ORIGINAL ARTICLE

REVALIDATION OF THE MALAY VERSION OF THE EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS) AMONG MALAY POSTPARTUM WOMEN ATTENDING THE BAKAR BATA HEALTH CENTER IN ALOR SETAR, KEDAH , NORTH WEST OF PENINSULAR MALAYSIA

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Aim: To reevaluate the psychometric characteristics of the Malay version of the Edinburgh Postnatal Depression Scale among a sample of postpartum Malay women attending the Bakar Bata Health Center in Alor Setar, Kedah, North West of Peninsular Malaysia. Materials and methods: 64 women between 4 to 12 weeks postpartum were recruited for there validation study. They were given questionnaires on socio-demography, the 21-item Malay version of the Beck Depression Inventory II (BDI-II) and the 10-item Malay version of the Edinburgh Postnatal Depression Scale (EPDS). All the participants were later interviewed using the Hamilton Depression Rating Scale (HDRS-17) and the Composite International Diagnostic Interview (CIDI). All diagnoses were made based on the Tenth Edition of the International Classification of Diseases (ICD-10) Results: 9 women (14.1%) were diagnosed to have significant depression (7 mild depressive episodes and 2 moderate depressive episodes according to ICD-10). EPDS was found to have good internal consistency (Cronbach alpha =0.86) and split half reliability (Spearman split half coefficient = 0.83). The instrument also showed satisfactory discriminant and concurrent validity as evidenced by the statistically significant difference in EPDS scores between the depressed group and their non-depressed counterparts (Mann Whitney U test: 2 tailed p value < 0.01) and good correlations between the instrument and both the Malay version of BDI-II and the HRDS-17 (Spearman rank correlation coefficients of 0.78 and 0.88 respectively). At the 11/12 cut-off score the sensitivity of the EPDS is 100%, with a specificity of 98.18%, positive predictive value of 90%, negative predictive value of 100 % and misclassification rate of 1.56%. Conclusion: This study confirmed the reliability and validity of the Malay version of the Edinburgh Postnatal Depression Scale in identifying postpartum depression among recently delivered Malay women attending the Bata Bata Health Center in Alor Setar, Kedah, North West of Peninsular Malaysia.

*Key words : validation, EPDS, postnatal depression, rating scale*

Introduction

Postpartum depression is the most common postpartum psychological disorder with a high degree of morbidity (1) affecting on average 13% of recently delivered mothers (2). It is considered a

Figure 1:   *Scatter plot of the distribution of Edinburgh Postnatal Depression Scale scores (EPDS) according to depression caseness based on ICD-10 (1992)*
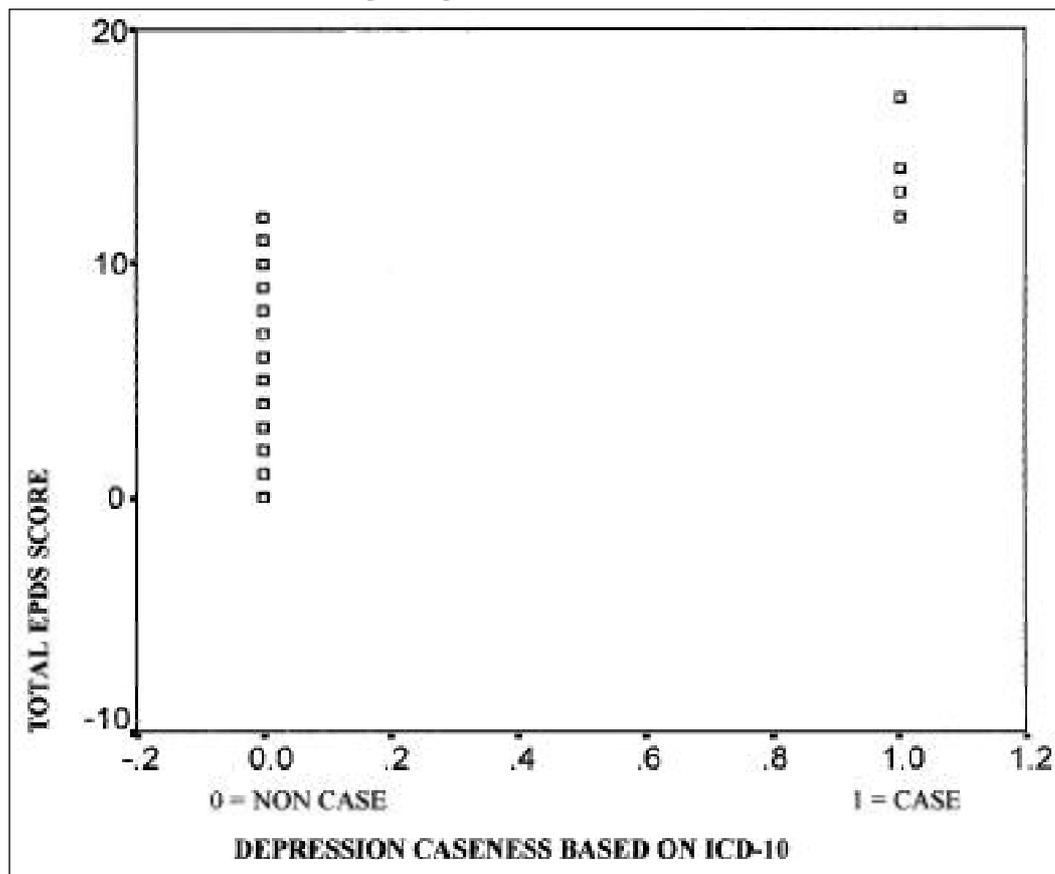
major public health problem and has been associated with adverse outcomes for the infant's cognitive, emotional and social development (3,4). Tragically, 50% of this illness is undetected (5) and even severe postpartum depression can often go unrecognized by those closest to the post-partum mother (6).

In view of the high incidence and the under recognized nature of the illness, it would be helpful to screen mothers in the community to identify those suffering from the condition and refer them for appropriate help (7). The most popular instrument used in investigating and detecting mood disturbance in the postnatal period for women is the Edinburgh Postnatal Depression Scale (EPDS) (5,8,9). Overall, it has shown remarkable stability and comparability in a number of studies involving women from different ethnic and cultural backgrounds (9)

In Malaysia, it was only recently that a proper psychometric evaluation has been conducted among the local population (10). It was conducted in among postpartum Malaysian women in Kelantan, North East of the Peninsular Malaysia. In the present study, the main aim was to repeat the psychometric evaluation but specifically focusing among Malay postpartum women from Kedah, a state in the North West of Peninsular Malaysia

Methodology

A sample of Malay women between 4 – 12 weeks postpartum attending the Bakar Bata Health Center, Alor Setar, Kedah between the months of July and August 2002 were approached for the revalidation study. Those who agreed to participate in the study were given the following questionnaires:

1. Questionnaires on socio-demographic details.

2. 21-item Malay version of Beck Depression Inventory II (BDI-II) (11)

3. The Malay version of the Edinburgh Postnatal Depression Scale (EPDS) (10)

Subsequently all the participants were interviewed using a fully structured interview, Composite International Diagnostic Interview (CIDI) (12) and the 17 item Hamilton Depression Rating Scale (HDRS-17) (13) by one of the authors who was uninformed of the results of the self administered questionnaires. The final diagnoses were made based on ICD-10 (The Tenth Edition of the International Classification of Disease) (14). All results were analyzed using the Statistical Package

Table I: *Receiver operating characteristics of the Malay version of EPDS using ICD-10 major and minor depression as the criteria among postpartum women.*

Score	Sens (%)	Spec (%)	PPV (%)	NPV (%)	MR (%)	Effi. (%)
6.5	78.18	100	42.86	100	18.75	81.25
7.5	87.27	100	62.5	100	10.94	89.06
8.5	89.09	100	66.67	100	9.38	90.63
9.5	92.73	100	69.23	100	6.25	93.75
10.5	94.54	100	75	100	4.69	95.31
11.5	98.18	100	90	100	1.57	98.44
12.5	98.18	77.78	87.5	96.43	4.69	95.31
13.5	100	44.44	100	91.67	7.81	92.19
14.5	100	11.11	100	87.30	12.5	87.5

for Social Sciences version 10.05.

Results

From the 66 women who were approached, 64 agreed and gave informed consent to participate in this study. All of them were married with a mean age of 28.7 (standard deviation =5.44). Their mean duration postpartum was 55.53 days (standard deviation = 17.84). 70.3% of them were housewives and 98.4% were at least educated until Form 3 (9 years of school education).

The overall mean EPDS score for the participants was 5.27 (standard deviation =4.63). The median score in the non-depressed women was 4 (inter quartile range = 0 – 6) and 13 (inter quartile range = 12.5 – 14) in the depressed women. Mann Whitney U test for 2 independent samples was carried out to compare the EPDS scores between the two groups and the difference was found to be statistically significant (Mann Whitney U=1.00; 2 tailed p value < 0.01). Using reliability statistics, the internal consistency (Cronbach alpha) was 0.86 and the split half reliability (Spearman split half coefficient) is 0.83. The correlations between the Malay version of the EPDS, BDI-II and the Hamilton Depression Rating Scale were also tested. The Spearman's rank correlations (Spearman's rho) were 0.78 and 0.88 respectively. A scatter plot of EPDS scores and ICD-10 diagnoses is shown in figure I.

Nine of the 64 women (14.1 %) were diagnosed to have significant depressive episodes, 7 mild and 2 moderate depressive episodes based on the ICD-10 criteria. Further validity of the Malay EPDS in terms of sensitivity, specificity and positive predictive value at several cut-off scores were determind against ICD-10 diagnoses of major depressive episodes. Receiver operating characteristics of the Malay version of EPDS are shown in table I. The area under the ROC curve was calculated to be 0.998. From the data, the optimum threshold value in detecting depression of varying severity was a score of 11.5 with a sensitivity of 100%, specificity of 98.18%, positive predictive value 90 %, negative predictive value 100 % and misclassification rate of 1.56%.

Discussion

The main aim of this study was to re-evaluate the psychometric performance of the Malay version of the EPDS (10) as a screening instrument to identify postpartum depression among Malay women attending the Bakar Bata Health Center in Alor Setar, Kedah, a state in the North West of Peninsular Malaysia. All the women in this study were Malays compared to women from different racial backgrounds in the original validation study (10).

The same methodology as the initial validation by Rushidi et al (10) was employed with two major improvements. First, BDI-II that was recently validated among postpartum women in the same catchment area (11), was used in place of the Malay version of the GHQ-30 (15) that was never validated among postpartum women. Secondly,

Table 2: *Comparison of the results of the two validation studies conducted on the Malay version of the Edinburgh Postnatal Depression Scale in Malaysia at the cut-off scores of 11/ 12.*

Study	Senc (%)	Spec (%)	PPV (%)	NPV (%)	MR (%)	Effi. (%)
Current study	98.18	100	90	100	1.57	98.44
Rushidi et al (10)	76.9	95.1	76.9	92.8	11.1	90.7

Spec=specificity; Sens=sensitivity; PPV=positive predictive value; NPV=negative predictive value; MR= misclassification rate; Effi=efficiency

CIDI (12) was used to replace the semi-structured interview, using Clinical Interview Schedule (CIS) (16), in the original validation study. One of the main advantages of using a fully structured interview is that it eliminates the unreliability of clinician diagnoses. Individual clinicians are known to apply their own implicit rules about eliciting and amalgamating information, rules which may differ from those applied by other clinicians, and which may differ from one occasion to another even by the same clinician, thus rendering the clinical diagnoses unreliable (17, 18,19). The ICD-10 criteria for major depressive episodes (14) was again used as a benchmark against the EPDS.

From the results, the overall performance of the instrument was better than the initial validation study conducted more than a year ago (10). The internal consistency and split half reliability were high (Cronbach alpha coefficient = 0.86; equal length Spearman split half coefficient = 0.83). Discriminant and concurrent validities were quite impressive. These were evident from the significant difference between the EPDS scores in the depressed group compared to their non-depressed counterparts (Mann Whitney U=1.00; 2 tailed p value < 0.01); and the good correlations between the instrument and both the Malay version of BDI-II (11) and the HRDS-17 (13) (Spearman's rho of 0.78 and 0.88 respectively).

The instrument also displayed very good psychometric properties in detecting depression among postpartum women. At an optimal cut-off point of 11/12, the sensitivity was 100%, specificity was 98.18%, positive predictive value was 90%, negative predictive value was 100% and the misclassification rate was 1.56%. A comparison of the psychometric characteristics between the two studies is shown in table II.

In conclusion, this study confirmed the reliability and validity of the Malay version of the EPDS (10) as a screening instrument in identifying depression among a sample of postpartum Malay women attending the Bakar Bata Health Center in Alor Setar, Kedah, North West of Peninsular Malaysia.

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References

1. Kumar, R. and Robson, K.M. A prospective study of emotional disorders in childbearing women. *Br. J. Psychiatry*, 1984; **144**: 35 – 37.

2. O'Hara, M., Swain, A.M. Rates and risk factors of postpartum depression: A meta-analysis. *Int. Rev. of Psychiatry*, 1996; **8**: 37 – 54.

3. Rutter, M., Quinton, D. Parental psychiatric disorder: effect on children. *Psychol. Med.,* 1984; **16**: 151 – 169.

4. Murray, L., Cooper, P. Postpartum depression and child development. *Psychol. Med.*, 1997; **27**: 253 – 260.

5. Brockington, I. *Motherhood and Mental Health*. Oxford Medical Publication, 1996.

6. Beck,,C.T., Gable, R.K. Comparative analyses of the performance of the Postpartum Depression Screening Scale with two other depression instruments. *Nursing Res.*, 1999; **50**: 242-250.

7. Harris, B., Huckle, P., Thomas R., Johns S., Fung H. The use of rating scales to identify post-natal depression. *Br. J. Psychiatry*, 1989; **154**: 813 – 817.

8. Cox, J.L., Holden, J.M., Sagovsky, R. Detection of postpartum depression - development of the 10-item Edinburgh Postnatal Depression Scale. *Br. J. Psychiatry*, 1987; **150**: 782 – 786.

9. O'Hara, M.W. Postpartum depression: identification and measurement in cross-cultural context. In *Perinatal Psychiatry: Use and Misuse of Edinburgh Postnatal Depression Scale.* Cox J. Holden J.(Eds.), pp 145 – 168. Gaskell, 1994.

10. Rushidi, W.M.W.M, Azidah, A.K, Shaiful B.I, Jamil M.Y. Validation study of the Edinburgh Postnatal Depression Scale (EPDS). *Malaysian Journal of Psychiatry*, 2002; **10** (1): 44 – 49.

11. Rushidi, W.M.W.M. An overview of the rates, risk factors and instrumentation in detecting postpartum depression among Malaysian women. *Paper presented at the Seminars on Mental Health Among Pregnant and Postpartum Women,* Kedah, 2002.

12. *Composite International Diagnostic Interview: CIDI-Auto 2.1: Administrator's Guide and Reference.* World Health Organization, Geneva, 1997.

13. Hamilton, M. A rating scale for depression. *J. Neurol. Neurosurg. Psychiatry*, 1960; **23**: 56 – 62.

14. *The International Classification of Disease (ICD-10): Classification of Mental and Behavioral Disorders. Clinical Descriptions and Diagnostic Guidelines*. World Health Organization, Geneva, 1992.

15. Hamid, A.R., Hatta, S.M. A 1988 validation study of the Malay language translation of General Health Questionnaire (GHQ- 30). *Malaysian Psychiatry*, 1996; **2 (4)**: 118 – 122.

16. Goldberg, D.P., Cooper, B., Eastwood, M.R., Kedward, H.B., Shephard, M.A. Standardized psychiatric interview for use in community surveys. *British J. of Prev. Soc. Med.* 1970; **24**: 18 – 23.

17. Robin, L.N., Wing, J., Wittchen, H.U., Helzer, J.E., Babor, T.F., Burke, J., Farmer, A., Jablenski, A., Pickens, R., Regier, D.A., Sartorious, N., Towle, L. The Composite International Diagnostic Interview: an epidemiologic instrument suitable for use in conjunction with different diagnostic systems and in different cultures. *Arch. of Gen. Psychiatry*, 1998; **45**: 1069 – 1077.

18. Nakane, Y., Ohta, Y., Uchino, J., Yan, H., Wang, X., Min, S.K, Lee, H.Y. Comparative study of depressive disorders in three Asian countries I: differences in diagnostic classification. *Acta Psychiatric Scandinavica*, 1988; **78**: 698 – 705.

19. Nakane, Y., Ohta, Y, Radford, M., Yan, H., Wang, X., Lee, H.Y., Min, S.K., Michitsuji, S., Ohtsuka, T. Comparative study of depressive disorders in three Asian countries II: Differences in prevalence rates and symptom presentation. *Acta Psychiatric Scandinavica*, 1991; **84**: 313 – 319.