



What Shapes Early Mother–infant Bonding?

The Roles of Maternal Anxiety and Processing Infant Mental States

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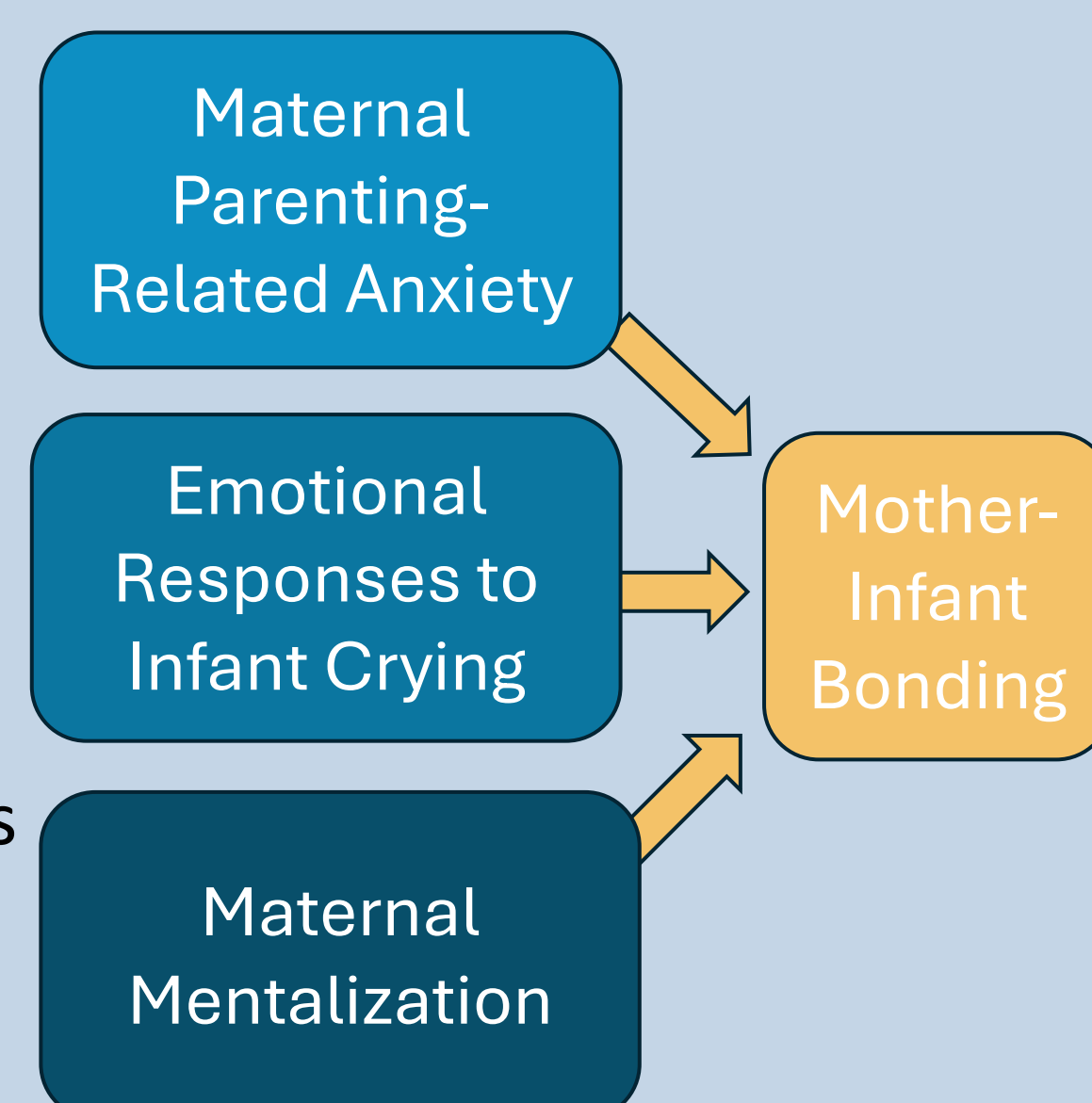
Introduction

- Early parent–infant relationships significantly shape a child's future development and psychological well-being¹.
- Maternal anxiety, particularly **postpartum-specific anxiety (PSAS)**, has been identified as a significant predictor of both weakened maternal bonding and reduced maternal sensitivity (i.e., compromised responsiveness to infant cues such as crying)^{2,3}.
- Infant crying elicits strong emotional reactions^{4-5,6}. **Emotional responses to infant crying** can be child-oriented, or parent-oriented⁷. **Child-oriented responses** are considered adaptive, as they are associated with greater parental sensitivity, while **parent-oriented responses** are linked to lower sensitivity and less optimal caregiving⁸⁻⁹.
- Difficulties in mentalization** refer to an impaired ability to accurately interpret their infant's cues, and have been linked with difficulties in forming positive mother-infant bonds¹⁰ and a secure parent-infant attachment¹¹.

Aims & Hypotheses

The aim of the study was to examine the associations between mother–infant bonding and three key variables: maternal emotional responsiveness to infant cries, parental mentalization, and postpartum-specific anxiety. The hypotheses were:

- Higher levels of maternal postpartum anxiety will be negatively correlated with the quality of mother–infant bonding, such that greater anxiety will be associated with more bonding difficulties.
- Maternal emotional responses to infant cries will be related to the quality of the mother–infant bonding; specifically, mother-oriented emotional responses to infant crying will be related to more difficulties in bonding, and infant-oriented responses will be related to more positive bonding.
- Higher maternal mentalization will be associated with lower levels of bonding difficulties.



Method

Sample

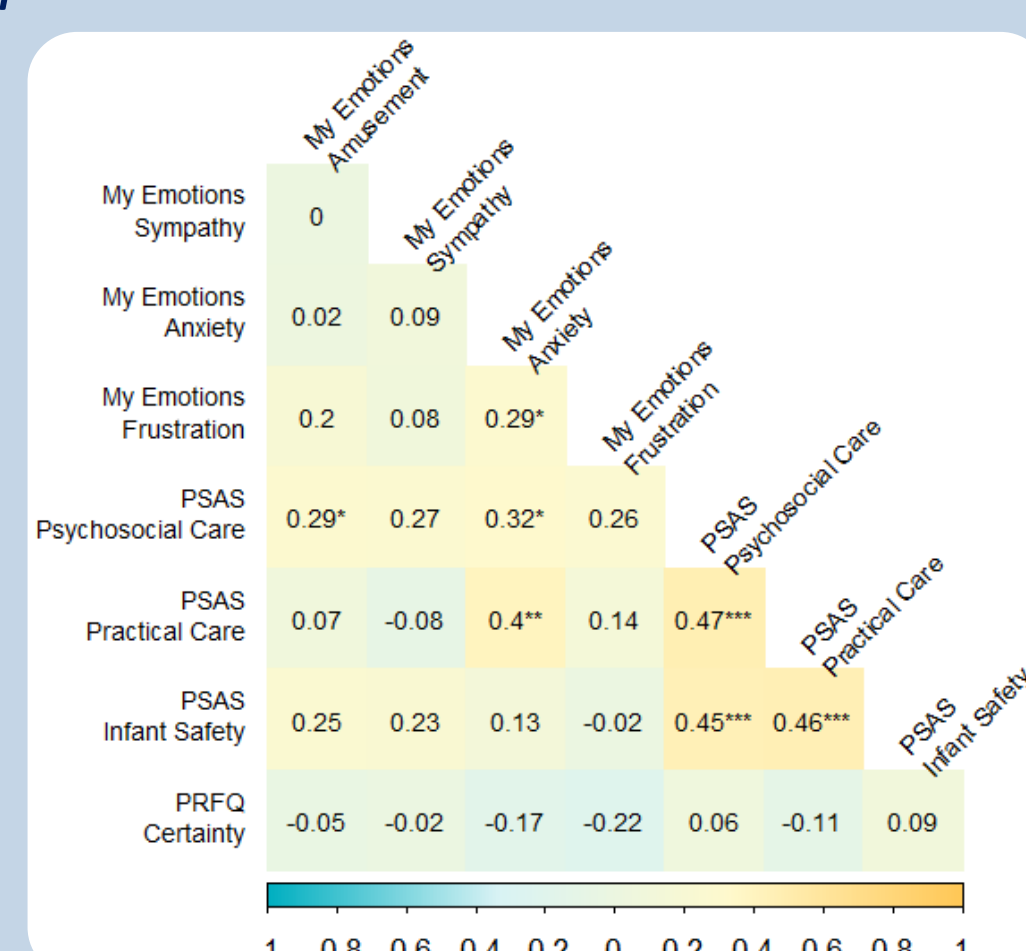
54 first-time mothers of 4-to-6 months-old infants (*Mage* = 5 months; 43% female) from the U.S., participating in a moderated online study. Data collection for this study is currently in progress. Mothers had a mean age of 33 years (*SD* = 4.05) and 18.55 years of education (*SD* = 2.42). 38 mothers identified as White and non-Hispanic, 12 as Asian/Asian American, 2 as African-American or Afro-Caribbean and non-Hispanic, and 1 as mixed-race and Hispanic.

Measures

- Mother–infant bonding** was assessed using the Postpartum Bonding Questionnaire (PBQ)¹², where a higher score indicates greater bonding difficulties ($\alpha = .88$).
- Maternal anxiety** specific to the perinatal period was assessed using the short form of the Postpartum Specific Anxiety Scale (PSAS-RSF)¹³, which includes three subscales: Psychosocial adjustment to motherhood ($\alpha = .72$), Practical infant care anxieties ($\alpha = .80$), and Infant safety and welfare anxieties ($\alpha = .78$). The fourth subscale was excluded from the analysis due to low reliability.
- Emotional responses to infant crying** was measured using the My Emotions questionnaire⁷, which includes the following scales: Amusement ($\alpha = .86$), Mother-Oriented Anxiety ($\alpha = .63$), Mother-Oriented Frustration ($\alpha = .67$), Infant-Oriented Sympathy ($\alpha = .88$).
- Maternal mentalization** was assessed using the "Certainty about Mental States" ($\alpha = .73$) subscale of the Parental Reflective Functioning Questionnaire (PRFQ)¹⁴, which evaluates the parent's capacity for mentalization, specifically, the tendency to be overly certain or uncertain about the child's mental states. Higher scores reflect greater certainty. The other PRFQ subscales had low reliability and were therefore excluded from analysis.

Fig. 1

Correlations between the subscales of the independent measures.



Note. PSAS = Postpartum-Specific Anxiety Scale
* $p < .05$. ** $p < .01$. *** $p < .001$

Results

- A hierarchical regression analysis was conducted to examine the contribution of anxiety, emotional responses to infant crying, and mentalization to mother–infant bonding difficulties (PBQ).

Table 1

Hierarchical Regression Analysis for Testing Postpartum-Specific Anxiety, Emotional Responses to Crying, and Maternal Mentalization in Predicting Mother–Infant Bonding Difficulties.

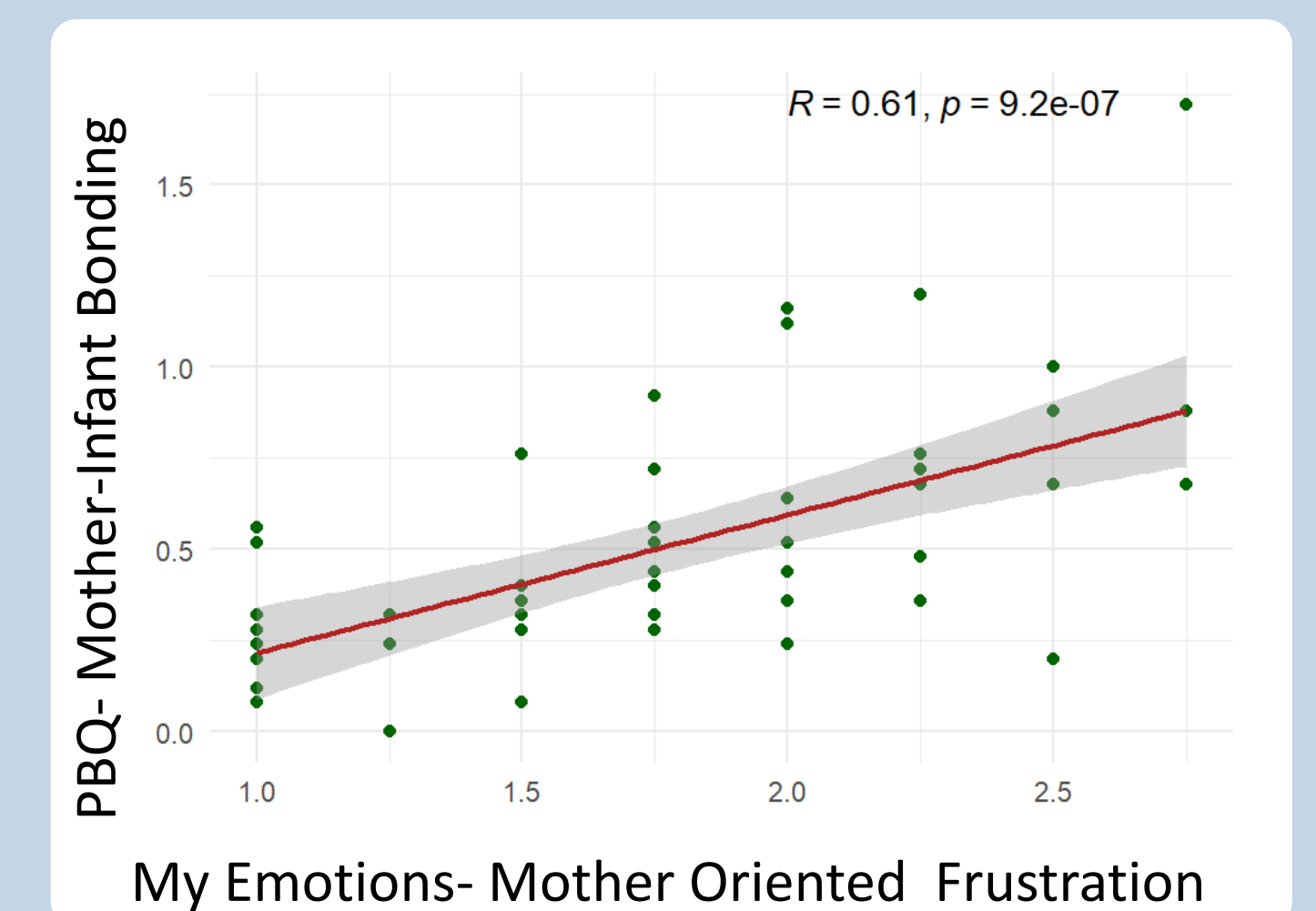
| Predictor | β | <i>t</i> | <i>p</i> |
|--|---------|----------|----------|
| Step 1 ($R^2 = .19$, $F = 3.96$) | | | |
| PSAS – Psychosocial Care | .10 | 1.61 | .115 |
| PSAS – Practical Care | .16* | 2.30 | .026 |
| PSAS – Infant Safety | -.17* | -2.32 | .024 |
| Step 2 ($R^2 = .60$, $\Delta R^2 = .41$, $F = 11.56$, $p < .001$) | | | |
| PSAS – Psychosocial Care | .02 | 0.40 | .691 |
| PSAS – Practical Care | .05 | 0.94 | .351 |
| PSAS – Infant Safety | -.08 | -1.48 | .147 |
| My Emotions – Amusement | -.00 | -0.05 | .959 |
| My Emotions – Anxiety | .23*** | 3.88 | .000 |
| My Emotions – Frustration | .29*** | 4.56 | .000 |
| My Emotions – Sympathy | -.03 | -1.06 | .293 |
| Step 3 ($R^2 = .60$, $\Delta R^2 = .00$, $F = 0.03$, $p = .866$) | | | |
| PSAS – Psychosocial Care | .02 | 0.36 | .723 |
| PSAS – Practical Care | .05 | 0.95 | .349 |
| PSAS – Infant Safety | -.08 | -1.47 | .149 |
| My Emotions – Amusement | -.00 | -0.03 | .973 |
| My Emotions – Anxiety | .23*** | 3.84 | .000 |
| My Emotions – Frustration | .29*** | 4.47 | .000 |
| My Emotions – Sympathy | -.03 | -1.03 | .308 |
| PRFQ – Certainty | .01 | 0.17 | .866 |

Note. PSAS = Postpartum-Specific Anxiety Scale; PRFQ = Parental Reflective Functioning Questionnaire.

* $p < .05$. ** $p < .01$. *** $p < .001$

Fig. 2

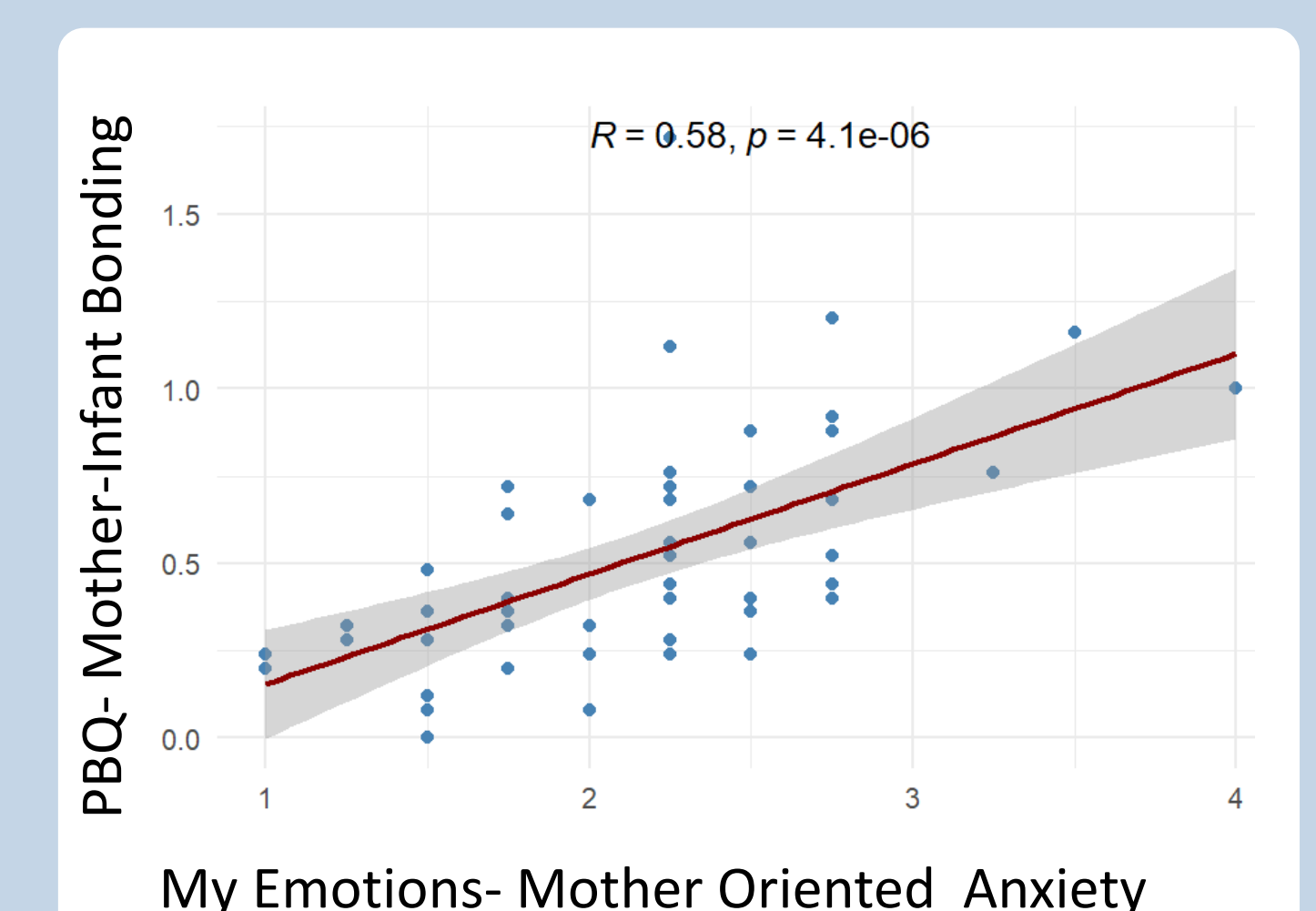
The Link between Mother-Oriented Frustration in Response to Infant Crying and Mother–Infant Bonding Difficulties.



Note. PBQ = Parental Bonding Questionnaire.
*** $p < .001$.

Fig. 3

The Link between Mother-Oriented Anxiety in Response to Infant Crying and Mother–Infant Bonding Difficulties.



Note. PBQ = Parental Bonding Questionnaire.
*** $p < .001$.

Discussion

- Maternal frustration and anxiety in response to infant crying were linked to greater bonding difficulties, beyond general postpartum anxiety. This highlights the unique impact of emotional reactions to infant cry on the quality of early mother–child bonding.
- Anxiety related to practical care was related to reporting more bonding difficulties, whereas infant safety anxiety was linked to better bonding. This suggests that certain anxiety components may reflect adaptive aspects of worry, whereas others may reflect insecurity and reduced confidence in parenting abilities, underscoring the need to distinguish between functional and dysfunctional forms of maternal anxiety.
- Parental mentalization, as measured by the certainty about mental states subscale, was not associated with bonding. This may suggest that this specific aspect of mentalization is not directly related to bonding, or that the way it was measured did not capture the connection. The use of only one subscale, along with a linear scoring approach, may have limited the ability to detect more complex or subtle associations. It is possible that other dimensions of mentalization, or alternative methods of assessing it, may reveal a stronger link to bonding.
- Limitations:** The sample size was relatively small, and participants were highly educated and demographically homogeneous, which may limit the generalizability of the findings and reduce statistical power. Additionally, the study relied entirely on self-report measures, which may inflate associations due to shared method variance or social desirability biases.
- Future studies** could examine how specific emotional responses to infant distress develop over time and whether they can be modified to promote healthier bonding. Differentiating between caregiving-related anxiety and safety-related anxiety may help refine the assessment and treatment of maternal anxiety.

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