Different amounts of protest in 4-month-old infants of depressed vs. non-depressed mothers

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Different amounts of protest in 4-month-old infants of depressed vs. non-depressed mothers

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Abstract

Amount of vocal protest was measured in 4-month-old infants of depressed vs. non-depressed mothers during 10 minute face-to-face interaction. The sample consisted of two groups of mothers with their infants: depressed (n=17) and non-depressed (n=49), in total N=66. Vocal protest was measured using PRMAAT phonetic software and manual, reliable coding. Results showed that infants of depressed mothers expressed a lower amount of vocal protest compared to infants of non-depressed mothers as measured in mean percentage of time (p < .001).

Background

A significantly heightened amount of protest has previously been reported for infants of depressed mothers during face-to-face interaction (Field, Healy, Goldstein, & Guthertz, 1990). The other studies have also reported a heightened amount of protest in infants of depressed mothers on a tendency level (Murray, Fon-Cowley, Hooper, & Cooper, 1996; Friedman, Beebe, Jaffe, Ross, & Triggs, 1996). Previous studies have predominantly used composite multimodal measures, which measure several modalities together (Field et al., 1990; Murray et al., 1996). However, multimodal measures may cover up so-called disregarded affect (the infant is expressing converging affects through different modalities), which have been detected in infants of depressed mother (Beebe et al., 2008).

Aim

The aim of the present study was to measure amount of infant protest in infants of depressed vs. non-depressed mothers. In addition to the measure through a single modality, the vocal modality, which has been found to be the most salient system through which both mother and infant communicate with each other for 4 months (Van Egeren, Barratt, & Raison, 2001).

Method

Participants

The sample consisted of 66 primiparous mothers and their infants from the urban Copenhagen area with 4PD group (n=17) and non-depressed group (n=49). Inclusion criteria were: Primiparous mother, healthy infant, mother at least 18 years, living in the Copenhagen area, normal hearing and vision abilities. Exclusion criteria were: Psychosis and/or presence of co-morbid bipolar disorder and abuse of any substances.

Measures

Depression status was measured with the self-report measure Edinburgh Postnatal Depression Status (EPDS) and the standardized psychiatric interview Present State Examination (PSE). Wing, Cooper, & Sartorius, M. D. (1974), which are administered by a clinical psychologist as enlistment in both groups.

Procedure

Set-up

The interaction took place according to a standardized design of Edinburgh Postnatal Depression Status (EPDS) and Psychosis and/or presence of co-morbid bipolar disorder and abuse of any substances. Exclusion criteria were: Psychosis and/or presence of co-morbid bipolar disorder and abuse of any substances.

Translation

Ten minutes of mother–infant face-to-face interaction were recorded. Recordings were aborted if the infant cried extensively (more than 30 seconds in succession). 11 of the 49 recordings (22.4%) of the control group were aborted before the ten minutes had ended. Due to the infant protest, none of the 17 depressed interactions were aborted.

Vocal coding and reliability

Acoustic analysis and labeling was carried out using PRAAT software for phonetic analysis. The recordings were segmented into speech and non-speech intervals using a semi-automated procedure during which possible segments of speech were first identified based on intensity threshold levels. The segments were then verified and adjusted manually and infant vocalizations were reliably separated into negative (protest) and neutral-positive vocalizations by blind coders. Coders were trained to achieve reliability at minimum kappa (K) ≥ 0.60 for event and ≥ 0.80 for percentage agreement, which is considered acceptable (Cohen, H. F. (1988)). Inter-rater reliability was calculated for 20% of each recording. Time-based and event-based Kappa was calculated with sequential analysis software (Baileam & Quera, 2011). For protest time-based K, k was 0.88 and k for the neutral area, normal hearing and vision abilities. Exclusion criteria were: depressed group (M = 2.91, SD = 4.78). This difference was highly significant t(63.92) = 3.61, p < .001.

Results

Maternal and infant characteristics

Basic characteristics of the samples are presented in Table 1. No significant differences were found in maternal age, single parent status, maternal employment status, maternal years of education, infant gender or infant birth weight. The two groups only differed according to depression diagnosis.

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Depression</th>
<th>Non-depression</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age (years)</td>
<td>30.9 (4.7)</td>
<td>29.2 (4)</td>
<td>1.37</td>
<td>.18</td>
</tr>
<tr>
<td>Single parent</td>
<td>2.9 (0.4)</td>
<td>3.2 (0.8)</td>
<td>0.55</td>
<td>.59</td>
</tr>
<tr>
<td>Employment status</td>
<td>0.8 (0.8)</td>
<td>0.7 (0.6)</td>
<td>0.28</td>
<td>.78</td>
</tr>
<tr>
<td>Education (years)</td>
<td>0.9 (0.6)</td>
<td>1 (0.8)</td>
<td>0.21</td>
<td>.83</td>
</tr>
<tr>
<td>Infant gender</td>
<td>0.5 (0.5)</td>
<td>0.5 (0.5)</td>
<td>0.02</td>
<td>.98</td>
</tr>
<tr>
<td>Infant birth weight</td>
<td>2.9 (0.4)</td>
<td>2.8 (0.4)</td>
<td>0.27</td>
<td>.79</td>
</tr>
</tbody>
</table>

Conclusions

Fathers show a lowered amount of protest in infants of depressed mothers, whereas previous studies have detected higher amounts. The relatively small sample size of the depressed group should be taken into account. However, findings of both a higher and a lowered amount of protest in infants of depressed mothers might be explained by a model where a mid-range amount is seen as optimal. Operating outside the “mid-range” could be understood as attempts to cope with interactional disturbances by heightening or lowering the response.

References


Cohn, J., & Cooper, J. E. (1997). Depression and infant–mother dyads: Qualitative and quantitatively different (Murray & Cooper, 1997). Field, 46, 197. Furthermore, it has been argued that there are different types of depressed mothers characterized by different behavior patterns in mother and infant (Cohn, Malas, Tronick, Cornell, & Lyon-Ruth, 1985; Tronick & Weinberg, 1997; Field, Hernandez-Relaf & Diego, 2005). Infants of under stimulating depressed mothers, had been found to have a greater protest in the present and turn to self-regulation in time (Tronick & Weinberg, 1997). Age could have played a role, since the behavior of the infant might change with the amount of PSE (Field & Diego, 2005). The infants in the present study are 16 weeks, while infants in the other studies are younger (8-11 weeks, 13.6 weeks, and 14.8 weeks). The differences in age are relatively small, however an infant might experience many interactions on a daily basis, making the experience on which they base their behavior accumulate quickly.

Finally, the infants of depressed mothers might as a group show both a heightened and a lowered amount of protest. Adopting Beebe's mid-range model for interpretation would indicate that the different depressed samples are facing different types of regulatory differences. A heightened amount of protest would indicate that the infant is preoccupied with the interactive regulation while a lowered amount would indicate that the infant has turned to self-regulation (Beebe, Rusin, Sotir, & Kniblaus 2005).

Discussion

Contrary to previous findings, the results of the present study showed a lowered amount of vocal protest in infants of depressed mothers. Possible interpretations will now be discussed. Figure 1 shows the results from the present and previous studies.