The Center for Research and Outreach

Putting Research to Work
for Military Families

Focus:
Civilian

Prenatal Maternal Stress Programs Infant Stress Regulation

Davis, E. P., Glynn, L. M., Waffarn, F., & Sandman, C. A. (2011). Prenatal maternal stress programs infant stress regulation. *Journal of Child Psychology and Psychiatry*, *52*(2), 119-129. doi:10.1111/j.1469-7610.2010.02314.x

SUMMARY: Whether prenatal maternal psychosocial stress and cortisol (a biological indicator of stress) exerts a joint or independent influence on infant stress regulation was examined. Mothers completed measures of stress, anxiety, and depression during pregnancy, and provided cortisol assays. Infants were assessed in terms of their stress regulation following a heel-stick procedure (i.e., drawing blood from the heel), and through cortisol assays. Results suggest that exposure to maternal cortisol and psychosocial stress negatively influences infant stress regulation.

KEY FINDINGS:

- Mothers with high cortisol in early pregnancy had infants who displayed slower behavioral recovery from the stress of the heel-stick procedure.
- Elevated maternal cortisol during pregnancy was related to a larger increase in cortisol response in infants during the heelstick procedure.
- Mothers who reported high levels of perceived stress, anxiety, and depression throughout pregnancy had infants who were slower to recover from the stress of the heel-stick.

IMPLICATIONS FOR MILITARY PROFESSIONALS:

Military professionals could:

- Collaborate with organizations connected with military parents to emphasize the importance of stress management as part of prenatal care
- Attend trainings about infant health to enhance their ability to provide support to military families who are expecting a new baby

IMPLICATIONS FOR PROGRAMS:

Programs could:

- Offer curriculum focused on coping strategies for pregnant mothers experiencing deployment-related and other stressors
- Continue to support programs that address the unique challenges faced by deployed mothers

IMPLICATIONS FOR POLICIES:

Policies could:

- Recommend that programs integrate regular stress (depression and anxiety) screenings into prenatal care and as well as new parent programs
- Continue to support programming aimed at pregnant mothers with a spouse experiencing deployment

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METHODS

- Data were collected from mother-newborn pairs who were recruited from obstetric clinics in California as part of a larger, longitudinal study.
- Prenatal medical history was obtained from structured interviews and review of clinic and hospital records.
- To gather data, trajectories of baseline cortisol in pregnant mothers were tracked over time and behavioral observations were conducted of infant recovery from stress following a heel-stick procedure. Cortisol assays were taken from both mothers and infants and surveys of perceived stress, anxiety, and depression were taken from mothers during pregnancy.
- For mothers, data were gathered at five intervals during pregnancy; for infants, data were gathered between 13 and 35 hours after birth.

PARTICIPANTS

- One hundred sixteen full term infants (average age = 39 weeks, SD = 1.1.) and their mothers were included in this study.
- At child birth, mothers were 28.6 years old on average (SD = 5.8).
- Fifty-one percent of mothers were White, 34% were Latino/Latina, and 11% were Asian-American.

LIMITATIONS

- Other untested variables, such as genetic transmission, may have influenced the findings and these variables were not reported in this study.
- It is unclear if there were inclusion or exclusion criteria for mothers or infants to participate in the study, which limits the ability to fully understand the sample.
- No data were provided regarding if mothers were taking psychiatric medications, which could have impacted their stress and cortisol levels.

AVENUES FOR FUTURE RESEARCH

Future research could:

- Collect data that can asses both the genetic and environmental contributions to infant stress regulation
- Examine the long-term implications (e.g., social and cognitive functioning) for children regarding exposure to high levels of prenatal cortisol
- Explore how paternal stressors and self-regulation of stress affect infant functioning

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