



Psychological Risks, Social Support and Expectant Mothers' Neural Responding to Infant Emotional Facial Expressions

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Introduction

- Evidence indicates that greater depressive and anxiety symptoms and less perceived social support are associated with dampened ERP amplitudes to infant emotional expression¹⁻³.
- However, studies comprise small samples, raising questions about replicability (e.g., $N=37-78$). Moreover, associations have been documented postnatally. Thus, it is unknown whether such links predate motherhood.
- This study examined the significance of first-time expectant mothers' depressive symptoms, anxiety symptoms, and social support during the third trimester of pregnancy for their neural responding to infant emotional expressions.

Methods

Participants

- Participants were 117 first-time expectant mothers (M age = 28.7 years, $SD = 4.5$) in the third trimester of pregnancy.
- Mothers were predominantly White/Non-Hispanic (84.7%), middle income (median \$80,000), and educated (45.8% bachelor's degree).

Psychological Risks:

- Depressive symptoms: BDI-II⁴, PHQ⁵ and EPDS⁶
- Anxiety symptoms: BAI⁷ and GAD-7⁸

Social Support

- Perinatal Social Support Instrument⁹

Infant Emotion Categorization Task

- Participants completed an infant emotion categorization task indicating the emotional expression (happy, distress, neutral) of the infant via button press while being electrophysiologically monitored using a 32-channel ActiveTwo BioSemi system.

ERPs

ERPs to each infant facial expression (happy, distress, neutral) were extracted:

- P300: Pz electrode, 300 - 700 ms post-stimulus.
- LPP: Pz electrode, 750 - 1000 ms, 1000-1250 ms, and 1250-1500ms post-stimulus.

Figures

Figure 1. P300 and LPP responding to infant happy and neutral faces.

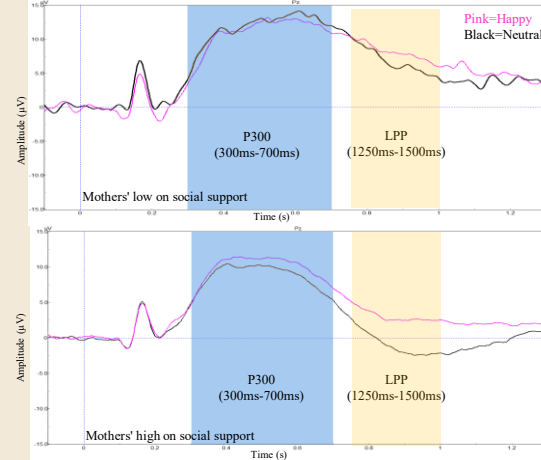
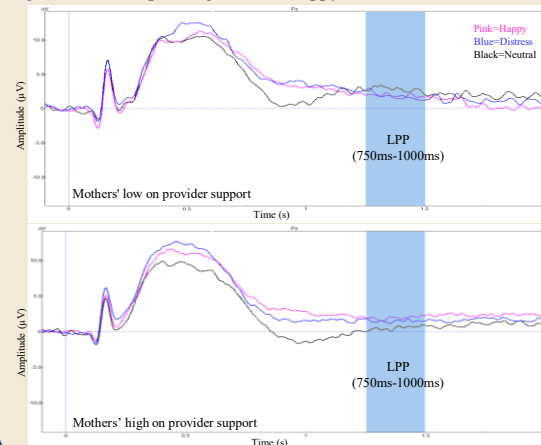


Figure 2. LPP responding to infant happy, distress and neutral faces.



Results

- Higher satisfaction with social support was significantly associated with expectant mothers' heightened P300 and LPP amplitudes to happy (v. neutral) infants' expression (see Table and Figure 1).
- Higher satisfaction with health care provider support was significantly associated with expectant mothers' heightened P300 amplitude to happy v. neutral expressions and heightened LPP amplitudes to happy and distress (v. neutral) expressions.
- Depressive and anxiety symptoms were not significantly associated with women's P300 and LPP to infant emotional expressions prenatally.

	Satisfaction with Social Support	Satisfaction with Health Care Provider Support
P300 (300ms-700ms) Happy v. Neutral	$r = .21^*$	$r = .19^*$
LPP (750ms-1000ms) Happy v. Neutral	$r = .20^*$	$r = .13$
LPP (1000ms-1250ms) Happy v. Neutral	--	$r = .23^*$
LPP (1250ms-1500ms) Distress v. Neutral	--	$r = .19^*$
LPP (1250ms-1500ms) Happy v. Neutral	--	$r = .24^*$

Conclusion

- Findings indicated that less satisfaction with social support and health care provider support were associated with dampened neural responding to infant emotional facial expressions prenatally.
- We did not find association between depressive and anxiety symptoms and women's neural responding to infant expressions postnatally, but previous studies found associations postnatally²⁻³. This might be explained by significant change in symptomatology over the transition to motherhood.
- Future research with longitudinal data is needed to determine the direction of the relation between social support and neural responding to infant expressions and to explore if the change of symptomatology accounts for differences in links between symptomatology and neural responding to infant emotional expressions in the prenatal and postnatal period.

Acknowledgements

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- We would like to thank the mothers who participated in this study.
- Scan QR code for references.
- Scan QR code for Family & FCD Lab website.

