

## Prenatal paternal depression

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### Abstract

Prenatal depressive symptoms, anxiety, anger and daily hassles were investigated in 156 depressed and non-depressed pregnant women and their depressed and non-depressed partners (fathers-to-be). Depressed versus non-depressed fathers had higher depression, anxiety and daily hassles scores. Although the pregnant women in general had lower anxiety, anger and daily hassles scores than the men, the scores on the measures for depressed fathers and depressed mothers did not differ. Paternal depression appeared to have less effect than maternal depression on their partners' scores. However, the similarity between the scores of depressed mothers and depressed fathers highlights the importance of screening for depression in fathers-to-be as well as mothers-to-be during pregnancy.

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Prenatal maternal depression is noted to negatively affect fetal activity (increased) and fetal growth (decreased) and neonatal outcome (greater incidence of prematurity and low birthweight) in different cultures (Field et al., 2004; Lundy et al., 1999; Zuckerman, Bauchner, Parker, & Cabral, 1990). Many fathers are also depressed. In an Australian study, for example, 20% of mothers and 12% of fathers were significantly distressed at mid-pregnancy (Morse, Buist, & Durkin, 2000). In a Norwegian study, psychological distress was reported by 37% of the mothers and 13% of the fathers a few days after childbirth, and severe distress symptoms were reported by 9% and 2% of the mothers and fathers, respectively (Skari et al., 2002). In an American study (Goodman, 2004), the incidence of paternal depression ranged from 1% to 26% in community samples, and from 24% to 50% among partners of women experiencing depression. In at least one study, prenatal paternal and maternal depressed mood were significant predictor variables for the postnatal moods of both mothers and fathers (Matthey, Barnett, Ungerer, & Waters, 2000). The negative effects of paternal depression on early interactions between fathers and infants and on child development have been documented. If prenatal paternal depression is predictive of postnatal paternal depression, it would be important to identify depressed fathers prenatally for early intervention to help prevent postnatal paternal depression and its negative effects. Paternal depression during the postnatal period has been associated with adverse emotional and behavioral problems in preschool children after

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controlling maternal depression (Ramchandari, Stein, Evans, O'Connor, & ALSPAC Study Team, 2005). In addition, depression in the father-to-be might be expected to negatively affect the mother's mood state during pregnancy and thereby have indirect negative effects on fetal development and neonatal outcome.

The present study investigated prenatal depression and other mood states in both depressed and non-depressed pregnant women and their depressed and non-depressed partners (fathers-to-be). Comparisons were made between the prenatal mood states of (1) depressed versus non-depressed fathers; (2) depressed fathers versus mothers; (3) all fathers versus mothers; (4) mothers coupled with depressed fathers versus non-depressed fathers; (5) fathers coupled with depressed versus non-depressed mothers.

## 1. Methods

### 1.1. Participants

Pregnant women ( $N = 156$ ) and their husbands/significant others were recruited at a prenatal clinic during the second trimester ( $M = 20$  weeks). The women were distributed 55% Hispanic White, 22% non-Hispanic White and 23% Black and were lower to middle SES ( $M = 4.1$  on the Hollingshead Index), and averaged 28.4 years of age. They were classified as depressed or non-depressed based on the Center for Epidemiological Studies-Depression (CES-D) scale ( $N = 36\%$  of the women depressed). Their husbands/significant others were similarly classified as depressed or non-depressed on the CES-D ( $N = 32\%$  of the men depressed). The fathers averaged 33.5 years of age. A 42% of the depressed and 58% of the non-depressed fathers were married and 31% of the depressed and 36% of the non-depressed fathers were residing with their partners.

### 1.2. Procedure

Following the completion of the CES-D at the prenatal ultrasound clinic, the mothers and fathers completed other mood state questionnaires. These included the State Anxiety Inventory and the State Anger Inventory as well as the Daily Hassles Scale.

#### 1.2.1. 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 his/her feelings during the preceding week. The scale has adequate test/retest reliability (0.60 over several weeks), internal consistency (0.80–0.90) and concurrent validity (Wells, Klerman, & Deykin, 1987), and takes about 5 min to complete. A score of 16 on the CES-D is considered the cut point for depression, for research purposes (range = 0–60) (Radloff, 1991).

#### 1.2.2. State/trait anxiety inventory (STAI) (Spielberg, Gorsuch, & Lushene, 1970)

This scale was used to assess the co-morbidity of anxiety and depression which is a common phenomenon. The state/trait anxiety inventory is comprised of 20 items and is summarized by a score ranging from 20 to 90 and assesses how the subject usually feels in terms of severity ("not at all" to "very much so"). Characteristic items include "I feel nervous" and "I feel calm". Research has demonstrated that the STAI has adequate concurrent validity and internal consistency ( $r = 0.83$ ) and takes about 5 min to complete. The cut-off score for high anxiety is 48.

#### 1.2.3. State/trait anger inventory (STAXI) (Spielberg, Ritterband, Sydeman, Reheiser, & Unger, 1995)

This is a 10-item inventory that assesses general feelings of anger based on a four-point Likert scale ranging from 1 (almost never) to 4 (almost always) and takes about 5 min to complete. Typical questions include "I am quick tempered" and "I fly off the handle". Psychometric properties have been established for the STAXI on diverse ethnic groups. Reliability coefficients have been reported between 0.97 (state) and 0.89 (trait). Anger was assessed because anger is often co-morbid with depression and has negative effects on fetal development and neonatal outcome (Field et al., 2003).

#### 1.2.4. Daily hassles scale (Field, 2003)

This scale was developed to assess the degree of hassle being experienced by expectant mothers. The 16 items on a four-point Likert scale include questions on people such as family members, landlord and friends creating hassles

and finding resources as creating hassles. This scale was included because daily hassles have been a source of stress in other samples of prenatally depressed women.

## 2. Results

Multivariate analyses of variance (MANOVAs) were conducted on the group of self-report measures (CES-D, STAI, STAXI and Daily Hassles) for each of the group comparisons made between depressed and non-depressed mothers and fathers. These were followed by ANOVAs on the individual self-report measures.

As can be seen in Table 1, depressed versus non-depressed fathers had higher scores on the depression (CES-D), anxiety (STAI) and daily hassles scales. The groups did not differ on the anger (STAXI) scores.

As can be seen in Table 2, the depressed mothers' depression (CES-D) and anxiety (STAI) scores were slightly higher than those of the depressed fathers, and the depressed fathers' anger (STAXI) and daily hassle scores were slightly higher than those of the depressed mothers. However, none of these differences were statistically significant.

As can be seen in Table 3, fathers in general (depressed and non-depressed) had higher anxiety, anger and daily hassles scores. As can be seen in Table 4, the mothers who were coupled with depressed fathers had slightly higher depression (CES-D) and anxiety (STAI) scores than mothers who were coupled with non-depressed fathers. However, these differences were not statistically significant.

As can be seen in Table 5, the fathers who were coupled with depressed mothers versus non-depressed mothers had higher depression (CES-D) and anxiety (STAI) scores. No group differences were noted for the anger (STAXI) and daily hassles scores.

Table 1  
Means for self-report measures for depressed vs. non-depressed fathers (standard deviations are in parentheses)

Measures	Groups		<i>F</i>	<i>p</i>
	Non-depressed fathers ( <i>N</i> = 106)	Depressed fathers ( <i>N</i> = 50)		
Depression (CES-D)	8.52 (6.0)	21.4 (9.3)	16.9	0.001
Anxiety (STAI)	34.9 (7.7)	44.2 (8.7)	6.9	0.01
Anger (STAXI)	18.3 (5.9)	21.8 (3.6)	1.6	NS
Daily hassles	20.6 (5.2)	28.3 (6.5)	6.7	0.05

Table 2  
Means for self-report measures for depressed mothers vs. depressed fathers (standard deviations are in parentheses)

Measures	Groups		<i>F</i>	<i>p</i>
	Depressed mothers ( <i>N</i> = 56)	Depressed fathers ( <i>N</i> = 50)		
Depression (CES-D)	23.3 (8.4)	21.4 (9.3)	1.2	0.28
Anxiety (STAI)	49.11 (10.1)	44.2 (8.7)	2.0	0.17
Anger (STAXI)	19.3 (5.7)	21.8 (3.6)	2.6	0.12
Daily hassles	21.8 (4.7)	28.3 (6.5)	1.8	0.20

Table 3  
Means for self-report measures for all mothers vs. all fathers (standard deviations are in parentheses)

Measures	Groups		<i>F</i>	<i>p</i>
	All mothers ( <i>N</i> = 156)	All fathers ( <i>N</i> = 156)		
Depression (CES-D)	23.8 (10.8)	10.4 (7.9)	2.5	0.12
Anxiety (STAI)	28.5 (21.8)	36.3 (17.9)	4.0	0.05
Anger (STAXI)	12.8 (8.0)	18.8 (8.7)	14.2	0.000
Daily hassles	9.4 (7.0)	21.9 (6.1)	24.8	0.000

Table 4

Means for self-report measures for mothers coupled with depressed fathers vs. non-depressed fathers (standard deviations are in parentheses)

Measures	Groups		<i>F</i>	<i>p</i>
	Mothers with non-depressed fathers ( <i>N</i> = 106)	Mothers with depressed fathers ( <i>N</i> = 50)		
Depression (CES-D)	17.4 (9.8)	24.1 (10.4)	2.7	0.11
Anxiety (STAI)	41.2 (12.7)	50.3 (17.2)	3.3	0.08
Anger (STAXI)	19.3 (6.0)	18.7 (5.7)	0.1	NS
Daily hassles	25.7 (12.6)	27.0 (14.5)	0.0	NS

Table 5

Means for self-report measures for fathers coupled with depressed vs. non-depressed mothers (standard deviations are in parentheses)

Measures	Groups		<i>F</i>	<i>p</i>
	Fathers with non-depressed mothers ( <i>N</i> = 100)	Fathers with depressed mothers ( <i>N</i> = 56)		
Depression (CES-D)	5.2 (4.3)	12.2 (8.1)	6.0	0.02
Anxiety (STAI)	29.8 (7.7)	38.3 (7.9)	5.6	0.05
Anger (STAXI)	21.0 (7.1)	18.1 (5.1)	1.6	NS
Daily hassles	23.5 (7.7)	21.4 (5.5)	0.5	NS

### 3. Discussion

These results suggest that depressed fathers as compared to non-depressed fathers experience depression and anxiety symptoms during pregnancy, not unlike the depression and anxiety symptoms reported for depressed mothers versus non-depressed mothers during pregnancy (Field et al., 2004). The comparison of depressed mothers and fathers in the current sample further suggests that the level of depression and anxiety symptoms are not significantly different for depressed mothers and depressed fathers during pregnancy. This was a surprising finding inasmuch as depressed fathers versus depressed mothers have typically shown more positive interactions behaviors with their infants (Field, Hossain, & Malphurs, 1999; Hossain et al., 1994). That the entire sample of women tended to have in general, higher depression scores was not surprising, inasmuch as pregnant women are typically thought to have exacerbated symptoms related to hormonal changes. Their slightly higher depression scores may have related to increased cortisol levels during pregnancy as Field et al. (2004) have previously reported.

The hormonal effects on the women may have been greater than the environmental effects, as suggested by the mothers' scores being less affected by depressed fathers than the fathers' scores were affected by depressed mothers. Comparing Tables 4 and 5, the mothers coupled with depressed (Table 4) fathers had only marginally higher scores on depression and anxiety than the mothers (Table 5) coupled with non-depressed fathers. In contrast, the fathers who were living with depressed mothers had significantly higher depression and anxiety scores than the fathers living with non-depressed mothers. These data suggest that maternal depression had greater effects on the fathers' scores than paternal depression on the mothers' scores.

These data suggest, then, that depressed fathers have higher depression and anxiety scores than non-depressed fathers during pregnancy, not unlike depressed mothers having higher depression and anxiety scores than non-depressed mothers (Field et al., 2004). Fathers' depression scores, for the entire sample, however, tended to be lower than mothers' scores, possibly because of the greater hormonal (e.g. cortisol) effects on the pregnant women (Field et al., 2004).

The clinical implications of this study are that prenatally depressed fathers also need to be identified and provided intervention to prevent the negative effects they may have on the mother's prenatal mood state and, in turn, the indirect effects on fetal development. Paternal depression has been noted to have negative effects on infant development (Marmorstein, Malone, & Iacono, 2004; Mezulis, Hyde, & Clark, 2004). Fathers might, for example, provide massage therapy for the mothers during pregnancy inasmuch as massage is noted to lower depression and stress in both the person giving, and the person receiving (Field, Hernandez-Reif, & Diego, 2006).

Future research is needed to assess larger samples, in other cultures and with diagnostic interviews. Further, other interventions for prenatal depression need to be investigated for both fathers and mothers-to-be.

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