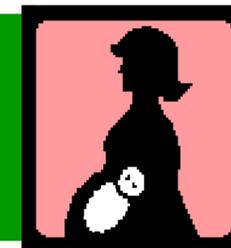




What are Helpful Data Analytic Approaches for Analyzing and Understanding Trajectories of Maternal Depression in Relation to Infant Affect Expression?

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INTRODUCTION

Depression during the childbearing years has been shown to have serious physical health effects on the developing fetus and later cognitive and behavioral problems in children, as well as negatively affect the mother's parenting resources including her ability to care for her infant following birth (O'Hara, 2009). Even mild levels of depression have been shown to have negative effects on various aspects of parenting such as maternal sensitivity, engagement, and positive affection, as well as less reciprocity and enjoyment between the mother and her infant (Albright & Tamis-LeMonda, 2002).

Findings by Pauli-Pott et al. (2003) suggest that maternal depression experienced by a child in the early years of life may adversely affect the development of emotion regulation and affective expression. Furthermore, Albright and Tamis-LeMonda (2002) found that toddlers of mothers reporting depressive symptoms exhibited less positive affect, engagement with the mother, and gentleness when compared to toddlers with mothers who do not report depressive symptoms.

Less well known are the differential effects of depressive symptoms throughout the transition to motherhood on child emotional development and affect expression over time.

Research Aims:

- To explore possible trajectories of maternal depression
- To explore how trajectories of maternal depression relate to infant affect expression over time

METHOD

Participants

- 120 women followed from pregnancy through the first few years of their infants' life
- Mothers' age range: 18-42, $M = 26$
- 47% African-American, 36% Caucasian, 13% Biracial, 5% Other; see Figure 1.
- 64% single/never married, 28% married, 4% divorced, 4% separated
- 20% had a high school diploma or less, 44% some college, 36% college degree; see Figure 2.
- Median monthly household income = \$1500
- 88% receive services from WIC, and 90% have public health insurance

METHOD continued

Procedures

Pregnant women were recruited through the posting of flyers in pregnancy agencies and area community organizations. The first interview took place during the third trimester of pregnancy (T1), with subsequent interviews at 3-months postpartum (T2), 1-year postpartum (T3), and 2-years postpartum (T4). Retention (n): T1 (120), T2 (119), T3 (115), T4 (99).

Measures

Maternal depression was measured at T1 and T2 using the Edinburgh Postpartum Depression Scale ($\alpha = .82$, $\alpha = .83$, respectively) (EPDS; Cox, Holden, & Sagovsky, 1987; Wisner, Perry, & Piontek, 2002).

Maternal depression was measured at T3 and T4 using the Beck Depression Inventory-II ($\alpha = .90$, $\alpha = .94$, respectively) (Beck et al., 1996).

Infant affective expressions and shared affective valence in the mother-infant dyad were assessed at T3 and T4 using coded observations from a video taped 10-minute free-play interaction. Intraclass correlations for T3 ranged from .67 to .96. Coding procedures are still underway for T4, therefore, reliability data are not available at this time.

Figure 1.

Race/Ethnicity Breakdown

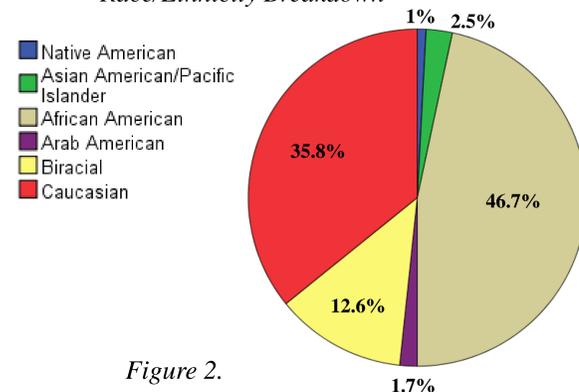


Figure 2.

Educational Background

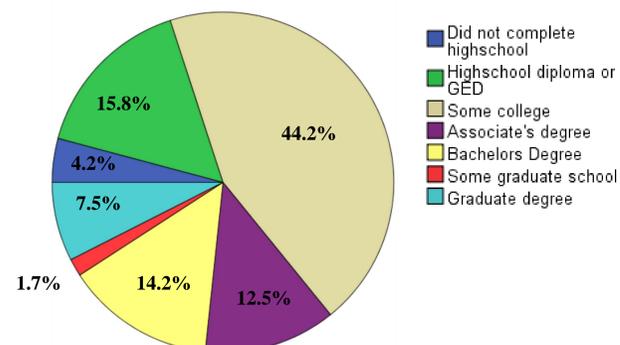


Table 1.

T3 Infant Affective Expression Codes

	n	M	SD
Negative	115	1.6	.71
Positive	115	2.7	1.0
Withdrawn/Flat	115	2.7	.71
Shared Positive	115	1.9	.63
Shared Negative	115	1.0	.16
Shared Neutral	115	3.0	.67

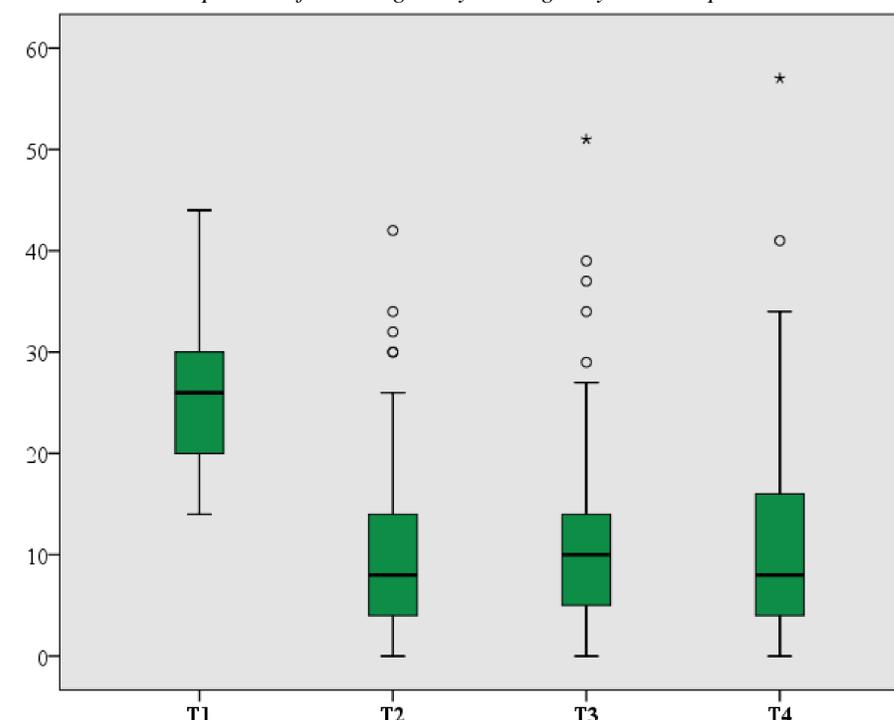
The infant affective expression codes at T3 were assigned globally on a Likert type scale ranging from 1 to 5 (see Table 1), with higher numbers indicating more expression in terms of frequency and intensity. Coding for the T4 videotapes is currently underway and will utilize similar procedures. All 6 codes noted above will be obtained at T4 with the addition of a code for expressed aggression towards both toys or objects and the mother.

THE DATA

Symptoms of maternal depression among study participants appear to decrease from pregnancy through 2-years postpartum (see Figure 3). On average, the women reported levels of depressive symptoms at or above the suggested cut-off score of 12 on the EPDS during pregnancy (T1 $X = 12.76$, $SD = 3.60$), indicating clinical levels of depression on average (Cox et al., 1987). On average, depressive symptoms appear to peak in pregnancy, taper-off sharply at 3-months postpartum, and remain below suggested clinical cut-offs through 2-years postpartum. However, it is not yet clear if different sub-samples experience different trajectories over time.

Figure 3.

Maternal Depression from Pregnancy Through 2-years Postpartum



Note. scores for the EPDS at T1 and T2 were pro-rated to enhance comparisons across time points
 ○ = outlier 1.5-3 times the interquartile range
 * = outlier 3 times the interquartile range and above

POSSIBLE DATA ANALYTIC APPROACHES

An appropriate technique to examine trajectories of maternal depression in relation to infant affect expression would balance the restrictions of a low sample size with the strengths of a rich, longitudinal data set. Both variable-centered and person-centered approaches are important.

Hierarchical linear modeling allows researchers to examine time points of assessment nested within people which would allow the proposed study to identify trajectories of depression within each person.

Latent profile analysis allows researchers to identify latent profiles within the data. However, it is not well suited for small sample sizes.

Growth mixture modeling allows researchers to examine the nesting of time observations within individuals and identify unobserved subpopulations (latent classes). Therefore, it is well suited for longitudinal datasets.

Cluster analysis allows researchers to examine different clusters of subjects based on a pre-determined variable by classifying subjects into groups. However, with a small samples the groups can be rather small which holds implications for statistical power.