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ORIGINAL CONTRIBUTION

The Pregnancy Depression Scale (PDS): a screening tool for depression in pregnancy

Lori L. Altshuler · Lee S. Cohen · Allison F. Vitonis · Stephen V. Faraone · Bernard L. Harlow · Rita Suri · Richard Frieder · Zachary N. Stowe

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Abstract Depression in pregnancy can be underdiagnosed as a consequence of the symptoms being misattributed to "normal pregnancy." There are currently no validated clinician-rated scales that assess for depression specifically during pregnancy. We sought to develop a brief, convenient screening tool to identify depression in pregnant women in the community setting. Prospective mood data using the 28-item Hamilton Depression Rating Scale (HDRS) were collected monthly in 196 pregnant women with a history of a major depressive disorder. These data were analyzed to delineate those HDRS items associated (elevated) with normal pregnancy vs. those indicative of a pregnant woman meeting diagnostic criteria for a major depressive episode. Endorsement of symptoms on seven items of the HDRS were highly predictive of having a major depressive episode during pregnancy. We present a well-validated, brief scale to screen pregnant women for clinical depression. Whether this study will generalize to women who do not have a history of major depression remains to be studied.

Keywords Pregnancy · Depression · Screening · Rating scale

Introduction

Historically, pregnancy has been thought to be a time of emotional well-being that might confer protection against

L. L. Altshuler (✉) · R. Suri
Mood Disorders Research Program,
Department of Psychiatry and Biobehavioral Sciences,
University of California,
300 UCLA Medical Plaza, Suite 1544, P.O. Box 957057,
Los Angeles, CA 90095-7057, USA
e-mail: laltshuler@mednet.ucla.edu

L. S. Cohen
Perinatal and Reproductive Psychiatry Clinical Research Program,
Department of Psychiatry, Massachusetts General Hospital,
Harvard Medical School,
Boston, MA, USA

A. F. Vitonis
Obstetrics and Gynecology Epidemiology Center,
Brigham and Women's Hospital,
Boston, MA, USA

S. V. Faraone
Department of Psychiatry and Neuroscience,
Upstate Medical University,
State University of New York Upstate Medical University,
Syracuse, NY, USA

S. V. Faraone
Department of Physiology,
Upstate Medical University,
State University of New York Upstate Medical University,
Syracuse, NY, USA

B. L. Harlow
Division of Epidemiology and Community Health,
School of Public Health,
University of Minnesota,
Minneapolis, MN, USA

R. Frieder
Department of Obstetrics and Gynecology,
Department of Family Medicine,
University of California,
Los Angeles, CA, USA

Z. N. Stowe
Women's Mental Health Program,
Department of Psychiatry and Behavioral Sciences,
School of Medicine,
Emory University,
Atlanta, GA, USA

depression (Zajicek 1981). However, controlled studies suggest that pregnancy does not lower the likelihood of becoming depressed. Depressive symptoms are common in pregnancy with most research data reporting comparable rates in pregnant women compared to nongravid women (Cutrona 1983; Watson et al. 1984; Kumar and Robson 1984; Gotlib et al. 1989; O'Hara et al. 1991).

Depressive symptoms in pregnancy are potential risk factors for adverse outcomes in pregnancy. Depressive symptoms during pregnancy can lead to decreased appetite and have been associated with lower than normal weight gain in pregnancy, pre-term birth and low infant birth weight (Steer et al. 1992; Hedegaard et al. 1993; Orr and Miller 1995; Andersson et al. 2004; Dayan et al. 2006; Diego et al. 2006; Neggers et al. 2006). Low birth weight and pre-term delivery are major causes of infant mortality and morbidity in the U.S. (Mancuso et al. 2004). Additionally, depressive symptoms may lead to self-medication with cigarettes, alcohol or other drugs (Paton et al. 1977; Zuckerman and Bresnahan 1991; Pritchard 1994), each of which has been associated with adverse birth outcomes (Zuckerman et al. 1989). Finally, some (Chung et al. 2001), but not all (Wu et al. 2002), have found that women with depression late in pregnancy have more operative deliveries (e.g. C-section) and a greater likelihood of their infants requiring neonatal ICU admissions. Thus, identifying depression in the mother during pregnancy may be a first step to preventing adverse outcomes to the infant.

Depressive symptoms have been found to occur in 13–20% of pregnant women (Evans et al. 2001; Marcus et al. 2003; de Tychey et al. 2005). Clinical depression, known as major depressive disorder, is diagnosed by the number, frequency and severity of depressive symptoms present and has been found to occur in approximately 10% of pregnant women (O'Hara et al. 1991). A number of scales have been developed with good sensitivity and specificity for identifying either depression in the postpartum period, or risk factors for the development of postpartum depression (Beck 1995; Fergerson et al. 2002; Morris-Rush et al. 2003; Perfetti et al. 2004; Austin et al. 2005). The Edinburgh Postnatal Depression Scale (EPDS) has been validated for not only postpartum depression, but also for depression during pregnancy (Adouard et al. 2005; Thoppil et al. 2005; Felice et al. 2006). It has been used in large clinical trials as a screening tool for depression during pregnancy (Evans et al. 2001; Rubertsson et al. 2005; Gordon et al. 2006). Other than this ten-item self-report scale, a scale for specifically detecting major depressive disorder during pregnancy is lacking. To date, to our knowledge, there are no clinician-rated screening tools that might help identify pregnant women who may be suffering from a depressive disorder. Only one screening test for depression specifically in pregnancy has been developed (Campagne 2004). It consists of only two items and has not been validated. The paucity of screening tools for depression in pregnancy was underscored in a recent comprehensive review (Gaynes et al. 2005).

Identification of a major depressive disorder in pregnancy can be difficult because many symptoms of depression, including fatigue, sleep difficulties and changes in appetite and weight, commonly occur in a normal pregnancy and do not necessarily connote depression. These types of symptoms may thus have reduced diagnostic accuracy when attempting to identify clinical depression in the pregnant woman.

The development of a scale with specificity and sensitivity to identify pregnant women who are clinically depressed would have direct utility in ob/gyn practices. The potential value of such a scale would include: (1) the ability to identify in a community setting a population of women who might benefit from treatment and (2) the possibility of early identification of women at increased risk for postpartum depression, as depression during pregnancy has been shown to be a strong predictor of postpartum depression (O'Hara et al. 1991). Identifying depression during pregnancy and therefore 'a priori' identifying women at high risk for postpartum depression would have considerable public health implications. This study sought to develop a brief, highly-predictive, user friendly scale using selected items from an existing rating scale to identify women who met criteria for major depressive disorder during pregnancy.

Materials and methods

Data were obtained from a prospective longitudinal federally funded multicenter study of depressive relapse during pregnancy (Cohen et al. 2006). The study protocol was approved by the institutional review board at each center and all subjects gave written informed consent to participate in the study. Longitudinal psychiatric assessments were performed monthly on 201 pregnant women who had a psychiatrically defined DSM-IV history of major depressive disorder and who elected either to discontinue or to maintain antidepressant therapy during pregnancy. The study was conducted from March 1999 until April 2003 at three centers with specific expertise in the treatment of psychiatric illness during pregnancy (Perinatal and Reproductive Psychiatry Clinical Research Program, Massachusetts General Hospital, Boston, MA; Women's Mood Disorders Research Program, University of California, Los Angeles (UCLA), CA; and the Women's Mental Health Program, Emory University School of Medicine, Atlanta, GA.).

Details regarding the methodology have been described elsewhere (Cohen et al. 2006). Briefly, at study entry, patients were evaluated by a clinical psychiatrist who determined the diagnosis of lifetime major depressive disorder using DSM-IV criteria; this diagnosis was then confirmed with the Structured Clinical Interview for DSM-IV diagnosis (SCID-I/P). However, patients were not in an episode of depression at study entry, and were tracked throughout pregnancy to assess for the emergence of an episode. Study assessments were obtained monthly at 12, 16, 20, 24, 28, 32, and 36 weeks gestation by a research assistant blinded to the participant's treatment status (on vs. off medication). Monthly assessments included the SCID mood module (to detect the onset or remission of a depressive episode) and the 28-Item Hamilton Depression Rating Scale (HDRS) [comprised of the 21-item Hamilton Depression Rating Scale (Hamilton 1960) with the seven-item addendum (Rosenthal and Hefferman 1987)]. The HDRS is a commonly used depression scale with excellent validity in non-gravid populations. It normally takes 30 min to administer and the seven item extension is used for assessment of the presence of atypical symptoms (Rosenthal and Hefferman 1987). The classification of depression based on the SCID was independent of the HDRS ratings.

All raters participated in investigator-supervised (R.S.) joint SCID training and investigator-supervised (L.L.A.) joint HDRS ratings. Raters reviewed and rated two videotaped SCID interviews and three videotaped HDRS rating sessions. Excellent interrater reliability was achieved for the diagnosis of major depressive disorder (overall kappa= 0.92) and HDRS total scores (overall ICC=0.72). Interrater reliability was monitored on an ongoing basis.

For the current study, we evaluated the HDRS and extension to determine whether any items were associated with a major depressive episode during pregnancy, apart from those items that were elevated related to normal pregnancy (that is, items on which pregnant women might score highly even in the absence of major depression). Our goal was to discover if any of the HDRS items were predictive of a current SCID diagnosis of a major depressive episode during pregnancy.

Methods for statistical analysis

The analyses included all of the HDRS scores and SCID diagnoses. All analyses were conducted with SAS (Version 9.1 of the SAS System for Windows, copyright 2002–2003 SAS Institute Inc., Cary, NC, USA) and Stata (Version 9, copyright 2005, College Station, TX: StataCorp LP) statistical software. To reduce the possibility of selecting HDRS predictor items purely by chance and to help confirm their validity, HDRS data were randomly divided into "testing" and "validation" datasets. Two-thirds of the subjects were randomly selected for the testing dataset and the remaining one-third were put into the validation dataset. We chose a larger sample for parameter estimation in the initial phase (rather than a 50/50 split) to increase our power at that stage. We generated a random number for each subject and sorted the subjects by the random number. The first two-thirds of the subjects were included in the testing dataset and the remaining one-third were included in the validation dataset.

The visits in the two datasets were stratified by the trimester in which they occurred. Within the three trimester-specific datasets created from the testing dataset, logistic regression analyses were conducted on each HDRS item to find those that best predicted the SCID diagnosis of major depressive disorder. Because some subjects had multiple visits within a given trimester, the observations in the datasets were not necessarily independent. To account for relatedness between records, we used Huber's robust estimate of variance when computing p values (Huber 1967). A threshold was set where items with p values less than 0.01 across all trimesters would be considered predictive.

To address the possibility of chance findings, the items found to be the most predictive of relapse across all three trimesters in the testing datasets were also modeled in trimester specific validation datasets. After the validation step, we combined the testing and validation datasets and the items found to be most predictive of relapse were used to create a new "Pregnancy Depression Scale" score. To clarify the predictive validity of the Pregnancy Depression Scale score, we computed the sensitivity and specificity of several cutpoints.

Results

Of the 201 subjects who were eligible for analysis, those who completed at least one HDRS and SCID mood module at the same study visit (N=196) were included in this analysis. These women had a total of 1,056 visits over the length of the study. When randomly divided into the testing and validation datasets, 705 visits from 131 women were selected into the testing dataset and 351 visits from 65 women were selected into the validation dataset. Except for age, the demographic and psychiatric history variables were distributed evenly between the two datasets (Table 1). The women in the validation dataset tended to be younger than those in the testing dataset (p=0.05). Table 2 shows the number of observations and relapses into SCID diagnosed major depressive episode by trimester in both datasets. There were no significant differences between datasets in

Table 1 Characteristics of the testing and validation samples

Variable	Testing dataset (*N*=131) *N* (%)	Validation dataset (*N*=65) *N* (%)	*p* value[a]
Age (years)			0.05
<32	33 (25.2)	15 (23.1)	
32–34	35 (26.7)	26 (40.0)	
35–37	37 (28.2)	8 (12.3)	
>37	26 (19.8)	16 (24.6)	
Race			0.93
White	118 (90.1)	57 (90.5)	
Non white	13 (9.9)	6 (9.5)	
Highest education of subject			0.18
Partial college/high school	26 (19.8)	6 (9.5)	
College	54 (41.2)	31 (49.2)	
Graduate school	51 (38.9)	26 (41.3)	
Highest education of partner			0.40
Partial college/high school	26 (21.7)	9 (15.5)	
College	44 (36.7)	27 (46.6)	
Graduate school	50 (41.6)	22 (37.9)	
Marital status			0.68
Single	12 (9.2)	7 (11.1)	
Married	118 (90.8)	56 (88.9)	
Site			0.64
UCLA	34 (26.0)	18 (27.7)	
Emory	47 (35.9)	19 (29.2)	
MGH	50 (38.1)	28 (43.1)	
Age at onset (years)			0.48
<14	32 (25.8)	10 (16.1)	
14–17	28 (22.6)	17 (27.4)	
18–22	32 (25.8)	16 (25.8)	
>23	32 (25.8)	19 (30.6)	
Duration of illness‡ (years)			0.89
<7	15 (12.1)	9 (14.5)	
7–14	42 (33.9)	23 (37.1)	
15–21	42 (33.9)	18 (29.0)	
>21	25 (20.2)	12 (19.4)	
Number of prior episodes			0.94
1–2	31 (24.2)	15 (23.1)	
3–4	38 (29.7)	22 (33.8)	
5–7	31 (24.2)	14 (21.5)	
>7	28 (21.9)	14 (21.5)	
Baseline antidepressants			0.46
Other	41 (31.3)	17 (26.2)	
SSRI/SNRI	90 (68.7)	48 (73.8)	

[a] *p* values were calculated with the chi-square test

Table 2 Number (percent) of subjects in each trimester in the testing and validation datasets, where a diagnosis of major depressive disorder was met

Trimester	Testing dataset			Validation dataset			*p* value[a]
	N	With MDD (%)	95% CI	*N*	With MDD (%)	95%CI	
1	78	16 (20.5)	12.2, 31.2	44	10 (22.7)	11.5, 37.8	0.77
2	119	35 (29.4)	21.4, 38.5	59	14 (23.7)	13.6, 36.6	0.42
3	110	20 (18.2)	11.5, 26.7	55	10 (18.2)	9.1, 30.9	0.99

[a] *p* values were calculated with the chi-square test

Table 3 Significant associations between Hamilton items and SCID diagnosis by trimester

Hamilton item by trimester	Testing dataset		Validation dataset	
	OR (95%CI)[a]	*p* value[a]	OR (95%CI)[a]	*p* value[a]
First trimester				
Depressed mood	4.39 (2.26, 8.53)	<0.01	2.58 (1.36, 4.89)	<0.01
Feelings of guilt	3.11 (1.43, 6.79)	<0.01	4.84 (1.55, 15.1)	0.01
Work and activities	7.49 (2.73, 20.5)	<0.01	2.89 (1.39, 6.01)	0.01
Retardation	3.73 (1.76, 7.91)	<0.01	8.08 (2.65, 24.6)	<0.01
Diurnal variation	3.93 (1.77, 8.70)	<0.01	3.03 (1.20, 7.66)	0.02
Fatigability	2.95 (1.83, 4.74)	<0.01	1.58 (0.85, 2.93)	0.15
Social withdrawal	7.26 (3.25, 16.2)	<0.01	2.38 (1.39, 4.08)	<0.01
Second trimester				
Depressed mood	3.59 (2.49, 5.16)	<0.01	2.57 (1.42, 4.65)	<0.01
Feelings of guilt	3.79 (2.46, 5.83)	<0.01	2.76 (1.36, 5.59)	<0.01
Work and activities	3.47 (2.59, 4.65)	<0.01	3.32 (1.88, 5.86)	<0.01
Retardation	3.35 (1.89, 5.94)	<0.01	2.28 (0.91, 5.72)	0.08
Diurnal variation	2.64 (1.73, 4.03)	<0.01	3.95 (2.06, 7.56)	<0.01
Fatigability	2.09 (1.57, 2.79)	<0.01	1.68 (1.08, 2.60)	0.02
Social withdrawal	3.10 (2.34, 4.11)	<0.01	3.50 (1.80, 6.84)	<0.01
Third trimester				
Depressed mood	7.99 (4.33, 14.7)	<0.01	2.65 (1.12, 6.23)	0.03
Feelings of guilt	4.75 (2.64, 8.54)	<0.01	2.74 (1.22, 6.18)	0.02
Work and activities	3.49 (2.11, 5.77)	<0.01	3.19 (1.58, 6.43)	<0.01
Retardation	6.42 (3.21, 12.8)	<0.01	9.42 (2.54, 34.9)	<0.01
Diurnal variation	2.64 (1.38, 5.06)	<0.01	1.72 (0.70, 4.22)	0.24
Fatigability	3.30 (2.16, 5.05)	<0.01	2.52 (1.48, 4.28)	<0.01
Social withdrawal	3.84 (2.46, 6.00)	<0.01	1.93 (1.03, 3.64)	0.04

[a] Odds ratios, 95% confidence intervals and *p* values were calculated with logistic regression using Huber's robust estimate of variance.

the number or percentage of subjects who met diagnostic criteria for a major depressive episode.

Table 3 shows the seven HDRS items found to be most predictive of a DSM-IV diagnosis of a major depressive episode across all three trimesters within the testing dataset: depressed mood, feelings of guilt, reduced work/activities, psychomotor retardation, diurnal variation in moods, fatigability, and social withdrawal. These seven items were all strongly associated with a major depressive episode with odds ratios ranging from 2.1 to 8.0 and all *p* values <0.01 (Table 3). The Cronbach's alpha was 0.81, suggesting high internal consistency. When these items were tested in the validation datasets, almost all of the associations remained statistically significant. In each trimester, one item lost significance (a different item in each trimester), while odds ratios remained greater than 1.0 and were thus still consistent with the item being predictive of depression. To test whether predictability varied by trimester, we used logistic regression to predict the depression diagnoses from each HDRS item, trimester of pregnancy and their interaction. We applied this model to each of the seven symptoms in Table 3. Because none of the interaction terms were significant (all *p* values ≥0.062), the data suggest that predictive validity did not vary with trimester.

From the above data, the Pregnancy Depression Scale (PDS) was devised, consisting of the seven items found to be associated with depression in pregnancy (Appendix 1). The item–total scale correlations for the seven retained

Table 4 Number and percent of those subjects with Pregnancy Depression Scale (PDS) scores that met or did not meet a SCID diagnosis of major depressive disorder

PDS score	Depression[a] *N* (%)	No depression[b] *N* (%)
0–2	8 (1.8)	445 (98.2)
3–5	16 (5.6)	268 (94.4)
6–8	23 (14.4)	137 (85.6)
9–11	34 (40.0)	51 (60.0)
12–15	33 (64.7)	18 (35.3)
16–20	21 (91.3)	2 (8.7)

[a] SCID diagnosis of major depressive disorder
[b] SCID diagnosis of no major depressive disorder

Table 5 The results of 2×2 tables of SCID diagnosis by each two unit increase in the Pregnancy Depression Scale (PDS) score (published data for the EPDS are included)

	Sensitivity (95%CI)	Specificity (95%CI)	Negative predictive value (95%CI)	Positive predictive value (95%CI)
PDS cutoff[a]				
>2	94.1 (88.7, 99.4)	48.3 (45.0, 51.6)	98.2 (96.6, 99.2)	21.1 (17.9, 24.5)
>5	82.2 (74.7, 88.3)	77.4 (74.6, 80.1)	96.7 (95.2, 97.9)	34.8 (29.6, 40.3)
>8	65.2 (56.5, 73.2)	92.3 (90.4, 93.9)	94.8 (93.1, 96.1)	55.4 (47.3, 63.2)
>11	40.0 (31.7, 48.8)	97.8 (96.7, 98.7)	91.8 (89.8, 93.4)	73.0 (61.4, 82.6)
>15	15.6 (9.9, 22.8)	99.8 (99.2, 99.9)	89.0 (86.9, 90.8)	91.3 (72.0, 98.9)
EPDS cutoff[b]				
9.5	0.87	0.71	0.97	0.35
10.5	0.80	0.73	0.95	0.35
11.5	0.80	0.80	0.95	0.42
12.5	0.73	0.82	0.94	0.42

[a] Data are from 1,056 visits in which SCID criteria for depression were met in 135 visits
[b] Data are from 120 visits in which SCID criteria for depression were met in at least 15 visits (Adouard et al. 2005)

items ranged from 0.41 to 0.78 and the item–item correlations ranged from 0.19 to 0.59.

Scores on this scale in our sample of 1,056 visits ranged from zero to 20 with a median score of 3. The percentage of subjects in our study who met SCID criteria for a major depressive episode in pregnancy based on Pregnancy Depression Scale scores is indicated in Table 4. A score of ≥16 was associated with a high likelihood (91.3%) of meeting criteria for major depressive disorder. Scores between 12 and 15 were associated with a >50% chance of meeting criteria. Table 5 gives exact values of sensitivities, specificities, and positive and negative predictive values for several scale cutpoints. Figure 1 displays the receiver operating characteristic (ROC) curve for the scale.

Table 5 includes the sensitivity, specificity, negative and positive predictive values of the PDS and compares the diagnostic accuracy statistics of the PDS with those previously reported for the EPDS (Adouard et al. 2005). As expected, both instruments show that as the cutoff for declaring a positive diagnosis changes, so does the tradeoff between sensitivity (SN) and specificity (SP) and between negative predictive power (NPP) and positive predictive power (PPP). The data suggest that the clinician-rated PDS can provide higher diagnostic accuracy than the self-rated EPDS. For example, for a cutoff of >2, the PDS has a significantly higher SN than any EPDS cutpoint (i.e., none of the EPDS SN values fall within the 95% confidence interval for the PDS SN value). For all cutoffs except >2, the PDS has a significantly higher SP than any EPDS cutpoint. Both instruments show high NPP values, but for all cutoffs except >2 and >5, the PDS has greater PPP values than any EPDS cutpoint. Thus, these results suggest the PDS may be a more accurate diagnostic instrument than the EPDS.

Discussion

This study used a cross-validation procedure to select items from a well-validated 28-item depression scale to develop a brief screening instrument that could identify pregnant women with a high risk of having a current clinical depression. Depression in pregnancy is common and may be underdiagnosed due to the overlap between symptoms of pregnancy and symptoms of depression. There has long been a concern among clinical researchers that pregnant patients may have falsely elevated scores on depression scales such as the HDRS because it includes "vegetative" symptoms of depression (e.g., changes in sleep and appetite, etc.), many of which are normally present in pregnancy Our study supports this impression. None of the vegetative items related to sleep or appetite selectively discerned normal pregnancy from depression in pregnancy.

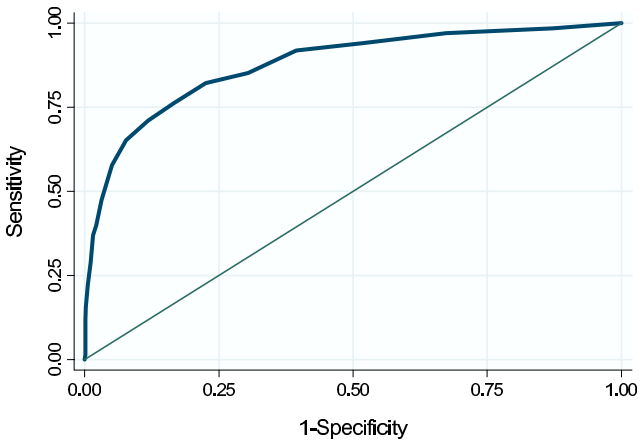

Fig. 1 Receiver operating characteristic (ROC) curve

Instead, non-vegetative items such as depressed mood, increased feelings of guilt, psychomotor retardation and social withdrawal, were all specifically associated with a diagnosis of clinical depression in the pregnant patient. Feelings of incapacity related to work and activities in general were also common in the clinically depressed pregnant subjects. Finally, a diurnal variation of mood (depressed mood in mornings or evenings with better mood at the alternate time of day) does not appear to be a normal symptom of pregnancy, but is rather more specifically tied to a diagnosis of depression in pregnant women.

The impact of maternal depression during pregnancy can be substantial. Some women may develop poor nutritional intake and/or increased tobacco, alcohol and drug use, any of which can adversely affect the developing fetus. Still other women may end their pregnancy with elective abortions due to their depression (Suri et al. 2004). Thus, the need to effectively screen for and monitor depression during pregnancy is critical. Women with a prior history of a clinical depression (major depressive disorder) in particular may need to be monitored closely during pregnancy as these women on prophylactic antidepressants are at high risk for relapse into major depression during pregnancy if they discontinue their antidepressants (Cohen et al. 2006).

Given that gravid women are usually seen by an obstetric–gynecologist rather than a psychiatrist, there is a critical need for a scale that can be quickly administered to identify with high probability those women most likely to be clinically depressed. In the obstetrical setting, there is seldom the requisite time or training to provide a comprehensive evaluation of a pregnant woman to assess for a diagnosis of a current major depressive episode. Administration of this brief scale by the clinician may aid in appropriate identification of women who would benefit from a more thorough psychiatric assessment.

Our data from a clinical sample with a history of major depressive disorder suggests that the PDS could be used in clinical practice as a screening tool to identify pregnant women who, because they exceed a specified cutpoint on the scale, should be considered for a more extensive diagnostic workup. Based on our results, over 90% of patients with scores of ≥16 would be clinically depressed, and these subjects should be sent for further diagnostic evaluation by a psychiatrist.

When choosing a cutpoint on the scale, it is important to consider the setting. In the clinical setting where it is important to identify an existing clinical depression, it may make sense to choose a cutpoint on the scale that results in high sensitivity—that is, a lower score which would have a high likelihood of detecting a current depressive episode were it to be present. While the drawback to this may be falsely identifying as depressed many women that do not have depression (false positives), most women with a depression will be captured and the ones that are falsely screened as positive can be ruled out through a more extensive assessment. The PDS can be used as well in alternative settings such as research. In large epidemiological research studies, for example, where the cost of comprehensive screening for depression can be prohibitive and the prevalence of major depression is being sought, choosing a higher cutpoint would be appropriate. In this way, the number of non-depressed persons identified by the scale as "depressed" would be dramatically reduced.

One limitation of our study is that the scale is clinician-rated. Whether this type of scale will prove to be practical and cost-effective compared to a self-rated scale (such as the Edinburgh Postnatal Depression Scale) will need to be further studied. A clinician-rated scale may have a lower likelihood of identifying false positive cases, but again, this remains to be further evaluated. Our comparison of the diagnostic accuracy statistics in our study vs. those published for a self-rated instrument suggests that the PDS may more accurately diagnose a major depressive episode.

Another limitation is that all participants in the current study had a prior diagnosis of a clinical depression (major depressive disorder). It remains to be determined whether these results can be generalized to the larger obstetric population that includes patients without a history of clinical depression. A study could clarify this by using the PDS to identify patients from a general OB/GYN population who meet criteria for depression and evaluating whether differences exist in the type and number of depressive symptoms in depressed pregnant women with vs. without a prior history of depression. This study remains to be conducted. Until such a study, clinicians should be cautious using this scale with women who do not have a prior history of depression. However, as there is a paucity of scales in the literature designed to assess for depression in pregnancy (Evans et al. 2001; Campagne 2004; Adouard et al. 2005), we hope the PDS will be a useful addition.

Conclusion

Identifying women who may have a clinical depression is the first step toward a comprehensive evaluation. This may then lead to appropriate follow-up and/or treatment interventions that will ultimately decrease maternal morbidity and adverse obstetrical/perinatal outcomes. We hope that clinicians of varying professions working with pregnant women will find the Pregnancy Depression Scale to be a convenient, time-efficient and useful screening tool for depression in their patients.

Appendix 1

PREGNANCY DEPRESSION SCALE (PDS)

INSTRUCTIONS: For each item, select the one statement that best describes the patient. Check the appropriate box.

1. DEPRESSED MOOD
(Sad, hopeless, helpless, worthless)

0 ☐ Absent
1 ☐ These feeling states indicated only on questioning
2 ☐ These feeling states spontaneously reported verbally
3 ☐ Communicates feeling states non-verbally – i.e. through facial expression, posture, voice and tendency to weep
4 ☐ Patient reports VIRTUALLY ONLY these feeling states in his/her spontaneous verbal and non-verbal communication

2. FEELINGS OF GUILT

0 ☐ Absent
1 ☐ Self-reproach, feels he has let people down
2 ☐ Ideas of guilt or rumination over past errors or sinful deeds
3 ☐ Present illness is a punishment. Delusion of guilt
4 ☐ Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations

3. WORK ACTIVITIES

0 ☐ No difficulty
1 ☐ Thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies
2 ☐ Loss of interest in activity, hobbies or work either directly reported by patient, or indicated in listlessness, indecision and vacillation (feels s/he has to push self to work or activities)
3 ☐ Decrease in actual time spent in activities or decrease in productivity
4 ☐ Stopped working because of present illness

4. RETARDATION
(Slowness of thought and speech; impaired ability to concentrate; decreased motor activity)

0 ☐ Normal speech and thought
1 ☐ Slight retardation at interview
2 ☐ Obvious retardation at interview
3 ☐ Interview difficult
4 ☐ Complete stupor

5. DIURNAL VARIATION
(Rate both A and B but ADD ONLY 5B when calculating total score)

A. Note whether symptoms are worse in morning or evening. If NO diurnal variation, mark "None"

0 ☐ No variation
1 ☐ Worse in the A.M.
2 ☐ Worse in the P.M.

B. When present, mark the severity of the variation. Mark "None" if NO variation

0 ☐ None
1 ☐ Mild
2 ☐ Severe

6. FATIGABILITY
(or low energy level, or feelings of being heavy, leaden, weighed down)

0 ☐ Does not feel more fatigued than usual
1 ☐ Feels more fatigued than usual but this has not impaired function significantly; less frequent than in (2)
2 ☐ More fatigued than usual; at least one hour a day; at least three days a week
3 ☐ Fatigued much of the time most days
4 ☐ Fatigued almost all the time

7. SOCIAL WITHDRAWAL

0 ☐ Interacts with other people as usual
1 ☐ Less interested in socializing with others but continues to do so
2 ☐ Interacting less with other people in social (optional) situations
3 ☐ Interacting less with other people in work or family situations (i.e., where this is necessary)
4 ☐ Marked withdrawal from others in family or work situations

Total score: _____ (Maximum score is 26)

12-15: 50% chance of depression; monitor closely

≥ 16 = high likelihood of meeting criteria for depression

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