RESEARCH LETTER

WILEY

Nurses' perceptions about neonatal intensive care units providing family-centered care are associated with skin-to-skin contact implementation

Marilyn Aita[1,2,3] | Gwenaëlle De Clifford-Faugère[1] | Geneviève Laporte[1,2] | Sébastien Colson[3,4] | Nancy Feeley[3,5,6]

[1]Faculty of Nursing, Université de Montréal, Montreal, Canada
[2]CHU Sainte-Justine Research Centre, Montreal, Canada
[3]Quebec Network on Nursing Intervention Research, Montreal, Canada
[4]Faculty of Medical and Paramedical Sciences, CEReSS, Aix-Marseille Université, Marseille, France
[5]Ingram School of Nursing, McGill University, Montreal, Canada
[6]Centre for Nursing Research and Lady Davis Institute, Jewish General Hospital, Montreal, Canada

Correspondence
Marilyn Aita, Faculty of Nursing, Université de Montréal, P.O. Box 6128 Succursale centre-ville, Montréal, Canada.
Email: marilyn.aita@umontreal.ca

Funding source
Réseau de recherche portant sur les interventions en sciences infirmières du Québec, Grant/Award Number: n/a; Réseau de recherche en interventions en sciences infirmières du Québec/Quebec Network on Nursing Intervention Research (RRISIQ)

Received: 17 January 2023; Accepted: 8 August 2023

Skin-to-skin contact (SSC) consists of positioning the diaper-clad infant against the parent's chest and is considered a nursing practice rooted in family-centered care (FCC).[1] SSC implies simultaneous parental presence and helps to facilitate their involvement from the earliest hours of their preterm infants' lives as this intervention is delivered by parents.[1] FCC has gained worldwide popularity in recent years to promote parental presence and active participation of parents in care during neonatal intensive care units (NICUs) hospitalization.[2] Both practices relate to developmental care (DC), which regroups specific interventions aimed at reducing stress and improving infant neurological development.[3]

It is well recognized that promoting SSC and FCC are recommended in the NICU, given its many health benefits for preterm infants and parents. SSC has been found to favor maternal attachment, enhance paternal role achievement and interactive behavior, reduce maternal and paternal anxiety, and promote infants' long-term cognitive development.[4,5] On the other hand, FCC can improve the clinical outcomes of preterm infants such as greater weight gain, as well as the psychological well-being of the parents.[6] More specifically, parental involvement in NICU care is associated with reduced infants' length of hospital stay and collaboration with professionals increased parental satisfaction.[7] Daily maternal presence during NICU hospitalization is associated with a decrease in emotional and behavioral problems in school-age children.[8] Noteworthy, parental presence during NICU hospitalization with more frequent holding of their infant in their arms, is associated with better infants' neurobehavioral development, such as

DOI: 10.1002/ped4.12402

better quality of movements and reduced arousal, at term equivalent age.[9]

Given their benefits and driven by the DC philosophy, nurses should encourage SSC as well as FCC to provide parents with opportunities for collaboration and care involvement in the NICU. Yet, significant barriers may impede nurses from implementing SSC and FCC in the NICU, namely the lack of adequate training for nurses about SSC.[10] As optimal implementation of FCC and SSC may depend on the nurses' perceptions of these DC practices, along with the training and education about these practices provided in the NICU, the aim of this manuscript is to explore the association between NICU nurses' perceptions about SSC and FCC and their unit's ability to provide FCC and SSC.

Secondary analysis was performed from a larger comparative international study that was conducted between October 2017 and July 2018, where 202 NICU nurses completed paper or online questionnaires on their perceptions about their unit provision of FCC and SSC.[11] Prior to the beginning of the study, ethical approval was obtained in both Canada (MP-21-2018-1854) and France (20181306005 and CNIL 2211490 v0).

Nurses were recruited from four level III university-affiliated NICUs (intensive and intermediate care) in Canada and France admitting infants born between 23 and 40 weeks of gestational age. Total number of beds ranged from 30 to 65 in Canada and from 26 to 54 in France. The number of nurses working in the NICUs in France varied from 60 to 100 and in Canada from 113 to 190. Nurses' mean age was 33.9 ± 9.1 years, and they had a mean of 8.1 ± 7.0 years of neonatal care experience, and a mean of 7.1 ± 6.9 years on the sampled unit. Most were women (97.5%, 197/202) and almost half of the sample worked during the day (49.7%, 94/189) followed by the night (27.0%, 51/189), the evening (7.9%, 15/189), and rotation across the three shifts (15.30%, 29/189). Eighty-five nurses (42.1%, 85/202) in our sample had completed a bachelor's degree.

The SSC questionnaire evaluated NICU nurses' attitudes and knowledge about SSC as well as their perception of their unit's SSC training and education in addition to implementation.[12] It contained 20 items with a five-point Likert scale ranging from 1 "never" to 5 "always". It is separated into four subscales: knowledge (five items), personal attitudes and beliefs (four items), staff training and education (five items), as well as the unit-level implementation of SSC (six items). Training and education, and implementation refer to several aspects of the practice of SSC, including the availability of guidelines for its practice, proper training of health care professionals in SSC, interdisciplinary collaboration in supporting SSC, and adequate implementation on the unit.[12] Higher scores reflect more favorable perceptions. The FCC questionnaire inquires as to the nurses' perceptions of whether the unit staff respects families, collaborates with them, and provides support.[13] It included 20 items with a four-point Likert scale ranging from 1 "never" to 4 "always" divided among three subscales: respect (six items), collaboration (nine items), and support (five items). Scores of the subscales could vary from 6 to 24 (respect), 9 to 36 (collaboration), and 5 to 20 (support) while the total score could range from 20 to 80. Higher scores on each subscale in addition to the total score indicate more favorable perceptions that their unit is providing these aspects of FCC. Both questionnaires had adequate validity and reliability in French and English versions.[12–14]

TABLE 1 Nurses' mean scores of perceptions about their NICUs' ability to provide FCC and SSC practices

Questionnaire	Mean score	Possible range of score
FCC		
Respect (items 1 to 6)	19.78 ± 2.37	6–24
Collaboration (items 7 to 15)	30.18 ± 2.81	9–36
Support (items 16 to 20)	14.83 ± 1.82	5–20
Total (all 20 items)	64.79 ± 5.72	20–80
SSC		
Knowledge (items 1 to 5)	21.53 ± 2.14	5–25
Attitudes (items 6 to 9)	18.24 ± 1.70	4–20
Training & Education (items 10 to 14)	15.25 ± 3.61	5–25
Implementation (items 15 to 20)	22.60 ± 4.05	6–30

Data was shown as mean ± SD or range. FCC, family-centered care; SCC, skin-to-skin contact.

Descriptive analyses (mean, standard deviation) were calculated for the subscales of each questionnaire as well as for the FCC questionnaire total score. Associations between subscale and total scale scores of FCC and SSC questionnaires were explored using Pearson's correlations. Descriptive analyses were also computed to describe the demographic data of the sample. Statistical analysis was done using SPSS v.26 with an alpha of 0.05.

The nurses' mean scores for all subscales and total scores of the SSC and FCC questionnaires were shown in Table 1 and the correlations among these scores were shown in Table 2. Nurses' total FCC score (64.79/80), in addition to their SSC attitude subscale score (18.24/20) and knowledge subscale score (21.53/25) were high (Table 1). Results show that the nurses' FCC total score was significantly correlated with all SSC subscales scores, ranging from weak (0.17) to

moderate (0.30) correlations (Table 2). Our findings indicated that the nurses' favorable perceptions that their unit is providing FCC are minimally associated with greater SSC personal knowledge (0.17) and attitudes (0.19), as well as with their better perceptions of their unit performance in terms of training and education (0.24) along with SSC implementation (0.30). Among all subscales of both practices, the highest correlations were found between the nurses' perceptions of their NICU providing support to families (FCC support subscale score) and SSC available training and education (0.29) as well as between the FCC support subscale score and SSC implementation on their unit (0.31). In addition, a similar association (0.30) was found between the nurses' perceptions of their unit's implementation of SSC and the total score of care being family-centered in their NICU.

This secondary analysis offers an exploration of how nurses' perceptions about their NICU's ability to provide FCC are associated with SSC and brings new knowledge to guide neonatal practice. Overall nurses considered that their unit performed well with respect to FCC and their knowledge and attitudes about SSC were favorable. It is interesting to note the associations between the nurses' perceptions that their NICU provides support to parents and the staff training and education as well as implementation of SSC in the NICU. These findings might be interpreted to indicate that when SSC training and education are available and provided to nurses in addition to being well implemented in their neonatal unit, nurses have more favorable perceptions that their NICU supports FCC and vice versa. Enhancement of DC practices not only requires positive nurses' perceptions but also high professional competency in addition to favorable organizational structures which can be maintained through educational nursing training on DC as well as proper management support.[15] A recent study showed that a virtual education program can improve NICU nurses' DC perceptions and knowledge.[16] Accordingly, fostering the implementation of these practices in NICU settings could be accomplished through implementation science research related to either FCC or SSC. Nurses embracing favorable perceptions regarding their unit performance of FCC and SSC might translate into positive health outcomes for preterm infants and their parents.

Interventions during NICU hospitalization such as SSC should be implemented in addition to other DC practices as these interventions encourage parents' presence and involvement in the care of their infant.[17] As our study nurses worked mostly on the day shift, our findings may be explained by possibly greater parental presence and care involvement during the day where parents may request these practices, which in return may facilitate FCC and support nurses' favorable attitudes towards SSC. The nurses' knowledge and favorable attitudes concerning SSC may also be accounted for by their educational level as a higher degree of education has been associated with more SSC knowledge and favorable attitudes[18] and close to 45% of our sample of nurses had completed a bachelor's nursing degree. As one component of FFC, SSC is credited as one of the most powerful interventions that is performed by parents with benefits for both parents and preterm infants.[1]

Although SSC and FCC could be considered as separate practices in DC, this secondary analysis shows that NICUs promoting one of those practices appear to also support the other. Hence, nurses who perceive that their unit performs well in providing FCC to parents also perceive their unit implements SSC and provides training and education about SSC. Highlighting this relationship is essential from

TABLE 2 Correlations between family-centered care and skin-to-skin contact subscales and total scores

	FCC				SSC			
Variables	**Respect**	**Collaboration**	**Support**	**Total**	**Knowledge**	**Attitudes**	**Training & Education**	**Implementation**
FCC								
Respect	—							
Collaboration	0.552**	—						
Support	0.479**	0.466**	—					
Total	0.832**	0.867**	0.754**	—				
SSC								
Knowledge	0.175*	0.142*	0.099	0.171*	—			
Attitudes	0.181*	0.132	0.166*	0.189**	0.538**	—		
Training & Education	0.137	0.189**	0.290**	0.240**	0.235**	0.198**	—	
Implementation	0.207**	0.230**	0.314**	0.295**	0.267**	0.302**	0.674**	—

*$P < 0.05$; **$P < 0.01$. FCC, family-centered care; SCC, skin-to-skin contact.

theoretical and practical perspectives to better understand DC as a concept with integrated rather than independent components. This view of DC philosophy could guide neonatal clinical practices and encourage nurses to promote one intervention by supporting the other. As such, nurses who would aim to help parents achieve SSC in NICU are also supporting FCC, and therefore expose infants and parents to the combined known benefits of both practices. Noteworthy, an intervention about teaching staff how to work collaboratively with parents was found to increase parental presence in the NICU and SSC[19] in addition to the quality of FCC according to both parents' and nurses' perceptions.[20] Accordingly, focusing on training nurses to be able to work in collaboration with parents to provide care and enhance the implementation of DC practices. Future research should also consider investigating the relationship between any of these DC practices to build on evidence to support this unified view of DC interventions.

ETHICAL APPROVAL

The ethical approval was obtained in both Canada (MP-21-2018-1854) and in France (20181306005) and CNIL 2211490 v0).

ACKNOWLEDGMENTS

Thank you the Réseau de recherche en interventions infirmières du Québec/Quebec Network on Nursing Intervention Research [RRISIQ] for funding.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Franck LS, O'Brien K. The evolution of family-centered care: from supporting parent-delivered interventions to a model of family integrated care. *Birth Defects Res.* 2019;111:1044-1059. DOI: 10.1002/bdr2.1521
2. Hei M, Gao X, Li Y, Gao X, Li Z, Xia S, et al. Family integrated care for preterm infants in China: a cluster randomized controlled trial. *J Pediatr.* 2021;228:36-43. DOI: 10.1016/j.jpeds.2020.09.006. e2.
3. Lavallée A, De Clifford-Faugère G, Garcia C, Fernandez Oviedo AN, Héon M, Aita M. Part 1: narrative overview of developmental care interventions for the preterm newborn. *J Neonatal Nurs.* 2019;25:3-8. DOI: 10.1016/j.jnn.2018.08.008
4. Feldman R, Rosenthal Z, Eidelman AI. Maternal-preterm skin-to-skin contact enhances child physiologic organization and cognitive control across the first 10 years of life. *Biol Psychiatry.* 2014;75:56-64. DOI: 10.1016/j.biopsych.2013.08.012
5. Shorey S, He HG, Morelius E. Skin-to-skin contact by fathers and the impact on infant and paternal outcomes: an integrative review. *Midwifery.* 2016;40:207-217. DOI: 10.1016/j.midw.2016.07.007
6. O'Brien K, Robson K, Bracht M, Cruz M, Lui K, Alvaro R, et al. Effectiveness of family integrated care in neonatal intensive care units on infant and parent outcomes: a multicentre, multinational, cluster-randomised controlled trial. *Lancet Child Adolesc Health.* 2018;2:245-254. DOI: 10.1016/S2352-4642(18)30039-7
7. Segers E, Ockhuijsen H, Baarendse P, van Eerden I, van den Hoogen A. The impact of family centred care interventions in a neonatal or paediatric intensive care unit on parents' satisfaction and length of stay: a systematic review. *Intensive Crit Care Nurs.* 2019;50:63-70. DOI: 10.1016/j.iccn.2018.08.008
8. Latva R, Lehtonen L, Salmelin RK, Tamminen T. Visiting less than every day: a marker for later behavioral problems in Finnish preterm infants. *Arch Pediatr Adolesc Med.* 2004;158:1153-1157. DOI: 10.1001/archpedi.158.12.1153
9. Reynolds LC, Duncan MM, Smith GC, Mathur A, Neil J, Inder T, et al. Parental presence and holding in the neonatal intensive care unit and associations with early neurobehavior. *J Perinatol.* 2013;33:636-641. DOI: 10.1038/jp.2013.4
10. Lee HC, Martin-Anderson S, Dudley RA. Clinician perspectives on barriers to and opportunities for skin-to-skin contact for premature infants in neonatal intensive care units. *Breastfeed Med.* 2012;7:79-84. DOI: 10.1089/bfm.2011.0004
11. Aita M, De Clifford-Faugère G, Feeley N, Colson S. An international comparative study of nurses' perceptions of developmental care practices. *BMC Nurs.* 2023. In submission.
12. Vittner D, Cong X, Ludington-Hoe SM, McGrath JM. A survey of skin-to-skin contact with perinatal nurses. *Appl Nurs Res.* 2017;33:19-23. DOI: 10.1016/j.apnr.2016.09.006
13. Shields L, Zhou H, Pratt J, Taylor M, Hunter J, Pascoe E. Family-centred care for hospitalised children aged 0-12 years. *Cochrane Database Syst Rev.* 2012;10:CD004811. DOI: 10.1002/14651858.CD004811.pub3
14. Aita M, De Clifford Faugère G, Laporte G, Colson S, Feeley N. French translation and preliminary psychometric validation of a skin-to-skin contact instrument for nurses (SSC-F). *J Spec Pediatr Nurs.* 2022;27:e12359. DOI: 10.1111/jspn.12359
15. Park J, Kim JS. Factors influencing developmental care practice among neonatal intensive care unit nurses. *J Pediatr Nurs.* 2019;47:e10-e15. DOI: 10.1016/j.pedn.2019.03.014
16. Jalali S, Bagherian B, Mehdipour-Rabori R, Forouzi MA, Roy C, Jamali Z, et al. Assessing virtual education on nurses' perception and knowledge of developmental care of preterm infants: a quasi-experimental study. *BMC Nurs.* 2022;21:161. DOI: 10.1186/s12912-022-00939-6
17. Baley J. Skin-to-Skin care for term and preterm infants in the neonatal ICU. *Pediatrics.* 2015;136:596-599. DOI: 10.1542/peds.2015-2335

18. Al Mutair A, Almutairi W, Aljarameez F, Kay E, Rabanal R, Abellar K, et al. Assessment of nurses' knowledge, attitude and implementation of skin-to-skin care within the perinatal setting in Saudi Arabia: survey study. *Nurs Open.* 2023;10:2165-2171. DOI: 10.1002/nop2.1464
19. He FB, Axelin A, Ahlqvist-Björkroth S, Raiskila S, Löyttyniemi E, Lehtonen L. Effectiveness of the close collaboration with parents intervention on parent-infant closeness in NICU. *BMC Pediatr.* 2021;21:28. DOI: 10.1186/s12887-020-02474-2
20. Toivonen M, Lehtonen L, Löyttyniemi E, Ahlqvist-Björkroth S, Axelin A. Close collaboration with parents intervention improves family-centered care in different neonatal unit contexts: a pre-post study. *Pediatr Res.* 2020;88:421-428. DOI: 10.1038/s41390-020-0934-2

How to cite this article: Aita M, De Clifford-Faugère G, Laporte G, Colson S, Feeley N. Nurses' perceptions about neonatal intensive care units providing family-centered care are associated with skin-to-skin contact implementation. *Pediatr Investig*. 2024;8:61–65. https://doi.org/10.1002/ped4.12402