Maternal Depression and Responsivity to Social Bids as Predictors of Vocabulary Size in 12-Month-Old Infants

Kaitlyn Testa, Myriah E. McNew, James Torrence Todd, & Lorraine E. Bahrick
Infant Development Lab
Florida International University

FLORIDA INTERNATIONAL UNIVERSITY

Introduction

Maternal responsiveness, also referred to as maternal sensitivity, is defined as a mothers' prompt and contingent replies to infant's exploratory and communicative actions (Bornstein, Tamis-LeMonda, Hahn, & Haynes, 2008). Interactions between depressed mothers and their infants are characterized by lower responsiveness, greater criticism and disengagement, and less warmth relative to interactions between non-depressed mothers and their infants (Cox, Puckering, Pound, & Mills, 1987; Field, Healy, Goldstein, & Guthertz, 1990). For non-depressed mothers, parent responsiveness has been shown to positively predict child receptive vocabulary scores on the PPVT (Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). In contrast, for depressed mothers, greater maternal depression was associated with lower levels of responsiveness, which resulted in lower school readiness and verbal comprehension scores at 36 months of age (Early Child Care Research Network, 1999).

Although previous research on maternal depression and responsiveness has focused on young infants, child outcomes are not typically assessed until toddlerhood. Further, few studies have investigated relations among all three variables at once. Therefore, the current study aims to assess the effects of maternal depression and responsiveness to social bids together as predictors of language development in 12-month-old infants.

We expect that higher maternal depression will be associated with lower maternal responsivity to social bids, which will in turn predict smaller receptive vocabulary size in 12-month-olds. Further, we hypothesize that maternal responsiveness to infants' social bids mediates the relation between maternal depression and infant vocabulary size.

Methods

Twenty-four 12-month-old infants and their mothers, part of a larger longitudinal sample, participated in an 8-minute semi-structured face-to-face interaction. Mothers and infants sat across from each other at a table and played with toys (Figure 1).

Videos of interactions were coded for (1) infant bids (frequency of infant attempts to engage their mother in social interaction), and (2) maternal responsiveness (whether each social bid was *accepted*, *rejected*, or *ignored* within a 5 second window). We calculated the proportion of infant bids accepted by mothers.

Mothers completed the Center for Epidemiological Studies-Depression (a 20-item depression scale), and the MacArthur-Bates Communicative Development Inventory, a parent-report checklist for assessing receptive vocabulary size (words understood).
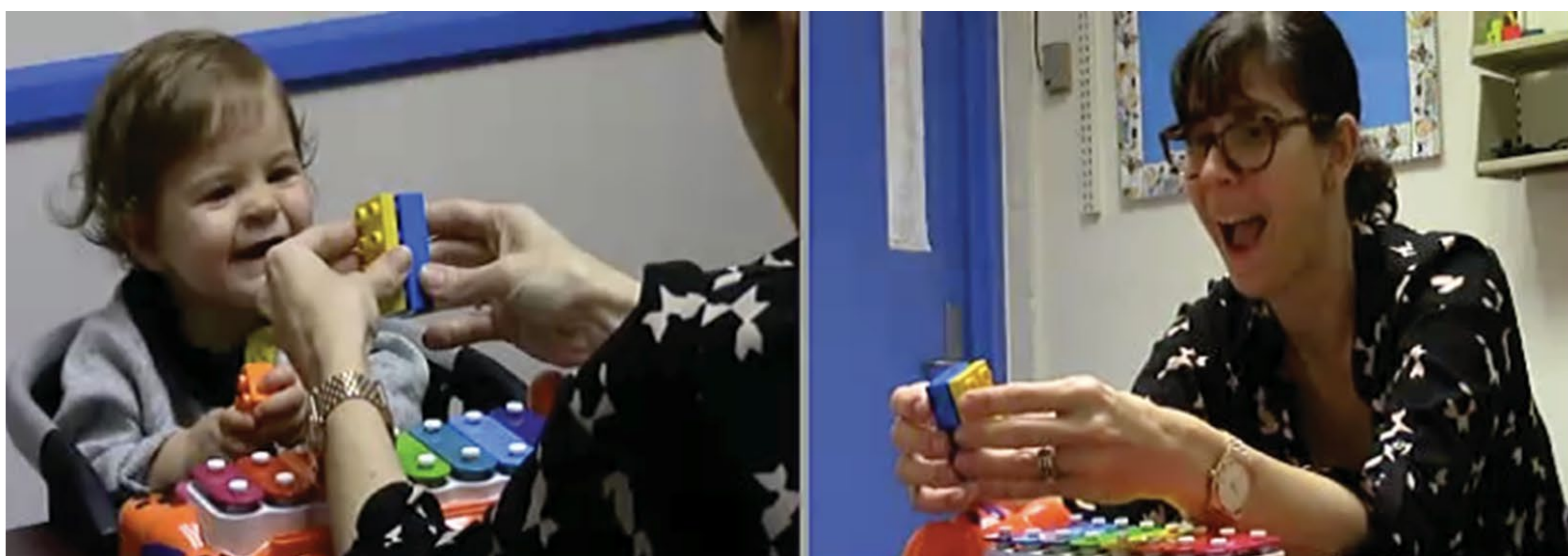

Figure 1. Static images of a 12-month-old infant and mother participating in the parent-child interaction.

Results

Consistent with the literature, maternal depression negatively predicted infant vocabulary size (b = -4.760, p = .022; Figure 2A), this was true even when controlling for maternal responsiveness (b = -5.627, p = .025; Figure 3). In contrast to prior findings, maternal responsiveness did not predict infant vocabulary size (b = -35.460, p = .548; Figure 2B & Figure 3). Finally (contrary to our hypothesis of a mediated model), maternal depression predicted both responsiveness (b = -.024, p = .001) and vocabulary size (b = -4.760, p = .022; Figure 2C & Figure 4).
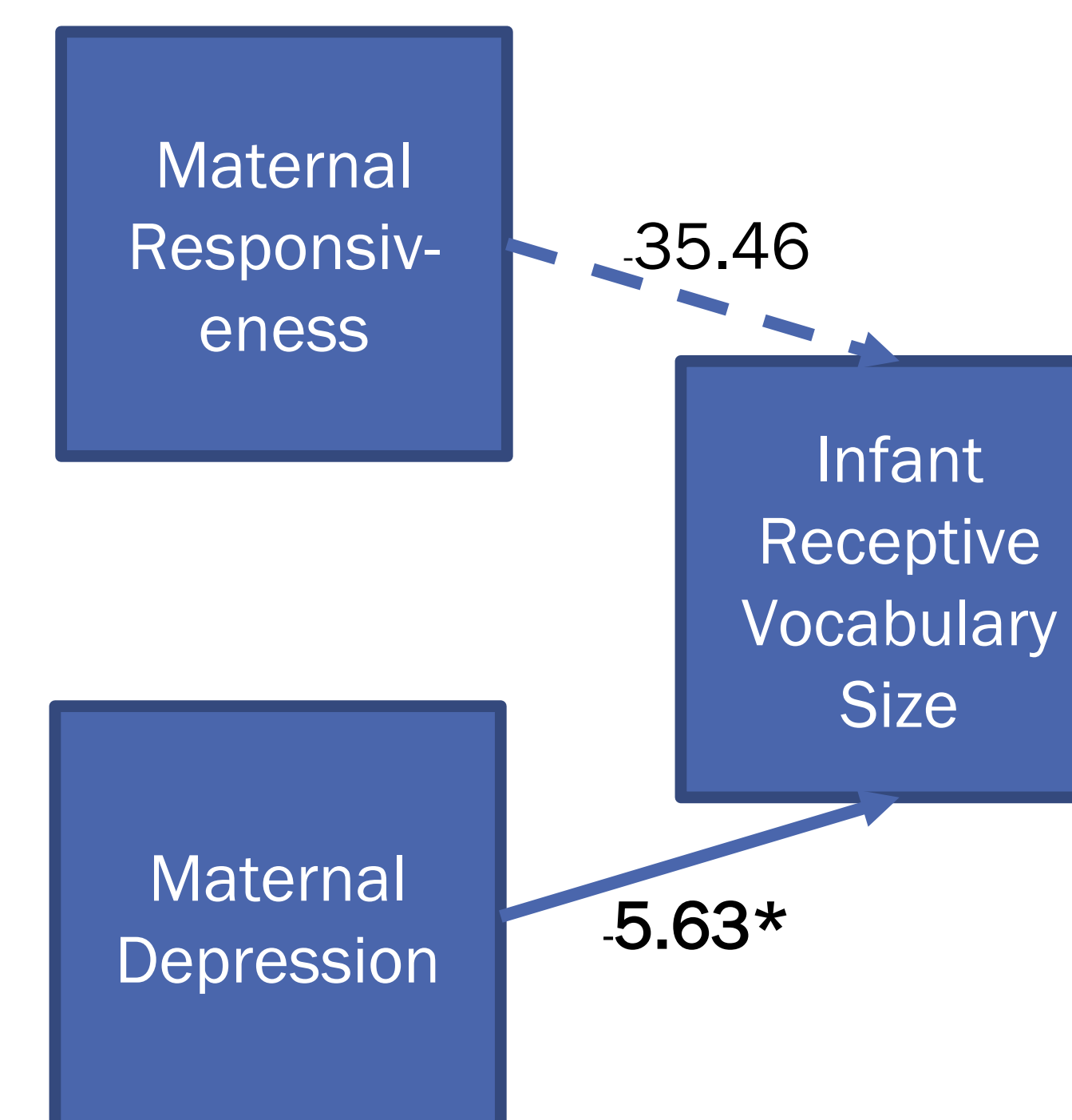
Note: *p<.05

Figure 3. Structural model depicting maternal depression as a predictor of infant vocabulary size, even when controlling for maternal responsiveness. However, maternal responsiveness did not predict infant vocabulary size.
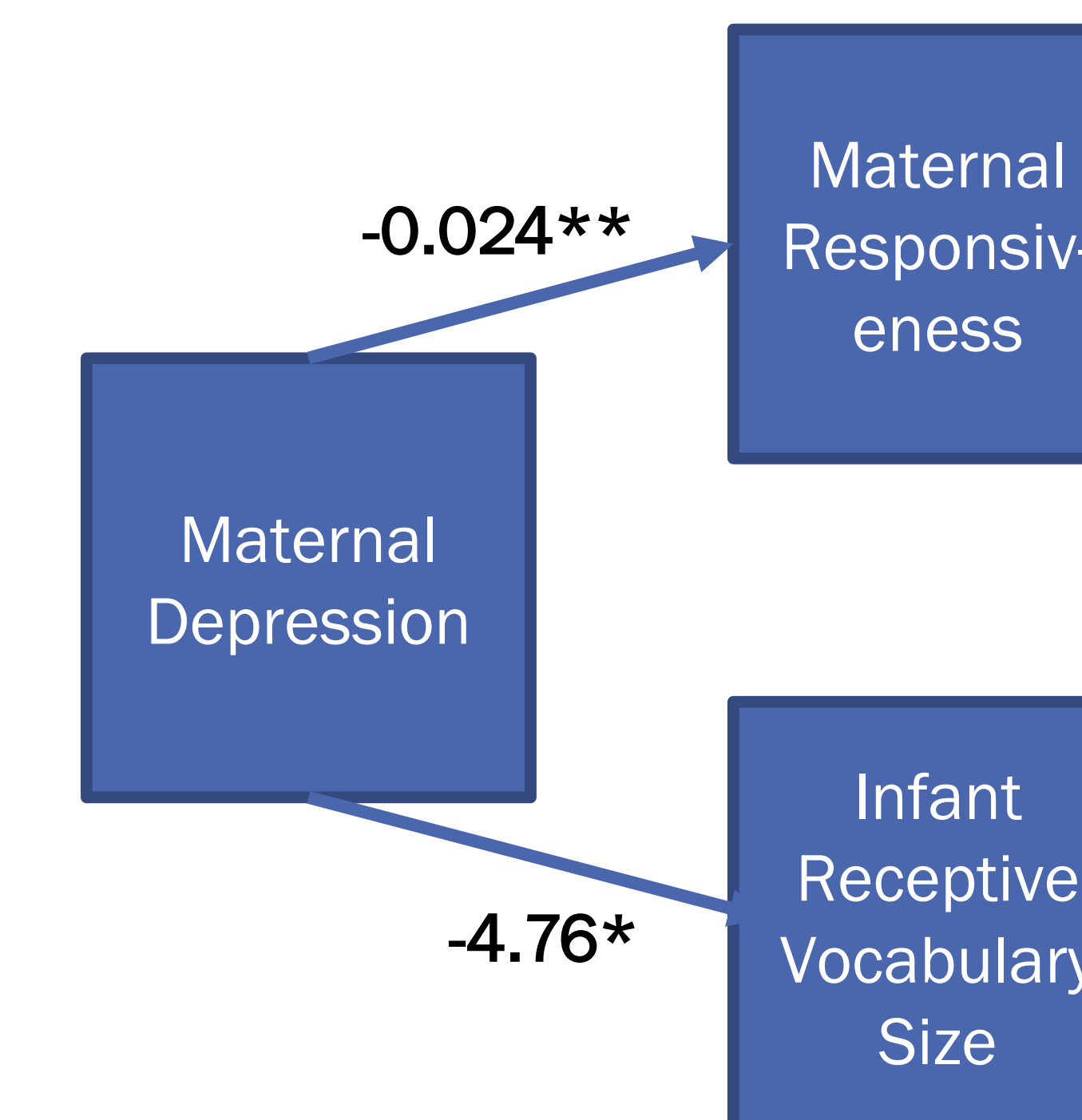
Note: *p<.05; **p<.01

Figure 4. Structural model depicting maternal depression as a predictor of both maternal responsiveness and infant vocabulary size.

A. r = -.341, p = .027 N=24

B. r = .160, p = .488 N=24
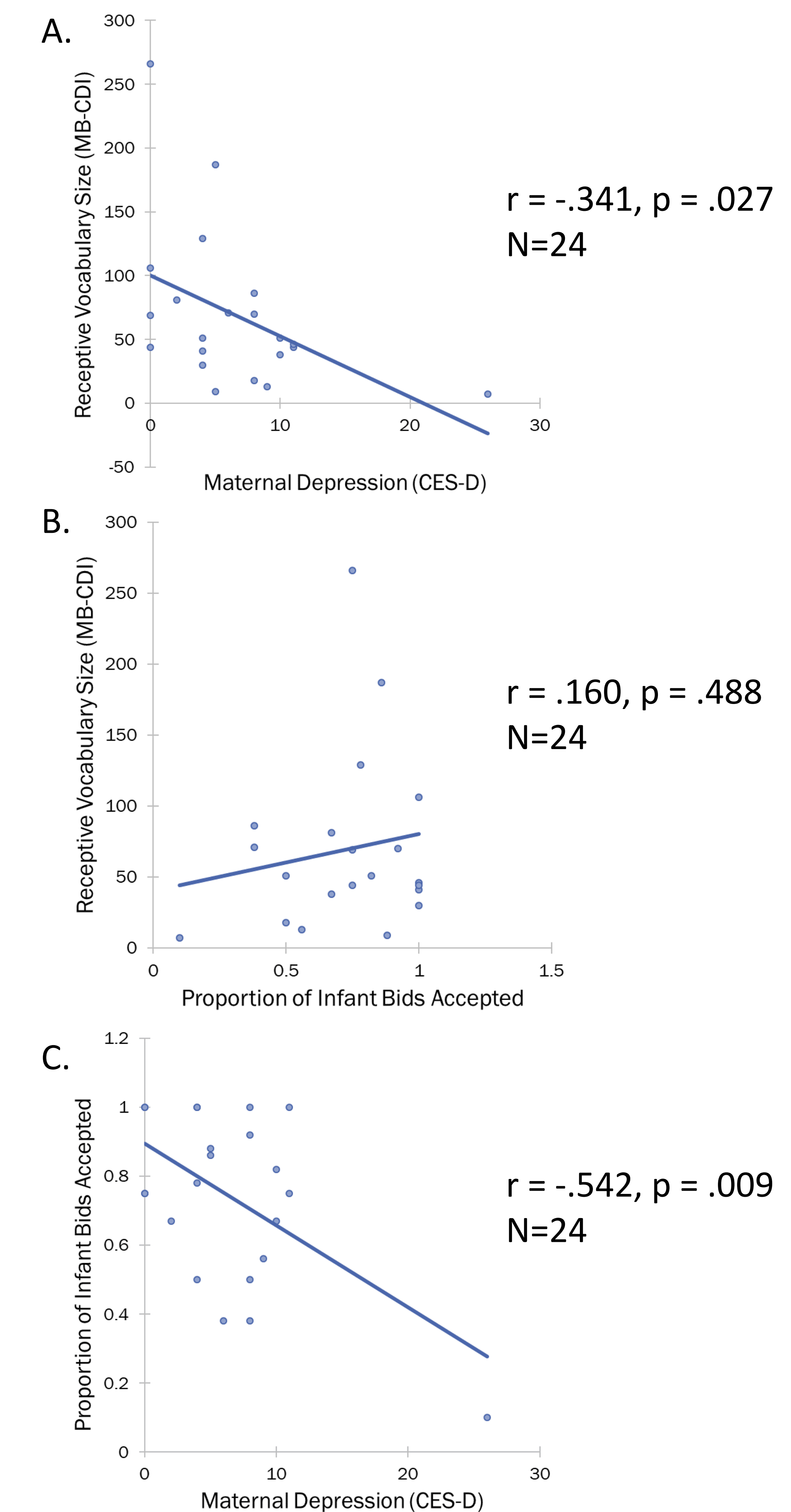
C. r = -.542, p = .009 N=24

Figure 2. Scatterplots depicting relations between A) maternal depression and responsiveness, B) maternal depression and infant vocabulary size, and C) proportion of infant bids accepted and infant receptive vocabulary (bottom). Each dot represents an observation and lines represent linear regressions.

Discussion

The present study replicates and extends previous research by demonstrating that maternal depression has negative effects on children's vocabulary development. These effects are detectable even earlier in development than previously demonstrated. Although we did not replicate previous research findings of a relationship between maternal responsiveness and infant receptive vocabulary size, we found that maternal depression predicted both maternal responsiveness and infant vocabulary size. Future research should examine relations among these three variables with a larger sample and across age to a) establish at what age maternal responsiveness predicts vocabulary size, and b) characterize the developmental pathways among these three variables across age.

References

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