Published in final edited form as:
*Early Hum Dev*. 2013 September ; 89(9): 621–624. doi:10.1016/j.earlhumdev.2013.04.006.

# Peer Support and Interpersonal Psychotherapy Groups Experienced Decreased Prenatal Depression, Anxiety and Cortisol

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## Abstract

Forty-four prenatally depressed women were randomly assigned to peer support or interpersonal psychotherapy groups at 22 weeks gestation. The peer support group participated in a 20-minute group session once per week for 12 weeks, and the interpersonal psychotherapy group met for one hour per week for 12 weeks. Assessments were conducted before and after the sessions at 22 and 34 weeks gestation. Despite the peer support group having lower socioeconomic status and higher depression scores at the beginning of the treatment period and having shorter group sessions, both groups had lower summary depression (CES-D) scores and lower anxiety (STAI) scores by the end of the treatment period. In addition, cortisol levels decreased for both groups after the last day session, although the decrease was greater for the peer support group. The groups did not differ on neonatal outcomes including gestational age and birthweight. These data suggest that peer support group sessions may be a cost-effective form of treatment for prenatal depression.

As many as 49% of pregnant women experience prenatal depression, especially ethnic minority (Field, Diego, Hernandez-Reif, Deeds, Holder, Schanberg & Kuhn, 2009; Gavin, Melville, Rue, Guo, Dina & Katon, 2011), low income and unmarried women (Lancaster et al., 2010). Prenatal depression, in turn, contributes to prematurity (Field et al., 2009) and developmental delays (Deave, Heronm, Evans, & Edmond, 2008) as well as behavior problems in childhood and adolescence (de Bruijn, van Bakel, & van Baar, 2009), highlighting the need for prenatal intervention.

Traditional treatments for depression including antidepressants and psychotherapy have been underutilized in the case of prenatal depression for various reasons. Antidepressants have been prescribed for a very small percentage (1–5%) of prenatally depressed women because of the mixed data on fetal and neonatal outcomes (Einarson, Choi, Einarson, & Koren, 2010; Field, 2010). These studies also had limitations including small sample sizes, uncontrolled designs and unknown long-term medication effects. In addition, women already on antidepressants have elected to discontinue antidepressants during pregnancy.



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Different forms of psychotherapy including cognitive behavior therapy have also received mixed reviews (Butler, Chapman, Forman, & Beck, 2006; Parker, Crawford, & Hadzi-Pavlovic, 2008) in addition to being unaffordable by most women. Interpersonal Psychotherapy (IPT) was noted to have greater effect sizes as compared to control groups in a meta-analysis on various treatments for perinatal depression (Sockol et al, 2011). And, interpersonal psychotherapy has been effective in at least one study on depressed pregnant women (Spinelli & Endicott, 2003). In that study, the IPT group received 16 weeks of individual sessions, and a comparison group received the same number of sessions focused on parenting education. The IPT group showed significant improvement compared to the parenting education group on 3 depression measures including the Edinburgh Postnatal Depression Scale, The Beck Depression Inventory and The Hamilton Depression Rating Scale, and the IPT group also had a lower attrition rate. This study lacked generalizability given that all the women were immigrants from the Dominican Republic, and many of the women had been abused. The significant decreases in depression scores in this study occurred by the sixth week of the treatment period. In a study by our group, depressed pregnant women who received 6 weeks of Group Interpersonal Psychotherapy (one hour session once per week) showed increased positive affect and social relatedness, although negative affect also increased (Field et al., 2009). No studies could be found on the effects of peer support groups with depressed pregnant women.

The present study was suggested by our pilot data showing positive effects of peer support group sessions and our study on interpersonal group therapy effects on depression for pregnant women including decreased anxiety and depressed mood (Field et al 2009). The purpose of the present study was to compare the effects of participating in peer support versus interpersonal psychotherapy groups on prenatal depression. The effects of these interventions on anxiety and cortisol levels were also explored because both anxiety and elevated cortisol have been comorbid with prenatal depression (Field, Diego, Hernandez-Reif, Figueiredo, Schanberg, & Kuhn, 2007). Based on previous data on interpersonal psychotherapy effects on perinatal depression (Spinelli & Endicott, 2003) and on depressed pregnant women (Field et al, 2009), the interpersonal psychotherapy group was expected to experience greater effects than the peer support group. However, if the peer support group was as effective as the interpersonal psychotherapy group, it would be a more cost-effective prenatal depression intervention given the shorter sessions (20 versus 60 minutes) and the absence of a trained group psychotherapist.

## METHOD

### Participants

The sample was comprised of 44 depressed pregnant women recruited from two prenatal ultrasound clinics (recruitment sample = 182) at a large university medical center. The depressed pregnant women were recruited at 20–24 weeks gestation (M =22 weeks) and randomly assigned to a peer support (n= 22) or interpersonal psychotherapy group (n=22). The recruitment criteria were: 1)being depressed, as diagnosed on the Structured Clinical Interview for Depression (SCID); 2) being pregnant with one child; 3)having an uncomplicated pregnancy with no medical illness; 4)being younger than 40-years-old, and 5) no drug use (i.e., prescribed or illicit). Samples previously recruited at these clinics had a very low incidence (3–5%) of treatment for prenatal depression (i.e., psychotherapy or antidepressants), so previous or concurrent treatments were not exclusion criteria.

The sample included women ranging in age from 18–40-years-old (M= 24.9 years, SD= 5.4). The women were primarily low income (SES) and Hispanic or African-American women with a high-school education. (See table 1 for the mean age, education, and SES, and for the distribution of ethnicity and marital status). The peer support group had a higher SES

score, meaning they were lower income, and they had a higher baseline depression (CES-D) score, suggesting they were at greater risk than the interpersonal psychotherapy group. Two women in the psychotherapy and one in the support group had attended a mental health clinic and none of the women had received antidepressants.

## Procedures

The women in the peer support group participated in 20-minute sessions once per week for 12 weeks. The group engaged in discussions on many different topics with active participation from all members. Although a staff member was present, she was not a trained therapist and she remained silent throughout.

The Interpersonal Psychotherapy Group sessions were held for one hour each week for 12 weeks. They were focused on pregnancy experiences and relationship problems. The curriculum for the Interpersonal Psychotherapy group was based on the (Weissman et al. 2000) Comprehensive Guide to Interpersonal Psychotherapy (Weissman et al. 2000). As in that guide, the therapist was active, not passive as in the peer support group. The specific techniques that were used included exploratory, encouragement of affect, clarification, communication analysis, and behavior change techniques. The therapist was trained in these techniques and received ongoing supervision from another trained therapist.

Both groups were the same size and followed the same weekly schedule at the same time. Three consecutive peer support groups (N = 8 in each group) and three consecutive interpersonal therapy groups (N = 8 in each group) to total 24 in each type of group met over a 12 week period for a total of 36 weeks. One woman dropped out of the first two peer support groups (N = 2) and one woman dropped out of the second two therapy groups (N = 2) to total 44 women across the 2 conditions (peer support and Interpersonal therapy). The groups remained the same over all sessions. Participants in both groups were paid $30 for each session to compensate for expenses related to childcare and transportation. Assessments were conducted before and after the sessions at the beginning of the treatment period (M=22 weeks gestation) and at the end of the treatment period (M=34 Weeks gestation).

## Measures

**Structured Clinical Interview Depression (SCID)—**The women were given the SCID interview (research version) at the first assessment session for the diagnosis of depression and to rule out bipolar disorder, schizophrenia and psychotic disorders. The women were diagnosed with dysthymia or major depression on the SCID based on DSM IV symptoms. The SCID was given by research associates following training and with continuing supervision by a clinical psychologist.

**The Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977)—**The CES-D is a 20-item self-report measure that assesses current depression symptoms (over the past week) (Radloff, 1977). The symptoms include “depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of energy, and disturbances of sleep and appetite” (Radloff & Teri, 1986). The Likert ratings include most of the time (6–7 days), occasionally, (3–4 days), some of the time (1–2 days), and rarely (less than a day). Each item is rated from 0 to 3 based on how often the individual felt this way, with higher scores indicating greater frequency. Total summary scores range from 0 to 60, with the cut-off for clinical levels of depressive symptomatology being 16 or higher (Radloff, 1977). Subscale scores include depressed affect, positive affect, somatic/vegetative signs, and interpersonal distress (Radloff & Teri, 1986).

The CES-D has acceptable validity and reliability for various demographic variables including geographic location, education level, age, race, ethnicity, and language (Radloff & Teri, 1986). The CES-D is also a valid and reliable measure of symptom changes across time (Weismann, Sholomskas, Pottenger Pursoff, & Locke, 1977) (Radloff; 1977). An internal consistency of .85 has been reported for the general population and .90 for clinical samples, and test-retest reliability correlations have ranged from .51 to .67 over 8 weeks, and spilt-half reliabilities from .77 to .92 (Radloff; 1977). The CES-D has had moderate criterion validity among low income, minority women and has been related to a depression diagnosis based on diagnostic interviews (Thomas, Jones, Scarinci, Mehan, & Brantley, 2001). Finally, a study on women with prenatal depression revealed an internal consistency (Cronbach alpha ranging from .88 to .93) as well as a significant test-retest reliability and convergent validity with other depression symptom scales (Maloni, Park, Anthony, & Musil, 2005).

**State Anxiety Inventory (STAI) (Spielberger et al., 1970)—**This scale was included because depression and anxiety are often comorbid. The State Anxiety Inventory is comprised of 20 items and is summarized by a score ranging from 20 to 90 assessing how anxious the individual 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 State Anxiety Inventory has adequate concurrent validity and internal consistency (r = .83) (Spielberger et al., 1970)

**State Anger Inventory (STAXI)—**(Spielberger et al., 1995). This is a 10-item inventory that assesses general feelings of anger based on a 4-point Likert scale rating ranging from 1 (almost never) to 4 (almost always). 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 including a reliability coefficient of 0.97.

**Cortisol Levels—**Saliva samples were collected mid-morning immediately prior to and after the psychotherapy/support sessions on the first and last days of the treatment period. Salivettes were used for the collection. The samples were then frozen and shipped to Salimetrics for the assays of cortisol.

## RESULTS

Repeated measures by group ANOVAs were conducted with the repeated measures being pre to post session changes on the first and last days of the study and Hedge’s gs were determined for effect sizes (Hedges,1981). As can be seen in table 2, repeated measures effects suggested that both groups experienced significant changes as follows: 1) decreased depression from the first to the last days ($F = 7.04$, $p<.005$, $g = 2.05$); 2) decreased anxiety from the first to the last days ($F = 5.91$, $p<.01$, $g = 1.78$); and 3) lower cortisol levels after the last day session, although the decrease was greater for the peer support group ($F = 6.93$, $p< .001$, $g = 1.98$) (all medium effect sizes). Finally, the groups did not differ on neonatal outcome measures including gestational age and birthweight (see table 3). Three of the psychotherapy women delivered prematurity and two of the peer support group women.

## DISCUSSION

These findings are perhaps not surprising given that previous studies have shown that interpersonal psychotherapy decreased perinatal depression (Spinelli & Endicott, 2003) and group interpersonal psychotherapy has also decreased depressive symptoms in pregnant women (Field et al, 2009). However, the interpersonal psychotherapy group was expected to benefit more than the peer support group in the current study, especially since the peer

support group in the current study was at greater risk, and their group sessions were shorter at baseline including being lower income and having more depressive symptoms. The Field et al (2009) study on group interpersonal psychotherapy measured behaviors rather than self-report scales including affect and social relatedness. Both groups in the current study could have been self-reporting changes that were socially desireable (halo effects). The interpersonal psychotherapy group in the current study could be improving more in behaviors such as affect and social relatedness because of the therapist's emphasis on these behaviors. However, these behaviors were not measured here. These groups could be compared on these behaviors in a future study.

The decreased cortisol levels following the last session were also not surprising since interventions are notably effective for reducing cortisol (Field et al. 2010). However, the greater decrease in cortisol for the peer support group versus the interpersonal psychotherapy group was not predicted. The greater decrease in cortisol for the peer support group may have related to their being more depressed initially and to their higher cortisol levels at the start of the last session. The increased cortisol levels across the course of the study were perhaps not surprising because they typically increase across pregnancy. However, prenatal interventions would desirably decrease cortisol levels. In addition, although depression and anxiety significantly decreased across pregnancy, those negative affects were still elevated at the end of pregnancy, not unlike the cortisol levels, suggesting that longer, more intensive interventions may be needed.

The similar neonatal outcomes for the two groups including gestational age and birthweight may relate to their similar near-end-of-pregnancy (M=34 weeks gestation) depression and anxiety scores and their similar cortisol levels. Future research is needed to more comprehensively assess these two forms of intervention for prenatal depression, especially since the results of this study suggest that the relatively inexpensive intervention, i.e. the peer support group, may be as effective as the less cost-effective interpersonal psychotherapy group intervention and thereby may be affordable for more prenatally depressed women.

## Acknowledgments

We would like to thank the women who participated in our study. This research was supported by an NIH grant (HD056036) and a Senior Research Scientist Award (AT001585) to Tiffany Field and funding from Johnson & Johnson Pediatric Institute to the Touch Research Institute.

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## Table 1

Means (and standard deviations in parentheses) on demographic variables for psychotherapy and peer support groups.

| | Group | | |
|---|---|---|---|
| **Variable** | **Psychotherapy** | **Support** | **P** |
| •Age | 25.7(5.3) | 24.1 (5.05) | NS |
| •Education | 4.3 (1.2) | 4.0 (3.8) | NS |
| •SES | 4.1 (1.2) | 4.7 (.6) | .03 |
| •Ethnicity (%) | | | NS |
| • African American | 87 | 85 | |
| • Hispanic | 12 | 14 | |
| • Non-Hispanic White | 1 | 1 | |
| •Marital Status (%) | | | NS |
| • Single | 40 | 36 | |
| • Boyfriend | 32 | 50 | |
| • Married | 28 | 14 | |

## Table 2

Mean scores (and standard deviations in parentheses) for 1st vs. last day effects in psychotherapy and peer support groups.

| | Group | | | |
|---|---|---|---|---|
| | Psychotherapy | | Support | |
| Variable | 1st day | Last day | 1st day | Last day |
| Depression (CES-D) | 20.0 (10.0) | 17.5[3] (6.7) | 26.8 (5.7)[1] | 21.0[3] (7.4) |
| • Depressed Affect | 9.9 (3.6) | 6.4[4] (3.5) | 10.1 (3.3) | 6.7[4] (3.4) |
| Anxiety (STAI) | 41.3 (10.3) | 38.7[2] (11.3) | 48.5 (6.1) | 43.2[2] (6.2) |
| Anger (STAXI) | 17.3 (4.7) | 17.6 (5.6) | 19.2 (5.6) | 18.1[2] (5.3) |

| | Last Day | | | |
|---|---|---|---|---|
| | Pre | Post | Pre | Post |
| First Day Cortisol (ng/ml) | .31 (.11) | .30 (.12) | .38 (.15) | .39 (.14) |
| Last Day Cortisol | .26 (.09) | .22 (.10)[2] | .41(.19)[4] | .29 (.19)[4] |

* Superscripts in column 2 = 1st day – last day differences for psychotherapy group and in column 4 for 1st day – last day differences for peer support group (Superscripts [1]p= .05 [2]p= .01 [3]p= .005 [4]p= .001).

## Table 3

Means for neonatal outcome measures for psychotherapy and peer support groups (standard deviations in parenthesis)

| | Group | | |
|---|---|---|---|
| **Variable** | **Psychotherapy** | **Support** | **P** |
| Gestational Age | 37.1 (4.7) | 38.2 (2.1) | NS |
| Birthweight | 2950.9 (1024.2) | 3017.8 (456.5) | NS |