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Postpartum Depressive Symptoms among Colorado Women

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Introduction

Postpartum depression is one of the most common complications of childbirth,[1] affecting 10-15 percent of women annually.[2] Signs and symptoms of postpartum depression include depressed mood, guilt, anxiety, irritability, insomnia, loss of interest and pleasure, tearfulness, sadness, anger and, in some extreme cases, thoughts of harming oneself or the infant. As many as 50 to 80 percent[3] of new mothers experience baby blues, a brief period characterized by mild symptoms of depression that last no longer than two weeks postpartum. Postpartum depression is different than baby blues, persists beyond the early postpartum period up to one year after the birth, and disrupts a woman's ability to care for her infant and complete activities of daily living. Research shows that children of depressed mothers are more likely to exhibit: social and emotional problems; delays or impairments in cognitive, linguistic, and social interactions; poor self-control; aggression; poor peer relationships; and difficulty in school.[4] The high incidence of postpartum depression and the significant impact on the mother, her infant and other relationships result in a serious need for public health intervention.

Methodology

The prevalence of postpartum depression among Colorado women described in this report was determined by analyzing data collected from the Pregnancy Risk Assessment Monitoring System (PRAMS). The PRAMS is a population-based risk factor surveillance system designed to identify and monitor behaviors of women before, during and after pregnancy. Colorado is one of 38 states participating in the PRAMS project, which is funded by the Centers for Disease Control and Prevention.

Each month, a stratified random sample of Colorado mothers is selected from recent birth certificates. The PRAMS survey combines two methods of data collection: a survey conducted by a mailed questionnaire with multiple follow-up attempts, and a survey by telephone. For this report, surveys from 5,798 mothers were compiled over three years (2005-2007). Results from the survey were weighted to reflect the experiences of all Colorado mothers giving birth.

Two questions focusing on postpartum depressive symptoms have been included on the PRAMS survey in Colorado since 2004. The questions are: 1) "Since your new baby was

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born, how often have you felt down, depressed, or hopeless?" and 2) "Since your new baby was born, how often have you had little interest or little pleasure in doing things?" Women who chose "often" or "always" in response to either question were classified as experiencing self-reported postpartum depressive symptoms. These two questions are highly correlated with postpartum depression.[5,6] Demographic and risk factors were tested to determine if significant differences existed between the responses for various groups: Ninety-five percent confidence intervals (CIs) were calculated, and significance was determined by calculating Chi-square test of independence. All differences reported here are statistically significant unless otherwise noted. Data were analyzed using SAS version 9.1 and SUDAAN Release 9.0.0 (Windows Individual User SAS-Callable version).

Results

Demographic Characteristics

Using this sample, nearly 10,000 Colorado women (12.8% of births) per year were estimated to experience postpartum depressive symptoms. As shown in Table 1, significant differences exist in the prevalence of postpartum depressive symptoms by maternal age, race and ethnicity, educational attainment, marital status, and income. Women ages 15-19 (19.1%) had the highest prevalence while women ages 35 and older (10.4%) had the lowest. Black women (28.0%) had a higher prevalence of postpartum depressive symptoms than White women (11.2%) and Hispanic women (13.2%). Those with a college degree or higher (9.9%) were less likely to have postpartum depressive symptoms than those with only a high school education (14.4%) and those with less than a high school education (17.9%). Unmarried women (19.2%) had a higher prevalence of postpartum depressive symptoms than those who were married (10.7%). Women with a household income below 185 percent of the federal poverty level (17.3%) had a higher prevalence of postpartum depressive symptoms compared to women living in households with incomes above this level (9.4%). Another indicator of poverty, receipt of Medicaid, suggests that women whose prenatal care was paid for by Medicaid (20.0%) experienced a higher prevalence of postpartum depressive symptoms than other women (9.2%).

Table 1. Prevalence of postpartum depressive symptoms (PDS) among Colorado mothers, by select demographic characteristics: Pregnancy Risk Assessment Monitoring System, 2005-2007

	Percent	(95% CI)*	p-value $\chi 2$
Maternal Age Group			<.001
15-19	19.1	(14.5-24.7)	
20-24	16.3	(13.5-19.6)	
25-34	10.9	(9.4-12.6)	
35+	10.4	(8.0-13.6)	
Race and Ethnicity			<.01
White	11.2	(9.8-12.7)	
Black	28.0	(19.2-38.9)	
Hispanic	13.2	(10.8-15.9)	
Other	20.9	(12.9-32.0)	
Education			<.0001
< HS	17.9	(14.5-21.9)	
HS diploma	14.4	(12.0-17.1)	
≥College	9.9	(8.6-11.4)	
Marital Status			<.0001
Married	10.7	(9.5-12.1)	
Other	19.2	(16.3-22.5)	
Income Status			<.0001
Above 185% FPL	9.4	(8.1-19.8)	
Below 185% FPL	17.3	(15.0-19.8)	
Prenatal Care Paid by Medicaid			<.0001
Yes	20.0	(17.4-23.0)	
No	9.2	(8.0-10.6)	

* Confidence Interval

$\chi 2$ The p-value indicates whether the difference in proportions between the subgroups is statistically significant and the level of significance.

Risk Factors

As shown in Table 2, women who smoked during pregnancy were more likely to have postpartum depressive symptoms (22.6%) than non-smokers (11.7%). Respondents with a history of physical abuse before or during pregnancy were more likely to have postpartum depressive symptoms (33.4%) than those not reporting physical abuse (11.7%). A higher prevalence of women who delivered a low birth weight infant reported postpartum depressive symptoms (17.1%) compared to women with normal weight infants (12.4%). The longer women breastfed, the less likely they were to report postpartum depressive symptoms. Women were asked about 13 major life stressors that they may have experienced during the 12

months before delivery. The more stressors a woman reported during pregnancy, the more likely she was to report postpartum depressive symptoms. There does not appear to be an association between parity or region of residence and postpartum depressive symptoms.

Table 2. Prevalence of postpartum depressive symptoms (PDS) among Colorado mothers by select selected risk factors: Pregnancy Risk Assessment Monitoring System, 2005-2007

	Percent	(95% CI)*	p-value $\chi 2$
Smoking during pregnancy			<.0001
No	11.7	(10.4-13.0)	
Yes	22.6	(18.2-27.5)	
Physical abuse before or during pregnancy			<.0001
No	11.7	(10.5-13.0)	
Yes	33.4	(25.8-42.0)	
Low birth weight (<2,500 g)			<.0001
No	12.4	(11.1-13.8)	
Yes	17.1	(15.4-18.9)	
Previous live births			NS
0	12.4	(10.6-14.5)	
1-2	12.7	(11.4-14.6)	
≥3	15.1	(10.9-20.6)	
Breastfeeding duration			<.001
≤ 4 weeks	16.6	(13.9-19.6)	
5-8 weeks	13.7	(9.1-20.1)	
≥ 9 weeks	10.7	(9.3-12.3)	
Stressors during pregnancy			<.0001
0	6.1	(4.7-7.9)	
1-2	10.9	(9.1-12.1)	
3-5	21.5	(18.4-25.0)	
≥6	34.8	(27.1-43.4)	
Region of residence			NS
Denver metro	12.7	(10.8-14.8)	
Other metro	12.8	(11.2-14.7)	
Rural	13.1	(11.5-15.0)	

* Confidence Interval

$\chi 2$ The p-value indicates whether the difference in proportions between the subgroups is statistically significant and the level of significance.

Discussion

Women may be reluctant to report mental health problems after pregnancy as result of expectations regarding how women should feel and act after the birth of a child. Women and their families need to understand the risks of postpartum depression and to overcome the stigma around seeking help. Screening and educating women during the prenatal and postpartum periods can increase awareness of the signs and symptoms, provide opportunities for early identification of postpartum depression, and result in more women seeking treatment for this illness.

A screening protocol can be implemented by programs and medical practices that serve pregnant and postpartum women, including obstetric, pediatric and family practice offices. Screening and providing education to clients does not require a mental health professional. Research has shown that depression surveillance is warranted during pregnancy as women can develop symptoms during the prenatal period.[7,8] Therefore, recommendations to increase the identification and treatment of postpartum depression begin with routine and universal screening throughout pregnancy and up to one year postpartum. This allows appropriate education for women at each screening, referrals for women experiencing depressive symptoms, and follow-up counseling during subsequent visits throughout pregnancy and postpartum.

Providers in healthcare and mental health may need additional training and effective tools to effectively screen and treat postpartum depression. The Prenatal Plus Program developed a protocol and training to address the prevalence of depression in a high risk population. This intervention offers a model that can be utilized by all types of providers with little additional cost. The Prenatal Plus Program provides case management, nutrition and psychosocial services to Medicaid-eligible pregnant women in Colorado, targeting women with risk factors for delivering a low birth weight infant. Compared to all women giving birth in Colorado, Prenatal Plus clients are more likely to smoke and use substances; are disproportionately young, unmarried and less educated; and experience a higher incidence of psychosocial problems.[9] These characteristics are similar to those associated with postpartum depressive symptoms in the PRAMS analysis, demonstrating the need to address postpartum depression in this high risk group. The protocol includes routine, universal screening and education for all women enrolled in the program throughout the prenatal period and up to two months postpartum, and referral to mental health treatment or support resources when indicated.

This intervention increases a woman's knowledge of postpartum depression and resources, increases motivation to seek help if needed, and decreases the sense of helplessness and despair she may be experiencing.

Upon enrollment, case managers screen clients for symptoms of depression using the following two questions 1) "Over the past month, how often have you felt down, depressed, or hopeless?" and 2) "Over the past month, how often have you had little interest in doing things?"[10, 11] The response choices are: "all of the time," "most of the time," "some of the time," and "not at all". Women who respond "all of the time," "most of the time" or "some of the time" to either of the two questions then complete the Edinburgh Postnatal Depression Scale.[12] The scale is a short, 10-question survey that provides an easy, affordable way to identify women experiencing symptoms of depression.[13] All Prenatal Plus clients are screened again using this scale at the start of the third trimester (28-32 weeks) and postpartum (2-6 weeks). Different levels of intervention are provided depending on the results of the depression screening. Women not at risk following an initial screening (score 9 or less out of 30) receive educational materials and are screened again later in pregnancy. Women who score 10-12 out of 30 (medium risk) receive education and materials, along with a referral to a mental health professional or support groups. Those at highest risk, with a score of 13 or more out of 30, receive extensive education, resources, and hotline information and are referred to the community mental health center for on-going counseling. High-risk clients will receive follow-up care by the case manager and/or mental health professional, including individual visits or phone calls within the week, or sooner if necessary. Prenatal Plus case managers and mental health professionals are required to address any suicidal or homicidal thoughts during each screen and facilitate emergency services as needed.

The protocol established for the Prenatal Plus Program provides a systematic way for providers to identify early onset of depression during pregnancy, as well as inform all women in the program about the risks of depression in the postpartum period. As part of establishing the protocol, individual agencies around the state worked within their communities to strengthen resources for support and treatment at mental health centers, with mental health providers that offer a sliding fee scale or accept private health insurance plans, and who serve women from different cultural and linguistic backgrounds.

For more information on the depression protocol for the Prenatal Plus Program and accompanying resources go to: www.cdphe.state.co.us/pp/womens/ppd/index.html.

Conclusion

Postpartum depression is one of the most common complications of childbirth. Efforts to effectively address this issue are needed as standard components of prenatal, postpartum and pediatric care. Raising awareness among women around this issue will reduce stigma, promote earlier entry into treatment, and decrease the detrimental consequences for mothers and their infants. Providers can routinely identify the need for referral for possible postpartum depression by implementing universal screening. The Edinburgh Postnatal Depression Scale provides a simple, evidence-based tool to identify women at risk and in need of further evaluation. Treatment can be expanded when communities work collaboratively to increase resources for mental health treatment and maternal support. Public health investment to increase the number of women receiving treatment for postpartum depression will significantly improve the health of women, infants, and families with many benefits now and in future years.

References:

1 Gaynes BN, Gavin N, Meltzer-Brody S, Lohr KN, Swinson T, Gartlehner G, Brody S, Miller WC. Perinatal Depression: Prevalence, Screening Accuracy, and Screening Outcomes. Evidence Report/Technology Assessment No. 119 (Prepared by the RTI – University of North Carolina Evidenced-based Practice Center under Contract No. 290-02-0016.) Agency for Healthcare Research and Quality Feb 2005; No. 05-E006-2.

2 O'Hara, J.W., & Swain, A.M. Rates and risk of postpartum depression: A meta-analysis. International Review of Psychiatry 1996; 8: 37-54.

3 Onunaku, N. Improving Maternal and Infant Mental Health: Focus on Maternal Depression. Los Angeles, CA: National Center for Infant and Early Childhood Health Policy at UCLA; 2005

4 National Institute of Child Health and Human Development Early Child Care Research Network. Chronicity of maternal depressive symptoms, maternal sensitivity, and child functioning at 36 months. Developmental Psychology 1999; 35: 1297-1310.

5 Whooley MA, Avins AL, Miranda J, Browner WS. Case-finding instruments for depression. Two questions are as good as many. J Gen Intern Med 1997; 12:439-45.

6 Berg AO. Screening for depression: recommendations and rationale. Am J Nurs 2002; 102:77-80.

7 Stowe ZN, Hostetter AL, Newport DJ. The onset of postpartum depression: Implications for clinical screening in obstetrical and primary care. Am J of Obstet Gynecol, 2005; 192(2): 522-6.

8 Dietz PM, Williams SB, Callaghan WM, Bachman DJ, Whitlock EP, Hornbrook MC. Clinically identified maternal depression before, during, and after pregnancies ending in live births. Am J Psychiatry, 2007; 164(10): 1457-9.

9 Prenatal Plus Program 2007 Annual Report accessed on April 26, 2009 at http://www.cdphe.state.co.us/pp/womens/PrenatalPlus.html.

10 Whooley MA, Avins AL, Miranda J, Browner WS. Case-finding instruments for depression: Two questions are as good as many. J Gen Intern Med, 1997; 12: 439-445.

11 ACOG Committee Opinion No. 343: Psychosocial Risk Factors: Perinatal Screening and Intervention. 2006. Obstetrics & Gynecology 108(2): 469.

12 Cox, J.L., Holden, J.M. and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. British Journal of Psychiatry 150: 782-786.

13 Schaper, A.M., Rooney, B.L., Kay, N.R., & Silva, P.D. Use of the Edinburgh Postnatal Depression Scale to identify postpartum depression in a clinical setting. J of Repro Md 1994; 39(8): 620-4.