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Prenatal Dysthymia versus Major Depression Effects on Early Mother-Infant Interactions: A Brief Report

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Prenatal dysthymia and major depression have been compared by our group for their effects on fetal development (Field, Diego, Hernandez-Reif, Figueiredo, Ascencio, Schanberg & Kuhn, 2007a) and neonatal outcomes (Field, Diego, Hernandez-Reif & Ascencio, 2007b). In the fetal development study (Field et al., 2007a) the major depression group had more self-reported symptoms on several scales including the Center for Epidemiological Studies Depression Scale, the State Anxiety Inventory, the State Anger Inventory, the Daily Hassles Scale and the Behavior Inhibition Scale. However, the dysthymic group had higher prenatal cortisol levels, and their fetuses had lower fetal growth measures including estimated weight, femur length and abdominal circumference, as measured at the first ultrasound visit. Thus, the two types of depressed pregnant women appeared to have different prenatal symptoms with differential effects on their fetuses.

In the neonatal outcome study (Field et al., 2007b), the newborns of dysthymic versus major depression disorder mothers had a significantly shorter gestational age, a lower birthweight, shorter birth length and less optimal obstetric complications scores. The neonates of dysthymic mothers also had lower orientation and motor scores and more depressive symptoms on the Brazelton Neonatal Behavior Assessment Scale. These findings were not surprising given the inferior fetal measures including lower fetal weight, fetal length, femur length and abdominal circumference noted in our earlier study on fetuses of dysthymic pregnant women (Field et al., 2007b).

In the present study we followed the dyads of the Field et al. (2007b) neonatal sample to 3-months of age and assessed the differential effects of dysthymia and major depression on early mother-infant interactions. Although many studies have reported negative effects of maternal depression on early interactions (Tronick & Field, 1996), the effects of different types of maternal depression have not been compared.

Method

Participants

The participants were 63 depressed pregnant women (N=30 with dysthymia, N=33 with major depression) and their infants (M age= 3.5 months, N=32 females). The mothers averaged 28.7

years of age, their socioeconomic status was low to middle ($M=4.3$ on the Hollighead Index), and they were distributed 53% Hispanic, 27% African American and 20% non-Hispanic white.

Procedure

Two-hundred pregnant women were recruited at a University Hospital prenatal clinic during their first ultrasound visit ($M=20$ weeks gestation). Following informed consent, the 200 pregnant women were administered the Structured Clinical Interview for Depression (SCID) by trained research associates who were supervised by a clinical psychologist. Seventy-two of the 200 women recruited and diagnosed with dysthymia ($N=33$) or major depression ($N=39$) based on the SCID were subsequently seen after delivery of their infants (Field et al., 2007b). Of the 72 women seen at the neonatal period, 63 were seen again at 3 months for an assessment of mother-infant interactions.

Measures

Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977)—

This 20-item scale was included to assess symptoms of depression. The subject is asked to report on her feelings during the preceding week. The scale has adequate test/retest reliability (.60 over several weeks), internal consistency (.80–.90) and concurrent validity (Wells, Klerman & Deykin, 1987). Scores can range from 0 to 60. A score of 16 on the CES-D is considered the cut-point for depression (Radloff, 1991).

Mother-Infant Interactions—For the face-to-face interactions at 3 months, the mother and infant were seated facing each other, approximately 18 inches apart with the infant in an infant seat on a table and the mother seated on a chair at the table. These interactions took place at our research institute lab. The dyads were videotaped during the 5-minute face-to-face interactions. The mothers were asked to “pretend you are playing with your infant like you would at home”. Two videocameras were located behind the infant and the mother, and a split-screen generator was used to simultaneously record the infants’ and the mothers’ behaviors.

The videotapes were coded by research associates who were naïve to the mothers’ and infants’ group classification and the hypotheses of the study. The videotapes were coded for the mothers’ interaction behavior (smiling, exaggerated faces, vocalization, moving limbs, gameplaying and imitation) and the infants’ interaction behaviors (smiling, vocalization, motor activity, distress and gaze aversion) until they achieved 90% agreement for each behavior on 10 consecutive videotaped mother-infant interactions from a previous study. As a measure of intercoder reliability for the present sample, the two coders coded videotapes of 20 randomly selected dyads. Kappa coefficients were computed based on agreements/disagreements between the two coders scoring the presence of each behavior (Cohen, 1992). Kappa coefficients averaged .83. A computer program was used for continuous, second-by-second coding of the behaviors. The software then converts the one-second time units to the proportion of interaction time that the behavior occurred (Guthertz & Field, 1989).

Results

Multivariate analyses of variance (MANOVAs) were conducted on the mother-infant interaction behaviors. Following significant MANOVAs, univariate ANOVAs were conducted on the individual measures with group assignment (dysthymia/major depression) being the between groups measure. As can be seen in table 1, the dysthymia group mothers spent: 1) less time smiling; 2) less time touching their infants; 3) more time moving their infants’ limbs; and 4) less time imitating their infants. The infants of the dysthymia group mothers spent: 1) less time smiling; and 2) more time showing distress behaviors.

Discussion

The lower fetal growth measures in our earlier study on dysthymia versus major depression women (Field et al., 2007a) study and the lower birth measures in our second study on neonatal outcomes of pregnant women with dysthymia versus major depression (Field et al., 2007b) appeared to be a consistent profile that may possibly be linked to elevated cortisol in the dysthymic pregnant women (Griffiths, Ravindran, Merali & Anisman, 2000). In earlier studies we conducted, elevated cortisol was associated with lower birthweight (Field, Diego, Dieter, Hernandez-Reif, Schanberg, Kuhn, Yando, Bendell, 2004; Field, Diego, Hernandez-Reif, Gil, & Vera, 2005) and elevated cortisol was a significant predictor of shorter gestational age in at least two of our studies (Field et al., 2004; 2005). These data suggested that prenatal dysthymia may be a greater risk factor than major depression for fetal development and neonatal outcome.

Neonatal outcome was less optimal for the dysthymic group in our most recent study (Field et al., 2007b) with the newborns also having lower orientation and motor scores and a greater number of depressive symptoms on the Brazelton Neonatal Behavior Assessment Scale. These less developed behaviors at birth may have contributed to the infants' less frequent smiling and more frequent distressed behavior noted during the mother-infant interactions in the current study. Performance on the Brazelton scale has been notably related to later infant interaction behaviors in several studies (see Field, 2005 for a review).

Without baseline interaction behavior observations taken earlier than 3 months, it is difficult to determine how much the mothers' dysthymia contributed to their less frequent smiling, touching and imitating during interactions with their infants. Inasmuch as mother-infant interactions start at birth, the prenatal dysthymia/major depression effects need to be assessed as early as the neonatal period.

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Table 1
Means for Mother-Infant Interaction Behaviors at Three Months in Dysthymia and Major Depression groups.

Behaviors (%time)	Groups		F	p
	Dysthymia	MDD		
Mothers				
Smiling	16.2	37.5	4.46	0.04
Exaggerated Faces	1.4	2.6		NS
Vocalization	85.0	84.4		NS
Touching	57.9	72.2	4.18	0.05
Moving Limbs	16.7	9.3	4.06	0.05
Game playing	12.9	12.2		NS
Imitation	0.2	3.2	4.11	0.05
Infants				
Smiling	18.3	30.9	4.15	0.05
Vocalization	37.9	44.7		NS
Motor Activity	11.6	13.8		NS
Distress Behavior	10.0	3.9	5.18	0.03
Gaze Aversion	31.8	32.1		NS
Crying	1.9	1.6		NS