



## Pregnancy massage reduces prematurity, low birthweight and postpartum depression

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### ARTICLE INFO

#### Article history:

Received 18 June 2008

Received in revised form 6 February 2009

Accepted 7 July 2009

#### Keywords:

Pregnancy massage

Prematurity

Low birthweight

Postpartum depression

### ABSTRACT

Pregnant women diagnosed with major depression were given 12 weeks of twice per week massage therapy by their significant other or only standard treatment as a control group. The massage therapy group women versus the control group women not only had reduced depression by the end of the therapy period, but they also had reduced depression and cortisol levels during the postpartum period. Their newborns were also less likely to be born prematurely and low birthweight, and they had lower cortisol levels and performed better on the Brazelton Neonatal Behavioral Assessment habituation, orientation and motor scales.

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## 1. Introduction

### 1.1. Prenatal depression

Prenatal depression has been noted in 10–25% of pregnant women (Gordon, Cardone, Kim, Gordon, & Silver, 2006; Kim et al., 2006) and it is a potential risk factor for many adverse perinatal complications including a greater incidence of prematurity (Field, Diego, Dieter et al., 2004; Orr, James, & Blackmore Prince, 2002) and low birthweight (<2500 g) (Field, Diego, Dieter et al., 2004; Oberlander, Warburton, Misri, Aghajanian, & Hertzman, 2006), as well as more frequent intensive care at birth (Chung, Lau, Yip, Chiu, & Lee, 2001; Oberlander et al., 2006). Prenatal depression also contributes to biobehavioral dysregulation in the fetus marked by greater activity levels (Dieter et al., 2001), elevated resting heart rate (Allister, Lester, Carr, & Liu, 2001), and increased heart rate reactivity (Monk et al., 2004).

Neonates of prenatally depressed women are also more likely to exhibit biobehavioral dysregulation (Field, Diego, Dieter et al., 2004; Lundy et al., 1999), and during infancy they are more likely to show mental, motor and emotional delays (Patel, DeSouza, & Rodrigues, 2003) and growth delays (Patel et al., 2003; Rahman, Lovel, Bunn, Iqbal, & Harrington, 2004). Later, as children, they more often have emotional problems (Luoma et al., 2001).

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## 1.2. Prenatal interventions

Depression in non-pregnant women is effectively treated using antidepressant medications (APA, 2000), but antidepressants can pass through the placenta (Hendrick, Stowe et al., 2003) and have adverse effects including premature delivery, low birthweight (Field, 2008; Hendrick, Smith et al., 2003) and neonatal dysregulation (Oberlander et al., 2006; Zeskind & Stephens, 2004). Psychotherapy is also an effective treatment for depression (APA, 2000) and one that does not pose the risks of antidepressants. However, psychotherapy has not been assessed for its effects on pregnancy complications and neonatal outcomes. In addition, low socioeconomic status women are less likely to have access to and receive treatment for depression (US Department of Health and Human Services, 2001).

Other non-pharmacological interventions for prenatal depression have also been investigated such as massage therapy. Massage therapy is a popular alternative treatment that involves manipulation of the soft tissues of the body through pressure and movement. Massage therapy may provide an optimal alternative intervention for treating prenatal depression and improving perinatal outcomes, as it may be effectively administered by a significant other. Women who are massaged during pregnancy report fewer depression and anxiety symptoms, better sleep, less back pain, and they have lower cortisol and norepinephrine levels by the last day of the study irrespective of whether the massage is administered by a professional massage therapist or their partner (Field, Diego, & Hernandez-Reif, 2007).

## 1.3. Massage therapy reduces prenatal depression

Massage therapy reduces prenatal depression and decreases salivary and urinary cortisol levels. In our first study on massage with pregnant women, massage therapy and relaxation therapy groups were compared (Field et al., 1999). After 20-min sessions twice per week for 5 weeks, the massage therapy group reported less depressed mood, and they had fewer perinatal complications.

In a subsequent study, we recruited clinically depressed pregnant women and randomly assigned them to a massage therapy, relaxation therapy or control group and compared them to each other and to a non-depressed group at the end of the pregnancy (Field, Diego, Hernandez-Reif, Schanberg, & Kuhn, 2004). The massage and relaxation therapy groups received two 20-min therapy sessions per week by their significant other for the last trimester of pregnancy. Once again the massaged women had less depressed mood and disturbed sleep patterns, as well as less pain, lower stress hormones and fewer perinatal complications including a lower incidence of prematurity.

The purpose of the present study was to assess the effects of pregnancy massage by significant others on prenatal measures as well as perinatal outcomes and in a larger sample. Thus, the aims of this study were: (1) to replicate our previous studies on the effects of pregnancy massage on prenatal measures (Field et al., 1999; Field, Diego, Hernandez-Reif et al., 2004) and (2) to add measures of postnatal outcomes including postpartum depression and neonatal measures including cortisol and the Brazelton Behavioral Neonatal Assessment Scale (Brazelton, 1973). Massage therapy was expected to reduce prenatal depression, anxiety, anger, daily hassles, back pain and sleep disturbances in the women and the incidence of prematurity and low birthweight as it has done in previous studies (Field et al., 1999; Field, Diego, Hernandez-Reif et al., 2004) and to reduce postpartum depression and neonatal dysregulation.

## 2. Method

### 2.1. Participants

Two hundred depressed women were recruited between 16 and 20 weeks gestation from two ultrasound clinics ( $M = 19.2$  weeks). The women averaged 26.2 years of age, were primarily low socioeconomic status ( $M = 3.9$  on the Hollingshead SES Index), and were distributed approximately 57% Hispanic, 38% African-American, and 5% Non-Hispanic. The groups did not differ on these demographic variables (see Table 1). Twenty percent of the women who were interviewed met SCID criteria for major depressive disorder that had persisted across pregnancy to the time of recruitment.

Pregnant women were considered eligible for recruitment if they were low risk pregnancies and met the following criteria: (a) gestational age (GA) between 16 and 20 weeks; (b) 18–30 years of age; (c) singleton pregnancy; (d) uncomplicated pregnancy; (e) major depression across pregnancy; and (f) living with a partner. Mothers were specifically excluded if they: (a) had HIV or any other infectious disease; (b) had hypertension; (c) exhibited any pregnancy complications prior to recruitment including: gestational diabetes, ectopic pregnancies, anemia, placenta previa, placental abruption or preeclampsia; (d) suffered from any metabolic or eating disorder (obesity, bulimia, anorexia); (e) were currently using medications other than vitamins; or (f) had smoked cigarettes or used drugs during their pregnancy.

Gestational age was estimated based on the mothers' last menstrual period (LMP). Only mothers who were able to accurately recall their LMP date were recruited for the study. Any women with suicidal ideation, bipolar disorder, schizophrenia or any psychiatric disorder other than MDD were excluded from the study. All women with MDD and these other disorders were referred to our collaborating psychiatrist.

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