

## Screening for Psychiatric Morbidity in the Postpartum Period: Clinical Presentation and Outcome at One-Year Follow-Up

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### Abstract

**Background:** There are few data on the psychiatric morbidity of postnatal women in Hong Kong, and even fewer data on their clinical outcome. This study targets these issues.

**Methods:** A prospective design was used. Women were screened by Edinburgh Postnatal Depression Scale (EPDS, with 9/10 as cut-off), and 12-item General Health Questionnaire (GHQ-12, with 4/5 as cut-off) within 4-6 weeks following delivery over a 20-month period. Those suspected for a psychiatric disorder were contacted by telephone and were offered a referral to a postnatal depression disorder (PND) clinic. Women were re-evaluated with EPDS, GHQ-12, and Beck Depression Inventory (BDI, with 10/11 cut-off) at the clinic. Psychiatric diagnoses, treatments and outcome were evaluated at 6-month and 12-month after the women's first attendance.

**Results:** Altogether 7,833 questionnaires were sent out and 6,212 were mailed back. Scores were above the cut-off for 2,107 women. Only 120 women reported persistent symptoms but only 96 attended the PND clinic. The most common diagnose was mood disorders (56.3%). No postpartum psychosis was found. Only 11.1% of women with MDD recovered one year after delivery.

**Conclusion:** Depression is the main psychiatric morbidity in Hong Kong postnatal women. Compliance of referral and treatment and treatment outcome of PND are poor, suggesting extending psychoeducation for patients and relatives and developing a comprehensive treatment model would be essential in improving postnatal psychiatric care.

**Keywords:** Postpartum period; Mental disorder; Treatment outcomes

### Introduction

The 12-month prevalence of psychiatric disorders in postpartum women is about 25%, and their three-month prevalence in Hong Kong is 13.5% [1,2]. Studies carried out in Western countries and in Taiwan and Hong Kong have consistently reported that 10-15% of women suffer from postnatal depression (PND) [3-6]. PND inflicts great suffering on mothers and their families. It disturbs family relationships and disrupts mother-child bonding [4,6]. Maternal depression, stress, and anxiety lead to poor neurodevelopment in infants 7 and increase the risk of psychiatric illness in children [6-9].

Limited information is available on the long-term outcomes of postpartum psychiatric disorders. Western studies have shown that up to 24% of women with PND remain depressed one year after delivery. Of 129 Pakistani women identified as having antenatal depression, 80 (62%) were still depressed 12 months after delivery [10].

Data on PND outcomes are few and far between in non-Western cultures. The aim of this study was thus to describe the clinical characteristics and long-term outcomes of women referred to the PND service at the Prince of Wales Hospital (PWH), a university-affiliated general hospital in Hong Kong, China. The PWH is the main medical facility serving the Northeastern area of Hong Kong's New Territories, which has a population of 1.2 million, approximately one-sixth the population of the entire city [11]. The PWH PND clinic was established in 1998 as a cooperative effort between the Hospital's Departments of Psychiatry and Obstetrics and Gynecology, with the aim of identifying and treating women who suffer from PND and other psychiatric disorders.

### Materials and Methods

#### Subjects

All 7,833 of the women with permanent Hong Kong residency status who gave birth at the PWH between January 1, 2008 and August 31, 2009 were asked to complete the 12-item General Health Questionnaire (GHQ-12) and Edinburgh Postnatal Depression Scale (EPDS) and mail them back to the PWH four to six weeks after delivery [12]. Women without right of abode in Hong Kong were excluded from the study, as were those undergoing active psychiatric treatment or follow-up.

A total of 6,212 (79.3%) questionnaires were returned, of which 2,107 (33.9%) were found to have scores above the predetermined cut-off points for either questionnaire. Only 120 (5.7%) of these 2,107 respondents accepted a referral to the PND clinic when contacted by telephone. The most common reason for refusal was a spontaneous improvement in depressive symptoms. Only 96 women (80.0% of the 120) eventually appeared at the PND clinic for an interview with a psychiatrist. At their first attendance, these subjects completed the GHQ-12 and EPDS again, in addition to the Beck Depression

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Inventory (BDI) [13]. Socio-demographic data, including age, marital status, education level, occupation, number of live-in family members, and current stressors, were also collected. All subjects were assessed by the principal author and were diagnosed according to DSM-IV criteria. Information on the type of treatment given, psychiatric admissions, and referrals to clinical psychologists, social workers, and physiotherapists were recorded.

### Baseline assessment

The GHQ-12 13 is a self-report rating scale originally designed to detect psychiatric morbidity in general medical and outpatient settings. It has also been widely employed as a screening instrument in epidemiological studies in the community. The GHQ-12 is designed to screen for suspected cases of a range of psychiatric conditions, and hence it is considered to cover most types of postnatal psychiatric morbidity. It has been demonstrated useful in detecting PND in English and Japanese women [14,15]. The Chinese version of the GHQ-12 using the cut-off point for suspected psychiatric morbidity (4/5) has a sensitivity and specificity of 88% and 89%, respectively [16].

The EPDS 14 has been used in a variety of cultures. The Chinese version of the EPDS [19] has a cut-off score of 9/10, and, at this cut-off point, has a sensitivity and specificity of 82% and 86%, respectively [17,18].

A cut-off point of 10/11 has been found optimal for the Chinese version of the BDI, with specificity, sensitivity, and positive and negative predictive values of 89%, 82%, 50%, and 97%, respectively [13].

### Outcome assessment

The clinical outcomes at six months and one year after the first attendance were assessed by the principal author. The particular focus of these assessments was on the outcomes of postpartum major depressive disorder. The outcome categories were:

**Recovery:** defined as the full resolution of the depressive symptoms and a return to pre-illness functioning, with no need for further treatment;

**Continuous treatment:** defined as the presence of depressive symptomatology requiring treatment;

**Defaulted, but reported well:** (when contacted by telephone, the subject reported full recovery); and

**Defaulted with unknown outcome.**

### Statistical analyses

The data were analyzed using SPSS for Windows, Version 15.0. Descriptive statistics were employed to present the demographic data, psychiatric morbidity, and clinical outcome characteristics. Continuous variables are presented as mean  $\pm$  standard deviation, and categorical variables as numbers and percentages. One-way Analysis Of Variance (ANOVA), the Chi-square test, and the Mann-Whitney U test were used to compare the demographic and clinical characteristics (age, marital status, living with spouse, living with in-laws, housewife, education level, number of days after delivery at first attendance, number of children at home, number of stressors, five most common stressors, and EPDS, GHQ, and BDI scores) between the recovered/unrecovered and default/non-default women.

## Results

### Socio-demographic and clinical characteristics

The subjects' mean age was 29.7 $\pm$ 6.0 years (range: 17-44 years). The mean duration between delivery and attendance at the PND clinic was 85.4  $\pm$  43.9 days; 85.4% (n = 82) of the subjects were married, 7.3% (n = 7) were cohabiting, and 7.3% (n = 7) were single; 92.7% (n = 89) had a secondary or above education level; and 49% (n = 47) were housewives or full-time employees, with only 2% (n = 2) unemployed. A large majority (88.5%; n = 85) of these women lived with their husbands, 37.5% with in-laws, and 7.3% (n = 7) alone or with friends.

The mean scores of the first GHQ and EPDS were 8.7 $\pm$ 3.1 and 17.4 $\pm$ 5.0, respectively, and those of the BDI and the second GHQ and EPDS were 23.0 $\pm$ 9.2, 7.6 $\pm$ 3.0, and 17.1 $\pm$ 4.3, respectively. The difference between the two GHQ score was significant (p = 0.016). The mean number of each woman's stressors was 1.51  $\pm$  0.96; the frequency and types of stressors are listed in Figure 1. Mood and adjustment disorders were the most common diagnoses, and one (1.0%) woman had two diagnoses. The distribution of psychiatric disorders is presented in Table 1.

None of the subjects required hospitalization or was prescribed antipsychotics, mood stabilizers, or hypnotics. Thirty-five (38.5%) subjects received an antidepressant, with SSRIs (sertraline, fluoxetine, and paroxetine) the most commonly prescribed. Twenty-eight (30.8%) subjects were referred to social workers because of various types of familial or marital discord and/or problems with childcare, housing, or financial hardship. Eleven (12.1%) subjects accepted both an antidepressant and a referral to a social worker. Two (2.2%) were referred to clinical psychologists and one (1.1%) to a physiotherapist for wrist pain.

### Outcomes at the 6- and 12-month follow-ups

At the six-month follow-up, 70% of the women who had been diagnosed with an adjustment disorder had recovered, and 26.7% defaulted. The corresponding figures for a mood disorder were 20.4% and 57.4%. Separate analysis was carried out for the 18 subjects diagnosed with a major depressive disorder. All were treated with one of the SSRIs, and none was prescribed an antipsychotic, mood stabilizer, or hypnotic. At the six-month follow-up, only one (5.6%) subject had recovered, eight (44.4%) were continuing with their treatment at the PND clinic, nine (50%) had defaulted, with two (11.1%) reporting a

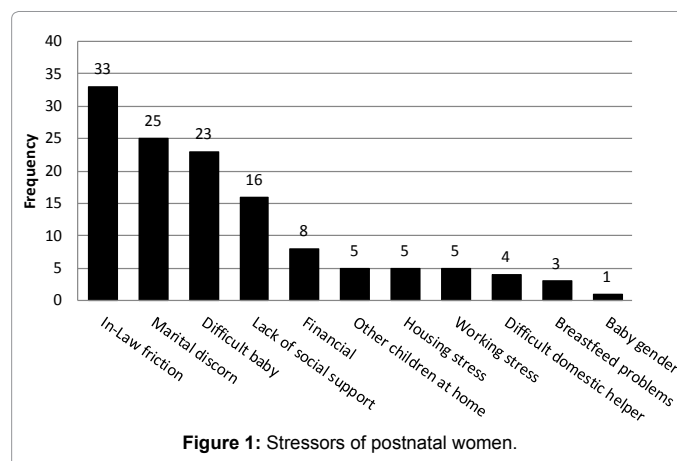


Figure 1: Stressors of postnatal women.

Psychiatric disorders	Frequency (%)	Outcome at 6 months N (%)			Outcome at 12 months N (%)		
		R	C	D	R	C	D
<i>Mood disorders</i>	54 (56.3)	11(20.4)	13 (24.1)	31 (57.4)	12 (22.2)	11(20.4)	32 (59.3)
Minor Depression	34 (35.4)	9 (26.5)	4 (11.8)	21 (64.7)	9 (26.5)	4 (11.8)	21 (64.7)
Major Depression	18 (18.8)	1 (5.6)	8 (44.4)	9 (50.0)	2 (11.1)	6 (33.3)	10 (55.6)
Dysthymia	2 (2.1)	1 (1.0)	1 (1.0)	0	1 (1.0)	1(1.0)	0
Adjustment Disorder	30 (31.3)	21(70.0)	2 (6.7)	8 (26.7)	21 (70.0)	2 (6.7)	8 (26.7)
Obsessive-compulsive Disorder	1 (1.0)	1 (1.0)	0	0	1 (1.0)	0	0
Post-traumatic Stress Disorder	1 (1.0)	1 (1.0)	0	0	1 (1.0)	0	0
Panic disorder	1 (1.0)	0	0	1 (1.0)	0	0	1 (1.0)
Hypnotics dependence	1 (1.0)	0	1 (1.0)	0	0	0	1 (1.0)
Two diagnosis (minor depression + panic)	1 (1.0)	0	0	1 (1.0)	0	0	1 (1.0)
No diagnosis	7 (7.3)	---	---	---	---	---	---
Total	96	34	16	39	35	13	41

R: recovered; C: continuous treatment; D: default

**Table 1:** Psychiatric co-morbidity and clinical outcome of postnatal women (N=96).

stable condition, and seven (38%) had defaulted with an unknown outcome.

For those diagnosed with an adjustment disorder, the clinical outcome at 12 months was the same as that at six months. Among those diagnosed with a mood disorder, one woman who had major depression in addition had recovered by the 12-month follow-up, and the drop-out rate was slightly higher (59.3%). The clinical outcome data are presented in Table 1. Univariate analysis showed no significant difference between the recovered/ unrecovered and default/non-default women (data not shown).

## Discussion

A total of 2,107 women scored above the cut-off points of the GHQ-12 and EPDS, a notably positive rate of 33.9%, which is higher than the rate found in studies screening subjects with only the EPDS – 12.8%, 10% and 15.6%– or the GHQ alone [2-4,19]. However, the screening process may have affected the results. In a small-scale Hong Kong study, women were asked to return to hospital to complete the questionnaires or were evaluated by telephone six weeks after delivery [19]. Irrespective of whether the EPDS or GHQ-12 was employed, the prevalence rate was 17.6%. In the current study, the questionnaires were distributed before discharge from the hospital and were completed at home. Although the women were told to complete the assessment forms four to six weeks after delivery, they may have done so earlier. Screening in the first two weeks of delivery decreases the positive predictive value of these instruments recommended a double-test with both the EPDS and GHQ-12 to increase the positive predictive value and reduce the need for a psychiatric interview or referral [19,20]. Studies have also shown, however, that false-positive women have psychosocial dysfunction that is greater than or as equally poor as true-positive women [21]. The problem of optimally identifying postpartum women who need psychiatric assessment warrants further study.

Only 4.6% of the women who scored higher than the cut-off point subsequently attended the PND clinic. A high percentage of women reported (presumably) spontaneous recovery when contacted by telephone. One of the main reasons for the low level of attendance could be that women receiving psychiatric treatment or follow-up at the study's inception were excluded, and the receipt of such treatment has been reported to be an important risk predictor of PND in many studies [22,23]. Hormonal change and treatment discontinuity during

the perinatal period also increase the risk of relapse or a newly emergent depressive episode [1,24].

In this study, 35.4% and 18.8% of subjects were found to suffer from minor and major depressive disorders, respectively, accounting for 56.3% of the total postnatal psychiatric morbidity. These figures are a little higher than those reported in two Hong Kong studies. In an epidemiological study [2] of the 91 patients identified with the GHQ as potentially depressed, and subsequently assessed with the Structured Clinical Interview for DSM-IV (SCID), only 45% were diagnosed with a depressive disorder. The reason for the higher rates in our study may be that severely ill patients are more likely to attend a psychiatric clinic; hence, our very low attendance rate was accompanied by a high morbidity rate compared to other investigations (93.7% versus 63.7%) [2]. A retrospective study was carried out in Hong Kong by the Comprehensive Child Development Service (CCDS), which provides postnatal psychiatric services in different districts [23]. Of the 157 postnatal subjects referred to the CCDS, 43% were suffering from depressive disorders. Despite their disparity in figures, the three studies suggest that depression is the main psychiatric morbidity for women in the postpartum period.

Postpartum anxiety disorders are also a public health concern. In the current study, only three (3%) women were diagnosed with some form of anxiety disorder, and none had General Anxiety Disorder (GAD). Adjustment disorders, in contrast, accounted for 31.3% of the total postnatal psychiatric morbidity. This result is comparable to the aforementioned Hong Kong epidemical study [2] in which only 3 out of 91 women with higher GHQ scores had GAD, whereas adjustment disorders (9.9%) constituted the second most frequent diagnosis after mood disorders (50.5%). In the aforementioned CCDS study [23], anxiety disorders accounted for 27% of total psychiatric morbidity, although no screening preceded the assessment, and there was also a high rate of adjustment disorders (19%).

The results of the current study suggest that adjustment disorders are a greater concern than anxiety disorders in the postpartum period. Ross and McLean [25] reviewed studies of perinatal anxiety disorders and concluded that postpartum women have a higher prevalence of GAD compared to the general population. However, in their review, adjustment disorders were subsumed under GAD. A recent epidemiological study [1], in contrast, reported a lower prevalence of anxiety disorders in postpartum women than in the general population of women. To date, there have been no methodologically sound studies

of postpartum anxiety disorders, and it is thus premature to draw firm conclusions about their prevalence [25].

No postpartum psychosis was found in this study, a finding that is consistent with the results of an earlier Hong Kong study [2]. Postpartum psychosis is rare, and pregnancy and delivery do not generally increase the risk of psychiatric disorders except for major depression [1]. Postpartum psychosis has a prevalence of only 0.1-2%, and yet women with a previous history of bipolar disorder or postpartum psychosis have a 100 times greater likelihood of developing it [26]. The EPDS, BDI, and GHQ scales employed in the current study all focus on affective symptoms; in addition, women already undergoing active psychiatric treatment or follow-up were excluded from the study, which could explain the absence of postpartum psychosis.

PND tends to be persistent if untreated. In an observational community study in Boston, the mean depression score for the Center for Epidemiological Studies–Depression Scale (CES-D) did not change in the 18 months postpartum [27]. Rahman and Creed [11] reported that 62% of prenatal depressive women remained symptomatic a year following delivery. In an Austrian study, 14 out of 105 (13.3%) subjects were found to be depressed at delivery, rising to 17.3% 18 months later as measured by the EPDS [28].

Less is known about the treatment outcomes of PND. In this study, the outcome of major depressive disorder was far worse than that for minor depression or an anxiety disorder. All of the depressed women accepted antidepressants, and yet only 11% of them had recovered by the 12-month follow-up. This recovery rate is poorer than that reported in several controlled studies. In one such study in 3 centers across Eastern USA; a remission rate of 55-67% was observed eight weeks after treatment with either sertraline or nortriptyline based on the Structured Clinical Interview for Diagnostic and Statistical Manual for Psychiatric Disorders, Fourth Edition (American Psychiatric Association, 2000) [29]. In a 12-week placebo-controlled study carried out in Manchester, UK, depressive symptoms responded equally to fluoxetine, cognitive-behavioral counseling, or both, based on assessment using the EPDS and the Hamilton depression scale [27]. These two studies had lower attrition rates, 24% and 30%, respectively, than ours, and they used the Hamilton Depression Rating Scale, which may explain their better treatment outcomes [29,30]. Adjustment disorders have a higher recovery rate and fewer drop outs than major and minor depression. The persistence of depressive symptoms is also observed in other studies around other parts of the world. In a study conducted in rural Pakistan, Rahman reported 56% of the mothers were still depressed at 12 months based on the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) developed by the World Health Organization. A Spanish study by Escribà-Aguir and Artazcoz reported that 9.3% of the depressed mothers remained depressed at 12 months follow-up as measured by the EPDS. An 8-9 year longitudinal study in Finland by Luoma et al [31,32] reported that of the 9% of mothers found to be depressed at 2 months postpartum as measured by the EPDS, 7% were still depressed 8-9 years later. The clinical outcomes of any disorder are stable from six to 12 months, which underscores the importance of the first six months for intervention and the close monitoring of treatment effects.

The five most common stressors identified in this study were in-law conflicts, marital discord, childcare difficulties, a lack of social support, and financial problems, all of which have demonstrated a correlation with PND [1,33].

The poor acceptance of psychiatric referral and inadequate treatment adherence are common in pregnant or postpartum women. One study found that only 38.5% of women referred for psychiatric assessment attended at least one session, and only 6% continued treatment [34]. The drop-out rate in this study was also high: 50% at the six-month follow-up and 54% at the 12-month follow-up. Moreover, no subject remained in treatment at the later follow-up. Poor treatment adherence is associated with a poor treatment response and a high drop-out rate [35]. A significant proportion of women may prefer psychotherapy to antidepressants, as it has been proved effective in treating PND [36-38]. Early screening (e.g., screening by midwives) has been found to improve the detection of PND, but not treatment entry or outcomes [39,40]. An integrated treatment model that includes screening, assessment, treatment guidelines, a flexible consulting pattern, and regular follow-ups could facilitate case detection and assessment acceptance and serve as a pathway to treatment [40]. Future studies should pay close attention to this point.

The current study has several limitations. Although the sample was collected prospectively in a regional hospital, it may not be representative of postpartum women in Hong Kong because only 42.1% of the women who give birth in Hong Kong are residents [41,42].

The low rate of attendance at the PND clinic (just 5.7%), coupled with the high attrition rate, constitutes another limitation. Perhaps a face to face discussion on the issue of referral would increase the attendance. Not every subject received a psychiatric interview, as it is impractical to perform this time consuming assessment in more than seven thousands of subjects. In addition, the lack of standardized instruments in assessing the clinical and social outcomes of postpartum psychiatric disorders further restricts the generalizability of the findings.

## Conclusion

PND and postnatal adjustment disorder are the most common psychiatric problems in Hong Kong. Acceptance of referrals to psychiatric services and subsequent treatment adherence are unsatisfactory among Hong Kong postpartum woman. The treatment outcome for postnatal major depression is also disappointing. Future studies should focus on the risk factors and predictors of PND treatment outcomes. Psychoeducation and a multidisciplinary and comprehensive treatment model may also help to identify more postnatal women in need of psychiatric attention, thereby improving the outcome of postnatal psychiatric disorders.

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