CJNR 2008, Vol. 40 N° 1, 112–125

Résumé

Validation de deux échelles de dépistage de dépression postpartum auprès d'un échantillonnage de femmes des Premières Nations et de femmes métisses

Pamela J. Clarke

L'étude a pour objectif de déterminer la prévalence de la dépression postpartum (DPP) et d'examiner l'utilité de l'échelle de dépistage de dépression postpartum [Postpartum Depression Screening Scale – PDSS] et de l'échelle de dépression postnatale d'Edinburgh [Edinburgh Postnatal Depression Scale – EPDS] chez les femmes des Premières Nations et les femmes métisses, dans la province canadienne de la Saskatchewan. Un total de 103 femmes qui ont accouché dans une période de un à douze mois précédant l'enquête ont été recrutées dans la ville de Regina et dans des centres de santé desservant les Premières Nations de cette province. Des outils d'autoévaluation servant à dépister la DPP ont été remis dans le cadre d'une entrevue clinique structurée pour identifier la présence d'un trouble de l'axe 1 du DSM-IV (SCID) et dépister la DPP. Des 103 femmes, 17 % ont reçu un diagnostic de DPP. Les résultats confirment la validité des échelles PDSS et EPDS comme outils de dépistage de DPP chez les femmes des Premières Nations et les femmes métisses. L'auteure discute de la nécessité de mettre en place des professionnels de la santé primaire, y compris des infirmières, pour offrir des services de dépistage postnataux aux femmes risquant la DPP.

Mots clés : dépression postpartum, DPP, Premières Nations, femmes, validation, dépistage

CJNR 2008, Vol. 40 Nº 1, 112–125

Validation of Two Postpartum Depression Screening Scales with a Sample of First Nations and Métis Women

Pamela J. Clarke

The purposes of this study were to determine the prevalence of postpartum depression (PPD) and to examine the utility of the Postpartum Depression Screening Scale (PDSS) and the Edinburgh Postnatal Depression Scale (EPDS) in First Nations and Métis women in the Canadian province of Saskatchewan. A total of 103 women who had given birth in the preceding 1 to 12 months were recruited from the city of Regina and from First Nations health centres in Saskatchewan. Self-report screening instruments assessing PPD were administered along with a structured clinical interview for DSM-IV Axis I disorders (SCID) to confirm the diagnosis of PPD. Of the 103 women, 17% were diagnosed with PPD. The findings support the validity of the PDSS and the EPDS as measures of PPD in First Nations and Métis women. The author discusses the need for primary health care professionals, including nurses, to offer postnatal screening for women who may be at risk for PPD.

Keywords: Postpartum depression, PPD, First Nations, women, validation, screening

Pregnancy and childbirth are remarkable events in the course of a woman's life. Although for many women the transition to motherhood is a precious time that brings excitement and joy into the home, new motherhood is a vulnerable time for the development of postpartum mood disorders (Miller, 2002). Postpartum depression (PPD) is the most frequent and serious clinical mood disorder among women postpartum (Beck, 1995). Although PPD has been identified as a major public health concern across cultures, Yonkers and colleagues (2001) report that nearly 80% of their sample of impoverished women with PPD remained undiagnosed due to associated stigmas and lack of screening by health-care providers.

Research conducted with samples from different cultures has found prevalence rates for PPD to vary from 13% to 50% (Affonso, De, Horowitz, & Mayberry, 2000). Westernized countries such as Australia and Sweden have the lowest levels of PPD, whereas selected Asian and South American sites have the highest. The lower levels of depressive symptomatology found in Australia and Western European countries may

be the result of mental health assessment and intervention programs; higher levels of PPD in Asian and South American samples implies less recognition of the disorder as a major health concern (Affonso et al., 2000).

As Canada becomes increasingly multicultural, PPD prevalence rates provide an empirical basis for determining vulnerability to maternal depression among diverse cultural groups. Awareness of and knowledge about PPD, particularly in underserved and minority populations, could assist in its detection in the immediate postpartum period (Dennis & Ross, 2006). Given the increasing awareness of the cognitive, behavioural, and emotional sequelae of PDD for women, their children, and their families, it is imperative that reliable and culturally valid screening procedures be employed (Boyd, Pearson, & Blehar, 2002).

Over the last two decades, a number of PPD screening instruments have been developed and validated in community and clinical samples in several countries (Boyd et al., 2002). The Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987) is one of the most researched and widely used PPD screening instruments (Eberhard-Gran, Eskild, Tambs, Opjordsmoen, & Samuelsen, 2001). During development and validation of the EPDS, Cox and colleagues (1987) found that a cutoff score of 12 yielded optimal predictive power in differentiating women who were depressed postpartum from those who were not. Specifically, a cutoff score of 12 produced sensitivity (i.e., true positive rate) of 86% to identify screened women with PPD, specificity (i.e., true negative rate) of 78% to identify screened women not depressed, and a positive predictive value (PPV) (i.e., identifying women who were depressed given a positive screen) of 73% to identify women who were depressed given a positive screen. Although subsequent cross-cultural studies (e.g., Ghubash, Abou-Saleh, & Daradkeh, 1997) reported similar diagnostic utility (i.e., predictive values) when employing a cutoff value of 12, other studies (e.g., Zelkowitz & Milet, 1995) have found a cutoff value of 12 to be less than optimal. Zelkowitz and Milet (1995) reported 91% sensitivity when employing a cutoff value of 10 in their community sample of postpartum women in Canada. These discrepancies suggest that different cutoff scores may be required for different cultural groups or selected populations (i.e., clinical vs. general). Furthermore, scores of 9 or 10 may be indicative of subclinical levels of PDD, whereas a higher cutoff value of 12 may be more predictive of those who meet diagnostic criteria for PPD (Lawrie, Hofmeyr, De Jager, & Berk, 1998).

A second recently developed measure of PDD is the Postpartum Depression Screening Scale (PDSS; Beck & Gable, 2000). In their validation study with 150 American women with PPD, Beck and Gable (2001) compared the screening utility of the PDSS to that of the EPDS. The

PDSS demonstrated better predictive and construct validity. Construction of receiver operating characteristic (ROC) curves indicated that a cutoff score of 80 yielded sensitivity of 94%, specificity of 98%, PPV of 90%, and negative predictive value (NPV) (i.e., identifying women who were not depressed given a negative screen) of 99%. Beck and Gable (2001) report that the PDSS yielded better validity than reported by Cox et al. (1987) in their validation study of the EPDS.

To date, the PDSS has been validated in predominantly Euro-American middle-class populations, with few samples drawn from minority or underrepresented populations. Beck and Gable (2003) recently validated a Spanish version of the PDSS in a sample of 150 Hispanic postpartum women in the United States. They found that a cutoff score of 60 was optimal in identifying PPD despite obtaining slightly lower psychometric values than found for the English version of the PDSS. In a sample of Native American women (Baker et al., 2005), the PDSS identified 23% of the sample as having PPD and revealed a history of depression to be a risk factor for PPD. Although there is a dearth of available data examining the utility of the PDSS in minority populations, Beck and Gable (2001) report that the PDSS captures many facets of PDD and is a more valid measure than the EPDS.

In Canada, rates of general depression in First Nations and Métis adults have been found to be three to four times higher than those for non-Aboriginal adults (O'Nell, 1996). However, no studies to date have published data examining prevalence of PPD in First Nations and Métis women, nor have they validated PDD instruments in that population despite the high rates of general depression and the known link between general depression and PPD. The present study is the first to explore PPD in Canadian First Nations and Métis women. The purposes of this study were to determine prevalence rates of PPD in a sample of First Nations and Métis women in the province of Saskatchewan and to compare and validate the PDSS and EPDS in this sample. Findings from the study will assist nurses to provide culturally appropriate screening procedures for PPD in Canadian First Nations and Métis women.

Methods

Sample

Ethical approval was obtained from the University of Regina and the Regina Qu'Appelle Health Region. A total of 103 English-speaking First Nations and Métis women who were 18 years of age or older and had given birth to a live infant in the previous 1 to 12 months were recruited from postnatal and parenting groups and via notices posted in various locations (e.g., hospital maternity wards, community health centres) in

Regina and in First Nations health centres in Saskatchewan. Despite the higher rates of teenage pregnancy among First Nations and Métis females compared to the general Canadian population (20% vs. 5.6%; Health Canada, 2001), adult women (i.e., aged 18 years and older) form the majority of the childbearing population. Because some emotional reaction in puerperium is apparent in 50% to 80% of women following birth (Glangeaud-Freudenthal, Crost, & Kaminski, 1999), a 1-month period was used to allow for the dissipation of symptoms commonly associated with "baby blues" (Yawn, 1996). Furthermore, onset of depressive symptoms can occur any time within the first 12 months after giving birth (Stowe & Nemeroff, 1995), thus supporting the inclusion of women up to 12 months postpartum.

Measures

The EPDS (Cox et al., 1987) is a 10-item, self-report, paper-and-pencil measure that assesses symptoms such as sadness or misery, inability to laugh, inability to look forward to the enjoyment of things, anxiety and tendency to worry, fear or panic, difficulty sleeping, and thoughts of harming oneself. In the present study, the internal consistency of the EPDS was $\alpha = 0.87$.

The PDSS (Beck & Gable, 2000) is a 35-item, self-report, paper-and-pencil measure that assesses seven dimensions of PDD: Sleeping/Eating Disturbances, Anxiety/Insecurity, Emotional Lability, Mental Confusion, Loss of Self, Guilt/Shame, and Suicidal Thoughts. In the present study, the internal consistency of the PDSS was $\alpha = .95$.

The BDI-II (Beck, Steer, & Brown, 1996) is a widely used 21-item clinical instrument that assesses cognitive, somatic, and affective symptoms of depression. Although use of the BDI-II as a measure of PPD requires careful interpretation (i.e., inflated scores; Affonso et al., 2000), the BDI-II is widely used in PPD research and has demonstrated good concurrent validity with measures of PPD (Beck & Gable, 2001). The BDI-II was used as a comparison tool for assessing the construct validity of the EPDS and the PDSS. In the present study, the internal consistency of the BDI-II was $\alpha = 0.85$.

Procedure

After written informed consent to participate had been obtained, participants completed a background information sheet and then the depression screening scales. The screening scales were administered in a counter-balanced manner. Once the background information sheet and depression questionnaires were completed, the author interviewed each mother privately using the Mood Disorder Module of the Structured Clinical Interviews for DSM-IV Axis I Disorders (SCID; First, Spitzer,

Gibbon, & Williams, 1997) to confirm the diagnosis of PPD. The author had received instruction and training in administering the SCID by a licensed clinical psychologist.

Data were entered into SPSS 11.0. Data-analysis procedures used in this study included descriptive statistics, correlations, and logistic regression. ROC curves were also constructed for the PDSS and the EPDS.

Results

Sample

Of the 103 mothers, 17 (17%) were diagnosed with PPD based on the SCID. The mean age of the sample was 23.8 years (SD = 4.73), with a range of 18 to 42 years. Of the participants, 48% (n = 49) had given birth between 1 and 4 months before completing the measures. Approximately 58% (n = 59) reported not completing high school and 59% (n = 61) reported a family income of less than $10,000. Nearly 62% ($n$ = 63) resided in the city of Regina and 33% (n = 34) resided in reserve communities. Of the mothers, 28% (n = 29) were single, 10% (n = 10) married, 53% (n = 55) partnered, and 4% (n = 4) divorced. Of the sample, 87% (n = 90) had delivered vaginally and 21% (n = 22) reported complications during delivery. As for infant-feeding method, 29% (n = 30) of the women reporting breastfeeding, 41% (n = 43) bottle-feeding, and 30% (n = 31) a combination. Of the sample, 43% (n = 45) experienced feelings of sadness or depression in the antenatal period and 52% (n = 53) had a previous history of depression.

Construct Validity: Correlations

Correlational data were analyzed to examine the construct validity of the EPDS and the PDSS. The EPDS was correlated with BDI-II, r (94) = .71, $p < .01$, and the PDSS was correlated highly with both the BDI-II, r (94) = .75, $p < .01$ and the EPDS, r (101) = .80, $p < .01$, indicating that the three instruments measured similar aspects of depression.

Construct Validity: Logistic Regression

Separate hierarchical logistic regression analyses were performed to compare the ability of the EPDS and the PDSS to predict SCID-depressed versus non-depressed status. The BDI-II was entered first for both analyses, as this instrument correlated with both PPD screening instruments and thus was used as a control to screen for depressive symptoms. The regression models for depressive status are shown in Table 1. The first model, with the BDI-II as the only predictor in the first block, discriminated those depressed from those not depressed, χ^2 (1, N = 95) = 30.65, $p < .001$, odds ratio = 1.24, and accounted for 47% (Nagelkerke

Table 1 *Summary of Logistic Regression Analyses for Variables Predicting Depressive Status (N = 95)*

First Model	β	Wald Test (*z* ratio)	Odds Ratio	Nagelkerke R^2	95% CI
Block 1					
BDI-II score	.22**	17.70	1.24	.47	1.12–1.38
Block 2 – first model					
BDI-II score	.13*	4.42	1.14		1.01–1.28
PDSS score	.05*	5.30	1.05	.55	1.01–1.10
Block 2 – second model					
BDI-II score	.12	3.42	1.12		.99–1.27
EPDS score	.30**	6.28	1.35	.58	1.07–1.71

* $p < .05$; ** $p < .01$

R^2) of the variance in depression classification. The PDSS was then added in the second block of the first model. The second block discriminated the depressed from the not depressed, χ^2 (1, N = 95) = 6.24, p = .012, odds ratio = 1.10, and together the BDI-II and PDSS accounted for 55% (Nagelkerke R^2) of the variance in diagnostic classification of PPD. Taken together, the overall correct classification rate for the PDSS and the BDI-II was 88% for depressed versus non-depressed.

The second hierarchical logistic regression analysis was conducted using the BDI-II and the EPDS as predictor variables. As in the preceding analysis, the BDI-II was entered as the only predictor in the first block of the model. Entry of the EPDS in the second block of the second model discriminated those depressed from those not depressed, χ^2 (1, N = 95) = 8.65, p = .003, odds ratio = 1.35. Together, the BDI-II and EPDS accounted for 58% (Nagelkerke R^2) of the variance in diagnostic classification of PPD. The overall correct classification rate after combining the EPDS and the BDI-II was 92% for depressed versus non-depressed. In comparing the variance accounted for over and above the BDI-II, the EPDS accounted for an additional 11% (Nagelkerke R^2), whereas the PDSS accounted for slightly less additional variance of 8%.

Sensitivity, Specificity, and Predictive Values

ROC curves were generated using SPSS 11.0 to examine the sensitivity, specificity, and predictive values over a range of cutoff scores for the PDSS and the EPDS. Sensitivity (i.e., true positive rate) is the ability of a screening measure to identify correctly all screened women who have PPD; specificity (i.e., true negative rate) is the ability of the screening

scale to identify correctly all screened women who do not have PPD (Jekel, Elmore, & Katz, 1996). There is a tradeoff between sensitivity and the specificity of a screening instrument when optimum cutoff scores are constructed (Fletcher, Fletcher, & Wagner, 1996). When either sensitivity or specificity is increased, it is at the expense of the other.

Predictive values yield information about the predictive power of a measure while considering the prevalence of a particular disorder within a population (Jekel et al., 1996). PPVs are used to determine the probability that an individual is disordered given that the measure has screened that individual as having the disorder. NPVs are used to determine the probability that an individual is non-disordered given that the particular measure has screened that individual as not having the disorder. Thus, predictive values produce information different from sensitivity or specificity regarding the diagnostic utility of the screening measure (Fletcher et al., 1996).

Figure 1 ***Sensitivity and 1-Specificity of the PDSS and EPDS***

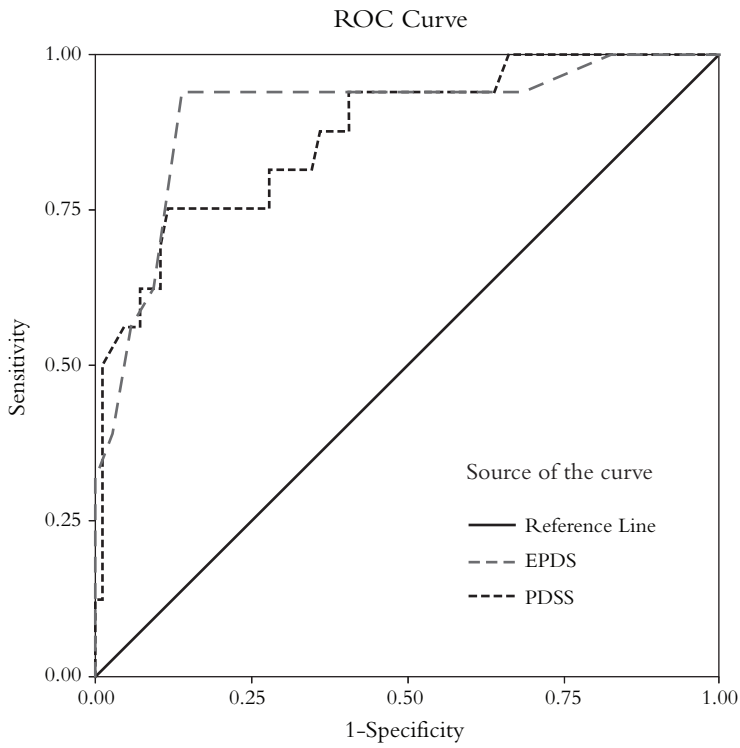

Table 2 *Performance of the PDSS and EPDS over a Range of Cutoff Scores Using DSM-IV PPD Criteria*

Cut-off Score	Sensitivity (%)	Specificity (%)	PPV[a] (%)	NPV[b] (%)
PDSS				
71.5	94	59	31	98
80.5	81	72	37	95
93.0	77	88	56	95
EPDS				
11.5	94	86	56	99
12.5	81	88	56	96

[a]Positive predictive value; [b]Negative predictive value.

Figure 1 represents the accuracy of the PDSS and the EPDS in screening for PPV. The area under the ROC curve for the PDSS is = .87 (*SD* = .05), which is considered very good (Zweig & Campbell, 1993). The area under the ROC curve for the EPDS is excellent, at .90 (*SD* = .05). Both curves are statistically significant ($p < .001$).

Table 2 illustrates the sensitivity, specificity, and positive and negative predictive values for a range of cutoff scores for both the PDSS and the EPDS. For example, based on the ROC curve for the PDSS, a cutoff score of 71.5 produced sensitivity of 94%, specificity of 59%, PPV of 31%, and NPV of 98%. Beck and Gable (2001) recommend a higher cutoff score of 80. In the present sample, use of a similar cutoff score of 80.5 produced lower sensitivity (i.e., true positive rate) value of 81%, higher specificity value of 72%, PPV of 37%, and NPV of 95%.

Based on the ROC curve for the EPDS, a cutoff score of 11.5 produced sensitivity of 94%, specificity of 86%, PPV of 56%, and NPV of 99%. Cox and colleagues (1987), among others (e.g., Ghubash et al., 1997), report an optimal cutoff score of 12 or 13. In the present sample, however, measures of validity produced when using a cutoff score of 12.5 included lower sensitivity of 81%, slightly higher specificity of 88%, PPV of 56%, and lower NPV of 96%.

Discussion

Postpartum depression has been researched extensively across cultures and is reported to be a serious mental health problem (Oates et al., 2004). Researchers have not investigated prevalence rates of PPD nor tested the validity of the PDSS and the EPDS in Canadian First Nations and Métis women postpartum. The aims of the present study were to determine

prevalence of PPD and to evaluate the validity of these two PPD screening measures in a sample of First Nations and Métis women in Saskatchewan. Of the sample, 17% were diagnosed with major PPD. This prevalence rate is consistent with reports of major PPD prevalence rates cross-culturally of between 10% and 20% (O'Hara & Swain, 1996). Extant research indicates that depression rates among American Indian and First Nations cultures are upwards of 45% (O'Nell, 1996). Because women in the present study were recruited through Aboriginal health centres that offered prenatal, postnatal, and parenting groups, one possible explanation for the lower PPD rates in the sample is that First Nations and Métis women were provided supportive, caring environments by nursing staff within the health-care setting.

The study compared the ability of two PPD screening instruments to differentiate between women with and without PPD. Separate logistic regression analyses were performed to determine the ability of the PDSS and the EPDS to classify correctly depressed and non-depressed mothers. In the first analysis, the addition of the PDSS to the BDI-II accounted for an additional 8% of the variance. In the second analysis, the addition of the EPDS to the BDI-II accounted for an additional 11% of the variance.

Based on the sensitivity and specificity values of the PDSS, Beck and Gable (2001) recommend a cutoff score of 80, which generated for their sample a sensitivity value of 94% and a specificity value of 98%. For comparison purposes, a cutoff score of 80.5 for the present sample yielded a sensitivity value of 81% and a specificity value of 72%. However, a PDSS cutoff score of 71.5 resulted in identification of a higher percentage of the women with PPD.

Cox and colleagues (1987) report that a cutoff score of 12.5 yielded the highest measures of validity in their validation study of the EPDS. For comparison purposes, the present study employed a similar cutoff score of 12.5 for the EPDS to determine measures of sensitivity and specificity. This cutoff score was associated with a sensitivity value of 81% (vs. 86% reported by Cox et al.) and a specificity value of 88% (vs. 78% reported by Cox et al.). However, a lower cutoff score of 11.5 in the present sample generated a sensitivity value of 94% and a specificity value of 86%. Therefore, a cutoff score of 11.5 for the EPDS was optimal in obtaining satisfactory psychometric properties (i.e., sensitivity and specificity) in First Nations and Métis women in Saskatchewan.

Although sensitivity and specificity provide useful information about the quality of a measure, these properties do not take into consideration the prevalence or the pretest probability of a disorder or disease (Fletcher et al., 1996), nor do they provide practical information on the diagnostic ability of a measure as a general screening tool (Jekel et al., 1996).

Predictive values, on the other hand, consider the prevalence rates of the disorder being studied (Fletcher et al., 1996). Screening tools that have lower positive predictive power inflate the incidence of a particular disorder (false positives), whereas screening tools that have lower negative predictive power miss those who are disordered (false negatives).

The prevalence rate of 17% for PPD in this sample of First Nations and Métis women is consistent with previously reported prevalence rates of between 10% and 20% (O'Hara & Swain, 1996) and supports the efficacy of predictive values in comparing the PDSS and the EPDS. Recommended cutoff values for the PDSS and the EPDS in the present sample were 71.5 and 11.5, respectively. Although both instruments demonstrated utility as general screening tools, the EPDS yielded better predictive power (25% PPV and 1% NPV over and above) than the PDSS. The EPDS is a time-efficient measure that can be quickly scored and interpreted by nurses and other health-care practitioners. The EPDS is available without cost from Dr. Cox. Although the PDSS captures many facets of PPD (Beck & Gable, 2001), it takes considerably longer to complete, is more cumbersome to score, and must be purchased. Despite these administrative differences, both measures demonstrated adequate clinical utility in the present study.

Conclusions

Postpartum depression affects many women, including those of First Nations and Métis descent. This is the first study to provide evidence for the utility of the EPDS and the PDSS as general screening instruments in postpartum First Nations and Métis women in Saskatchewan. The results support the need for primary health care professionals, including nurses, to offer postnatal screening for women who may be at risk for PPD. Nurses may also be in a position to provide information regarding risk factors and prevalence rates associated with PPD. This information can be communicated during initial home visits following birth or during the infants' routine immunization appointments. This open dialogue would serve to educate women about the nature of PPD and assist in the transition to motherhood by encouraging women to attend support groups and develop social networks.

The study had a few limitations. It recruited women from health centres that provided postpartum and parenting support. Prevalence rates of PPD obtained in the sample may be lower than those for the general population of postpartum First Nations and Métis women. Also, the study did not include First Nations and Métis women from northern Saskatchewan, whose PPD experiences could well differ. The results of the study reflect primarily the postpartum experiences of Cree women in southern

Saskatchewan. The conclusions of the study should be applied with caution to postpartum women of First Nations descent outside of Saskatchewan. Nearly 50% of First Nations women in Canada hold either a bachelor's degree or a non-university certificate or diploma (Stout & Kipling, 1998). In contrast, only approximately 20% of the present sample had some postsecondary education. Differences between this sample and First Nations women across Canada, in terms of education and other variables, suggest that one should be cautious in generalizing the results to all postpartum First Nations women in Canada. These limitations should be addressed in future research.

References

Affonso, D. D., De, A. K., Horowitz, J. A., & Mayberry, L. J. (2000). An international study exploring levels of postpartum depressive symptomatology. *Journal of Psychosomatic Research, 49,* 207–216.

Baker L., Cross, S., Greaver, L., Wei, G., Lewis, R., & Healthy Start CORPS. (2005). Prevalence of postpartum depression in a Native American population. *Maternal and Child Health Journal, 9,* 21–25.

Beck, A. T., Steer, R., & Brown, G. (1996). *BDI-II manual.* San Antonio: Psychological Corporation.

Beck, C. T. (1995). Screening methods for postpartum depression. *Journal of Obstetric, Gynecologic, and Neonatal Research, 24,* 308–312.

Beck, C. T., & Gable, R. K. (2000). Postpartum Depression Screening Scale: Development and psychometric testing. *Nursing Research, 49,* 272–282.

Beck, C. T., & Gable, R. K. (2001). Further validation of the Postpartum Depression Screening Scale. *Nursing Research, 50,* 155–164.

Beck, C. T., & Gable, R. K. (2003). Postpartum Depression Screening Scale: Spanish version. *Nursing Research, 52,* 296–306.

Boyd, R. C., Pearson, J. L., & Blehar, M. C. (2002). Prevention and treatment of depression in pregnancy and the postpartum period – summary of a maternal depression roundtable: A U.S. perspective. *Archives of Women's Mental Health, 4,* 79–82.

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

Dennis, C., & Ross, L. E. (2006). Depressive symptomatology in the immediate postnatal period: Identifying maternal characteristics related to true- and false-positive screening scores. *Canadian Journal of Psychiatry, 51,* 265–273.

Eberhard-Gran, M., Eskild, A., Tambs, K., Opjordsmoen, S., & Samuelsen, S. (2001). Review of validation studies of the Edinburgh Postnatal Depression Scale. *Acta Psychiatrica Scandinavica, 104,* 243–249.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. (1997). *User's guide for the Structured Clinical Interview for DSM-IV Axis I Disorders.* Washington: American Psychiatric Press.

Fletcher, R. H., Fletcher, S. W., & Wagner, F. H. (1996). *Clinical epidemiology: The essentials.* Baltimore: Williams & Wilkins.

Ghubash, R., Abou-Saleh, M., & Daradkeh, T. (1997). The validity of the Arabic Edinburgh Postnatal Depression Scale. *Social Psychiatry and Psychiatric Epidemiology, 32,* 474–476.

Glangeaud-Freudenthal, N. M. C., Crost, M., & Kaminski, M. (1999). Severe post-delivery blues: Associated factors. *Archives of Women's Mental Health, 2,* 37–44.

Health Canada. (2001). *A statistical profile on the health of First Nations in Canada for the year 2000.* Retrieved October 25, 2006, from http://www.hc-sc.gc.ca/fnih-spni/pubs/gen/stats_profil_e.html.

Jekel, J. F., Elmore, J., & Katz, D. (1996). *Epidemiology biostatistics and preventative medicine.* Philadelphia: W. B. Saunders.

Lawrie, T., Hofmeyr, G., De Jager, M., & Berk, M. (1998). Validation of the Edinburgh Postnatal Depression Scale on a cohort of South African women. *South African Medical Journal, 88,* 1340–1344.

Miller, L. J. (2002). Postpartum depression. *Journal of the American Medical Association, 287,* 762–765.

Oates, M. R., Cox. J. L., Neema, S., Asten, P., Glangeaud-Freudenthal, N., Figueiredo, B., et al. (2004). Postnatal depression across countries and cultures: A qualitative study. *British Journal of Psychiatry, 184,* S10–S16.

O'Hara, M. W., & Swain, A. M. (1996). Rates and risk of postpartum depression: A meta-analysis. *International Review of Psychiatry, 8,* 37–54.

O'Nell, T. D. (1996). *Disciplined hearts: History, identity, and depression in an American Indian community.* Berkeley: University of California Press.

Stout, M. D., & Kipling, G. D. (1998). *Aboriginal women in Canada: Strategic research directions for policy development*. Ottawa: Status of Women Canada.

Stowe, Z. N., & Nemeroff, C. B. (1995). Women at risk for postpartum-onset major disorder. *American Journal of Obstetrics and Gynecology, 173,* 639–645.

Yawn, B. P. (1996). Baby, I've got the blues: Postpartum depression. *Minnesota Medicine, 79,* 27–30.

Yonkers, K. A., Ramin, S. M., Rush, A. J., Navarrete, C. A., Carmody, T., March, D., et al. (2001). Onset and persistence of postpartum depression in an inner-city maternal health clinic system. *American Journal of Psychiatry, 158,* 1856–1863.

Zelkowitz, P., & Milet, T. (1995). Screening for postpartum depression in a community sample. *Canadian Journal of Psychiatry, 40,* 80–86.

Zweig, M. H., & Campbell, G. (1993). Receiver operating characteristic (ROC) plots: A fundamental evaluation tool in clinical medicine. *Clinical Chemistry, 39,* 561–577.

Author's Note

This study was funded by a grant from the Indigenous Peoples' Health Research Centre, which is funded by the Saskatchewan Health Research Foundation, the Institute of Aboriginal Peoples' Health, and the Canadian Institutes of Health Research.

The author would like to thank Drs. Mary Hampton, Donald Sharpe, and Regan Shercliffe for their valuable advice, suggestions, feedback, and support. She would like to extend a special thank you to the women who participated in the study as well as the health-care supervisors who supported the project.

Comments or queries may be addressed to Pamela Clarke, Department of Psychology, University of Regina, 3737 Wascana Parkway, Regina, Saskatchewan S4S 0A2 Canada. E-mail: beattiepamela@hotmail.com.

Pamela J. Clarke, BSW, MA, is a doctoral student in Clinical Psychology, Department of Psychology, University of Regina, Saskatchewan, Canada.