International Journal of Nursing Studies 102 (2020) 103448

Contents lists available at ScienceDirect

International Journal of Nursing Studies

journal homepage: www.elsevier.com/ijns

Translating family systems care into neonatology practice: A mixed method study of practitioners' attitudes, practice skills and implementation experience

Rahel Naef[a,*], Marianne Kläusler-Troxler[b], Jutta Ernst[a], Selina Huber[a,c], Barbara Dinten-Schmid[d], Tanja Karen[d], Heidi Petry[a]

[a] Centre of Clinical Nursing Science, University Hospital Zurich, Raemistrasse 100, 8091 Zurich, Switzerland
[b] Women's Health Clinic, University Hospital Basel, Basel, Switzerland
[c] Clinic for Neurosurgery, University Hospital Zurich, Switzerland
[d] Department of Neonatology, University Hospital Zurich, Zurich, Switzerland

ARTICLE INFO

Article history:
Received 10 January 2019
Received in revised form 3 October 2019
Accepted 3 October 2019

Keywords:
Attitudes
Family-centered care
Family nursing
Knowledge translation
Neonatal intensive care unit
Health professionals
Implementation
Mixed method

ABSTRACT

Background: Family-centered care interventions are a recommended part of high-quality neonatal intensive care. Evidence suggests that engaging and supporting families improves parental and infant health outcomes. Enabling practitioners to work with families in a relational, strength-oriented way is thus vital to ensure quality care. However, implementing family-centered care remains a challenge, and its uptake is often slow and inconsistent.
Objectives: To examine the impact of family systems care implementation activities on neonatal nurses' and physicians' attitudes and skills in working with families, and to explore their implementation experience.
Design: Mixed method design.
Setting and participants: Two neonatal intensive and one intermediate care unit in a Swiss, university-affiliated hospital. A total of 65 practitioners participated in the pre-post study, and 17 in focus group interviews.
Methods: Quantitative data was obtained before, mid-, and post-implementation through an online questionnaire. Attitudes were measured with the Families' Importance in Nursing Care – Nurses' Attitudes Scale. Skills and reciprocity in working with families was assessed with the Family Nursing Practice Scale. Four focus group interviews were conducted post-implementation. Data analysis included descriptive statistics, group comparison, and qualitative content analysis.
Results: A statistically significant increase in practice skills and reciprocity, but not in attitudes was found mid- and post-implementation. Practitioners reported new ways of working with families, which included enhanced awareness of the extended family, intentional relationship-building, augmented family involvement, and systemic interventions, such as therapeutic listening. They experienced implementation as a wheel that moved forward or stood still, depending on the challenges faced and the predominance of enabling versus limiting organizational factors. Practitioners felt not only challenged regarding the meaning of being-acting in family-centered ways, but also in delivering family systems care consistently and collaboratively. While practitioners experienced the educational workshop as helpful, they felt left alone during consolidation.
Conclusions: Findings demonstrate that the inter-professional implementation of family systems care is highly relevant for practitioners' clinical practice. Implementation strategies yielded an increase in practice skills/reciprocity and new ways of working with families, but no quantifiable impact on attitudes. Adoption fluctuated and was ongoing, hindered by organizational constraints and lack of consolidation support. Nonetheless, practitioners gave numerous examples of family-centered practices. A combination of implementation strategies offered over time and supported by organizational structures are the most

* Corresponding author.
E-mail addresses: rahel.naef@usz.ch (R. Naef), marianne.klaeusler@usb.ch (M. Kläusler-Troxler), jutta.ernst@usz.ch (J. Ernst), selina.huber2@usz.ch (S. Huber), barbara.dinten@usz.ch (B. Dinten-Schmid), tanja.karen@usz.ch (T. Karen), heidi.petry@usz.ch (H. Petry).

https://doi.org/10.1016/j.ijnurstu.2019.103448

likely means to enable teams to work in partnership with families, and to promote infant and family well-being in neonatal care.

What is already known about the topic?

- Family-centered care interventions are key to improve physical and neurodevelopmental outcomes of preterm infants admitted to neonatal intensive care units, and to support young families.
- Despite the fact that family engagement is part of high-quality neonatal intensive care, clinical adoption and consistent integration of family-centered practices into care delivery has been slow and partial.
- Research in other clinical settings has demonstrated an increase in nurses' ability to work with families following implementation of family systems care.

What this paper adds

- Following the implementation, practitioners felt more skilled in working with families and practiced more intentional relationship-building with families, involved them more in the care of their baby, and offered systemic interventions.
- Participants reported an enhanced awareness of the extended family, but there was no quantitatively measureable impact of implementation strategies on attitudes towards involving families in the care.
- Practitioners experienced implementation like a wheel that moved forward and stood still again on the road towards full adoption, depending on the amount of challenges in caring for families, the available implementation support, and the organizational context.

1. Introduction

Premature birth and admission to a neonatal intensive care unit (NICU) represent a stressful transition into parenthood for young families. Research has demonstrated that parents experience posttraumatic stress and a decrease in family functioning following their newborns' treatment in a NICU (Gooding et al., 2011; Pinelli et al., 2008). Family-centered approaches to care delivery are a recommended part of high-quality neonatal intensive care, and efforts to better support and integrate families on neonatal intensive care units are underway in many countries (O'Brien et al., 2015; Ortenstrand et al., 2010; Skene et al., 2019; Staniszewska et al., 2012; Weis et al., 2015). Family-centered care encompasses a broad range of different concepts, such as parental engagement in or delivery of the care, support of parent-newborn interaction to facilitate bonding and neurodevelopment, or the creation of a family-friendly hospital environment and models of care delivery (Banerjee et al., 2018; Macho, 2017; McGrath et al., 2011; Shields et al., 2012). A recent concept analysis suggests that family-centeredness in the NICU includes assessing families' situations and meeting their needs, enabling participation and inclusion, sharing information and knowledge, and respecting families' integrity (Ramezani et al., 2014). In fact, research shows many benefits of family interventions. For instance, the promotion of secure parent-child bonding and relational, psychosocial support of families improve parental and infant outcomes (Benzies et al., 2013; O'Brien et al., 2018; Vanderveen et al., 2009; Yu et al., 2017). Moreover, parents need and want participatory involvement and collaborative relationships with nurses and other health professionals during their child's NICU stay (Reis et al., 2010; Segers et al., 2019; Van Riper, 2001).

Despite a clear need for and the evolving evidence of the benefits of family interventions in neonatal care and other areas (Chesla, 2010; Martire et al., 2004; Östlund and Persson, 2014), clinical adoption and consistent integration of knowledge about partnering with and supporting families remains challenging, with uptake being inconsistent and partial (Bell, 2014; Dall'Oglio et al., 2019; Duhamel, 2010; Kuo et al., 2012; Pallas-Alonso et al., 2012). Neonatal nurses have reported a need for more organizational support in providing inclusive and participatory care to families (Coyne et al., 2011). Barriers to implementation include inhibiting organizational structures and processes, such as insufficient time, restricted access policy for parents, or fragmentation in collaborative care delivery (Coyne et al., 2013; Duhamel et al., 2015). Negative attitudes of practitioners and insufficient competencies in working with families as a relational system have also been reported (Armstrong et al., 2012; Asai, 2011).

Research that evaluates the implementation of family-centered care in the NICU through educational activities and practice leadership has identified a positive impact on nurses' competencies (Armstrong et al., 2012; Galarza-Winton et al., 2013; Skene et al., 2019). Nurses report high acceptability of such practice change efforts, and experience family-centered care as beneficial (O'Brien et al., 2013; Weis et al., 2014). However, difficulties to apply newly gained knowledge about family needs, participatory care delivery, and supportive family interventions have also been found (Skene et al., 2019; Weis et al., 2014). Moreover, a need for an inter-professional, collaborative approach to family-centered care has been stressed as essential to its implementation (Macho, 2017; McGrath et al., 2011).

To promote a culture of strength-oriented family engagement and inclusion in neonatal intensive care, we introduced family systems care to inter-professional teams of nurses and physicians working in a Neonatology Department in a Swiss, university-affiliated hospital. A family systems approach to care is defined as collaborative, participatory relational engagement and support of families as an interactive system and recipient of care, and addresses the need to create family-centered organizational structures and care delivery processes (Bell, 2011, 2013; Wright and Leahey, 2013). More research-based insights are needed to determine effective knowledge translation strategies that promote the full adoption of family systems care by inter-professional team of nurses and physicians in neonatal critical care (Benzies et al., 2019; Skene et al., 2016).

2. Methods

2.1. Aim

The aims of this study were, first, to examine the impact of family systems care implementation on neonatal practitioners' attitudes and practice skills in working with families; and second, to explore practitioners' experience of implementing family systems care into their daily practices. The research questions were: (1) What is the impact of family systems care implementation on practitioners' attitudes towards families, and their practice skills in working with families; (2) How do practitioners experience implementation of this new knowledge into practice?

2.2. Study Design

A concurrent-complementary mixed method design was used to investigate both outcomes and processes of implementing family systems care (Palinkas et al., 2011). A concurrent-complementary mixed method design gives equal weight to qualitative and quantitative data whereby the researcher collects and analyzes both types of data separately but in the same time frame, then integrates the findings during reporting (Creswell and Plano Clark, 2011; Zhang and Creswell, 2013). It is particularly useful in the context of implementation research as it allows for a more comprehensive understanding of knowledge translation and its adoption in clinical practice; that is, both implementation processes and outcomes (Aarons et al., 2012; Bauer et al., 2015; Palinkas et al., 2011). To answer the first research question, a quasi-experimental, single group pre-post study was conducted. A qualitative evaluation approach was used to address the second research question (Patton, 2014). This mixed method study was part of a practice initiative in the hospital's Women's Health Division (Kläusler-Troxler et al., 2019), which was framed by a participatory, circular approach to develop practice, translate family systems care knowledge and guide implementation (Duhamel, 2010; Graham et al., 2006; McCormack et al., 2013; Stringer, 2013).

2.3. Setting, participants, and procedures

The study took place in one neonatal intermediate care unit and two NICUs (level 4) with a total of 32 beds at a major university hospital in the German-speaking region of Switzerland. As family systems care was implemented with inter-professional teams of nurses and physicians, both professional groups were invited to take part in the study. Nurses and physicians employed in the hospital's neonatology department at the time of baseline data collection were eligible to take part in the study. They needed to hold a Swiss certification in their respective profession. Those expecting termination of employment within six months of pre-implementation data collection were excluded. No other inclusion or exclusion criteria were defined.

Potential participants were identified by a staff list and informed about the study through information sessions and study flyers. Recruitment occurred through an individual email invitation explaining the study, which entailed a link to the questionnaire. Reminder emails were sent out twice at two-week intervals. For qualitative data collection, a purposive sampling strategy was used to ensure representation of professions and units involved. A neonatal nurse specialist and a staff physician approached nurses and physicians to take part and explained the focus group research. Each potential and interested participant was sent an email invitation with the study information sheet and asked to confirm their willingness to take part before scheduling the interview.

2.4. Implementation of family systems care

Family systems care, here defined as an inter-professional approach to care, understands families as the unit of care and aims to engage families, to support their coping, and to strengthen their relational interactions (Kaakinen and Hanson, 2015). The implemented approach was based on the Calgary Family Assessment and Intervention Models (Wright and Leahey, 2013). The Calgary models propose specific assessment and intervention processes in relation to cognitive, affective and behavioral family functioning, which are offered through family conversations with one or several family members (Wright and Leahey, 2013). The models were adapted to the local context and included collaborative family meetings upon admission, during hospitalization as necessary, for preparing transition to home, and at discharge. The family meetings were complemented with nurse-family and physician-family interactions through which relational system interventions were offered (Kläusler-Troxler et al., 2015, 2019).

This inter-professional approach to family systems care was implemented over an eight-month period. First, implementation occurred with nurses and physicians working on the neonatal intermediate care unit (Cohort 1, January–August 2017), followed by practitioners working on the two NICUs (Cohort 2, Mai–December 2017). Implementation activities included educational workshops and team-based training activities. A ten-hour educational group workshop (average: 13 persons) was delivered in three afternoon sessions distributed over several weeks. An advanced family nurse (MKT) leading the family systems care implementation offered the workshops together with a neonatal nurse specialist (BDS). The workshop covered family health, principles and values underlying family systems care, as well as family assessment and intervention processes. These include: (1) listening to and understanding the family narrative; (2) eliciting families' perspectives and concerns; (3) co-creating a family genogram and ecomap to gain an understanding of the families' structures, relations, and resources; (4) inviting families to reflect on the meaning of the situation and to ascertain family strategies to live with the situation; (5) and offering commendations (Wright and Leahey, 1999, 2013). Appropriate instruction materials were also provided. In addition to theoretical input, practitioners received an opportunity to reflect on and to practice family conversations and to apply the assessment and intervention processes. The three-part workshop was offered four times over a period of four months, and was followed by a four-month training phase aimed at consolidating family systems care.

Training activities aimed to support the translation of the newly gained knowledge and modes of delivery in everyday practice, and to create opportunities for mutual learning and reflection. They were facilitated by a neonatal nurse specialist, staff nurses and a staff physician who had active roles in supporting implementation. Training activities included reflective practice sessions and/or case conferences with teams ($n = 24$), inter-professional continuing education sessions ($n = 9$), and peer coaching and feedback.

2.5. Data collection

Quantitative data was obtained through an online questionnaire (RedCap©) at three time-points. Pre-implementation data (T0) was collected from November to December 2016. The first follow-up data collection was carried out mid-implementation (T1), after conclusion of the educational workshop at month four (April/September 2017), and the second follow-up occurred post-implementation (T2), after completion of the training phase at month eight (September 2017/January 2018). Qualitative data was collected via focus group interviews with a subsample post-implementation only ($n = 2$ in September 2017; $n = 2$ in January 2018).

2.6. Quantitative measures

2.6.1. Attitudes towards families

Attitudes towards families were measured using the validated 26-item *Families' Importance in Nursing Care – Nurses' Attitudes (FINC–NA)* refined version (Saveman et al., 2011). The FINC–NA has been widely used to measure the outcome of family systems care implementation (Blöndal et al., 2014; Svavarsdottir et al., 2015; Sveinbjarnardottir et al., 2011). It assesses nurses'/practitioners' attitudes towards the importance of involving families in care on a 5-point Likert scale ranging from one (strongly disagree) to five (strongly agree). In addition to the total scale (score ranging from 26 to 130), the FINC–NA includes four subscales

(Benzein et al., 2008). Family as a resource in nursing care (Fam-RNC; 10 items, score 10–50) captures positive attitudes towards families (i.e. "The presence of family members gives me a sense of security"). Family as a conversational partner (Fam-CP; 8 items, score 8–40) focuses on the importance of participatory dialogue with families (i.e. "I invite family members to speak about changes in the patient's condition"). Family as a burden (Fam-B; 4 items, score 4–20) entails negative statements towards families, such as "The presence of family members makes me feel that they are checking up on me". Family as its own resource (Fam-OR; 4 items, score 4–20) includes statements that acknowledge families' own resources to cope with the situation (i.e. "I encourage families to use their own resources so that they have the optimal possibilities to cope with the situation themselves"). Previous studies have demonstrated sufficient validity, with a Cronbach's alpha of 0.90 for the total scale and between 0.73 (Fam-B) to 0.87 (Fam-RNC) for subscales (Saveman et al., 2011). It also demonstrated a high test-retest-reliability with interclass correlation coefficients (ICC) between 0.89 and 0.71 (Saveman et al., 2011). In the current sample, Cronbach's alpha for the total scale was 0.89 and between 0.67 and 0.78 for subscales.

2.6.2. Appraisal of practice skills and reciprocity

Practitioners' appraisal of their practice skills and reciprocity in working with families was assessed with the 10-item *Family Nursing Practice Scale (FNPS)* (Misto, 2018; Simpson and Tarrant, 2006). The FNPS was developed based on family systems nursing and includes a total and two subscales, the practice appraisal (PA) and nurse-family relationship (NFR) subscales. The PA measures practitioners' critical appraisal of their knowledge, skill, confidence and satisfaction with family systems care (5 items), and includes questions such as "my skill in working with families is", or "I feel comfortable in initiating family involvement in care planning", which is rated on 5-point-Likert scale ranging from 1 (high) to 5 (low). The NFR subscale assesses the reciprocity present in the therapeutic relationship (5 items). Item examples are "Families always approach me about their ill relative", or "I promote patient/family participation, choice, and control in meeting health care needs". The scale is reverse coded. Thus, a low mean score indicates high practice appraisal of skills, confidence and knowledge and reciprocity, respectively, whereas a higher score means lower practice appraisal and reciprocity. With a Cronbach's alpha of 0.84 (total), 0.85 (PA) and 0.73 (NFR), the FNPS exhibited satisfactory internal consistency when it was initially tested, and has been reported to be above $\geq$ 0.85 (Hsiao and Tsai, 2015) in a more recent, larger sample. Test-retest reliability was solid with ICC coefficients between 0.87 and 0.92 (Simpson and Tarrant, 2006). In the current sample, Cronbach's alpha were 0.80 (total), 0.69 (PA) and 0.70 (NFR).

The FINC–NA and FNPS were translated from English into German with the permission of the authors using a four-phase procedure for the translation and cross-cultural adaptation of validated instruments (Beaton et al., 2007; Martin et al., 2007). First, two members of the research team fluent in both languages conducted an independent forward translation, and the synthesis of these translations were back translated separately by two professional translators. Moreover, the term nursing was replaced with caring or care to make items applicable to other professions.

2.7. Qualitative interviews

To elicit practitioners' experience with family systems care implementation, four *focus group interviews* were held with three to five participants each (two per cohort). Focus group interviews enable researchers to generate interactive data on shared, contextualized practices, cultural norms, and social processes associated with a particular topic, such as family systems care implementation (Jayasekara, 2012; Onwuegbuzie et al., 2009; Wilkinson, 2004). Two focus groups included nurses, nurse assistants, and physicians, and two were with nurses/nurse assistants only. One to two of the researchers moderated the interviews using an interview guide. In the first portion, participants were invited to talk about their experience of implementing family systems care, including challenges and barriers. In the second portion, their experience of involving and engaging with families was elicited, including if and what they did differently since the implementation of family systems care. Focus groups interviews took place at a quiet room on the units, and lasted between 61 and 79 min. They were audiotaped, transcribed verbatim, checked for accuracy. Anonymous files were entered into Atlas.ti, a qualitative data analysis software to support data management and analysis processes.

2.7.1. Demographics

Demographic data and professional characteristics, including profession, highest degree, or years of professional experience were obtained through a brief questionnaire.

2.8. Ethical considerations

The study was reviewed by the Ethics Committee of the Canton of Zurich, which waived the need for approval (Req-2016-00557). The study was conducted in compliance with the national guideline of Research on Humans in Health and Illness (Swiss Academy of Medical Sciences, 2015). Completion and the return of the questionnaire was considered informed consent. Focus group participants signed a written informed consent form.

2.9. Data analysis

2.9.1. Statistical analysis

Data were exported from RedCap© directly into SPSS Version 23, and 10% of the data were controlled for accuracy. Measures of central tendency or frequencies were computed according to level of data for demographic and professional characteristics, and for study endpoints. To determine differences at baseline between those who completed at least one follow-up data collection with those who did not, and between implementation cohorts, two-tailed independent *t*-tests, Mann-Whitney-*U*-tests or chi-square tests were performed according to level of data and group sizes. Despite some non-normal distribution, given the robustness of the test, comparison over time was calculated using two-tailed, paired *t*-tests. Alpha level was set at $p < 0.05$. With a level of 0.05 and power of 0.80, the projected sample size needed to discern a medium effect size of 0.5 (GPower 3.1) is approximately $n = 35$ for this within group comparison.

2.9.2. Qualitative analysis

Interview data were analyzed using inductive content analysis to identify commonalities and differences in practitioners' implementation experience (Elo et al., 2014; Graneheim et al., 2017). Inductive content analysis seeks to uncover both manifest (obvious) and latent (hidden) meanings that are present throughout the data (Graneheim and Lundman, 2004). First, to become familiar with the data, transcribed text was read and re-read by two researchers (RN, SH), and preliminary ideas captured in interpretive notes (RN). Then, meaning units; that is, phrases, sentences or paragraphs that hold meaning in relation to the research question were identified, condensed, and then coded by one researcher (SH). Next, to capture the manifest meaning, both researchers reviewed and discussed the codes in light of the data and early interpretive insights, and organized them into preliminary categories. Interview text was then reviewed based on these preliminary categories and more latent meaning uncovered. Preliminary categories were

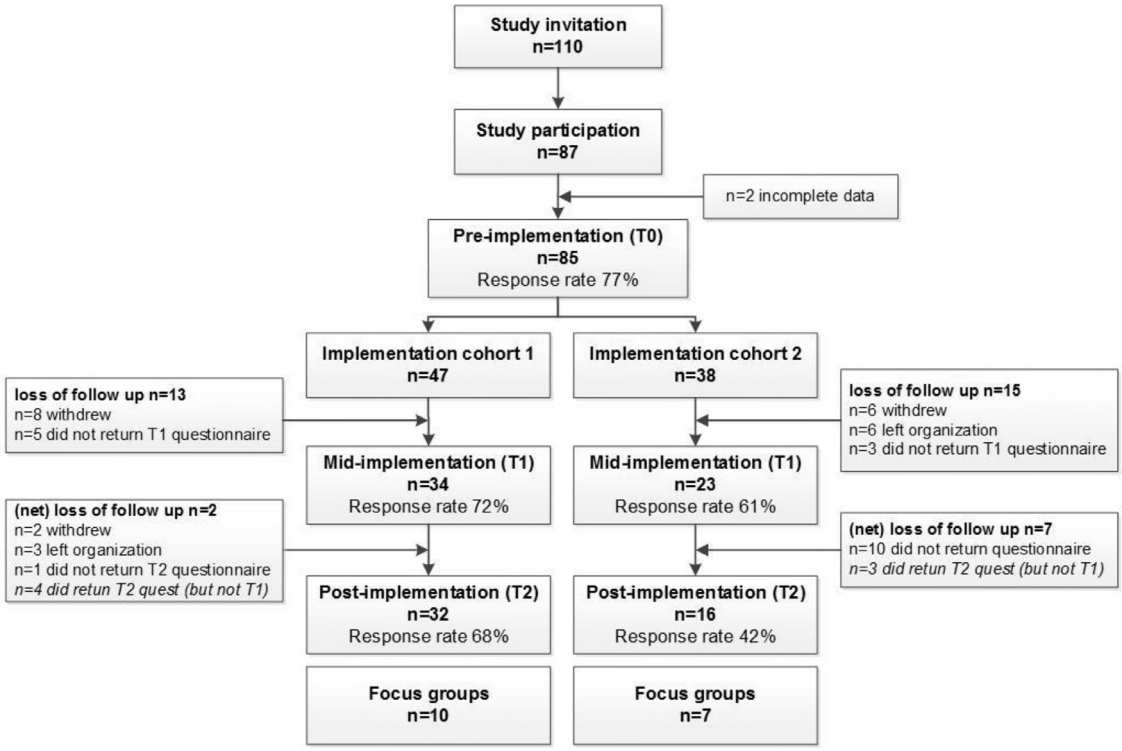

Fig. 1. Participant flow.

further developed and grouped into more refined categories, and then abstracted into emerging themes regarding family systems care implementation in clinical practice.

2.9.3. Integration of data and emergent themes

To integrate qualitative and quantitative data, findings are displayed together (Fetters et al., 2013). Convergence was examined by a focus on the extent to which both types of data corroborate and expand each other.

3. Results

3.1. Participant characteristics

A total of 87 practitioners completed pre-implementation data collection. As two participants returned incomplete baseline data, and 20 participants did not complete any follow-up data collection, 65 practitioners were included in the final analysis. Fifty-seven participants completed mid-implementation data collection (T1), and 47 participants post-implementation (T2) follow-up (see Fig. 1). The first implementation cohort achieved higher response rates, with 72% versus 61% at mid-implementation, and 68% versus 42% post-implementation, respectively.

Participant characteristics are displayed in Table 1. Those participants who returned at least one follow-up questionnaire ($n=65$) were statistically significantly older (37.63±11.49 vs. 32.55±7.42 years, $p=0.024$) and more experienced (14.58±11.75 vs. 8.88±6.25 years, $p=0.006$) compared to those who completed only pre-implementation data collection ($n=20$). All other characteristics and study endpoints did not differ. Moreover, the two implementation cohorts did not differ on any of the characteristics or study endpoints at baseline.

Seventeen practitioners ($n=11$ nurses, $n=4$ physicians, $n=2$ nurse assistants; 82% women) with a median age of 33 (24–57) years and median professional experience of 8 (1–36) years participated in focus group interviews, twelve of which had also taken part in the pre-post study.

3.2. Implementation outcomes

Comparison of pre- and mid-implementation data ($n=57$) demonstrated no change in practitioners' attitudes towards the importance of involving families in care on the total scale of the FINC–NA or any of the subscales (Table 2). At pre-implementation, a vast majority held positive or very positive attitudes towards the importance of families in care ($n=61$ of 65, 93.9%), which remained high at mid-implementation ($n=55$ of 57; 96.5%). In contrast, a statistically significant increase was found in practitioners' practice appraisal of skills, knowledge, confidence and satisfaction (FNPS-PA), the participation and reciprocity present in the therapeutic relationship (FNPS-NFR), as well as the total score of the FNPS. While 27.7% of practitioners ($n=18$ of 65) appraised their practice skills/reciprocity to be high or very high at pre-implementation, the proportion increased to 52.6% ($n=30$ of 57) at mid-implementation.

When comparing pre- and post-implementation ($n=47$), the same pattern persisted. Attitudes towards families (95.8% holding positive or very positive attitudes) remained stable in comparison to pre-implementation (Table 2). A sustained, statistically significant increase was found in the total FNPS score (51.1% high to very high skills/reciprocity), as well as for its two subscales (FNPS-PA, FNPS-NFR). There was no statistically significant difference between mid- and post-implementation in terms of both attitudes and practice skills/reciprocity ($n=39$).

3.3. Implementation processes

Focus group participants ($n=17$) experienced implementation like a wheel that moved forward and stood still again, depending on the amount of friction or challenges that occurred during

Table 1
Pre-implementation participant characteristics.

	Nurses ($n = 56$)	Physicians ($n = 9$)
Age, median (range)	34.5 (41)	41.00 (26)
Gender, female, *n* (%)	54 (96.4)	6 (66.7)
Highest degree, *n* (%)		
Diploma	44 (78.6)	–
Bachelor's degree or similar	12 (21.4)	–
Master's degree	–	2 (22.7)
Doctoral degree	–	7 (77.8)
Professional experience in years, median (range)	10.50 (43)	14.00 (27)
Prior course in family care, yes, *n* (%)	11 (19.6)	–
Prior experience of illness in own family, yes, *n* (%)	32 (57.1)	7 (77.8)
Attitudes towards families (FINC–NA[a]), median (range)		
Total score (26–130)	104 (58)	104 (25)
Family as a resource in care (Fam-RNC; 10–50)	38 (24)	40 (11)
Family as a conversational partner (Fam-CP; 8–40)	33 (23)	32 (12)
Family as a burden (Fam-B; 4–20)	15 (11)	17 (4)
Family as its own resource (Fam-OR; 4–20)	17 (9)	17 (5)
Skills/reciprocity in working with families (FNPS[b]), median (range)		
Total score	2.4 (3)	2.4 (1)
Practice appraisal (PA)	2.4 (2)	2.6 (1)
Nurse-family reciprocity (NFR)	2.4 (3)	2.4 (1)

[a] Families' Importance in Nursing Care – Nurses' Attitudes, high score = positive attitudes.
[b] Family Nursing Practice Scale; score 1–5; low score = high practice skill/reciprocity.

Table 2
Comparison of practitioners' attitudes and skills/reciprocity pre-mid-post implementation.

Pre-mid analysis of $n = 57$ paired dataset	Pre (T0)	Mid (T1)	*t*-Stat	*p*-Value	Lower CI[a]	Upper CI[a]	ES[b]
Attitudes towards families (FINC–NA[c]), mean (±SD)							
Total score (26–130)	101.60 (±12.71)	103.25 (±13.81)	−1.078	0.286	−4.715	1.416	−0.29
Family as a resource in care (Fam-RNC; 10–50)	038.02 (±5.19)	038.35 (±5.54)	−0.514	0.609	−1.633	0.966	−0.14
Family as a conversational partner (Fam-CP; 8–40)	031.65 (±5.14)	032.42 (±5.44)	−1.131	0.263	−2.139	0.595	−0.30
Family as a burden (Fam-B; 4–20)	015.26 (±2.93)	015.32 (±2.76)	−0.173	0.864	−0.664	0.558	−0.05
Family as its own resource (Fam-OR; 4–20)	016.67 (±2.23)	017.16 (±2.32)	−1.806	0.076	−1.036	0.054	−0.48
Skills in working with families (FNPS[d]), mean (±SD)							
Total score	002.33 (±.51)	002.03 (±.45)	5.026	0.000	0.184	0.427	1.36
Practice appraisal (PA)	002.34 (±.54)	002.01 (±.47)	4.750	0.000	0.192	0.472	1.28
Nurse-family reciprocity (NFR)	002.33 (±.61)	002.05 (±.54)	3.615	0.001	0.124	0.433	0.98
Pre-post analysis of $n = 47$ paired dataset	**Pre (T0)**	**Post (T2)**					
Attitudes towards families (FINC–NA[c]), mean (±SD)							
Total score (26–130)	102.34 (±13.24)	102.87 (±13.07)	−0.367	0.715	−3.449	2.386	−0.11
Family as a resource in care (Fam-RNC; 10–50)	038.17 (±5.75)	038.45 (±5.30)	−0.469	0.642	−1.465	0.912	−0.14
Family as a conversational partner (Fam-CP; 8–40)	031.92 (±5.03)	032.04 (±5.26)	−0.190	0.850	−1.446	1.196	−0.06
Family as a burden (Fam-B; 4–20)	015.69 (±2.78)	015.35 (±2.60)	1.029	0.309	−0.318	0.985	0.30
Family as its own resource (Fam-OR; 4–20)	016.50 (±2.37)	016.96 (±2.31)	−1.532	0.132	−1.060	0.144	−0.45
Skills in working with families (FNPS[d]), mean (±SD)							
Total score	002.33 (±.53)	002.00 (±.34)	4.767	0.000	0.192	0.472	1.41
Practice appraisal (PA)	002.31 (±.51)	001.97 (±.49)	4.600	0.000	0.194	0.495	1.36
Nurse-family reciprocity (NFR)	002.35 (±.63)	002.03 (±.44)	3.606	0.001	0.141	0.497	1.06
Mid-post analysis of $n = 39$ paired dataset	**Mid (T1)**	**Post (T2)**					
Attitudes towards families (FINC–NA[c]), mean (±SD)							
Total score (26–130)	104.08 (±13.84)	103.15 (±13.79)	−0.651	0.519	−1.964	3.792	0.21
Family as a resource in care (Fam-RNC; 10–50)	028.44 (±5.56)	038.56 (±5.50)	−0.226	0.823	−1.728	1.022	−0.07
Family as a conversational partner (Fam-CP; 8–40)	032.60 (±5.71)	031.95 (±5.56)	−0.898	0.375	−0.814	2.114	−0.29
Family as a burden (Fam-B; 4–20)	015.48 (±2.63)	015.48 (±2.76)	−0.000	1.000	−0.746	0.746	−0.00
Family as its own resource (Fam-OR; 4–20)	017.15 (±2.45)	017.08 (±2.35)	−0.243	0.809	−0.550	0.700	−0.08
Skills in working with families (FNPS[d]), mean (±SD)							
Total score	002.00 (±.49)	002.00 (±.45)	−0.095	0.925	−0.118	0.107	−0.03
Practice appraisal (PA)	002.01 (±.47)	001.98 (±.50)	−0.380	0.706	−0.114	0.167	0.12
Nurse-family reciprocity (NFR)	001.98 (±.57)	002.02 (±.54)	−0.518	0.607	−0.181	0.107	−0.17

[a] 95% confidence interval of difference.
[b] Effect size, Cohen's d = 0.2–0.4 small effect, 0.5–0.8 median effect, >0.8 strong effect.
[c] Families' Importance in Nursing Care – Nurses' Attitudes, high score = positive attitudes.
[d] Family Nursing Practice Scale; score 1–5; low score = high practice skill/reciprocity.

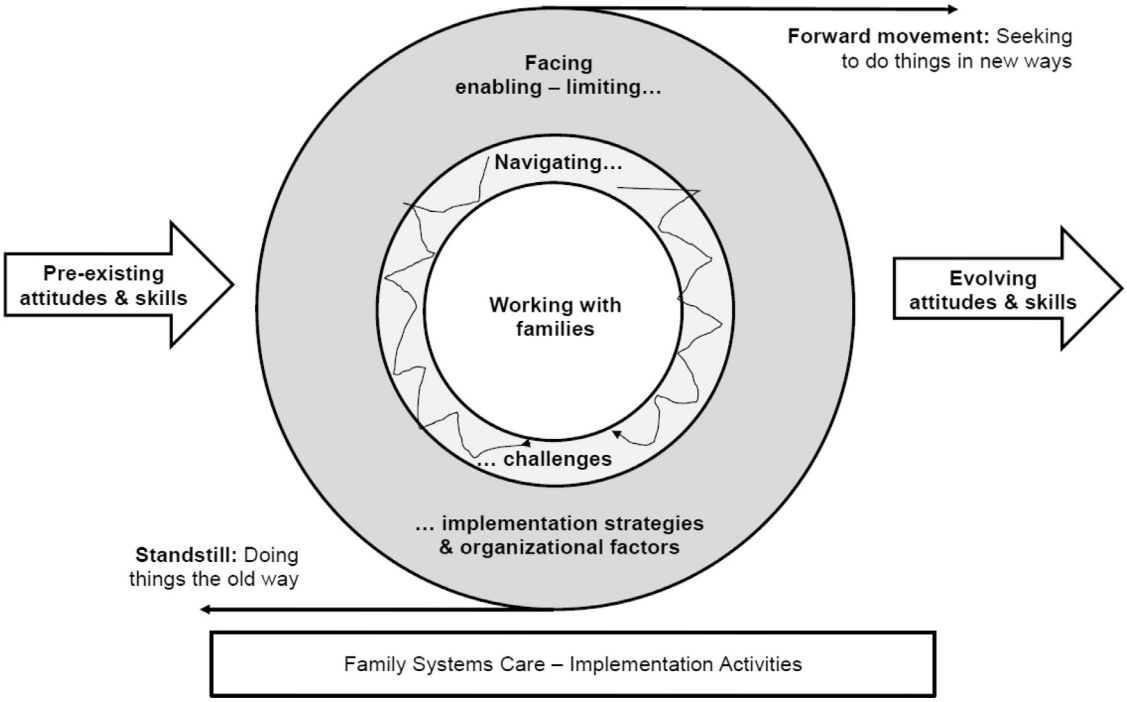

Fig. 2. Practitioners' family systems care implementation experience.

their everyday, clinical work with families and the organizational context on the one hand and family systems care implementation strategies on the other (Fig. 2). At the core of the "implementation wheel" is practitioners' adoption of family systems care in their day-to-day work with families, which involves attitudes and practices that have intensified or changed following educational workshop and training activities (Theme 1). Clinical uptake of family systems care, however, was fraught with challenges that occurred as a result of unit policies or timetables, different views regarding the extent of family involvement, as well as the newborn's condition, family situation and needs (Theme 2). When many challenges were present, friction increased and family systems care adoption slowed down. When navigated successfully, family systems care uptake accelerated, like the function of a wheel's ball bearing. Organizational context as well as implementation strategies functioned as enabling or limiting factors of implementation, with enabling factors facilitating a forward movement and limiting factors as standstill, like the amount of air and the profile of a tire (Theme 3). Quotes are presented in Table 3.

3.3.1. Theme 1 – working with families

Practitioners described that they had gained a *new awareness for the family* as a larger system beyond the newborn-mother-father-triad (1a). Many felt that they did not necessarily "do other things", but approached families with a different intent and recognized the centrality of family in neonatal care (1b). Practitioners pointed out that they had become more welcoming and interested in parents' well-being and lifeworld outside the NICU (1c).

This new awareness meant that practitioners *engaged more intentionally with families* and tried to build a relationship with them as soon as the newborn was admitted. This enabled them to get to know the family and determine support needs (2a). Moreover, practitioners described how they continued to personally relate to families, as they met on a regular basis with them and had brief conversations at the bedside, which promoted a relational continuity for families (2b).

Involving and enabling families in caring for their newborn was an essential family-centered practice, which developed from a longer tradition of family involvement in neonatal care and an awareness of the importance of parents for the well-being of their newborn (3a). Practitioners stressed that following implementation activities, they did this more attentively and more tailored to parents' needs (3b). Practitioners intentionally built on the parents' capacity and encouraged families to provide care despite the newborns' fragility, while respecting preferences for involvement (3c).

Practitioners started to *offer new family systems interventions*, such as getting to know the family as a larger system, recognizing resources and capacities, and offering commendations. For instance, the newly introduced collaborative family admission and follow-up meetings were experienced as beneficial (4a). Doing family meetings together enabled nurses and physicians to get to know the family by intentionally listening to their story of the birth, and to document the family situation in a structured and comprehensive way (4b). Using a genogram and ecomap increased practitioners' understanding of the family situation, which informed further interactions with families (4c). Practitioners also described how getting to know the family enabled them to better ascertain families' resources and capacities (4d). They started to intentionally express understanding and appreciation to families for their efforts and ways of coping with the situation as a family, and understood it as a purposefully used family support intervention (4e).

3.3.2. Theme 2 – navigating challenges

Uptake of family systems care was confronted with challenges arising from tensions between working in new ways with families and an organizational context that lacked family-centered structures and processes. For instance, tensions arose in relation to the *meaning of being and acting in family-centered ways*. One of the main challenges that practitioners faced in adopting family systems care was how to determine the degree of family involvement in day-to-day care (5a), and how to discern the extent to which families' preferences should be acted upon (5b). Practitioners described

Table 3
Themes present in practitioners' implementation experience with quotes.

Themes	Categories	Quotes
Working with families	1. Having a new awareness for families/(−) FINC–NA	1a) (What I do differently is that I) find out about the (family) network a bit more, I've never asked before. (…). I am much more interested if there is a grandmother or someone else who the father can call up when needed. (nurse, P2:21)
		1b) I think you do things more intentionally. Before, you used to tell parents that they are doing a great job or something similar, and today you do it with a background. (nurse, P1:24)
		1c) They do bring their lives with them and I have the impression that this is given more space. It has increasingly a place (in our work with parents), there is space for it now. (nurse, P1:97)
	2. Intentionally engaging with families/(+) FNPS	2a) They do talk more, and more openly to you, which makes you realize where they need help and where they are already supported. (nurse, P1:32)
		2b) It's not just the family meetings, but the things that happen in-between. They can ask questions anytime and we try to answer them, also (with the aim) to ensure some sort of continuity. (nurse, P4:105)
	3. Involving-enabling families in caring for their newborn/(+) FNPS	3a) I certainly focus MORE on parents, I try to involve them more. I just do the things they would like to, to support them and to promote their autonomy, as a parent (nurse, P1:38).
		3b) To take their own baby clothes or a kerchief, then to let them breastfeed even when it is not really necessary (….), to say: okay, the baby will be tube-fed after breastfeeding for two more days if that is IMPORTANT to the mom. Or to ask what they wish (to do). To offer things (they can do), to really enable a sort of family life in this context, at least in some rudimentary ways. To find out what else they may need and what I can offer (nurse, P1:84).
		3c) I do believe that you do have to build it up step-by-step, guided by what the parents would like and are able to do. Some parents don't want to change nappies for a long time, simply because they are afraid. I think it is important to respect that and to find out what else they can do for their baby. Before discharge, they will eventually have taken over, which is great, it gives them a sense of security. It is about encouraging and inviting them, but not overdoing it nor asking for too little. It's really about going the way with them (nurse, P1:39–40).
	4. Offering family systems interventions/(+) FNPS	4a) (I appreciate) that I can collaborate with parents. That we are a team. That you support parents' resources and act upon them, which is helpful for us too. (nurse, P1:10)
		4b) What has changed for me is that I stay until the end (of family meetings). Sometimes you used to – you rushed through family meetings, and then I rushed off when I had done my part, and then the nurses did their part. That doesn't happen anymore. I remain in the meeting and listen. And they have, I believe, become more interactive. (P2:33; physician)
		4c) I realized that the genograms and ecomaps are really helpful to get an overview, to see what the family situation looks like. (To figure out) where we can tap into for support and where we need to offer support. We can consult it anytime and parents do not have to tell the same things three times. (nurse, P2:1/67)
		4d) I meet parents where they are at with their situation, and I try to incorporate things, their resources. What do they bring to it? What are the things they are able to do and what are the things that they may not be able to accomplish? (physician, P3:14)
		4e) (I appreciate) that I can strengthen families and say, for instance: «Look, you are doing a great (parenting) job, you can't do everything, it is simply not possible given the circumstances, but you are doing the best you can in this situation". (nurse, P3: 184)
Navigating challenges	5. Figuring out the meaning of being/acting in family-centered ways	*Negotiating the extent of family-centeredness*
		5a) Well, to strike a balance, to ascertain the parameters that //several participants agree// are a given. It's walking a tightrope. Because there has been an increased awareness (in our team): "We provide family-centered care and we really want to involve parents a lot". (nurse, P4: 33)
		5b) Very often, we have to find a compromise between parents', or mother's ideas and what is feasible on the unit. Sometimes, this is not easy to accomplish. Well, yes, we could…, we do have some room for maneuvering, but not endlessly. (nurse, P4:49)
		5c) For instance, parents who have ideas such as: "I would like to breastfeed, and no pacifier, no bottle", and that is simply not possible here. Because, well yes, parents are not here for 24 h. We can't ensure that. And it's difficult to… you have to explain it to them REPEATEDLY at multiple time-points. (nurse, P1:50)
		5d). The physicians said: "No way!" And I found that we could try (giving vitamins) to see how it goes and evaluate it for the mother to know. Well, okay, then the mother would have felt more like we at least trying to act upon her preferences. (nurse, P1:13)
		Complying with - circumnavigating rules
		5e) Visiting times is a huge issue. When grandparents would like to visit, it is difficult for us to say: "Well, no, actually (you can only) come on the weekend". We do make exceptions. In fact, I have the impression that we increasingly make exceptions (nurse, PS:75)
	6. Delivering family systems care at the point of need in consistent and collaborative ways	*Working collaboratively with families*
		6a) Well, why participating in the first family meeting when I don't have a chance to speak? To play the note-taker is not really attractive nor the purpose of things. We will need to take this up (in our team), also because we do have different (professional) training and levels of expertise. Some dare to say something, others don't. (nurse, P3:82)
		6b) We start (family meetings) with: "What concerns you most?", but often, you fall back into the old scheme. You ask how they are and then you talk the whole time, giving a lot of information and you're not really (focusing on families). (nurse, P4, 131)
		Scheduling family meetings
		6c). Then you don't have time to meet with families, or you do it in a rush, and that stresses us, because it is not only one baby, there are many babies and families we need to talk to. We also lack meeting rooms or meetings take place at the same time (nurse, P2:87),
		6d) Well, the first meeting with families lasts longer. You have to take more time because you let them talk more and you do the assessment. She (physician) just said that she stays until the end, which takes more time. Maybe it is an investment, and parents are more satisfied and less worried. Things do not always work out and if they don't, it is a bit easier (to talk with parents about it). (nurse, P2:38)
		Working with families in complex situations
		6e). Well, it is super difficult. In the NICU, when parents aren't satisfied, they aren't. You can talk to them as often as you want, it is almost impossible to get the connection going again. To get to a father whose child has meningitis and who is frantic, is very, very challenging. Or to get a connection going to a mother with twins who is unable to cope with her own situation is so difficult. We have to stay on the ball.

(*Continued on next page*)

Table 3 (*Continued*).

Themes	Categories	Quotes
Enabling-limiting factors	7. Feeling supported in learning family systems care	*Learning to practice family systems care as a team* 7a) The training was multiprofessional, so we are on the same page. And we know how to talk about it, and what is meant by it. I do think that has made things easier (nurse, P2:36) *Developing practice knowledge and skills* 7b) (It could have been) more practical, less theoretical, for instance, using difficult conversations that we've had to learn how to best communicate when families are hypercritical or upset. How do you deal with a mother whose husband is not around and who complains about it to you, things like that. (nurse, P3:129) 7c) Spirituality, other cultures, things like that, things I do not know enough about. What is important for them, what do you need to take into account when someone is a Muslim or Hindu. I would have liked to learn more about that (nurse, P3:38)
	8. Feeling left alone during consolidation	*Lack of structure and guidance for consolidation of family systems care* 8a) It is crazy, but in a way, the entire effort with the educational sessions and all that is now completed, but for US, things are just starting out. And we have zero support. (nurse, P1:111) 8b) Shortly after the educational sessions, everything was fresh in the mind, and now with the entire staff turn-over, things are lost again. If we want to keep it going, we need refresher courses (nurse, PS: 26/54) *Feeling thrown in at the deep end* 8c) In my role I have a certain responsibility (for implementation) and I didn't have a clue. I was not prepared at all. We received tools and documents and I felt like I should have known about these things a bit in advance, to be ready. To be able to explain to my colleagues: "That is what it means", which was not the case. It was like, "Here you go, this is a list of your responsibilities" and that was it. And "Now you also moderate case conferences". And full stop. Well, this part was missing (nurse, P1:110) *Lack of accountability* 8d) After the educational part, it remained ambiguous, well, are we doing it now? Are we doing it right? Well, it was handled very differently among team members (nurse, P4:122)
	9. Organizational enabler: multi-professional approach	*Collaboration* 9a) If we would not use a team approach – include nurses and physicians – the essence of family-centered care would be lost (physician, P2: 105) 9b) I've had the experience that the collaboration with physicians works out better, particularly with children whose situation is complex. For example, we schedule another family meeting right away, which we have never done before (nurse, P1:19)
	10. Organizational disablers: insufficient capacity and continuity	*Staffing* 10a) Well, really lack of staff. We constantly have shifts that are understaffed. During which you have to set priorities: "That's important, that needs to be done", and other things have less priority. Well, and with families, things like that get left out (nurse, P4:19) *Workload* 10b) Since we officially introduced family-centered care, we often say: «Well, I should actually act in family-centered ways, but I don't have the capacity". That is what I hear most (nurse, P1:58) 10c) (You are in a) dilemma, right. Kangaroo is a good example. A huge mess on the unit and parents say to you: "I would like to do kangaroo." Well, great, what do you do? Do I make parents sad by saying: "I'm sorry, you can't". That's no good. Well, and with the baby who, who, theoretically, it would be something good for THE child who could get kangaroo, they are usually calmer and more relaxed afterwards, I have to stress that. But the entire effort, well it is.... Well it makes things very difficult (nurse, P3: 65) 10d). Family meetings get cancelled first. When things get precarious on the unit, family meetings don't take place. And I find this, well, it happens to me too, right, but I think it is a shame (nurse, P1:66) *Staff continuity* 10e) Well, staff continuity is a sensitive topic (several laugh). Because the only thing that distinguishes our NICU is that we don't have any continuity. (physician, P2: 104) 10f). When coordination is lacking, work gets piled up and then it is difficult to collaborate with parents in a way we would like to (nurse, P3: 117)

(+) convergence/(−) divergence.
FINC–NA = Families' Importance in Nursing Care – Nurses' Attitudes Scale.
FNPS = Family Nursing Practice Scale.

walking a tightrope between meeting families' needs and preferences regarding involvement and care for their newborn, and the organizational context and care culture (5c), which required a discussion among team members as well as with families about how to best work together to meet families' needs (5d). As practitioners started to work with families in new ways, they felt constrained by or in conflict with rules that were not necessarily family-centered, such as visitation policy or fixed times for mothers to bring expressed milk to the unit (5e). As they started to bend those rules, they experienced tensions with families and colleagues, and had to justify those restrictions or exceptions.

The *delivery of family systems care at the point of need in consistent and collaborative ways* required nurses and physician to agree upon a collaborative way of holding family meetings together, which was not always easily achieved (6a). Nurses felt insecure in carrying out a family assessment. Therefore, they often left the drawing of a genogram and ecomap to physicians. While practitioners strived to use the new family systems care format for conducting family meetings, which included more open listening and use of therapeutic questions, they also fell back on their old ways of doing things (6b).

Scheduling family meetings was a major challenge in implementing the structures associated with family systems care. Offering family meetings was at odds with the units' busy timetable and lack of suitable rooms. The divergent shifts and schedules of nurses and physicians, together with families' need to meet later in the day made it difficult to arrange meetings. This meant that family meetings were often squeezed into an already tight timetable, and difficult for nurses and physicians to fit into their work routines (6c). Moreover, meeting with families required a time commitment, causing it to compete with other core responsibilities (6d).

Engaging with families when situations were complex, whether due to the family or the illness situation, left practitioners in need of additional learning (6e). Practitioners also stated that they needed better auxiliary structures for psychosocial support, and a broader overview of support services available to young families themselves.

3.3.3. Theme – enabling-limiting factors

Practitioners described enabling and limiting factors in relation to the implementation process. Both nurses and physicians had *experienced team-based educational workshop as supportive*, as it gave them a sense of confidence and sharpened their awareness of the importance of families in the NICU. It was also helpful to learn new skills, such as conducting a family assessment. The fact that the workshop was delivered to nurses and physicians together was considered essential (7a). However, practitioners also felt that the educational content covered too much theory regarding family health and family systems care. They further asserted that the workshop did not provide not enough opportunity to develop skills in working with families and offering systemic interventions, such as how to communicate with and support families in difficult situations (7b), and to learn about culture and spirituality (7c). Some experienced the workshop as a repetition of basic training, and thought that a condensed version would have sufficed. The format of the workshop (three half-days) was experienced as stressful, as they had to first conclude their clinical work and then rush off to the sessions. Nonetheless, the opportunity to review and repeat content covered in previous sessions was considered helpful.

During the training phase of the implementation, practitioners in neonatal care *felt left alone.* Practitioners lacked support and structure for the consolidation of family systems care (8a). High nurse turn-over and workload, as well as changes in project leadership meant that training activities, such as case conferences, reflective practice sessions, or peer feedback occurred more sporadic than intended (8b). Although practitioners engaged in case conferences, which they found useful for learning and consolidating, they stressed that they struggled to keep implementation going. Those playing an active role in supporting implementation felt that they had been insufficiently included in the planning of implementation strategies, and felt ill prepared (8c). In addition, some team members stuck to the old ways of doing things, which left others unsure regarding the team's accountability toward adopting family systems care (8d).

In terms of organizational factors, practitioners regarded the *inter-professional commitment to family systems care implementation* as essential (9a). Both nurses and physicians stated that the family systems care approach had strengthened their collaboration (9b). Practitioners reported that family systems care occurred in those moments in which there was room for maneuvering, both in terms of time and organizational structures. In contrast, *lack of staff capacity* was seen as limiting uptake of family systems care (10a), and had overshadowed their implementation efforts (10b), particularly as implementation occurred in a period during which the units were short-staffed. Insufficient staff capacity meant that practitioners had to make decisions about priorities of care. Family-centered practices, such as supporting bonding (10c) and family meetings (10d) were often omitted when time pressures and workload increased. In addition, lack of staff continuity stifled practitioners' efforts to provide relational family systems care over time (10e). Due to lack of staff continuity and shift work, consistent, collaborative work with families was difficult to actualize (10f) despite an organizational approach to care delivery in which each family was assigned a primary nurse and physician. Overall, despite being approximately eight months into implementation, focus group participants talked about family systems care adoption as a process that was still in its early days.

4. Discussion

Using a mixed method approach, this study investigated nurses' and physicians' experience of shared family systems care implementation in neonatal care, and examined the impact of implementing family systems care on their attitudes towards and skills/reciprocity in engaging with parents and the larger family system. Only a few studies have explicitly focused on family systems care implementation processes or outcomes in the context of family-centered neonatal care (Armstrong et al., 2012; Skene et al., 2019; Weis et al., 2014). In contrast, clinical uptake of family systems care knowledge has been more widely studied, albeit exclusively with nurses (Duhamel et al., 2015; Eggenberger and Sanders, 2016; Svavarsdottir et al., 2015).

As with other implementation studies regarding family systems care, this study found no significant changes in practitioners' attitudes following implementation in the quantitative evaluation (Blöndal et al., 2014; Svavarsdottir et al., 2015). One reason for unchanged attitudes as measured with the FINC–NA might be that study participants already scored high at pre-implementation compared to other nurses working in different clinical areas (Fernandes et al., 2015; Hsiao and Tsai, 2015; Luttik et al., 2017; Naef et al., 2019). During focus groups, practitioners confirmed that involving parents in the care of their baby was an intensification of a family-centered practice rather than something new. Qualitative data did indeed reveal a change in awareness towards the importance of the wider family system in neonatal care, which has also been described in other studies (Axelin et al., 2014; Skene et al., 2019). In that, quantitative and qualitative data diverge somewhat around practitioners' attitudes towards the importance of involving families in the care.

In terms of practice skills, both qualitative and quantitative data revealed increased competencies in working with families. Pre-post comparison demonstrated that practitioners felt more skilled, knowledgeable, confident and satisfied with their clinical work with families, and engaged in more relational reciprocity following the implementation activities. Such an increase in practice skills and reciprocity is consistent with other evaluations of educational interventions used to implement family systems care with nurses (Duhamel et al., 2015; Eggenberger and Sanders, 2016; Martin et al., 2007), which have been found to increase job satisfaction and inter-professional collaboration, and to enhance support and relational partnership with families. Participants in this study described new ways of working with families, such as intentional, relational engagement with parents and other family members over time (convergence with FNPS-NFR). Further examples include creating more opportunities for family participation in the care of their newborn in ways more tailored to parents' preferences and needs, and for supporting families by regular dialogue and strengths-oriented interventions (convergence with FNPS-PA). As such, both qualitative and quantitative findings suggest that practitioners felt better enabled to care for families, and reveal a practice change towards family engagement following the implementation activities.

Research has recognized that adoption of a family-centered philosophy in neonatal care has often been inconsistent, despite family-centeredness being experienced as useful and appropriate for neonatal care (Armstrong et al., 2012; Coyne et al., 2013; Weis et al., 2014). A similar pattern emerged in this study, with some practitioners being actively engaged in family systems care application while experiencing inconsistent use of new family care processes, such as family meetings, by some colleagues. While a collaborative approach to family systems care implementation and delivery was seen as invaluable, the somewhat rigid unit structures (i.e. visitation policy, timetables) and diverging work schedules of nurses and physicians meant that they lacked shared space to offer coordinated, consistent and participatory care to families. Coupled with workload and insufficient staff capacity, family systems care uptake was hindered, and family interventions omitted. A need for more organizational and managerial support over longer periods of time for delivering family systems care became clearly evident

in this study, and has been previously stressed (Coyne et al., 2011; Duhamel et al., 2015). Findings of this study confirm that challenges faced in family systems care implementation are closely linked to organizational issues, such as staff capacity and unit rules and policies. Indeed, the importance of a flexible, receptive and supportive context, which includes a learning care culture, leadership support, and sufficient resources, is key to adopt new knowledge and change practice patterns (Harvey and Kitson, 2016).

No change was discerned between mid- and post-implementation, which suggests that the positive effect on practitioners' practice skills and reciprocity occurred due to the educational workshop. Similar to other studies, practitioners felt the family systems care educational workshop to be useful and beneficial for shared, inter-professional uptake despite some negative feedback on format, duration, content and didactics. However, practitioners identified a need for ongoing support and mentoring to promote full-scale adoption and penetration of family systems care in neonatal care (Galarza-Winton et al., 2013). The need for skilled, ongoing facilitation has been described as the active ingredient to successful practice change (Harvey and Kitson, 2016; Lessard et al., 2016; McCormack et al., 2013). Although practice skills could be maintained following the educational workshop, team-based training activities did not lead to a further strengthening, which was contrary to our expectation. One reason might be that – according to focus group participants – the intended training activities did not take place as often as planned (i.e. case conferences) or not at all (i.e. peer feed-back) due to a lack of implementation support and insufficient staff capacity. A lack of preparedness of those with an active role in supporting implementation and facilitation of the practice change might be another reason.

This study thus suggests that the use of implementation strategies, such as education and training of practitioners and teams alone are insufficient to ensure full adoption of new knowledge and model of care delivery. Attention to the context in which the implementation occurs is also needed. Indeed, the complex interplay of evidence and innovation, context, stakeholders and facilitation is at the core of successful implementation (Harvey and Kitson, 2016; Rycroft-Malone et al., 2013). In addition, proactive and sustained facilitation of a practice change towards participatory family engagement and inclusion in neonatal care over time may be a required core strategy to promote and sustain full adoption of family systems care (McCormack et al., 2013). Future implementation research will need to draw on frameworks, such as the integrated Promoting Action on Research Implementation in Health Services (i-PARIHS), and assess not only implementation outcome and processes, but the role of context in uptake of new knowledge and successful practice change (Diffin et al., 2018; Harvey and Kitson, 2016). More research that draws on complexity science and specific implementation designs (Curran et al., 2012; Greenhalgh and Papoutsi, 2018; Proctor et al., 2011) is necessary to better understand effective family systems care implementation strategies, the role of context, as well as the impact of such implementation efforts on infant/family outcomes and experiences of care.

4.1. Strengths and limitations

The use of a mixed method design enabled a nuanced and complementary understanding of the impact of a family systems care implementation activities on neonatal practitioners' attitudes/skills as well as implementation experiences. The fact that both nurses and physicians could be included, albeit in small numbers, is a strength of this study. The psychometric properties of the measures used are satisfactory, although they have not yet been validated in German. The use of self-report measures, in contrast to observation, denotes a limitation of this study. Data on implementation fidelity were not systematically collected, and follow-up was concluded after eight months, which comprise limitations to this study. Nonetheless, changes could be ascertained over time, and qualitative data provided some insights regarding implementation experience and associated outcomes. Power analysis confirmed the adequacy of the sample size. Four focus groups are considered an adequate sample size to answer the research question around implementation experience (Guest et al., 2017). However, the use of a convenience sample, the lack of randomization and control groups limit the generalizability and transferability of study results. It is very likely that those practitioners already favorable towards family-centeredness were more likely to have participated in follow-up data collection. Moreover, they were older and more experienced; both characteristics that have been associated with more positive attitudes towards family engagement, also in this sample (Hsiao and Tsai, 2015; Luttik et al., 2017; Svavarsdottir et al., 2018). Two of the focus groups included fewer than five persons, arising from short-term cancellation due to workload. Despite these limitations, this study provides valuable insights into family systems care implementation in the context of neonatal care.

5. Conclusions

Participants in this mixed method study described numerous ways in which they applied family systems care in neonatal intensive and intermediate care units following its inter-professional implementation. Pre-post comparison revealed positive effects on skills/reciprocity, but not on attitudes, which is most likely attributable to the educational component of the implementation strategies. However, qualitative data demonstrated a greater awareness for families and more intentional engagement and inclusion of families. Practitioners experienced family systems care implementation and adoption like a wheel that moved forward or stood still on the road towards full adoption, depending on the challenges faced and the predominance of enabling versus limiting organizational and implementation factors.

This study reveals a need for collaborative, inter-professional implementation of family systems care in the context of neonatal care. Successful adoption of family systems care in practice is determined by the extent to which organizational structures and policies are flexible and family-friendly. Staff capacity and continuity also play an essential role in consistent delivery of family systems care. A combination of implementation strategies, such as education, training opportunities, and mentoring offered over time are most likely to enable practitioners and teams to work in partnership with families, and to promote infant and family health and well-being in neonatal care. Attention to the organizational context in which such a practice change towards proactive family engagement, inclusion and support is implemented is also necessary in order to enable practitioners and teams to achieve the full potential of a family systems care approach on neonatal units.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

None.

Acknowledgments

We profoundly appreciate the effort that nurses and physicians working in neonatal care made to find time despite their busy

schedule to participate in this study. We would like to acknowledge Maya Christen who assisted with recruitment. We would like to thank Regula Lanter and Dirk Bassler for supporting the study, and Horst Rettke for his willingness to review the interpretation of the qualitative findings.

References

Aarons, G.A., Fettes, D.L., Sommerfeld, D.H., Palinkas, L.A., 2012. Mixed methods for implementation research: application to evidence-based practice implementation and staff turnover in community-based organizations providing child welfare services. Child Maltreat. 17, 67–79. doi:10.1177/1077559511426908.

Armstrong, E.K., Ball, A.L., Leatherbarrow, J., 2012. Constructing a programme of change to improve the provision of family-centred developmental care on a neonatal unit. Infant 8, 86–90.

Asai, H., 2011. Predictors of nurses' family-centered care practises in the neonatal intensive care unit. Jpn. J. Nurs. Sci. 8, 57–65. doi:10.1111/j.1742-7924.2010.00159.x.

Axelin, A., Ahlqvist-Björkroth, S., Kauppila, W., Boukydis, Z., Lehtonen, L., 2014. Nurses' perspecitves on the close collaboration with parents training program in the NICU. Am. J. Matern. Child Nurs. 39, 260–268. doi:10.1097/NMC.0000000000000061.

Banerjee, J., Aloysius, A., Platonos, K., Deierl, A., 2018. Family centred care and family delivered care – What are we talking about. J. Neonatal Nurs. 24, 8–12. doi:10.1016/j.jnn.2017.11.004.

Bauer, M.S., Damschroder, L., Hagedorn, H., Smith, J., Kilbourne, A.M., 2015. An introduction to implementation science for the non-specialist. BMC Psychol. 3, 32. doi:10.1186/s40359-015-0089-9.

Beaton, D., Bombardier, C., Fuillemin, F., & Ferraz, M.B. (2007). Recommendations for the Cross-Cultural Adaptation of the DASH & QuickDASH Outcome Measures. from Institute for Work and Health http://www.dash.iwh.on.ca/sites/dash/files/downloads/cross_cultural_adaptation_2007.pdf

Bell, J.M., 2011. Relationships: the heart of the matter in family nursing. J. Fam. Nurs. 17, 3–10. doi:10.1177/1074840711398464.

Bell, J.M., 2013. Family nursing is more than than family centred care. J. Fam. Nurs. 19, 411–417. doi:10.1177/1074840713512750.

Bell, J.M., 2014. Knowledge translation in family nursing: gazing into the Promised Land. J. Fam. Nurs. 20, 3–12. doi:10.1177/1074840714521731.

Benzein, E., Johansson, P., Årestedt, K.F., Berg, A., Saveman, B.-I., 2008. Families' importance in nursing care – nurses' attitudes: an instrument development. J. Fam. Nurs. 14, 97–117. doi:10.1177/1074840707312716.

Benzies, K.M., Magill-Evans, J.E., Hayden, K.A., Ballantyne, M., 2013. Key components of early intervention programs for preterm infants and their parents: a systematic review and meta-analysis. BMC Pregnancy Childbirth 13, S10. doi:10.1186/1471-2393-13-s1-s10.

Benzies, K.M., Shah, V., Aziz, K., Lodha, A., Misfeldt, R., 2019. The health care system is making 'too much noise' to provide family-centred care in neonatal intensive care units: perspectives of health care providers and hospital administrators. Intens. Crit. Care Nurs. 50, 44–53. doi:10.1016/j.iccn.2018.05.001.

Blöndal, K., Zoëga, S., Hafsteinsdottir, J.E., Olafsdottir, O.A., Thorvardardottir, A.B., Hafsteinsdottir, S.A., Sveinsdóttir, H., 2014. Attitudes of registered and licensed practical nurses about the importance of families in surgical hospital units: findings from the Landspitali University Hospital Family Nursing Implementation Project. J. Fam. Nurs. 20, 335–375. doi:10.1177/1074840714542875.

Chesla, C.A., 2010. Do family interventions improve health? J. Fam. Nurs. 16, 355–377. doi:10.1177/1074840710383145.

Coyne, I., Murphy, M., Costello, T., O'Neill, C., Donnellan, C., 2013. A survey of nurses' practices and perceptions of family-centered care in Ireland. J. Fam. Nurs. 19, 469–488. doi:10.1177/1074840713508224.

Coyne, I., O'Neill, C., Murphy, M., Costello, T., O'Shea, R., 2011. What does family-centred care mean to nurses and how do they think it could be enhanced in practice. J. Adv. Nurs. 67, 2561–2573. doi:10.1111/j.1365-2648.2011.05768.x.

Creswell, J.W., Plano Clark, V.L., 2011. Designing and Conducting Mixed Method Research. Sage, Thousand Oaks, CA.

Curran, G.M., Bauer, M., Mittman, B., Pyne, J.M., Stetler, C., 2012. Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact. Med. Care 50, 217–226. doi:10.1097/MLR.0b013e3182408812.

Dall'Oglio, I., Mascolo, R., Tiozzo, E., Portanova, A., Fiori, M., Gawronski, O., Latour, J.M., 2019. The current practice of family-centred care in Italian neonatal intensive care units: a multicentre descriptive study. Intens. Crit. Care Nurs. 50, 36–43. doi:10.1016/j.iccn.2018.07.005.

Diffin, J., Ewing, G., Harvey, G., Grande, G., 2018. The influence of context and practitioner attitudes on implementation of person-centered assessment and support for family carers within palliative care. Worldviews Evid.-Based Nurs. 15, 377–385. doi:10.1111/wvn.12323.

Duhamel, F., 2010. Implementing family nursing: how do we translate knowledge into clinical practice? Part II: the evolution of 20 years of teaching, research, and practice to a center of excellence in family nursing. J. Fam. Nurs. 16, 8–25. doi:10.1177/1074840709360208.

Duhamel, F., Dupuis, F., Turcotte, A., Martinez, A.-M., Goudreau, J., 2015. Integrating the illness beliefs model in clinical practice: a family systems nursing knowledge utilization model. J. Fam. Nurs. 21, 322–348. doi:10.1177/1074840715579404.

Eggenberger, S.K., Sanders, M., 2016. A family nursing educational intervention supports nurses and families in an adult intensive care unit. Aust. Crit. Care 29, 217–223. doi:10.1016/j.aucc.2016.09.002.

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., Kyngäs, H., 2014. Qualitative content analysis: a focus on trustworthiness. Sage Open 4, 1–10. doi:10.1177/2158244014522633.

Fernandes, C.S., Pereira Gomes, J.A., Martins, M.M., Pereira Gomes, B., Hisako Takase Gonçalves, L., 2015. The importance of families in nursing care: nurses' attitudes in the hospital environment. Rev. Enferm. Ref. 4, 21–30. doi:10.12707/RIV15007.

Fetters, M.D., Curry, L.A., Creswell, J.W., 2013. Achieving integration in mixed methods designs – principles and practices. Health Serv. Res. 48, 2134–2156. doi:10.1111/1475-6773.12117.

Galarza-Winton, M.E., Dicky, T., Oleary, L., Lee, S.K., Obrien, K., 2013. Implementing family-integrated care in the NICU: educating nurses. Adv. Neonatal Care 13, 335–340. doi:10.1097/ANC.0b013e3182a14cde, 336p.

Gooding, J.S., Cooper, L.G., Blaine, A.I., Franck, L.S., Howse, J.L., Berns, S.D., 2011. Family support and family-centered care in the neonatal intensive care unit: origins, advances, impact. Semin. Perinatol. 35, 20–28. doi:10.1053/j.semperi.2010.10.004.

Graham, I.D., Logan, J., Harrison, M.B., Straus, S.E., Tetroe, J., Caswell, W., Robinson, N., 2006. Lost in knowledge translation: time for a map? J. Contin. Educ. Health Prof. 26, 13–24. doi:10.1002/chp.47.

Graneheim, U.H., Lindgren, B.M., Lundman, B., 2017. Methodological challenges in qualitative content analysis: a discussion paper. Nurse Educ. Today 56, 29–34. doi:10.1016/j.nedt.2017.06.002.

Graneheim, U.H., Lundman, B., 2004. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ. Today 24, 105–112. doi:10.1016/j.nedt.2003.10.001.

Greenhalgh, T., Papoutsi, C., 2018. Studying complexity in health services research: desperately seeking an overdue paradigm shift. BMC Med. 16, 95. doi:10.1186/s12916-018-1089-4.

Guest, G., Namey, E., McKenna, K., 2017. How many focus groups are enough? Building an evidence base for nonprobability sample sizes. Field Methods 29, 3–22. doi:10.1177/1525822x16639015.

Harvey, G., Kitson, A., 2016. PARIHS revisited: From heuristic to integrated framework for the successful implementation of knowledge into practice. Implement Sci. 11, 33. doi:10.1186/s13012-016-0398-2.

Hsiao, C.Y., Tsai, Y.F., 2015. Factors associated with the perception of family nursing practice among mental health nurses in Taiwan. J. Fam. Nurs. 21, 508–528. doi:10.1177/1074840715606543.

Jayasekara, R.S., 2012. Focus groups in nursing research: methodological perspectives. Nurs. Outlook 60, 411–416. doi:10.1016/j.outlook.2012.02.001.

Kaakinen, J.R., Hanson, S.M.H., 2015. Theoretical foundations for the nursing of families. In: Kaakinen, J.R., Coehlo, D.P., Steele, R., Tabacco, A., Hanson, S.M.H. (Eds.), Family Health Care Nursing: Theory, Practice, and Research. F. A. Davis, Philadelphia, PA, pp. 67–104.

Kläusler-Troxler, M., Maier, J., Dietz, U., Zürcher, B., Böhme, U., Stauderacher, D., & Schubert, M. (2015). Thinking Family: Familienzentrierte Akutpflege am Universitätsspital Zürich. Krankenpflege 5/2015.

Kläusler-Troxler M., Petry H., Lanter R., Naef R. Implementing family systems nursing through a participatory, circular knowledge-to-action approach in women's health, Int. J. Pract. Dev. accepted for publication.

Kuo, D.Z., Houtrow, A.J., Arango, P., Kuhlthau, K.A., Simmons, J.M., Neff, J.M., 2012. Family-centered care: current applications and future directions in pediatric health care. Matern. Child Health J. 16, 297–305. doi:10.1007/s10995-011-0751-7.

Lessard, S., Bareil, C., Lalonde, L., Duhamel, F., Hudon, E., Goudreau, J., Lévesque, L., 2016. External facilitators and interprofessional facilitation teams: a qualitative study of their roles in supporting practice change. Implement. Sci. 11, 97. doi:10.1186/s13012-016-0458-7.

Luttik, M.L.A., Goossens, E., Ågren, S., Jaarsma, T., Mårtensson, J., Thompson, D.R., Strömberg, A., 2017. Attitudes of nurses towards family involvement in the care for patients with cardiovascular diseases. Eur. J. Cardiovasc. Nurs. 16, 299–308 doi: 0.1177/1474515116663143.

Macho, P., 2017. Individualized developmental care in the NICU: a concept analysis. Adv. Neonatal Care 17, 162–174. doi:10.1097/anc.0000000000000374.

Martin, J.S., Vincenzi, C., Spirig, R., 2007. Principles and methods of good practice for the translation process for instruments of nursing research and nursing practice [German]. Pflege 20, 157–163. doi:10.1024/1012-5302.20.3.157.

Martire, L.M., Lustig, A.P., Schulz, R., Miller, G.E., Helgeson, V.S., 2004. Is it beneficial to involve a family member? A meta-analysis of psychosocial interventions for chornic illness. Health Psychol. 23, 599–611. doi:10.1037/0278-6133.23.6.599.

McCormack, B., Manley, K., Titchen, A., 2013. Practice Development in Nursing and Healthcare. John Wiley & Sons.

McGrath, J.M., Samra, H.A., Kenner, C., 2011. Family-centered developmental care practices and research: what will the next century bring? J. Perinatal Neonatal Nurs. 25, 165–170. doi:10.1097/JPN.0b013e31821a6706, 166p.

Misto, K., 2018. Nurse perceptions of family nursing during acute hospitalizations of older adult patients. Appl. Nurs. Res. 41, 80–85. doi:10.1016/j.apnr.2018.04.009.

Naef, R., Meier Kaeppeli, B., Lanter, R., & Petry, H. A mixed method evaluation of a family systems care education and training intervention with nurses and midwives in obstetrics and gynecological care. J. Fam. Nurs. accepted for publication.

O'Brien, K., Robson, K., Bracht, M., Cruz, M., Lui, K., Alvaro, R., Hales, D., 2018. Effectiveness of family integrated care in neonatal intensive care units on infant and parent outcomes: a multicentre, multinational, cluster-randomised controlled

trial. Lancet Child Adolesc. Health 2, 245–254. doi:10.1016/S2352-4642(18)30039-7.
O'Brien, K., Bracht, M., Macdonell, K., McBride, T., Robson, K., O'Leary, L., Lee, S.K., 2013. A pilot cohort analytic study of family integrated care in a Canadian neonatal intensive care unit. BMC Pregnancy Childbirth 13, 1–8. doi:10.1186/1471-2393-13-s1-s12.
O'Brien, K., Bracht, M., Robson, K., Ye, X.Y., Mirea, L., Cruz, M., Lee, S.K., 2015. Evaluation of the family integrated care model of neonatal intensive care: a cluster randomized controlled trial in Canada and Australia. BMC Pediatr. 15, 1–9. doi:10.1186/s12887-015-0527-0.
Onwuegbuzie, A.J., Dickinson, W.B., Leech, N.L., Zoran, A.G., 2009. A qualitative framework for collecting and analyzing data in focus group research. Int. J. Qual. Methods 8, 1–21. doi:10.1177/160940690900800301.
Ortenstrand, A., Westrup, B., Brostrom, E.B., Sarman, I., Akerstrom, S., Brune, T., Waldenstrom, U., 2010. The Stockholm neonatal family centered care study: effects on length of stay and infant morbidity. Pediatrics 125, e278–e285. doi:10.1542/peds.2009-1511.
Östlund, U., Persson, C., 2014. Examining family responses to family systems nursing interventions: an integrative review. J. Fam. Nurs. 20, 259–286. doi:10.1177/1074840714542962.
Palinkas, L.A., Aarons, G.A., Horwitz, S., Chamberlain, P., Hurlburt, M., Landsverk, J., 2011. Mixed method designs in implementation research. Adm. Policy Ment. Health 38, 44–53. doi:10.1007/s10488-010-0314-z.
Pallas-Alonso, C.R., Losacco, V., Maraschini, A., Greisen, G., Pierrat, V., Warren, I., Cuttini, M., 2012. Parental involvement and Kangaroo care in European neonatal intensive care units: a policy survey in eight countries. Pediatr. Crit. Care Med. 13, 568–577. doi:10.1097/PCC.0b013e3182417959.
Patton, M.Q., 2014. Qualitative Research and Evaluation Methods: Integrating Theory and Practice, 4th ed. Sage, Thousand Oaks. CA.
Pinelli, J., Saigal, S., Wu, Y.B., Cunningham, C., DiCenso, A., Steele, S., Turner, S., 2008. Patterns of change in family functioning, resources, coping and parental depression in mothers and fathers of sick newborns over the first year of life. J. Neonatal Nurs. 14, 156–165. doi:10.1016/j.jnn.2008.03.015.
Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Hensley, M., 2011. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. Adm. Policy Ment. Health 38, 65–76. doi:10.1007/s10488-010-0319-7.
Ramezani, T., Hadian Shirazi, Z., Sabet Sarvestani, R., Moattari, M., 2014. Family-centered care in neonatal intensive care unit: a concept analysis. Int. J. Commun. Based Nurs. Midwifery 2, 268–278.
Reis, M.D., Rempel, G.R., Scott, S.D., Brady-Fryer, B.A., Van Aerde, J., 2010. Developing nurse/parent relationships in the NICU through negotiated partnership. J. Obstet. Gynecol. Neonatal Nurs. 39, 675–683. doi:10.1111/j.1552-6909.2010.01189.x.
Rycroft-Malone, J., Seers, K., Chandler, J., Hawkes, C.A., Crichton, N., Allen, C., … Strunin, L.J.I.S. (2013). The role of evidence, context, and facilitation in an implementation trial: Implications for the development of the PARIHS framework. Implement Sci 8, 28. doi: 10.1186/1748-5908-8-28
Saveman, B.-I., Benzein, E.G., Engström, Å.H., Årestedt, K., 2011. Refinement and psychometric reevaluation of the instrument: families' importance in nursing care–nurses' attitudes. J. Fam. Nurs. 17, 312–329. doi:10.1177/1074840711415074.
Segers, E., Ockhuijsen, H., Baarendse, P., van Eerden, I., van den Hoogen, A., 2019. The impact of family centred care interventions in a neonatal or paediatric intensive care unit on parents' satisfaction and length of stay: a systematic review. Intens. Crit. Care Nurs. 50, 63–70. doi:10.1016/j.iccn.2018.08.008.
Shields, L., Zhou, H., Pratt, J., Taylor, M., Hunter, J., Pascoe, E., 2012. Family-centred care for hospitalised children aged 0-12 years. Cochrane Datab. Systematic Rev. doi:10.1002/14651858.CD004811.pub3.
Simpson, P., Tarrant, M., 2006. Development of the family nursing practice scale. J. Fam. Nurs. 12, 413–425. doi:10.1177/1074840706290806.
Skene, C., Gerrish, K., Price, F., Pilling, E., Bayliss, P., 2016. Developing family-centred care in a neonatal intensive care unit: an action research study protocol. J. Adv. Nurs. 72, 658–668. doi:10.1111/jan.12863.
Skene, C., Gerrish, K., Price, F., Pilling, E., Bayliss, P., Gillespie, S., 2019. Developing family-centred care in a neonatal intensive care unit: an action research study. Intens. Crit. Care Nurs. 50, 54–62. doi:10.1016/j.iccn.2018.05.006.
Staniszewska, S., Brett, J., Redshaw, M., Hamilton, K., Newburn, M., Jones, N., Taylor, L., 2012. The POPPY study: developing a model of family-centred care for neonatal units. Worldviews Evid.-Based Nurs. 9, 243–255. doi:10.1111/j.1741-6787.2012.00253.x.
Stringer, E.T., 2013. Action Research. Sage, Thousand Oaks.
Svavarsdottir, E.K., Sigurdardottir, A.O., Konradsdottir, E., Stefansdottir, A., Sveinbjarnardottir, E.K., Ketilsdottir, A., Guðmundsdottir, H., 2015. The process of translating family nursing knowledge into clinical practice. J. Nurs. Scholarsh. 47, 5–15. doi:10.1111/jnu.12108.
Svavarsdottir, E.K., Sigurdardottir, A.O., Konradsdottir, E., Tryggvadottir, G.B., 2018. The impact of nursing education and job characteristics on nurse's perceptions of their family nursing practice skills. Scand. J. Caring Sci. doi:10.1111/scs.12573.
Sveinbjarnardottir, E.K., Svavarsdottir, E.K., Saveman, B.I., 2011. Nurses attitudes towards the importance of families in psychiatric care following an educational and training intervention program. J. Psychiatr. Ment. Health Nurs. 18, 895–903. doi:10.1111/j.1365-2850.2011.01744.x.
Swiss Academy of Medical Sciences. (2015). Research with human subjects. from Swiss Academy of Medical Sciences https://www.samw.ch/en/Ethics/Research-ethics.html
Van Riper, M., 2001. Family-provider relationships and well-being in families with preterm infants in the NICU. Heart Lung 30, 74–84. doi:10.1067/mhl.2001.110625.
Vanderveen, J.A., Bassler, D., Robertson, C.M., Kirpalani, H., 2009. Early interventions involving parents to improve neurodevelopmental outcomes of premature infants: a meta-analysis. J. Perinatol. 29, 343–351. doi:10.1038/jp.2008.229.
Weis, J., Zoffmann, V., Egerod, I., 2014. Improved nurse-parent communication in neonatal intensive care unit: evaluation and adjustment of an implementation strategy. J. Clin. Nurs. 23, 3478–3489. doi:10.1111/jocn.12599.
Weis, J., Zoffmann, V., Egerod, I., 2015. Enhancing person-centred communication in NICU: a comparative thematic analysis. Nurs. Crit. Care 20, 287–298. doi:10.1111/nicc.12062.
Wilkinson, S., 2004. Focus group research. In: Silverman, D. (Ed.), Qualitative Research: Theory, Method, and Practice. Sage, London, pp. 177–199.
Wright, L.M., Leahey, M., 1999. Maximizing time, minimizing suffering: the 15-minute (or less) family interview. J. Fam. Nurs. 5, 259–273. doi:10.1177/107484079900500302.
Wright, L.M., Leahey, M., 2013. Nurses and Families: A Guide to Family Assessment and Intervention, sixth ed. F.A. Davies, Philadelphia, PA.
Yu, Y.T., Hsieh, W.S., Hsu, C.H., Lin, Y.J., Lin, C.H., Hsieh, S., Jeng, S.F., 2017. Family-centered care improved neonatal medical and neurobehavioral outcomes in preterm infants: randomized controlled trial. Phys. Ther. 97, 1158–1168. doi:10.1093/ptj/pzx089.
Zhang, W., Creswell, J., 2013. The use of mixing procedure of mixed methods in health services research. Med. Care 51, e51–e57. doi:10.1097/MLR.0b013e31824642fd.