



Original article

## Perinatal Depression and Anxiety in Women with and without Human Immunodeficiency Virus Infection



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#### ABSTRACT

Background: Untreated depression and anxiety during the perinatal period have significant consequences on maternal and infant health; however, few studies have examined perinatal depression and perinatal anxiety in women with human immunodeficiency virus (HIV) infection. The current study prospectively examined the prevalence of prenatal and postpartum depression and anxiety, and emotional support from family and friends, as well as childhood sexual abuse in women with and without HIV infection.

*Methods:* Between July 2009 and January 2013, 258 pregnant women receiving care in a Philadelphia hospital were enrolled, with 162 completing both the prenatal and postpartum portions of the study. The Center for Epidemiological Studies–Depression Scale (CES-D), and the State-Trait Anxiety Inventory for Adults were used to measure depression and anxiety symptoms, respectively. An independent samples *t* test and multiple linear regressions were used to determine associations among depression, anxiety, and pregnancy-related variables.

Results: Forty-nine participants (30%) were living with HIV; 113 (70%) were HIV negative. CES-D scores did not differ prenatally (p=.131) or postpartum (p=.156) between women with and without HIV. Prenatal state anxiety scores were higher in women with HIV (p=.02) but there were no differences postpartum (p=.432). In a multiple linear regression, trait anxiety predicted postpartum anxiety in the full sample (p<.001) and childhood sexual abuse predicted postpartum depression among women with HIV (p=.021).

Conclusions: These findings highlight the importance of identifying and treating perinatal depression and anxiety early in the prenatal period. Results also emphasize the need for providers to be aware of childhood sexual abuse as a potential correlate for depression in women with HIV.

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Women with human immunodeficiency virus (HIV) represent nearly a quarter of new HIV infections in the United States (Centers for Disease Control and Prevention [CDC], 2012); the largest number of these new infections is in women of reproductive age (CDC, 2011). When queried about their reproductive plans, women with HIV report similar childbearing intentions

when compared with women without HIV (Chen, Phillips, Kanouse, Collins & Miu, 2001; Finocchario-Kessler et al., 2010; Finocchario-Kessler et al., 2012); therefore, many women living with HIV are likely to experience pregnancy and childbirth. Pregnancy is a time of increased vulnerability for depression and anxiety in general (Gaynes et al., 2005; Ross & McLean, 2006; Viguera et al., 2011). Although high rates of depression and other mental health vulnerabilities have been reported in women with HIV in general (Basu, Chwastiak, & Bruce, 2005; Morrison et al., 2002) and during pregnancy (Kapetanovic et al., 2009, Kapetanovic, Dass-Brailsford, Nora, & Talisman, 2014; Ross, Sawatphanit, & Zeller, 2009), there is a gap in the field of evidence regarding mental health in the perinatal period for women with HIV infection.

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Although not extensively investigated, previous research has demonstrated rates of perinatal depression in women living with and without HIV as high as 46%, with no difference in perinatal depression between the two groups (Rubin et al., 2011). In contrast, other research has demonstrated significantly higher rates of depression among women with HIV (e.g., Chaudron, 2010; Ciesla & Roberts, 2001; Kapetanovic et al., 2014; Ross et al., 2009). Untreated depression during pregnancy has been correlated with an increased risk for postpartum depression and adverse maternal and infant health outcomes, irrespective of HIV serostatus (Alder, Fink, Bitzer, Hosli, & Holzgreve, 2007; Field, 2011; Marcus, 2009), including negative consequences for the emotional, behavioral, and cognitive development of the child (Beck, 1995, 1998; O'Connor, Heron, Golding, Beveridge, & Glover, 2002; Ryan, Milis, & Misri, 2005; Sohr-Preston, 2006). Prenatal depression also has been linked to delayed entry into prenatal care, premature birth, and low birth weight (Christensen, Stuart, Perry & Le, 2011; Righetti-Veltema, Conne-Perreard, Bousquet & Manzano, 2002). Depression among women with HIV in particular has been found to contribute to poor adherence to HIV treatment, faster disease progression, lower survival rates, increased substance abuse, and more frequent social and economic challenges (Bangsberg et al., 2006; Cook et al., 2002; Cook et al., 2007; Garcia de Olalla et al., 2002; Kapetanovic et al., 2014; Ledergerber et al., 1999; Paterson et al., 2000). Taken together, it is clear that for women with HIV the consequences of untreated depression during pregnancy and the postpartum may be particularly dire for both mother and child.

Anxiety during the perinatal experience is common and increasingly recognized as problematic (Ross & McLean, 2006); however, perinatal anxiety has gained little research attention (Ross & McLean, 2006; Wenzel, Haugen, Jackson & Brendle, 2005). Overall, relative to women without HIV, anxiety symptom scores are significantly higher (Morrison et al., 2002), as are rates of anxiety disorders, with prevalence estimates as high as 38% reported (Elliott, 1998). In a recent investigation, Villar-Loubet et al. (2014) reported high rates of depression and anxiety in a cohort of pregnant women with HIV, demonstrating strong associations with a history of posttraumatic stress disorder. A randomized, controlled study of HIV-negative pregnant women found elevated state anxiety scores (assessed with the State-Trait Anxiety Inventory for Adults) to be associated significantly with cesarean delivery, reduced duration of breastfeeding, and increased maternal healthcare utilization (Paul, Downs, Schaefer, Beiler & Weisman, 2013). Anxiety during pregnancy can result in adverse maternal and infant health outcomes owing to the exposure of the fetus to maternal stress responses concomitant with anxiety symptoms (Ross & McLean, 2006; O'Connor et al., 2002). Specifically, maternal anxiety during pregnancy has been shown to be associated with increased fetal heart rate and increased risk for neurodevelopmental issues such as behavioral disturbances, attention-deficit/hyperactivity disorder, and language delay (Talge, Neal & Glover, 2007; Monk, et al., 2000; Monk, Myers, Sloan, Ellman, & Fifer, 2003; O'Connor et al., 2002).

Therefore, addressing depressive and anxiety symptoms in pregnant women with HIV infection may contribute to increased adherence to prenatal treatment, decreased risk of perinatal transmission of HIV infection, and overall improved health of the mother and her child in both the prenatal and postpartum periods. There exists a pressing need to understand both the prevalence of depressive and anxiety symptoms in this specific group, but also to identify potential predictors of depressive and

anxiety symptoms to aid in the screening and treatment of women with HIV in the perinatal period.

Predictors of depression and anxiety during the perinatal period have been examined, in samples of women with and without HIV (Rubin et al., 2011; Kapetanovic et al., 2014; Villar-Loubet et al., 2014). There is a higher prevalence of childhood sexual abuse in women with HIV infection than in the general population (Kalichman et al., 2002; Koenig, Doll, O'Leary, & Pequegnat, 2004) and the prevalence of psychiatric disorders is higher among individuals who report such abuse (Molnar, Buka & Kessler, 2001; Villar-Loubet et al., 2014). Childhood sexual abuse has shown significant associations with depression, anxiety, substance abuse, and posttraumatic stress disorder (Maniglio, 2009; Putnam, 2003). As such, childhood sexual abuse remains a critical experience to study among women with HIV, given its demonstrated relationship to depressive symptoms and its inherent link to trauma, including responses such as posttraumatic stress symptoms and disorder.

Lack of support may be an important barrier to HIV and prenatal care. Several studies have emphasized the contribution of social support in improving quality of life and psychological health of women (Blaney et al., 2004; Lancaster et al., 2010). Among samples of women with HIV during the prenatal period, social support has been shown to be associated negatively with depression (Blaney et al., 2004; Kapetanovic, 2014; Ross, 2009). Social support is a heterogeneous concept that has been measured in a variety of ways in the current literature, with varying degrees of attention paid to the amount, duration, quality, and type of support. In the current study, perceptions of emotional support from family/friends was conceptualized as an indicator of overall support, and in a previous publication using these same study data, inadequate emotional support from family and friends emerged as significant predictor of prenatal depression (Bonacquisti, Geller & Aaron, 2014).

To this end, childhood sexual abuse and perceived emotional support from family and friends were identified as possible predictors of depressive and anxiety symptoms, in addition to HIV status, history of depression, and trait anxiety. Our aims were to examine prospectively the prevalence and predictors of prenatal and postpartum depression and anxiety symptoms in HIV-positive compared with HIV-negative women. Based on previous findings, we hypothesized that 1) women with HIV infection would exhibit higher levels of depressive symptoms and anxiety in both the prenatal and postpartum periods relative to women without HIV; 2) HIV status, history of depression, trait anxiety symptoms, history of childhood sexual abuse, and perceived lack of emotional support from family/friends would predict postpartum depression and anxiety in the overall sample; and 3) in the sample consisting only of women with HIV infection, a history of depression and a history of childhood sexual abuse would predict postpartum depression, and trait anxiety symptoms and a history of childhood sexual abuse would predict postpartum anxiety symptoms.

#### **Material and Methods**

**Participants** 

This project received Institutional Review Board approval from the Drexel University College of Medicine before data collection. Participants were pregnant women recruited from an obstetrics/gynecology clinic affiliated with an urban university hospital in Philadelphia, Pennsylvania, where HIV specialty care

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