Are Married/Cohabiting Women Less Likely to Experience Pregnancy Loss?

Joshua R. Mann, MD, MPH

Robert E. McKeown, PhD

Janice Bacon, MD

Roumen Vesselinov, PhD

Freda Bush, MD

Introduction

Pregnancy loss (miscarriage or stillbirth) occurs in 15 to 20% of recognized pregnancies, with the risk declining as gestational age increases.[1,2] Psychosocial risk factors for pregnancy loss are not well understood. A recent retrospective cohort study found that preexisting mental illness is associated with increased risk.[3] Previous prospective research has failed to find a relationship between stress, depression, and social support and risk of pregnancy loss,[4,5] though a recent case control study in the UK did find an association between stress/anxiety and stressful life events and increased odds of first trimester miscarriage.[6]

Methods

From late 2005 through 2006, we conducted a prospective study of psychosocial predictors of postpartum depression at one obstetrics practice in Mississippi and two in South Carolina. The project received IRB approval and written informed consent was obtained. Adult women were enrolled during prenatal care, and follow-up surveys were

Address Correspondence to: Joshua R. Mann, MD, MPH, USC School of Medicine, Columbia, SC, 29208; Ph: 803-434-4575; Email: joshua.mann@palmettohealth.org

completed at the first post-pregnancy physician visit, approximately 6 weeks postpartum. If a woman missed the appointment, follow-up was conducted by telephone. Women were asked whether they had a live birth or a pregnancy loss, so depressive symptoms could be compared for the two groups. Pregnancy losses were verified by reviewing the medical record.

Baseline data included age; race; marital/relationship status; education level; social support; several measures of religiosity and spirituality; depressive symptoms (Edinburgh Postnatal Depression Scale)[7] and anxiety (anxiety subscale of the Hospital Anxiety and Depression Scale);[8] history of mental illness; how many weeks into pregnancy the woman believed herself to be; number of living children; previous pregnancy loss; whether the current pregnancy was desired; whether the woman had difficulty becoming pregnant; marital/relationship status; quality of the relationship with the baby's father (ranked from very poor to excellent); and reported tobacco use in the past seven days.

When possible, simple substitutions were utilized for women who had missing data at baseline. For example, number of weeks pregnant at enrollment, if missing, was estimated using the reported due date; missing items on the social support scale were replaced with the mean of the other items, as long as only one was missing.

This brief article summarizes the findings of an exploratory analysis examining whether any baseline variables sig-

nificantly predicted pregnancy loss in women who enrolled early in pregnancy. Logistic regression was used to examine each variable's association with the outcome of pregnancy loss, because it is the most appropriate statistical technique to use when investigating the association of one or more independent variables with a dichotomous (yes/no) outcome like pregnancy loss. Because the likelihood of pregnancy loss is greatest early in pregnancy, analyses were limited to women who reported being no more than 10 weeks pregnant at baseline.

Results

304 women enrolled in the study and reported being no more than 10 weeks pregnant at baseline. The average age of participants was approximately 29 years. Sixty-four percent were white, with just under one-third black and other races representing fewer than three percent. Seventy-nine percent were married, and another seven percent were living with a partner. Two hundred eighty-four (284) women completed follow-up assessment of pregnancy outcome. Twenty-seven women (9.5%) reported "miscarriage, stillbirth, or other pregnancy loss." After reviewing the medical records of these women, clinic nurses determined that two had obtained induced abortions and one experienced pregnancy loss due to ectopic pregnancy. These three women were excluded from analyses. Of the remaining 24 women with verified pregnancy loss, 22 had complete data for all independent variables. These 22 pregnancy losses were used for analyses, along with 235 women with live births who had complete data for every independent variable. Thus, the final sample

Table 1. Risk of Pregnancy Loss by Marital/Relationship Status*

	Number in Category	Number with Pregnancy Loss	Rate of Pregnancy Loss (As a Percent)
Married	224	13	5.8%
Cohabiting	18	2	11.1%
Not Married or Cohabiting	37	9	24.3%

*p = .0016

size for analyses was 257.

The only variable significantly associated with the likelihood of pregnancy loss was relationship status. Women who were neither married nor cohabiting were at significantly greater risk. Desire for pregnancy narrowly missed statistical significance, but was clearly not significant after we controlled for relationship status. [Note: Full results of the logistic regression modeling are available from the authors.]

We expanded the analysis to include all women with complete data for relationship status, even if other independent variables were missing. Nine of 37 (24.3%) women who were neither married nor cohabiting experienced pregnancy loss, compared to 15 of 242 (6.2%) married/cohabiting women. The increased risk was highly significant (Relative Risk = 3.92, 95% Confidence Interval 1.85 – 8.33).

Summary

Women who were neither married nor cohabiting were far more likely to experience pregnancy loss. The reasons for this association are unclear, and confounding due to medical, social or behavioral factors that are correlated with marital/relationship status is possible. On the other hand, our findings are consistent with a recent British study in which women who were neither married nor cohabiting had 73% greater odds of first trimester miscarriage.[6] Based on these two studies, we recommend that clinicians who provide obstetrical care be especially vigilant to encourage healthy prenatal behaviors for patients who are not married or cohabiting.

References

1. Gagge SG, Niebyl JR, Simpson JL. Obstetrics: normal and problem pregnancies. 4th ed. New York: Churchill Livingstone; 2002.
2. Savitz DA, Hertz-Picciotto I, Poole C, Olshan AF. Epidemiologic measures of the course and outcome of pregnancy. Epidemiol Rev. 2002; 24:91-101.
3. Gold KJ, Dalton VK, Schwenk TL, Hayward RA. What causes pregnancy loss? Preexisting mental illness as an independent risk factor. Gen Hosp Psychiatry. 2007; 29:207-213.
4. Nelson DB, Grisso JA, Joffe MM, Brensinger C, Shaw L, Datner E. Does stress influence early pregnancy loss? Ann Epidemiol.2003;13:223-229.
5. Nelson DB, McMahon K, Joffe M, Brensinger C. The effect of depressive symptoms and optimism on the risk of spontaneous abortion among inner city women. J Women Health. 2003; 12: 569-576.
6. Maconochie N, Doyle P, Prior S, Simmons R. Risk factors for first trimester miscarriage – results from a UK-population-based case-control study. BJOG. 2007;114:170-186.
7. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. British Journal of Psychiatry. 1987. 150:782-786.
8. Zigmond AS, Snaith RP. 1983. The hospital anxiety and depression scale. Acta Psychiatr Scand. 67:361-70.