Detecting postnatal depression in Chinese women

Validation of the Chinese version of the Edinburgh Postnatal Depression Scale

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Background We evaluated the utility of the Chinese version of the Edinburgh Postnatal Depression Scale (EPDS) and measured the prevalence of major depression six weeks after confinement among Chinese women in Hong Kong.

Method A prospective cohort of 145 women completed the EPDS, the 12-item General Health Questionnaire (GHQ) and the Beck Depression Inventory (BDI) six weeks after giving birth. They were then assessed with the Structured Clinical Interview for DSM–III–R, non-patient version (SCID–NP) to establish psychiatric diagnosis. The criterion validity of EPDS was tested against this clinical diagnosis, and the concurrent validity against the GHQ and BDI scores was also evaluated. The internal consistency of the scales was measured by Cronbach's α coefficient.

Results The Chinese EPDS had satisfactory psychometric properties and a cut-off score of 9/10 is recommended for screening depressive illness in a general postnatal population. At six weeks post-partum, 5.5% of the study population suffered from major depression.

Conclusions The Chinese EPDS will be useful for screening for postnatal depression.

The Edinburgh Postnatal Depression Scale (EPDS; Cox *et al*, 1987) has been widely evaluated in Western populations, in the United States (Roy *et al*, 1993; O'Hara, 1994), The Netherlands (Pop *et al*, 1992), Iceland (O'Hara, 1994), Australia (Boyce *et al*, 1993) and Sweden (Lundh & Gyllang, 1993). Although the EPDS has been translated into Chinese (Pen *et al*, 1994) and other Asian languages (Cox & Holden, 1994), proper validation of these translations has not yet been conducted. Little is known about the epidemiology of postnatal depression in non-Western populations, including the Chinese. Pillsbury (1978), in research on the postnatal period in China, found no evidence of postnatal depression. This report has remained the only study on Chinese perinatal mental health in English-speaking literature for almost two decades. Informed clinical experience and recent studies by Chinese psychiatrists suggest that postnatal depression does occur in Chinese women. Studies in China showed that 11–17% of Chinese women scored highly on the EPDS six weeks to six months post-partum (Guo, 1993; Pen *et al*, 1994; Shen & Zhai, 1996). However, as standardised diagnostic instruments and criteria were not applied in these studies, it was uncertain what proportion of the women who had high EPDS scores suffered from syndromal depression. The present paper investigates the validity of the Chinese EPDS.

The prevalence of major depression at six weeks post-partum was also measured using a structured clinical interview and operational diagnostic criteria.

METHOD

Subjects

A prospective cohort design study was conducted in the Prince of Wales Hospital (a university-affiliated general hospital) in Hong Kong, which has a catchment population of around one million people with diverse socio-economic backgrounds. The subjects comprised all Chinese women who were admitted to the postnatal wards of the Department of Obstetrics and Gynaecology over a three-month period (November to January 1997). Non-Chinese women and those who did not have permanent residency rights in Hong Kong, for example illegal immigrants, were excluded from the study. People who were illiterate were assisted by a research assistant in completing the questionnaires and were not excluded.

Design

The initial interview was conducted in the ward by a research assistant within two days of confinement. Written informed consent was obtained before socio-demographic, medical and psychiatric data were collected. The subjects then completed the EPDS, the Chinese versions of the 12-item General Health Questionnaire (GHQ; Goldberg, 1978; Cheng *et al*, 1990) and the 21-item Beck Depression Inventory (BDI; Beck *et al*, 1961; Shek, 1990).

Six weeks after confinement, the subjects were interviewed again and asked to repeat the EPDS, GHQ and BDI. They were then assessed with the Chinese non-patient version of the Structured Clinical Interview for DSM–III–R (SCID–NP; Spitzer *et al*, 1992) by D.T.S.L. who was unaware of the results of prior assessments. The SCID–NP was used to establish DSM–III–R diagnosis (American Psychiatric Association, 1987). As the women were assessed at six weeks post-partum, the SCID–NP was modified to make six-week (instead of one-week) diagnoses. The SCID–NP was also modified to allow diagnosis of DSM–IV minor depressive disorder (two-week period of at least two, but fewer than five, symptoms of depression, depressed mood or anhedonia being mandatory; American Psychiatric Association, 1994). Although the SCID–NP is a structured interview, it allows the interviewer to use additional questions to enquire about indigenous idioms of distress. This ensures that the structured interview can be used in a way that is culturally informed.

The study protocol was approved by the Research Ethics Committee of the Faculty of Medicine, the Chinese University of Hong Kong.

Validation of EPDS

The EPDS was translated into Chinese by a team of bilingual Hong Kong Chinese

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psychiatrists. All members of the team were researchers on affective disorders and had experience in cross-cultural translation of psychiatric rating instruments. Each member translated the EPDS independently and subsequently met together to decide on a consensus translation. Both conceptual and linguistic equivalence were considered during the translation process so that the scale was sensitive to the local dialect and culture (Cox & Holden, 1994). For instance, the direct translation of item 6 ("things have been getting on top of me") was rather meaningless for the local Cantonese speaking population, so the closest semantic equivalent was used instead. Back-translation of the scale, performed independently by another bilingual psychiatrist, was found to be satisfactory. The translated version was piloted among women who were receiving treatment for postnatal depression at the psychiatric out-patient clinic of Prince of Wales Hospital. The scale was found to be psychologically acceptable and no revision was required.

The SCID diagnosis was used to categorise each woman as having presence or absence of postnatal depression at six weeks post-partum. We followed the methodology of the original validation and used both major and minor depression to define caseness (Cox *et al*, 1987). It has been shown that more than 50% of cases of first-onset major depression are associated with the earlier presence of minor depression (Horwath *et al*, 1992). Screening for minor depression identifies individuals who are suffering from a sub-threshold illness, as well as those who are progressing towards an episode of major depression. The validity of EPDS was tested against this caseness by estimating its sensitivity, specificity, and positive predictive value over a range of cut-off scores. The internal consistency was measured by Cronbach's α coefficient. Spearman correlations were computed among EPDS, GHQ and BDI scores to establish concurrence. Spearman correlations were used because test scores were not normally distributed.

RESULTS

Among the 330 women admitted during the study period, 220 (67%) agreed to participate in the study. Of the 110 women who declined participation, 69 agreed to complete the baseline interview and questionnaires. Their socio-demographic characteristics (age, marital status, education, income, occupation, socio-economic status) and baseline EPDS, GHQ and BDI scores did not differ from those of the participants (χ^2 and Mann–Whitney *U*-tests, $P>0.05$). The remaining 41 women, who declined participation and did not agree to complete baseline questionnaires were found to be older, more likely to be immigrants, had received less education, had a lower family income and more children than those who participated into the study (χ^2 and Mann–Whitney *U*-tests, $P<0.005$).

The mean age of the participants was 29 (16–42) years. Two hundred and thirteen women (97%) were married and seven (3%) cohabited. The median number of children was one (0–6). Six women (3%) were illiterate. Two per cent of the participants had no formal education, 45% had primary education only, 46% had completed secondary education and 7% received tertiary education. Ninety-six women (44%) were employed full-time, two subjects (1%) worked part-time, 109 subjects (50%) were housewives and 13 women (6%) were unemployed. Socio-economic status as rated by Registrar General Classification (Office of Population Censuses and Surveys, 1970) was Class 1: 1%; 2: 15%; 3: 78%; 4: 5%; 5: 1%. Fourteen subjects (6%) had a personal history of psychiatric illness and 19 (9%) had family history of psychiatric illness. One hundred and twenty (55%) of the women were born in Hong Kong and 87 subjects (40%) were born in China. The socio-demographic characteristics of the subjects were similar to those of the patients who had given birth in the department over the past two years.

At six-week follow-up, 145 subjects (66%) returned for assessment. Seventy-five (34%) defaulted on two follow-up appointments, but completed the GHQ and BDI by telephone. Subjects who could not attend the face-to-face interview had lower BDI and GHQ scores at six-week follow-up compared with those who returned for follow-ups (Mann–Whitney *U*-tests, $P<0.005$). The non-attendees were not otherwise different from those who completed a face-to-face assessment in terms of baseline EPDS, GHQ and BDI scores, demographic and psychosocial characteristics. Sixty-nine women who initially declined participation in the study were contacted by a research assistant and completed the GHQ and BDI by telephone six weeks post-partum. Their BDI and GHQ scores were lower than those of the subjects who attended the face-to-face interview (Mann–Whitney *U*-tests, $P<0.0001$).

Validation of Chinese EPDS

The translated EPDS had good face validity. The psychometric properties of EPDS at various cut-off points are summarised in a receiver operating characteristic curve (Fig. 1). The area under the curve was 0.91, suggesting excellent psychometric properties in screening for depressive illness (major and minor depression) at six-weeks post-partum. At the conventional 12/13 cut-off, the sensitivity of the scale was only 0.41, with specificity of 0.95. Using the receiver operating characteristic curve, we identified 9/10 as the optimal cut-off for the study population, at which the sensitivity of the scale was 82%, specificity 86%, positive predictive value 44%, and negative predictive value 97% for the study population. When a low false negative rate is desired, a cut-off score of 6/7 can be used.

Cronbach's α coefficient for the EPDS was moderately correlated with the GHQ (Spearman correlation=0.50, $P<0.001$) and BDI (Spearman correlation=0.73 $P<0.001$).

Prevalence of depression at six-weeks post-partum

One hundred and forty-two women completed the EPDS at six-weeks post-partum and 16 subjects (11.3%) scored above the 12/13 cut-off. One hundred and forty-five women were assessed by SCID and eight subjects (5.5%) met the DSM–III–R criteria

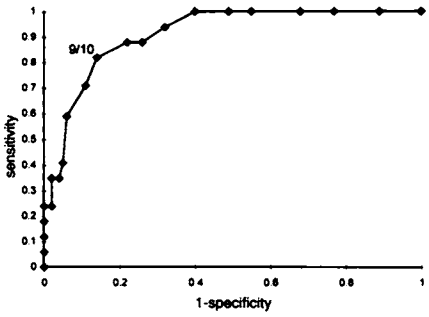

Fig. 1 Receiver operating characteristic curve of the Chinese version of the Edinburgh Postnatal Depression Scale in detecting major depression and minor depression six weeks post-partum.

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for major depression. Nine women (6.2%) were diagnosed as having depressive disorder not otherwise specified. None met the criteria for dysthymia or adjustment disorder with depressed mood. The GHQ, BDI and EPDS scores of the women with major depression, depressive disorder not otherwise specified and no depressive illness are summarised in Table 1.

DISCUSSION

Our data suggest that the EPDS had satisfactory concurrent validity with BDI and GHQ scores. The internal validity as measured by Cronbach's α was excellent. Moreover, the EPDS was sensitive to the severity of depression. The mean EPDS score of the women with major depression was higher than that of those with depressive disorder not otherwise specified, which in turn was higher than the mean score of the non-depressed women. The Chinese EPDS has satisfactory sensitivity and specificity in identifying depression in early postpartum. Women who scored above a threshold of 9/10 are likely to be suffering from depression of significant severity, and should therefore be further assessed to confirm whether clinical depression is present or in development. We found that the 9/10 cut-off point is substantially better than the conventional 12/13 cut-off point in detecting depression. Adopting the conventional 12/13 cut-off for the Chinese version of the EPDS will yield an unsatisfactorily high rate of false negatives. This illustrates the importance of proper validation in the cross-cultural application of a psychiatric rating instrument.

Overall, the Chinese EPDS appeared to be a satisfactory instrument for screening for postnatal depression. Without such a valid screening device, postnatal depression might be under-recognised in Hong Kong because of somatic presentation of depression, inadequate liaison psychiatric services and insufficient community health care services. Although this translation was validated in Hong Kong, 40% of our subjects were born in China. Thus, this scale would also be applicable for Chinese populations in other parts of China, particularly provinces near Hong Kong which share a common dialect.

Our results showed that, contrary to Pillsbury's (1978) findings, postnatal depression occurs in Chinese women. Using the SCID interview and DSM–III–R criteria, we found that 5.5% of our subjects suffered from major depression at six weeks post-partum. This compared with reported 8 and 15% prevalence of DSM–III (American Psychiatric Association, 1980) major depression among Caucasian women at six and eight weeks post-partum (Cutrona, 1983; Harris, 1989). Our figure is also the lowest of all reported prevalence rates, measured at eight to 12 weeks post-partum (Pitt, 1968; Paykel *et al*, 1980; Cutrona, 1983; O'Hara *et al*, 1984; Watson *et al*, 1984; Cooper *et al*, 1988; Hobfoll *et al*, 1995). We feel that this relatively lower rate of depression in our study subjects may be due to a variety of reasons.

First, 110 women declined participation at recruitment and 75 subjects did not attend the interview six weeks after the birth. It would only take a small excess of women in these two groups to make the prevalence rates roughly equal. We attempted to assess the psychological well-being and depressive symptoms of those who declined recruitment and those who did not attend the interview six weeks post-partum. Those who declined recruitment had better psychological well-being and were less depressed at baseline and six weeks post-partum. Those who participated in the study but did not attend the SCID interview did not differ from the women who attended in terms of socio-demographics and baseline psychological well-being. The non-attenders, however, were less depressed six weeks after confinement compared with those who attended the SCID interview. All in all, subjects who did not attend the SCID interview six weeks after confinement appeared to enjoy better psychological health than those who did attend. It is thus unlikely that a bias in those who attended for interview was the cause of the relatively low estimated prevalence rate of postnatal depression in this study.

It is possible that the 41 women who declined participation in the study and did not agree to complete any psychological assessment at baseline or six weeks postpartum were at higher risk of postnatal depression, and if one-third of these women were actually depressed at six weeks postpartum, the prevalence rate would rise to 12%.

Alternatively, our results may suggest that Chinese women have a relatively lower rate of depression in early puerperium. The first month of puerperium in Chinese society is demarcated by rites and rituals. The abundant social support made available by the Chinese cultural practice of *Zuo Yue* ('doing the month') and *Pei Yue* ('attending the month'; Pillsbury, 1978; McNamara & Song, 1995; Schott & Henley, 1996) may affect the occurrence of postnatal depression in early puerperium. According to traditional beliefs, a recently delivered woman is in a *Yin* state (depletion of vitality) and she is encouraged to recover her health by resting in bed and taking tonics. In the first postnatal month, she is spared from all household chores and is attended by a female relative, usually the mother or mother-in-law. Apart from assisting in chores, this *Pei Yue* relative will also help and instruct the new mother on child care matters. In our study, 90% of the subjects practised *Zuo Yue* and half of the subjects were attended by a close relative in the first postnatal month. The four weeks of *Zuo Yue* are concluded by the baby's one-month birthday banquet (*Man Yue Jiu*), when relatives will bring along gifts to congratulate the mother.

The intimacy and enriched emotional and material support made possible by these indigenous practices and rituals strengthen a mother's self-esteem and provide a buffer against the stress and hardship encountered in early motherhood (Pillsbury, 1978). This social fabric may delay the onset of major depression and ameliorate mood disturbance to a sub-threshold level (Chen *et al*, 1993). After the first

Table 1 Mean (s.d.) Edinburgh Postnatal Depression Scale (EPDS), General Health Questionnaire (GHQ) and Beck Depression Inventory (BDI) scores of women with major depression, depressive disorder not otherwise specified and no depression

	Major depression (n=8)	Minor depression (n=9)	No depressive illness (n=128)
EPDS	18.0 (6.7)	10.3 (2.7)	5.0 (4.0)
GHQ	8.3 (2.6)	6.9 (2.3)	2.0 (2.2)
BDI	23.9 (12.2)	14.1 (4.9)	4.9 (4.5)

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postnatal month as families and relatives gradually decrease their intense emotional and practical support depression may ultimately set in. If that is so, the rate of postnatal depression among Chinese women at late puerperium, such as four to six months post-partum, may approach those in Western populations. It would, thus, be interesting to study the rate of postnatal depression beyond the first two months of confinement.

Further longitudinal studies with longer follow-up periods and using samples with better initial response and lower attrition rates are necessary.

CLINICAL IMPLICATIONS

- The Chinese EPDS is a useful screening instrument for early detection of depressive illness in a general postnatal population.
- A cut-off score of 9/10 is recommended.
- About 5% of the study population suffered from major depression six weeks post-partum.

LIMITATIONS

- A third of the subjects did not attend the six-week follow-up.
- The validation was limited to six weeks post-partum.
- The performance of EPDS was not compared with those of the other common screening scales, such as GHQ.

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