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A CONTROLLED STUDY OF POSTPARTUM DEPRESSION IN ADULT WOMEN

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The main purpose of the study was to examine the hypothesis that the postpartum period represents a time of increased risk for depression. The other psychosocial variables on stress, social support and self-esteem were also measured. Adult women, ranging in age from 22 to 45 years, comprised two samples: 148 postnatal women (22 to 44 years) and 148 controls (22 to 45 years). Five sets of instruments were used to collect data: the Demographic Data Form, the Perceived Stress Scale, the Interpersonal Support Evaluation List, the Coopersmith's Self-Esteem Inventory, and the Beck Depression Inventory. Although the postnatal group tended to have a higher rate of depression, the difference was not statistically significant. No significant differences in stress, social support, self-esteem or depression were found between these two groups. However, postnatal women reported significantly higher somatic symptoms of depression than controls. Results of the stepwise multiple regression indicated that the best subset to predict postpartum depression was self-esteem, stress, postnatal complication and work status. The best subset to predict depression of controls included self-esteem, social support, socioeconomic status and stress. Our data indicate that the psychosocial health status of postnatal women is not significantly different from the controls, although the postnatal women complain more about the loss of bodily functions. The possible explanations deserve further research.

Key words: social support, self-esteem, depression

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The postpartum period is a time-limited experience in which there are enormous physiological and psychosocial adjustments and changes. It has been argued that postpartum is a period of high risk for depression because of the stress associated with childbirth and early child-care responsibilities [1]. Rees and Lutkins [2] observed a prevalence of 12.5% in a control group of 24 women compared to 30% in 67 women between three- and twelve months postpartum. O'Hara and Zekoski [3] compared 97 postpartum women with 95 controls and found the depression prevalence rate in the first nine postpartum weeks to be 10.6% for the postpartum women and 10% for the controls. In another study [4], there were no differences between childbearing (n=182) and nonchildbearing women (n=189) with respect to rates of minor and major depression during pregnancy or after delivery. However, childbearing women experienced significantly higher levels of depressive symptomatology at the second and third trimester assessments and at 3 weeks postpartum as well as poorer social adjustment than nonchildbearing women at the 3- and 6-week postpartum assessments. These data indicate that the postpartum period represents a time

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of increased risk for depression, a tendency which has not been supported unequivocally in the literature.

The relative rates of nonpsychotic depression in childbearing and nonchildbearing women have not been designed for a direct comparison in non-western settings. The main purpose of this study was to examine the differences between postnatal women and controls, with respect to stress, social support, self-esteem and depression levels in Taiwan. The research hypothesis was that the postnatal women were at significantly greater risk for depression in terms of prevalence and severity than controls.

MATERIALS AND METHODS

Subjects

Participants for this study were recruited from the postpartum clinics of three teaching hospitals located in Kaohsiung, Taiwan. The postnatal women were eligible for participation if they were at least 20 years of age and had delivered a normal healthy newborn. The comparison group was recruited using the acquaintance-control technique. Postpartum women were asked to provide the names of three female acquaintances who were of similar age, marital status, education, occupation, number of children and had not had pregnancy or childbirth within the previous one year. The acquaintance who appeared most similar to the postpartum subject was sent a description of the study and asked to participate. If an acquaintance declined, the next-most-similar acquaintance was contacted. One hundred forty-eight postpartum women and 148 control subjects completed the study.

Instruments

Beck Depression Inventory. The 21-item Beck Depression Inventory (BDI) [5] was used as a measure of depression. The BDI has good psychometric properties, and it has been used frequently in general depression research and in researches on postpartum depression [6-10]. Based on Beck's guidelines [11], a score of 9 is the cutoff point beyond which a case of depression is diagnosed. The Chinese version of BDI reported good internal consistency, test-retest reliability [12], sensitivity and specificity [13]. In this study, the Beck Depression Inventory was found to have good internal consistency (coefficient α =.88). Both Cognitive-Affective and Somatic subscales have good internal consistency with alpha values of 0.86 and 0.71.

Perceived Stress Scale. Perceived stress resulting from perceived lack of control or ability to cope with life events was assessed with the Perceived-Stress Scale (PSS) [14]. In the PSS, items were designed to express how unpredictable, uncontrollable and overloaded respondents found their lives to be. The 10 items on the short version of the PSS focus on feelings and thoughts experienced during the past month and are rated by the subjects on a 4-point scale representing the frequency with which each item occurred. The Chinese version of the PSS has adequate test-retest reliability and construct validity [12]. In this study sample, the 10-item Perceived Stress Scale was found to have adequate internal consistency coefficient (α =.79).

Interpersonal Support Evaluation List. Social support was examined using the Interpersonal Support Evaluation List (ISEL) [15]. The 40 items were developed based on the domain of supportive social resources that could facilitate coping with stressful events. The respondents were asked to identify the availability of support along four dimensions: tangible aid, appraisal, self-esteem, and sense of belonging. The ISEL has adequate test-retest reliability, internal consistency, construct validity, and discriminant validity [15]. The ISEL Short Form is composed of 16 items from the full scale, and four from each of the subscales. The ISEL Short Form was translated into Chinese and showed adequate convergent validity, internal consistency, and test-retest reliability [12]. In this study sample, the 16-item Interpersonal Support Evaluation List had adequate internal consistency (Cronbach's alpha =.79).

Coopersmith's Self-Esteem Inventory. Self-esteem was measured using Coopersmith's Self-Esteem Inventory (SEI) [16]. The 25-item SEI was designed to measure evaluative attitudes toward the self in social, academic, family and personal areas of experience. The Chinese version of Coopersmith's Self-Esteem Inventory had adequate internal consistency, test-retest reliability, and concurrent validity [12]. In this study, Coopersmith's Self-Esteem Inventory was found to have adequate internal consistency (coefficient α =.83).

Procedure

Recruitment was done at six weeks postpartum. Informed consent was obtained from the subjects following an explanation of the study's design. If the subjects agreed to participate, the demographic data form and the four other self-report questionnaires that measure stress, social support, self-esteem and depression were completed. The control subjects were recruited in the manner described earlier. Each acquaintance control subject was then matched with her postpartum friend, so that each time a childbearing subject com-

pleted an assessment, her control subject completed the same assessment within one week.

RESULTS

The postnatal women's average age was 30.41 years (range 22 to 44 years), and the controls' average age was 30.98 years (range 22 to 45 years). There were no significant differences in age, marital status, education, work status, socioeconomic status, number of boys or girls, and history of depression between postnatal and comparison groups.

Table 1 shows the prevalence of depression defined by BDI. Using the BDI cutoff score of 10 and above for depression based on Beck's guidelines, it was found that 81 (54.7%) postnatal women and 95 (64.2%) controls were nondepressed with scores of 9 or below; 48 (32.4%) postnatal women and 39 (26.4%) controls met the criteria for mildly to moderately depressed by scoring 10 to 18; 13 (8.8%) postnatal women and 11 (7.4%) controls met the criteria for moderately to severely depressed by scoring 19 to 29; and 6 (4.1%) postnatal women and 3 (2%) controls met the criteria for severely depressed by scoring 30 or greater. The postnatal group tended to have a higher depression rate, but the difference was not statistically significant ($\chi^2 = 3.21$, $p > .05$).

Table 2 presents the scores of depression defined by BDI, perceived stress, social support and self-esteem. There were no significant differences in perceived stress, social support, self-esteem or depression between postnatal women and controls. Even though postnatal women experienced higher levels of depression than controls, the difference was not statistically significant ($t = 1.63$, $p > .05$). However, postnatal women reported higher levels of somatic symptoms defined by BDI than the controls ($t = 3.65$, $p < .01$). Postnatal subjects reported significantly higher levels of sleep disturbance ($t = 4.52$, $p < .01$), loss of appetite ($t = 2.05$, $p < .05$) and weight loss ($t = 2.89$, $p < .01$) than those reported by controls.

In postnatal subjects, the predictor variables that correlated significantly with the BDI score were edu-

Table 1. Prevalence of depression using BDI scores

BDI score	Postnatal		Control		Total	
	n	%	n	%	n	%
Non-depressed (BDI < 10)	81	54.7	95	64.2	176	59.5
Mildly to moderately depressed (BDI 10-18)	48	32.4	39	26.4	87	29.4
Moderately to severely depressed (BDI 19-29)	13	8.8	11	7.4	24	8.1
Severely depressed (BDI 30-42)	6	4.1	3	2.0	9	3.0
Total	148	100.0	148	100.0	296	100.0

$\chi^2 = 3.21$, $p > .05$

Table 2. Group differences between postnatal and control subjects in perceived stress, social support, self-esteem and depression

Parameters	Postnatal M ± SD	Control M ± SD	t value
Perceived stress	17.46 ± 5.32	16.87 ± 5.52	0.93
Social support	35.25 ± 6.25	35.30 ± 6.72	-0.06
Self-esteem	17.39 ± 5.22	16.80 ± 5.20	0.96
Depression	9.87 ± 8.01	8.42 ± 7.26	1.63
Cognitive-affective	6.18 ± 5.67	5.82 ± 5.82	0.54
Somatic	3.69 ± 2.92	2.59 ± 2.18	3.65**

**$p < .01$

cation ($r = -.35$, $p < .01$), husband's education ($r = -.27$, $p < .01$), work status ($r = -.24$, $p < .01$), husband's occupation level ($r = .30$, $p < .01$), socioeconomic status ($r = .32$, $p < .01$), family income ($r = -.25$, $p < .01$), number of girls ($r = .19$, $p < .01$), prenatal complication ($r = .23$, $p < .01$), postnatal complication ($r = .18$, $p < .05$), history of depression ($r = -.29$, $p < .01$), perceived stress ($r = .63$, $p < .01$), social support ($r = -.53$, $p < .01$) and self-esteem ($r = -.65$, $p < .01$). In comparison subjects, the predictor variables that correlated significantly with the BDI score were education ($r = -.32$, $p < .01$), husband's education ($r = -.30$, $p < .01$), husband's occupation level ($r = .34$, $p < .01$), socioeconomic status ($r = .31$, $p < .01$), family income ($r = -.25$, $p < .01$), perceived stress ($r = .57$, $p < .01$), social support ($r = -.60$, $p < .01$) and self-esteem ($r = -.67$, $p < .01$). As can be seen from Table 3, the best subset to predict the criterion variable of depression in postnatal subjects was self-esteem, perceived stress, postnatal complication and work status. Fifty-four percent of the variance in the BDI scores could be explained by these four variables. For comparison subjects, the best subset to predict depression included self-esteem, social support, socioeconomic status and perceived stress. Fifty-three percent of the variance in the BDI scores could be explained by these four variables.

DISCUSSION

Postpartum mothers undergo a number of physiological and psychosocial adjustments and changes that are not experienced by their nonchildbearing peers. It was hypothesized that this would increase their vulnerability to depression. Consistent with O'Hara *et al.*'s [3,4] work, the results of this study do not support this hypothesis. Despite the relatively high prevalence of depression among postpartum mothers in this study, no statistically significant differences between the postnatal and comparison samples existed in prevalence and overall symptom severity of depression. However, higher levels of somatic symptoms of depression (esp. sleep disturbance, loss of appetite and weight loss) were found among the postpartum women than among the controls. In fact, somatic symptoms of depression are normal concomitants of pregnancy and childbirth [17-20]. Our data indicate that postnatal women complain more about the loss of bodily functions; however, the psychosocial health status of postnatal women is not significantly different from controls. The reward of having a descendant may have an ameliorative effect on the occurrence of postpartum depression, although physical weariness can intensify the symptoms. The other possible explanations deserve further research.

Consistent with earlier studies [21-23], self-esteem and perceived stress were the significant predictors of depression. Our study found depression to be more common in women who had postnatal complication. However, the nature of the causal relationship is uncertain. Postnatal complications may postpone physical recovery and influence motherhood, and a sense of failure may decrease self-esteem and so make depression more likely. Similarly, it is unclear in what way the relationship between maternal unemployment and depression is aetiological. It may reflect the isolation and low self-esteem of non-working mothers. Alternatively, women who are vulnerable to depres-

Table 3. Results of the stepwise multiple regression for scores on BDI by groups

Variables included	B	SE	R^2	F
Postnatal group				
Self-esteem	-0.62	0.11		
Perceived stress	0.53	0.11		
Postnatal complication	4.25	1.59		
Work status	-3.42	1.11		
(Constant)	13.00	4.43	0.54	44.31**
Comparison group				
Self-esteem	-0.48	0.12		
Social support	-0.26	0.08		
Socioeconomic status	1.45	0.50		
Perceived stress	0.26	0.10		
(Constant)	17.75	4.30	0.53	41.72**

** $p < .01$

sion may not seek work postnatally [24]. Our results suggest that prevention, early detection and treatment of postnatal complications and, perhaps, better opportunities to return to employment would diminish the development of postpartum depression. In addition to self-esteem and perceived stress, social support and socioeconomic status were the significant predictors of depression in controls, presumably reflecting the psychological impact of interpersonal or socioeconomic adversity. A woman with low socioeconomic status tends to have limited life opportunities or personal choices and is vulnerable to health inequality.

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REFERENCES

1. O'Hara MW. Psychologic and biologic factors in postpartum depression. In: Premenstrual, postpartum, and menopausal mood disorders (Demers LM, McGuire JL, Phillips A eds.). Urban & Schwarzenberg, Maryland, 1989.
2. Rees WD, Lutkins SG. Parental depression before and after childbirth: An assessment with the Beck Depression Inventory. J R College of General Practitioners 1971; 21: 26-31.
3. O'Hara MW, Zekoski EM. Postpartum depression: A comprehensive review. In: Motherhood and mental illness: Causes and consequences (Kumar R, Brockington IF eds.). Wright, London, 1988.
4. O'Hara MW, Zekoski EM, Philipps LH, Wright EJ. Controlled prospective study of postpartum mood disorders: Comparison of childbearing and nonchildbearing women. J Abnorm Psychology 1990; 99: 3-15.
5. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Arch Gen Psychiatry 1961; 4: 561-571.
6. Cutrona CE. Social support and stress in the transition to parenthood. J Abnorm Psychology 1984; 93: 378-390.
7. O'Hara MW, Rehm LP, Campbell SB. Predicting depressive symptomatology: Cognitive-behavioral models and postpartum depression. J Abnorm Psychology 1982; 91: 457-461.
8. O'Hara MW, Rehm LP, Campbell SB. Postpartum depression: A role for social network and life stress variables. J Nerv Ment Dis 1983; 171: 336-341.
9. O'Hara MW, Schlechte JA, Lewis DA, Varner MW. Controlled prospective study of postpartum mood disorders: Psychological, environmental, and hormonal variables. J Abnorm Psychology 1991; 100: 63-73.
10. Troutman BR, Cutrona CE. Nonpsychotic postpartum depression among adolescent mothers. J Abnorm Psychology 1990; 99: 69-78.
11. Beck CT, Steer RA, Garbin MG. Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. Clin Psychol Rev 1988; 8: 77-100.
12. Chen CH, Tseng YF, Wang SY, Lee JN. The prevalence and predictors of postpartum depression. Formosa Nurs Res 1994; 2: 263-274.
13. Ko HC, Huang KY, Lee YD, Chuang LC. Beck Depression Inventory as a screening tool for pre- and postpartum depression among Chinese women. Chinese J Public Health 1996; 15: 208-219.
14. Cohen S, Kamarch T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav 1983; 24: 385-396.
15. Cohen S, Mermelstein R, Kamarch T, Hoberman HM. Measuring the functional components of social support. In: Social support: theory, research and applications (Sarason IG, Sarason BR eds.). M. Nihjoff, Boston, 1st ed. 1985; 73-94.
16. Coopersmith S. The antecedents of self-esteem. W H Freeman, New York, 2nd ed., 1990.
17. Affonso DD, Domino G. Postpartum depression: A review. Birth 1984; 11: 231-235.
18. Arizmendi TG, Affonso DD. Research on psychosocial factors and postpartum depression: A critique. Birth 1984; 11: 237-240.
19. Dalton K. Depression after children. Oxford University Press, Oxford, 1989.
20. Pitt B. "Atypical" depression following childbirth. Br J Psychiatry 1968; 114: 1325-1335.
21. Chen CH. Postpartum depression among adolescent mothers and adult mothers. Kaohsiung J Med Sci 1996; 12: 104-113.
22. Fontaine KR, Jones LC. Self-esteem, optimism, and postpartum depression. J Clin Psychol 1997; 53: 59-63.
23. Hall LA, Kotch JB, Browne D, Rayens MK. Self-esteem as a mediator of the effects of stressors and social resources on depressive symptoms in postpartum mothers. Nurs Res 1996; 45: 231-238.
24. Warner R, Appleby L, Whitton A, Faragher B. Demographic and obstetric risk factors for postnatal psychiatric morbidity. Br J Psychiatry 1996; 168: 607-611.

成年期婦女產後憂鬱的對照研究

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本研究目的在於使用對照組以了解產後期是否為成年期婦女憂鬱的高危險期。本研究樣本是高雄地區的成年女性，研究組收取成年期產婦(年齡>20歲)，並以一般成年期婦女(最近一年內沒有懷孕或生產)為對照組，兩組以年齡、婚姻狀況、教育程度、職業、子女數配對，每組樣本數各148名。測量工具除基本資料外，包括知覺壓力量表、社會支持調查表、自尊量表以及貝氏憂鬱量表。結果發現兩組在憂鬱的發生率沒有顯著差異；產後組在憂鬱的身體症狀方面(尤其是睡眠障礙和食慾不佳)比對照組高，其餘各量表的得分兩組沒有顯著差異。逐步複迴歸分析結果，產後組憂鬱的最佳預測因子為自尊、知覺壓力、產後合併症及職業，此四變項解釋了總變異量的54%；對照組憂鬱的最佳預測因子則為自尊、社會支持、社經階層及知覺壓力，此四變項可解釋全部變異量的53%。本研究結果顯示產婦雖抱怨較多的身體症狀，但其心理社會健康狀態和一般婦女沒有顯著差異，此現象值得進一步探討。

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