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A partner-rating scale of postpartum depression: The Edinburgh Postnatal Depression Scale – Partner (EPDS-P)

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Summary

Partners could be useful as informants of postpartum women's depressive symptoms; however, currently no partner-ratings exist. The Edinburgh Postnatal Depression Scale – Partner (EPDS-P) is a 10-item measure adapted from the Edinburgh Postnatal Depression Scale (EPDS). The EPDS-P is expected to converge with the EPDS and other measures of depressive symptoms and to demonstrate incremental validity in the prediction of depressive symptoms. 101 women and their partners completed multiple measures of depressive symptoms during the first six weeks postpartum. Initial results suggest adequate reliability and validity for the EPDS-P. The EPDS-P showed moderate convergent correlations with other depression measures. Longitudinal correlations showed a link between the two-week EPDS-P and the six-week EPDS. The EPDS-P demonstrated incremental validity over and above the EPDS. Results supported the use of the EPDS-P as a valid partner-rating scale. The findings confirm that partners of postpartum women are valuable resources when assessing depressive symptoms.

Keywords: Partner-ratings; collateral-ratings; postpartum depression.

Introduction

Postpartum depression is a serious mental health problem affecting about 13% of women in the first three months following delivery (O'Hara & Swain, 1996). These depressions cause significant suffering for the women, impair women's close relationships, and negatively affect children's development (Larsen & O'Hara, 2002; Murray & Cooper, 1997; O'Hara & Swain, 1996; Zelkowitz & Milet, 1996). Additionally, depression in the postpartum period may last many months if untreated and is likely to recur over time (Stuart & O'Hara, 1995). All of these features underlie the importance of early identification and treatment of postpartum depression. To facilitate early identification and to measure progress in treatment, Cox et al (1987) developed the Edinburgh Postnatal Depression Scale (EPDS). Since its introduction, the EPDS has gained wide acceptance and is used throughout the world in the original English version and in multiple translations. The EPDS is commonly used as a means of early screening of depressive symptoms in the perinatal period (Cox & Holden, 2003).

Although the EPDS has performed well as a measure of postpartum depression, it solely provides the perspective of the postpartum woman. There is debate in the literature as to whether self-report can be relied upon for accurate symptom reporting. One concern is how conscious individuals are of their own behaviors, thoughts, and feeling states. Research suggests that solely relying on the self-report of individuals in the detection of depression may result in underreporting of symptoms and underestimates of depression prevalence. In undergraduate and community samples, individuals of both sexes report significantly more depressive symptoms when the purpose of the assessment measure is disguised (i.e., labeling the Beck Depression Inventory – II as a measure of "life stress") versus overtly stated (Hunt et al, 2003; Page & Bennesch, 1993). This finding is interpreted as evidence for underreporting of depressive symptoms by individuals under standard depression self-report measure administration. It follows that general prevalence rates of depression based on self-report alone may be underestimates of the true rates of depression. Support for this assertion comes from an analysis of the Baltimore

Epidemiologic Catchment Area data suggestive of a strong underreporting bias (Eaton et al, 2000).

Obtaining partners' ratings of women's depressive symptoms would address concerns of self-report biases and perhaps reduce the likelihood of false negatives via a collateral assessment from an observer with intimate knowledge about the woman. Should a partner-rating of depressive symptoms demonstrate incremental validity over self-ratings, its use could result in greater identification of women suffering from/at risk for perinatal mood difficulties. Collateral-ratings are valued in research due to the increased likelihood of predicting additional variance when multiple raters and measures of a construct are utilized (Kamphuis et al, 2003). Specifically, partners are valuable sources of information about postpartum women because they often have the most exposure to women's symptoms and would be likely confidants for women to discuss their concerns. Additionally, partners would have knowledge regarding the women's baseline behavior, prior to the onset of psychosocial concerns, information about which clinicians and researchers know little. Finally, collateral-ratings may also prove useful in fostering accurate self-reporting if subjects are aware that their spouse will be providing information. As found in the literature examining the convergence between spousal ratings of Type A behavior (Condon, 1988; Atchison & Condon, 1994), we expect partner-ratings of depressive symptoms to be significantly correlated with self-ratings.

Seeking partner-ratings when postpartum women have an available partner may be especially helpful when examining postpartum depression because it has been conceptualized as a relational disorder (Gotlib & Hooley, 1988). Strong empirical support exists linking postpartum depression and poor marital relationships (Larsen & O'Hara, 2002; Gotlib & Hooley, 1988). Although there is mixed support for a positive association between antenatal marital dissatisfaction and postpartum depression (Hock et al, 1995), there is strong support for a positive association between marital dissatisfaction and depression in the postpartum period (Campbell et al, 1992; Cox et al, 1982; Martin, 1977; Paykel et al, 1980). Women report a decrease in satisfaction across several domains within the marital relationship. In particular, reports of sexual dissatisfaction, decreased emotional intimacy, and lack of social support are common (Larsen & O'Hara, 2002; O'Hara et al, 1990; Schweitzer et al, 1992; Zelkowitz & Milet, 1996).

If used in a treatment context, a partner-rating of depressive symptoms could be administered in concert with a self-rating scale such as the EPDS and discussed in session, thereby providing an opportunity for the couple to discuss how each views the woman's symptoms. Comparing the partner's and woman's ratings may prove useful in highlighting and analyzing areas of disagreement between members of the couple. Discussing their differing viewpoints may result in enhanced support, communication and understanding between partners as both woman and partner become more sensitive to how depressive symptoms impact their marriage, family, and personal functioning. Across clinical and research contexts, obtaining partner-ratings could result in increased identification and understanding of women experiencing, or at risk for, postpartum depression.

The aim of the present study was to examine the reliability and validity of a partner-rating scale of postpartum depression based on the EPDS. Prior studies have demonstrated the numerous positive features of the EPDS (i.e., reliability, validity, brevity, ease of administration, and acceptability across cultures and socioeconomic statuses; Cox et al, 1987; Condon & Corkindale, 1997). The present study sought to validate the Edinburgh Postnatal Depression Scale-Partner (EPDS-P) as a partner rating scale capitalizing on the EPDS' strength as a measure of perinatal depression. The psychometric properties of the EPDS-P were evaluated in the context of a longitudinal study in which multiple informants rated postpartum women's depressed mood. It was expected that the EPDS-P would converge with other depression measures and would contribute significantly to the variance in the prediction of women's depressive symptomatology.

Patients and methods

Participants

Participants were women and their partners who were either married or living together at least six months, English speaking, and at least 18 years of age. Couples were recruited during their maternity ward stays (i.e. the first two to three days postpartum) at the University of Iowa Hospitals and Clinics. Our analyses were conducted on 101 couples in which at least one member completed the study protocol (i.e. assessments at recruitment, two- and six-weeks postpartum). Caucasians comprised the majority of the sample (94%) with the remainder comprised of Asian (2%), African American (2%), or "other" (2%). Ninety-one percent of the sample was married. Couples had been together (i.e. either living together or married) for an average of 5.4 years (SD = 2.8). Fifty-two percent of the sample was first time parents. Both women and their partners completed an average of 15.4 years of education. Female participants had a mean age of 30 years (SD = 5.1). Partners (all male in this sample) had a mean age of 32 years (SD = 5.0). The majority

of women (75%) and their partners (98%) were employed with yearly household incomes under $30,000 (16%), between $30,000 and $70,000 (46%), and over $70,000 (38%). Social class was calculated using Hollingshead criteria (Hollingshead, 1975). None of the sample were categorized in class 1 (i.e. unskilled laborers, menial service workers), 4.8% in class 2 (i.e., machine operators, semiskilled workers), 9.7% in class 3 (i.e., skilled craftsmen, clerical, sales workers) 38.5% in class 4 (i.e., medium business, minor professional, technical), and 47% in class 5 (i.e., major business and professional).

Measures

Edinburgh Postnatal Depression Scale (EPDS; Appendix; Cox et al, 1987)

The EPDS is a 10-item scale that examines a variety of depressive symptomatology over the time span of the past week. It is widely used in the postpartum literature and has shown good reliability with a split-half reliability of 0.88 and an alpha coefficient of 0.87 (Cox et al, 1987).

Edinburgh Postnatal Depression Scale-Partner (EPDS-P; Appendix)

The EPDS-P is a revision of the EPDS created for collateral use. The changes made to the EPDS in the creation of the EPDS-P were revisions to the question and scale formats in order to reflect the partner's viewpoint. This minimal amount of change was intentional with the hope of retaining the validity and reliability of the EPDS.

Beck Depression Inventory (BDI; Beck et al, 1961)

The BDI is a self-report measure of depressive symptomatology over the past week that is commonly used in depression assessment. When used with postpartum women, it shows good test-retest reliability ($r = 0.86$) and good internal consistency with a mean coefficient alpha of 0.81 (O'Hara, 1995; O'Hara et al, 1990).

Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960)

The HRSD is a widely used clinician-rated interview of depressive symptomatology over the past week. The interviewer was a master's level graduate student in clinical psychology, had prior experience in administering the HRSD, and was blind to the participant's previous scores on all measures. The current study used the amended 17-item version of the HRSD that is commonly used in depression research. The 17-item HRSD has a coefficient alpha of 0.73 when used with a postpartum depression sample suggesting good internal consistency (O'Hara et al, 1990; Riskind et al, 1987). An independent master's level researcher rated audio-taped copies of 10% of the HRSD interviews for inter-rater reliability purposes ($r = 0.94$).

Procedures

The study was approved by the university's Institutional Review Board and all participants provided their informed consent. Women and their partners were recruited on their first or second day postpartum in their room on the postpartum unit of a large university hospital. If the partner was unavailable at the time of recruitment, women were given the partner's information and asked to solicit their participation. Partners were given a packet containing the measures they were expected to complete at various time points over the subsequent six weeks.

Partners completed the EPDS-P at two- and six-weeks postpartum. Women completed the EPDS and the BDI at recruitment, two-, and six-weeks postpartum. Additionally, at six-weeks postpartum, women were administered the HRSD over the phone and were debriefed regarding the purposes of the study.

Several precautions were taken to ensure women and partners completed measures independently. At the time of consent, women and partners were instructed to complete measures independently. Each partner was given their own packet of materials. Bolded instructions outside of the packet stated "Please complete all measures in private and do not discuss your answers with your partner." Women were contacted via phone at two- and six-weeks postpartum and reminded to complete all measures in private.

Although attrition occurred in this study, there was no indication that attrition occurred due to characteristics of the EPDS-P. The majority of decliners to participate, withdrawers and deviators from the protocol indicated that lack of time to complete the assessment packet was the reason for their lack of participation. Another main source of attrition was loss of phone contact with participants due to disconnected phone numbers.

Results

Attrition

Although 136 couples consented to participate in the current study, participants complied with study protocol to varying extents thereby resulting in a sample of 101 couples in which data were collected from both partners at the two- and/or the six-week assessment point. Measure specific sample sizes at each assessment point are presented in Table 1. Analyses were conducted to examine

Table 1. Means and standard deviations of depression measures at two- and six-weeks postpartum

Scale	N	Mean	SD
Two-weeks postpartum			
EPDS	90	6.8	4.9
EPDS-P	93	8.2	4.3
BDI	90	9.2	6.8
Six-weeks postpartum			
EPDS	88	5.0	4.8
EPDS-P	76	7.4	5.0
BDI	88	6.4	6.4
HRSD	87	5.4	6.0

differences between participants who completed versus those who withdrew from the study. Those participants included in the following analyses (i.e., those with complete data from both partners at either two- or six-weeks postpartum) differed from those not included within the analyses in that both women $t(134) = 4.41$; $p < 0.01$ and their partners $t(133) = 4.56$; $p < 0.01$ who withdrew had fewer years of education. Women who completed the

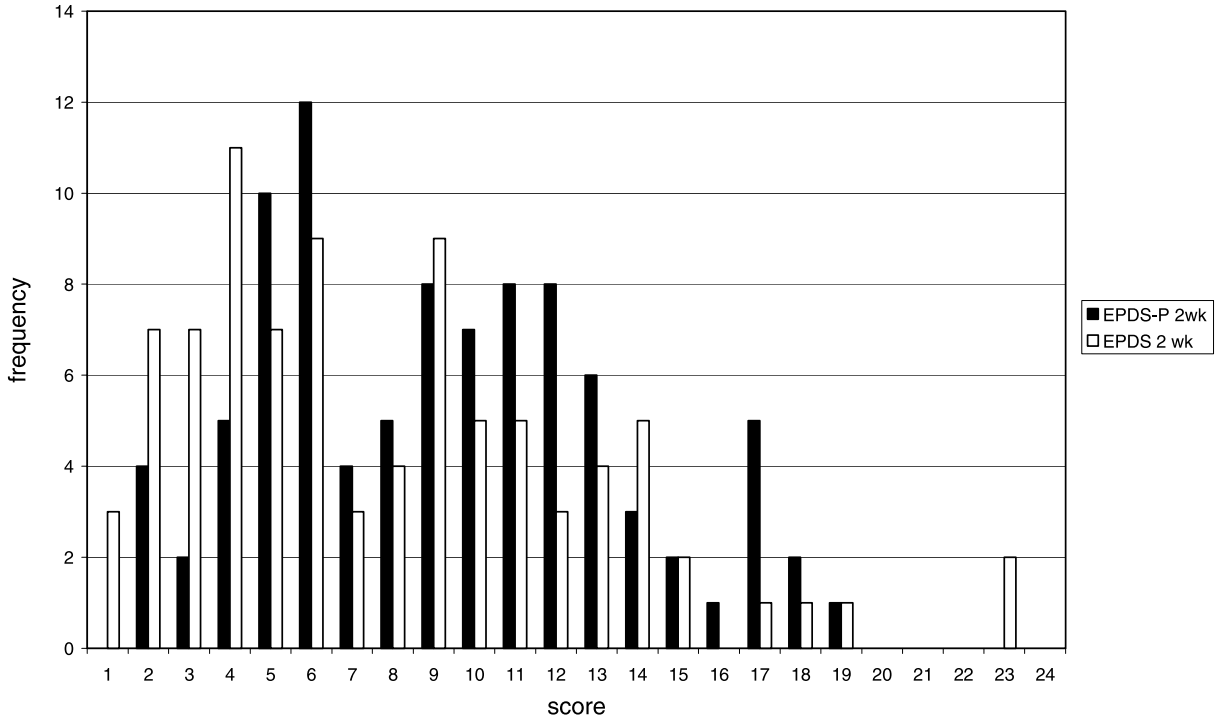

Fig. 1. Frequencies of EPDS-P and EPDS scores at two-weeks postpartum

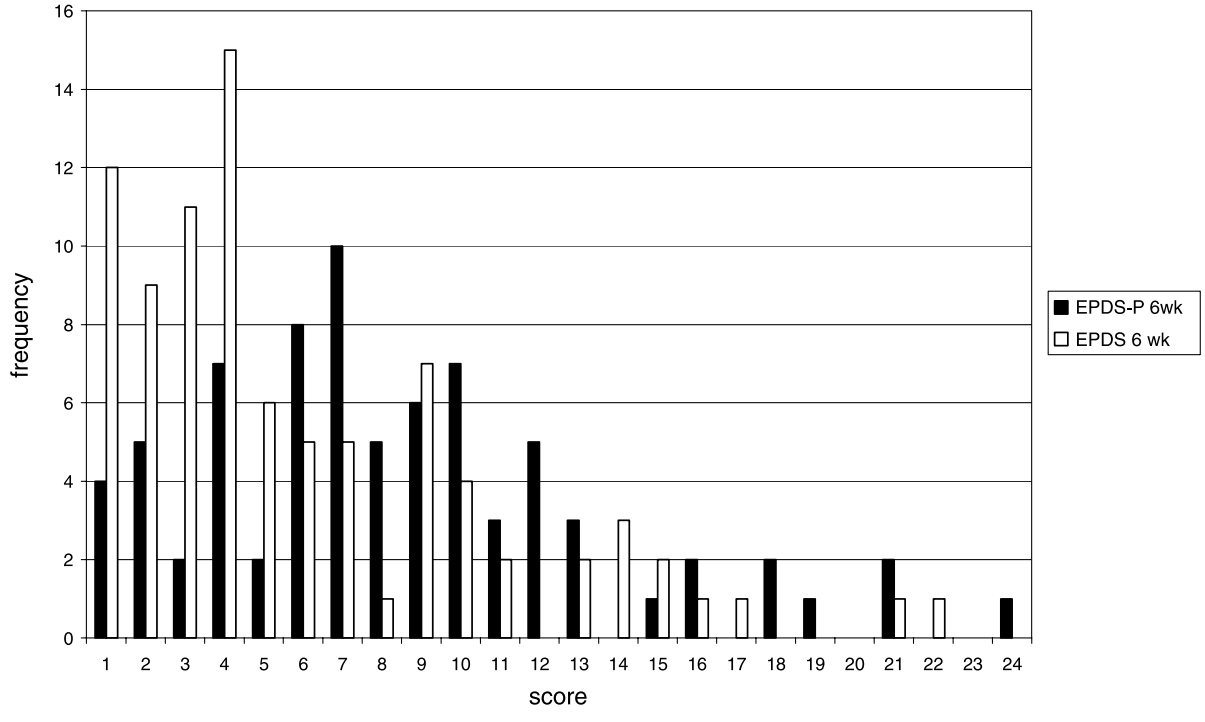

Fig. 2. Frequencies of EPDS-P and EPDS scores at six-weeks postpartum

study had an average of 16.1 years of education versus 13.8 years of education for women who withdrew. Partners who completed the study had an average of 16.2 years of education versus 13.7 years for partners who withdrew. Those who withdrew were also significantly less likely to be married than those who completed the study (i.e., 66.7% versus 89.9%, respectively) χ^2 (1) = 17.48; $p < 0.01$.

Reliability

Means and standard deviations of scales are presented in Table 1. Frequency distributions of scores for the EPDS and the EPDS-P at two- and six-weeks postpartum are presented in Figs. 1 and 2. Cronbach's coefficient alpha analyses conducted using the two-week data for EPDS-P items ($\alpha = 0.80$; n = 93) and EPDS items ($\alpha = 0.85$; n = 90) demonstrated adequate internal consistency for both scales. The average inter-item correlations for each scale were moderate; EPDS (r = 0.37) and EPDS-P (r = 0.29). The two- to six-week retest stabilities for the EPDS and the EPDS-P (Table 2) indicated that both measures have adequate test-retest reliability for assessing postpartum depressive symptoms.

Table 2. Correlations of EPDS-P and EPDS at two-weeks postpartum with measures at six-weeks postpartum

Six-weeks postpartum	Two-weeks postpartum	
	EPDS-P	EPDS
EPDS-P	0.57** (N = 75)	0.38** (N = 72)
EPDS	0.54** (N = 87)	0.70** (N = 84)
BDI	0.53** (N = 87)	0.60** (N = 84)
HRSD	0.23* (N = 80)	0.36** (N = 79)

* $p < 0.05$, ** $p < 0.01$.

Table 3. Convergent correlations among depression measures at two- and six-weeks postpartum

	EPDS-P		EPDS
	Two-weeks postpartum		
EPDS	0.51** N = 87		–
BDI	0.49** N = 87	<	0.73** N = 90
	Six-weeks postpartum		
BDI	0.56** N = 75	<	0.80** N = 88
EPDS	0.51** N = 75		–
HRSD	0.40** N = 67	<	0.51** N = 80

Note. Correlations identified with a < sign significantly differed at the $p < 0.05$ level according to formula: $\rho_{xy} = (Z_1 - Z_2)/\sigma(Z_1 - Z_2)$.

** $p < 0.01$.

Construct validity

The concurrent correlations between the EPDS and the EPDS-P were moderate at both time points (Table 3). EPDS-P scores were significantly higher than EPDS scores at both two-weeks t(1, 85) = −2.93; $p < 0.01$ and six-weeks t(1, 74) = −3.92; $p < 0.01$ postpartum. The EPDS-P demonstrated moderate convergence with the BDI at both time points and with the HRSD at the sole six-week assessment (Table 3). The EPDS demonstrated moderate to strong convergence with the HRSD and the BDI, respectively. Not surprisingly due to their reliance on self-report data, the EPDS, in comparison to the EPDS-P, was more highly correlated with the BDI at both time points and with the HRSD at the sole six-week assessment.

EPDS-P scores at two-weeks postpartum were significantly associated with women's self-reported depressive symptoms on the EPDS and the BDI at six-weeks postpartum (Table 2). Similarly, the EPDS when assessed at two-weeks postpartum was significantly associated with the BDI scores at six-weeks postpartum. Both the EPDS and the EPDS-P when assessed at two-weeks postpartum were significantly correlated with clinician-rated HRSD scores at six-weeks postpartum, although the EPDS showed a stronger relation to the HRSD.

In order to assess the potential impact of length of relationship on the correlation between the self- and partner-ratings, the EPDS and EPDS-P correlations were examined after splitting the sample (based on a median of 5.4 years) according to length of relationship. All correlations remained statistically significant at the $p < 0.01$ level with the exception of the two-week EPDS and EPDS-P correlation in the group that was married for greater than 5.4 years (r = 0.33; $p < 0.08$).

The potential for parity to impact partner-ratings was examined by conducting *t*-tests with the EPDS-P scores at both assessment points. Mean scores on the EPDS-P did not significantly differ by parity group (i.e. first-time versus more experienced parents) at either the two-week t(1, 91) = −0.49; $p < 0.63$ or the six-week t(1, 74) = −0.25; $p < 0.80$ assessment.

Item-level analyses

Paired samples *t*-tests between each EPDS and EPDS-P item were conducted in order to examine the concordance between self- and collateral-ratings at the individual item level. Partners rated the women as more severely impaired on item four (i.e., ''I have been anxious or worried for no good reason; She has seemed anxious

or worried.'') at both the two-week $t(1, 86) = -5.21$; $p < 0.01$ and the six-week $t(1, 75) = -5.35$; $p < 0.01$ assessments. At the two-week assessment, partners rated item five (i.e., ''I have felt scared or panicky for no very good reason; She has felt scared or panicky''; $t(1, 86) = 2.55$; $p < 0.01$ more severely than the women rated themselves, however, the difference was nonsignificant at the six-week assessment. On item six (i.e., ''Things have been getting on top of me; She was not able to cope with or to complete tasks in a timely manner.''), women rated themselves as more severely impaired than their partners did at the two-week assessment $t(1, 86) = -3.75$; $p < 0.01$, with nonsignificant differences found at the six-week assessment. Finally, women rated themselves as more severely impaired on item seven (i.e., ''I have been so unhappy that I have had difficulty sleeping; She has had difficulty sleeping'') at both the two-week $t(1, 86) = 10.71$; $p < 0.01$, and the six-week $t(1, 75) = 8.90$; $p < 0.01$, assessments.

Incremental validity of the EPDS-P in the prediction of postpartum depression

Two hierarchical regression analyses were conducted to assess the incremental contribution of the EPDS-P in the prediction of the woman's postpartum depression after controlling for the EPDS. The six-week HRSD score was used as the criterion variable with the six-week EPDS entered on the first step of the equation and the six-week EPDS-P entered on the second step (Table 4). Adding the EPDS-P in step 2 provides a marginal, 3%, but significant increase in the HRSD score variance explained ($F\Delta(1, 64) = 4.05$; $p < 0.05$). Using the six-week BDI score as the criterion variable with the six-week EPDS entered on the first step of the equation and the six-week EPDS-P entered on the second step (Table 5) results in the EPDS-P once again providing a marginal, 2%, but significant increase in BDI score variance explained ($F\Delta(1, 72) = 6.79$; $p < 0.05$).

Table 4. Hierarchical regression of HRSD scores on the EPDS & EPDS-P at six-weeks postpartum (n = 66)

Variable	R	R^2	Beta	F
Step 1	0.45	0.20		$F(1, 65) = 16.34^{**}$
Six-week EPDS			0.45	
Step 2	0.50	0.25		
Six-week EPDS			0.34	$F(2, 64) = 10.58^{**}$
Six-week EPDS-P			0.25	

** $p < 0.01$.

Table 5. Hierarchical regression of BDI scores on the EPDS & EPDS-P at six-weeks postpartum (n = 74)

Variable	R	R^2	Beta	F
Step 1	0.79	0.63		$F(1, 73) = 122.70^{**}$
Six-week EPDS			0.79	
Step 2	0.81	0.66		
Six-week EPDS			0.69	
Six-week EPDS-P			0.21	$F(2, 72) = 69.61^{**}$

** $p < 0.01$.

Discussion

The EPDS-P is a reliable measure of postpartum depression symptomatology for women with partners based on its internal consistency and test-retest stability. The EPDS has been found to be a reliable measure in the past and is currently widely used by postpartum depression researchers. Therefore, the comparable psychometric properties of the EPDS-P lend support to its use in research and clinical contexts.

The demonstrated convergence between the EPDS-P and other measures of depressive symptomatology provide support for the construct validity of the EPDS-P as a partner-rating of postpartum depression. The EPDS-P was found to be moderately related to both a clinician-rating of depression and the women's self-reported depression ratings. As expected due to reliance on self-report data, the EPDS showed a significantly stronger correlation with the BDI and the HRSD than did the EPDS-P. Scores on the EPDS-P did not differ according to parity or length of relationships. Importantly, the two-week EPDS-P was significantly associated with women's self-reports of depression at six-weeks postpartum. The EPDS-P contributed significantly to the prediction of the HRSD and the BDI over and above the contribution of the EPDS, suggesting that administration of the partner-rating provides worthwhile information in the prediction of both self-reported and clinician-rated depressive symptoms.

There are numerous ways in which partners may report symptoms missed by relying on self- and clinician-ratings. Language barriers, impaired cognitive functioning, reading disabilities, reluctance to appear mentally ill, and lack of insight into behaviors are only a few of the reasons that women may not report the range or severity of symptoms that they are experiencing. The current study demonstrates that partners are capable of providing information that women may be unaware of or unwilling to provide, as supported by the modest incremental validity of the EPDS-P over the EPDS in

predicting both HRSD and BDI scores and the significant relationship between early partner-ratings and later self-ratings.

Numerous qualities of the EPDS-P suggest its clinical utility in the context of individual and couples therapy. The EPDS-P's ease of administration and short-length facilitate its use in practice versus more timely and costly measures to administer. The EPDS-P constitutes an additional method of data collection to inform the therapist's conceptualization of the woman and her depressive symptoms. More specific to couples therapy, discussing each partner's responses on the EPDS-P and the EPDS could initiate conversations between partners regarding the woman's symptoms and their influence on each partner, the children, and the couple. Discussions in couples therapy informed by the use of the EPDS-P and the EPDS may foster understanding, communication and social support resulting in benefits for each member of the couple and their child(ren). The EPDS-P could therefore be viewed as a psychoeducation tool to facilitate partners' understanding of depression and to alert them as to signs of concern in postpartum women.

Although the current study demonstrated the EPDS-P's reliability and validity, additional studies replicating its psychometric properties and examining the applications of the EPDS-P in clinical and research contexts are needed. At this point in the validation process, scores on the EPDS-P are best interpreted as continuous rather than categorical, with no clear cut points indicative of depressed versus nondepressed status. Future research validating the measure against a more in-depth diagnostic interview is needed to examine normative data, cut points and diagnostic utility. Furthermore, conducting analyses in a larger sample would facilitate the examination of group differences according to depression status.

The generalizability of findings from this initial validation study is limited. Couples who completed the study were more educated and were more likely to be married than couples who did not complete the study. These data suggest that the findings of this study can be confidently generalized to more affluent and stable couples, but less confidently to couples that do not have stable relationships and those who are of low socioeconomic status. Subjects in the present study were recruited at a university hospital. Future work will need to include couples recruited in public hospitals and clinics that serve more diverse populations.

The EPDS items were revised for the EPDS-P in order to avoid asking partners questions requiring knowledge of the women's subjective experiences. In order to create items that partners could rate independently of the women's input, it was deemed necessary to reword some of the items more than others. For example, item seven was substantially revised for the EPDS-P, because it was believed that partners would have difficulty validly rating why women were having difficulty sleeping. As shown above, the revisions made to the EPDS-P may have contributed to significant differences found between women and their partners on items four through seven. However, collateral ratings traditionally focus on observable characteristics and it is not necessary for there to be exact convergence at the individual item level.

Despite the need for further research, the findings from the current study provide evidence for the utility of the EPDS-P as a partner-rating scale of women's postpartum depressive symptoms. Partners are valuable informational assets in clinical and research contexts for postpartum depression. Giving partners a clear role to play in the psychological care of postpartum women ultimately may facilitate their helpful involvement and result in better outcomes for mothers and children.

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Appendix

Parallel items from the EPDS and the EPDS-P

1. I have been able to laugh and see the funny side of things.
   My partner has been able to laugh and to see the funny side of things.
2. I have looked forward with enjoyment to things.
   My partner has mentioned looking forward with enjoyment to things.
3. I have blamed myself unnecessarily when things went wrong.
   She has been blaming herself unnecessarily when things went wrong.
4. I have been anxious or worried for no good reason.
   She has seemed anxious or worried.
5. I have felt scared or panicky for no very good reason.
   She has felt scared or panicky.

6. Things have been getting on top of me.
   She was not able to cope with or complete tasks in a timely manner.
7. I have been so unhappy that I have had difficulty sleeping.
   She has had difficulty sleeping.
8. I have felt sad or miserable.
   She has been feeling sad or miserable.
9. I have been so unhappy that I have been crying.
   She has been crying.
10. The thought of harming myself has occurred to me.
    She has been having thoughts of harming herself.

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