ORIGINAL RESEARCH

Prevalence of Depressive Symptoms in the Immediate Postpartum Period

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Purpose: **There is currently little information about rates of positive maternal depression screens immediately after delivery; rather, most studies have assessed the prevalence of major depression between 1 and 6 months postpartum. This study investigated the rate of positive 9-item Patient Health Questionnaire (PHQ-9) surveys within 1 to 2 days after delivery.**

Methods: **A retrospective chart review of PHQ-9 results obtained within 1 to 2 days after childbirth was performed on 441 women who delivered at 3 St. Paul, MN, hospitals during February 2010.**

Results: **Out of 441 deliveries recorded during the study period, PHQ-9 results were available for 361 women (81.9%). A total of 9 women (2.5%) had positive PHQ-9 scores within 1 to 2 days after delivery.**

Conclusion: **We found very low rates of depressive symptoms during the immediate postpartum period, which leads us to suggest that this is not an ideal time for postpartum depression screening or evaluation. (J Am Board Fam Med 2011;24:258–261.)**

Keywords: **Postpartum Depression**

Postpartum depression (PPD) is the most common serious complication of childbirth. Estimates of the prevalence of PPD vary depending on the method of diagnosis, time period studied, and population. For example, O'Hara and Swain's[1] meta-analysis of 59 heterogeneous studies (with varying lengths of observation, methods of assessment, and geographic locations) found an average prevalence rate of nonpsychotic PPD of 13%. Estimates on 12-month period prevalence rates taken from 2 studies, however, range as high as 22% to 24%.[2,3]

PPD is associated with multiple risk factors such as maternity blues, history of previous psychiatric disorder, other history of depression, child-care stress, life stress, lower levels of social support (including partner support), marital dissatisfaction, infant temperament, obesity, poor self-esteem, lower socioeconomic status, single status, younger age, and unplanned/unwanted pregnancy.[4–7]

Depression during the postpartum period can have distressing consequences for women and their families,[8,9] and timely identification of PPD is the first step toward improving outcomes for these women. Studies that have assessed screening and point prevalence of PPD have used a variety of screening methods and have implemented these at various postpartum intervals.[10] Gaynes et al's[10] meta-analysis, which required a structured diagnostic depression interview for depression diagnosis, found the following point prevalence rates for major depression from 1 to 6 months postpartum: 3.8% at 1 month, 5.7% at 2 months, 4.7% at 3 months, 2.4% at 4 months, 2.1% at 5 months, and 5.6% at 6 months postpartum.

Few studies have assessed the prevalence of depression during the immediate postpartum period, possibly because of researchers' concerns that mothers' early postpartum mood fluctuations—from postdelivery highs to the "blues"—might skew the results. One study evaluated 120 Japanese mothers with a diagnostic interview (Schedule for Affective Disorders and Schizophrenia), and al-

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though 2.5 to 5.8% women were diagnosed with major depression during the first trimester, third trimester, and 1 month postpartum, no women were diagnosed at the fifth postpartum day.[11] Another study assessed the psychometric properties of three depression scales (Edinburgh Postnatal Depression Scale, Beck Depression Inventory, and General Health Questionnaire) on 145 women (17 with PPD) within 2 days of delivery and found the psychometric properties to be unsatisfactory at this time; early PPD prevalence rates were not provided in that report.[12] One wonders if these unsatisfactory results were because of, in part, fluctuations in mothers' early postpartum mood states.

Because prior research on PPD screening and prevalence during the immediate postpartum period is limited, we were interested in further assessing early PPD prevalence, both for clinical and research purposes. From a clinical viewpoint, it makes sense to perform PPD assessments as soon as possible because untreated depression can compromise the safety of mothers and infants and impact maternal-infant bonding. From a research perspective, it is useful to understand changes in depression prevalence throughout the postpartum period so optimal times for PPD screening can be identified. Furthermore, if early screening for PPD proves to be accurate, this would be a convenient time to screen because mothers are usually in the hospital, in contact with their providers, and treatment can be promptly initiated if needed. Early inpatient screening also likely would produce better response rates than outpatient screening, when patients can be more readily lost to follow-up.

Given the paucity of information about PPD prevalence in the immediate postpartum period and the clinical importance of identifying PPD as soon as possible, we sought to determine the prevalence of depressive symptoms in a sample of hospitalized women 1 to 2 days after delivery using the 9-item Patient Health Questionnaire (PHQ-9), a diagnostic depression survey.[13]

Methods

General Procedures

Before its initiation, this retrospective descriptive study was approved by the University of Minnesota and HealthEast Institutional Review Boards. Labor and delivery nurses at participating hospitals asked mothers to complete the PHQ-9 within 1 to 2 days after delivery as part of the mothers' routine postpartum health assessment. Per HealthEast policy, women with positive PHQ-9 scores were seen by a social worker, informed of their positive score, assessed for suicidal ideation, and referred to their providers for further evaluation and management (those with suicidal ideation were appropriately referred to psychiatry or psychology for more immediate evaluation and treatment).

A HealthEast maternity care nurse and family medicine resident extracted de-identified PHQ-9 scores from participants' electronic hospital records after their discharge from the hospital. We used de-identified data for two reasons: (1) this allowed for a waiver of consent (obtaining consent retrospectively likely would have resulted in lost cases and selection bias); and (2) we were most interested in the early postpartum prevalence of positive PHQ-9 scores, which could be determined from these data.

Study Participants and Sites

Study participants were 441 women who delivered an infant at one of 3 HealthEast hospitals from February 1 through February 28, 2010. St. Joseph's Hospital is located in downtown St. Paul, MN, and St. John's and Woodwinds Hospitals are located in a northern and southern St. Paul suburb, respectively. Together, these community-based hospitals serve an ethnically and socioeconomically diverse population.

Measures

The PHQ-9 was selected as our depression measure because it is a valid, widely used diagnostic tool that consists of the 9 symptoms that comprise the diagnosis of depression (diminished pleasure, depressed mood, difficulty sleeping, low energy, appetite/eating changes, self-deprecation, difficulty concentrating, psychomotor changes, and suicidal thoughts). Responses are given on a 0 to 3 symptom frequency scale (referring to the previous 2 weeks), where 0 = not at all, 1 = several days, 2 = more than half the days, and 3 = nearly everyday. The total score range is 0 to 27; we used a cutoff of 10 or greater to indicate a positive score based on previous research in primary care and obstetric clinics that showed a sensitivity and specificity of 88% for identifying major depression when this cutoff is used.[13] In our previous postpartum study,

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the sensitivity and specificity of the PHQ-9 using 10 as the cutoff were 82% and 84%, respectively.[14]

Data Analysis

The prevalence of positive PHQ-9 scores in the immediate postpartum period was determined by dividing the number of women with positive scores by the number of women who completed the PHQ-9.

Given the de-identified nature of our data, we did not collect participants' demographic information. Instead we used HealthEast-provided demographic information on 2009 HealthEast deliveries as an approximation of demographic characteristics for our study sample.

Results

Demographic Characteristics of the Obstetrical Population

There were 5745 women who delivered at HealthEast hospitals in 2009, and their demographic characteristics are as follows: 71% of women who delivered in 2009 were married, 28% were single, and 1% had unknown marital status. The women were associated with various ethnic/racial groups: 3626 white (63%); 1001 Asian/Pacific Islanders (17.4%); 395 African Americans (6.9%); 197 Hispanics (3.4%); 21 Native Americans (0.4%); 87 other (1.5%); and 418 unknown (7.3%). The women were assigned to various types of health insurance: 3985 private insurance (69.4%), 1733 medical assistance (30.2%); and 27 (0.5%) unknown.

Prevalence of Positive PHQ-9 Scores

The total number of deliveries at participating hospitals during the month of February, 2010, was 441; 361of these women (81.9%) completed a PHQ-9. Of the 361 women with complete data, 9 had a positive PHQ-9 score (2.5%) in the immediate postpartum period (range, 2.0% to 4.3%; Table 1).

Discussion

Only 2.5% of women in this sample acknowledged symptoms compatible with major depression within the first 2 days after delivery. This rate is lower than expected when compared with the 12% rate of positive PHQ-9 scores seen in a recent study of 506 Minneapolis/St. Paul mothers at 0 to 1 month postpartum.[14] Gaynes'[10] meta-analysis, on the other hand, found a 3.8% rate for PPD at 1 month postpartum; however, studies included in this meta-analysis used a Diagnostic and Statistical Manual of Mental Disorders IV–based depression interview for the diagnosis of depression, which tends to give lower depression rates than the PHQ-9.[10,15]

Possible explanations for the relatively low rate of depressive symptoms seen here in the immediate postpartum period include euphoria after delivery, which may obscure depressive symptoms; mothers have not yet experienced the full spectrum of postpartum hormonal/physical changes at 1 to 2 days postpartum; mothers receive additional support from health care providers during their maternity hospitalizations; and mothers have not yet felt the full burden of childcare, fatigue, and juggling of multiple roles that occurs during the months after delivery. It is very possible that the 2.5% depression prevalence rate observed here is more representative of pre-existing depression than new-onset postpartum depression.

We believe that this unexpected low prevalence of depressive symptoms in the immediate postpartum period is more a function of the timing of evaluation and the nature of the early postpartum experience than a fault of the depression survey itself. Based on these results, we suggest that the immediate postpartum period is not ideal for identifying postpartum depression. In general practice, we suggest that mothers be screened for PPD after the second postpartum week, when the immediate excitement of childbirth has subsided, the blues have dissipated, and mothers and infants are usually settled in their own homes.

Table 1. Prevalence of Positive 9-item Patient Health Questionnaire (PHQ-9) Scores at Each Site

	St. Johns Hospital	St. Josephs Hospital	Woodwinds Hospital	Total
Number of women who delivered an infant	232	75	134	441
Number (%) of women who completed PHQ-9	205 (88.4%)	69 (92.0%)	87 (64.9%)	361 (81.9%)
Number (%) with positive PHQ-9 screens	4 (2.0%)	3 (4.3%)	2 (2.3%)	9 (2.5%)

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Strengths of this study include its sample size, inclusion of 3 separate hospitals, assessment of depression prevalence in the immediate postpartum period, and use of the PHQ-9, a validated depression assessment tool that consists of depression diagnostic criteria. Limitations include the absence of a diagnostic criterion standard (formal depression interview), lack of follow-up to investigate changes in PPD prevalence at subsequent postpartum intervals, and use of de-identified data, which resulted in our not being able to perform additional analyses using the mothers' demographic and other characteristics.

Conclusion

We found very low rates of depressive symptoms in the immediate postpartum period, which suggest that this is not an ideal time for PPD screening or evaluation.

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