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Research paper

Are pregnancy planning and pregnancy timing associated with maternal psychiatric illness, psychological distress and support during pregnancy?

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ABSTRACT

Background: Pregnancy planning and timing may be associated with psychiatric illness, psychological distress and support during pregnancy.
Methods: We performed secondary analyses of a prospective cohort of 2654 pregnant women evaluating the impact of depression on preterm birth. We used multivariable logistic regression to test associations between pregnancy planning ("Was this pregnancy planned? Yes/No") and/or timing ("Do you think this is a good time for you to be pregnant?") with Composite International Diagnostic Interview generated psychiatric diagnoses and measures of psychological distress and support.
Results: 37% and 13% of participants reported an unplanned or poorly timed pregnancy, respectively. Unplanned pregnancies were associated with a Major Depressive Episode (MDE) (adjusted odds ratio (aOR) 1.69, 95%CI 1.23–2.32) and the Cohen Perceived Stress Scale's (CPSS) highest quartile (aOR 1.74, 95% CI 1.40–2.16). Poorly timed pregnancies were associated with a MDE (aOR 3.47, 95%CI 2.46–4.91) and the CPSS's highest quartile (aOR 5.20, 95%CI 3.93–6.87). Poorly timed pregnancies were also associated with General Anxiety Disorder (GAD; aOR 1.60, 95%CI 1.07–2.40), and the modified Kendler Social Support Inventory's (MKSSI) lowest quartile (aOR 1.64, 95%CI 1.25–2.16). Psychiatric conditions were strongly associated with planned pregnancies that were subsequently deemed poorly timed (MDE=aOR 5.08, 95% CI 2.52–10.25; GAD=aOR 2.28, 95%CI 1.04–5.03); high CPSS=aOR 6.48, 95%CI 3.59–11.69; and low MKSSI=aOR 3.19, 95%CI 1.81–5.62.
Limitations: Participant characteristics may limit generalizability of findings.
Conclusions: Pregnancy timing was a stronger predictor of maternal psychiatric illness, psychological distress and low social support than pregnancy planning in our cohort.

1. Introduction

More than half (51%) of all pregnancies in the United States are unplanned (Finer and Zolna, 2014), which includes pregnancies that are unintended, mistimed, or unwanted (Finer and Zolna, 2014; Santelli et al., 2009). The multi-dimensionality of pregnancy planning and timing also encompasses the seemingly disparate circumstances of unplanned pregnancies that occur at a good time and planned pregnancies that are subsequently assessed to be poorly timed (Santelli et al., 2009). For example, whether a pregnancy was planned 3 months ago does not necessarily reflect the evolving circumstances of relationships, employment, or housing.

Unplanned pregnancies resulting in live births (37% of all births) (Finer and Zolna, 2014; Santelli et al., 2009) are associated with poor maternal and neonatal outcomes including delayed prenatal care, increased physical violence, low birth weight, reduced breastfeeding, decreased inter-pregnancy intervals, and increased risk of lower educational attainment and behavioral issues for children from unplanned pregnancies (Brown and Eisenberg, 1995; Cheng et al., 2009; Cleland et al., 2011; Logan et al., 2007). Whether unplanned pregnancy is associated with maternal psychiatric illness or psychological distress and low social support is not clear.

During pregnancy, approximately 8.3–12.7% of U.S. women experience a major depressive episode (MDE), and 16.7–24.6% experience depressive symptoms (Bennett et al., 2004; Gaynes et al., 2005; Grote et al., 2010). Maternal depression during pregnancy is associated with poor maternal and neonatal outcomes;

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(Dayan et al., 2006; Gipson et al., 2008; Grigoriadis et al., 2013; Grote et al., 2010; Khashan et al., 2014; Orr et al., 2002); however, data are inconclusive (Yonkers et al., 2011). Some U.S. studies find an association between unplanned pregnancy and depressive symptoms during the pregnancy (Barber et al., 1999; Fellenzer and Cibula, 2014; Messer et al., 2005; Orr and Miller, 1997) while others do not (Lancaster et al., 2010; Maximova and Quesnel-Vallée, 2009; Maxson and Miranda, 2011; Phipps and Nunes, 2012). However, these studies were limited by lack of adjustment for confounding by race (Barber et al., 1999), parity (Barber et al., 1999; Fellenzer and Cibula, 2014; Messer et al., 2005; Orr and Miller, 1997), history of mental health disorders (Barber et al., 1999; Fellenzer and Cibula, 2014; Messer et al., 2005; Orr and Miller, 1997), use of tobacco or illicit substances (Messer et al., 2005; Orr and Miller, 1997), and by using non-validated measures of depression (Fellenzer and Cibula, 2014; Phipps and Nunes, 2012), and retrospective assessments of pregnancy intention and depressive symptoms (Barber et al., 1999; Fellenzer and Cibula, 2014) which may be subject to recall and reporting bias (Santelli et al., 2009). If unplanned or poorly timed pregnancy is associated with depression, antenatal screening for unplanned pregnancy could identify pregnant women at increased risk of depressive symptoms that may be amenable to treatment interventions.

Approximately 8.5% of women experience General Anxiety Disorder (GAD) during pregnancy, (Ross and McLean, 2006) which may elevate the risk for poor neonatal outcomes (Dunkel Schetter and Tanner, 2012; Kramer et al., 2009). Previous studies have not found an association between unplanned pregnancy and anxiety (Sayil et al., 2006; Tenkku et al., 2009), but are limited by retrospective (postpartum) assessment of pregnancy planning (Sayil et al., 2006) or inconsistent assessment of pregnancy planning (Tenkku et al., 2009) that can bias results (Santelli et al., 2009).

Perceived psychological stress during pregnancy, referring to the degree that life events are uncontrollable or unpredictable, is linked with depression and panic disorder (Maxson and Miranda, 2011; Woods et al., 2010). Furthermore, perceived stress during pregnancy is associated with adverse birth outcomes (Dunkel Schetter, 2011). While previous studies demonstrate a significant association between unplanned pregnancy and perceived stress (Maxson and Miranda, 2011; Messer et al., 2005; Orr and Miller, 1997), most studies did not address potential confounding factors (Messer et al., 2005; Orr and Miller, 1997).

Positive social support is one of the most effective methods for coping with stress and is associated with decreased depression and anxiety, decreased time to recovery from illness, and even reduction in mortality (Kim et al., 2008). In pregnancy, women with higher levels of social support demonstrate better mental health outcomes (Balaji et al., 2007). Lack of social support, is associated with giving birth to a small for gestational age infant (Dunkel Schetter, 2011). Some researchers find that unplanned pregnancy is associated with lower levels of social support (Orr and Miller, 1997; Sable et al., 2007). Again, the literature is inconsistent (Maxson and Miranda, 2011), and limited by lack of adjustment for confounding (Orr and Miller, 1997; Sable et al., 2007), small sample size (Sable et al., 2007), and use of non-validated measurement tools for social support (Orr and Miller, 1997).

We investigated the association between unplanned or poorly timed pregnancy and maternal symptoms of depression, anxiety, perceived stress and social support. We hypothesized that women with unplanned or poorly timed pregnancies would have greater psychiatric morbidity (MDE, GAD), greater perceived stress, and lower reported social support than those with planned and well-timed pregnancies.

2. Methods

2.1. Recruitment, enrollment, and assessment procedures

We performed a secondary analysis of a prospective cohort study designed to explore the associations of major depressive episodes or antidepressant medication use in pregnancy with adverse birth outcomes, including the risk for preterm birth (Yonkers et al., 2011, 2012). Secondary analyses were pre-planned and funded by the Yale Center for Clinical Investigation. Women were eligible for the parent study if they were at least 18 years of age or more (16 years at the Yale site), less than 18 weeks estimated gestational age with a singleton pregnancy, spoke English or Spanish, and had access to a telephone. All potentially eligible women with a history of antidepressant use or a major depressive episode in the last 5 years were invited to participate. For the comparison group, one-third of potentially eligible women without these characteristics were randomly selected and invited to participate in the study. Women were deemed ineligible if they had insulin-dependent diabetes which was an independent risk factor for preterm birth, plans to terminate their pregnancy since only women with continuing pregnancies could be at risk of preterm birth, or intention to relocate. The original study size was calculated to show a 2-fold difference in preterm birth among women exposed to depression or antidepressant medication, compared to those who were not exposed, with 85% power assuming a 5% preterm birth rate (Yonkers et al., 2012). Yale University School of Medicine and participating hospitals provided human subjects approval for the study.

Study staff recruited and enrolled pregnant women receiving prenatal care from 137 obstetrical practices and hospital-based clinics in Connecticut and Western Massachusetts between March 2005 and May 2009. Study follow-up continued until September 2009. Staff obtained verbal consent from participants and administered a screening questionnaire to collect information on gestational age, current mood, lifetime and current mood and anxiety disorders, antidepressant treatment, and exclusion criteria.

Selected participants provided written consent for study interviews and medical record review, and completed an initial home interview before 18 weeks estimated gestational age (EGA). Staff interviewed participants again by phone at 28 (± 2) weeks gestation and 8 (± 4) weeks after delivery. All staff interviewers received extensive training including at least 4 days of instruction and 4 supervised interviews.

2.2. Exposure and outcome measures

At the initial interview, interviewers obtained data on demographic and potential confounding variables, including mental health outcomes. Maternal age, race, ethnicity, education, marital status, parity, pregnancy history including previous preterm birth, tobacco use, alcohol use, other illicit drug use, and medication use was collected. The Edinburgh Postnatal Depression Scale (EPDS), the Cohen Perceived Stress Scale (CPSS), and the modified Kendler Social Support Interview (MKSSI) were administered at the first visit (Cohen and Williamson, 1988; Cox and Holden, 1994; Spoozak et al., 2009). The CPSS evaluates the degree to which individuals feel that life events are unpredictable and uncontrollable (Cohen and Williamson, 1988). The MKSSI is a reliable and valid tool for assessing social support (emotional and instrumental support) in pregnant women (Spoozak et al., 2009).

At each of the three interviews, participants answered questions about major depressive disorder, generalized anxiety disorder, and panic disorder from the World Mental Health Composite International Diagnostic Interview v2.1 (WMH-CIDI) (WHO,