

Association between Family-Centered Care Experience and Family Satisfaction among Family Members of Adult Intensive Care Unit Patients at a Kenyan Referral Hospital: A Cross-Sectional Study

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Abstract

Background: Family-centered care (FCC) recognizes the central role families play in the care of critically ill patients who are often unable to participate fully in their own decision-making. Despite growing recognition of FCC as a cornerstone of quality critical care, dissatisfaction among family members of intensive care unit (ICU) patients remains common, and the relationship between FCC experience and family satisfaction has not been examined in many sub-Saharan African referral hospital settings.

Materials & Methods: A cross-sectional correlational study was conducted among family members of adult patients admitted to the ICU of Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya. A census of all 330 eligible family members was targeted; 300 consented and completed the study instruments (response rate 90.9%). FCC experience was measured using the Family-Centered Care Scale for Intensive Care Units (FCCS-ICU), and family satisfaction was measured using the Family Satisfaction in the Intensive Care Unit 24 (FS-ICU 24) questionnaire. Data were analyzed in SPSS version 29.0 using descriptive statistics, Spearman's and Pearson's correlation, independent-samples t-tests, and multiple linear regression.

Results: The mean overall FCCS-ICU score was 3.60 (SD=0.117), indicating generally positive perceptions of FCC, though the Participation in Care subscale was rated lowest (Mean=3.20). Mean overall family satisfaction (FS-ICU 24) was 71.37 (SD=5.15), reflecting moderate satisfaction. FCC experience was significantly and positively associated with family satisfaction (Pearson $r=0.556$; Spearman $p=0.479$; $p<0.001$). Participants reporting high FCC experience had significantly greater satisfaction than those reporting low FCC experience ($t=8.946$, $p<0.001$). Multiple linear regression showed that FCC subscales and demographic covariates jointly explained 53.7% of the variance in family satisfaction ($R^2=0.537$, $F(9,290)=37.44$, $p<0.001$), with Respect and Dignity ($\beta=0.457$, $p<0.001$) and Information Sharing ($\beta=0.300$, $p<0.001$) as the strongest positive predictors, and Participation in Care as a significant negative predictor ($\beta=-0.246$, $p=0.029$).

Conclusion: Family-centered care experience is significantly associated with family satisfaction among family members of adult ICU patients at MTRH, with respectful, empathetic communication and timely information sharing emerging as the strongest drivers of satisfaction. Strengthening structured opportunities for family participation in care, alongside existing strengths in respect and information sharing, may further improve family experience and support policies to enhance the quality of critical care in similar settings.

Keywords: family-centered care; family satisfaction; intensive care unit; FCCS-ICU; FS-ICU 24; critical care; Kenya

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I. Introduction

Admission of a relative to the intensive care unit (ICU) is a highly stressful event for families, who must often navigate uncertainty, complex medical information, and high-stakes decision-making on behalf of a loved one who cannot participate fully in their own care. Family-centered care (FCC) is a model of healthcare delivery that recognizes families as integral partners in this process, emphasizing respect and dignity, timely and honest information sharing, participation in care, and collaboration between families and the healthcare team. A growing body of evidence links stronger FCC implementation to improved family well-being, more informed decision-making, and higher satisfaction with critical care. Despite this recognition, dissatisfaction among family members of ICU patients remains common globally, and evidence from sub-Saharan African referral hospitals on how FCC experience relates to family satisfaction is limited. Understanding this relationship in a high-volume, resource-

constrained referral ICU setting is important for guiding practical, context-appropriate improvements in family-centered practice. This study assessed family members' experience of FCC and examined its association with family satisfaction among family members of adult patients admitted to the ICU at Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya, a national referral and teaching hospital serving a wide catchment population. The study was guided by the following objective: *to examine the association between FCC experience, measured by the FCCS-ICU total score, and family satisfaction with care in the adult ICU.*

II. Materials and Methods

This was a cross-sectional correlational study conducted in the adult ICU of MTRH, a national public referral and teaching hospital in Eldoret, Uasin Gishu County, Kenya. The design permitted simultaneous assessment of FCC experience and family satisfaction and quantification of the strength and direction of their association.

Study Design: This study adopted a cross-sectional correlational design.

Study Location: study conducted in the adult ICU of MTRH, a national public referral and teaching hospital in Eldoret, Uasin Gishu County, Kenya.

Study Duration: January 2025 to July 2026.

Sample Size: The sample size for the study comprised of 300 family members of patients admitted in the adult ICU of MTRH based on the census method.

Sample Size calculation: The sample size for the study comprised of 300 family members of patients admitted in the adult ICU of MTRH based on the census method. Family member, in this context, implies individuals or persons identified by the patient as playing an active and significant role in their care regardless of blood relations. Therefore, 'family member' could be the patient's blood relatives (parents or siblings), a spouse or the patient's surrogates.

Subject and Selection Method: The study utilized a cross-sectional survey of primary family members of adult patients admitted to the Adult ICU. Eligible family members were approached, taken through consenting procedure then complete the FCCS-ICU and a validated family satisfaction instrument 72 hours after patient admission or at ICU discharge.

A census sampling approach was employed whereby all eligible family members of patients admitted to the Adult Intensive Care Unit (ICU) during the study period were invited to participate. Hospital admission records were reviewed regularly to identify all patients admitted to the Adult ICU. For each patient, one eligible family member. The identified family member was screened against the study inclusion and exclusion criteria.

A census approach was used as the study population was clearly defined and accessible, making it feasible to include all eligible participants. Use of the census method ensured that the study captured diverse ICU experiences of family members of patients admitted in the hospital's Adult ICU. It also removed selection biases by including every eligible member of the target population.

Inclusion criteria

The study included all families of patients receiving treatment at MTRH's adult ICU who:

1. Were above 18 years of age.
2. Whose patients had been in the ICU for at least 3 days, giving them adequate exposure to the ICU environment, have interacted with health care providers, receive more feedback on care provided and are involved in more decision making.
3. Who consented to take part in the study?
4. Family members who could read and understand English.

Exclusion Criteria

The study excluded:

1. Persons not regarded as family who were visiting the patients in the ICU.
2. Members of family who were minors.
3. Family members who are emotionally distressed at the time of data collection and unable to participate.
4. Members of family for patients who had been in the ICU for less than 3 days, as they had less exposure to the ICU environment and may not have had adequate feedback.
5. Those who declined to consent.
6. Family members who have previously participated in the study.

Procedure Methodology

The study data was gathered through a self-administered study questionnaire to the participants. The following steps were followed:

First, upon receipt of the study's ethical approval from Kabarak University Scientific and Ethics Review Committee, the principal researcher sought permission for collecting data from the targeted participants from the relevant authorities at MTRH. This was followed by identification of the study participants, who were family

members of patients receiving treatment in the hospital's ICU. The principal researcher approached the eligible family members of the ICU patients during break intervals (that is, when not on the patient's bedside, not in distress and not being involved in urgent decision making). During the initial short encounters, the researcher introduced herself to the targeted participants. The researcher then briefed the potential respondents about the study, its aims, basis for inclusion, assured them of confidentiality and the right to withdraw at any time, and requested their participation in the study. Family members who met the inclusion criteria were requested to meet the researcher at the Private Counselling Office within the ICU for participation through responding to the study tools. The study tool was explained by the researcher and the family member was requested to sign the consent form.

The study tools were self-administered. Therefore, the respondent was given the questionnaire and allowed to privately respond. In cases of emotional distress during data collection, the respondent was allowed to take a break before continuing and was referred to a counsellor provided by the hospital when needed. The entire process of consenting and responding to the study questionnaire took approximately 20–40 minutes. The researcher then thanked the respondent and assured them of confidentiality and anonymity. The study data were collected over a period of three months. FCC experience was assessed using the Family-Centered Care Scale for Intensive Care Units (FCCS-ICU), a validated 29-item, self-administered, five-point Likert scale (1=strongly disagree to 5=strongly agree) comprising four subscales: Respect and Dignity (7 items), Information Sharing (9 items), Participation in Care (5 items), and Collaboration (8 items). Total scores range from 29 to 145, with higher scores indicating more favorable FCC experience (Cronbach's $\alpha=0.94$). Family satisfaction was assessed using the Family Satisfaction in the Intensive Care Unit 24 (FS-ICU 24), a validated 24-item instrument covering satisfaction with care and satisfaction with decision-making, scored on a five-point scale and transformed to a 0–100 scale, with higher scores indicating greater satisfaction (internal consistency >0.9). Both standardized instruments were used without modification and were administered together as a single self-administered questionnaire.

Statistical Analysis

Data were analyzed using SPSS version 29.0. Descriptive statistics summarized participant characteristics and instrument scores. Normality of FCCS-ICU and FS-ICU 24 total scores was assessed using the Shapiro-Wilk test; both deviated significantly from normality, so Spearman's rank correlation was used as the primary measure of bivariate association, with Pearson's correlation reported for comparison given the sample size. Independent-samples t-tests compared satisfaction scores between participants dichotomized into high- and low-FCC groups using a pre-established threshold (FCCS-ICU mean ≥ 3.52 = high FCC). Multiple linear regression was used to determine the independent contribution of each FCC subscale to family satisfaction, controlling for age, gender, education, prior ICU experience, and self-rated health knowledge. Statistical significance was set at $p<0.05$.

III. Results

Of the 300 participating family members, 57.3% ($n=172$) were female. The mean age was 39.1 years ($SD=9.1$), and the largest age group was 31–40 years (32.3%). Most participants held a diploma (38.3%), bachelor's degree (35.0%), or postgraduate qualification (26.7%). Nearly two-thirds (62.3%) were married, just over half (53.3%) lived within 50 km of the hospital, and 67.7% had no prior ICU experience. Table 1 summarizes participant characteristics.

Table 1. Sociodemographic characteristics of participants (N=300)

Characteristic	n	%
Gender — Male	128	42.7
Gender — Female	172	57.3
Age 18–30	66	22.0
Age 31–40	97	32.3
Age 41–50	92	30.7
Age 51+	45	15.0
Education — Diploma	115	38.3

Characteristic	n	%
Education — Bachelor's	105	35.0
Education — Master's and above	80	26.7
Marital status — Married	187	62.3
Marital status — Single	113	37.7
Proximity — Within 50 km	160	53.3
Proximity — Beyond 50 km	140	46.7
Prior ICU experience — Yes	97	32.3
Prior ICU experience — No	203	67.7

FCC Experience and Family Satisfaction Levels

The overall mean FCCS-ICU score was 3.60 (SD=0.117), in the 'Agree' range. Respect and Dignity scored highest (Mean=3.86, SD=0.375), followed by Information Sharing (Mean=3.78, SD=0.307) and Collaboration (Mean=3.58, SD=0.280); Participation in Care scored lowest (Mean=3.20, SD=0.416), in the neutral range. Using the pre-established threshold, 73.7% of participants (n=221) were classified as reporting high FCC experience.

Overall family satisfaction (FS-ICU 24) was moderate, with a mean total score of 71.37 (SD=5.15). Satisfaction with Care (Mean=72.26) was slightly higher than Satisfaction with Decision-Making (Mean=70.05). Most participants (82.0%) recorded moderate satisfaction scores (50–75), 17.7% recorded high satisfaction (>75), and only 0.3% recorded low satisfaction (<50).

Table 2. FCCS-ICU subscale and overall mean scores (N=300)

Subscale	Mean	SD	Interpretation
Respect and Dignity	3.86	0.375	Agree
Information Sharing	3.78	0.307	Agree
Collaboration	3.58	0.280	Agree
Participation in Care	3.20	0.416	Neutral
Overall FCCS-ICU	3.60	0.117	Agree

Association Between FCC Experience and Family Satisfaction

FCC experience was significantly and positively correlated with family satisfaction (Spearman $\rho=0.479$; Pearson $r=0.556$; $p<0.001$). At the subscale level, Respect and Dignity showed the strongest correlation with satisfaction ($r=0.363$, $p<0.001$), followed by Information Sharing ($r=0.350$, $p<0.001$) and Collaboration ($r=0.231$, $p<0.001$). Participation in Care showed a significant negative correlation with satisfaction ($r=-0.129$, $p=0.026$). Participants reporting high FCC experience had significantly greater satisfaction than those reporting low FCC experience ($t=8.946$, $p<0.001$).

Multiple linear regression, controlling for demographic covariates, showed that the overall model explained 53.7% of the variance in family satisfaction ($R^2=0.537$, Adjusted $R^2=0.523$; $F(9,290)=37.44$, $p<0.001$). Respect and Dignity was the strongest independent predictor ($B=6.29$, $\beta=0.457$, $p<0.001$), followed by Information Sharing ($B=5.04$, $\beta=0.300$, $p<0.001$). Participation in Care was a significant negative predictor ($B=-3.04$, $\beta=-0.246$, $p=0.029$), while Collaboration did not reach significance ($B=2.86$, $p=0.080$). Among covariates, age, gender, and education were significant positive predictors of satisfaction, while self-rated health knowledge was a significant negative predictor. Table 3 presents the full regression results.

Predictor	B	β	p
Respect and Dignity	6.29	0.457	<0.001*
Information Sharing	5.04	0.300	<0.001*
Participation in Care	-3.04	-0.246	0.029*
Collaboration	2.86	0.156	0.080
Age	0.21	0.365	<0.001*
Gender	1.91	0.183	<0.001*
Education level	5.20	0.807	<0.001*
Prior ICU experience	-2.39	-0.217	0.120
Health knowledge	-5.96	-0.887	<0.001*

Table 3. Multiple linear regression predicting family satisfaction (FS-ICU 24 total score). * $p < 0.05$.

IV. Discussion

This study found a significant, moderate-to-strong positive association between FCC experience and family satisfaction among family members of adult ICU patients at MTRH, with FCC subscales and demographic covariates jointly explaining over half the variance in satisfaction. This affirms the study hypothesis and is consistent with the Quality Caring Model, which conceptualizes caring relationships built on respect, honest communication, and partnership as central to positive outcomes for families.

Respect and Dignity and Information Sharing emerged as the strongest predictors of satisfaction, underscoring that respectful, empathetic interactions and timely, clear communication from ICU staff are what family members value most. This is consistent with prior evidence linking communication quality to family satisfaction with critical care. In contrast, Participation in Care was both the lowest-rated FCC domain and a significant negative predictor of satisfaction — a counterintuitive finding suggesting that when families desire greater involvement in direct care activities but perceive that opportunity as limited or unmet, this gap between expectation and experience may itself depress satisfaction, rather than participation being undesirable in principle. This finding echoes similar reports of a participation paradox in other ICU settings and highlights that participation, unlike information sharing or respectful communication, requires deliberate structural facilitation by clinical teams rather than passive accommodation.

Family satisfaction levels overall were moderate rather than high, with lower satisfaction related to decision-making compared to satisfaction with care itself. This suggests that while MTRH families generally feel their relatives are being cared for competently, they may not feel adequately included as partners in the decisions shaping that care — a gap that FCC-oriented interventions could specifically target.

These findings have practical implications for ICU practice and policy in similarly resourced referral hospital settings. Strengthening structured, low-cost mechanisms for family participation — such as scheduled family conferences, bedside care-planning check-ins, or defined roles in select care tasks — alongside the hospital's existing strengths in respectful communication and information sharing, may meaningfully improve family satisfaction without requiring major resource investment.

Limitations: This was a single-site, cross-sectional study, which limits causal inference and generalizability beyond similar referral hospital ICU settings. Self-reported measures may be subject to social desirability bias. Longitudinal and multi-site studies would help confirm the directionality and generalizability of the observed associations.

V. Conclusion

Family-centered care experience is significantly and positively associated with family satisfaction among family members of adult ICU patients at MTRH, with respectful and dignified interactions and timely information sharing as the strongest drivers of satisfaction, and limited participation in care as a source of dissatisfaction. ICU leadership and policymakers should prioritize formalizing FCC practices — particularly structured opportunities for family participation — to improve family experience and the overall quality of critical care in similar resource-constrained referral settings.

References

- [1]. Abukari, A. S., & Schmollgruber, S. (2024). Perceived barriers of family-centred care in neonatal intensive care units: A qualitative study. *Nursing in Critical Care*, 7(1), 1–11.
- [2]. Akkaş, N., & Geçkil, E. (2023). Family-Centered Care Scale in Neonatal Intensive Care Unit (FCCS-NICU): Development and psychometrics evaluation. *Journal of Pediatric Nursing*, 72(1), 168–176.
- [3]. Duffy, J. R., & Hoskins, L. M. (2003). The quality-caring model: Blending dual paradigms. *Advances in Nursing Science*, 26(1), 77–88.
- [4]. Duffy, J. R. (2022). *Quality caring in nursing and health systems: Implications for clinicians, educators, and leaders* (4th ed.). Springer Publishing Company.
- [5]. Fernandez-Martinez, E., Mapango, E. A., Martinez-Fernandez, M. C., & Valle-Barrio, V. (2022). Family-centred care of patients admitted to the intensive care unit in times of COVID-19: A systematic review. *Intensive and Critical Care Nursing*, 70(1), 103223.
- [6]. Garg, S. K. (2022). Patients' family satisfaction in intensive care unit: A leap forward. *Indian Journal of Critical Care Medicine*, 26(2), 161–163.
- [7]. Haave, R. O., Bakke, H. H., & Schröder, A. (2021). Family satisfaction in the intensive care unit, a cross-sectional study from Norway. *BMC Emergency Medicine*, 21, 1–12.
- [8]. Kiwanuka, F., Shayan, S. J., & Tolulope, A. A. (2019). Barriers to patient and family-centred care in adult intensive care units: A systematic review. *Nursing Open*, 6(3), 676–684.
- [9]. Maharmeh, M., et al. (2023). Family satisfaction with communication and information sharing in intensive care units: A review.
- [10]. Wright, S. E., et al. (2015). Family satisfaction in the intensive care unit: Psychometric properties of the FS-ICU 24.