Development of a Brief Measure of Postpartum Distress

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Abstract

Background: Previous measures of postpartum distress have focused on depressed mood despite evidence that postpartum anxiety is just as prevalent. The purpose of this study was to develop a new, brief screening measure to identify postpartum distress, defined as symptoms of depression and anxiety.

Methods: In Study 1, potential items were assembled focusing on depressed mood and a variety of anxiety domains to develop a new postpartum distress scale. Women up to 12 months postpartum ($n = 289$) completed the new scale items, the Edinburgh Postpartum Depression Scale (EPDS), and the Mood and Anxiety Symptom Questionnaire (MASQ) on the Internet. In Study 2, women up to 12 months postpartum ($n = 139$) completed the new Postpartum Distress Measure (PDM), the EPDS, the Obsessive-Compulsive Inventory-Revised (OCI-R), and the Relationship Assessment Scale (RAS) to validate the new measure.

Results: Data from Study 1 yielded a two-factor solution, and 10 items were selected for the new PDM. Six items were chosen for the PDM general distress scale, and four items for the PDM obsessive-compulsive scale. Data from Study 2 again yielded a two-factor solution, supporting both the general distress and obsessive-compulsive components. Psychometric data suggested that the measure had adequate internal consistency and construct validity.

Conclusions: The 10-item PDM comprises general distress and obsessive-compulsive factors that were obtained from a wider pool of depressive and anxiety items. These data suggest that the PDM may be a helpful tool in identifying a broader range of postpartum distress, including obsessive-compulsive symptoms that were formerly neglected in clinical screening measures. More studies are needed to confirm its clinical utility.

Introduction

POSTPARTUM DEPRESSION (PPD) is a significant public health problem, affecting 10%–15% of childbearing women.[1,2] Emotional disturbance in the postpartum period is not limited to depression, as it can include generalized anxiety and obsessive-compulsive symptoms.[3] Thus, clinicians who screen only for depression in new mothers are likely to overlook women who are experiencing significant emotional distress.

The most commonly used screening tool for PPD is the Edinburgh Postnatal Depression Scale (EPDS).[4] The EPDS is a 10-item instrument that measures cognitive and emotional symptoms of PPD. Several research groups have determined that three of the EPDS items are more relevant to anxiety than depression,[5–7] and a cutoff score indicating cases of probable anxiety has been identified.[8] Nevertheless, there is little evidence that scoring above a cutoff on these three items or on the entire EPDS scale is associated with a diagnosis of any particular anxiety disorder.[9] Moreover, the three EPDS items that have relevance to anxiety do not target obsessive-compulsive symptoms, which are experienced by at least two thirds of

postpartum women.[10] Another drawback of the EPDS is that some American women who complete it have difficulty understanding some of the items, which were written by British researchers.

In light of these limitations, we developed a new scale measuring symptoms of both PPD and anxiety using language that is readily comprehended by American postpartum women. The Postpartum Distress Measure (PDM) (Appendix) was constructed using a two-step approach. In Study 1, we generated a pool of items pertaining to depression as well as various manifestations of anxiety, including obsessions, compulsions, generalized anxiety, social anxiety, and panic. The aim of Study 1 was to calculate the statistical properties of this initial pool of items. Kabir et al.[11] emphasized the importance of brevity in creating new screening instruments if they are to be used in busy, clinical settings where multiple comorbidities and home environmental issues need to be assessed. Thus, our goal was to use these data to select 10 items for the new scale. Study 2 compared this 10-item PDM with other established measures of anxiety, PPD, and relationship functioning to determine the internal consistency and construct validity of the measure.

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Study 1: Exploratory Analysis Materials and Methods

Materials

The survey included four sets of items. Items assessing sociodemographic variables included gender, age, education, age of baby, number of weeks of gestation for pregnancy, height, weight, and weight gain during pregnancy. The 10-item EPDS[4] was included in the survey to serve as a comparison to the new measure of postpartum distress. It is the most widely used screening instrument for PPD.[12] Items are scored on a 0–3 scale, with a range of 0–30. The anchors differ for each item, with 0 representing no symptom endorsement and 3 representing symptom presence most of the time. The coefficient alpha was 0.91 in the current sample.

The Mood and Anxiety Symptom Questionnaire, Full Version (MASQ)[13,14] was used to establish validity of the new measure, as it includes scales that are specific to both depression and anxiety. The MASQ consists of 90 items that pertain to a tripartite model of mood disturbance: (1) general distress: mixed, depressive, and anxious symptoms (38 items), (2) anxious arousal (17 items), and (3) anhedonic depression (22 items). The remaining 13 items were retained by the scale's authors, although they do not load on the three identified factors. These three factors have been confirmed by other researchers.[15] Items are endorsed on a 5-point scale, ranging from 1 (not at all) to 5 (extremely). The coefficient alpha was 0.97 for the total scale in the current sample.

Finally, the survey included a pool of 36 items that had the potential to be included on the PDM. These items were scored on a 0–3 scale, with anchors similar to those of the EPDS. These items were developed by the authors and were designed to address the constructs of depression, obsessions and compulsions, generalized anxiety, panic, social anxiety, and consequences of emotional disturbances, such as relationship dysfunction and substance use (Table 2).

Participants and procedure

The survey was posted from February through April 2007 on www.SurveyMonkey.com. Solicitations for participants were distributed to 16 popular and professional pregnancy and postpartum websites for both professionals and mothers; several of these sites were resources for PPD. Mothers of babies 12 months and younger were invited to volunteer to complete the survey. This study was approved by the Institutional Review Board of the University of Pennsylvania.

Of the 575 potential participants who visited the survey website, 29 (5%) were male and 29 (5%) had babies older than 12 months and were excluded, leaving 517. Of the 517, 132 (26%) did not complete any survey questions. Three hundred thirty (64%) subjects completed the majority of the questionnaire and met the eligibility criteria. Of these, 41 (8%) women did not complete all items included in the principal components analysis; thus, the factor analysis was based on 289 women (56%).

Data analysis

The pool of 36 potential items for the PDM and the 10 EPDS items were included in a principal components analysis with Varimax rotation. We included the 10 EPDS items to test whether they loaded higher than 0.5 over any of the new items

on the factors generated and, therefore, should be retained in the new PDM measure. We also included the EPDS in the analysis to test if the new items would in fact separate out into a meaningful anxiety-related factor. Items that loaded at ≥0.30 on a given factor and did not load within 0.10 on another factor were considered for inclusion in the final measure. Additionally, we used guidelines from MacCallum et al.[16] for sample size determination and scale inclusion. These include high communalities (i.e., the proportion of variance for an item accounted for by the common factors) and overdetermination (i.e., each factor has at least three or four high loadings and simple structure). Items were chosen for the final measure on the basis of their factor loadings and by consensus of the authors. Subsequently, coefficient alphas were calculated on the total measure as well as its scales to establish reliability. Correlations between the total and scale scores and the EPDS and scales of the MASQ were conducted to establish validity. SPSS 16.0 (Chicago, IL) was used for these analyses.

Study 1 Results

Participant characteristics

The 289 women had a mean age of 30.1 (standard deviation [SD]=5.2) years, and the mean age of their babies was 5.1 (SD=3.3) months. Their average gestational period was 38.6 (SD=3.2) weeks. These mothers had a median of one additional child in the household. They gained a mean of 15.1 (SD=7.2) kg during pregnancy and had a pregravid body mass index (BMI) of 25.9 (SD=6.2) kg/m^2. Thirteen percent had a high school diploma or less, 29% had some college or vocational training, 32% were college graduates, and 26% reported postgraduate studies.

Exploratory factor analysis

The factor analysis yielded seven factors with eigenvalues >1.0. Upon closer examination of the scree plot and values, three factors generated eigenvalues >2.0 and were retained. The remaining four factors had only one or no items that loaded at 0.3 or higher. Factors were named on the basis of the contents of the items that loaded on them, including general distress (28 items, eigenvalue=19.4, 42.2% of variance), obsessive-compulsive symptoms (6 items, eigenvalue=2.9, 6.3% of variance), and interpersonal problems (3 items, eigenvalue=2.0, 4.4% of variance) (Table 1). Nine items did not load significantly on these three factors and were discarded. All but one of the EPDS items loaded on the general distress factor. The communalities for the majority of items were in the moderate (0.5–0.6) to high range (>0.6).[16]

Item selection and internal consistency

After consulting as a team, we chose 6 of the new items from the general distress factor and 4 from the obsessive-compulsive symptoms factor to comprise the new 10-item PDM scale. Four of the five potential items measuring obsessive-compulsive symptoms that met the statistical requirements were retained; one was very similar to a retained item in both content and statistical loadings and was discarded. There were only 3 items that loaded on the interpersonal problems scale, and 1 loaded at <0.60, not meeting one of the criteria of overdetermination.[16] Additionally, the interpersonal problems scale explained the least amount of

TABLE 1. RESULTS FOR A THREE-FACTOR SOLUTION USING PRINCIPAL COMPONENT ANALYSIS
WITH VARIMAX ROTATION FOR STUDY 1

Item	General distress	Obsessive-compulsive	Interpersonal problems	Item communalities
I feel sad and hopeless.[a]	0.846	0.179	0.214	0.823
EPDS 8: I have felt sad or miserable.	0.806	0.136	0.211	0.736
EPDS 2: I have looked forward with enjoyment to things.	−0.786	−0.109	−0.196	0.701
I am crying more than usual.[a]	0.773	0.117	0.042	0.725
EPDS 1: I have been able to laugh and see the funny side of things.	−0.764	−0.090	−0.179	0.659
I'm afraid I will never feel better.[a]	0.762	0.292	0.190	0.695
I am less able to experience pleasure or look forward to things with enjoyment.	0.759	0.189	0.301	0.715
I feel overwhelmed.[a]	0.737	0.177	0.334	0.692
EPDS 9: I have been so unhappy that I have been crying.	0.734	0.187	0.050	0.690
EPDS 6: Things have been getting on top of me.	0.716	0.171	0.171	0.568
I cannot make decisions or concentrate.[a]	0.703	0.170	0.296	0.679
Sometimes I think my family would be better off without me.[a]	0.694	0.263	0.015	0.589
I have been less interested in social interaction.	0.669	0.162	0.270	0.531
I am worrying more than I usually do[b]	0.649	0.413	0.141	0.667
I blame myself for things when they go wrong.	0.641	0.244	0.312	0.631
I have thoughts running through my head that are hard to control.	0.638	0.475	−0.016	0.641
I am more worried that others are judging me negatively than I used to be.	0.616	0.310	0.267	0.567
EPDS 7: I have been so unhappy that I have had difficulty sleeping	0.615	0.331	0.100	0.603
EPDS 4: I have been anxious or worried for no good reason.	0.607	0.413	0.112	0.661
EPDS 3: I have blamed myself unnecessarily when things went wrong.	0.600	0.287	0.249	0.554
EPDS 10: The thought of harming myself has occurred to me.	0.589	0.305	0.005	0.509
I am frustrated and quick to anger.	0.582	0.212	0.326	0.540
I worry about managing all of my responsibilities.	0.569	0.165	0.361	0.511
I am more nervous interacting with others than I used to be.	0.555	0.381	0.321	0.632
My appetite has changed noticeably.	0.541	0.123	0.171	0.346
I find myself using work, sex, alcohol, drugs, or other outlets for relief or to avoid doing other things.	0.521	0.180	0.036	0.568
I feel less satisfied with my job situation (whether it is at home or outside the home)	0.458	0.177	0.281	0.310
I have noticed an increase in my use of substances, such as alcohol or drugs.	0.406	0.075	0.052	0.389
I worry about bad things happening to my baby and/or my family.	0.158	0.795	0.141	0.636
I have thoughts of harm coming to my baby that I can't get out of my mind.[a]	0.144	0.789	0.021	0.594
I have thoughts about my baby getting sick or catching a virus that I can't get out of my mind.[a]	0.058	0.767	0.126	0.609
I check on my baby multiple times throughout the night.[a]	0.059	0.648	0.225	0.459
I have thoughts about my baby that scare me or worry me.[a]	0.245	0.640	−0.133	0.565
I have intrusive memories or nightmares of the childbirth experience.	0.208	0.337	0.125	0.220
I have noticed a change in my sex drive.	0.083	−0.030	0.770	0.672
I have been less interested in sexual activities.	0.133	0.031	0.674	0.522
My marriage feels less fulfilling than usual.	0.393	0.073	0.597	0.564

[a]The final 10 items chosen for the Postpartum Distress Measure (PDM).
[b]Items in italics are those that load within 0.30 on another factor and are less distinct than the other items.
EPDS indicates an item from the Edinburgh Postpartum Depression Scale.
Excluded items had loadings <0.30 on each factor:
    EPDS 5: I have felt scared or panicky for no very good reason.
    I am not able to sleep even when my baby sleeps.
    My partner doesn't understand what is going on with me or how I feel.
    I have thoughts that worry me but I haven't shared them with anyone.
    I have feelings of panic and dread.
    I am afraid to be home alone with my baby.
    I feel anxious if things are not in order.
    I feel anxious if my baby is with someone else.
    I have physical symptoms that come out of the blue, such as heart palpitations, trouble breathing, chest pain, and stomach problems.

variance, and the items are less relevant to understanding postpartum mood disturbance; therefore, we eliminated this scale. Finally, we selected the 5 strongest items from a statistical and clinical perspective to represent the general distress factor. We took into consideration the assortment of depressive and generalized anxiety items on this factor and chose a mix of sadness, anhedonic, concentration, and worry items. The sixth item we included on this factor was an assessment of suicidal ideation. Coefficients alphas were 0.88 for the 10-item total score, 0.91 for the general distress scale, and 0.83 for the obsessive-compulsive symptoms scale.

Convergent and discriminant validity

Table 2 displays the means and Pearson's bivariate correlations among the PDM total score, PDM general distress scale, PDM obsessive-compulsive scale, and the other symptom measures. The PDM general distress and obsessive-compulsive scales correlated significantly at $r = 0.41$, $p < 0.001$. All correlations between the scales of the PDM and other symptom measures were significant at the $p < 0.001$ level. Relative to the PDM obsessive-compulsive scale, the PDM general distress scale correlated more strongly with the EPDS (t [286] = 9.20, $p < 0.001$), the MASQ general distress scale (t [286] = 9.20, $p < 0.001$), and the MASQ anhedonic depression scale (t [286] = 5.94, $p < 0.001$). In contrast, there was no significant difference between the strength of either scale's correlation with the MASQ anxious arousal scale.

Study 1 Discussion

The majority of PDM items divided strongly onto two main factors that represented general distress and obsessive-compulsive constructs. These items were intermixed with the EPDS items, all but 1 of which loaded on the general distress factor. All the anxiety items generated for the initial item pool, except for the obsessive-compulsive items, loaded on the general distress factor rather than producing separate factors for each specific type of anxiety (e.g., generalized anxiety, panic). Although there were not as many viable factors as we may have predicted, the distinction between depressive and obsessive-compulsive items suggests that the term postpartum depression is too limiting. Instead, the term postpartum distress, which encompasses both mood and anxiety symptoms, seems to be a more accurate descriptor of clinically meaningful postpartum psychological symptoms.

Table 2. Means (Standard Deviations) and Bivariate Pearson's Correlation Coefficients Between Postpartum Distress Measure Total and Factor Scales and Validated Symptom Measures in Study 1

Scale	Mean (SD)	PDM total 12.7 (7.2)	PDM general distress 9.2 (5.3)	PDM obsessive-compulsive 3.5 (3.1)
EPDS	15.2 (6.9)	0.88	0.92	0.48
MASQ-GD	101.6 (36.4)	0.84	0.84	0.51
MASQ-AA	28.7 (13.0)	0.68	0.61	0.55
MASQ-AD	74.8 (18.9)	0.78	0.85	0.67

All correlations are significant at $p < 0.001$.
AA, anxious arousal; AD, anhedonic depression; GD, general distress; MASQ, mood and anxiety symptom questionnaire.

Study 2: Validation of the 10-Item PDM Materials and Methods

Materials

The survey included the same items as those in Study 1 pertaining to sociodemographic information (with the addition of race and ethnicity), the 10-item PDM, and the EPDS. In addition, the Obsessive-Compulsive Inventory-Revised (OCI-R)[17] was included to provide a basis for validation of the PDM obsessive-compulsive scale. The OCI-R contains 18 items scored on a 0–4 Likert scale, with 0 indicating not at all and 4 indicating extremely, yielding a scoring range of 0–72. This scale contains six subscales that address the content areas of washing, obsessing, hoarding, ordering, checking, and neutralizing; the total score was used in the current study. Coefficient alpha for the OCI-R total score in the current sample was 0.90.

The Relationship Assessment Scale (RAS)[18] was included to assess for the potential relationship between postpartum distress and romantic relationship functioning. The RAS contains 7 items scored on a 1–5 Likert scale, with 1 indicating poor or unsatisfying relationship factors and 5 indicating excellence or extreme satisfaction, yielding a scoring range of 1–35. It measures general satisfaction, the degree to which needs are met, the manner in which the relationship compares to others, relationship regrets, the degree to which expectations for partners have been met, love for the partner, and relationship problems. The coefficient alpha in the current sample was 0.93.

Participants and procedures

The survey was posted on www.SurveyMonkey.com from November through December 2007, and participants were recruited through links to the survey on popular and professional sites linked to the same 16 pregnancy and postpartum websites; 221 participants visited the survey website. One (0.5%) was male, 2 women reported having miscarriages (1%), 18 (8%) had babies older than 12 months, and 61 (28%) did not complete the surveys, leaving 139 (63%) participants who answered all 10 PDM questions and whose data were included in analyses (percentages do not sum to 100 because of rounding error). This study was approved by the Institutional Review Board of the University of Pennsylvania.

Data analysis

The 10 items of PDM were subjected to a principal components analysis. We forced a two-factor solution using Varimax rotation to confirm the loadings of the 6 general distress items and the 4 obsessive-compulsive items. Subsequently, Pearson's correlations were performed to determine convergent and discriminant validity; t tests were used to compare the magnitude of correlations between scales and subscales.

Study 2 Results

Participant characteristics

Of the 139 women who completed the Study 2 survey, the mean age was 31.0 (SD = 5.4) years, and the mean age of their babies was 5.4 (SD = 3.3) months. These mothers had a median of one additional child in the household. Average gestational period was 38.0 (SD = 5.4) weeks. Mean weight gain during pregnancy was 15.5 (SD = 9.4) kg, and mean pregravid BMI was 26.8 (SD = 6.8) kg/m^2. The majority were non-Hispanic

white (87%), with 3.5% non-Hispanic black, 3.5% Latina, 3% Asian/Pacific Islander, and 3% of mixed race. Nine percent had a high school education, 31% had some college or vocational training, 35% were college graduates, and 25% completed graduate studies.

Factor analysis

In the forced two-factor solution, items 1–6 loaded on the first factor, and items 7–10 loaded on the second factor, confirming the two factors generated in Study 1 (Table 3). The general distress subscale (items 1–6) explained 43.2% of the total variance with a coefficient alpha of 0.86, and the obsessive-compulsive subscale (items 7–10) explained 15.5% of the total variance with a coefficient alpha of 0.73. The coefficient alpha for the PDM total score was 0.84.

Convergent and discriminant validity

Means and SDs are presented for all measures in Table 4. Participants endorsed a wide array of scores on the PDM, ranging from 3 to 26. The PDM general distress and obsessive-compulsive scales correlated significantly at $r = 0.44$, $p < 0.001$. The PDM was highly correlated with the EPDS at $r = 0.85$, $p < 0.001$. Further, 77% of this sample met the clinical cutoff score of ≥ 13 on the EPDS. Although the PDM total score correlated significantly with the OCI-R and the RAS total scores, the associations were weaker than its correlation with the EPDS. The magnitude of the correlation between the PDM general distress scale and the EPDS was significantly higher than the magnitude of the correlation between the PDM obsessive-compulsive scale and the EPDS, t (133) = 14.83, $p < 0.001$. In addition, the difference in the correlations between each of these scales and the RAS was significant, t (133) = −5.67, $p < 0.001$, such that there was a moderate negative association between the RAS and the PDM general distress subscale, but there was a weak positive association between the RAS and the PDM obsessive-compulsive scale. Although the magnitude of the correlation between the PDM obsessive-compulsive subscale and the OCI-R was stronger than the magnitude of the correlation between the PDM general distress scale and the OCI-R, the difference was only significant at a trend level, t (133) = −1.34, $p = 0.09$.

Study 2 Discussion

This second study confirmed that the two factors, general distress and obsessive-compulsive scales, are distinct. The loadings for the proposed items continued to be strong in this second cohort. Generally, the PDM was highly correlated with the EPDS, showing sufficient convergent validity. The PDM correlations with measures of obsessive-compulsive symptoms (i.e., OCI-R) and relationship satisfaction (i.e., RAS) were weaker than with the EPDS, showing appropriate discriminant validity. The PDM obsessive-compulsive subscale proved distinct by demonstrating a significantly lower correlation with the EPDS and a somewhat higher correlation with the OCI-R than the general distress subscale. The moderate correlation between the PDM obsessive-compulsive scale and the OCI-R suggests that the content of obsessions and compulsion in the postpartum period may not map directly onto the areas of concern outside of this special period. Previous work has suggested that the most common foci of postpartum obsessions are aggressive thoughts toward the babies and contamination, whereas the most common postpartum compulsions are washing, cleaning, and checking.[19] In contrast, obsessions and compulsions that are commonly reported by nonpostpartum women also include counting, hoarding, and obsessions focusing on general activities of daily living.

Discussion

We developed and validated a brief screening measure of postpartum distress. The PDM contains 10 items measuring general distress and obsessive-compulsive factors. This new measure is unique among previously established screening measures for mood among postpartum women, as its scope encompasses depressive, generally anxious, and obsessive-compulsive symptoms. In particular, it has the potential to screen specifically for the expression of postpartum obsessive-compulsive disorder (OCD), which is receiving increasing attention in the empirical literature and in clinical practice.[19]

Although the EPDS is established and can be used efficiently in person or by phone to screen for PPD[12] and even for nonspecific symptoms of anxiety,[8] our clinical experience in using the measure in the United States has been mixed. Our

TABLE 3. FACTOR LOADINGS FOR FORCED TWO-FACTOR SOLUTION USING PRINCIPAL COMPONENT ANALYSIS WITH VARIMAX ROTATION FOR 10-ITEM POSTPARTUM DISTRESS MEASURE SCALE IN STUDY 2

PDM items[a]	General distress	Obsessive-compulsive	Item communalities
I feel sad and hopeless.	0.852	0.104	0.737
I am crying more than usual.	0.783	0.189	0.649
I cannot make decisions or concentrate.	0.682	0.190	0.501
I feel overwhelmed.	0.786	0.120	0.633
I'm afraid I will never feel better.	0.771	0.157	0.619
I think my family would be better off without me.	0.657	0.243	0.491
I have recurring thoughts about harm coming to my baby, my family, or myself.	0.204	0.778	0.648
I have recurring thoughts about my baby getting sick or having some kind of problem.	0.121	0.798	0.652
I check on my baby multiple times throughout the night.	0.292	0.582	0.424
I have thoughts about my baby that scare me.	0.068	0.716	0.517

[a]The wording of some items was slightly revised for the final version of the Postpartum Distress Measure administered in Study 2.

TABLE 4. BIVARIATE PEARSON'S CORRELATION
COEFFICIENTS BETWEEN POSTPARTUM DISTRESS MEASURE
TOTAL AND FACTOR SCALES AND VALIDATED
SYMPTOM MEASURES IN STUDY 2

Scale	Mean (SD)	PDM total 14.5 (6.6)	PDM general distress 9.9 (4.5)	PDM obsessive-compulsive 4.6 (3.2)
EPDS	17.0 (6.4)	0.85**	0.90**	0.44**
OCI-R	16.4 (12.4)	0.42**	0.35**	0.46**
RAS	25.6 (7.1)	−0.37**	−0.36**	0.11

**$p < 0.001$.
OCI-R, obsessive compulsive inventory-revised; RAS, relationship assessment scale.

patients and research participants have expressed confusion over the wording of some items, such as: Things are getting on top of me. When explanations are offered to clarify this item, such as: I feel overwhelmed or unable to cope, outcomes often change. Additionally, EPDS item 3 states: I have blamed myself unnecessarily when things went wrong. The word unnecessarily is often misinterpreted through the distorted lens of depressive thinking, and women who complete this measure often have the reaction: I have blamed myself because I am deserving of the blame. Likewise, EPDS item 4: I have been anxious or worried for no good reason, can be interpreted as: I have very good reason to feel anxious and worried, given that my life feels out of control with the new baby! In both cases, the latter interpretations would minimize symptom endorsement. Thus, the PDM is offered as an alternative intended to improve comprehension and, consequently, the validity of its scores.

Additionally, the PDM covers a wider range of symptomatology, increasing the chances of identifying women who are experiencing clinically significant levels of depression, generalized anxiety, and obsessions and compulsions. Because at least two thirds of women, if not more, report distressing, intrusive thoughts after childbirth,[10] assessment of obsessive-compulsive symptoms in postpartum women is imperative. Wenzel et al.[3] found that rates of cases of generalized anxiety disorder were higher among a sample of postpartum women than among general population estimates (8.2% vs. 4.3%) and that generalized anxiety disorder overlapped with the presence of a mood disorder more frequently than OCD. These findings support the inclusion of generally anxious items in our new measure of postpartum distress, as well as the pattern of separation found for the PDM, with generalized anxiety and depressive items grouping on the general distress scale, and obsessive-compulsive items factoring into a distinct scale.

Lack of screening for both anxiety and depressive symptoms likely leads to suboptimal identification of postpartum psychiatric distress, appropriate referrals, and effective treatment approaches. Goodman and Tyer-Viola[19] reported that 17% of 299 postpartum patients screened positive for either depressive symptoms or anxiety disorders at 6 weeks postpartum. However, only 25% of these received treatment, and another 2.5% received a referral. Most of the women who screened positive for depressive or anxiety symptoms received no treatment or referral despite their acknowledgment in the study that they needed help. A measure, such as the PDM, may help identify these needs more clearly.

The participants for this study were recruited from a variety of websites for pregnant and postpartum women and healthcare professionals interested in these issues. This recruitment effort yielded respondents who endorsed a broad spectrum of symptom severity, a strength for factor analysis procedures. However, this work represents only the first two steps of the PDM validation. Limitations of this study include the lack of ethnicity data in Study 1. Also, all of these women had Internet access, and the majority had at least a college education. Most participants in Study 2 were non-Hispanic white. Although race and ethnicity data were not collected in Study 1, we assume that the characteristics were similar. Thus, these samples would not be representative of minority, lesser educated populations and those for whom English is not their primary language.

Validating the PDM items in such populations represents a next step in this process. Moreover, future studies are needed to validate the PDM with clinical interviews to establish cutoff scores for clinically significant depressive and anxiety syndromes. Although item 6 assesses hopelessness and approximates a screen for suicidal thoughts, an additional suicide question, such as item 10 of the EPDS, may be warranted in this population. Comparison of the PDM to a broader array of symptom measures also would add to the initial validity estimates reported here.

This is the first postpartum screening tool specifically developed to assess both depressive and anxiety symptoms. The two scales included in the PDM, general distress and obsessive-compulsive symptoms, remained reliable across administrations and showed good convergent and divergent validity. Further validation studies in a broad array of populations would help establish the PDM's usefulness in identifying accurate diagnoses and treatment of postpartum distress before it should be used alone as a screening tool.

Disclosure Statement

The authors have no conflicts of interest to report.

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Appendix. Postpartum Distress Measure

Directions: Please mark one answer for each question according to your experiences over the past week, including today, relative to how you usually feel.

1. I feel sad and hopeless.
   0 No, this is not true
   1 Yes, this is true occasionally
   2 This is true some of the time
   3 This is true most of the time
2. I am crying more than usual.
   0 This is true most of the time
   1 This is true some of the time
   2 This is true only occasionally
   3 No, this is not true
3. I cannot make decisions or concentrate.
   0 This is true most of the time
   1 This is true some of the time
   2 This is true only occasionally
   3 No this is not true
4. I feel overwhelmed.
   0 This is true most of the time
   1 This is true some of the time
   2 This is true only occasionally
   3 No this is not true
5. I'm afraid I will never feel better.
   0 This is true most of the time
   1 This is true some of the time
   2 This is true only occasionally
   3 No, this is not true
6. I think my family would be better off without me.
   0 No, this is not true
   1 Yes, this is true occasionally
   2 This is true some of the time
   3 This is true most of the time
7. I have recurring thoughts about harm coming to my baby, my family, or myself.
   0 This is true most of the time
   1 This is true some of the time
   2 This is true only occasionally
   3 No, this is not true
8. I have recurring thoughts about my baby getting sick or having some kind of problem.
   0 This is true most of the time
   1 This is true some of the time
   2 This is true only occasionally
   3 No, this is not true
9. I check on my baby multiple times throughout the night.
   0 This is true most of the time
   1 This is true some of the time
   2 This is true only occasionally
   3 No, this is not true
10. I have thoughts about my baby that scare me.
    0 No, this is not true
    1 This is true only occasionally
    2 This is true some of the time
    3 This is true most of the time

Directions for scoring:

Items 1, 6, and 10 are scored on a 0–3 scale.

Items 2, 3, 4, 5, 7, 8, and 9 are reverse-scored, so that the response sets are scored 3–0.