

PSYCHOSOCIAL SUPPORT

Maternal sensitivity and infant autonomic and endocrine stress responses

Background

There is growing evidence that early environmental factors influence mental and physical health into adulthood, whereby particularly physiological systems involved in human stress response have received attention for their potential malleability. It is also hypothesized that the endocrine system and the autonomic nervous system (ANS) are etiologically involved in a broad array of disease states and emotional and cognitive well-being. The quality of maternal caregiving is already identified as a robust programming agent of child stress response systems in early life, but few studies have specifically linked maternal sensitivity to infant affective and physiological responses within an experimental setting.

Summary of results

Greater maternal sensitivity was associated with greater infant sympathetic activation during periods of stress and tended to be associated with greater cortisol output following these episodes. Infants of predominantly insensitive mothers showed higher affective distress and less parasympathetic activation during stressful events. These findings underline the buffering effect of maternal sensitivity in the early years of life and so the importance of high quality caregiving for the responsiveness of the sympathetic and parasympathetic systems as well as the HPA axis.

Strength

It is the first study that tested associations between maternal sensitivity and a wide-range of stress response measures, including indicators of the ANS and the HPA axis. Thereby, non-distress and distress conditions were considered. Methods of behavioral observation ratings and monitoring procedures of ANS and HPA axis reactivity were combined in a dyadic setting.

Limitations

The study included a relatively small sample of 35 mother-child-dyads. Relevance of observational data was little poor. It was not distinguished between types of insensitive maternal behaviors; but specific patterns may have differential effects on child outcomes. Also, there was no separation of distress types of the infant's behavior, such as sadness and anger, which could be associated with different physiological profiles. Both, maternal behavior and physiological response were assessed at the same time, so causal direction cannot be definitively determined.

Practical conclusion

The buffering effect of maternal sensitivity on physiological stress reactivity may have particular consequence for children at risk for maladaptive stress responses, for example due to pre- and postnatal exposure to stressful events. A specific subgroup are preterm infants, because of the exposure to stressful events during hospitalization, separation of their parents - but also often incomprehensible behavior signals for parents, which could impede sensitive maternal and paternal behavior during hospital stay and after discharge. Again, the importance of specific training programs for parents of preterm infants starting shortly after birth is underlined.

Bosquet Enlow, et al. Maternal sensitivity and infant autonomic and endocrine stress responses. *Early Human Development*, 2014, 90(7), 377–85. doi:10.1016/j.earlhumdev.2014.04.007

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