

Using Social Network Analysis to Understand the Effect of Developmental Care Education

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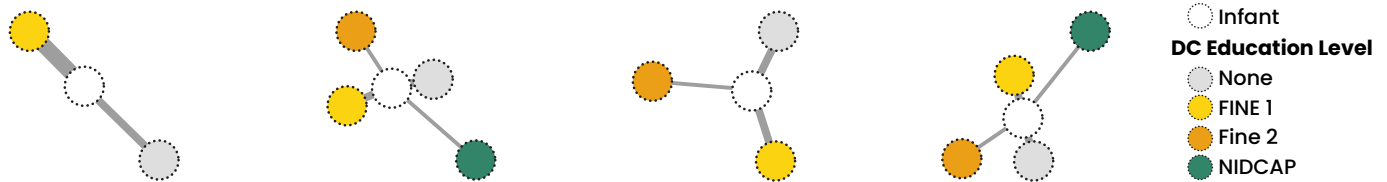


Figure 1: Examples of Social Network Analysis Density of education network for infants during their sNICU admission

Background

Developmental care (DC) is an important moderator against stressors in the newborn intensive care unit (NICU) for infants and their families. However, the impact of varying levels of developmental care education on infants and parents' experiences and outcomes remains unclear. Social network Analysis (SNA) is a methodology that provides researchers with valuable information to improve our understanding of complex relationships and offers better insights into where and how to intervene to improve outcomes.¹ We utilised this approach to evaluate the impact of the levels of developmental care education of neonatal nurses in the surgical NICU (sNICU).

Aim

To explore:

- If exposure to nurses with differing levels of developmental care education influences parent perceptions of nurse support in the sNICU.
- If caregiving by NICU nurses with differing levels of developmental care education influences infant behavioural and physiological responses.
- What infant and nurse components in the sNICU influence nurse delivered caregiving.

Methods

A prospective observational cohort study explored associations between parents' perception of nurse support, nurses' perception of infant behaviour, and infants' responses during nurse-delivered caregiving (physiological and behavioural) with nurse DC education levels. Additional variables included

in the analysis were caregiving duration, infant surgery type (group), infant severity of illness variables, and gestational age. Data were analysed through a multistep process of logistic regression and exploratory network analysis.

Results

Forty-five infants, parents and nurses participated in the study. Exposure to care by nurses with no DC education (n=22) increased infant heart rate during caregiving (OR: 5.09, 95% CI: -3.36, 13.56 p=0.67), increased the duration of caregiving minutes (p<0.001), and decreased parents' perception of emotional support (OR: -0.12, 95% CI: -0.23, -0.01, p=0.043). Increased infant severity of illness scoring (n-TISS) (OR 1.01, 95% CI: 1.01, 1.04, p=0.040) and narcotic infusion was associated with non-significant longer duration of caregiving. Infants with congenital cardiac disease (CHD) received significantly shorter caregiving duration (OR: 0.58, 95% CI: 0.37, 0.01, p=0.002). Longer caregiving duration was associated with a higher behavioural stress score (OR: 2.10, 95% CI: 1.59, 2.59, p<0.001).

We observed that the proportion of care provided by DC-educated nurses (density of DC education network) correlated with infant surgery group (Figure 1). Specifically, infants needing surgery for CHD received care from a greater number of DC educated nurses. (OR: 0.10, 95% CI: 0.49, 0.80, p=0.038). The density of the nurse network (proportion of repeat nurse assignments) was associated with gestational age and surgery group. Both preterm infants (OR: 0.13, 95% CI: 0.25, 0.71, p=0.06) and infants needing surgery for respiratory/oesophageal anomalies (OR: 0.11, 95% CI: 0.35, 0.61, p=0.021) received a higher proportion of repeat nurse assignments.

Conclusion

Using a novel analysis methodology, we have demonstrated a relationship between nurse DC education levels, nurse caregiving practices, infant physiological responses, and parent perceptions of caregiving in the sNICU. We identified several clinical care factors that influence the duration of caregiving, as well as infant characteristics that affect caregiving allocation. Providing neonatal nurses with DC education will help to ensure DC is embedded into everyday clinical care, supporting parent and infant outcomes within and beyond the hospital admission.

Relevance to NIDCAP

This research offers NIDCAP Trainers, NIDCAP Certified Professionals, and neonatal clinician's valuable insights into the complex relationships, social processes, and social structures that interact in the sNICU, and influence nurse delivered care.¹ It underscores the significance of developmental care education in highly technical settings.

Reference:

1. Parnell JM, Robinson JC. Social network analysis: Presenting an underused method for nursing research. *Journal of Advanced Nursing*. 2018;74(6):1310-8. <https://doi.org/10.1111/jan.13541>

The Transformative Power of Video Interaction Guidance in Alleviating the Disenfranchised Grief of Preterm Infants' Mothers

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Aims

Birth of a preterm infant is an unfortunate event and a critical situation for the family, which causes disenfranchised grief experiences in parents. Acute grief reactions occur when the parents realize that the newborn infant is not their ideal or fantasy child. Attention to this type of grief in parents and supporting them to interact with their infants is particularly important, specifically in mothers. Therefore, this study aimed to investigate the effect of applying video interaction guidance on disenfranchised grief severity in mothers with preterm newborn infants.

Method

The study used a quantitative interventional approach with a semi-experimental method. The sample consisted of seventy-two mothers with preterm infants in the newborn intensive care unit, with thirty-six mothers in both the control and intervention groups. Participants were selected using the convenience sampling method and allocated to the groups using block randomization. The intervention group underwent a video interaction guide intervention along with routine care for one week. The researcher recorded 5 to 10 minutes of natural mother-child interaction on the first, third, and fifth days of the intervention. Then, on the second, fourth, and sixth days, the researcher edited the videos to highlight the best moments, or "golden moments," of the mother-child interaction. On the

third, fifth, and seventh days, the selected golden moments were shown to the mothers, who received positive feedback about their reactions and emotions. Meanwhile, mothers in the control group only received routine care. Both groups completed questionnaires for demographic information and prematurity grief before the intervention, immediately after, and one week later. The collected data was analyzed using SPSS version 25 and descriptive and inferential statistics such as the T-test, Chi-square, Fisher, Mann-Whitney, and Repeated Measures ANOVA.

Results/Findings

This study revealed that before the intervention, two control and intervention groups were homogenous regarding demographic characteristics and grief severity scores. The result of the paired t-test showed that the grief score in the intervention group decreased profoundly immediately and one week after the intervention. Furthermore, the independent t-test revealed that this difference between the two groups was statistically significant (P -value <0.001). Also, in the intervention group, there was a statistically significant difference between the three measures of grief severity using repeated measures ANOVA (P -value <0.001).

Conclusion

The findings of the current research highlight the significant impact of utilizing video interaction guidance in alleviating the