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臺灣婦女產後憂鬱症調查及臺灣版產後憂鬱量表適用性研究

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臺灣婦女產後憂鬱症調查及臺灣版產後憂鬱量表適用性研究

Screening postpartum depression with the Taiwanese version of the Edinburgh Postnatal Depression Scale

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Abstract

Background This study is intended to develop the Taiwanese version of Edinburgh Postnatal Depression Scale (EPDS), to evaluate its validity and the prevalence of depressive disorders among the postpartum women in Taiwan.

Method A prospective cohort of 203 subjects who completed the Taiwanese version of EPDS, the second version of Beck Depression Inventory (BDI-II) and postpartum questionnaires at six weeks after their giving birth, were assessed with the Mini-International Neuropsychiatric Interview (MINI) to establish their *DSM-IV* psychiatric diagnoses. Tested the validity of Taiwanese version of EPDS against the clinical diagnosis and compared its applicability with BDI-II.

Results We found that the Taiwanese version of EPDS had satisfactory psychometric properties, that the 12/13 cut-off point could be used to identify women suffering from depressive disorders in the postpartum period, and that EPDS had better specificity than BDI-II. At six weeks postpartum, 11.8% of the Taiwanese women in our study were identified to suffer from depressive disorders.

Conclusion The PPD prevalence among Taiwanese women is not lower than that among most Western populations. The well-validated Taiwanese version of EPDS can be used for early detection and management of postpartum depression.

Keywords: Postpartum depression, Edinburgh postnatal depression scale, prevalence, Taiwanese

Introduction

Postpartum depression (PPD) is referred to depressive disorders that occur following patients' giving birth. *Diagnostic and Statistic Manual of Mental Disorders (DSM-IV;* American Psychiatric Association, 1994), does not give PPD a distinct diagnostic entity but allows adding a specifier "with postpartum onset" to identify major depressive disorder which has an onset within four weeks following giving birth. PPD's unique syndrome, course, prognosis and treatment response warrant it to be a specific research issue (*DSM-IV Sourcebook,* 1998). Untreated PPD causes both severe suffering of the affected mother (Cox 1989) and negative impacts on the infant's cognitive and emotional development (Cogill *et al*, 1986; Murry, 1992; Stein

et al, 1991).

Reports of the PPD prevalence are ranged from 10% to 22% of childbearing women (Boyce *et al,* 1993; Cox *et al,* 1987; Harris *et al,* 1989; Spitzer *et al,* 1978). Most of the studies were conducted in the Western population, but only few PPD reports have been based on the non-Western population. Several commonly cited papers suggest that the PPD prevalence among Taiwanese or Chinese populations is significantly lower than among Western peoples (Cox, 1988; Lee *et al,* 1998; Pillsbury, 1978; Stern & Kruckman, 1983). The finding has been explained by the hypothesis of cultural protective factors, especially the postpartum practice of "doing the month". During the first month postpartum, a mother is expected to observe specific dietary and behavioral taboos, to be relived from all the work and pampered by her elderly family members (Chen *et al,* 1995; Pillsbury, 1978). Partly due to these contentions, PPD has long been ignored by medical professions and the public in Taiwan.

Recently some researchers used the Beck Depression Inventory (BDI) and found that PPD prevalence is 21% (Heh*,* 2001) to 40.3% (Chen *et al,* 1994) among Taiwanese women in the first 4 to 6 weeks postpartum. These findings suggest that modern Taiwanese women were not less depressed than Western mothers during the postpartum period. However, the findings of these studies are limited because they are not applying standard diagnostic criteria. Therefore, the data of prevalence are ranged widely and are not corresponding to any clinical diagnosis.

BDI which is the well-established instrument for screening depressive disorders in general population, is not effective to detect PPD (Cox, 1987). BDI tends to yield false positive results for depression because it stresses on somatic symptoms that are common and normal among the postpartum mothers but de-emphasizes on psychological depressive symptoms (Harris *et al,* 1989; Whiffen, 1988). To develop a reliable detection tool and to collect more PPD data in the Taiwanese population is needed.

The Edinburgh Postnatal Depressive Scale (EPDS) was developed specifically to detect PPD by Cox (1987). It has been translated into more than 10 languages and becomes the most frequently used tool in the PPD research. To our knowledge, Lee *et al.* (1998) in Hong Kong were those who ever used structured clinical interview for DSM-III-R to validate a Chinese version of the EPDS. They found 11.7% of Chinese women in Hong Kong suffered from major or minor depression at six weeks postpartum. In Taiwan, such work has not been done. This prospective study was intended to develop a Taiwanese version of the EPDS, to validate it against *DSM-IV* criteria, to estimate the prevalence and incidence of PPD, and to explore the cultural characteristics related to PPD.

Methods

Subjects

This prospective study was approved by the institutional review board and conducted

in the Taipei Medical University-Wan Fang Hospital. The subjects were recruited from Taiwanese women who were admitted to the maternity wards of the Department of Obstetrics and Gynecology over a six-month period (October 1, 2001 to March 31, 2002). Foreign mothers and those who did not have permanent residency rights in Taiwan were excluded.

Assessments

Our research assistant made initial contacts and introduced the study to the postpartum women within three days after their giving birth while they were still hospitalized. Participants' socio-demographic, physical and psychiatric data were collected after obtaining their informed consents. On the ward, the subjects completed the postpartum questionnaires, the Taiwanese version of the EPDS and the 21-item BDI-II (Beck *et al*, 1961). At six weeks after giving birth, the subjects completed all the assessments again. Then, they were interviewed by psychiatric specialists who were blind to the scores of the questionnaires. Psychiatric diagnoses were established by using the structured Mini-International Neuropsychiatric Interview (MINI; Sheehan *et al*, 1998) and *DSM-IV* criteria.

The Taiwanese version of EPDS

The Edinburgh Postnatal Depression Scale (EPDS) is a 10-item self-report scale assessing depressive symptoms in postpartum women. It was first designed by Cox (1987) to be used as a screening instrument for secondary prevention of postnatal depression. Subsequently, some of the psychometric properties of the EPDS, such as its specificity and sensitivity have been extensively studied in different countries. In Taiwan, Heh and Huang (2001) used a Chinese version of the EPDS in their studies but it has not been validated against clinical diagnoses. Another available Chinese version of the EPDS was developed by Lee *et al*. (1998) in Hong Kong. We contacted Huang and Lee and obtained permission to use their versions of Chinese EPDS. In a pilot study, the versions of EPDS were tested in 30 postpartum Taiwanese women to evaluate their applicability. Results of the pilot study revealed that both versions were needed to be modified before being used in Taiwanese women. In Lee *et al*'s version, several items were stated in the Hong Kong dialect that was unable to be understood by Taiwanese. By back-translating Huang's version, we found several sentences were not equivalent to those of the original EPDS. In the re-translated Taiwanese version of EPDS, we made special conceptual and linguistic efforts to make the scale sensitive to Taiwanese dialect and culture.

Data Analysis

We analyzed the data with the computerized statistics software package SPSS for Windows. The receiver-operating characteristic (ROC) analysis was used to optimize the cut-off point for the EPDS. We tested the sensitivity and specificity by

distinguishing depressed subjects from normal subjects according to MINI and *DSM-IV* diagnoses. Pearson correlation analysis was employed to compare the scores of the EPDS and the BDI-II.

We used Chi-square tests to assess the associated risk factors of PPD. The differences were considered significant if the *p*-value is smaller than 0.05.

Results

Among 402 Taiwanese women admitted during the study period, 328 (82%) of them completed the first stage questionnaires within three days in the postpartum period. At six weeks following giving birth, 175 (53%) of them returned for follow-up assessments. Twenty-eight (9%) of them who did not come in for face-to-face interviews, sent back the completed questionnaires and received interviews for MINI by telephone. Totally we had 203 cases for analysis in this study.

Demographic characteristics

The mean age (and ranges) of the participants was 29 (16-41) years. The median number of children was one (1-3). Other demographic features of the subjects are shown in Table 1.

Insert Table 1 About Here

Prevalence of psychiatric disorders at six weeks postpartum

Among 203 women who received follow-up assessments, 24 (11.8%) were diagnosed as having depressive disorders, including 19 (9.4%) of major depressive disorder, 4 (2.0%) of depressive disorder not otherwise specified and 1(0.5%) of dysthymic disorder. Most women who suffered from depressive disorders did not seek psychiatric help before our active approach.

Twenty-five (12.3%) subjects met the criteria for generalized anxiety disorders and 4 (2.0%) had panic disorders. None met the criteria for psychotic disorders or other psychiatric disorders covered by MINI. Among 19 women who met the diagnosis of major depressive disorder, 13 (68%) were also suffering from anxiety disorders (generalized anxiety disorder or panic disorder).

Validation of the Taiwanese EPDS

Figure 1 summarizes the psychometric properties of EPDS at various cut-off points in a ROC curve. The area under the curve was 0.97. We identified 12/13 as the optimal cut-off for the study population, at which the sensitivity of the scale was 96%, specificity 85%, positive predictive value 46%, and negative predictive value 99% for the study population. Cronbach's alpha coefficient for the EPDS was moderately

correlated with BDI-II (Spearman correlation = 0.77, P < 0.01). The internal consistency of the EPDS was also satisfactory (Cronbach's alpha = 0.87).

Table 2 summarizes the mean scores on EPDS and BDI of the women with different diagnoses.

Insert Fig.1 and Table 2 About Here

Applicability of BDI-II in detecting PPD

At the conventional 10/11 cut-off of BDI-II, the sensitivity was 96%, specificity 75%, positive predictive value 34%, and negative predictive value 99%.

By using ROC curve, we found using 11/12 as the cut-off point could improve the specificity of BDI-II to its best (80%). But the positive predictive value was still low 39%.

Prevalence of PPD

Among the 24 subjects who were diagnosed as having depressive disorders at six weeks postpartum, 3 (12.5%) had baseline EPDS scores higher than 12, suggesting that they may have depressive disorders prior to their childbirth and should not be included as PPD cases. The exact prevalence of PPD in this study was 10.3%.

Postpartum care and PPD

The majority (87.2%) of our subjects observed traditional rituals of postpartum care. Table 3 summarizes common customs of postpartum care (doing the month) and their associations with PPD.

Insert Table 3 About Here

Discussion

Validation of the Taiwanese version of EPDS

Our study is the first study to validate EPDS against *DSM-IV* diagnosis in Taiwanese population. We found that the Taiwanese version of EPDS was easy to use and was correlated well with clinical diagnoses, and that the scores of EPDS were sensitive to the clinical severity of depression. The findings in this study indicated that using the 12/13 cut-off point to identify women suffering from major depressive disorder, depressive disorder not otherwise specified or dysthymic disorder as defined in *DSM-IV* in the postpartum period is satisfactory in both sensitivity and specificity. This cut-off point has also been suggested by most researchers in using EPDS in different cultures (Boyce *et al*, 1993; Cox *et al*, 1987; Harris *et al*, 1989). For this

study population, we found that using the 9/10 cut-off point as suggested by Lee *et al*. (1998) or Heh (2001) would yield an unsatisfactorily high rate of false positive result.

Comparing the use of EPDS and BDI-II in detecting PPD

Both EPDS and BDI-II are sensitive to detect PPD when used with their best cut-off points. While providing the same sensitivity, EPDS has better specificity than BDI-II and yields less false positive cases. In addition, EPDS takes less time for the patients to complete. In Taiwan, screening PPD has not been recognized as an important clinical practice. An effective detection tool like EPDS is easier to be accepted by busy clinicians and postpartum women who do not appreciate the significance of having depressive disorders diagnosed.

Prevalence of PPD and associated factors

A sum of 11.8% of the subjects in our study suffered from depressive disorders at six weeks postpartum, and 10% were defined as having PPD. The PPD prevalence was close to the finding of Lee *et al*. (1998) (11.7%) but was lower than that reported by Chen *et al.* (1994) (40%) or Huang *et al.* (2001) (19%). Although each study population had different demographic characteristics, data in our study (Table 1) showed that the PPD prevalence was not influenced by most patients' demographic characteristics, such as age, education or income. The difference in PPD prevalence among different studies should be explained by the use of different screening tools and the time of assessments. As discussed in the previous section, using BDI to detect PPD tends to yield false positive result, thus 40% as reported by Chen *et al.* (1994) may be over-estimated.

The PPD prevalence among "career women" who have full-time or part-time jobs was lower than that among housewives. The association between occupation status and PPD may indicate either that work is a protective factor from depression, or that becoming a housewife is a result of depression. However, data in this study do not support the latter hypothesis because only 2 of the 21 women who had PPD quit their original jobs.

Comorbidity of PPD and anxiety disorders

As reported by previous researchers (Cox, 1989; Epperson, 1999; Spizer, 1978), we found that many patients with PPD also had significant anxiety symptoms. Evidences in this clinical characteristic are considered as clues to determine whether PPD should be given a distinct position in the diagnostic system (Purnine, 1996). The concurrent anxiety disorders or symptoms of PPD should also be elicited before starting pharmacotherapy. Some anxiety disorders (panic disorder, phobia, obsessive compulsive disorder, posttraumatic stress disorder) are thought due to a dysregulation of serotonin in the central nervous system, whereas generalized anxiety disorder is

thought due to a dysregulation of both serotonin and norepinephrine (Thase *et al*, 2001; Allgulander *et al*, 2001). Therefore, antidepressants (MAOIs, SNRI, mirtazapine) with dual action on regulating both serotonin and norepinephrine may be more effective than selective serotonin reuptake inhibitor (SSRI) for treating PPD.

Postpartum care and PPD

Although the majority of our subjects observed traditional postpartum rituals of "doing the month", the prevalence of PPD among them at six weeks postpartum was as high as that among Western populations. The increased attention and support for women in "doing the month" may delay the onset of PPD, but can not really prevent it. Using a longer follow-up period (six weeks), we found that most customs of "doing the month" such as special foods, avoiding some "don'ts", rituals or elder women's guidance do not protect women from PPD as reported in previous studies (Chen *et al*, 1995; Pillsbury, 1978; Lee *et al*, 1998). Decreasing the loading of housework may have some benefit but it was not always a part of "doing the month". Thus, the findings of our study suggest that believing in the "culture protective factors" and ignoring the significance of postpartum mental disorders would be improper in Taiwan.

Clinical Implications

- About 10% of this study population suffered PPD at six weeks postpartum. The myths of cultural protective factors are not true for modern Taiwanese women.
- The well-validated Taiwanese version of EPDS can be used for early detection and intervention of postpartum depressive disorders with the 12/13 cut-off point.
- Patients with PPD often had significant anxiety symptoms.

Limitations

- The subjects were recruited from a regional hospital instead of a large-scale community sampling.
- More than a third of the subjects did not attend the six-week follow-up assessments.
- The follow-up period was limited to six weeks postpartum.

Acknowledgement

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Table 1 Demographic characteristic of the participants

	Total		**PPD group**		**Non-PPD group**			
Characteristic	*n*	*%*	*n*	*%*	*n*	*%*	χ^2	*p*
Occupation							9.675[b]	**0.002**[*]
Homemaker	88(92)[a]	43.3(45.3)	18	75	74	41.3		
Full-time work	107(105)	53.0(51.7)	6	25	99	55.3		
Part-time work	8(6)	4.0(3.0)	0	0	6	3.4		
Marital status								NS
Married/cohabited	195	96.1						
Separated/divorced	4	2.0						
Single	4	2.0						
Age								NS
<20	4	2.0						
20~29	91	34.8						
30~39	103	61.7						
>=40	3	1.5						
Education years								NS
<6	1	0.5						
7~9	8	3.9						
10~12	79	38.9						
13~17	103	50.7						
>17	12	5.9						
Yearly household income (NT[c] $)								NS
<300,000	6	3.4						
300,000~600,000	38	21.1						
600,000~1000,000	68	37.8						
1000,000~1,500,000	47	26.1						
>1,500,000	21	11.7						

[a] Occupational status prior to giving the birth (at 6 weeks postpartum)

[b] the groups with full-time and part-time job were combined in Chi-square test

[*] Significantly different

[c] US $1.00=NT $34.79; £ 1.00=NT $54.7

NS: not significant

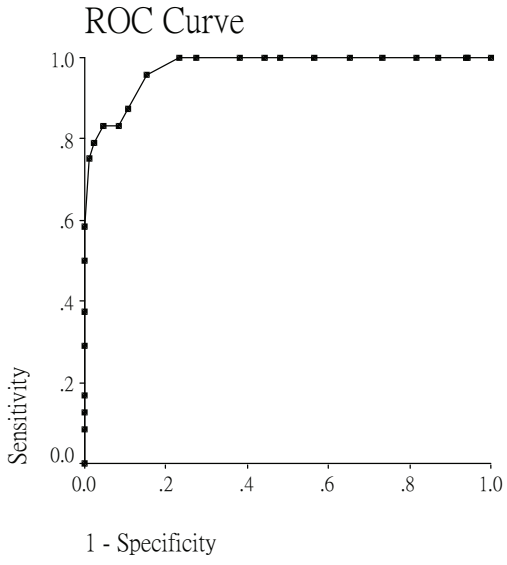

Fig.1 Receiver operating characteristic curve of the Taiwanese version of the EPDS in detecting depressive disorders at six weeks postpartum

Table 2 Mean EPDS and BDI-II scores of women at six weeks postpartum

	Major depressive disorder		Depressive disorder NOS		No depressive disorders	
n	17		7		179	
	mean	(*s.d.*)	mean	(*s.d.*)	mean	(*s.d.*)
EPDS	21.6	(3.84)	15.7	(3.68)	7.8	(4.4)
BDI-II	29.0	(8.9)	16.9	(5.6)	7.8	(6.3)

The mean EPDS scores of the women with major depressive disorder was higher than that of those with depressive disorder not otherwise specified ($t=3.4$, $p=0.002$), which was in turn higher than the mean score of the non-depressed women ($t=4.68$, $p<0.001$).

Table 3 Postpartum care and PPD

Variables in postpartum period	**PPD group**		**Non-PPD group**		Chi-square test	
	N	%	N	%	χ^2	*p*
Customs of "doing the month"						
Special food supplement and/or avoidance	20	83.3	158	89.3	0.73	0.49
Avoiding take bath and expose to wind	15	62.5	131	73.2	1.20	0.33
Decreasing housework loading	13	54.2	143	79.9	7.87	**0.00***
Breast feeding	18	75.0	153	86..0	1.95	0.22
Medication for inducing lactation	6	25.0	26	14.7	1.68	0.23
Medication for suppressing lactation	3	12.5	15	8.4	0.45	0.45
	mean	*s.d.*	mean	*s.d.*	*t-test*	*p*
Mean weeks of "doing the month"	4.2	0.78	4.4	0.86	0.96	0.34

* Significantly different ($p<0.01$)

計畫成果自評

本研究成果符合計畫目的、達成台灣版愛丁保產後憂鬱量表之信效度研究，並計算台灣婦女之產後憂鬱症盛行率。

研究成果將能做為未來研究產後憂鬱症的基本工具，具有學術價值、

本文已準備在學術期刊發表。