Screening for Anxiety and Depression in Mothers of Infants Who Required Neonatal Intensive Care

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INTRODUCTION

- Approximately 13% of mothers experience postpartum depression and approximately 12% experience postpartum anxiety. (Reck et al., 2018)
- Postpartum mood disorders impair mothers' ability to engage their infants and young children in critically important, development enhancing, reciprocal interactions. (Tronick & Reck, 2009)
- Mother-infant interactions scaffold "serve-and-return" reciprocal circles of communication characterized by periods of "conversational synchrony, mismatch and repair." (Muller et. al, 2015; Tronick & Reck, 2009)
- Infants who require neonatal hospitalization are more challenging interactive partners potentially exacerbating the effect of postpartum mood disorders on the quality of mother-infant interaction. (Feldman & Eidelman, 2006)
- Mother-infant dyads who experienced a neonatal hospitalization may be at particularly high risk for disordered relationships. (Feldman & Eidelman, 2006; Poehlmann et al. 2009)
- A valid easily administered screen for maternal mood disorders is crucial to universal maternal mental health screening and early intervention.
- **The Present Study:** We conducted an exploratory factor analysis (EFA) to examine the underlying structure of the Edinburgh Postnatal Depression Scale (EPDS, Cox et al., 1987) in a demographically diverse sample of mothers of infants and toddlers who required care in a Level IV NICU.

EPDS

1. I have been able to laugh and see the funny side of things.
2. I have looked forward with enjoyment to things.
3. I have blamed myself unnecessarily when things went wrong.
4. I have been anxious or worried for no good reason.
5. I have felt scared or panicky for no very good reason.
6. Things have been getting the better of me.
7. I have been so unhappy that I have had difficulty sleeping.
8. I have felt sad or miserable.
9. I have been so unhappy that I have been crying.
10. The thought of harming myself has occurred to me. (Cox et al., 1987)

METHOD

Literature review and scree plot evaluation suggest the presence of two – three factors in the EPDS. Therefore, three and two-factor models were tested. Maximum likelihood and generalized least squares (to address non-normal distribution of the EPDS item 10, self-harm) estimations using oblique (direct oblimin) rotation, with and without item 10 were compared (See Table 2). Finally, Partial Confirmatory Factor Analysis (PCFA, Giles, 2009) was conducted to estimate fit indices (see Table 3).

Participants: 157 mothers of infants/toddlers receiving care in the NICU or attending the Follow-Up Program.

Table 1. Demographics

Characteristic	Percent	*N*	*M*	*SD*
Black/African American	47.8	75		
White	38.2	60		
Other	14.0	22		
First child	49.0	77		
In a relationship	84.0	126		
Income			$43,300	2.35
Maternal Age			30.03	6.77
Infant Gestational Age (wks)			30.78	4.29
Infant Birth Weight (gms)			1422.21	744.97

Table 2. Partial Confirmatory Factor Analysis (PCFA) of EPDS Stratified by Extraction Method *(N = 157)*

Model - Extraction Method	*χ2*	*df*	CFI >.95	TLI >.95	RMSEA <.06 or <.08	SRMR <.06
1 - Maximum Likelihood*			0.99	0.98	0.043	0.03
F1-Anhedonia - EPDS 1, 2 F2-Anxiety - EPDS 3,4,5,6 F3-Depression – EPDS 7,8,9	*Null = 635.60* *Implied = 23.25*	45 18				
2 - Generalized Least Squares*						.04
F1-Anhedonia - EPDS 1, 2 F2-Anxiety - EPDS 3,4,5,6 F3-Depression – EPDS 7,8,9	*Null = 635.60* *(did not generate)*	45				
3 - Maximum Likelihood**			0.96	0.92	0.082	0.05
F1-Anxiety - EPDS 1,2, 7,8,9 F2-Depression-EPDS 3-6, 8-10	*Null = 635.60* *Implied = 53.14*	45 26				
4 - Generalized Least Squares**			0.97	0.95	0.062	.05
F1-Anxiety - EPDS 1,2, 7,8,9 F2-Depression-EPDS 3-6, 8-10	*Null = 635.60* *Implied = 41.60*	45 26				

Note: * = Eigenvalues over 1, ** = Forced 2 Factors, CFI = Comparative Fit Index, TLI = Tucker-Lewis Index,

RESULTS

- Model 1, a three-factor model (anhedonia, anxiety and depression) explaining 54.04% of the variance and with each item loading on only on factor was preferred.
- In Models 1 and 2, item 10 was non-salient at <.30 on any factor.
- Models 3 and 4, two-factor models (depression and anxiety), also demonstrated acceptable fit; nevertheless, pattern matrix evaluation revealed overlapping loadings on item 9 (crying).

CONCLUSIONS

- To our knowledge, this study is the first to examine the factor structure of the EPDS in mothers of infants and toddlers who required NICU hospitalization.
- Our findings are consistent with those reported by Chiu et al. 2017, in their diverse sample of urban mothers, and a growing body of literature indicating that the EPDS is sensitive to anxiety as well as depression.
- These findings in conjunction with those reported by Chiu et al., 2017 and Matthey et al., 2013 suggest that the variability in the factor structure of the EPDS across studies may reflect variability in mothers' experiences of anxiety and depression in different populations.
- The EPDS is a well-validated, well accepted tool for screening postpartum depression. Findings from this study add to the evidence indicating the EPDS may be useful in identifying postpartum anxiety as well. Further research is needed.

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