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Psychosocial Correlates of Depression Symptoms During the Third Trimester of Pregnancy

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Objective: To explore the psychosocial correlates of depression symptoms during the third trimester of pregnancy.

Design: Cross-sectional design guided by Selye's theory of stress.

Setting: Prenatal care provider offices or mutually agreeable locations in the Pacific Northwest.

Participants: One hundred thirty-nine women in their third trimester of pregnancy. The majority was Caucasian and married. Fifty-two of the participants (38%) had scores greater than or equal to 16 on the Centers for Epidemiologic Studies Depressed Mood Scale.

Main Outcome Measure: The Centers for Epidemiologic Studies Depressed Mood Scale.

Results: Stepwise linear regression indicated that 46% of the variance of third-trimester depressive symptoms was due to brief and intermittent negative mood states that occurred primarily during the first trimester, a lack of marital satisfaction and social support, and gravida. Lifetime abuse did not contribute significantly to third-trimester depression symptoms.

Conclusions: One third of the sample reported subclinical levels of depression symptoms. Prenatal care providers may want to consider these minor and brief mood changes as predictive of depression symptoms later in pregnancy, particularly when experienced during the first trimester. *JOGNN, 36,* 231-242;2007.DOI:10.1111/J.1552-6909.2007.00140.x

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Prenatal depression has significant negative outcomes for the pregnant woman, her fetus, and the newborn and appears to occur as often as depression distinct from pregnancy. The Agency for Healthcare Research and Quality's 2005 report stated that although evidence is limited, "as many as 14.5 percent of pregnant women have a new episode of major or minor depression during pregnancy" (Gaynes et al., 2005, pp. 6-7); this estimate does not include women who were depressed prior to pregnancy and who continue to be depressed during pregnancy. Although clinical settings do not widely implement universal prenatal depression screening, identification of prenatal depression risk factors or predictors could facilitate early screening and intervention for at-risk women. The purpose of this paper was to identify psychosocial correlates of depression symptoms during the third trimester of pregnancy.

> Identification of risk factors or predictors of prenatal depression could facilitate early screening and intervention for women at risk.

Literature Review

Prenatal Depression Outcomes

Depression symptoms, such as sleep and appetite disturbance, fatigue, weight gain, and diminished libido, are often confused with the expected physical

changes and psychosocial processes that accompany pregnancy (Llewellyn, Stowe, & Nemeroff, 1997; Nonacs & Cohen, 2003). This confusion may contribute to the underdiagnosis of depression in the clinical setting. Smith et al. (2004) explored whether prenatal care providers accurately diagnosed mental health problems. The mental health status of 387 pregnant women was evaluated prior to a prenatal care visit using the Primary Care Evaluation of Mental Disorders Brief Patient Health Questionnaire and these findings were compared with interviews of the women after their visits. Clinicians correctly identified 2 of the 99 women who scored as depressed and 2 of 17 women with suicidal ideation. This high rate of underdiagnosis places women and their fetuses/newborns at risk for poor health outcomes and prevents determination of the full range of effects of depression during pregnancy.

Researchers hypothesize that the mechanism by which prenatal depression affects the fetus and newborn is biochemical, secondary to stress. Stress increases maternal cortisol levels which, in turn, lead to decreased uterine perfusion, slowed fetal growth rate, increased uterine irritability, and an increased number of preterm births (Hoffman & Hatch, 2000; Mian, 2005; Orr, James, & Blackmore-Prince, 2002). Stress-induced changes are not limited to the pregnant woman. Newborns have similar biochemical profiles to their depressed mothers, with increased cortisol and norepinephrine levels and decreased dopamine levels (Diego et al., 2004), although results are not consistent across studies (Andersson, Sundstrom-Poromaa, Wulff, Astrom, & Bixo, 2004). These biochemical changes may explain behavioral reports that newborns of depressed mothers are irritable and cry excessively (Huizink, Robles De Medina, Mulder, Visser, & Buitelaar, 2002).

Postpartum depression (PPD) occurs more often among women with prenatal depression (Beck, 1998; Bloch, Rotenberg, Koren, & Klein, 2006; Heron et al., 2004; Robertson, Grace, Wallington, & Stewart, 2004; Spinelli & Endicott, 2003). Larsson, Sydsjo, and Josefsson (2004) reported that 46% of women (n = 117) with prenatal depressive symptoms had depressive symptoms at 6 to 8 weeks or 6 months after birth or both. Rich-Edwards et al. (2006) conducted a cohort study of 1,662 pregnant and postpartum women and reported that women who were depressed prenatally had a six-fold increase in PPD (odds ratio = 6.78; 95% confidence interval 4.07-11.31). Depression during pregnancy can exacerbate after delivery (Sichel & Driscoll, 2000) and may affect mother-infant bonding and attachment (Bifulco et al., 2004; Lindgren, 2001). Alterations in maternal-infant interaction and the biochemical changes present at birth can continue into late childhood and may contribute to an increased susceptibility to psychopathology in the child (Mian, 2005).

Risk Factors for Prenatal Depression

History of Prenatal Depression. A history of depression is predictive of prenatal depression. Marcus, Flynn, Blow, and Barry (2003) used the Center for Epidemiologic Studies Depressed Mood Scale (CES-D) to identify predictors of prenatal depression in a study of 3,472 pregnant women. Women with a history of depression were almost five times more likely to have a CES-D score greater than or equal to 16, indicating likelihood of depression, when compared to their peers without a prior depression history.

Stressful Life Events and Social Support. Researchers use a range of variables to describe stress or experiences that arouse an individual's reactions to stress. Two or more stressful life events in the past year, unfortunate timing of the pregnancy, previous miscarriage or negative birth experience, and a nonnative language were predictors of prenatal depression in a Swedish study of 3,011 women (Rubertsson & Waldenstrom, 2003). Financial problems were identified as stressful life events in two studies of prenatal depression (Marcus et al., 2003; Seguin, Potvin, St. Denis, & Jacinthe, 1995).

Some investigators focus on coping behaviors that are highly correlated with stress as proxy measures of stressful events. Using this approach, investigators found positive relationships between prenatal depression and alcohol and cigarette use (Marcus et al., 2003; Seguin et al., 1995).

All individuals experience stress but vary in their ability to adapt. Some investigators study factors promoting adaptation and hypothesize that social support is a buffer to stressful life events and the development of illness. Studies consistently report that women with prenatal depression are likely to have insufficient social support resources (Marcus et al., 2003; Rubertsson & Waldenstrom, 2003; Seguin et al., 1995).

Demographic Characteristics. Other findings indicate that women with prenatal depression are more likely to be single or unpartnered, multiparous, and of lower educational levels; these women perceive themselves to be at a lower income level than their nondepressed peers (Anderson, Roux, & Pruitt, 2002; Larsson et al., 2004; Marcus et al. 2003). Rich-Edwards et al. (2006) studied 1,662 women using the Edinburgh Postnatal Depression Scale at midpregnancy to determine social and demographic predictors of prenatal depression. Prenatal depression did not differ by ethnicity. Contradictory findings exist for the relationship between age and prenatal depression. Larsson et al. found an inverse relationship between age and prenatal depression, while Rich-Edwards et al. (2006) found that this finding was primarily due to financial hardship.

Abuse. Two studies compared the prevalence of prenatal depression for abused and nonabused women. Pregnant