Is Screening for Depression in the Perinatal Period Enough? The Co-Occurrence of Depression, Substance Abuse, and Intimate Partner Violence in Culturally Diverse Pregnant Women

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Abstract

Background: The perinatal period provides unique opportunities to identify and intervene with the co-occurrence of perinatal depression, intimate partner violence (IPV), and substance use problems. Psychosocial screening recommended for women seen in maternal child health settings tends to target single rather than multiple risk factors; there is limited research examining the co-occurrence of these issues especially in racially and ethnically diverse women across the perinatal period. These analyses explore the relationships of socio-demographic, psychosocial, and behavioral characteristics in a large, diverse sample of women.

Method: Women receiving perinatal services at routinely scheduled visits, including the 6-week postpartum visit, were recruited from 10 community obstetric/gynecologic clinics. Data were collected on perinatal depression, IPV, maternal substance use, and sociodemographic characteristics by bilingual, bicultural research assistants.

Results: A total of 1868 women were screened, 1526 (82%) Latina, 1099 (58.8%) interviewed in Spanish; 20.4% ($n=382$) screened positive for depressive symptoms based on an Edinburgh Postnatal Depression Scale score of 10 or above, 20.9% reported harmful drinking, 4.3% reported drug use, 23% reported substance use problems, and 3.5% reported current or recent IPV. Women who were Black, Asian, Pacific Islander, or other race/ethnicity had greater odds for depressive symptoms relative to women who were Hispanic or Latino (odds ratio [OR]=1.81, $p=0.005$). Women reporting substance use problems (OR=2.37, $p<0.0001$) and IPV (OR=3.98, $p<0.0001$) had higher odds for depressive symptoms.

Conclusion: In a predominately Latina sample, 1 in 5 mothers (20.4%) screened positive for depressive symptoms and over one third (36.7%) reported one or more psychosocial issues during the perinatal period. Screening for multiple risk factors rather than just one can help clinicians tailor interventions for the successful management of psychosocial issues.

Introduction

MATERNAL DEPRESSION is a prevalent debilitating condition with long-term sequelae for both mothers and their children.^{1,2} However, depression in women with children is rarely recognized or treated, despite health provider associations and policy recommendations, state screening initiatives, and legislation.^{3–5} The lack of attention to depression is exacerbated in underserved women, since they are

disproportionately poor and their access to health care is more limited. This under identification is particularly important since data suggest poverty is a powerful predictor of depression.^{6–9}

Perinatal depression (PD) encompasses major and minor depressive symptomology manifested during pregnancy and within the first 12 months following delivery,¹⁰ affects 7%–20% of women during pregnancy,^{10,11} with rates as high as 35%–40% for low-income, culturally diverse women.^{12,13}

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Obstetric complications, inadequate prenatal care, and parenting difficulties have all been associated with PD.^{14,15} Extant research indicates that a history of depression is the best predictor of depression during pregnancy,² and nearly 50% of depressive episodes during the postpartum are thought to begin during pregnancy.¹⁶ PD is associated with a number of challenges that also put a mother's and her unborn child's health at risk, including intimate partner violence (IPV),^{17–24} and use of alcohol, tobacco, and other drugs (ATOD).^{22–27}

The prevalence of IPV during pregnancy is estimated to be 5.3%–8.7% around the time of birth,^{28,29} frequently escalates during pregnancy, and may result in serious consequences, including death to both the mother and the unborn child.²⁹ Further, depression and suicidal ideation have been identified as common sequelae of IPV.^{17,21,30} Data also show there are associations between IPV in the perinatal period and poor maternal health behaviors, such as greater use of ATOD, a lower likelihood of ceasing substance use during pregnancy, and delay in prenatal care.^{31,32} Substance abuse by women of childbearing age (8%–18% prevalence) is problematic because it poses hazards to women's health and reproductive health. Substance use during pregnancy is especially dangerous, as it directly impacts both mother and child, increasing prematurity, intrauterine or neonatal death, and child maltreatment.^{33,34} Depression is also common among substance-abusing caregivers and affects one's ability to parent.^{35,36}

Within the health research and policy priority of maternal and child health, knowledge of factors that affect the most vulnerable women in society is needed. Although psychosocial screening is recommended for women seen in maternal-child settings, screening tends to target single rather than multiple risk behaviors.^{37,38} There are limited studies which have examined the co-occurrence of risk behaviors especially in economically, racially, and ethnically diverse women across the perinatal period. Successful management of maternal depression during pregnancy and the postpartum period with its attendant maternal and fetal risks is directly dependent on discovery of the problem and co-occurring IPV and ATOD involvement.

For women whose health and well-being are challenged by poverty, depression, IPV, and ATOD, the perinatal period is clearly not the time to ignore these issues. Indeed, the perinatal period offers unique opportunities to identify and intervene with these important risks, since it is the time in a woman's life when she is most likely to use medical care. In addition, the common barriers of access, stigma, and cost may be overcome.^{3–5,38} A better understanding of racial and ethnic variations in these important risk behaviors could help clinicians tailor interventions for the successful management of PD. Thus, the purpose of the study is to examine the relationships of sociodemographic, psychosocial, and behavioral characteristics with perinatal depression in a large and highly vulnerable sample of economically, educationally, racially, and ethnically diverse pregnant women receiving perinatal care in community-based obstetric clinics.

Materials and Method

Study overview

The Perinatal Mental Health Project is a randomized controlled trial designed to investigate the effectiveness of a collaborative care model compared to enhanced usual care to

improve identification, referral, and treatment of perinatal depression within community obstetric clinics serving racially, ethnically diverse, low income pregnant or postpartum women.³⁸ The data reported here come from the screening phase of the study.

Procedures

Participants. Women receiving obstetrical services any time throughout the perinatal period at routinely scheduled visits, including the 6-week postpartum visit, were recruited from 10 community obstetric/gynecologic clinics serving greater San Diego, California, from March 2009 through January 2012. Women were referred by clinic staff to bilingual, bicultural research assistants (RAs) who described the study while the mother was waiting to see the health care provider. Women were eligible to participate if they were pregnant, English or Spanish speaking, and reachable by phone. Exclusion criteria include being a surrogate mother or having a cognitive impairment precluding ability to give informed consent and respond to psychosocial questionnaires. Minors who were receiving reproductive health services were considered to be emancipated and thus able to provide legal consent to participate. Upon providing written informed consent, a screening interview was conducted in either English or Spanish (mother's preference), with items read verbatim and responses recorded by the RAs. A total of 2250 women were referred by the clinic staff; 298 (13.2%) declined participation, 37 (1.6%) were not eligible, and 47 (2.1%) were unavailable to initiate and/or complete the measures during the health care visit (e.g., health care provider ready to see mom, busy with children, or parking about to expire). One thousand, eight hundred and sixty eight women (83%) completed the screening interviews, with 1099 interviewed in Spanish (58.8%) and 769 interviewed in English (41.2%). Participants received \$10 for their time. All procedures were approved by participating clinics and university institutional review boards for the protection of human subjects.

Screens. Standardized screens in a technology-supported assessment battery were used for the screening of depression and other psychosocial issues, IPV, substance use (alcohol, tobacco including environment exposure, other drugs), and the collection of patient sociodemographic characteristics during antenatal and 6-week postpartum visits. The battery included: (1) the Edinburgh Postnatal Depression Scale (EPDS)³⁹ for maternal depressive symptoms, (2) the Abuse Assessment Screen (AAS)⁴⁰ for IPV, (3) the Tolerance, Worried, Eye-opener, Amnesia, and K/Cut down on consumption (TWEAK)⁴¹ screen for alcohol use, (4) the Short Drug Abuse Screening Test (DAST-10)⁴² for drug use, and (5) the Partnership for Smoke Free Families (PSF) Health Survey for New Moms–Tobacco Use Questionnaire⁴³ for smoking patterns and environmental exposure. At the time the screening interview was administered, all women received an educational handout on maternal psychosocial issues and those with a positive screen also received a list of local resources. Assessments were scored immediately through a computerized scoring algorithm and a summary of results was printed, with a copy for both the provider and the patient. The patient's copy prompted her to speak to her provider about her condition if she screened positive for perinatal depression (EPDS > 10), IPV, ATOD, or smoking. The provider's

copy prompted the provider to conduct follow-up assessments for situations that require immediate attention, such as EPDS >10 or an endorsement of item 10, suicidal ideation; TWEAK >2; and DAST-10 >3. All original assessment data were maintained in the woman's health chart or entered into her electronic medical record.

Provider and staff training included written and verbal instructions about the implementation of standardized screening, use of the measures, standardized cutoffs, guidelines for referrals, a protocol for assessing suicide (ideation, intent, and the existence of a plan), and a direct referral line to the adult emergency screening unit in their area for an urgent mental health referral. Providers were also provided scripts to inform the patient a maternal health advisor would be contacting her by phone to facilitate a link to treatment resources.^{38,44}

Measures

Edinburgh Postnatal Depression Scale. The EPDS³⁹ is a 10-item self-report scale specifically designed to assess depressive symptoms. EPDS removes items related to physical symptoms of depression that may be affected by the perinatal period rather than by mood. It is not a diagnostic tool but a screen that asks about depressive symptoms in the past 7 days. Scores range from 0 to 30, with a higher score representing greater depressive symptom severity. The EPDS has been extensively used and validated across multiple community, cultural, and ethnically diverse populations,^{39,45–49} has validated English and Spanish versions,^{48,49} and has been used to identify the prevalence of depression in pregnant^{49,50} and postpartum Latinas living in the United States.⁵¹ Cutoff scores range from 9 to 13. The American Academy of Pediatrics (AAP)⁵³ recommends “to err on safety's side, a woman scoring 9 or more points or indicating any suicidal ideation—that if she scores 1 or higher on question number 10—should be referred immediately for follow-up.” For this study, participants who scored ≥ 10 were considered positive for depressive symptoms. In this sample, Cronbach's alpha was 0.85.

Abuse Assessment Screen. The AAS⁴⁰ is recommended by the March of Dimes for assessment of abuse with all pregnant women⁵⁴ and has strong support for reliability and construct validity with the Conflict Tactics Scales and other measures of intimate partner violence.⁴⁰ It is a five-item clinical screen used to identify frequency and perpetrator of psychological (engendering fear), physical (slapped, kicked, hit), and sexual abuse (forced sex) within the preceding 12 months.⁴⁰ Sample items include questions such as “Since you have been pregnant, have you been hit, slapped, kicked, or otherwise physically hurt by someone? If Yes, by whom?” Participants who indicated they had been physically or sexually abused by a current or former intimate partner in the last year or during their pregnancy were considered to have experienced intimate partner violence.

Tolerance, Worried, Eye-opener, Amnesia, and K/Cut down on consumption. The TWEAK alcohol screening test⁴¹ is a short, five-question screen which was originally designed to screen pregnant women for harmful drinking habits.⁵⁵ It is one of the few alcohol screening tests developed and validated among women. Sample items include: “Have you taken a drink that contained alcohol in the last 12 months?” and “Have close friends or relatives worried or complained about

your drinking in the past year?” The maximum score on the test is 7 points, with the first two questions counting for 2 points each and the last three questions 1 point each. For example, if a woman responds it takes three or more drinks to feel high, she scores two points. For the question “Do you sometimes take a drink in the morning when you first get up? If yes score 1.” A total score of 2 or more on the test is an indication of harmful drinking and further evaluation is indicated.

Drug Abuse Screening Test. The DAST-10⁴² is a 10-item version of the original DAST designed to identify involvement with drugs, not including alcoholic beverages or tobacco, during the past 12 months (e.g., Have you used prescribed or over the counter drugs in excess of directions or any non-medical use of drugs? Do you ever feel bad or guilty about your drug use?) Items assess drug use in general, without referring to specific types of drugs; responses are yes and no, with possible scores ranging from 0 to 10. Scores of 1–2 indicate potential drug problems, with scores of 3 or higher indicating moderate to severe drug problems.⁴² The DAST-10 is internally consistent ($\alpha=0.86$) and temporally stable (interclass correlation coefficient=0.71).⁴² Participants who screened at or above the cut point of 3 were considered positive for drug abuse.

Substance use problem. A composite variable was created in which a participant was categorized as having a substance use problem if either of the following were present: TWEAK score at or above 2 or DAST-10 score at or above 3.

PSF Health Survey for New Moms—Tobacco Use Questionnaire.⁴³ This questionnaire is used to screen for smoking risk during the perinatal period. There are 5 items drawn from the Smoke-Free Families Screening form inquiring about smoking and smoke exposure. These items include: “During the last seven (7) days, how many cigarettes did you smoke per day on average?” and “How many smokers live in your home (include yourself, if you smoke): 0, 1, 2, 3 or more?”

Demographics. Participants were asked age (in years), marital status, employment status, education, race/ethnicity, country of birth, and primary language.

Analyses

Descriptive statistics were calculated for all analysis variables. Participants were classified as having a positive or negative screen for depressive symptoms based on an EPDS cutoff score of 10 (i.e., scores ≥ 10 were considered a positive screen, whereas scores < 10 were considered a negative screen). Chi-square tests for categorical variables and *t*-tests for continuous variables were used to examine bivariate relationships between participant characteristics and depression screening status. A multivariate generalized linear mixed model with a binary error distribution and logit link was then fitted to the data. Generalized linear mixed models is a family of mixed models rather than a specific technique and thus allows for a variety of models to be fit, including random effects models. The selections of a binary error distribution with a logit link were determined according to the nature of the outcome variable that is dichotomous. The model adjusted for clinic as a random effect. The odds ratio estimated from

this model adjusts for differences among clinics that cannot be attributed to other characteristics included in the model. The OR is interpreted as the change seen for a given factor within a clinic or a set of clinics with similar characteristics. Variables that were significantly associated in bivariate analyses ($p < 0.05$) or that we wished to control (i.e., trimester in which screening occurred) were entered in the model. Bivariate analyses were conducted using SPSS Version 20, and the generalized linear mixed model analysis was performed using the SAS GLIMMIX procedure (SAS Version 9.2).

Results

Demographic characteristics of the 1868 study participants overall and by depressive screening status are presented in Table 1. Eighty-two percent of the women were Latina, and 54.9% were born outside the United States. Their ages ranged from 14 to 48 years [mean = 27.01 (standard deviation = 6.63)]. Sixty-eight percent of the participants had a high school education or less, and 40.5% were married or living with a partner. Twenty-seven percent of the women were screened in the first trimester, 36.8% in the second trimester, 33.3% in the third trimester, and 2.6% postpartum.

Three hundred and eighty one (20.4%) of the 1868 women screened positive for depressive symptoms based on an EPDS score of 10 or above. Current or recent intimate partner violence was reported by 3.5% of the women, harmful drinking was reported by 20.9%, drug use was reported by 4.3%, and current smoking was reported by 2.7%. Approximately 23% of the sample reported substance use problems.

The results of bivariate analyses comparing the demographic characteristics of women who did and did not screen positive for depressive symptoms are reported in Table 1. The following variables were statistically significantly related to depressive symptoms screening status at $p < 0.05$: participant race/ethnicity, nativity, marital status, having a current intimate partner, and educational level. For substance use, more women who screened positive for depressive symptoms reported alcohol, drug, and tobacco use at $p < 0.05$ than those who screening negative.

Data on the co-occurrence of depressive symptoms, intimate partner violence, and substance use problem indicated one or more of these issues were reported by 36.7% of the women with 11.7% screening positive for depressive symptoms alone, 0.9% for intimate partner violence alone, and 14.9% for a substance use problem alone. Almost 7% were identified as having both depressive symptoms and a substance use problem, 0.8% as having both depressive symptoms and intimate partner violence, and 0.5% as having both a substance use problem and intimate partner violence. Approximately 1% reported depressive symptoms, substance use problem, and intimate partner violence.

We also examined the co-occurrence of substance use problems and intimate partner violence by depressive screening status. More women who screened positive for depressive symptoms reported a substance use problem than women who screened negative (39.1% vs. 19.3%, $p < 0.001$). Among women with depressive symptoms, 60.9% did not report a substance use problem, 32.5% reported only a substance use problem, and 6.6% reported both a substance use problem and intimate partner violence (Table 2). Reports of intimate partner violence were also higher in women who

screened positive for depressive symptoms compared with those who screened negative (10.2% vs. 1.8%, $p < 0.001$). Among women with depressive symptoms, 89.8% did not report intimate partner violence, 3.7% reported intimate partner violence alone, and 6.6% reported both substance use problem and intimate partner violence.

The results of the generalized linear mixed model analysis for the binary outcome of depressive symptom screening status (at or above EPDS cutoff score of 10 vs. below cutoff score) are presented in Table 3. Women who were Black, Asian, Pacific Islander, or other race/ethnicity had greater odds for depressive symptoms relative to women who were Hispanic or Latino (OR = 1.81, $p = 0.005$). Women who did not have a current intimate partner (OR = 1.53, $p = 0.01$) also had greater odds for reporting symptoms of depression. In addition, women reporting substance use problem (OR = 2.37, $p < 0.0001$) and women reporting intimate partner violence (OR = 3.98, $p < 0.0001$) had higher odds for depressive symptoms.

Discussion

This study describes the co-occurrence of perinatal depressive symptoms, IPV, and substance use problems among women seeking community based perinatal services. Rarely are women confronted with isolated issues thus it is critical to identify co-occurring problems.²⁷ Using a computer assisted assessment battery, we found 20%, or 1 in 5, mothers screened positive for depressive symptoms using the EPDS ≥ 10 . Additionally, one-third (32.6%) reported one or more psychosocial issues (i.e., depression, IPV, or a substance use problem). Results show that in a sample of women receiving perinatal services, the mothers who screened positive for depressive symptoms reported significantly more IPV and substance use problems than those screening negative, suggesting depressive symptoms is but one of a constellation of health risks faced by these pregnant, economically, and racially diverse women.

Our findings support the work of previous investigators. Flynn and associates,²³ found over 30% ($n = 316$) of pregnant women reported either being the victim of violence, alcohol use problems, or depression. In their study, any past year violence, alcohol use (greater past year quantity/frequency of drinking and TWEAK > 2), cigarette use, and depression (both prior history and current Center for Epidemiologic Studies Depression Scale > 16), were statistically significantly associated. Harrison, Godecker, and Sidelbottom²⁴ found 19.3% of their study participants reported depression, 6.8% reported intimate partner violence, 16.6% alcohol use, 23.4% illicit drug use, and 24.7% current smoking. Our findings have some similarity to Cerulli et al.⁵⁶ who examined the co-occurrence of IPV and mental health burden among perinatal mothers attending well-baby visits with their infants in the first year of life. Comparing rates of depression, anxiety disorder, and substance abuse diagnoses between mothers who reported IPV within the past year to those who did not, mothers reporting IPV were more likely to be diagnosed with multiple disorders (depression, post-traumatic stress disorder, and panic disorder ($p < 0.01$, Fisher's exact test)).⁵⁶ In contrast to our findings that "substance use problem" was elevated for all participants (23%) and particularly for those who screened positive for depressive symptoms (32.5%), Cerulli et al.⁵⁶ found low rates of reported current alcohol or

TABLE 1. SAMPLE CHARACTERISTICS

	Total (n=1868)		Depression screen negative (n=1487)		Depression screen positive (n=381)		Chi-square/ t-test	p
	No.	%	No.	%	No.	%		
Age (years)							1.23	$p=0.874$
<18 years	87	4.7%	73	4.9%	14	3.7%		
18–19 years	175	9.4%	139	9.3%	36	9.4%		
20–29 years	940	50.3%	744	50.0%	196	51.4%		
30–39 years	597	32.0%	477	32.1%	120	31.5%		
≥40 years	69	3.7%	54	3.6%	15	3.9%		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Age (years)	27.01	6.63	26.94	6.66	27.30	6.50	0.95	$p=0.342$
Race/ethnicity							12.40	$p=0.002$
Hispanic or Latino	1526	81.7%	1223	82.2%	303	79.5%		
White	181	9.7%	152	10.2%	29	7.6%		
Black/Asian/Pacific Islander/other	161	8.6%	112	7.5%	49	12.9%		
Nativity status							5.36	$p=0.021$
Born in U.S.	843	45.1%	651	43.8%	192	50.4%		
Born outside U.S.	1025	54.9%	836	56.2%	189	49.6%		
Marital status							21.03	$p<0.001$
Married/living together	756	40.5%	641	43.1%	115	30.2%		
Separated/divorced/widowed/ Never married/single	1112	59.5%	846	56.9%	266	69.8%		
Currently has partner							26.02	$p<0.001$
Yes	1615	86.5%	1316	88.5%	299	78.5%		
No	253	13.5%	171	11.5%	82	21.5%		
Educational level ($n=1867$)							9.28	$p=0.026$
Less than high school	830	44.5%	653	43.9%	177	46.6%		
High school or equivalent	447	23.9%	359	24.1%	88	23.2%		
Some college or trade school	307	16.4%	233	15.7%	74	19.5%		
College degree (AA, BA, graduate or professional)	283	15.2%	242	16.3%	41	10.8%		
Employment							1.69	$p=0.429$
Full-time	247	13.2%	204	13.7%	43	11.3%		
Part-time	279	14.9%	223	15.0%	56	14.7%		
Not employed	1342	71.8%	1060	71.3%	282	74.0%		
Alcohol use ($n=1867$)							61.81	$p<0.001$
At or above cutoff on TWEAK	108	5.8%	54	3.6%	54	14.2%		
Drug use ($n=1867$)							57.21	$p<0.001$
At or above cutoff on DAST-10	80	4.3%	37	2.5%	43	11.3%		
Tobacco use ($n=1867$)							48.66	$p<0.001$
Current smoking	51	2.7%	30	2.0%	21	5.5%		
Quit after learning of pregnancy	210	11.2%	136	9.2%	74	19.4%		
Does not smoke	1606	86.0%	1320	88.8%	286	75.1%		
Substance use ($n=1867$)							90.28	$p<0.001$
Any substance use problem	350	18.7%	214	14.4%	136	35.7%		
Intimate partner violence ($n=1866$)							64.94	$p<0.001$
Any current/recent physical and/or sexual abuse	65	3.5%	26	1.8%	39	10.2%		
Trimester screened							1.74	$p=0.628$
1st trimester	509	27.2%	398	26.8%	111	29.1%		
2nd trimester	688	36.8%	546	36.7%	142	37.3%		
3rd trimester	622	33.3%	505	34.0%	117	30.7%		
Postpartum	49	2.6%	38	2.6%	11	2.9%		

Note: column percentages reported.
M, mean; SD, standard deviation.

TABLE 2. INTIMATE PARTNER VIOLENCE AND SUBSTANCE USE PROBLEM BY DEPRESSION STATUS

	Total (n=1866)		Depression screen negative (n=1485)		Depression screen positive (n=381)		Chi-square
	No.	%	No.	%	No.	%	
No intimate partner violence	1801	96.5%	1459	98.2%	342	89.8%	66.19 **
Intimate partner violence only	28	1.5%	13	0.9%	15	3.9%	
Intimate partner violence + substance use problem	37	2.0%	13	0.9%	24	6.3%	
No substance use problem	1516	81.2%	1271	85.6%	245	64.3%	107.37**
Substance use only	313	16.8%	201	13.5%	112	29.4%	
Intimate partner violence + substance use problem	37	2.0%	13	0.9%	24	6.3%	

Note: column percentages reported.

** $p < 0.001$.

drug abuse and their findings did not show a greater likelihood of a diagnosis of alcohol or drug abuse or dependence (p. 5). This contrast may reflect our predominately Latina sample of Mexican descent (American born or immigrant) in contrast to their sample with few Latinas (7%).^{56,57} On the other hand, although research is limited, previous findings indicate lower levels of alcohol consumption has been found in Latinas of Mexican descent, regardless of place of birth (United

States or Mexico), compared with Caucasian, African American, or Latina American women.^{58,59} Further research is needed to clarify these differences.

Our participants also reported relatively little IPV. Extant research has shown U.S.-born women are more likely to report IPV.²⁰ Because more than half (54.9%) of our sample were born outside the U.S., cultural differences may have affected the reporting of violence. There is evidence there are unique barriers to Latinas in the disclosure of IPV including family-cultural values and immigration status.⁶⁰ Latinas internalize family values, *familismo*, often ignoring their own needs in order to nurture, care for, and maintain their family unit while the role of self-sacrifice, *marianismo*, further puts the needs of family ahead of her own and normalizes suffering.⁶¹ In the study reported here, immigration status was not asked, since pregnant and postpartum women are eligible for perinatal care without disclosure of immigration status in California. It is highly probable that the incidence of IPV overall is higher than the 3.5% reported, as evidenced in the work of Flynn et al.,²³ Harrison et al.,²⁴ and Stewart et al.⁶² Regardless of the low prevalence of IPV in our study, it is certainly associated with depressive symptoms. For those mothers who screened positive for depressive symptoms, approximately 10% reported IPV during the past year.

To the best of our knowledge the present study is one of the few in the extant literature to examine the comorbidities of depressive symptoms, IPV, and substance use problems with a predominately Latina sample. Flynn et al.'s²³ sample included 75% Caucasians and 2% Hispanics; Harrison, God-ecker, and Sidelbottom's²⁴ baseline sample ($N=1,093$) consisted of 92.5% minority, with more than half ($n=592$) African American, and 15.8% ($n=173$) Hispanic. Chauldron et al.'s⁵⁷ sample ($N=178$) included 69.9% black, 17.4% white, 7.1% Hispanic, and 5.6% mixed. Stewart et al.'s⁶² sample consisted of immigrant women from around the world and looked at IPV and depression, but did not include substance use. Inconsistency in findings may also be explained by the varying methodologies used to measure depression, IPV, and substance use problems.

The results of our analyses must be viewed in the context of their limitations. Because our sample consisted of primarily low-income women of Mexican origin, results may not generalize to Latinas from other origins, socioeconomic status, or non-Latinas. These data are all self-reports; no verification by a second source was done. In addition, cross-sectional data

TABLE 3. GENERALIZED LINEAR MIXED MODEL PREDICTING DEPRESSION SCREENING STATUS ($N=1865$)

	OR	95% CI	p
Race/Ethnicity			
White	0.70	0.43–1.15	0.161
Black/Asian/ Pacific Islander/other	1.49	0.99–2.26	0.059
Hispanic or Latino	Ref		
Nativity Status			
Born in U.S.	1.03	0.79–1.35	0.814
Born outside U.S.	Ref		
Marital status			
Married/living together	0.83	0.63–1.09	0.184
Separated/divorced/widowed/never married/single	Ref		
Currently has partner			
No	1.53	1.11–2.12	0.010
Yes	Ref		
Educational level			
High school or equivalent	0.81	0.60–1.10	0.173
Some college or trade school	1.00	0.71–1.41	0.998
College degree (AA, BA, graduate or professional)	0.76	0.49–1.16	0.197
Less than high school	Ref		
Substance use problem			
Yes	2.63	1.98–3.48	<0.0001
No	Ref		
Intimate partner violence			
Yes	3.71	2.15–6.39	<0.0001
No	Ref		

Trimester of screening included as control variable (not reported in table).

The model adjusted for clinic as a random effect.

OR, odds ratio; 95% CI, 95% confidence interval.

allows for analysis at one point in time and longitudinal data are needed both to describe the course of perinatal depression and to determine the impact of depressive symptoms plus the co-occurring conditions on the health of the mothers and their infants. Nonetheless, our findings are important because typically studies still do not examine the co-occurrence of psychosocial issues particularly in economically and racially diverse women.

Conclusion

Our findings support recent recommendations and political initiatives to screen for depressive symptoms, IPV, and substance use across the perinatal period³⁻⁵ to benefit a woman and her family. Given the importance of prenatal and postpartum care for maternal and child health, the recent increase in women and children living in extreme poverty, and the declining trend in timely health care, initiatives to improve the receipt of adequate health care are crucial and must include strategies tailored for the most vulnerable mothers and children. Indeed, paying particular attention to multiple risk and protective factors for maternal depression is critical. Women see health care providers more often during pregnancy and the first year after birth than during any other time in their lives. The Affordable Care Act, Section 2952 includes the Mikulski Amendment and calls for an increased awareness and better services for postpartum depression through education and research to identify modifiable risk factors for the development of postpartum depression.⁶³ For healthcare providers, awareness and identification of the modifiable risk factors (depressive symptoms, IPV, substance use during the perinatal period) can guide early recognition of symptoms, correct diagnoses, and appropriate management. Training and education of providers regarding strategic assessments, identification, referral to services, and obtaining allowable reimbursement is needed. Since August 2012, prevention-related health services (including IPV screening and counseling, and prevention/intervention programs for smoking and alcohol use), must be covered with no cost-sharing;⁶⁴ however, policies of public and private payers vary and limit which services are paid for their payment rates, and who is designated as a provider and included in insurance. For example, Breedlove and Fryzelka⁶⁵ point out that although the EPDS is a standardized screen for depressive symptoms, there is a lack of formally recognized diagnostic and billing codes for antenatal screening; only postpartum onset is categorized for coding under the mood disorders (p. 22). The Substance Abuse & Mental Health Services Administrations⁶⁶ developed the Screening, Brief Intervention, and Referral for Treatment protocol in response to the need for a systematic approach to alcohol and drug screening. Provider reimbursement is available from private and public (Medicaid, Medicare, Medical) sources, although amounts and duration vary by insurer and state by state. It is anticipated with the future direction of the healthcare landscape changing due to health care reform,^{63,64} the ability for healthcare providers to understand the unique needs of culturally and economically diverse pregnant women allows for support and resources to be appropriately advocated for.

Perinatal and well-child visits are opportunities to assess for depressive symptoms and related comorbidities with subsequent appropriate referral to care. The absence of com-

prehensive screening and referral/treatment initiatives during obstetrical care is a missed opportunity to improve the lives of millions of women and their children.

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