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Micro-Preemie Parents' Perceptions of New Care Model and the NICU's Readiness to Integrate Evidence-Based Practice

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Purpose:

Evidence-based practice (EBP) involves the utilization of the best available evidence in problem-solving and clinical decision-making concerning patient care. All healthcare providers are expected to consider the patient's values, attitudes, and beliefs when designing and providing care. Although a preterm birth is distressing for parents, support from the healthcare team can mitigate some of the distress (Tandberg, Sandtro, Vardal, & Ronnestad, 2013). The neurological system of extremely low gestational age infants is significantly more immature and unable to cope with bombardment of stimulus in the NICU environment (Pineda, Neil, Dierker, Smyser, Wallendorf, Kidokoro, ... & Inder, 2014). The highest degree of vulnerability remains for premature infants born less than 26 weeks gestation (often referred to as micro-preemies). These infants are at greatest risk for neonatal morbidity, neurodevelopmental deficits, and long-term impairments targeting motor function, cognitive abilities, and behavior (Duerden, Taylor, & Miller, 2013; Platt, 2014). The risk to adverse outcomes increases with lower gestational ages, with the youngest preterm infants at highest risk (Platt, 2014). The highest rates of poor neurodevelopmental outcomes are inversely related to gestational age between 22- 25 weeks (Vohr, 2014). Moreover, the NICU environment with bright lights, noise, high volume of procedures, and noxious stimuli is posited to adversely affect the very preterm infant's growth and development (Pineda et al., 2014). Empirical evidence suggests a change to Neonatal Integrative Developmental Care (NIDC) for micro-preemie infants may improve outcomes and parents' perceptions of nursing care. Developmental care is simply defined as a system of NICU care designed to mitigate the negative effects of noxious stimuli including noise, light, procedures, temperature, stimulation, negative touch, and multiple caregivers. The study purpose was two-fold- 1) to determine how NIDC affects micro-premature infant parents' perception of care and 2) to evaluate the NICU nurses' perceptions of readiness to integrate EBP (practice change involving infants < 26-weeks gestation).

Theoretical Framework

The foundation for developmental care was laid in the 1980s particularly by Als' *syntactic theory of development* (STD) (1982) which focused on providing neuroprotective, family-centered, developmental care to improve infant outcomes. Building upon the principles of STD, Gibbins et al. (2008) introduced *universe developmental care* (UDC), a conceptual model for the application of developmentally supportive care in the NICU. Furthering the understanding and utilization of the model, Coughlin, Gibbins, and Hoath (2009) proposed five standardized core measures within UDC as definitive metrics for nursing actions within a NICU which serve as an objective basis for multi-institutional comparisons. Altimier and Phillips (2013) reclassified the original five core measures and essential concepts as seven distinct family-centered neuroprotective developmental core measures of neonatal care referred to as the *neonatal integrative developmental care model* (NIDC). These seven neuroprotective developmental core measures (healing environment, partnering with families, position and handling, safeguarding sleep, minimizing stress and pain, protecting skin, and optimizing nutrition) encompass specific recommendations for nursing actions and neonatal care.

Methods:

A multifaceted single-site study explored micro-preemie parents' perceptions of care of their of severely premature infants as well as nurses' perceptions of organizational culture and readiness to integrate EBP

in 56-bed level III NICU. Parents of micro-preemies completed the Nurse Parent Support Tool (NPST) once at 30+ days post the infant's birth. The NPST is a five-point Likert-type scale designed to measure parents' perceptions of nursing support and the interpersonal interactions with NICU nurses that micro-preemie parents perceive as helpful. Higher scores indicate greater degrees of perceived support from the nursing staff. Furthermore, The NPST includes two open-ended questions affording the parents an opportunity to share their personal experiences, identify additional 'things' that could have been helpful, and provide specific feedback to the staff which may promote a deeper understanding of the parents' perceptions. Data was collected from January 2016 to September 2017.

The NICU nurses completed the Organizational Culture & Unit Readiness for Integration of Evidence-based Practice Survey (OCSIEP-UNIT) at baseline, 6-months, and 12-months. The OCSIEP-UNIT is a 19-item five-point Likert-type scale designed to measure the extent to which cultural factors that influence the implementation of EBP exist within a unit and the nurses' perceptions of the readiness to implement EBP compared to the previous six months. Total scores can range from 25 to 125 with scores closer to 125 reflecting greater organizational readiness for or movement towards a culture of evidenced-based practice. Higher scores indicate greater degrees of perceived readiness to integrate EBP into their clinical nursing practice. Descriptive and inferential statistics were analyzed.

Results:

The final parent sample ($N=15$) was smaller than anticipated with significantly fewer micro-preemie births in the collection period. Overall, parents ($M_{age}=32$ years) felt supported and part of the team (composite scores ranged from 4 - 4.93). Two-thirds of the parents responded to the open-ended questions. Written responses focused on appreciation of nurses' caring, loving and affirming behaviors towards the parents and their infants and the importance of effective communication. Parents appreciated the nurses' explanations, daily email updates, and the intentional inclusion in the infants' treatment plan and execution of the infant's care where applicable. Results validated previously reported findings.

The nurses' perceptions of the organizational culture and readiness to integrate EBP increased steadily over a 12-month period however wide variations in the nurses' perception scores were observed ($M=78.54$ at onset, range 36-122; $M=81.37$ at 6 months, range 54-118; $M=85.42$ at 12 months, range 54-111). Scores remained near the mid-mark throughout the study period indicating the need for system-based intervention to further develop a culture embracing EBP.

Limitations

The premature birth rate has continued to decline slightly each year. During the 18-month study period, there were fewer infants less than 26-week gestation born than in the past at this facility yielding a much smaller sample of parents. Mothers predominantly responded to the survey limiting the understanding of the father's experience and perceptions. Only two sets of both parents completing the survey were collected limiting any comparison of variation among responses from parents of the same infant.

Although many of the nurses responded, it is unclear as to how many actually participated as responses were not paired. Several nurses voiced privately to primary investigator their reluctance to participate as they "feared retaliation by administration." Other nurses acknowledged a knowledge deficit regarding EBP. They desired more education, resources, internet access and administrative support.

Conclusion:

A deeper understanding of parents' needs and desires during a very stressful experience was gained. Furthermore, parents developed strong bonds with the professionals caring for their infants and valued the collaboration with the nurses. The need to maintain effective communication with parents was emphasized. Previous findings were validated.

An appreciation of the nurses' perspectives of the organizational culture and ways to improve clinical nursing practices in the NICU were uncovered. Nurses need greater accessibility to resources as well as greater support during integration of an EBP practice change.

Further research is necessary to better understand the phenomenon, ways to promote collaboration between parents and the health care team, identify additional barriers to integrating EBP, develop effective strategies to overcome barriers, and consider alternative ways to better support staff integrating EBP.

Title:

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Keywords:

evidence-based practice, organizational culture and parental perceptions

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Abstract Summary:

The study explored parents' perception of care following a practice change to include Neonatal Integrative Developmental Care (NIDC) for infants born at less than 26 weeks gestation. Positive outcomes were noted. Additionally, the NICU nurses' perceptions of readiness to integrate EBP evaluated over 12 months steadily increased over time.

Content Outline:**Purpose:**

1. Background

a. EBP foundation to care

b. Need to mitigate parental distress in premature birth

2. The neurological system of extremely low gestational age infants is significantly more immature and unable to cope with bombardment of stimulus

a. The highest degree of vulnerability remains for premature infants born less than 26 weeks gestation

b. The highest rates of poor neurodevelopmental outcomes are inversely related to gestational age between 22- 25 weeks

3. NICU environment with bright lights, noise, high volume of procedures, and noxious stimuli is posited to adversely affect the very preterm infant's growth and development

a. Neonatal Integrative Developmental Care (NIDC) for micro-preemie infants may improve outcomes and parents' perceptions of nursing care

b. NIDC defined

Aims

1. to determine how NIDC affects micro-premature infant parents' perception of care
2. to evaluate the NICU nurses' perceptions of readiness to integrate EBP (practice change involving infants < 26 weeks gestation)

Theoretical Framework

1. Based on by Als' *syntactic theory of development* (STD) (1982)
2. Gibbins et al. (2008) introduced *universe developmental care* (UDC), a conceptual model for the application of developmentally supportive care in the NICU
3. Coughlin, Gibbins, and Hoath (2009) proposed five standardized core measures within UDC as definitive metrics for nursing actions within a NICU
4. Altimier and Phillips (2013) reclassified five standardized core measures as seven distinct family-centered neuroprotective developmental core measures of neonatal care (NIDC)

Methods:

1. Multifaceted single-site study in a 56-bed level III NICU

a. All parents of infant born < 26 weeks gestation were invited to participate in study once infant reached 30 days old.

i. Parents completed the Nurse Parent Support Tool (NPST) online via Survey Monkey

ii. NPST is designed to measure parents' perceptions of nursing support and the interpersonal interactions with NICU nurses perceived as helpful

iii. Scores could range from 1-5 with Higher scores indicate greater degrees of perceived support from the nursing staff.

iv. Two open-ended questions

1. Please feel free to comment on other things that have been helpful to you as the parent.
2. Are there other things you wish the nurse would do to help you as a parent? If so, please list them.

b. Nurses' perceptions of organizational culture and readiness to integrate EBP

- i. Approximately 100 NICU nurses were invited to participate in online survey; accessible from unit computers or from their personal devices.
- ii. NICU nurses completed the Organizational Culture & Unit Readiness for Integration of Evidence-based Practice Survey (OCRSIEP-UNIT) at baseline, 6-months, and 12-months
- iii. The OCRSIEP-UNIT is designed to measure the NICU nurses' perceptions of organizational culture and readiness to integrate EBP in clinical nursing practice

c. Descriptive and inferential statistics completed

Results:

1. Parents

- a. Felt supported and part of the team (composite scores ranged from 4 - 4.93)

b. Open-ended question responses

- i. Appreciated input in decision making where applicable
- ii. Cited effective communication with healthcare team
- iii. Appreciated the nurses' explanations, daily email updates

c. Sample far smaller than anticipated (N=15)

2. NICU nurses

- a. Responses rates varied between collection periods of baseline, 6 months, and 12 months

b. Overall the nurses' scores increased steadily over time

c. Wide variations in the nurses' perception scores were noted

- i. Baseline M=78.54 (range 36-122)

- ii. 6 months M=81.37 (range 54-118)

- iii. 12 months M= 85.42 (range 54-111)

- d. Scores remained near the mid-mark indicating the need for system-based intervention.

e. Many nurses offered verbal feedback not collected via survey.

Limitations

1. Parents

- a. Fewer infants born <26 week gestation than in past.
- b. Small sample size of parents
- c. Predominantly mothers responded limiting understanding of fathers' perceptions
- d. Few examples of both parents responding to survey

2. Nurses

- a. Responses were not paired
- b. Reluctance of staff to participate
- c. Inconsistent understanding of EBP

Conclusion/Implications:

1. Parents

- a. Gained a deeper understanding of parents' needs and desires
- b. Parents developed strong bonds with the professionals caring for their infants and valued the collaboration with the nurses.
- c. The need to maintain effective communication with parents was emphasized
- d. Validated previous findings

2. Nurses

- a. An appreciation of the nurses' perspectives of the organizational culture
- b. Ways to improve clinical nursing practices in the NICU were uncovered
- c. Infrastructure deemed as insufficient
- d. Nurses need greater accessibility to resources and greater support in making a practice change
- e. Further research is necessary to better understand the phenomenon
 - i. Identify ways to promote collaboration between parents and the health care team
 - ii. Explore barriers to integrating EBP and strategies to overcome identified barriers

iii. Explore ways to better support staff during integration of an EBP change.

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