (current scale) and perceived necessity (necessity scale) of FCC practices. Responses are recorded using a 5-point Likert scale (1= completely disagree, 5= completely agree).
- The FCCQ-R items are organised into nine subsections, each assessing specific aspects of FCC. Higher scores on the current scale indicate greater implementation of FCC practices, while higher scores on the necessity scale signify greater perceived importance of these practices. The nine subscales in the instrument are outlined in Table 3.

2.3 Ethics

This study adhered to the ethical principles outlined in the General Data Protection Regulation (EU) 2016/679 (GDPR) and the Declaration of Helsinki. Approval was obtained from the Research Ethics Committee of Scientific Councils of the participating hospitals.

Nurses participating in the study were assured of their autonomy and right to self-determination, with no coercion to participate. Anonymity, confidentiality, and privacy of personal data were guaranteed, and nurses had the right to withdraw at any time without consequence. The study posed no risks to participants.

Informed consent was obtained from all participants before their involvement in the study. Participants were provided with comprehensive information regarding the research purpose, procedures, and their rights, allowing them to make an informed decision regarding their participation. Participant names were omitted from the questionnaires to maintain anonymity.

Access to the questionnaires was restricted to the research team, who ensured secure storage and eventual destruction of the data after 48 months. Data destruction was conducted using a secure shredder to prevent reconstruction.

2.4 Statistics

Data analysis was conducted using SPSS 28.

Based on a significance level of 5%, a confidence interval of 95%, an acceptable margin of error of 5%, and an estimated population size of pediatric nurses in Greek Cardiac Surgery Departments, the calculated sample size for this research study was N=65 nurses.

Descriptive statistics were employed, presenting categorical variables as relative and absolute frequencies, and quantitative variables as mean values (± standard deviation). The normality of data distribution was assessed using the Kolmogorov-Smirnov test.

The reliability of the questionnaire was assessed using Cronbach's alpha coefficient. Parametric methods, such as Student's t-test and ANOVA, were utilised to compare questionnaire scores with participants' demographic and professional characteristics. Bonferroni correction was applied to account for multiple comparisons.

Pearson's or Spearman's correlation coefficients were calculated to assess associations between quantitative variables. The paired t-test and Wilcoxon Signed Ranks Test were used to compare scores between scales.

Multiple linear regression analysis was conducted to investigate factors influencing scores on the necessity and daily work scales, with β coefficients and 95% confidence intervals reported

3. Results

The study sample comprised 62 nurses. **Table 1** details the demographic and professional characteristics of the sample.

Table 1 Sample Demographic and Professional Details (N=62)

Variable name		**N**	**%**
Gender	Male	4	6.5%
	Female	58	93.5%
Age group (years)	20 – 30	16	25.8%
	31 – 40	26	41.9%
	41 – 50	11	17.7%
	51 – 60	9	14.5%
Educational level	University	12	19.4%
	Technical School	29	46.8%
	MSc	18	29.0%
	Phd	3	4.8%
Department	Cardiology Clinic	8	12.9%
	PICU	35	56.5%
	Pediatric Cardiac Surgery	5	8.1%
	NICU	14	22.6
Years of experience	0 – 10	23	37.1%
	11 – 20	24	38.7%
	21 – 30	12	19.4%
	> 30	3	4.8%

PICU: Pediatric Intensive Care Unit *NICU: Neonatal Intensive Care Unit*

Table 2 displays the mean total scores of the necessity and current scales of FCC practices, which were 25.93 (±5.26) and 17.85 (±4.25), respectively. The Cronbach's alpha coefficients for the current and necessity scales were 0.942 and 0.937, respectively, indicating high questionnaire reliability.

Table 2 Cronbach's α score and coefficient of the current and necessity scale of the FCCQ-R

FCCQ-R	Total Score		Cronbach a
	Mean (SD)	**Min-Max**	
Necessity scale	25.93 (±5.26)	16.22 – 40.09	0.937
Current scale	17.85 (±4.25)	9.81 – 28.55	0.942

SD: Standard deviation

A non-significant correlation was observed between the two scales' total score (r=0.174, p=0.177). **Table 3** illustrates the mean scores of FCC dimensions, indicating significantly higher scores on the necessity scale compared to the current scale, suggesting a perceived necessity but limited implementation of FCC practices.

Statistical analyses revealed significant associations between the necessity scale score and age (p=0.037), work department (p=0.034), and years of service in the work department (p=0.003). Similarly, the necessity scale score significantly varied by nurses' work department (p=0.006).

Multivariate linear regression analyses demonstrated that age and necessity scale scores independently influenced the current scale score. Specifically, nurses aged 51–60 years exhibited a significantly higher current scale score by 4.62 points (p=0.010) compared to those aged 21–30 years. Additionally, each unit increase in the necessity scale score corresponded to a statistically significant increase of 0.26 points in the current scale score (p=0.016).

Table 3 Comparison of the subscales score for all dimensions of FCCQ-R

	FCC dimensions	Necessity scale	Current scale	Comparison	
		Mean (SD)	**Mean (SD)**	**Mean difference (95%)**	**p-value**
1.	Family is the constant	2.52 (±0.95)	1.99 (±0.67)	0.53 (0.31 – 0.75)	z=4.049 p<0.001
2.	Parent and professional collaboration	3.01 (±0.82)	2.39 (±0.62)	0.62 (0.40 – 0.83)	t=5.84 p<0.001*
3.	Recognising family individuality	2.31 (±0.68)	1.74 (±0.57)	0.56 (0.39 – 0.74)	z=5.314 p<0.001
4.	Sharing information with parents	2.83 (±0.79)	1.88 (±0.64)	0.94 (0.73 – 1.17)	t=8.72 p<0.001*
5.	Parent-to-parent support	3.16 (±0.79)	2.07 (±0.64)	1.09 (0.85 – 1.33)	t=9.13 p<0.001
6.	Developmental needs	2.87 (±0.76)	1.99 (±0.53)	0.87 (0.66 – 1.09)	z=5.968 p<0.001
7.	Emotional and financial support for families	2.72 (±0.73)	1.95 (±0.74)	0.70 (0.59 – 0.95)	z=5.911 p<0.001
8.	Design of health care system	3.33 (±0.69)	2.02 (±0.54)	1.31 (1.08 – 1.54)	t=11.22 p<0.001*
9.	Emotional support for staff	3.18 (±0.86)	1.80 (±0.58)	1.37 (1.09 – 1.66)	z=6.064 p<0.001

*Paired t-test, $Wilcoxon Signed Ranks Test

4. Discussion

The primary objective of this study was to investigate the perspectives of nurses working in Pediatric Cardiac Surgery Departments concerning FCC. Specifically, the research sought to delineate which FCC dimensions nurses deemed most essential and which dimensions they commonly implemented in their daily clinical practice. Additionally, the study aimed to elucidate the factors influencing nurses' perceptions on FCC.

A pivotal finding of our investigation was the validation of the FCCQ-R questionnaire as a reliable and valid instrument for gauging Greek nurses' perspectives on FCC. Notably, the Cronbach's α coefficient demonstrated outstanding internal consistency for both the current scale (α=0.942) and the necessity scale (α=0.937). This outcome resonates with previous research efforts, including the seminal work by Coyne et al. [6] and a recent study conducted in Italy by Dall'Oglio et al. [7].

Furthermore, the internal consistency within each dimension of FCC across both questionnaire subscales generally met satisfactory standards (α>0.700), barring certain exceptions. Notably, dimensions such as "Parent-to-parent support" and "Emotional and financial support for families" within the necessity scale, along with dimensions like "Recognising family individuality", "Parent and professional collaboration", "Parent-to-parent support", and "Developmental needs" within the current scale, exhibited less than optimal reliability. Similar observations were documented in the study by Dall'Oglio et al. [7], where dimensions such as "Emotional and financial support for families" and "Family is the constant" manifested unsatisfactory reliability. This discrepancy is presumed to stem from the comprehensive nature of these dimensions, which encompassed a multitude of questions.

Additionally, our study revealed a statistically significant positive correlation between the dimensions of FCC across both the necessity and current scales. This finding mirrors the results obtained by Dall'Oglio et al. [7], who similarly identified a statistically significant moderate to high correlation between the dimensions of the current scale and the necessity scale. These outcomes affirm the FCCQ-R questionnaire's efficacy as a valid and reliable tool for evaluating nurses' perceptions of FCC.

Furthermore, our investigation unearthed that the necessity scale dimensions were significantly higher than those within the current scale. The discrepancy between the necessity and current practice of FCC dimensions underscores nurses' recognition of the importance of these practices, while revealing a shortfall in their consistent application in clinical settings. This underscores the imperative to enhance the implementation of FCC practices within Pediatric Cardiac Surgery Departments, fostering environments conducive to the integration of FCC principles. Analogous findings have been corroborated in prior studies within pediatric departments [6-8].

Moreover, within our study, the dimensions of FCC that garnered the highest scores on both the necessity and current scales included the design of a health system tailored to meet the needs of families, fostering communication between parents, and promoting collaboration between parents and nurses. This resonates with findings from Prasopkittikun et al. [8], who observed analogous high-scoring dimensions such as recognising the family's strengths, providing comprehensive information to parents regarding their children's condition, and acknowledging the constancy of the family in the child's life. Similarly, Dall'Oglio et al. [7] documented elevated ratings for dimensions such as the family's continuous presence in the child's life, collaboration between parents and healthcare providers, provision of psychological and financial support to families, and the development of a healthcare system tailored to family needs.

Furthermore, our investigation unveiled age as a predictive factor influencing the daily work scale score, with nurses aged 51-60 years demonstrating significantly higher scores compared to their younger counterparts aged 21-30 years. Conversely, years of service within the department emerged as a predictor of the necessity scale score, with nurses possessing 20 to 30 years of service exhibiting significantly lower scores compared to those with 0 to 10 years of service. These findings parallel those of Dall'Oglio et al. [7], who identified predictors of healthcare professionals' opinions on FCC, including professional background, educational attainment, and years of service.

The present study encountered several limitations that warrant acknowledgment. Firstly, the study's sample size although it was within the range, consisted of nurses from three hospitals within Greece. Future investigations would benefit from the inclusion of nurses working in regional hospitals to enhance the generalisability of findings. Additionally, the use of convenience sampling for participant selection represents another limitation, potentially introducing selection bias and limiting the representativeness of the sample.

5. Conclusion

In conclusion, our study affirms the validity and reliability of the FCCQ-R questionnaire as an effective tool for assessing nurses' perspectives on FCC. Nevertheless, a notable disparity was observed between the perceived necessity and actual implementation of FCC dimensions among nurses, underscoring the need for interventions to bridge this gap. Moreover, predictors of nurses' perceptions regarding FCC in Pediatric Cardiac Surgery Departments were identified as years of service and age.

Looking ahead, future research should explore the viewpoints of diverse healthcare professionals, including physicians and physical therapists, as well as parents, to gain a comprehensive understanding of FCC provision in pediatric hospital settings. Concurrently, hospital policies should integrate the principles of FCC to foster a supportive environment for its implementation. Furthermore, nursing curricula should incorporate dedicated coursework aimed at equipping both undergraduate and graduate students with the requisite knowledge and skills to deliver FCC effectively.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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