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Psychometric Validation of the Family Nurse Caring Belief Scale in a Neonatal Nursing Population

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PhD in Nursing Program

PSYCHOMETRIC VALIDATION OF THE FAMILY NURSE CARING BELIEF SCALE IN A NEONATAL NURSING POPULATION

a dissertation

by

EILEEN P. MAGRI

Submitted in partial fulfillment of the requirements

for the degree of

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The Dissertation of EILEEN P. MAGRI

Entitled: Psychometric Validation of the Family Nurse Caring Belief Scale in a Neonatal Nursing Population

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ABSTRACT

Statement of the Problem

Many studies have explored the concept of family-centered care (FCC) as the framework in which the nurse recognizes and incorporates the family into the care of the patient. Implementation of FCC in the Neonatal Intensive Care Unit (NICU) has not been clearly or consistently described in the literature and is often included with Pediatric Intensive Care Units (PICU). The Family Nurse Caring Belief Scale (FNCBS) was developed to measure nurses' beliefs regarding provision of family-sensitive care to families in crisis that incorporate concepts important to care for a family unit. Initial psychometric evaluation of the FNCBS was tested on a sample of NICU and PICU nurses. Considering the differences between NICU and PICU, the beliefs of the neonatal nurse towards the family as a unit in the unique NICU setting may differ from those of nurses working in the PICU setting.

Method

Registered nurses who work in NICU and are members of the professional organization, the Association of Women's Health, Obstetrics and Neonatal Nurses (AWHONN) were recruited for this study. Neonatal nurses with less than one year experience were excluded. Neonatal nurses (1,580) were contacted via e-mail address by AWHONN. The invitation included the purpose of the study, importance of their participation and assurance of anonymity. Consent included an explanation of the study, risks, and benefits. An e-mail/web address link was provided to enable participants to respond to the survey electronically, therefore implying consent. Prior to conducting

confirmatory factor analysis (CFA), a factor analysis was conducted on the new sample data, replicating the original principal components analysis. CFA of the 25-item FNCBS, using the factor structure based on the original exploratory principal components analysis, was used to test that the constructs are reliably measured and to determine whether the individual constructs are in fact different from each other. Goodness-of-fit statistics were used to evaluate model fit. The chi-square test of model fit, comparative fit index (CFI) and Tucker-Lewis index (TLI) evaluated the fit of the model by examining the baseline comparisons and is dependent on the average size of the correlations. Root mean square of error approximation (RMSEA) and the standardized root mean square residual (SRMR) analyzed the discrepancy between the hypothesized model and the population covariance matrix. The "Working with Families" questionnaire was used to measure convergent and discriminant validity with the FNCBS.

Results

Confirmatory factor analysis (CFA) examined the factor structure of the FNCBS using the NICU nurse sample recruited for this study. Goodness-of-fit statistics assessed how well the model fit the data. The chi-square test determined overall model fit, however, is sensitive to sample size. Comparative fit index (CFI) and Tucker-Lewis index (TLI) were both <.9 therefore, neither of these indices indicated good fit. The root mean square of error approximation (RMSEA) of the sample data is >.06 and the standardized root mean square residual (SRMR) of the sample data is >.08 and, therefore, the data did not demonstrate good fit. In addition, the factor correlations between the four latent variables were weak. This suggests there is no parsimony and the sample data with neonatal nurses did not fit the model.

Conclusion

The Family Nurse Caring Belief Scale (FNCBS) was not psychometrically validated with the population of neonatal nurses and this study was unable to strengthen the construct validity of the FNCBS.

DEDICATION

This dissertation is dedicated to my beautiful daughters, Cristina, Caitlin and Colleen. May they always follow their dreams and excel to their greatest ability. They are truly my motivation and my heroines.

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CHAPTER 1

INTRODUCTION

Premature birth continues to be an important health issue in the United States. According to the March of Dimes (2013), one in nine babies, or nearly 500,000, is born preterm every year in the United States despite a global campaign to reduce preterm births. For expectant parents, this statistic has major implications. The highly technical environment of the neonatal intensive care unit (NICU) is daunting for both staff caring for preterm babies and their parents. The fragility of each premature infant and uncertainty of outcome creates an underlying stressor for everyone involved in the care of the infant. Most new parents awaiting the birth of their child are unprepared for what awaits them in the NICU. The parents of NICU infants are thrust into a situation that is frequently unplanned, highly stressful and complex in terms of the medical care these infants require. Having an infant in the NICU creates a crisis situation for the family. The needs of the parents are often not an initial priority for the medical team and, unless acknowledged, can potentially affect the parent's ability to cope and adapt to their infant's illness (Fegran, Fagermoen & Helseth, 2008; Fegren & Helseth, 2009; McAllister & Dionne, 2006).

Neonatal nursing is a unique specialty requiring skill and knowledge which relate not only to the care of the infant but the care of the family as well. Neonatal nurses must be highly skilled in all aspects of care provided: clinical judgment, assessment skills and the ability to be the infant's advocate. Neonatal nurses must balance the highly technical environment of the NICU with the psychosocial needs of the infant and family. Building

a therapeutic relationship with the parents of the infant is important for the nurse to provide support and care to the family. It is critical that the nurse recognize not only the infant as the patient, but also the infant-parent triad as a unit.

Family-centered care (FCC) is a care delivery model that incorporates a partnership between families and providers when caring for the patient (Frazier, Frazier, & Warren, 2010). FCC is based on the philosophy that recognizes the child's family as pivotal in their care and views families and professionals as equal members of the care team. Although FCC has been promoted as an important service model in healthcare delivery to optimize outcomes for children and families, empirical evidence of the effectiveness of this model is lacking. A basic principle of FCC is that the family is considered a whole unit when planning care. According to Shields, Mamun, Pereira, O'Nions, and Chaney (2011), staff attitudes regarding working with children and working with the parents should bear no difference, however, recent research in both developed and developing countries reveal staff prefer working with children over their parents. Failure by nurses to recognize the family as a pivotal member of the care team may interfere with the ability to fully implement FCC in the NICU.

Statement of the Problem

Many studies have explored the concept of FCC as the framework in which the nurse recognizes and incorporates the family into the care of the patient. Implementation of FCC in the NICU has not been clearly or consistently described in the literature and is often included with Pediatric Intensive Care Units (PICU). Based on this author's clinical experience and observations over the course of 35 years as a staff nurse, Pediatric

Clinical Nurse Specialist and Director of Nursing for maternal-child health, there is a difference in how nurses incorporate and implement FCC in the NICU and PICU. Although both environments care for children and their parents, the uniqueness of the NICU requires separate investigation.

As early as the 1950s, Bowlby (1958) described attachment and exploratory behaviors as a basic control system for child behavior. Bowlby's "attachment theory" (1969), for example, highlighted, the importance of maternal presence to a child's mental health. Research has since suggested that the relationship between mother and child begins not at birth, but during pregnancy, with a woman's psychological preparation to become a mother (Rubin, 1976). When the infant requires admission to the NICU, the mother and infant are separated, interfering with maternal-infant bonding. This disruption creates the difference between families cared for in the NICU and PICU.

According to Kearvell and Grant (2008), hospitalization and infant illness interrupts the natural attachment process between mother and infant creating stress for the entire family. Many mothers struggle with limitations to their maternal role. Early contact between mother and child is critical to initiate their relationship. Mehler et al. (2011) identified early contact, within three hours of birth, as the "sensitive period" being critical to development attachment behaviors in very low birth weight (VLBW) infants. This can be difficult to achieve based on infant or maternal condition. Separation of mothers and infants in the NICU disrupts maternal-infant attachment. Mothers cannot respond to their infant's cues which is the basis for the formulation of physical and emotional interactions that foster attachment. Having an infant in the NICU is often

described by mothers as emotional chaos. In addition to the separation, the unfamiliar environment of the NICU restricts the natural process of attachment often relegating parents to the role of spectators. Kearvell and Grant (2008) further identified failure on the part of nurses to support maternal involvement in the care of their infant affected the mother's ability to attach to the infant. There was concern among nurses that maternal presence disrupted work flow and interfered with medical requirements and procedures within the NICU.

Baker and McGrath (2011) conducted a review of the literature to identify the current science related to maternal-infant synchrony and concluded that the dynamic, timed relationship benefits both mother and infant. Synchrony reflects an appropriate fit between maternal and infant behavior that develops from responsive and sensitive mothering and fosters infant attachment and ultimately social, emotional and self-regulatory growth and trust. In premature infants, the synchronization is interrupted due to the immature neurodevelopment of the infant, which requires the mother to work harder to receive feedback and cues from her baby. Studies have suggested prematurity affects synchronicity, but have not identified a link between synchrony and maternal-role attainment. Feldman (2012) further described the postpartum behavior of mothers in regard to connecting with their newborns and the ability to synchronize their behaviors with their newborn, such as gazing at their infant's face, vocalizations, positive affect, and affectionate touch. The ability of the mother to engage in these behaviors with her premature infant may be prohibited based on the infant's fragility and the NICU environment.

In contrast to the NICU, the PICU environment, although equally technologically challenging, is less restrictive and more conducive to parental presence. Disruption of parental attachment, although important, is less of a concern with a child, who is already a member of a family unit, than it is for a neonate hospitalized since birth. For those children who have been home, parental attachment has been further developed and parent's knowledge of the child's physical, social and behavioral characteristics has been established. Corlett and Twycross (2006) reviewed the literature published in the last 15 years regarding nurses' negotiating with parents and the level of participation parents were permitted in the care of their child. Parents in the PICU expect to be involved with their child's care and decisions regarding their care. They are the true experts on their child's behaviors and responses.

The literature revealed nurses often negotiated with parents regarding what care they could participate in and what care the nurse deemed inappropriate for the parents to provide. Parents of children admitted to the PICU, described losing control of their normal parental role and authority despite being ardent advocates for their child. Tomlinson and Harbaugh (2004) identified that family boundary ambiguity in the PICU creates uncertainty for families and their caretaking role when shared with the health care team. There must be a shared common goal between the family and the health care team in the provision of care to the critically-ill child.

Acknowledgment by the nursing staff of the importance of the family to the recovery of the child, how the illness impacts the entire family and implementation of FCC is important in the PICU. For the premature infant in the NICU, FCC is equally

critical yet different in that, maternal-attachment is in a much earlier stage than with families of the PICU children. This creates a challenge for the NICU nurse to establish a therapeutic relationship with the infant-parent triad as a unit.

Few studies have thoroughly explored the phenomenon of FCC from the perspective of the NICU nurse in relation to the ability to recognize the family as the patient. The major focus of neonatal nursing is not only to care for the infant but foster maternal-infant attachment, establish a therapeutic relationship with the parents and prepare the parents to eventually take their infant home.

Exploring the beliefs of the NICU nurse in relation to recognizing the family and the patient as a unit, should provide knowledge for nurses to identify and support those characteristics that are receptive to emerging family needs (Meiers, Tomlinson & Peden-McAlpine, 2007). The Family Nurse Caring Belief Scale (FNCBS) (Appendix A) was developed to measure nurses' beliefs regarding provision of family-sensitive care to families in crisis that incorporated concepts important to care for a family unit. Every family with an infant admitted to the NICU is a family in crisis. The FNCBS had been tested in samples which combined NICU and PICU nurses. Considering the differences between NICU and PICU, the beliefs of the neonatal nurse towards the family as a unit in the unique NICU setting may differ from those of nurses working in the PICU setting.

Purpose and Research Question

The FNCBS measured nurse attitudes regarding provision of family-sensitive care to families in crisis, defined as intentional interactivity, situation sensitivity, and sensitive attention to a holistic family nursing practice (Meiers et al., 2007). Initial psychometric

properties were established with a sample of neonatal and pediatric intensive care nurses (n=163) selected from the membership of the American Association of Critical- Care Nurses (AACN). The sample was comprised of 22.8% (n=37) NICU nurses and 62.7% (n=101) PICU nurses as well as 4.9% (n=8) who identified themselves as both NICU and PICU nurses and those who identified themselves as other 4.9% (n=8) based on reported work environment. An exploratory factor analysis revealed a four factor structure: ethical caring in an empathic milieu (ethical caring practices), obligated receptivity to collaborative practice in which the family directly influences nursing practice (orientation to family), advocating for the child in the context of the family (child advocacy) and dimensions of supporting the family members in normalizing their role, such as decision making, planning and coordinating care (normalizing milieu).

The purpose of this study was to psychometrically validate and strengthen the construct validity of the FNCBS in a sample of neonatal nurses with a confirmatory factor analysis (CFA) of the 25-item instrument, using the factor structure based on the original exploratory principal components analysis. Convergent validity, according to DeVon et al. (2007), is a correspondence between constructs that are theoretically similar. The "Working with Families" questionnaire, a semantic differential tool (Shields et al., 2011) that measured health professionals' attitudes to working with children and working with parents of hospitalized children, was used to measure convergent validity with the FNCBS. The "Working with Families" questionnaire has been shown to be a valid and reliable instrument. The research question that guided the collection and analysis of data was: How well does the Family Nurse Caring Belief Scale (FNCBS)

measure neonatal nurses' attitudes regarding provision of family-sensitive care to families in crisis?

Significance of Study

Family-sensitive care is a construct that according to Tomlinson, Thomlinson, Peden-McAlpine and Kirschbaum (2002) clarified the philosophy of FCC. Tomlinson et al. (2002) describe family-sensitive care as the nurse's ability to be receptive to family experience and responsive to emerging family needs. The FNCBS focused on the underpinnings of family-sensitive care to elicit the nurses' beliefs and sensitivity regarding the immediate emotional, role and practical demands of the family in crisis. Based on Watson's theory of human caring, the FNCBS seeks to assess nurses' attitudes to provide family-sensitive care in a stressful environment.

The FNCBS is an instrument that has potential for evaluating nurses' beliefs related to caring for the family as a unit. The authors conducted a factor analysis which revealed a four factor structure: ethical caring practices; orientation to family; child advocacy and normalizing milieu. The authors identified the need for further testing to establish construct validity. Therefore, conducting confirmatory factor analysis with the FNCBS can potentially strengthen the instrument for future use within nursing by identifying NICU nurse attitudes regarding the ability to provide family-sensitive care to families in crisis. An instrument such as the FNCBS would be useful in the acute care setting to evaluate nurses' beliefs and their ability to integrate family needs into their practice.

Summary

Neonatal nursing is a unique specialty that requires the nurse to be skillful in a highly technical environment. The philosophy of FCC provides a framework in which the neonatal nurse can incorporate the parents as a member of the care team. The FNCBS is an instrument that measures the construct of family-sensitive care, providing clarity to FCC as a care delivery model that specifically supports families in crisis. The challenge to nursing practice is the ability of the nurse to acknowledge the level of importance of family-sensitive care and the recognition of the infant-parent triad as the unit in need of nursing care. Establishing construct validity with a sample of NICU nurses may strengthen this instrument for use in future research.

CHAPTER 2

REVIEW OF THE LITERATURE

Family-centered care (FCC) is a recognized philosophy of care that is based on a partnership between health care providers and families of patients. The Institute for Patient and Family-Centered Care located in Bethesda, Maryland, defined the core concepts of FCC as respect and dignity; information sharing; participation and collaboration (Institute for Patient and Family-Centered Care, 2010). Although considered an ideal care delivery model, implementation of FCC is inconsistent and difficult. Shields (2010) challenged FCC as a care delivery model that makes a difference to a child and family's health and suggested there is no rigorous evidence which validated the effectiveness of FCC. Harrison's seminal work (1993) served as the basis of the principles ("The Principles") for family-centered neonatal care. In response to letters and telephone calls from parents of babies treated in neonatal units, a panel of neonatal experts and parents with the experience of having a child in the NICU convened to discuss impediments and obstacles which produced undue frustration for families. The resulting draft document, titled "The Principles", served as the basis for constructive, open dialogue on how to best provide FCC in the NICU. Two decades later, some frustrations still exist.

Staff attitudes and beliefs, the physical environment and unit culture of the NICU have been identified as factors which inhibit the ability to effectively implement and practice FCC (Cooper et al., 2007). A concept analysis of FCC in the NICU by Malusky (2005) clarified the concept to promote better understanding of FCC as more than an

abstract idea and to assist NICU nurses to broaden the scope of practice at the bedside. Malusky (2005) described the attributes of FCC in the NICU as respectful coalition or partnership, open communication, recognition of family strengths, family as caregivers and experts and recognizing individuality and diversity of families. Conversely, failure to engage families in a respectful partnership with mutually agreed upon goals can leave parents frightened and confused regarding the care of their infant.

The following review of the literature provides an overview of FCC and implementation challenges, parental perceptions and staff perceptions of FCC in the NICU, influence of the physical environment and unit culture on FCC in the NICU. The FNCBS, an instrument that measured nurses' attitudes regarding the provision of family-sensitive care is also described.

Family-Centered Care Overview and Implementation Challenges

Family-centered care (FCC) has been identified as the ideal care delivery model for the NICU. Historically, FCC was a natural phenomenon, although unnamed, when infants were born in the home and supported by the mother and family members, not the medical community. As technology advanced, home births became less frequent and moved to the hospital setting. Physicians and nursing staff became the authority on the care of the newborn, leaving parents with a minor role. In the last two decades, there has been a shift to incorporate FCC into the NICU setting to support the family but implementation remains difficult. Gooding et al. (2011) examined the research and current evidence supporting FCC in the NICU and concluded that, although there are

hospital NICUs that have incorporated some of the components of FCC, few randomized-controlled studies related to FCC practices or models of care exist.

Griffin (2006) conducted a review of the literature to identify challenges to effective implementation of FCC in the NICU. Griffin reported that NICU facility design, restriction of parental presence and staff communication competency can contribute to ineffective implementation of FCC principles. Based on this literature review, single-infant rooms were recommended to foster a more conducive environment that supports patient confidentiality and family comfort, prevent hospital-acquired infections and improve communication between staff and parents. Encouraging parental presence and eliminating limited visiting were other improvements the author identified as necessary. According to Griffin, it is common practice for parents to be asked to leave the NICU for inter-shift hand-off, rounds, procedures and emergencies greatly reducing the time parents can spend at the bedside with their infant, even in the most progressive NICUs. Furthermore, staff communication skills can vary. The nurse is the primary provider of communication to parents regarding the progress and condition of their infant. Nurses, who do not communicate effectively, despite clinical expertise, can impact the parents' feelings of self-confidence, connectedness and sense of control. Griffin recommends education programs geared towards NICU nurses to teach and support the nurses' communication skills and relationship building with families in their care.

In order to assess the effectiveness of FCC, methods of measurement have been developed related to staff and family perceptions of FCC. Recent systematic reviews of

FCC conducted by Shields, Pratt, Davis and Hunter (2007) sought to assess family-centered models of care compared to standard models of care and the effect on hospitalized children (up to age 12 years, including premature infants) and families. The authors searched for randomized controlled trials, (RCT), quasi-randomized controlled trials and controlled before and after studies (CBA) to compare FCC with traditional models of care in the hospital setting. Studies were evaluated using a modified rating scale based on a validated tool. No studies met inclusion criteria, therefore no analysis was done. The authors concluded that there is a lack of high quality quantitative research and suggested much more rigorous research is needed. An update of the systematic review by Shields et al. (2012) revealed only one study that met inclusion criteria. This study was an unpublished RCT with a sample of 288 children following tonsillectomy in a care-by-parent unit. This review focused on children age 0-12 years and excluded premature infants. The authors' conclusions in 2012 were consistent with the findings in 2007; there continues to be a lack of rigorous quantitative research studies regarding the effects of FCC on hospitalized children.

In a cross-sectional pilot study with convenience samples in three hospitals in northeast England, Aggarwal et al. (2009) tested the content, reliability, validity, applicability and ease of use of two questionnaires; the Shields and Tanner questionnaires that had been developed to assess the perceptions of FCC by parents and staff. According to Aggarwal et al. (2009) it is widely known that perceptions held about FCC by both parents and staff caring for hospitalized children affect the implementation of FCC. Content validity was assessed by an expert panel of health professionals and

parents who had experienced the hospitalization of a child, both groups deemed the content to be relevant. Factor analysis or principal components analysis was not conducted due to the small sample size (n=34 parents and n=50 staff). Cronbach's alpha indicated the questionnaires were reliable; the Tanner questionnaire revealed an α of .72 for the parents and an α of .79 for the staff and the Shields semantic differential scale, which later became the "Working with Families" questionnaire, yielded an α of .8. As a pilot study, few conclusions could be drawn regarding practice implications. However, effectiveness of the Shields semantic differential scale for use in future research was established. Additional testing of psychometric properties of the Shields semantic differential scale is necessary to generate further confidence in the tool as a useful measure of parent and staff perceptions of FCC.

Shields et al. (2011) used the "Working with Families" questionnaire to measure staff attitudes of 210 nurses, physicians, allied health professional and ancillary staff to working with children and working with parents of hospitalized children using a semantic differential instrument. Exploratory data analysis was used to examine scores for both the child and the parents. Parametric (ANOVA) and non-parametric tests (Wilcoxon Signed-Rank Test and median test) were applied to examine differences between them. The study findings revealed that health care professionals' mean attitude scores were significantly higher for working with children than for working with parents. This suggested to the authors that FCC was not being implemented effectively, because if it were, there would be no difference in staff attitudes between working with children or their parents.

Parent Perceptions of FCC in the NICU

There is a growing body of literature which acknowledges the benefits of FCC in the NICU to support parent attachment, coping and confidence. Effective and consistent communication by all members of the medical team, parental involvement in care of the infant and decision-making has been identified as important aspects. However, when FCC is not effectively implemented, parental perceptions regarding the care they receive in the NICU are not always positive (Cockcroft, 2012; McGrath, 2001; Petersen, Cohen & Parsons, 2004).

A grounded theory study of women's experiences of mothering in the nursery was conducted by Fenwick, Barclay, and Schmied (2001). Twenty-eight mothers with infants in the NICU participated and over 60 hours of interview data were analyzed using constant comparative analysis. "Struggling to Mother" was the framework identified by the participants specifically related to inhibitive nursing actions. Nurses were described as authoritarian, protective of the infant and "the expert" in the care of the infant and maintained control over the care of the infant. When the interaction with the nurse was positive and facilitated the mother being the primary caregiver, the actions closely paralleled the principles of FCC. More often than not, the interactions were negative with the mothers describing feelings of anger, helplessness and detachment fostered by nursing actions that seemed designed to keep the mother at a distance from her infant. The mothers described simultaneous struggles; trying to develop a strong sense of themselves as mothers and interacting with the nursing staff in a way to foster a relationship with the nurse. The mother-nurse relationship was identified as the key

component to the mothers' ability to successfully transition to the role of mother. The staff nurse's beliefs regarding nursing's role in the relationship was a finding that was determined by the authors to be influential and contributory in the mother's perception of their relationship.

An ethnographic study by Hurst (2001) conducted in a tertiary care NICU, chronicled 12 mothers' experiences and the strategic actions they developed and employed to safeguard their infant to obtain optimal outcomes. From observations of the mothers' behavior, supported by open-ended interviews, the researchers identified "Vigilant Watching Over" as the actions taken to safeguard their baby, increase their authority in the NICU and build supportive relationships with the staff and other mothers in the NICU. The mothers' experiences in the NICU described by the authors did not support that a trusting therapeutic relationship had been established with staff members in the NICU. The mothers' fear of retaliation by staff members was a major barrier to FCC. More importantly, the need for information, continuity of care and safety for their babies outweighed the risk they perceived for themselves related to collaboration with the staff.

Swartz (2005) used a meta-ethnographic approach to synthesize the findings of qualitative studies on parenting preterm infants which included; mothers, fathers and grandparents. Five themes emerged from the meta-synthesis regarding the process of parenting a preterm infant: adapting to risk, protecting fragility, preserving the family, compensating for the past and cautiously affirming the future. Parents described their feelings of vulnerability, grief and the struggle to preserve their family. The implications

for the future health and well-being of the infant overshadowed any opportunity for normalcy.

Heerman, Wilson, and Wilhelm (2005) conducted a qualitative study designed to focus on the mother's developing relationship with her infant in the NICU and how nursing affected that relationship. Fifteen mothers with infants in a level III NICU participated. The authors used Spradley's domain analysis approach and identified four domains that described the mothers' development as a parent in the NICU. The four domains, (a) focus, from NICU to baby; (b) ownership, from their baby to my baby; (c) caregiving, from passive to active; and (d) voice, from silence to advocacy described a continuum mothers move through to attain a true partnership with the nursing staff caring for their infant. The difficulty with consistent application of this supportive environment is that it requires the nurse to focus on relationship building with the parent in addition to providing the highly valued technological care and expertise expected of a NICU nurse.

In a quasi-experimental repeated measure study with a tri-ethnic sample of mothers (Caucasian, African-American and Hispanic) of 154 very low birth weight (VLBW) infants in two NICUs, Penticuff and Arheart (2005) found that mothers who received educational instruction regarding their infant's condition had fewer unrealistic concerns, episodes of uncertainty, decision conflict and more satisfaction with decision input and shared decision making. The findings of this study supported the effectiveness of educational interventions that increased the mother's understanding of the infant's condition and improved parent-professional collaboration, which is an underpinning of FCC. Those mothers who received routine interaction with nursing staff instead of this

educational instruction reported higher anxiety and concerns regarding their infant's condition and did not feel supported or included by the staff in making decisions about the care of their infant.

Although acknowledged by the staff to be important participants in the care of their infants, fathers' experiences have not been extensively studied, however, a study by Arockiasamy, Holsti, and Albersheim (2008) focused solely on fathers. Often, the father has the earliest or initial contact with the infant due to the mother's condition or location at another hospital. Fathers may encounter stressors in a way that is different from mothers. They need to balance competing demands, such as other children at home or work requirements. The father's first concern is often their partner's condition, making bonding with the infant a secondary priority. The overarching finding by the authors was that the fathers experienced a sense of lack of control and inability to fulfill the role of protector. This study highlighted the need for better understanding by the healthcare team of the fathers' perspective to develop specific support strategies to address their needs.

A systematic review of the literature conducted by Obeidat, Bond, and Callister (2009) explored and described parental experiences in the NICU. Fourteen qualitative studies from 1998-2008 met inclusion criteria and were reviewed for themes. The findings were analyzed from the parents' perspective and identified the feelings of loss, grief and inability to develop attachment to their infant. The authors determined that nursing had a major role in reducing parents' feelings of inadequacy by providing emotional support, communicating clearly and creating an environment conducive to

information sharing. These findings suggested that implementation of FCC by the nurse through communication and supportive care could build parental confidence. The limitations of this study were identified as lack of cultural diversity within the populations of the fourteen qualitative studies reviewed. The authors recommended a grounded theory approach to understand the process parents go through during their infants' NICU course and concluded a need for further research to understand and describe parental experience related to FCC.

Another qualitative interpretive descriptive study described negotiated partnerships as a key factor to developing nurse/parent relationships in the NICU and increasing parent satisfaction in the NICU (Reis, Rempel, Scott, Brady-Fryer, & Van Aerde, 2010). Parents identified in the ideal setting, nurses fulfilling the roles of a teacher, guardian and facilitator. The authors defined the nurse/parent relationship as negotiated partnerships with both "artful" actions and "observable" actions on the part of nurses within the context of perceptive engagement, cautious guidance and subtle presence. The model of negotiated partnerships which emerged from the study served as a baseline for future work related to nurse/parent relationships. The authors concluded the bedside nurse was the most influential factor affecting the experience of parents with newborns in the NICU.

The Family-Centered Care Scale (FCCS) developed by Curley, Hunsberger and Harris (2013) was designed to capture parents' experiences with family-centered nursing care in the pediatric acute care setting. The FCCS is based on relationship building between nurses and parents characterized by mutuality. Initial psychometric evaluation

of the FCCS has shown evidence of reliability and validity among parents with hospitalized children. Although developed specifically for the pediatric setting, this instrument may be helpful to provide insight to nurses regarding parents' perception of the care they receive as a family and could be tested with the NICU parent population.

Staff Perceptions of FCC in the NICU

The literature suggests that there is discrepancy between staff perception and knowledge of FCC and what is actually carried out in the practice setting. Although the philosophy of FCC is incorporated into hospital policies and procedures, in actual practice, routine hospital practices do not usually apply the elements of FCC. Application of the principles of FCC is staff member dependent; this may create inconsistent and contradictory practice. In a quantitative comparative descriptive study with 483 respondents from three Canadian pediatric hospitals participating, Bruce et al. (2002) found that although the pediatric healthcare professionals (nurses, physicians, child life specialists, social workers and ancillary staff) had a reasonable understanding of the elements needed to practice FCC, they did not consistently apply the elements in their actual practice. The component of FCC that was least agreed upon and least practiced by the respondents was parent/professional collaboration. Collaboration between the healthcare team and parents is a key element in the FCC model. The respondents in this study perceived the most important aspect to be emotional and financial support of the family, which although important, does not necessarily incorporate the family into decision making.

A study by Petersen, Cohen, and Parsons (2004) supported the findings of Bruce et al. (2002) in their descriptive study of 62 nurses working in NICU and PICU in an acute hospital setting that found a discrepancy between what is accepted as FCC and what is practiced. Furthermore, nurses in this study believed that although involving the family is essential, dealing with families interfered with the care of the patient, created job stress or was not part of their job.

In a qualitative study, Higman and Shaw (2008) explored the attitudes of neonatal nurses within the context of FCC. Although supportive of FCC in the NICU, the participants in the study found it difficult to include families in the care of their infant and cited lack of structural support (inadequate staffing), which resulted in the nurse being task-driven. Lack of confidence in their own knowledge of neonatal nursing (experience) and minimal formal training in the elements of FCC were identified as barriers. There was also a sense of self-preservation in the participants who avoided becoming "too attached" to the families. This study noted that PICU nurses were better equipped to practice FCC than NICU nurses which were attributed to the length of hospitalization of the infant in the NICU.

Latour, Hazelzet, Duivenvoorden, and van Goudoever (2010) conducted exploratory and descriptive studies designed as a 3-round Delphi method for nurses and physicians and an exploratory survey for parents to identify satisfaction with neonatal care and explore similarities and differences between parents and healthcare professionals. The findings of this study supported the gap in staffs' knowledge of parents' perceptions. This study identified that NICU nurses do not consistently work

according to FCC practices and reported attitude toward the provision of FCC as a key finding.

Asai (2011) further explored predictors of nurses' FCC practice in a quantitative cross-sectional study in 30 NICUs in Japan with 30 nurse managers and 710 NICU nurses participating. The study focused on facility characteristics of the NICU and nurses' practice and beliefs regarding FCC. Asai found that the major predictors of nurses' FCC practices were self-efficacy, defined as the nurses' beliefs in their capability to practice FCC and hospital policies, including family visitation and family participation in the infant's care. The author concluded that educational programs for nurses are needed to improve their self-efficacy and organizational efforts must include staff support for increased communication between families and staff in order for implementation of FCC to be effective. When organizational structure and policies do not support FCC, nursing practice is affected.

Nurse-parent interactions and the role of the nurse involving parents in the care of their infant in the NICU are important to supporting the care of a family. Merighi, de Jesus, Santin, and de Oliveira (2011) conducted a qualitative study using social phenomenology with seven participants, to ascertain how nurses perceived the experience of care provided to newborns in the presence of parents. The study reported that overwhelming positive nurse-parent interaction particularly supported infant-parent bonding, communication between nurses and parents and preparation of the parents to care for their infant at home. However, the nurses described difficulty with parental presence during emergencies and when performing invasive and painful procedures. This

identified the emotional toll that caring for critically-ill infants have on nurses. Despite the difficulty nurses may encounter practicing FCC in the NICU, nurses as professionals have an ethical responsibility to develop collaborative partnerships with parents (Fegren, Helseth, & Slettebø, 2006).

Influence of the Care Environment and Unit Culture on FCC in the NICU

Creating a care environment that supports the practice of FCC in the NICU is not an easy task. Having a philosophy and vision is not enough if these simply reside on paper; the philosophy and vision must be a dynamic force that drives the effective application of the key elements of FCC. In the last decade, NICUs have been challenged to incorporate FCC as a standard of care. This required intensive self-reflection and evaluation of current practices to fully implement FCC in the NICU.

In a quasi-experimental post-only design study by Cooper et al. (2007), eight out of 23 March of Dimes (MOD) NICU Family Support (NFS) sites were examined. Non-randomly selected fully-implemented sites and comparison sites (partially or not yet implemented) were studied to determine if staff believed implementation of the NFS program had improved overall care, promoted FCC and contributed to added value of their NICU and if parents were provided with the support they required. The authors found there was a positive shift in staff attitude towards FCC policies and initiatives and parents expressed feelings of being more respected and involved in their baby's care at the fully implemented sites. The NFS is a national program, supported by the MOD, designed to promote FCC in the NICU.

In 2000, a quality improvement project with 11 NICU centers was initiated. The Vermont Oxford Network Neonatal Intensive Care Unit Quality Improvement Collaborative Year 2000 (NIC/Q 2000) sought to review common practices within the NICU setting that were contradictory to FCC. The goal of the Collaborative was to develop potentially better practices (PBP) for improving FCC in NICU. The initial evaluation strategy of the 11 centers established baseline improvement goals in the areas of parent-reported outcomes, and clinical outcomes in length of stay and feeding practices. There were common areas across all 11 centers which focused on the vision and philosophy, unit culture, family participation in care and inclusion of families as advisors. The areas that presented the most challenges were changes to unit culture which sought to recognize parents as collaborators or partners, not visitors. This required changes to the visitation policy that allowed for more liberal practices of welcoming parents and families at any time. This was a difficult concept for most staff as there were concerns that additional visitors would interfere with workflow and increase infection rates. Successes related to the four common areas across the Collaborative were measured with parent satisfaction surveys. Further work from the Collaborative incorporated 63 PBP into seven clinical phases and developed a web-based FCC map to support and educate the healthcare team. Improvement in family satisfaction in the delivery of FCC was reported after implementation of the FCC map (Cisneros Moore, Coker, DuBuisson, Swett, & Edwards, 2003; Dunn, Reilly, Johnston, Hoopes, & Abraham, 2006; Johnston et al., 2006; Saunders, Abraham, Crosby, Thomas, & Edwards, 2003). The work of the 11 centers through the NIC/Q 2000 collaborative and 23 centers

through the MOD NFS program demonstrated implementation of FCC in the NICU was a complex, multi-faceted endeavor which required dedication of the organization to fully embed FCC and change the culture of the NICU.

Facility layout and space that does or does not support family presence is another aspect of the complexity for FCC practice in the NICU. A traditional, large, open room NICU design with many newborns side-by-side is not conducive to privacy, parental bonding or family teaching. The highly technological environment is noisy, over stimulating and designed to meet the needs of staff, not the needs of families (Beck, Weis, Greisen, Andersen, & Hoffman, 2009). According to Bruns and Klein (2005) evaluation of practices in a 45-bed level III NICU in the Midwest determined that several recommendations from parents remained incomplete despite "successful" implementation of FCC in this NICU, particularly in the areas of unit space and communication with the healthcare team.

In an RCT conducted in two NICUs with 366 infants born before 37 weeks gestation, Örtenstrand et al. (2010) found those infants in the NICU with facilities for the parents to stay continuously at the bedside had a lower length of stay and reduced risk of bronchopulmonary dysplasia (BPD). This study further supported the need for appropriate space in the NICU to support parental presence at the bedside.

Understanding the culture of the NICU is important to determine how change can be effected to implement the elements of FCC consistently. How things are done in a NICU depends on the relationships between team members and what behaviors are accepted or not. When the values and beliefs of the team are not clearly defined and

aligned, tension among the staff is not uncommon. The culture of a NICU has major influence on the staff behavior, patient care, and the ability to practice and implement FCC effectively. In a study of staff satisfaction by Wilson, McCormack, and Ives (2005), survey results of 27 staff members indicated that unit cohesiveness, teamwork, and shared beliefs were positive. However, the authors reported that follow-up participant observations and qualitative interviews contradicted the results reported by the staff. The qualitative results suggested the unit culture was judgmental, self-focused, and subservient and there was disharmony among team members. Practice was guided by rituals and very task-driven. The staff attitude with regard to FCC was centered on the nurse, not the family. The staff was in control of the infant and maintained "ownership" of the baby. This study demonstrated the role culture can play in implementing change and the challenges supporting the practice of FCC.

Family Nurse Caring Belief Scale

The Family Nurse Caring Belief Scale (Appendix A) was developed to measure nurse attitudes regarding the provision of family-sensitive care to families in crisis in response to a need identified by Meiers, Tomlinson and Peden-McAlpine (2007) who had developed and tested the psychometric properties of the instrument. Classical test theory was used to construct a discriminative, summative instrument to measure nurse attitudes. The instrument development was conducted in two phases. Phase I focused on instrument construction including item development, with construct validity determined by a panel of six experts and pilot testing with a sample of PICU nurses. The items were designed to operationally define nurse attitudes within the theoretical construct of family-

sensitive care defined by the authors as, "nurses' influences on the family system and the meanings families derive from such influences in critical illness" (p. 488). A concept analysis of caring, presence and nurturance between nurse and family was used to generate initial items. Additionally, a literature review of previous studies of family stress in the PICU as well as items selected and adapted from the Caring Behaviors Inventory (CBI) developed by Wolf, Giardino, Osborne and Ambrose (1994), a reliable and valid instrument, provided the sources to the authors for item development. Watson's transpersonal caring theory is the theoretical framework of the CBI. Content validity for the FNCBS, was evaluated by a panel of six experts, two pediatric intensive care clinical specialists, two doctoral students in family nursing, and two nurse scholars with expertise in theoretical constructs, family nursing science and measurement. The experts' results of the Content Validity Index (CVI) for item development ranged from .50-.67 for item retention. There were no NICU experts on the panel. The FNCBS was pilot tested on a convenience sample of 60 PICU nurses to evaluate initial content validity. Based on the pilot study, two additional items were added to address responsibility of nursing care based on the meaning of the child's illness to the family and varying care based on the family's perceived situation. This phase resulted in a 27-item instrument that measured nurses' attitudes regarding the provision of family-sensitive care. According to the authors, scoring is summative; higher scores indicated nurse attitudes that are most family sensitive; lower scores indicated nurse attitudes that are least oriented toward family-sensitive care. The authors reported the score range of the FNCBS is 27-135. A 5-point scale was chosen to allow for a neutral midpoint, which

the authors have concluded demonstrated a lack of support for family-sensitive care. Nine questions were reverse-coded. There is disagreement among researchers on the necessity of a midpoint option response on scales and suggest reliability may be weakened when a midpoint option is selected. Additionally, reverse coding of items can also reduce reliability (Weems & Onwuegbuzie, 2001).

Phase II encompassed the initial psychometric evaluation of the FNCBS with a randomly selected sample of 720 from the 2,329 NICU and PICU nurses drawn from the membership list of the American Association of Critical-Care Nurses (AACN) in 2002. There were 163 respondents which the authors reported as a 14% return rate (*sic*); and they determined this to be an adequate sample. The sample was comprised of 22.8% (n=37) NICU nurses and 62.7% (n=101) PICU nurses as well as 4.9% (n=8) who identified themselves as both NICU and PICU nurses and those who identified themselves as other 4.9% (n=8) based on reported work environment. There were no exclusion criteria. Reliability was reported as α=.81 and Guttman split half reliability of r= .78. Concurrent validity was tested with two other instruments, the CBI and the Family Caring Scale (FCS), which was reported in a paper these authors presented at the meeting of the Workgroup of European Nurse Researchers, in Reykjavik, Iceland in May, 2002. No further information is available on the development or psychometric properties of the FCS. Concurrent validity values obtained with the FNCBS and the CBI (r=.38) and FCS (r=.57) indicated the CBI did not measure related constructs. The authors did identify this as a limitation of their study.

Construct validity was evaluated with a factor analysis. Items were considered to load on a factor if the factor loading was >.4. Twenty five items loaded on four factors accounting for 43.3% of the variance. The emerging factors were evaluated by Meiers and Tomlinson and labeled based on the content of the items as follows: (a) Factor I, Ethical Caring Practices; (b) Factor II, Orientation to Family; (c) Factor III, Child Advocacy; and (d) Factor IV, Normalizing Milieu. The resulting 25-item FNCBS derived from the piloted 27-item FNCBS is the version that was used in the present study to estimate the validity evidence of the FNCBS in a sample of only NICU nurses.

Summary

The literature supports the difficulty and challenges related to implementing FCC in the NICU. Although FCC has been identified as the standard of care for the NICU, staff attitudes, beliefs and the physical environment of the NICU have been identified as factors which inhibit the ability to effectively implement and practice FCC. Large scale quality improvement projects across the country have demonstrated success; however, implementation requires organizational commitment for change. Staff attitudes and beliefs regarding FCC practices were identified as the largest barrier. Determining the attitudes and beliefs of the nursing staff was the first step to evaluating the culture of the unit and affect the changes needed to effectively implement FCC. The literature supports the need for further psychometric validation of the FNCBS specific to NICU nurses and the subsequent disruption of infant-parent bonding in the NICU when the nurse fails to recognize the infant-parent triad as the patient.

CHAPTER 3

METHODS

This chapter will describe how the purpose of the study was addressed through the use of data collection and data analysis procedures. The purpose of this study was to validate the Family Nurse Caring Belief Scale (FNCBS) with a confirmatory factor analysis (CFA) of the 25-item instrument, using the factor structure based on the original exploratory principal components analysis with a population of neonatal nurses. The FNCBS is an instrument designed to measure nurse attitudes regarding provision of family-sensitive care to families in crisis. This validation process included an evaluation of the psychometric properties of the FNCBS with a neonatal nurse population, further examination of the results of factor analysis procedures and also an investigation of convergent validity through comparisons with the "Working with Families" semantic differential questionnaire.

Participants

The participants in this study consisted of a sample of registered nurses who work in neonatal intensive care units (NICU) and are members of the professional organization, the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN). The intent of inviting the entire neonatal nurse membership of AWHONN, rather than using a convenience sample, was to obtain a response from an extensive national membership which would be representative of the population of NICU nurses.

Sample Size and Power Estimation

According to Myers, Ahn, and Jin (2011), there is disagreement among researchers regarding rules of thumb methodology to determine minimum sample size and power estimates for CFA and structural equation modeling (SEM). The various methods identified by the authors includes: $N \geq 200$, ratio of N to the number of variables in the model (p), $N/q \geq 5$, and an inverse relationship between construct reliability and adequate N to calculate power estimates. The common rule for adequate sample size for power in CFA described by Myers et al. (2011), $N \geq 200$, was used for this study. There were 221 neonatal nurses who responded to the study electronically. There were eight respondents who had less than one year of NICU experience and therefore did not meet inclusion criteria. A total of 213 responses were used for analysis.

Content and Properties of Instrumentation

There were three instruments used in this study which measured: (1) NICU nurse attitudes regarding provision of family-sensitive care to families in crisis; (2) characteristics of NICU nurses (demographics) and (3) NICU nurse attitudes towards working with children and working with parents of hospitalized children.

1. The Family Nurse Caring Belief Scale (FNCBS) is a 25-item instrument with 5-point Likert scaling (1=strongly disagree, 5=strongly agree). Scoring is summative; higher scores indicated nurse attitudes that are more family sensitive; lower scores indicated nurse attitudes that are less oriented toward family-sensitive care. Nine questions were reverse-coded (Meiers et al., 2007) (Appendix A).

2. NICU Nurses Demographic Questionnaire replicated the demographics collected in the sample of the original study: age, gender, race, highest nursing degree, workplace and formal education in family nursing. The authors did not define what family nursing in formal education encompassed. In addition, marital status, number of children, membership in a professional nursing organization, national certification held and length of time working as a NICU nurse were also included for the current study (Appendix C).

3. The "Working with Families" questionnaire is a two question instrument, "I find working with children…" and "I find working with parents of hospitalized children…" with a scoring system using semantic differentials. Scoring is summative, the highest and most positive score possible is 5 and the lowest and least positive is 1. The "Working with Families" questionnaire has been shown to be a valid and reliable instrument (Shields et al., 2011) (Appendix D).

Human Subject Protection

Approval to conduct the study was obtained through the Molloy College Institutional Review Board. Exempt status was requested and granted as data were gathered through use of a survey and anonymous demographic tool (Appendix E). A cover letter was provided which included all of the information necessary to meet the required criteria for ethical consent, however, consent to participate in the study was implied based on the participant's choice to submit a completed survey electronically. The risks to the participants were identified as minimal with the ability to contribute to

the nursing profession by adding to the scientific knowledge of the discipline described as the benefit (Appendix F).

Selection Criteria and Recruitment of Subjects

Registered nurses who work in neonatal intensive care units and are members of the professional organization, AWHONN were recruited for this study. The intent of inviting the entire neonatal nurse membership of AWHONN, rather than using a convenience sample, was to obtain a response from an extensive national membership to be more representative of the population of NICU nurses. Neonatal nurses with less than one year experience were excluded due to their limited clinical knowledge of neonatal nursing that may make it more difficult to assimilate the complex constructs of family-sensitive care into their practice.

Procedures

Membership lists provided by AWHONN were used to contact all members who are neonatal nurses (1,580) via e-mail address. The survey was sent by AWHONN using an email blast service. The "From" line appeared to recipients as: AWHONN@Inform.net. The body of the e-mail sent by AWHONN contained an invitation that included the purpose of the study, importance of their participation and assurance of anonymity. An e-mail/web address link was provided to enable participants to respond to the survey electronically (Appendix G) using Snap Webhost, a survey management and analysis system used to publish questionnaires, manage responses and conduct online analyses of the results. Researcher contact information for questions or concerns was also included. When the survey was accessed through the link provided, an

explanation of the study, risks, benefits and other information required for ethical consent was available for review. Consent was implied by virtue of response to the survey. Survey distribution was targeted for January, 2014. The initial e-mail to potential participants was sent by AWHONN on January 27, 2014 with two subsequent follow-up reminders sent February 10 and February 24, 2014, respectively. Data collection continued until the required minimum sample size of 200 was received. The survey was officially closed on March 7, 2014 after 221 responses were received.

Design

The research question that guided the collection and analysis of data was: How well does the Family Nurse Caring Belief Scale (FNCBS) measure neonatal nurses' attitudes regarding provision of family-sensitive care to families in crisis? The question posed by this study was to examine the construct validity of the FNCBS by exploring the beliefs and attitudes of neonatal nurses through the factor structure of the FNCBS.

The purpose of factor analysis is to determine the underlying dimensions or components of a variable. Confirmatory factor analysis (CFA), a structural equation modeling (SEM) technique, assesses the construct validity of an instrument and helps establish the relationships between variables. CFA allows estimates of the extent to which variation in an observed measure is influenced by the trait being measured, the method used and error (Rindskopf, 1992). SEM is an appropriate technique for assessing a model that defines latent variables and is particularly valuable in personality assessment research. Additionally, an advantage of CFA is the ability to test the hypothesis model of the FNCBS and the four factor structures previously based on the original exploratory

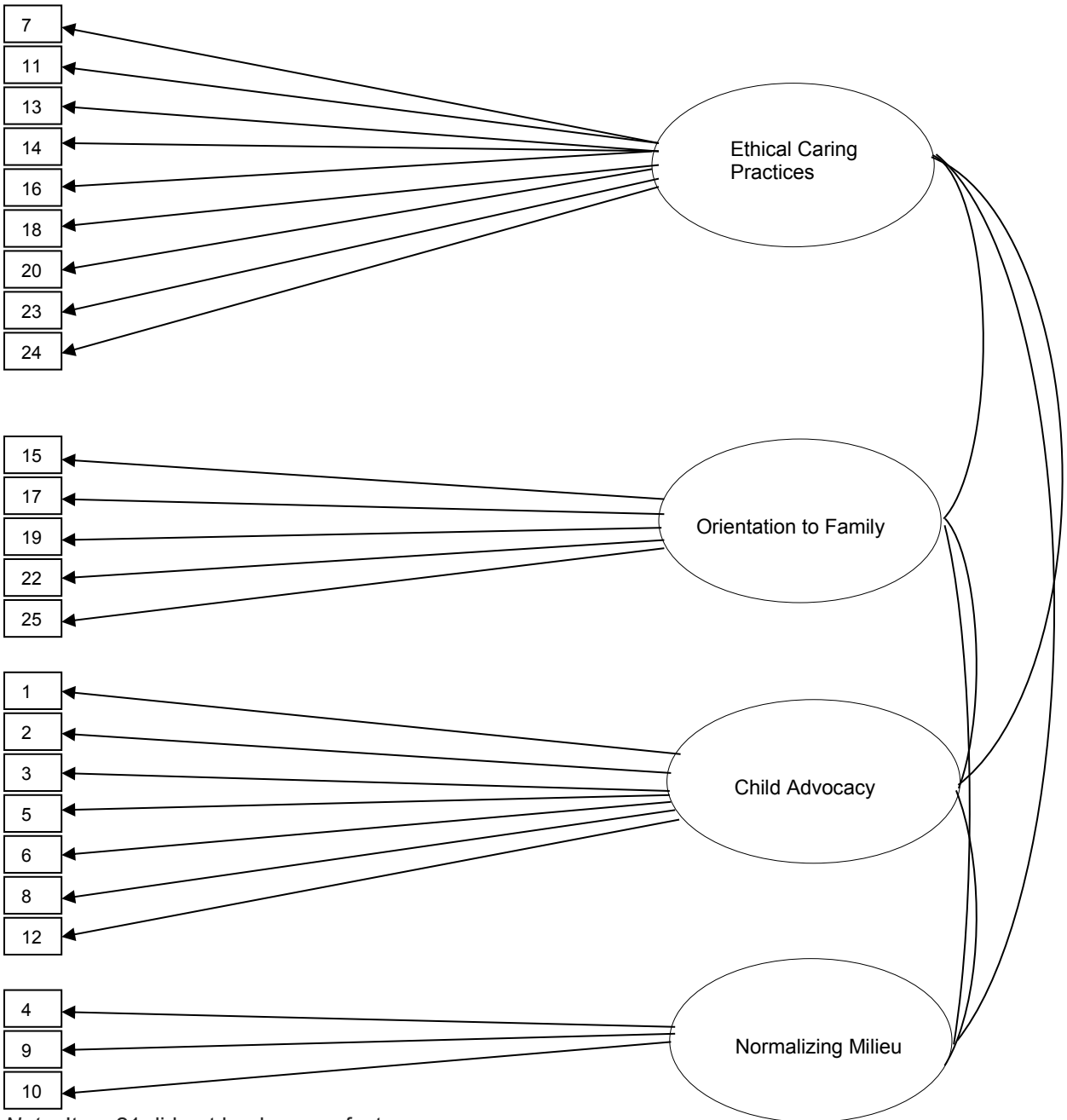
principal components analysis and confirm the factor structure with new data (Ullman, 2006).

Hypothesized Model of FNCBS

In the original study conducted by Meiers et al. (2007), the exploratory factor analysis of the FNCBS revealed a four factor structure. The four factors were ethical caring in an empathic milieu (ethical caring practices), obligated receptivity to collaborative practice in which the family directly influences nursing practice (orientation to family), advocating for the child in the context of the family (child advocacy) and dimensions of supporting the family members in normalizing their role, such as decision making, planning and coordinating care (normalizing milieu) (Meiers et al., 2007).

In SEM diagrams, a heuristic is that latent (unobserved) variables are represented by ovals and measured (observed) variables are represented by squares (Rindskopf, 1992). Also, straight lines with single arrows represent hypothesized relationships between the variables, while curved lines between the constructs and indicators are unanalyzed relationships and have no indicated direction (Waltz, Strickland, & Lenz, 2010). The latent variables are hypothesized constructs that cannot be directly measured but rather are inferred through the items on the instrument. Based on prior research by Meiers et al. (2007) the hypothesized model included 25 observed (measured) variables and four unobserved (latent) variables or factors. The observed variables include nine items measuring ethical caring practices, five items measuring orientation to family,

Figure 1
Hypothesized Model



Note. Item 21 did not load on any factor.

seven items measuring child advocacy, and three items measuring normalizing milieu. There is one item that did not load on any factor (Figure 1).

The intent of CFA is to confirm the factor structure that was identified in the theoretical model and the initial exploratory factor analysis and to then determine how well the defined measurement model fits the observed data. The constructs of interest include the FNCBS, the instrument that is a composite of four factors: ethical caring practices (ECP), orientation to family (OF), child advocacy (CA) and normalizing milieu (NM). The descriptions of the variables are listed in Table 1. A hypothesized model of nurses' attitudes regarding the provision of family-sensitive care to families in crisis was analyzed using confirmatory factor analysis (CFA) to validate and potentially strengthen construct validity of the FNCBS.

Data Analysis Procedure

The FNCBS measured nurses' attitudes regarding the provision of family-sensitive care to families in crisis. The sample data were collected from neonatal nurses, who are members of AWHONN. Prior to conducting CFA, a factor analysis was conducted on the new sample data. Using PASW 22 statistical software, 25 observed variables were included. The initial factor analysis replicated the original principal components analysis conducted with varimax rotation. The varimax rotation method is desirable for instrument development, seeking to create subscales that are independent (Aroian & Norris, 2005). A second factor analysis was conducted with an oblimin rotation which assumed the factors were correlated.

Table 1

Variable Descriptions and Definitions

Variable	Description	Definition
Family Nurse Caring Belief Scale	Unobserved (latent) variable	Composite of four factors: ethical caring practices, orientation to family, child advocacy and normalizing milieu.
Ethical caring practices	Unobserved (latent) variable	Composite of the 9 items (observed variables) from the FNCBS (1=complete disagreement and 5=complete agreement): (ECP 7) advocating for the family is not an essential aspect of my professional responsibility (reverse scored), (ECP 11) it is important for me to establish a relationship with the family so they can trust me with their child, (ECP 13) I am not as responsible for the care of the family as for the patient (reverse scored), (ECP 14) the physical care of the child is more important than understanding the experience of the family (ECP 16) sensitivity toward the family's perceptions is not an important aspect of my job, (reverse scored), (ECP18) my relationship with the family has no important therapeutic effects on them (reverse scored), (ECP 20) it is not essential for the nurse to seek the family's input when making decisions about care (reverse scored), (ECP 23) I am not obligated to take care of the family (reverse scored), (ECP 24) explaining technology to the family will not increase their involvement in the child's care (reverse scored).
Orientation to family	Unobserved (latent) variable	Composite of the 5 items (observed variables) from the FNCBS (1=complete disagreement and 5=complete agreement): (OF 15) it is my responsibility to base nursing care on what the child's illness means to the family, (OF 17) I need to support the family to stay involved with their child, (OF 19) my attitude towards the family influences my understanding of the family situation in PICU/NICU, (OF 22) the family has the right to say what is important to them in planning care, (OF 25) it is my responsibility to change my plan of care over time to incorporate what the family feels is right for them given their perspective of the situation with the child.
Child advocacy	Unobserved (latent) variable	Composite of the 7 items (observed variables) from the FNCBS (1=complete disagreement and 5=complete agreement): (CA 1) the family has the right to know their child is being treated as normally as possible within the confines of the illness and technology, (CA 2) I should be as honest as possible in keeping the family of the critically ill child informed about the things they need to know, (CA 3) when the nurse utilizes the family as a significant source of information, the child's care is improved, (CA 5) it is my responsibility to provide for family well-being when they are in the hospital with their child, (CA 6) no matter how sick the child is, he or she needs to be treated as unique and individual, (CA 8) I should try to help parents be active in caring for their child, (CA 12) describing the typical projected course of events for the child helps the family in planning for family activities.

Table 1 (cont.)
Variable Descriptions and Definitions

Variable	Description	Definition
Normalizing Milieu	Unobserved (latent) variable	Composite of the 3 items (observed variables) from the FNCBS (1=complete disagreement and 5=complete agreement): (NM 4) it is not my responsibility to help the family plan the care day so they can coordinate it around other family activities (reverse scored), (NM 9) explaining technology to the family will help them make better decisions, (NM 10) it is not an essential part of care in the PICU/NICU for the nurse to be available to the family (reverse scored).
	Unobserved (latent) variable	Item 21: even when parents are not at the hospital, they should be able to count on updates regarding their child's condition

Note. ECP= Ethical Caring Practices; OF= Orientation to Family; CA= Child Advocacy; NM= Normalizing Milieu; FNCBS= Family Nurse Caring Belief Scale

CFA is appropriate in situations where the aspects of a set of variables are already known from previous research. It is not the intention of CFA to determine a set of variables or find the pattern of factor loadings but rather, to determine if the factor loading structure fits a new sample (Carmines & Zeller, 1979). It is possible to measure the goodness-of-fit of the factor model and to statistically test the adequacy of the model fit (Albright & Park, 2009).

CFA was used to test that the constructs are reliably measured and to determine whether the individual constructs are in fact different from each other. Reliability identifies whether or not a particular variable consistently measures the true underlying construct that it says it measures (DeVon et al., 2007).

Goodness-of-fit statistics were used to evaluate model fit. The chi-square test of model fit is a classic goodness-of-fit measure however; it is sensitive to sample size. Comparative fit index (CFI) and Tucker-Lewis index (TLI) evaluates the fit of the model by examining the baseline comparisons and is dependent on the average size of the correlations. Root mean square of error approximation (RMSEA) and the standardized

root mean square residual (SRMR) analyzed the discrepancy between the hypothesized model and the population covariance matrix (Lattin, Carroll, & Green, 2003). The data obtained from the CFA had been analyzed using Mplus version 4.1 statistical software (Muthén & Muthén, 1998-2010).

The "Working with Families" questionnaire (Shields et al., 2011) was used to measure convergent validity with the FNCBS. Convergent validity determines the extent to which different measures of the same construct correlate with one another. Pearson product moment correlations statistical test was done. The accepted standard to determine convergent validity is substantial and high: Pearson's $r \geq .45$ (DeVon et al., 2007). The "Working with Families" questionnaire measures health professional's attitudes towards working with children and working with parents of hospitalized children. The instrument has been shown to be reliable and valid with consistent cronbach's alpha scores of >.8. Tested in both developed and developing countries, the "Working with Families" questionnaire has shown that health professionals view working with children more positively than working with their parents. The cronbach's alpha was .91 with the sample data of neonatal nurses used in this study.

Discriminant validity was also evaluated with the FNCBS and "Working with Families" questionnaire and was measured with Pearson's $r \leq .45$. Discriminant validity measures an instrument's capability to differentiate between measures that are theoretically different.

Summary

This chapter describes how the purpose of the study is addressed through the use of data collection and data analysis procedures. The intent of the design and methodology descriptions is to provide the specific steps taken in this study so that others may independently evaluate the study implications and replicate the study.

CHAPTER 4

FINDINGS

This chapter discusses the statistical analyses findings. These findings have been organized into six sections; sample description, factor analysis of the sample data, confirmatory factor analysis (CFA), reliability, convergent and discriminant validity and supplemental analyses. The CFA section examined the factor structure of the Family Nurse Caring Belief Scale using the sample of NICU nurses recruited for this study. Additional follow up factor analysis examined the factor structure based on the findings of the CFA with deleted items which did not respond as expected. The findings of the statistical analyses are described both in the narrative and reported in tables.

Sample Description

There were 221 neonatal nurses who responded to the study electronically through the SNAP webhost. The sample included participants who were members of the Association of Women's Health and Obstetric and Neonatal Nurses (AWHONN) and worked as registered professional nurses in neonatal intensive care units (NICU) across the United States. The demographic sample data were evaluated for basic assumptions of normality and symmetry. The mean (112.25), median (113), skewness (-.022) and kurtosis (-1.196) of the scores on the FNCBS of the respondents, indicated the data distribution did not violate the assumptions of normality (Duffy & Jacobsen, 2005).

Of the 221 respondents, eight did not meet the inclusion criteria requiring at least one year of NICU experience. There was one missing data point in the demographic results in the marital status category. The resulting sample (n = 213) was comprised of

210 female and three male participants. The age of the participants ranged from 24-70 years with a mean age of 49.14 (*SD*=11.3). Participants identified their ethnicity as follows: 91.5% (n=195) Caucasian, 2.8% (n=6) as Hispanic, 2.3% (n=5) as African American, 2.3% (n=5) as Asian and all other groups 0.9% (n=2). Those not married accounted for 14.1% (n=30), married 72.3% (n=154) and widowed or divorced accounted for 13.1% (n=28). Parental status as reported by participants was that 87.5% had children (n=165) and 22.5% were childless (n=48). Number of children ranged from 1-7 children. Participants holding certification accounted for 69.5% (n=148) and those who were not certified accounted for 30.5% (n=65). For the highest nursing degree earned, 3.8% (n=8) reported having a doctoral degree, 36.6% (n=78) a master's degree, 40.4% (n=86) a bachelor's degree, 16.9% (n=36) an associate's degree and those with a diploma, 2.3% (n=5).

Participants reported their type of workplace as a designated level I NICU, 2.8% (n=6), level II NICU, 19.2% (n=41), level III NICU, 61% (n=130) and level IV NICU 16.9% (n=36). Longevity in the NICU ranged from 1-41 years (*M*=18.48, *SD*=11.34). Participants who reported having formal education in family nursing accounted for 48.4% (n=103) and those who did not accounted for 51.6% (n=110). To remain as consistent with the original questionnaire as possible, this item was kept although a clear definition of what formal education in family nursing entailed was lacking. For membership in a professional organization, all of the participants (n=213) were members of AWHONN, 26.8% (n=57) were also members of the National Association of Neonatal Nurses (NANN) and 16.9% (n=36) reported membership in another professional organization.

The original study conducted by Meiers et al. (2007) to assess the psychometric properties of the FNCBS included a national sample of NICU and PICU nurses from the membership of the American Association of Critical-Care Nurses (AACN). A total of 163 registered professional nurses responded to the survey. Their sample was comprised of 22.8% (n=37) NICU nurses and 62.7% (n=101) PICU nurses as well as those who identified themselves as both NICU and PICU nurses 4.9% (n=8), and other 4.9% (n=8) based on reported work environment. Ninety-six percent (n=155) were female and 9% (n=6) were male participants *(sic)*. The age of the participants ranged from 21-57 years (*M*=41.79). Participants identified their ethnicity as follows: 82.1% (n=133) Caucasian, 3.1% (n=5) as Hispanic, 3.7% (n=6) as African American, 8.6% (n=14) as Asian and all other groups 1.8% (n= 3). For the highest nursing degree earned, 0.6% (n=1) reported having a doctoral degree, 15.4% (n=25) a master's degree, 59.3% (n=96) a bachelor's degree, 13.6% (n=22) an associate's degree and those with a diploma, 10.5% (n=17). Participants who reported having formal education in family nursing accounted for 37.7% (n=61) and those who did not accounted for 57.4% (n=93). A comparison of the two study group demographics are reported in Table 2.

Table 2
Comparison of Demographics

Sample	Subcategory	NICU only 2014 Number	NICU only 2014 Mean	NICU only 2014 %	PICU and NICU nurses (2002) Number	PICU and NICU nurses (2002) Mean	PICU and NICU nurses (2002) %
Gender	Male	3		1.4%	6		9%*
	Female	210		98.6%	155		96.3%
Age		213	49.14		163	41.79	
Ethnicity	Caucasian	195		91.6%	133		82.1%
	Asian	5		2.3%	14		8.6%
	African-American	5		2.3%	6		3.7%
	Hispanic	6		2.8%	5		3.1%
	Other	2		0.9%	3		1.8%
Highest Nursing Degree	Diploma	5		2.3%	17		10.5%
	Associate	36		16.9%	22		13.6%
	Bachelor	86		40.4%	96		59.3%
	Masters	78		36.6%	25		15.4%
	Doctoral	8		3.8%	1		0.6%
Family Nursing in formal education	Yes	103		48.4%	61		37.7%
	No	110		51.6%	93		57.4%
Workplace	NICU	213		100%	37		22.8%
	PICU	0			101		62.7%
	NICU and PICU	0			8		4.9%
	Other	0			8		4.9%

Note. *Reported by authors. Percentage of males in the original study is 3.7

The characteristics of the sample in the original study and the sample in the current study were similar in gender and mean age. The ethnicities of the two samples were similar except for those who identified themselves as Asian which was higher in the original study group. Education level differed considerably from the original sample group in that the current sample had 40.4% respondents educated at the masters and doctoral level whereas 16% of the original group reported being educated at these levels. The authors provided these demographic data for the group as a whole, and did not provide specific demographic data for the subgroups of PICU or NICU.

The major difference between the two study groups was the mixed sample of NICU and PICU nurses in the original study. The original study did not include information about the participants' marital status, status as parents, certifications held,

and length of time working in the NICU or PICU, type of NICU (level I, II, III, IV) and membership in any other professional organization except the AACN. The original study did not have any exclusion criteria. This study excluded nurses with less than one year of neonatal experience.

Factor Analysis

Factor analysis was used to determine factor validity of the FNCBS with neonatal nurses through factor loading results. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy provided support for continuing with the analysis (.882). Bartlett's test of sphericity yielded significant results (p = <.001). The KMO and Bartlett's test of sphericity indicated suitability of the sample data for structure detection. The original principal components analysis with a varimax rotation explained a four factor structure: ethical caring beliefs (ECP), systems orientation to family (OF), child advocacy (CA) and normalizing milieu (NM) accounting for 43.34% of the variance. The principal components analysis on the new data sample of NICU nurses with varimax and oblimin rotations explained a six factor structure with one large factor and five small factors, demonstrated by eigenvalues >1.0, that accounted for 57% of the variance. The additional two factors (unobserved variables) that emerged with the new data were not named in this study because the related observed variables were not identified. The correlation coefficients of the four subscales of the hypothesized model (Figure1) identified the relationships between the latent or unobserved variables with Pearson product-moment correlation testing; OF and ECP (r=.616), CA and ECP (r=.556), CA and OF (r=.557), NM and ECP (r=.588), NM and OF (r=.461), NM and CA (r=.622) (Table 3). The

relationships are demonstrated in Figure 1 by curved lines representing hypothesized relationships between the variables.

Table 3
Subscale Correlation

	Total ECP_FNCBS	Total OF_FNCBS	Total CA_FNCBS	Total NM_FNCBS
Total ECP_FNCBS Pearson Correlation	1	.616**	.556**	.588**
Total OF_FNCBS Pearson Correlation	.616**	1	.557**	.557**
Total CA_FNCBS Pearson Correlation	.556**	.557**	1	.622**
Total NM_FNCBS Pearson Correlation	.588**	.461	.622**	1

Note. ** Correlation is significant at the 0.01 level (2-tailed). ECP= Ethical Caring Practices; OF= Orientation to Family; CA= Child Advocacy; NM= Normalizing Milieu; FNCBS= Family Nurse Caring Belief Scale

Confirmatory Factor Analysis

Confirmatory factor analysis is a theory-driven method to test the FNCBS factor structure. The hypothesized model (Figure 1) contained 25 observed variables which are the items on the FNCBS instrument and 4 latent or unobserved variables. Goodness-of-fit statistics assessed how well the model fit the data, which for this study was obtained from a sample of 213 NICU nurses. The classic goodness-of-fit measure to determine overall model fit is the chi-square test which assessed the difference between the observed sample data and the hypothesized model. The $\chi 2$ of the sample data = 2.275 and indicated good model fit as the recommended value is $\chi 2 < 3$ however, chi-square is greatly influenced by sample size. The comparative fit index (CFI) and Tucker-Lewis index (TLI) evaluates the discrepancy between the data and the hypothesized model and is less influenced by sample size. The TLI also resolves issues with negative bias and rewards parsimony (Norris, 2005). The CFI of the sample data was .783 and the TLI was .758. The recommended range for evaluating fit is zero for poor fit and one for good fit with >.9 acceptable therefore, neither of these indices indicated good fit. The root mean

square of error approximation (RMSEA) is an absolute misfit index which includes a penalty function for poor model parsimony and is sensitive to the number of parameters estimated (Albright & Park, 2009). The RMSEA of the sample data was .077 with the recommended range between zero and one however, the closer the indices are to zero indicates better fit with <.06 acceptable. Therefore, this result does not demonstrate good fit. The standardized root mean square residual (SRMR) is similar to the RMSEA, but is based on the residual matrix, not the chi-square statistic (Aroian & Norris, 2005). The SRMR of the sample data was .106 and is greater than the acceptable .08 which does not indicate good fit. The unstandardized factor loadings represent the estimates and standard error ratio (Est./S.E.) for the items in the FNCBS. The Est./S.E. ratios are equivalent to *z* scores. The Est./S.E. ratio values > 1.96 are significant at the *p*=.05 level. All of the items on the FNCBS are significant except item FNCBS 14.

The factor loadings for each item in the sample data are reported in Table 3. Items FNCBS 14, FNCBS 18 and FNCBS 4 had factor loadings <.4 and FNCBS 21 did not load on any factor. The criterion for determining if a variable loaded substantially on a factor is >.4 (Dixon, 2005). In addition, the factor correlations between the four latent variables making up the subscales, ECP and OF (r=.186; *p*= .957), ECP and NM (r=.106; *p*=.971); CA and OF (r=.070; *p*=.804), CA and ECP (r=.039; *p*=.787), CA and NM (r=.048; *p*=.989); OF and NM (r=.156; *p*=.815) were low. The *p*-level for each of the correlations was not significant. This suggests there is no parsimony and the sample data of neonatal nurses does not fit the model.

Table 4

Standardized Factor Loadings

Factor 1 ECP	Standardized Factor Loading
FNCBS 7 Advocating for the family is not an essential aspect of my professional responsibility	0.486
FNCBS 11 It is important for me to establish a relationship with the family so they can trust me with their child	0.614
FNCBS 13 I am not as responsible for the care of the family as for the patient	0.603
FNCBS 14 The physical care of the child is more important than understanding the experience of the family	-0.515
FNCBS 16 Sensitivity toward the family's perceptions is not an important aspect of my job	0.504
FNCBS 18 My relationship with the family has no important therapeutic effects on them	0.388
FNCBS 20 It is not essential for the nurse to seek the family's input when making decision about care	0.652
FNCBS 23 I am not obligated to take care of the family	0.580
FNCBS 24 Explaining technology to the family will not increase their involvement in the child's care	0.496
Factor 2 OF	
FNCBS 15 It is my responsibility to base nursing care on what the child's illness means to the family	0.535
FNCBS 17 I need to support the family to stay involved with their child	0.591
FNCBS 19 My attitude towards the family influences my understanding of the family situation in the NICU	0.506
FNCBS 22 The family has the right to say what is important to them in planning care	0.673
FNCBS 25 It is my responsibility to change my plan of care over time to incorporate what the family feels is right for them given their perspective of the situation with the child	0.561
Factor 3 CA	
FNCBS 1 The family has the right to know their child is being treated as normally as possible within the confines of the illness and technology	0.400
FNCBS 2 I should be as honest as possible in keeping the family of the critically ill child informed about the things they need to know	0.514
FNCBS 3 When the nurse utilized the family as a significant source of information, the child's care is improved	0.684
FNCBS 5 It is my responsibility to provide for family well-being when they are in the hospital with their child	0.570
FNCBS 6 No matter how sick the child is, he or she needs to be treated as unique and individual	0.553
FNCBS 8 I should try to help parents be active in caring for their child	0.663
FNCBS 12 Describing the typical projected course of events for the child helps the family in planning for family activities	0.635
Factor 4 NM	
FNCBS 4 It is not my responsibility to help the family plan the care day so they can coordinate it around other family activities	0.335
FNCBS 9 Explaining technology to the family will help them make better decisions	0.516
FNCBS 10 It is not an essential part of care in the NICU for the nurse to be available to the family	0.624

Note. ECP = Ethical Caring Practices; OF=Orientation to Family; CA= Child Advocacy; NM= Normalizing Milieu; FNCBS= Family Nurse Caring Belief Scale

Reliability

Reliability statistics of the 25-item FNCBS reported cronbach's alpha at .847 which indicated the extent to which one item on the instrument is a good indicator of performance on any other item in the same instrument (DeVon, et al., 2007). The reported reliability statistics of the subscales of the FNCBS as demonstrated by cronbach's alpha were: ECP (α= .503), OF (α=.687), CA (α=.752), and NM (α=.406). The subscales ECP, OF and NM were not ≥.7, which according to DeVon, et al. (2007) do not indicate good performance on other subscales in the instrument. The subscales were re-examined to assess the reliability with items deleted using PASW-22 software. Subscale ECP reported α= .745 with item-14 deleted (*the physical care of the child is more important than understanding the experience of the family*). For subscales OF and CA the analyses did not identify any items, that if deleted, would strengthen the reliability of the scale and positively affect the cronbach's alpha. Therefore, the items in these factors remained unchanged. NM reported α= .500 with item-4 deleted (*it is not my responsibility to help the family plan the care day so they can coordinate it around other family activities*), leaving only 2 items remaining in the factor. The corrected subscale correlations with the deleted items were re-evaluated and reported in Table 5.

Table 5
Pearson's Correlation Coefficients of the Corrected Subscales

Variable	ECP	OF	CA	NM
ECP	1	.682**	.611**	.573**
OF	.682**	1	.567**	.433**
CA	.611**	.567**	1	.594**
NM	.573**	.433**	.594**	1

Note. **Correlation is significant at the 0.01 level (2-tailed); ECP = Ethical Caring Practices; OF=Orientation to Family; CA= Child Advocacy; NM= Normalizing Milieu

Additional Factor Analysis

Further factor analysis was conducted with the same sample data of NICU nurses on the 22-item corrected model with items 4, 14 and 21 deleted to evaluate if the model would respond differently and account for more of the variance. Although item 18 had a weak factor loading of .388, the reliability statistics of the subscales did not indicate the subscale ECP would be strengthened further if deleted therefore, item 18 was retained in this factor analysis. The principal components analysis with both varimax and oblimin rotations explained a five factor structure, demonstrated by eigenvalues >1.0, and accounted for 55% of the variance. This did not demonstrate any difference than the six factor structure that accounted for 57% of the variance using all the original items.

A second factor analysis was conducted on the 22-item corrected model with items 4, 14 and 21 deleted and the factor structure forced into four factors to replicate the factor structure identified by the authors. This analysis, with both varimax and oblimin rotations accounted for 50% of the variance which was slightly better than the original four factor structure that accounted for 43% of the variance. The additional statistical tests did not improve the unexplained variance of the hypothesized model.

Convergent and Discriminant Validity

Convergent validity is a correspondence between constructs that are theoretically similar and was tested by correlating the computed total scale scores of the FNCBS and the "Working with Families" Questionnaire (Shields et al., 2011) using Pearson product-moment correlation testing. The "Working with Families" Questionnaire is a two question instrument, *"most of the time, I find working with children…" and "most of the*

time, I find working with parents…" with a scoring system that used semantic differentials and measured nurse attitudes towards working with children and working with their families.

Inter-scale correlations between the FNCBS and "Working with Families" Questionnaire subscales; Working with Parents and Working with Children demonstrated evidence of convergent validity. There was a positive correlation that was statistically significant (p= 0.01) with the Working with Parents (SDwp) subscale and Ethical Caring Practices (r=.488), Orientation to Family (r=.478) and Child Advocacy (r=.575) subscales on the FNCBS. A positive correlation was noted between Working with Children (SDwc) subscale and Child Advocacy (r=.516) subscale on the FNCBS. The positive inter-scale correlations, with Pearson product moment correlations ≥.45, indicated the constructs between these two instruments are theoretically similar (Table 6).

Discriminant validity measures an instrument's capability to differentiate between measures that are theoretically different. Evidence of discriminant validity was also seen through Working with Families Questionnaire subscale relationships and the FNCBS. The correlation coefficient between The Working with Parent (SDwp) subscale and Normalizing Milieu subscale on the FNCBS was r=.434; Working with Children (SDwc) subscale and Ethical Caring Practices was r=.447, Orientation to Family was r=.300 and Normalizing Milieu was r=.358. Each of the subscales demonstrated low Pearson product moment correlations ≤.45 indicating the constructs are theoretically different (Table 6).

Based on the positive inter-scale correlations with the Working with Parents subscale and the ECP, OF and CA and Working with Children subscale and CA suggests the FNCBS should measure the attitudes of neonatal nurses regarding the provision of family-sensitive care to families in crisis well.

Table 6
Inter-scale Correlations between the FNCBS and Working with Families Questionnaire Subscales

Variable	ECP	OF	CA	NM	SDwp	SDwc
ECP	1	.636**	.609**	.542**	.488**	.447**
OF	.636**	1	.567**	.457**	.478**	.300**
CA	.609**	.567**	1	.554**	.575**	.516**
NM	.542**	.457**	.554**	1	.434**	.358**
SDwp	.488**	.478**	.575**	.434**	1	.596**
SDwc	.477**	.300**	.516**	.358**	.596**	1

Note. **Correlation is significant at the 0.01 level (2-tailed). FNCBS = Family Nurse caring Belief Scale; ECP = Ethical Caring Practices; OF=Orientation to Family; CA= Child Advocacy; NM= Normalizing Milieu; SDwp = Working with Parent subscale; SDwc = Working with Children subscale

Supplemental Analyses

The sample of NICU nurses from this study was further analyzed to compare differences between demographic subgroups related to scores on the FNCBS. Scoring of the FNCBS is summative; higher scores indicating nurse attitudes that are most family sensitive; lower scores indicate nurse attitudes that are least oriented towards family-sensitive care. The authors reported the possible score range is 27 to 135 (*sic*). The summative scores for the sample of PICU and NICU nurses from the study conducted by Meiers et al. (2007) ranged from 76 to 123 (M=105, SD 8.63). The possible score range for the summative scores in this sample of NICU nurses is 25-135. The summative scores for the sample of NICU nurses ranged from 85 to 123, (M=108.9, SD=8.59). The "Working with Families" semantic differential tool scoring ranged from 5, indicating the most positive and 1 indicating the least positive. A paired-samples t-test was conducted

to compare the mean scores for the two questions asked on the "Working with Families" tool, *"most of the time, I find working with children…"* and *"most of the time, I find working with parents…"* indicated that this sample of NICU nurses prefer working with children (*M*=4.52, *SD*=.476); than working with their parents (*M*=3.88, *SD*=.576); t (212)=-19.46, *p*=.000. Although Shields et al. (2011) included nurses, physicians, allied health staff and ancillary staff in their study, the respondents also preferred working with children (*M*=4.3, *SD*=.57); than working with their parents (*M*=3.8, *SD*=.66).

Independent-samples *t*-tests were conducted to compare the scores on the FNCBS of groups of participants by marital status, status as parents, and holding national certification in this sample of NICU nurses. There was no significant difference in the scores for those NICU nurses who were married (*M*=109, *SD*=8.6) and those NICU nurses who are not married (*M*=108.5, *SD*=8.7); t (210) = -.351, *p* = .726. There was a significant difference in the scores for those NICU nurses who had children (*M*=110, *SD*=8.4) and those NICU nurses who did not have children (*M*=105, *SD*=8.2); t (211) =-3.367, *p* = .001. There was a significant difference in the scores for those NICU nurses who held national certification (*M*=110, *SD*=8.3) and those NICU nurses who did not hold national certification (*M*=107, *SD*=8.9); t (211) =2.554, *p* =.011.

A one-way between subjects ANOVA was conducted to compare the effect of race, level of NICU and level of education on the scores of the FNCBS in this sample of NICU nurses. Race did not have a significant effect on the scores of the FNCBS at the $p<.05$ level for the five conditions [F (4, 208) = 1.59, *p* = 0.179]. The level of NICU (I, II, III, IV) did not have a significant effect on the scores of the FNCBS at the $p<.05$ level for

the four conditions [F (3, 209) = .956, p =.414]. There was a significant effect on the scores of the FNCBS and the level of education of the sample of NICU nurses at the p<.05 level [F (4, 208) = 6.34, p = 0.000] (Table 7). Post hoc comparisons using the Tukey HSD test indicated that the mean score for education at the masters level (M = 112, SD = 6.69) was significantly different than education at the associate (M = 106, SD = 8.86) and bachelor (M = 107, SD = 9.1) levels. However, the diploma (M = 107, SD = 9.1) and doctoral (M = 110, SD = 6.96) levels did not significantly differ from the masters, bachelor and associate level of education.

A Pearson product-moment correlation coefficient was computed to assess the relationship between the scores of the FNCBS and the age of the sample of NICU nurses and the scores of the FNCBS and the number of years working as a NICU nurse. There was a positive correlation between the scores of the FNCBS and the two variables, age and experience (Table 7).

Table 7
Correlations between the FNCBS total score, age and experience

Variable	Total FNCBS	Age	Experience
Total FNCBS	1	.273**	.353**
Age	.273**	1	.708**
Experience	.353**	.708**	1

Note. **Correlation is significant at the 0.000 level (2-tailed). FNCBS = Family Nurse Caring Belief Scale; Experience=number of years working as a NICU nurse

Summary

This chapter discussed the results of the statistical analyses. There were 213 NICU nurses who were members of AWHONN that participated in the study. The data sample was analyzed first with a factor analysis to determine factor validity of the FNCBS with the new data from a sample of neonatal nurses. The Kaiser-Meyer-Olkin

(KMO) and Bartlett's test of sphericity indicated suitability of the sample data for structure detection. The original principal components analysis conducted by Meiers et al. (2007) used a sample of 37 NICU nurses, 101 PICU nurses as well as eight that identified themselves as both NICU and PICU nurses and eight that identified themselves as other based on reported work environment. The original study results explained a four factor structure: ethical caring beliefs (ECP), systems orientation to family (OF), child advocacy (CA) and normalizing milieu (NM) and the principal components analysis on the new data sample of 213 NICU nurses explained a six factor structure. The correlation coefficients of the four subscales of the hypothesized model identified the relationships between the latent or unobserved variables with Pearson's *r* testing.

Confirmatory factor analysis (CFA) examined the factor structure of the FNCBS using the sample of NICU nurses recruited for this study. Goodness-of-fit statistics assessed how well the model fit the data. The chi-square test determined overall model fit. Comparative fit index (CFI) and Tucker-Lewis index (TLI) were both <.9 therefore, neither of these indices indicated good fit. The root mean square of error approximation (RMSEA) of the sample data was >.06 therefore, the data did not demonstrate good fit. The standardized root mean square residual (SRMR) of the sample data is >.08 and did not indicate good fit. In addition, the factor correlations between the four latent variables, ECP, OF, CA and NM were low. This suggested there is no parsimony and the sample data of NICU nurses did not fit the model.

The supplemental analyses compared the differences between the demographic subgroups; marital status, status as parents, certification status, race, level of NICU and

education levels related to the scores on the FNCBS. There was no significant difference with marital status, race, level of NICU and the scores of the FNCBS. There was a significant difference with status as parents, certification status and education levels and the scores of the FNCBS. Furthermore, there was a positive correlation between the scores on the FNCBS and age and the scores on the FNCBS and experience as a NICU nurse.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

The purpose of this study was to psychometrically validate the Family Nurse Caring Belief Scale (FNCBS) in a sample of neonatal nurses with a confirmatory factor analysis of the 25-item instrument, using the factor structure based on the original exploratory principal components analysis conducted by Meiers et al. (2007). The original study included a mixed population of registered professional nurses who worked in the NICU and PICU. The specific construct of family-sensitive care is the intended framework for the FNCBS, which was identified by the authors as intentional interactivity, situation sensitivity, and sensitive attention to a holistic family nursing practice. Providing clarity to the philosophy of FCC, family-sensitive care refers explicitly to the nurse's sensitivity to the family's immediate experience. The FNCBS measured four latent (unobserved) variables: ethical caring practices, orientation to family, child advocacy and normalizing milieu with 25 observed variables on the instrument. The intent of testing the hypothesized model of the FNCBS with a sample of NICU nurses, which is different than the mixed sample of NICU and PICU nurses, was to confirm the factor structure identified by Meiers et al. (2007) with new data.

Using a mixed population of NICU and PICU nurses assumes the family interactions with both groups of nurses are similar. When an infant requires admission to the NICU, mother and infant are separated, interfering with maternal-infant bonding. This disruption creates a difference between families cared for in the NICU and those cared for in the PICU, where family bonding has been established. The survey items

were designed to measure nurses' beliefs regarding the provision of family-sensitive care to families in crisis. However, the items imply there is an established family unit (*when the nurse utilizes the family as a significant source of information, the child's care is improved)* which in the PICU, could be true. Parents in the NICU initially have no knowledge about their newborn. Another item, *the family has the right to know their child is being treated as normally as possible within the confines of the illness and technology,* suggests the family has had time to identify what is "normal" for their child which again in the PICU, could be true. "Normal" for a newborn in the NICU develops over time depending on gestational age and complications related to prematurity. Every newborn in the NICU has a unique response to treatment. Considering the differences between NICU and PICU, the beliefs of the neonatal nurse towards the family as a unit in the unique NICU setting can impact the implementation of FCC which supports the care of the infant and family.

Time may also be a factor between the two studies. The instrument was developed in 2002 and there is no evidence in the literature to suggest it has been tested further. Care practices, as well as requirements within hospital settings have changed in the last 12 years which was described by Cooper et al. (2007) in a study that examined March of Dimes NICU Family Support sites. There is more focus on patient and family satisfaction as it now has been incorporated into hospital reimbursement. Implemented in 2005 as part of a program of the U.S. Agency for Healthcare Research and Quality, the Consumer Assessment of Healthcare Providers and Systems (CAHPS® Hospital Survey) measures the patients' perspectives on hospital care which is publicly reported

information, to enable valid comparisons to be made across all hospitals. The incentive for hospitals to improve patient experience of care was further strengthened by the Patient Protection and Affordable Care Act of 2010 (P.L. 111-148), which specifically included the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) performance in the calculation of the value-based incentive payment in the Hospital Value-Based Purchasing program, beginning with October 2012 discharges (Centers for Medicare & Medicaid Services, n.d.). Nurse communication is a domain within the CAHPS® Hospital Survey that specifically measures patient perception in regard to nurses' treating the patient with courtesy and respect, listening carefully, explaining things in a way the patient can understand and responsiveness. Nurses are an integral component of the patient and family experience and are expected to meet patient and family needs to support the patient's experience.

The sample data in the original study consisted of 163 NICU and PICU nurses who were members of the American Association of Critical-Care Nurses (AACN). The authors selected 720 nurses to receive the survey from a pool of 2,329 NICU and PICU nurses. The survey was mailed via postal service and administered using pencil and paper, therefore cost may have been a factor in the decision to decrease the number selected to receive surveys. By selecting only a percentage of respondents, it is possible the authors did not capture enough respondents who were distributed throughout all areas of the United States. The authors also opted not to follow-up with additional requests for responses to increase the sample size. The explanation provided indicated the return of 163 responses (14% return rate was reported by the authors, whereas the actual return

rate is 22.7%) was adequate for evaluation. Based on the information provided by the authors, some calculations do not appear accurate; however, it is unclear whether steps were taken, but not reported that changed the analysis. This study sample of 1,580 NICU nurses was drawn from the national database from AWHONN. The entire membership was invited to participate in order to obtain a response which would be representative of the population of NICU nurses. The total number of respondents, 221(13.4% return rate), was obtained over a six week period, with two additional interim reminders sent. The survey was distributed via e-mail and responses returned electronically. Neonatal nurses with less than one year experience were excluded due to their limited clinical knowledge of neonatal nursing which may have made it more difficult to assimilate the complex constructs of family-sensitive care into their practice.

There was a lack of information from the authors of the original study identifying whether the sample data were evaluated for basic assumptions of normality and symmetry. The respondents' ethnicities in the study by Meiers et al. (2007) were similar to the general AACN membership except respondents whose ethnicity was listed as Asian. The percentage of Asians in Meiers' study was 8.6%. In contrast, the percentage of Asian nurses was lower in the current sample of NICU nurses (2.3%). However, a one-way between subjects ANOVA indicated race did not have a significant effect on the scores of the FNCBS at the $p<.05$ level.

In relation to the variable of education, 75.3% of the original sample from the Meiers et al. (2007) study was educated at a bachelor's level or above while 80.8 % of the sample in the current study was educated at this level. This may be indicative of the

increase in Magnet® (American Nurse Credentialing Center) designated institutions in the United States in the last 10 years. When considering educational levels above the bachelor's level (masters, doctorate), 16% of the original sample was described as being in this category while 39.4% of the sample in the current study was at this level. These results identified that there was a significant difference in the scores of the FNCBS by level of education. A one-way between subjects ANOVA identified there was a significant effect on the scores of the FNCBS and the level of education of the sample of NICU nurses at the $p<.05$ level. Post hoc comparisons using the Tukey HSD test indicated that the mean score for education at the master's level was significantly different than education at the associate and bachelor levels. Particularly striking was the difference in the percentage of respondents educated at the Masters and level between this sample of NICU nurses (36.6%) and the mixed sample of PICU and NICU nurses (15.4%) in the study by Meiers. However, the FNCBS scores for those educated at the diploma and doctoral levels did not significantly differ from those reporting masters, bachelor and associate level of education, although differences in the size of these groups was evident. Further review of the demographic information of the sample of NICU nurses suggests that nurses who are older (M = 53 years) and experienced (M=23 years) with a master's degree scored higher on the FNCBS indicating they are more family-sensitive than their counterparts, which may account for the higher scores in the diploma and doctoral educated respondents. The question regarding whether the participants had any formal education in family nursing was included, however, the authors did not define formal education in family nursing or indicate the significance it would have on the

attitudes of nurses. It was retained so as not to deviate from the original demographic questions.

The authors of the original study did not include questions about marital status, status as parents, national certification held and length of time as a NICU or PICU nurse. These demographic questions were included with the new data sample of NICU nurses to evaluate if the beliefs of the nurse regarding family-sensitive care were influenced by these variables. Independent-samples *t*-tests were conducted to compare the scores on the FNCBS and marital status, having children, and holding national certification in the sample of NICU nurses. There was no significant difference in the scores of the FNCBS and marital status of the NICU nurses. However, there was a significant difference in the scores of the FNCBS for the NICU nurses who have children and the NICU nurses who do not have children. There was also a significant difference in the scores of the FNCBS for the NICU nurses who held national certification and the NICU nurses who do not hold national certification. Inherent in the process by which nurses obtain such designation is mastery of content that includes care of infants and families; this may also affect their attitudes towards family-sensitive care.

Length of time practicing as a NICU or PICU nurse is also important to determine if experience has an effect on attitudes of the nurses. A Pearson product-moment correlation coefficient was computed to assess the relationship between the scores of the FNCBS and the age of the sample of NICU nurses and the number of years working as a NICU nurse. There was a positive correlation between the scores of the FNCBS and the two variables. Taken together, these results suggest that experienced,

masters prepared, nationally certified NICU nurses who are also parents, scored higher on the FNCBS, which specifically, suggests their attitudes are more family-sensitive. These findings concur with the findings in the study conducted by Shields et al. (2011). All of the factors found to be significant in impacting the FNCBS scores in the current study may contribute to an explanation of the differences in findings related to the confirmatory factor analysis.

The FNCBS was developed to measure nurse attitudes regarding provision of family-sensitive care to families in crisis. Without information from the participants in the original study by Meiers et al. (2007) related to their own family structure (i.e.: marital and parental status), the relationship of variables that could potentially affect the response to families in crisis and attitudes regarding family-sensitive care could not be ascertained.

The empirical results indicate the theoretical constructs have not achieved parsimony with a sample of NICU nurses and cannot account for the unexplained variance, signifying the constructs measured are closely related. The original pilot study conducted during the early stages of instrument development was tested with only PICU nurses (n=60) and the sample in the original study was predominantly made up of PICU nurses (n=101, 62.7%). The results of this analysis with NICU nurses suggest the psychometric properties of the instrument may be more suited to assessing nurse attitudes in a pediatric setting, not the unique setting of the NICU.

Limitations

Limitations to this study may include a small sample size. The common rule for adequate sample size for power in CFA described by Myers et al. (2011) as $N \geq 200$, was used for this study; the goodness-of-fit testing parameter, chi-square, indicated good fit but is influenced by sample size. The CFI =0.783 and RMSEA= .077 did not indicate good fit, but are not significantly out of range and suggest the study may have been underpowered.

Participants of this survey were contacted via e-mail through AWHONN membership. The survey was internet-based and targeted a specific population; however, respondents were self-selected which may bias the results. Internet-based surveys may also have lower response rates than traditional mail surveys (Dillman, Smyth & Christian, 2009). This was the case with this study; 221 responses from 1,580 potential participants accounted for a 13.4% return rate. Furthermore, there is no information regarding non-responders.

The four factor structure of the original study accounted for only 43.34% of the total variance which did not establish construct validity. The CFA with the new sample data did not strengthen the construct validity of the 25-item FNCBS further, but rather identified six factors accounting for 57% of the total variance which indicated the constructs are closely related.

The demographic questionnaire included one item regarding level of NICU, which identified intensity level of the unit the participants worked in, but did not include

a question regarding the physical layout of the NICU, (open nursery design vs. private room). This data may provide additional information on another variable that could potentially affect the nurse's ability to practice FCC in the NICU as suggested by Griffin (2006).

In addition, there were several other factors that were found to impact scoring. Marital status, status as parents, national certification held and length of time as a NICU or PICU nurse were not reported in the original study. These characteristics of the sample may have impacted the findings related to the confirmatory factor analysis.

Recommendations

Identifying NICU nurse attitudes regarding the ability to provide family-sensitive care to families in crisis still requires exploration and the need for further instrument development. The authors recommended minor modifications of the FNCBS for use in the adult critical care setting however, the implications related to impaired infant-parent bonding in the NICU requires a deeper exploration of instrument development to measure NICU nurses' attitudes. There are areas for improvement in the FNCBS. The items in the final version of the instrument did not include factors repeatedly mentioned in the literature, such as challenges to effective implementation of FCC related to work flow, parental and staff perceptions of FCC including "ownership" of the newborn and communication between parents and the healthcare team, influence of the care environment and unit culture. The revision process would include checking content through an extensive review of literature, revising the items for wording, clarity and gaining quantitative evidence of reliability and validity of the instrument. Including

NICU experts, both nurses and parents who have had an infant in the NICU, in the development of the instrument could produce items that are more relevant within the NICU environment. Furthermore, the instrument should be piloted with NICU nurses in order to provide quantitative evidence of reliability and validity of the instrument.

The demographic questionnaire in this study queried the respondents about the NICU level (I, II, III, IV) that identifies the intensity of care provided. This had no significant effect on the scores of the FNCBS at the $p<.05$ level however, perhaps including a question about the physical layout of the NICU (open nursery design vs. private room) may provide additional information that could be contributory to the NICU nurse's ability to practice FCC in the NICU.

Although it may appear that the care provided in NICU and PICU are similar, each environment is unique and different. The nurses who care for infants and families in the NICU need to understand the stressors the family experiences related to the vulnerability of their circumstances, for example, not having the opportunity to bond with their infant and actually incorporate this newborn into their family. Children and families being cared for in the PICU experience an entirely different stressor, which is the disruption of the family unit by having a hospitalized child. Accurate evaluation of nurses' attitudes in these very different settings requires measurement with relevant constructs to address each population.

Despite the inability to validate the FNCBS with a sample of NICU nurses, the opportunity for continued research in the area of measuring nurses' beliefs regarding the provision of family-sensitive care to families in crisis is rich. The impact nurses have on

the lives of the patients and families they care for is tremendous. Building a therapeutic relationship with the parents of an infant in the NICU is important and can affect the parents' ability to cope and adapt to their infant's illness, which in turn, affects the ability to bond as a family. There is hope that this evaluation of the FNCBS will generate a revision of the instrument to incorporate concepts which are important to care for a family unit.

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Appendix A
Family/Nurse Caring Belief Scale (FNCBS)

The following statements reflect attitudes about several perspectives in caring for families. Please indicate the degree to which you agree with statements on a scale of 1-5, with 1 indicating complete disagreement and 5 indicating complete agreement. Your answers will be combined with other nurses' answers and will not be reported in any way that you would be identified. Thank you.

I believe…	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. the family has the right to know their child is being treated as normally as possible within the confines of the illness and technology.	1	2	3	4	5
2. I should be as honest as possible in keeping the family of the critically ill child informed about the things they need to know.	1	2	3	4	5
3. when the nurse utilizes the family as a significant source of information, the child's care is improved.	1	2	3	4	5
4. it is not my responsibility to help the family plan the care day so they can coordinate it around other family activities.	1	2	3	4	5
5. it is my responsibility to provide for family well-being when they are in the hospital with their child.	1	2	3	4	5
6. no matter how sick the child is, he or she needs to be treated as unique and individual.	1	2	3	4	5
7. advocating for the family is not an essential aspect of my professional responsibility.	1	2	3	4	5
8. I should try to help parents be active in caring for their child.	1	2	3	4	5
9. explaining technology to the family will help them make better decisions.	1	2	3	4	5
10. it is not an essential part of care in the PICU/NICU for the nurse to be available to the family.	1	2	3	4	5
11. it is important for me to establish a relationship with the family so they can trust me with their child.	1	2	3	4	5

[please turn the page]

I believe…	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
12. describing the typical projected course of events for the child helps the family in planning for family activities.	1	2	3	4	5
13. I am not as responsible for the care of the family as for the patient.	1	2	3	4	5
14. the physical care of the child is more important than understanding the experience of the family.	1	2	3	4	5
15. it is my responsibility to base nursing care on what the child's illness means to the family.	1	2	3	4	5
16. sensitivity towards the family's perceptions is not an important aspect of my job.	1	2	3	4	5
17. I need to support the family to stay involved with their child.	1	2	3	4	5
18. my relationship with the family has no important therapeutic effect on them.	1	2	3	4	5
19. my attitude towards that family influences my understanding of the family situation in PICU/NICU.	1	2	3	4	5
20. it is not essential for the nurse to seek the family's input when making decisions about care.	1	2	3	4	5
21. even when parents are not at the hospital, they should be able to count on updates regarding their child's condition.	1	2	3	4	5
22. the family has the right to say what is important to them in planning care.	1	2	3	4	5
23. I am not obligated to take care of the family.	1	2	3	4	5
24. explaining technology to the family will not increase their involvement in the child's care.	1	2	3	4	5
25. it is my responsibility to change my plan of care over time to incorporate what the family feels is right for them given their perspective of the situation with the child	1	2	3	4	5

Appendix B

INSTRUMENT PERMISSION REQUEST

TO: Eileen Magri
Name of Researcher or Student and/or Thesis Advisor

FROM: Sonja J. Meiers, PhD, RN; Patricia S. Tomlinson, PhD, RN; Cynthia Peden-McAlpine, PhD, RN (Authors of Instrument)

RE: Use of the Instrument: Family Caring Nurse Belief Scale
Name of Instrument

_____X_____ I hereby give my permission for you to copy and use the above named instrument for use in your study. This permission is valid only for the study named in your request.

_____X_____ I would like to have the results of the study for us in further establishment of the instrument. The data sent to me would not be used for any other purpose than instrument development (smeiers@winona.edu)

_____ I do not give my permission for you to copy the above instrument as it is published and may be obtained at the following address:
_____
_____
_____

_____ You may use the instrument for your study but it must be purchased from me at the following cost: _____

_____ You may not use the above instrument for your study as it is not ready for release for research purposes at this time.

Sonja J. Meiers — Signature
4.16.13 — Date

Appendix C

NICU Nurses Demographic Questionnaire

Gender	Male
	Female
Age (please enter your age in years)	
Marital Status	Married
	Not married
	Widowed/Divorced
Race	Caucasian
	Asian
	African-American
	Hispanic
	All Other
Highest Nursing Degree	Diploma
	Associate's Degree
	Bachelor's Degree
	Master's Degree
	Doctorate Degree
Workplace	NICU Level I
	NICU Level II
	NICI Level III
	NICU Level IV
Family Nursing in Formal Education	Yes
	No
Years Working in the NICU	
(please enter years, if less than 1 year, enter 0)	
Membership in Professional Organization	AWHONN
	NANN
	Other
Do you hold certification	Yes
	No

Appendix D

"Working with Families" Questionnaire

Instructions:
In the following questions, there are two words which are opposite each other. e.g.: black O:O:O:O:O white.
If you think your feelings about a concept are close to a word at one end of the scale, select that circle: e.g.: black O:O:O:O:X white or black X:O:O:O:O white.
If you feel neutral, that is, no strong feelings one way or the other, select the center circle e.g.: black O:O:X:O:O white.
You may feel only a little, one way or the other about a concept, then select the circle, like this: e.g.: black O:X:O:O:O white or black O:O:O:X:O white.

Please select the circle that best describes your feelings about your work.

Most of the time, I find working with children:

satisfying	O:O:O:O:O	aggravating
distressing	O:O:O:O:O	enjoyable
pleasurable	O:O:O:O:O	painful
fascinating	O:O:O:O:O	dull
stimulating	O:O:O:O:O	debilitating
boring	O:O:O:O:O	entertaining
comfortable	O:O:O:O:O	uncomfortable
pleasant	O:O:O:O:O	unpleasant
unrewarding	O:O:O:O:O	rewarding
agreeable	O:O:O:O:O	disagreeable

Most of the time, I find working with parents of children:

satisfying	O:O:O:O:O	aggravating
distressing	O:O:O:O:O	enjoyable
pleasurable	O:O:O:O:O	painful
fascinating	O:O:O:O:O	dull
stimulating	O:O:O:O:O	debilitating
boring	O:O:O:O:O	entertaining
comfortable	O:O:O:O:O	uncomfortable
pleasant	O:O:O:O:O	unpleasant
unrewarding	O:O:O:O:O	rewarding
agreeable	O:O:O:O:O	disagreeable

Appendix E

1000 Hempstead Avenue
Rockville Centre, NY 11571
www.molloy.edu
Tel. 516.323.3653
Tel. 516.323.3801

Date: December 19, 2013
To: Eileen Magri
From: Kathleen Maurer Smith, PhD
Co-Chair, Molloy College Institutional Review Board
Veronica D. Feeg, PhD, RN, FAAN
Co-Chair, Molloy College Institutional Review Board

SUBJECT: MOLLOY IRB REVIEW AND DETERMINATION OF EXEMPT STATUS
Study Title: Psychometric Validation of the Family Nurse Caring Belief Scale in a Neonatal Nursing Population
Approved: December 19, 2013
Dear Ms. Magri:
The Institutional Review Board (IRB) of Molloy College has reviewed the above-mentioned research proposal and determined that this proposal is approved by the committee. It is EXEMPT from the requirements of Department of Health and Human Services (DHHS) regulations for the protection of human subjects as defined in 45CFR46.101(b).

You may proceed with your research. Please submit a report to the committee at the conclusion of your project.

Changes to the Research: It is the responsibility of the Principal Investigator to inform the Molloy College IRB of any changes to this research. A change in the research may disqualify the project from exempt status.

Sincerely,

Kathleen Maurer Smith

Kathleen Maurer Smith, PhD

Veronica D. Feeg

Veronica D. Feeg, PhD, RN, FAAN

Appendix F

Invitation Letter and Consent to Participants
Psychometric Validation of the Family Nurse Caring Belief Scale in a Neonatal Nursing Population.

Dear Nursing Colleague,
I, Eileen P. Magri, am the principal investigator of a research project as a requirement of my doctoral studies at Molloy College, Rockville Centre, N.Y. The purpose of this study is to psychometrically validate the Family Nurse Caring Belief Scale with confirmatory factor analysis, using the factor structure based on the original exploratory principal components analysis in a sample of neonatal nurses.

Neonatal nurses are being invited to participate in this study. You can assist me by taking 15 minutes to complete the attached on-line survey. Please read the following information that outlines the risks and benefits to participate in this research study. If you agree to participate in this study, please continue as prompted and submit the completed survey when you are finished. Submission of responses will serve as your consent.

There are no expected risks of discomfort involved in filling out this survey.
There are no benefits to you for participating in this study. However, it is hoped that this study may strengthen the Family Nurse Caring Belief Scale for future use within nursing by identifying NICU nurse attitudes regarding the ability to provide family-sensitive care and strategies that can be implemented to address these beliefs and improve the quality of care to families in crisis.
There are no costs associated with you being a participant of this study. There is no direct payment to you.

Your participation in this study is anonymous; no names or personal identifiers will be collected with the survey. To ensure that the research activity is being conducted properly, the Committee on Research Involving Human Subjects has the right to review the study records, however anonymity will be maintained.

Your participation in this study is voluntary. You do not have to be in this study if you do not want to participate. You have the right to change your mind and leave the study at any time without giving any reason and without penalty. You do not have to waive any of your legal rights by agreeing to participate in this study.

For information, questions or comments regarding this study, you may contact Eileen Magri, Principal Investigator at (516) 524-6986 or by email at emagri@lions.molloy.edu. If you have any questions regarding your rights as a research subject, you may contact Dr. Veronica Feeg at (516) 323-3653 or by email at vfeeg@molloy.edu.
I thank you for your assistance in this effort. Your participation contributes to the profession of nursing by adding to the scientific knowledge of the discipline.

Respectfully,
Eileen P. Magri
Eileen P. Magri PhD(c), RN, NE-BC

Appendix G

E-mail invitation to participate

Dear Nursing Colleague,

I am conducting a research study to assess how well the Family Nurse Caring Belief Scale measures neonatal nurses' attitudes regarding provision of family-sensitive care to families in crisis. The purpose of this study is to psychometrically validate the instrument in a sample of neonatal nurses. In order to accomplish this, I am asking neonatal nurses to assist me by completing a short survey questionnaire which will take approximately 15 minutes to complete. All information is strictly confidential, and the responses completely anonymous. There is no risk involved in being part of this research study.

If you are willing to participate, access to the study is available by clicking on the survey link below:
https://www.snapsurveys.com/wh/s.asp?k=138746644598

I appreciate your willingness to consider participation in this important research, and thank you in advance. If you have any questions about the survey, you may contact me via email, phone or mail at:

Email: emagri@lions.molloy.edu
Cell Phone: (516) 524-6986
Address: 3 Beechwood Street, Farmingdale, NY 11735

Thank you for considering this request.

Sincerely,

Eileen P. Magri
Eileen Magri PhD (c) RN NE-BC