The effect of family integrated care (FICare) on maternal stress and anxiety

Karel O’Brien¹, FRCPC, Chelsea Cheng¹, BScH, L Franck²

¹Department of Paediatrics, Sinai Health System, Toronto, Canada, ²University of California- San Francisco, USA.

Background and Aims

- FICare promotes parent-infant interaction in the NICU via staff and parent education programs, peer-to-peer parent support, and adaptation of unit policies and procedures.
- A cluster-randomized controlled trial (cRCT) in 14 intervention and 12 control NICUs in Canada, Australia, and New Zealand indicated that Total maternal stress and anxiety were decreased in FICare mothers (1).
- This current analysis examined how FICare specifically affected Subscale measures of parental stress and anxiety.
- Our hypothesis was that the measured difference in the total stress score in the FICare arm of the cRCT would be attributable to changes in the “Parental role” subscale measure.
- Furthermore, we hypothesized that the change in total anxiety score would be most attributable to changes in state anxiety.

Methods

Design: Secondary analysis of data previously collected from a cRCT of the FICare model.

Assessment tools:

- Parental Stressor Scale: Neonatal Intensive Care Unit (PSS:NICU)
- State-Trait Anxiety Index (STAI)

Inclusion criteria:

- Mothers of infants born less than 33 weeks gestational age, were on no or low-level respiratory support, and had a caregiver able to commit to spending at least 6 hours per day with the infant.
- Mothers had to have completed demographic data questionnaires as well as the PSS:NICU and/or STAI questionnaires at enrollment or at day 21.

Table 1. Maternal characteristics			
Characteristics	Control	FICare	p-value ¹
Mothers, N	673	710	
Maternal age, mean (sd)	31.3 (5.4)	31.3 (5.6)	0.86
Married, % (n/N)	91.44 (609/666)	90.6 (636/702)	0.58
Family income group, % (n/N)			0.44
<\$20 000	9.98 (64/641)	8.84 (60/679)	
\$20 000 – \$39 999	15.29 (98/641)	15.76 (107/679)	
\$40 000 – \$99 999	41.5 (266/641)	45.36 (308/679)	
≥\$100 000	33.23 (213/641)	30.04 (204/679)	
# of other children at home			0.04
0	61.22 (412/673)	67.61 (480/710)	
1	24.22 (163/673)	21.13 (150/710)	
>1	14.56 (98/673)	11.27 (80/710)	
Education level (>12 years),% (n/N)	63.74 (429/673)	67.32 (478/710)	0.16
Employed, % (n/N)	72.36 (487/673)	76.76 (545/710)	0.06
Ethnic group (White vs Others), % (n/N)	66.57 (448/673)	73.8 (524/710)	0.003
Family support, % (n/N)	60.33 (406/673)	65.49 (465/710)	0.046
Other support, % (n/N)	72.96 (491/673)	74.51(529/710)	0.51

¹The reported p-values were based on the comparison between the two groups using Chi-square test for categorical variables and Student T-test for continuous variables.
Abbreviations: N, total number in group; sd, standard deviation; n, number in subgroup

Results

- Total maternal mean PSS:NICU and STAI scores were significantly lower in the FICare group than in the control group at day 21 (Table 2).
- The Parental role subscale score of PSS;NICU was the most significantly decreased subscale (Table 2).
- The State anxiety subscale score of the STAI scores was the most significantly decreased subscale (Table 2).
- These differences remained significant after adjustment for maternal demographic variables (Table 2)

Table 2. Adjusted maternal stress and anxiety scores for Control and FICare groups

		Control	FICare	p-value
		LS mean (95% CI) ¹	LS mean (95% CI) ¹	
Stress				
Sights and Sounds Score	Enrollment	2.44 (2.37, 2.51)	2.53 (2.46, 2.61)	0.045
	Day 21	2.24 (2.16, 2.32)	2.13 (2.05, 2.21)	0.023
Looks and Behavior score	Enrollment	2.75 (2.67,2.83)	2.85 (2.77,2.93)	0.048
	Day 21	2.52 (2.43, 2.60)	2.43 (2.33 2.51)	0.057
Parental Role score	Enrollment	2.92 (2.85,3.0)	3.0 (2.92, 3.08)	0.09
	Day 21	2.61 (2.53, 2.69)	2.35 (2.27, 2.44)	<0.0001
Total stress score	Enrollment	2.75 (2.69, 2.82)	2.84 (2.77, 2.91)	0.03
	Day 21	2.50 (2.43, 2.57)	2.35 (2.27,2.42)	0.0007
Anxiety				
A- State scale score	Enrollment	42.6 (41.6, 43.6)	44.1 (43.1, 45.2)	0.01
	Day 21	38.0 (36.9, 39.1)	35.8 (34.6, 36.9)	0.002
A-Trait scale score	Enrollment	38.6 (37.7, 39.5)	40.1 (39.2, 41.1)	0.009
	Day 21	35.4 (34.5, 36.4)	34.2 (33.2, 35.2)	0.047
Total anxiety score	Enrollment	81.0 (79.2, 82.9)	83.6 (81.7, 85.6)	0.02
	Day 21	73.3 (71.3, 75.2)	69.6 (67.6, 71.7)	0.005

¹The reported 95%CI's were based the mixed effect models with interaction term between time period and intervention group, adjusted for number of children at home, employment, ethnicity, and family support.
Abbreviations: LS, least squares; CI, confidence interval;

Conclusion

- FICare affected all subscales of parental stress and anxiety scores, but most significantly affected the parental role and state anxiety subscales.
- This analysis provides further support that FICare is an effective intervention for reducing parental stress and anxiety in the NICU.

“It’s like landing on a cushion before you know you are falling.”

Mount Sinai NICU Dad

Reference 1. O’Brien K, Robson K, Bracht M, Cruz M, Lui K, Alvaro R, daSilva O, Monterrosa L, Narvey M, Ng E, Soraisham A, Ye XY, Mirea L, Tarnow-Mordi W, Lee SK. Evaluation of Family Integrated Care: A Cluster Randomized Controlled Trial in Canada, Australia, and New Zealand. Lancet Child & Adolescent Health., Published February 7, 2018