

Nurse home visits promoted maternal-infant interaction and decrease depression symptom severity for mothers with postpartum depression

**June Horowitz, Christine Murphy, Joanne Wojcik,
Katherine Gregory, Joyce Pulcin, Loris Solon
& The CARE Project Team**

**Wm. F. Connell School of Nursing
Boston College, Chestnut Hill, MA, USA**

Acknowledgements

- **CARE (Communicating And Relating Effectively)**
Intervention for Depressed Mothers and Their Infants
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Background & Purpose

- **Background:** Postpartum depression (PPD) dysregulates maternal-infant interaction thereby adversely affecting infants. The CARE intervention aimed to promote responsive interaction between depressed mothers and their infants by coaching mothers to interpret infants' behavioral cues and respond sensitively and contingently.
- **Purpose:** To test the efficacy of the CARE intervention in increasing maternal-infant relational effectiveness between depressed mothers and their infants during the first 9 months postpartum.



Recruiting & Screening Mothers & Infants



- Hospital nurses and CARE research nurses requested permission from postpartum women at BWH and MGH to allow PPD screening at 4-6 weeks postpartum; **7,212** agreed



- CARE team research nurses screened **5,169** women by telephone or mail at 4-6 weeks postpartum with the 10-item Edinburgh Postnatal Depression Scale (EPDS)

Qualifying & Enrolling Mothers and Infants

- **674** women with EPDS-10 score ≥ 10 invited to have home visit @ 6 weeks postpartum
- At 6 weeks visit: **185** provided Informed Consent & completed SCID Diagnostic Interview conducted by PMH APRN
- **134** women with confirmed depression enrolled and completed First Home Visit (FHV) @ 6-8 weeks
- **125** women completed all home visits through 9th month



Measures Completed at First Visit/ 6 Weeks (*n*=134)

- The Mother's Information Tool (MIT) elicited demographic & situational variables
- EPDS-10 & Postnatal Depression Screening Scale (PDSS measured symptom severity
- Parental Stress Index (PSI/SF) measured parental stress
- NCATS Video Coding with coding Blinded to Tx vs. Control group assignment

Demographic Characteristics for Sample of 134 Enrolled Mothers

- Mean Age: 31 years
(Range: 14-49 years)
- Mean Years of Education: 15.6
(Range: 0-30 yrs)
- Parity: 56% first baby
- Mother's Primary Language: 72% English
- Income: $x = \$80,132$.
(Range: \$71,445 - \$88,819)
- Race & Ethnicity
 - 12% African American/Black
 - 8% Asian/Pacific Islander
 - 54% Caucasian/White
 - 22% Latina/Hispanic
 - 4% Mixed/Other



	4 weeks	6 weeks	2 month hs	3 months	4 month hs	6 months	9 months
Control Group	Screenin g Intervie w: MIT brief EPDS	Diagnostic Interview: SCID-I Measures: MIT EPDS PDSS PSI/SF NCATS	No visit	Measures: MIT Update EPDS PDSS PSI/SF NCATS	No visit	Measures: MIT Update EPDS PDSS PSI/SF NCATS	Final Measures: MIT Update EPDS PDSS PSI/SF NCATS
Treatment Group	Screenin g Intervie w: MIT brief EPDS	CARE Diagnostic Interview: SCID-I Measures: MIT EPDS PDSS PSI/SF NCATS	CARE	CARE Measures: MIT Update EPDS PDSS PSI/SF NCATS	CARE	CARE Measures: MIT Update EPDS PDSS PSI/SF NCATS	Final Measures: MIT Update EPDS PDSS PSI/SF NCATS

CARE Intervention Components for Teaching and Behavioral Coaching: Session 1

- **Teaching re: Infant's cues:**
 - Teach how infants signal readiness to interact with behavioral engagement cues
 - Teach how infants signal the need for a break in interaction with behavioral disengagement cues
 - Identify 2-3 cues demonstrated by the infant during play observation
 - Elicit mother's observations of 1-2 infant's cues
 - Assign homework to observe baby cues and to use Mother's CARE and Child Communication Cue forms
- **Behavioral Coaching:**
 - Identify problematic maternal behaviors indicative of withdrawal or intrusiveness from play observation
 - Use coaching strategies to:
 - Suggest, model, and/or encourage 2-3 contingent, sensitive behavioral responses to baby cues
 - Encourage mother to try out suggested responses to infant cues;
 - Assign homework to practice; suggest homework assignment in writing on Mother's CARE form

CARE Intervention Components for Teaching and Behavioral Coaching: Sessions 2, 3, 4, 5

- **Teaching re: Infant's cues:**
 - Review homework and discuss observations
 - Reinforce knowledge about infant's cues
 - Repeat steps from Session 1 in relation to new infant cues
 - Relate changes in cues to infant development
- **Behavioral Coaching:**
 - Review homework and discuss outcomes
 - Discuss play observations re: maternal-infant interaction patterns
 - Repeat steps from Session 1 in relation to observations
 - Expand repertoire of behavioral responses
 - Praise and encourage
 - Evaluate intervention outcomes
 - Reinforce effective responses

Results

- Age, education, income and parity were *not significantly related* to maternal/infant relational effectiveness (NCATS-73) at 6-8 weeks postpartum, and the treatment and control groups did not differ on baseline demographic characteristics
- **Both treatment and control groups had significant increases in the quality of mother-infant interaction** (RANOVA: $F. = 21.46$; $p < .001$), and **decreases in depression severity over time** ($p < .001$).
- Thus both groups improved over time!
Differences were found for ethnic/racial groups



NCATS Means for Racial/Ethnic Subgroups at 6 Weeks & 9 Months Postpartum

- 6 Weeks NCATS-73 Total Scores ($n=134$)
 - African American*(16) $x=39.44$; $sd=10.4$ Cut Score <42
 - Hispanic* (30) $x=40.70$; $sd=9.3$ Cut Score <44
 - Asian (11)** $x=47.18$; $sd=12.1$ No Cut Score
 - Caucasian (71) $x=48.61$; $sd=10.5$ Cut Score <47
- 9 Months NCATS-73 Total Scores ($n=125$)
 - African American (15) $x=48.40$; $sd=9.3$ Cut Score <42
 - Hispanic (28) $x=50.79$; $sd=7.4$ Cut Score <44
 - Asian (11) $x=50.64$; $sd=8.0$ No Cut Score
 - Caucasian (69) $x=56.22$; $sd=6.2$ Cut Score <47

* Worrisome

** No cut scores available for Asian mothers

Results of *RANOVA* for NCATS-73 Score by Race/Ethnicity (4) Over Time (4)

- Significant Effect for Time ($F = 12.45; p < .001$)
- Significant Effect for Group ($F = 11.58; p < .001$)
- No Significant Interaction for Group x Time
- Tests of Contrasts and Pairwise Comparisons (Bonferroni)
 - African American mothers scored $<$ than Caucasian Mothers (-7.49; $p < .001$)
 - Hispanic mothers scored $<$ than Caucasian Mothers (-7.11; $p < .001$)
 - All groups improved over 4 time periods with most significant improvement noted from:
 - 6 weeks to 9 months (7.47; $p < .001$)
 - 6 weeks to 6 months (5.83; $p < .001$)
 - 3 months to 9 months (4.25; $p < .001$)

Results of ANCOVAs for NCATS-73 Scores at 6 Weeks and 9 Months by Race/Ethnicity After Adjusting for Years of Education

- Education selected as covariate based on correlation coefficients and series of Oneway ANOVAs
- 6 weeks: *No significant differences* among racial/ethnic groupings with respect to NCATS-73, scores after adjusting for years of education
- 9 months: *There was a significant difference* among racial/ethnic groups with respect to NCATS-73 scores, after adjusting for years of education. ($F = 5.68$; $p = .001$)
 - African American mothers scored $<$ than Caucasian mothers (-6.94 ; $p = .013$).
 - There were *no significant differences* for Hispanic, Asian or Caucasian mothers

Implications

- Findings provide support for efficacy of CARE intervention, *but not definitively*.
- Notably, other studies have shown ***no*** improvement in mother-infant interaction even when PPD severity improved.



Implications

- Active ingredients for control group likely were:
 - Presence of the nurse,
 - empathic listening to mothers,
 - focused attention paid through video-recording and symptom monitoring,
 - assistance with referrals,
 - self-reflection in completing measures likely :
 - **constituted an unintentional treatment for the control group!**

Implications

- Intervention refinement and testing under varied conditions are warranted.
- Findings inform implications for supportive postpartum care for nurses and midwives.



Questions for Further Investigation



- What is NCATS measuring? How might results be influenced by the measure?
- Parenting style is shaped by culture, race and ethnicity so do results reflect measurement validity OR a health disparity re: effects of PPD by race/ethnicity?
- How to overcome presence of the nurse as confounding factor in nursing intervention research and still protect safety of vulnerable participants and avoid control group attrition?
- Next study?? Ideas invited!
- Assessing interest and internet access among mothers. Pilot testing a website for mothers to deliver components of the CARE intervention and provide social networking.

Thank You!

