

ORIGINAL PAPER

Family engagement in neonatal intensive care units: prospective validation of the Greek version of the FAME tool

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Abstract

Aim: To translate, culturally adapt, and conduct a preliminary psychometric evaluation of the Greek version of the FAME (Family Engagement Measure) questionnaire. **Design:** Fifty family members of patients in a neonatal intensive care unit of a university hospital participated in a prospective observational study. **Methods:** The instrument's internal consistency and test-retest reliability were evaluated using Cronbach's alpha coefficient and the intraclass correlation coefficient, respectively. Principal components analysis was used to examine the construct validity of the questionnaire. **Results:** The FAME questionnaire demonstrated high item homogeneity (Cronbach's alpha = 0.97 for all items and 0.85 within subscales). Test-retest reliability was very high [$r = 0.97$ (95% CI: 0.96–0.99), ICC = 0.98 (95% CI: 0.97–0.99)]. Exploratory principal component analysis suggested three underlying dimensions accounting for ~70% of total FAME variance. Families' perceived inclusion, presence, and informational connection with the healthcare team had a strong loading on component 1 which accounted for ~45% of total variance. **Conclusion:** The Greek version of the FAME questionnaire demonstrated promising psychometric properties, supporting its potential use as a reliable instrument for assessing family engagement in Greek neonatal intensive care settings. The tool can therefore serve both as a clinical tool for benchmarking family-centered practices and as a research instrument for evaluating family-engagement interventions in critical care.

Keywords: family engagement, measurement tool, neonatal intensive care, nursing, reliability, validation.

Introduction

Family engagement has emerged as a cornerstone of care centered both on patients and families, emphasizing the role of family caregivers as essential and active collaborators in the care process rather than passive observers (Goldfarb et al., 2022). In acute and critical care settings, families often provide emotional and physical support, communicate with healthcare teams, participate in decision-making, and contribute directly to care when possible. A growing body of evidence indicates that such engagement improves patient outcomes, enhances family satisfaction, and fosters care quality and safety (Hallot et al., 2023; Kifell et al., 2025; Wall et al., 2007). Nevertheless, measuring family engagement in a standardized, valid, and context-specific manner has remained a major

challenge. Most available instruments focus on family satisfaction or isolated aspects of engagement, rather than quantifying the active involvement of families in care delivery itself (Duong et al., 2024; Goldfarb et al., 2022).

To fill this methodological gap, Goldfarb and colleagues developed the Family Engagement Measure (FAME) through a systematic, interdisciplinary, and patient-partnered process (Goldfarb et al., 2022). The FAME questionnaire consists of 12 items organized into seven conceptual domains – perception of engagement, family presence, communication and education, decision-making, contribution to care, family-centered care, and family needs – each rated on a five-point Likert scale that is converted to a 0–100 score (Goldfarb et al., 2022). Initial pilot testing conducted in a cardiac critical care setting demonstrated strong content and face validity, high internal consistency, and feasibility of use within minutes (Goldfarb et al., 2022). Subsequent studies confirmed the psychometric robustness

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of the instrument, with evidence of convergent and predictive validity across intensive and acute cardiac care settings, showing that higher FAME scores are associated with increased satisfaction among family members, regardless of demographic characteristics (Hallot et al., 2023; Kifell et al., 2025).

Although the FAME tool has been validated in English and French and applied across diverse Canadian ICUs, its cross-cultural applicability has not yet been explored. Cultural norms, family structures, and health system dynamics can substantially influence how family members engage in patient care. In the Greek healthcare context, where family presence and participation are integral to the caregiving culture, a culturally adapted version of FAME is particularly relevant.

Family engagement in intensive care is increasingly conceptualized as a multidimensional construct encompassing both relational and participatory components. Relational engagement refers to the quality of communication, information sharing, presence, and mutual respect between families and healthcare professionals. Participatory engagement, in contrast, reflects the extent to which families are actively involved in decision-making processes and care activities. Contemporary frameworks of family-centered care emphasize that meaningful engagement requires both dimensions to be present, as information exchange alone does not necessarily translate into participation in care processes or clinical decisions (Burns et al., 2022; Goldfarb et al., 2022). The Family Engagement Measure (FAME) was developed to operationalize this multidimensional construct by capturing key domains of family engagement, including communication, presence, partnership, decision-making, and contribution to care. Validation of this instrument across different cultural contexts is essential to ensure that these dimensions are reliably and consistently measured within diverse healthcare systems.

Aim

The aim of this study was to translate, culturally adapt, and conduct a preliminary psychometric evaluation of the Greek version of the Family Engagement Measure (FAME) among family members of neonates hospitalized in a neonatal intensive care unit.

Methods

Design

This study employed a prospective observational cohort design involving relatives of patients admitted to a university hospital neonatal intensive care unit (NICU) between March and September 2025. The study adhered to the STROBE reporting guidelines for observational cohort studies (Vandenbroucke et al., 2007).

Sample

We enrolled relatives of NICU patients who were able to communicate in Greek. For this study, family member was defined broadly as any individual with a biological, emotional, or legal connection to the patient (Brown et al., 2015). Exclusion criteria included family members of patients with a NICU stay shorter than 24 hours, individuals under 18 years of age, and those with insufficient proficiency in Greek. Given the exploratory nature of this study and the limited availability of eligible participants during the study period, a convenience sample was used. Although the sample size is smaller than the optimal recommendations for full psychometric validation according to COSMIN standards (Mokkink et al., 2018; Prinsen et al., 2018), it is consistent with early-stage exploratory validation studies conducted during cross-cultural adaptation of measurement tools.

Data collection

Study instrument

The Family Engagement Measure (FAME) was designed to quantify the engagement behaviors of relatives of intensive care unit (ICU) patients. Details of its development and psychometric validation have been described elsewhere (Goldfarb et al., 2022). The instrument comprises 12 items that evaluate key domains of family engagement, including perception of engagement, family presence, communication and education, and family needs. Each statement is rated on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Item scores are linearly converted to a 0–100 scale, with higher values reflecting greater levels of family engagement. The total score is obtained by averaging the transformed values across all items. The FAME is currently available in English and French and requires approximately five minutes to complete. The twelve items capture different aspects of family engagement in intensive care settings, including the extent to which families feel welcomed in the care environment, receive

adequate information and education, participate in decision-making processes, contribute to bedside care activities, and perceive respectful partnership with the healthcare team. Together, these items provide a multidimensional assessment of both relational engagement (communication, presence, and respect) and participatory engagement (decision-making and contribution to care).

FAME scale translation process

Following established cross-cultural adaptation procedures (Beaton et al., 2000), the original FAME was translated into Greek using a forward-backward translation process (Goldfarb et al., 2022). Two independent native Greek translators, one of whom had a medical background, first produced forward translations of the instrument. These were then independently backtranslated into English by two native English speakers unfamiliar with the original version. An expert committee consisting of three members reviewed all versions, compared semantic and conceptual equivalence, and resolved discrepancies through consensus. During the translation and adaptation process, the expert committee also evaluated the semantic, conceptual, and contextual equivalence of the translated items. This procedure ensured the face and content validity of the Greek version of the instrument prior to field testing.

Data analysis

Outcomes derived from the FAME total and subscale scores were summarized using medians and interquartile ranges (IQRs), whereas categorical variables were presented as frequencies and percentages.

Structural validity

Construct validity was assessed through exploratory factor analysis (EFA) using principal component extraction, with factors retained based on the Kaiser criterion (eigenvalue ≥ 1). Principal Axis Factoring with Oblimin rotation ($\delta = 0$) was applied to permit correlations among components, reflecting the expected conceptual interdependence of FAME domains (Field, 2018).

All statistical analyses were performed using SPSS version 26.0, and a significance level of 0.05 was adopted throughout. The evaluation of measurement properties was guided by the COSMIN methodology for studies on measurement instruments (Mokkink et al., 2018; Prinsen et al., 2018).

Internal consistency

Internal reliability was evaluated using Cronbach's alpha. Values were interpreted according

to conventional thresholds: excellent (0.91–1.00), very good (0.81–0.90), good (0.71–0.80), acceptable (0.61–0.70), and unacceptable (< 0.60) (Cortina, 1993).

Test-retest reliability

To examine temporal stability of the Greek FAME, family members completed the questionnaire twice within a 15-day interval. Reliability was evaluated using the Pearson correlation coefficient and the intraclass correlation coefficient [ICC(2,1), two-way random effects model, absolute agreement]. Pearson correlation values were interpreted as high (± 0.50 to ± 1.00), moderate (± 0.30 to ± 0.49), low ($< \pm 0.29$), or trivial ($< \pm 0.10$) (Akoglu, 2018). An ICC greater than 0.70 was considered indicative of good test-retest reliability (Streiner & Norman, 1995).

Ethics approval

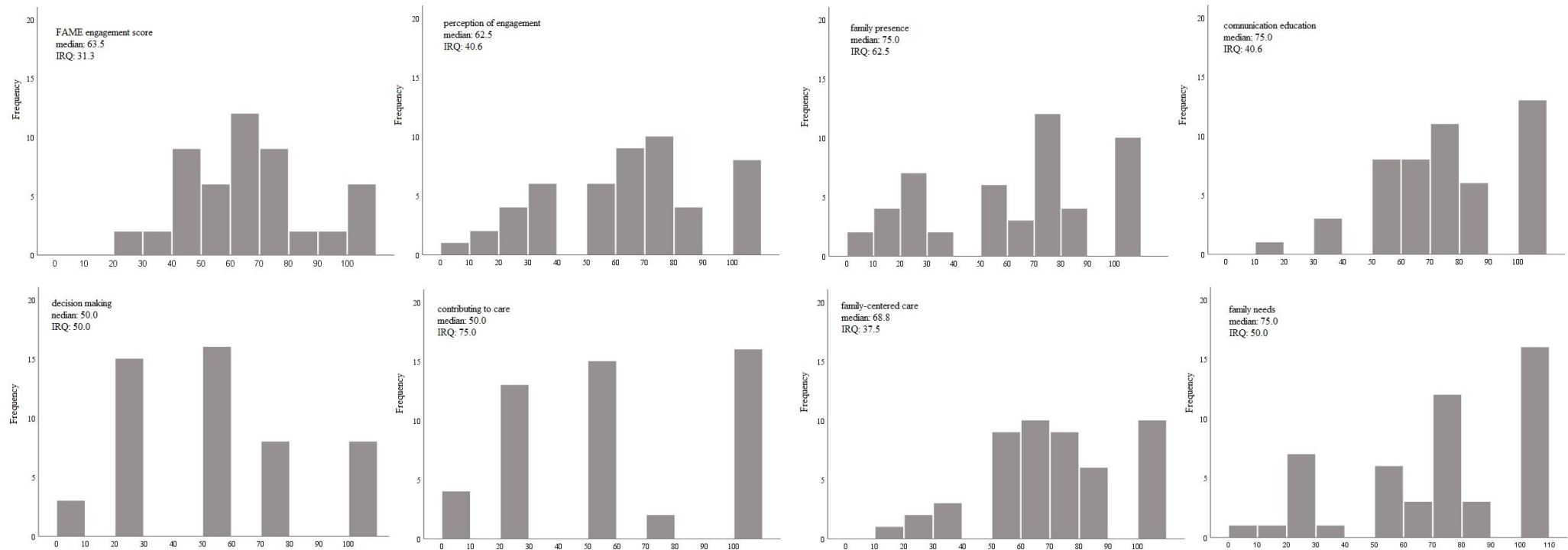
Ethical approval for the study was obtained from the Institutional Review Board of the University Hospital (approval number: 144/2025) and the Administration Board of the 6th Health Division (approval number: 19007/2025). All participants were informed about the purpose of the study and provided written informed consent prior to participation. Participation was voluntary and confidentiality of responses was ensured throughout the study.

Results

Descriptive statistics

A total of 50 family participants were included in the analysis. The mean age was 35.4 ± 6.5 years, and the vast majority were women (98%). Most participants (88%) were parents of a hospitalized neonate receiving intensive care for a range of medical conditions typical of NICU hospitalization; however, detailed clinical characteristics of the neonates were not systematically collected as the focus of the study was the psychometric evaluation of the FAME instrument. No missing data were observed in the completed questionnaires.

The overall median (IQR) FAME score was 63.5 (31.3) on a 0–100 scale, with values ranging from 20.8 to 100.0, whereby higher scores indicate greater family engagement in care. Among the seven domains, the highest median scores, reflecting stronger engagement, were observed for family presence, communication and education, and family needs, whereas the lowest scores were observed for decision-making and contribution to care (Figure 1).



Note: IQR – Interquartile Range

Figure 1 Distribution of scores for total FAME and for the FAME subscales

For the assessment of test-retest reliability, a subsample of 15 family participants completed the FAME questionnaire a second time within two weeks of the initial administration. This subsample had a mean age of 35.5 ± 5.7 years, was predominantly female, and consisted mainly of parents.

Structural validity

Inter-item correlations among the 12 FAME items ranged from 0.10 to 0.87 (median ≈ 0.44) (Table 1). Most item pairs demonstrated statistically significant moderate-to-strong associations ($r = 0.30$ – 0.70 , $p < 0.05$), indicating adequate internal homogeneity without redundancy. The strongest inter-item correlations were observed among items Q10–Q12 ($r = 0.56$ – 0.87), corresponding to the family-centered care and partnership domain, while the lowest correlations were between these items and the communication / presence items (Q1–Q5, $r = 0.10$ – 0.20). The decision-making (Q6) and contributing-to-care (Q7) items showed only moderate associations with the rest of the scale

($r = 0.27$ – 0.51), consistent with their relatively lower domain scores. Overall, the average inter-item correlation was 0.45, falling within the recommended range (0.15–0.50) for scales measuring a single underlying construct.

Principal Component Analysis (PCA) with Oblimin rotation ($\delta = 0$, Kaiser normalization) was conducted on the 12 FAME engagement items ($n = 50$). Sampling adequacy was acceptable ($KMO = \geq 0.70$; Bartlett's χ^2 $p < 0.001$). Three components with eigenvalues > 1 were extracted, explaining a total of 70.5% of the variance (PCA 1 = 44.6%, PCA 2 = 16.2%, PCA 3 = 9.8%). The pattern matrix (Table 2) showed that items Q1–Q5 loaded strongly on Component 1 (0.64–0.86), representing general or communicative engagement, i.e., families' perceived inclusion presence, and informational connection with the healthcare team. Items Q9, Q11, and Q12 loaded highly on Component 2 (0.76–0.97), corresponding to family-centered care and respect / partnership.

Table 1 Inter-item correlations of individual scales (factor analysis with oblique rotation)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Q1	1.00											
Q2	0.74*	1.00										
Q3	0.50*	0.56*	1.00									
Q4	0.54*	0.65*	0.41*	1.00								
Q5	0.42*	0.45*	0.41*	0.60*	1.00							
Q6	0.27*	0.34*	0.22*	0.47*	0.51*	1.00						
Q7	0.48*	0.57*	0.49*	0.24*	0.39*	0.44*	1.00					
Q8	0.36*	0.48*	0.38*	0.37*	0.36*	0.62*	0.72*	1.00				
Q9	0.10	0.20	0.15	0.18	0.17	0.27*	0.31*	0.31*	1.00			
Q10	0.31*	0.42*	0.40*	0.27*	0.32*	0.52*	0.51*	0.54*	0.42*	1.00		
Q11	0.23	0.19	0.19	0.33*	0.31*	0.33*	0.21*	0.19	0.67*	0.56*	1.00	
Q12	0.33*	0.32*	0.32*	0.26*	0.28*	0.36*	0.21*	0.22	0.56*	0.65*	0.87*	1.00

* $p < 0.05$

Table 2 Factor analysis results under oblimin rotation (pattern matrix)

	PCA 1	PCA 2	PCA 3
Q1	0.86		
Q2	0.82		
Q3	0.64		
Q4	0.86		
Q5	0.64		
Q6			-0.63
Q7			-0.82
Q8			-0.93
Q9		0.76	
Q10		0.51	-0.50
Q11		0.97	
Q12		0.91	

PCA – principal component analysis

Items Q6, Q7, and Q8 loaded negatively on Component 3 (-0.62 to -0.93), indicating a decision-making and contribution-to-care dimension. Cross-loadings were minimal (< 0.40). The structure matrix confirmed moderate correlations among factors (~ 0.4 – 0.5), supporting an oblique three-factor solution. Item Q10 (“I feel that I am a partner in care with the healthcare team”) demonstrated moderate cross-loadings in the oblimin-rotated pattern matrix (Component 2 = 0.51; Component 3 = -0.50). The primary loading on Component 2 suggests alignment with the relational and family-centered domain, while the secondary negative loading on Component 3 reflects conceptual overlap with the participatory / decision-making dimension. Based on theoretical grounds, Q10 was retained within the family-centered engagement component.

Internal consistency

The FAME questionnaire demonstrated excellent internal reliability. Cronbach’s alpha for all items was 0.97 (95% CI: 0.96–0.99), indicating very high internal consistency across the scale. At the domain level, Cronbach’s alpha was 0.85, reflecting strong internal reliability among FAME domains (Table 3). Deletion of individual domains yielded alpha values ranging from 0.81 to 0.86, confirming that no single domain disproportionately influenced overall consistency. Except for the decision-making domain, all other domains showed statistically significant, large-to-very-large correlations with the total FAME engagement score (Table 3), supporting the coherence of the instrument and the contribution of each domain to the overarching construct of family engagement.

Table 3 Internal consistency and correlations between FAME dimensions and total FAME engagement score

Domains	Scales	# of items	Cronbach’s α if item deleted	FAME questionnaire Spearman’s rho
Perception of engagement	Q ₁ & Q ₈	2	0.81	0.85*
Family presence	Q ₂ & Q ₃	2	0.83	0.78*
Communication education	Q ₄ & Q ₅	2	0.84	0.70*
Decision making	Q ₆	1	0.84	0.33
Contributing to care	Q ₇	1	0.83	0.68*
Family centered care	Q ₉ & Q ₁₀	2	0.83	0.54*
Family needs	Q ₁₁ & Q ₁₂	2	0.86	0.57*

* $p < 0.05$

Test-retest reliability

The corresponding Pearson correlation ($r = 0.96$) reflected strong rank-order consistency (Figure 2),

and the intraclass correlation coefficient [ICC = 0.98 (95% CI: 0.97–0.99)] indicated excellent absolute agreement.

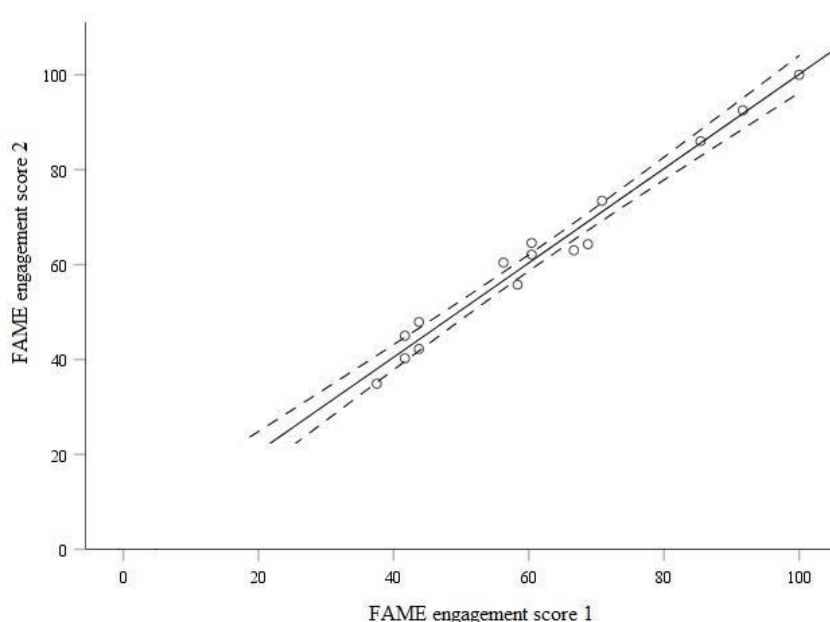


Figure 2 Correlation between test-retest total FAME engagement scores

Discussion

In this validation study, the Family Engagement Measure (FAME) was translated into Greek, and its psychometric properties were evaluated among 50 family members of patients admitted to a university hospital NICU. The Greek version demonstrated excellent reliability, with high internal consistency, strong inter-item and item-total correlations, and very good test-retest stability. Construct validity findings were consistent with those of the original instrument (Goldfarb et al., 2022). Overall, the Greek FAME exhibits reliability and validity comparable to the English and French versions, confirming its suitability for assessing family engagement in Greek neonatal critical care settings. However, given the modest sample size, the findings should be interpreted as preliminary psychometric evidence rather than definitive validation according to COSMIN standards.

The observed Cronbach's alpha coefficients demonstrate that the Greek version of the FAME has excellent internal reliability, comparable to the values reported in the original and subsequent validation studies ($\alpha = 0.83\text{--}0.86$) (Hallot et al., 2023; Kifell et al., 2025). This consistency across languages and settings suggests that the translated items retained both their semantic and conceptual equivalence, and that the construct of family engagement is robust to cultural adaptation. The minimal variation in α following deletion of individual domains further supports the non-redundant nature of the measure; each domain contributes unique information while aligning strongly with the overall construct.

Compared with previous studies, our sample had lower overall scores on the FAME Engagement Tool (Goldfarb et al., 2022; Hallot et al., 2023; Kifell et al., 2025), suggesting lower levels of family engagement in our study population. In our cohort, the lowest-scoring domains were decision-making (item Q6) and contributing to care (item Q7), indicating that opportunities for shared decisions and hands-on participation were perceived as the main barriers to family engagement. This pattern is consistent with prior FAME studies, which repeatedly flagged shared decision-making as a weak point relative to other domains. In the development pilot, decision-making and "encouragement to participate" were among the lowest items despite high scores for presence, respect, and information exchange, suggesting a structural rather than informational gap (Goldfarb et al., 2022). In the acute-cardiac validation, overall engagement was acceptable but decision-related

elements contributed less to the score than communication / respect facets (Hallot et al., 2023). Finally, in the multicenter ICU validation study, decision-making again clustered at the lower end (mean domain score ≈ 67), whereas presence and family-centered care scored notably higher, underscoring that strengths in relationships and communication do not automatically translate into participatory roles (Kifell et al., 2025). Together, these findings point to a robust cross-setting pattern: families commonly feel informed and respected, yet not fully included in consequential decisions or bedside care activities. Several contextual mechanisms plausibly account for this gap. First, workflow and acuity in critical / acute care compress time for structured family conferences or bedside goal setting, displacing shared decisions to ad-hoc moments. Second, role ambiguity and liability concerns can dampen offers for participation in care tasks (Q7) even when health-care teams endorse family-centered values. Third, cultural and linguistic factors may incline families to defer to clinicians unless explicitly invited, amplifying the "activation barrier" documented alongside FAME in related work (Goldfarb et al., 2022).

With the exception of decision-making, all other FAME domains showed statistically significant, large to very large correlations with the total FAME engagement score, indicating strong item-total associations and good internal coherence of the scale. These findings support the internal consistency of the Greek FAME, confirming that most domains contribute strongly to the overall construct of family engagement. The weaker association between the decision-making domain and the total score aligns with findings from previous English-language validations, in which decision-making consistently emerged as the lowest-scoring and least strongly correlated domain (Goldfarb et al., 2022; Hallot et al., 2023; Kifell et al., 2025). This suggests that, across cultural contexts, shared decision-making represents a related but distinct facet of engagement, one that is more strongly influenced by institutional processes and clinician behavior than by the relational or informational aspects of care (Heyland et al., 2002; Kon et al., 2016). Conceptually, the FAME total score captures both relational engagement (communication, presence, respect) and participatory engagement (decision-making, contribution to care) (Goldfarb et al., 2022; Hallot et al., 2023; Kifell et al., 2025). The attenuated correlation between decision-making and the total score may therefore reflect that, although families feel informed

and valued, they are not consistently integrated into formal clinical decision-making processes (Azoulay et al., 2001; Hamilton et al., 2025; Hwang et al., 2025).

Methodologically, this modest item-total association indicates that the decision-making domain contributes unique variance rather than measurement noise, capturing contextual and behavioral processes that are not fully explained by other engagement dimensions (Burns et al., 2022; Duong et al., 2024). It therefore highlights an actionable area for improvement rather than a psychometric weakness, emphasizing the need for structured shared-decision frameworks and clinician training to better embed families as partners in critical-care decision processes (Hamilton et al., 2025; Hwang et al., 2025; Mularski, 2008). Similarly, the inter-item correlation pattern supports the internal structure of the Greek FAME. Moderate-to-strong correlations across most items confirm that they measure related aspects of family engagement. Taken together, these findings indicate that the Greek FAME displays balanced internal consistency, reflecting a unifying construct of engagement while preserving meaningful domain diversity.

The solution from the PCA indicates that the Greek FAME retains the theoretical multidimensionality proposed in the original instrument, while also demonstrating interpretable item clustering. The first factor captured communication and partnership in everyday care processes, the second represented respect and family-centered orientation, and the third reflected participation in decision-making and direct contribution to care. The moderate inter-factor correlations observed in the structure matrix confirm that these domains are related facets of a broader latent construct of family engagement. This pattern mirrors the factor structures reported in previous validations, which all showed one dominant factor accompanied by secondary dimensions corresponding to communication and participation behaviors (Goldfarb et al., 2022; Hallot et al., 2023; Kifell et al., 2025). Thus, although three components were statistically identified, the substantial loadings of most items on the first component suggest that a total FAME score remains an appropriate summary index of overall family engagement. From a cross-cultural standpoint, the emergence of the decision-making / contribution factor (Q6–Q8) as a separate component may reflect contextual differences in how Greek families participate in clinical decisions – often more indirectly or collectively than in the Canadian settings where

the tool was developed. Nevertheless, the high communalities (> 0.6) and absence of problematic cross-loadings indicate that the translated items function well psychometrically. Overall, the factor-analytic evidence supports the structural validity of the Greek FAME, confirming both the robustness of its general engagement construct and the cultural relevance of its underlying domains. Future work with larger samples could confirm this structure using confirmatory factor analysis or a bifactor model to quantify the dominance of the general factor.

From a clinical and practical standpoint, our data support process-level interventions that go beyond information provision, including (i) default family participation in ward rounds, with a designated “family liaison” to facilitate and explicitly invite participation in decision-making; (ii) a checklist for participatory care tasks appropriate to the patient’s condition (e.g., mobility prompts, comfort care, diary entries), documented in the plan of care; and (iii) scheduled brief care-planning huddles (≤ 10 min) with a decision-aid one-pager (treatment options / risks / values prompts). Given prior studies linking higher FAME total scores to family satisfaction, strengthening these two domains is likely to yield the greatest incremental gains in family experience (Hallot et al., 2023; Kifell et al., 2025).

Limitations of the study

This study has some limitations that warrant consideration. First, the modest sample size ($n = 50$) restricts the generalizability of the findings and may affect the stability of the factor-analytic results. Given the modest sample size, the present findings should be interpreted as preliminary psychometric evidence rather than a full validation according to COSMIN standards. Future research should include larger and more diverse samples to verify the factorial structure through confirmatory factor analysis and to evaluate measurement invariance across different populations and care settings. Second, participants were recruited from a single university hospital ICU, which may not fully represent the diversity of family experiences across different hospital types or regions in Greece. Third, test-retest reliability was assessed over a short interval and may be subject to recall or situational bias. Fourth, while the translation process followed best-practice guidelines, subtle cultural nuances in interpreting certain items – particularly those related to family participation in clinical decision-making – may still have influenced responses. As this study was observational, it cannot

determine the responsiveness of the Greek version of the FAME to interventions or changes in engagement over time. Future research with larger, multicenter samples should address these limitations and evaluate responsiveness, predictive validity, and measurement invariance across cultural and clinical contexts. In addition, the relatively small subsample used for the test-retest analysis may limit the precision of the reliability estimates. Floor and ceiling effects were not systematically assessed and should therefore be examined in future studies.

Conclusion

In summary, the Greek adaptation of the Family Engagement Measure (FAME) exhibited excellent internal consistency, robust reliability as well as construct validity, confirming its suitability as a reliable and culturally appropriate tool for evaluating family engagement in Greek neonatal intensive care units. The factorial structure paralleled that of the original English and French versions, confirming the robustness of the core engagement construct while highlighting local context-specific characteristics – particularly the persistent challenges surrounding decision-making and participation in care. The Greek FAME can therefore serve both as a clinical tool for benchmarking family-centered practices and as a research instrument for evaluating interventions aimed at enhancing family involvement in neonatal critical care. Broader implementation and further validation in diverse Greek healthcare settings will help refine its use and strengthen efforts toward more inclusive models of care. These findings should be interpreted as preliminary psychometric evidence rather than a full validation in accordance with COSMIN standards, given the modest sample size.

Acknowledgements

The authors would like to thank all participants who contributed to this study, as well as the staff of NICU for their valuable assistance.

Ethical aspects and conflict of interest

Ethical approval for the study was obtained from the Institutional Review Board of the University Hospital (approval number: 144/2025) and the Administration Board of the 6th Health Division (approval number:19007/2025).

No ethical issues or conflicts of interest were declared by the authors.

Funding

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Author contributions

Concept and design (ZK); translation and cultural adaptation (ZK, TT), data collection (CA); data analysis and interpretation (ZK), manuscript draft (ZK); critical revision of the manuscript (ZK, CA, MG); final approval of the manuscript (ZK, CA, NZ, TT, MG).

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