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Factors That Influence Neonatal Nursing Perceptions of Family-Centered Care and Developmental Care Practices

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Abstract

The purpose of this study was to analyze the association of developmental care education and training and neonatal intensive care unit (NICU) developmental team structure in promoting neonatal nursing perception and beliefs of key characteristics of family-centered care (FCC), developmental care, and kangaroo mother care (KMC). A 24-item Likert scale survey of specific perceptions and beliefs of aspects of FCC, KMC, and developmental care characteristics was conducted with 59 neonatal nurses from three distinct level III NICUs in New York City where nurses had undergone recent reeducation and developmental team configuration. There was no difference in nursing beliefs of technical developmental care approaches to infant care at all three sites. Neonatal nurses who were supported by an on-site infant developmental specialist were more likely to have strong beliefs related to the affective areas of FCC and the technique of KMC. FCC and clinical care approaches that include a high level of parental participation such as KMC in the NICU are likely to be facilitated by a comprehensive approach of continuing training as well as a team structure that includes dedicated, specially trained infant developmental specialist personnel.

Keywords

Developmental care; family-centered care; nurse; kangaroo mother care; neonatal intensive care unit; infant developmental specialist

Developmental care is a concept of care practice aimed at promoting improved development and growth of preterm infants in the neonatal intensive care unit (NICU).¹ Family-centered care (FCC) is an integral component of developmental care whereby the family holds an important, even vital role in ensuring the ultimate health and well-being of the infant.² FCC creates a focus where care providers collaborate with parents to engage them in health-promoting parent-infant interactions. Both are widely viewed as important care methods in

the NICU but continue to be an implementation challenge in that setting.^{3,4} FCC ideally maintains that neonatal care incorporates open and honest communication between parents and professionals related to medical care plans as well as possible ethical issues that may arise in the NICU. Neonatal developmental care has evolved as a method of care that acknowledges that infant health depends on neonatal reactions to the environment and that each infant reacts to the environment favorably or unfavorably in an individual manner that depends on gestational and neurodevelopmental maturity.⁵ Developmental care and FCC notably not only improve parental satisfaction but influence the infant's health and well-being long after the NICU stay.^{6–8} As such, NICUs across the country have incorporated aspects of both of these care approaches in their health care delivery to infants and their families. Key aspects of this care approach include attention to environmental infant stressors such as ambient light and sound levels as well as individual infant and family needs including privacy and respect for diversity of cultural or other beliefs. Early parental education and integration in care team activities including kangaroo mother care (KMC), a specific method of care in which the mother is supported to hold her diaperclad infant skin-to-skin upright between her breasts,⁹ as well as other handling techniques set a tone of care that view families as integral to infant health. Expanded and unlimited visitation policies that incorporate inclusiveness in parental and family participation during care team rounds are also key concepts to developmental care.¹⁰

As NICUs incorporate and continue to expand on integrating fully this approach to care in the NICU, several methods can be utilized to begin the implementation process or enhance caregiver education and acceptance of FCC and developmental care. Some methods include on-site training of all multidisciplinary staff including medical, nursing, and other ancillary staff in the fundamentals of developmental care, continuing education of key staff, and/or placement of key leadership individuals in the NICU to facilitate FCC and developmental care. Infant developmental specialists are personnel trained in the concepts of developmental care who are widely becoming incorporated as team facilitators of the NICU developmental care and FCC plan.¹¹ They can play a key role in promoting all components of developmental care in the interdisciplinary team. Much developmental care research focuses on the result of infant outcome after application of this approach. The focus of this study was to assess nursing acceptance and perceptions of developmental care and FCC in the context of specific approaches to NICU team structure and training. Utilizing a questionnaire survey, we sought to evaluate if there were specific FCC training characteristics or NICU developmental team structure influences that would more readily allow for improved neonatal nursing perception and beliefs of key characteristics of FCC and developmental care. Specific areas of interest included the importance of open parental visitation policies, the belief that the NICU environment was important to infant health, and the role of KMC. This study assessed the association of the educational and staffing practices with the level of nursing acceptance of FCC and developmental care in different NICU settings.

MATERIALS AND METHODS

The study was conducted at three hospitals—Bellevue Hospital Center, Tisch Hospital, and Metropolitan Hospital Center—all located in Manhattan, New York City. Hospital identity

was concealed for purposes of the study with each hospital identified by an anonymous letter designation: A, B, or C. All nursing personnel working in the NICU of their respective hospitals were invited to participate in completing an anonymous 24-question survey composed of key FCC and developmental care questions. Specific hospital demographic characteristics as well as nursing training level were collected for the three nursing populations. Data collected included details of each NICU's approach to FCC and developmental care structure and membership of the developmental care team, parental and family visitation policies, and type of recent training in FCC or developmental care to determine if these characteristics would be associated with an impact on the nursing perceptions of FCC and developmental care. Institutional review board approval was obtained to conduct this survey (IRB study # 07–354).

The survey was composed of a 24-item Likert scale questionnaire addressing areas of developmental care practices including four domains: light, sound, handling, and KMC. In addition, specific FCC questions that were adapted from the Institute for Family-Centered Care were included in the survey.¹⁰ Furthermore, details related to the leadership structure for FCC and developmental care were assessed at each site through interview dialogue with NICU directors including NICU visitation policies, developmental team structure and function, as well as team composition of leaders and membership important to ensuring implementation or compliance with FCC and developmental care in the NICU. Data were analyzed for neonatal nursing strength of beliefs related to FCC and developmental care in each NICU. Fisher exact test and one-way analysis of variance were used for statistical analyses of categorical independent variables and continuous variables, respectively.

RESULTS

Hospital and Nursing Demographics

Fifty-nine nurses out of a total of 87 eligible neonatal nurses (68%) from the three hospitals participated in the survey. Fifty-seven percent (20/35) of the nurses were from hospital A, 73% (22/30) from hospital B, and 77% (17/22) from hospital C. All NICUs were level III facilities. Hospitals A and B were also New York State regional perinatal centers accepting outside maternal and infant transports. The number of beds in each NICU was comparable, ranging from 25 to 29 beds. Neonatal nurses from hospital A were younger in age than those in hospitals B and C and had fewer years of work experience compared with hospitals B and C (Table 1).

Hospital FCC and Developmental Care Practices

Descriptions of FCC implemented in the three NICUs are listed in Table 2. All neonatal nurses in the three NICUs had received training in the importance of FCC and developmental care through didactic and leadership seminars. Neonatal nursing staff at hospitals A, B, and C had received training in FCC and implemented developmental care practice in their NICUs for over 5 years. Hospitals A and B had periodic group refresher workshops every 4 to 5 years. In addition, hospitals B and C had recently participated in a yearlong developmental care training program that was associated with reorganization and

reinforcement of their practices. All NICUs had a structured developmental care team. Team rounds in general met monthly; however, each NICU's team structure varied.

Hospital A's developmental team was led by an occupational therapist and members included nursing leadership, physician leadership, and a physical therapist, as well as an infant developmental specialist. Hospital A's team physician leader attended monthly meetings to a varied degree. Team members at hospital B were co-led by a dedicated infant developmental specialist and a nursing staff leader. Members of the team included other nursing staff leaders, staff nurses, physician leaders, infant developmental specialist, social worker, as well as occupational and a physical therapist. Hospital B's dedicated on-site infant developmental care specialist worked with families and caregivers daily. The developmental specialist also functioned as a leader in reinforcing team goals in the NICU, such as facilitating increased caregiver knowledge, the practice of FCC and developmental care, and developing team quality assurance and quality indicator projects. The developmental specialist also provided patient and family support at the infant follow-up program after hospital discharge and reported infant and family outcome to the NICU developmental team group. Hospital B's membership included one to three physician leaders at all meetings when they occurred; however, monthly meetings were not held regularly.

Hospital C's developmental team membership was co-led by nursing leadership and was inclusive of all individuals who could impact the NICU environment including nursing leadership, physician leadership, staff nurse, neonatal nurse practitioners, obstetric nursing leadership, respiratory therapy, safety, radiology, facilities management, and environmental services representatives. Hospital C identified that their monthly meetings were not held regularly but that when held, physician leadership was always present.

FCC Perception by Neonatal Nurses

FCC perception was assessed through a series of eight questions out of the 24 queried in the survey. Four questions focused on beliefs about the nurses' role in FCC, and the remainder focused on the role of the physician or staff in FCC. Responses were notably different within the nursing groups. The question related to the nurses' role in encouraging family visitation to the NICU, a particular hallmark of FCC, found little agreement in nurses' responses among the three hospitals (Fig. 1). None of the nurses in hospital A held strong beliefs related to expectations for family visitation compared with 41% of nurses from hospital B and 12% of nurses from hospital C ($p = 0.002$).

Furthermore, when asked whether nurses should make parents feel welcomed as part of the care team, only 40% of hospital A nurses strongly held this belief compared with 82% of hospital B nurses and 71% of hospital C nurses ($p = 0.017$). In addition, when asked if nurses actually succeeded in making parents feel welcomed in the NICU, none of the nurses felt they succeeded in this practice to the degree that they should, with hospital B (41%) >hospital C (35%) >hospital A (30%). Nurses from hospital A were the closest to match the expected strength of belief with the achievement level in this area.

Similarly, there was hospital variability in nurses' beliefs of the physician's role in making parents feel included as part of the NICU care team. Seventy-seven percent of nurses from hospital B and 71% of hospital C nurses strongly expected physicians to be participants in this fundamental FCC characteristic compared with only 45% of nurses at hospital A, although this difference did not reach significance (Fig. 2).

Interestingly, nurses felt that doctors also fell short in making parents feel welcomed in the NICU. Fifty percent of the nurses at hospital B felt that doctors achieved this goal compared with 15% in hospital A and 12% in hospital C ($p = 0.005$). Finally, a fundamental question related to FCC queried the belief in the goal that conversations with families should be conducted with respect and privacy. Ninety-six percent of nursing respondents at hospital B strongly agreed with this question compared with 80% at hospital A and 77% at hospital C. This difference did not reach significance (Fig. 2).

Perceptions of Developmental Care in the NICU

In evaluating beliefs regarding the general concepts of developmental care, results demonstrated that neonatal nurses at all hospitals held similarly strong beliefs related to the importance of sound, light, and touch parameters of developmental care regardless of type of training, leadership staff, and team staffing. Although nurses at hospital B responded to a greater degree about the importance of the NICU environment in improving infant health compared with the nurses at hospitals A and C, there was no statistical difference in neonatal nursing strong beliefs at any hospital (Fig. 3).

Perceptions of the Importance of KMC

To outline additional insights related to the integration of FCC in developmental care, KMC, a specific parental handling technique, was singled out to address further nursing beliefs of parental involvement in the NICU. KMC was strongly identified by nurses as a technique that benefited infants by 77% of nurses at hospital B, 60% of nurses in hospital A, and 35% of nurses in hospital C ($p = 0.022$; Fig. 4). When queried regarding the nurses' role in supporting KMC, only 55% of hospital B nurses, 50% of hospital A nurses, and 29% of hospital C nurses felt strongly that nurses should be supportive in helping mothers provide KMC to their infants (Fig. 5). Furthermore, when nurses were questioned about their role in discussing KMC with parents, only 33% of hospital B nurses, 30% of hospital A nurses, and 6% of hospital C nurses actually held strong beliefs in discussing KMC as something that families can do with their infants, falling short of the strength of belief that KMC was important to infant outcome (Fig. 5). To assess if physicians' views on KMC might be a factor that impacted nurses' views of KMC, we assessed whether nurses felt that doctors were sympathetic or supportive of KMC technique at the three hospitals. Thirty-six percent (36%) of hospital B nurses, 10% of hospital A nurses, and 6% of hospital C nurses felt that physician colleagues were supportive of KMC (Fig. 5).

DISCUSSION

The present study identifies that full implementation of developmental care practices continues to be challenging in the NICU despite nurses' beliefs of its importance for the

daily care of infant and family. Strength of belief is an important attribute in the implementation of clinical action and is likely to be important in achieving and sustaining clinical behavioral change such as developmental care.^{12,13} No data are available to address the specific process needed to implement or sustain developmental care clinical practice in the NICU; however, extrapolation from the limited available medical literature on sustaining clinical care change suggests that behavioral change activities depend on scope of education as well as leadership and ongoing staff support.^{14,15} Despite differences in NICU team structure, the conceptual understanding of the importance of technical aspects of developmental care was widely and equally held by all nurses, and this belief was sustained to a similar degree through a variety of continuing education formats. Furthermore, nursing acceptance of technical aspects of developmental care such as beliefs in the standards of ambient light, sound levels, and specific handling positions were more easily grasped as important to the improvement of infant outcome.

Sharper differences were noted among the NICUs in the less technical or what is often considered the affective or emotional aspects of developmental care. NICU structure that included an infant developmental care specialist was associated with the greatest strength of nursing belief in the importance of all components of developmental care and FCC in the NICU. Nevertheless, there was a surprisingly low strength of belief level for the core FCC questions “Nurses should always make parents and siblings feel welcomed in the NICU” and “I should encourage visitation,” which 0 to 41% of nurses strongly valued. More medically purposeful questions such as “Nurses should make parents feel included in the care team” yielded stronger belief responses among all nurses, ranging from 40 to 82%, suggesting that nurses do not associate visitation with the value they place on purposeful medical activities with parents.

Nursing perception of KMC, a technique that requires nurses to educate families and form a partnership for ongoing care, also resulted in hospital team differences. Overall nurses’ belief responses that KMC was “important to benefit the infant” ranged from 35 to 77% among the hospitals. In this category, hospital B nurses held the strongest belief levels; however, despite the perceived importance of KMC, the strength of nursing opinion at all NICUs decreased to 29 to 55% when nurses were queried if nurses “should be supportive” of KMC. This opinion decreased further to 6 to 33% when teams were asked if they “actually discuss” KMC with parents. This action level matched nurses’ perceptions of physician “support of KMC” at 6 to 36%. In previous studies, nurses perceived nursing colleagues and medical staff as their greatest barriers to implementation of developmental care.^{4,16,17} These results support the concept that perceptions of physicians’ attitudes can be a barrier to nursing clinical performance. Nurses’ perceptions of physicians’ expectations and performance impacted nurses actions. As such, despite their perceived value of KMC, nurses discussed KMC with parents to the degree they perceived physicians supported the technique.

Despite years of similar training at all hospitals, nurses’ strength of belief in perceived importance of concepts of FCC and KMC care and action upon that belief were discordant. Furthermore, the affective or emotional concepts of developmental care were achieved to the greatest acceptance level by nurses at hospital B, the hospital with an on-site dedicated

infant developmental specialist. Infant developmental specialists are higher-level educators, trained in family psychology as well as developmental needs of the infant. We speculate that the daily engagement of the infant developmental specialist created an opportunity for ongoing education of nurses, social workers, and medical staff as well as provided an adjunct teacher for parental psychosocial support and education in the NICU. An infant specialist or other dedicated individual knowledgeable in the psychological support concepts of FCC, as well as infant developmental care areas, may be important to achieve higher levels of beliefs in affective areas of developmental care for nurses and medical staff.

Although the survey did not address this, additional barriers to consider include individual nursing perception of parental interest, nurses' comfort level in educating diverse parents, or the constraints in real or perceived time needed to provide parental education. Today's NICU nurse is required to provide instruction, training, or teaching to parents of varied backgrounds including those of diverse cultural and educational differences while performing the medical aspects of clinical care. A team that includes a trained knowledgeable family-centered developmental care educator, as well as staff, for parents may provide the synergy needed for parental instruction while simultaneously supporting further nursing and medical education and performance. Parental education and training are rarely addressed in nursing or medical schools, and few outcome measures of competency and success exist. Nevertheless, as we move fully into a family-centered developmental care philosophy in the NICU, there is an expectation that both nurses and medical personnel will have this knowledge skill base to provide organized teaching that results in parents who are proficient in infant care activities as well as satisfied with the clinical care received.

Further studies examining nurses' perceptions of competencies or requirements needed to provide parental training and nursing perceptions related to factors that increase the value of parental visitation in the NICU will be useful in guiding and promoting clinical behavioral changes that increase the value placed on family-centered developmental care in the NICU.

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Figure 1.

The nurse's role in family-centered care questions. Q1: "I should encourage parents and their children to come anytime in the NICU [neonatal intensive care unit]." Q2: "I feel that nurses always make parents feel welcomed in the NICU." Q3: "Nurses should make parents feel included as part of the team in the care of their baby." Percentages are for "strongly agreed" with the statement. * $p < 0.05$ for questions Q1 and Q3.

Figure 2.

Nurses' beliefs of family-centered care questions related to doctors as well as family expectations for respect and privacy. Q1: "I feel that doctors always make parents feel welcomed in the NICU [neonatal intensive care unit]." Q2: "Doctors should make parents feel included as part of the team in the care of their baby." Q3: "Conversations with families should be conducted with respect and privacy." Percentages were for "strongly agreed" with the statement. * $p < 0.05$ for question Q1.

Figure 3.

Nurse beliefs related to developmental care questions. Q1: “Babies have a preference for a low light environment.” Q2: “Sound in the NICU [neonatal intensive care unit] should be kept at a level that is comfortable for the infant.” Q3: “Positioning and handling can make a baby feel comfortable.” Q4: “The NICU environment is important to me.” Percentages are for “strongly agreed” with the statement. No significant differences were found for any question.

Figure 4.

Kangaroo mother care questions. Q1: "I believe kangaroo care is something that a baby enjoys and benefits from." Q2: "Babies are less stressed with kangaroo care." Q3: "Kangaroo mother care is *not* harmful to the baby." Q4: "Kangaroo care should be provided to the baby every day." Percentages were for "strongly agreed" with the statement. * $p < 0.05$ for question Q1 and Q4.

Figure 5.

Kangaroo mother care questions. Q1: "I feel that nurses should be supportive in helping mothers to provide kangaroo care for their baby." Q2: "Kangaroo care is something I discuss with all families that they can do for their baby." Q3: "Doctors are supportive in the use of kangaroo care for babies." Percentages were for "strongly agreed" with the statement.

* $p < 0.05$ for question Q2.

Table 1Demographic Characteristics of Nurses Participants ($n = 59$) by Hospital

Characteristics	Hospital A, $n = 20$ (%)	Hospital B, $n = 22$ (%)	Hospital C, $n = 17$ (%)	p Value
Age (y)	34.4 (7.3) ^{*,†}	43.4 (9.5) [†]	45.5 (9.1) [‡]	0.001 [‡]
Years of work experience	11.1 (7.4) [†]	19.9 (10.4) [†]	17.3 (8.1)	0.008 [‡]

^{*,†} Denotes which groups are statistically different; total n varied because of missing values.

[‡] One-way analysis of variance.

Results are mean (standard deviation).

Table 2

Characteristics of Family-Centered Care in the Three Neonatal Intensive Care Units

Main Characteristics	Hospital A	Hospital B	Hospital C
Level III NICU	Yes	Yes	Yes
Number of beds	29	25	26
Family-centered guidelines			
Written developmental care goals/mission	No	Yes	No
Parental visitation policy			
Parental visitation	24/7 except change of shift 7–8 A.M./P.M.	24/7 and grandparents	24/7 except 1–3 P.M. and 5–7 P.M.
Restrictions of sibling and other family	After 12 P.M., two at bedside	Yes 11 A.M.–8 P.M., siblings	Two at bedside
Developmental team	Yes	Yes	Yes
Team mission statement	No	Yes	No
Developmental team leader	OT	RN and MD	RN
Team membership includes staff nurses	No	Yes	Yes
Team meeting times	Regular monthly meetings	Monthly not regular	Monthly not regular
Team membership includes external NICU leaders such as respiratory, radiology, facilities, or environmental services	No	No	Yes
Dedicated infant developmental specialist	No	Yes	No
Recent developmental care training for all nurses within year of survey?	Yes	Yes	Yes

NICU, neonatal intensive care unit; OT, occupational therapist; RN, register nurse; MD, medical doctor.