Available online at www.sciencedirect.com
SCIENCE DIRECT
Infant Behavior & Development 28 (2005) 426–430
Infant Behavior & Development

Depressed mothers' infants show less negative affect during non-contingent interactions

Tiffany Field *, Jacqueline Nadel, Maria Hernandez-Reif, Miguel Diego, Yanexy Vera, Karla Gil, Chris Sanders

Touch Research Institutes, University of Miami School of Medicine, Department of Pediatrics (D-820), P.O. Box 016820, Miami, FL 33101, USA

Received 27 September 2004; received in revised form 17 February 2005; accepted 24 March 2005

Abstract

Infants of depressed and non-depressed mothers were videotaped interacting with their mothers in the [Nadel, J., Carchon, I., Kervella, C., Marcelli, D., & Reserbat-Plantey, D. (1999). Report: Expectancies for social contingency in 2-month-olds. *Developmental Science, 2*, 164–173] paradigm which consists of three segments including: (1) a free play, contingent interaction, (2) a non-contingent replay of the mothers' behavior that had been videotaped during the first segment, and (3) a return to a free play, contingent interaction. As compared to infants of non-depressed mothers, infants of depressed mothers showed less negative change (less increase in frowning) in their behavior during the non-contingent replay segment. This finding was interpreted as the infants of depressed mothers being more accustomed to non-contingent behavior in their mothers, thus experiencing less violation of expectancy in this situation.

Keywords: Behavior; Infants; Depressed mothers

In a variation on the still-face paradigm (Tronick, Als, Adamson, Wise, & Brazelton, 1978), the mother is videotaped, and the tape is replayed in a subsequent interaction segment so that the mother's behavior is non-contingent during the second segment (Muir & Hains, 1993; Trevarthen, 1993). In this paradigm developed by Murray and Trevarthen (1985), a segment of positive maternal behavior is recorded during a spontaneous videotaped interaction (the first segment). This recording is then presented to the infant in the second segment. Thus the mother's behavior in the second segment is not contingently responsive to the infant's natural behavior occurring during the second segment. In the original Murray and Trevarthen (1985) study, four 6–12-week-old infants showed more negative behavior during the second replay (non-contingent) condition. The infant's negative behavior including gaze aversion and frowning increased during the replay segment. These negative behaviors were interpreted as the infant's reaction to the violation of their expectation that the mother's behavior would be contingently responsive.

Nadel and colleagues reported data on a third segment or a second live condition because they were concerned that infants may become increasingly fussy across the interaction session (Nadel, Carchon, Kervella, Marcelli, & Reserbat-Plantey, 1999). In the Nadel et al. (1999) study, the initial spontaneous interaction segment was followed by a replay

* Corresponding author.
E-mail address: tfield@med.miami.edu (T. Field).

0163-6383/$ – see front matter © 2005 Elsevier Inc. All rights reserved.
doi:10.1016/j.infbeh.2005.03.003

period (video of first segment replayed) and then followed by a second spontaneous interaction. They reported, like Murray and Trevarthen (1985), that smiling and gaze decreased, while frowning increased during the replay period relative to the initial spontaneous interaction. These results could not be explained by fussiness increasing over time because seven of the 10 babies increased their gaze toward their mother during the second live interaction segment. In addition, their positive affect increased and their negative affect decreased.

The present study used the Nadel et al. (1999) paradigm with depressed mothers and their infants. The infants of depressed mothers versus those of non-depressed mothers were not expected to show as much negative change in their behavior during the non-contingent replay segment because they are typically exposed to non-contingent behavior during their everyday interactions with their mothers (Field, 1998). Further, infants of depressed mothers versus infants of non-depressed mothers have been noted to have less negative behavior changes during still-face interactions with their mothers (Field, 1984; Pelaez-Nogueras, Field, Hossain, & Pickens, 1996), suggesting that they may be more accustomed to still-face behavior in their mothers and thus experience less violation of expectancy during situations like these.

1. Method

1.1. Participants

Sixteen depressed and 16 non-depressed mothers and their 2-month-old infants participated in the study ($M = 8.1$ weeks, $R = 7$–9 weeks for infants of depressed mothers and $M = 7.9$ weeks, $R = 7$–9 weeks for the infants of non-depressed mothers). The mothers were recruited at the neonatal nursery until 16 depressed mothers could be indentified (approximately 40% mothers being depressed at this stage). The mothers were low-to-middle socioeconomic status and were distributed 47% Hispanic, 32% African American and 21% Caucasian. The two groups of mothers did not differ on these demographic variables. Depression was determined by the CES-D scale (score >16) and a SCID diagnosis of dysthymia. Mothers were replaced following attention ($N = 9$) and following infants failure to complete the interaction sessions ($N = 7$) until the groups were composed of 16 participants each.

1.2. Procedure

1.2.1. Assessments

(1) *Center for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977). This 20-item scale was included to assess depressed symptoms. The subject is asked to report on her feelings during the preceding week. The scale has adequate test-retest reliability, internal consistency and concurrent validity (Wells, Klerman, & Deykin, 1987). This scale was administered at the neonatal and at the 2-month period. Test-retest reliability over a 2-month period on this sample was .79, suggesting short-term stability of depressive symptoms.

(2) *Structured Clinical Interview for the DSM-IV (SCID)*. The Structured Clinical Interview for the DSM-IV was administered by a clinical psychologist and was used to determine whether subjects met criteria for DSM-IV Axis I Disorders. Mothers were given the SCID as the measure of dysthymia. Symptoms of depression (dysthymia) on the SCID include dysphoria, appetite and weight changes, insomnia or hypersomnia, fatigue, irritability, psychomotor agitation or retardation, anhedonia, feelings of worthlessness or guilt, cognitive dysfunction, suicidal ideation or attempts, crying and hopelessness. The SCID is a face-to-face interview administered by a clinician and takes approximately 45–90 min to complete. In the present study the Affective Disorder Module was used to assess current dysthymia. The reliability for assessing numerous diagnoses (i.e., depression, dysthymia, panic disorder) in adults, by relatively inexperienced clinicians is relatively high (reliability based on Kappa >.73), and the reliability for depression is .90 (Segal, Kabacoff, Hersen, Van-Hasselt, & Ryan, 1995).

1.3. Interaction procedure

The procedure, following that of Nadel et al. (1999), included three face-to-face interaction segments in the following order: live1, replay and live2. Live1, the first contingent interaction segment, consisted of a face-to-face interaction through a closed circuit television. The infant viewed the mother on a TV monitor and the mother viewed the infant on a