

Factors involved in onset and recovery from postnatal depression

Ethel Felice, Joseph Saliba, Victor Grech, John Cox

Abstract

Background A wide variety of psychosocial variables have been implicated in the onset and recovery from postnatal depression. A number of these factors were examined on a representative sample of pregnant Maltese women attending St Luke's Hospital.

Method A random sample of 239 pregnant women were interviewed at booking using a detailed sociodemographic history, the Revised Version of the Clinical Interview Schedule (CIS-R) and Maltese translation of the Edinburgh Postnatal Depression Scale (EPDS). The CIS-R was again administered over the phone at 36 weeks and the EPDS sent by post. At eight weeks postpartum, the CIS-R, modified version of the Social Maladjustment Schedule and the EPDS were again administered to 95.8% of women.

Results Onset of depression in the postpartum was not predicted by depressive symptomatology during pregnancy, marital status, level of education, planning of pregnancy, woman's, partner's or family's reaction to pregnancy and marital adjustment. However being primiparous and employed during pregnancy were significantly associated with postnatal depression. In contrast, depressed women who remained depressed postnatally had a past personal psychiatry history and significantly higher scores on the CISR recorded at 36 weeks gestation.

Limitation The number of women examined in the study yielded a small number of depressed women, for which the results are limited in value. The sample is that of Maltese women booking in at the antenatal clinic, thus excluding women who present late, close to delivery date. The follow up period was limited to eight weeks postpartum only, excluding those who develop depressive episodes after 8 weeks.

Conclusions Some cases of postpartum depression may be traced back to pregnancy while others do not seem to be predictable during pregnancy further contributing evidence to the view that the prenatal period may be a separate entity from the postnatal period with regards to depressive illness.

Introduction

Postnatal depression affects not only the quality of a woman's life and her experiences of motherhood but can have an effect on the whole family. The depressed mother's sensitivity may have adverse effects on her infant's emotional and cognitive development.¹ The couple's relationship may also be affected leading possibly even to break up of the whole family.^{2,3} Women who have postnatal depression are significantly more likely to experience future episodes of depression.⁴

Longitudinal epidemiological studies have yielded varying prevalence rates of postnatal depression. A meta-analysis of 59 studies in 1996 reported an average prevalence of 13%, with most cases starting in the first three months postpartum.⁵ The prevalence of depression at 8 weeks postpartum in Malta is 8.7% (95% CI: 5.5-13.4) of which only 3.9% (95%CI: 1.9-7.6) have an onset going back to delivery.⁶ This lower frequency of depression in Malta may be attributable to the social support available to women living in a cohesive Catholic island community.⁶ Affluent societies with generous maternity benefits such as Sweden also report a lower prevalence of postnatal depression.⁷

A number of potential etiological factors have been implicated in the development of postpartum depression.

Keywords

Pregnancy, antenatal depression, postnatal depression

Ethel Felice* BCPsych, MPhil
Department of Psychiatry, Mount Carmel Hospital, Attard, Malta
Email: felices@shadowservices.com

Joseph Saliba MD, FRCPSych
Department of Psychiatry, Mount Carmel Hospital, Attard, Malta
Email: joseph.r.saliba@gov.mt

Victor Grech MRCP, PhD
Department of Paediatrics, St. Luke's Hospital, G'Mangia, Malta
Email: victor.e.grech@gov.mt

John Cox FRCPSych
Department of Psychiatry, Keele University, UK

*corresponding author

Psychosocial and psychological risk factors have been identified in epidemiological studies and meta-analyses of predictive studies. The strongest predictors of postpartum depression were past history of psychopathology and psychological disturbance during pregnancy, poor marital relationship and low social support and stressful life events.⁵ Postpartum depression is frequently preceded by antepartum depression and anxiety.^{8,9} As such, it is possible that interventions may prevent postpartum depression as many of the known risk factors are present during pregnancy and the immediate postpartum period. A meta-analysis found that diverse psychosocial or psychological interventions do not significantly reduce the number of women who develop postnatal depression. However, the most promising intervention was the provision of intensive professionally based postpartum support.¹⁰

Methodology

The prospective study was carried out at Karen Grech Hospital, Malta. The study population consisted of pregnant women who registered at the antenatal clinic. At the antenatal booking-in session, the women were selected at random for interviewing. The first interview at booking consisted of a detailed sociodemographic history and the Revised version of the Clinical Interview Schedule (CIS-R)¹¹ together with scoring of the Maltese translated Edinburgh Postnatal Depression Scale (EPDS).¹² The sample was again interviewed at 36 weeks gestation using the CIS-R and self report questionnaire. A home visit was performed at 8-10 weeks postnatally.

Antenatal sampling and first interview (AN1)

The population from which the sample of pregnant women was selected consisted of Maltese women residing in Malta who registered at the antenatal clinic. Since all pregnant women are advised to go for a booking visit at KGH, irrespective of whether they chose to deliver in a private hospital or KGH, the antenatal booking-in session was appropriate to obtain the sample.

On two designated days per week, at the antenatal booking-in clinic, a random sample of women was selected for interviewing. The women were sampled according to the numbers chosen at random on that day, as a proportion turn up at the antenatal clinic without an appointment. They were included in the study regardless of the duration of pregnancy, and whether or not they were primigravidae or multigravidae. Although these are rather broad criteria, it was felt desirable to obtain a sample of women that was as generally representative of the women in Malta as possible. For the purpose of the study, a sample of two hundred and forty pregnant women were selected over a nine month period

The antenatal interviews were all conducted at the booking-in clinic at KGH. In each case, the woman sampled was approached by the author, the research was explained to her and her consent was obtained in writing. She was then given the Maltese version of the EPDS to complete without the help of any relatives who accompanied her. The EPDS was collected by the midwife. At this first interview, the sociodemographic details were obtained.

Particular importance was given to the place of residence and telephone number, marital status, the past psychiatric history and the family history. A Maltese translation of the CIS-R was then administered. No physiological measures were taken although the woman's medical notes were perused for relevant information, with written permission. Treatment of the subject was not undertaken during the research although general advice or reassurance was given. If necessary the subjects were referred to their general practitioner or obstetrician. The aim was to optimize conditions for participating mothers, without taking on their care. The EPDS sheets were then collected at the end of the session and scored. Only one woman miscarried, yielding a sample of two hundred and thirty nine women.

Second interview (AN 2)

All available subjects were contacted by telephone at 36 weeks gestation. The CIS-R was administered by telephone interview and any changes since the previous interview were recorded. The duration of any depressive episode noted at the first interview was recorded. The EPDS was sent together with a stamped addressed envelope asking the mothers to complete the EPDS and return it by post as soon as possible.

The relevant obstetric history together with the date and method of delivery was obtained from the case notes and Maternity Information Sheet.

Postnatal Interview (PN I)

A home visit at 8-10 weeks postnatally was performed. The sample consisted of two hundred and thirty women, nine being lost to follow up, six dropped out during pregnancy and another four in the postnatal period. The women were contacted by phone to arrange an appointment that best suited them. The interview commenced with an inquiry about the birth, method of feeding, and an inquiry as to whether the baby and the mother were well. Following the initial inquiry, the mother was asked to score the EPDS, the CIS-R was then administered using the same questions and rating scales as used in the antenatal interview. The only modification to the antenatal interview was that each rating was made on two scales; those which occurred since delivery and those symptoms present in the week preceding the postnatal interview. The modified version of the Social Maladjustment Schedule was also administered.¹³

Measurement Tools

The Edinburgh Postnatal Questionnaire

The Edinburgh Postnatal Questionnaire¹² is a ten item self report scale covering the common symptoms of depression. Somatic symptoms such as fatigue and change in appetite are excluded as they may occur in the normal course of events postnatally and would not discriminate depressed from non-depressed on a self report scale (and similarly antenatally). Each item is scored on a four point scale (0 to 3), the minimum and maximum score ranging from 0 to 30 respectively. It takes less than 5 minutes to complete. The scale has been specifically validated for use with postnatal women and has also been used

in screening for depression during pregnancy. It rates the intensity of depressive symptoms present during the last 7 days and repeated applications of the scale can be used to provide a measure of change in depression over time.

The EPDS was translated into Maltese by a team. Each statement (content equivalence) and each word used (semantic equivalence) was examined to determine whether the meaning of each item was the same in the Maltese language and idiom as the English version. Six bilingual mothers were asked to 'back translate' from Maltese into English. This resulted in further refinement of the scale.

Clinical Interview Schedule (Revised)

To obtain the prevalence of both symptoms and diagnosis of neurotic psychopathology, the revised version of the Clinical Interview Schedule (CIS-R) was chosen.¹¹

Each section of the revised interview is scored on a 0-4 scale (except depressive ideas 0-5) depending on the symptom's severity and frequency. There is a separate section on anxiety and autonomic symptoms. The rating obtained at interview can be presented for each symptom group and they can be summed to yield an overall score, which is taken to indicate the severity of any minor psychiatric disorder. The subject is also asked about the duration of the symptoms in the CIS-R. The CIS-R is made up of fourteen sections, each section covering a particular area of neurotic symptoms.

The fourteen sections of the CIS-R include fatigue, sleep problems, irritability, worry, depression, depressive ideas, anxiety, obsessions, concentration and forgetfulness, somatic symptoms, compulsions, phobias, worry about physical health and panic.

These responses together with those from the remainder of the interview can be used to generate psychiatric diagnoses according to ICD-10.¹⁴

The Maltese version of the CIS-R was used, although most mothers are bilingual. The process involved translating each item and 'back translating', similar to the process used for translating the EPDS.

The Modified Social Maladjustment Scale

Social data were collected using a modified version of the Social Maladjustment Schedule (SMS).¹³ . The interview covered five domains: housing (residential stability and management of housekeeping); occupational and social role (occupational stability, satisfaction with occupation/ social role); leisure and social activities (opportunities for, extent of and satisfaction with leisure activities and extent and satisfaction with social contact); family relationships (extra details on interactions with relatives, separately assessing interactions with mother, father siblings and in-laws, and satisfaction with parental role); marriage (sharing of interests and activities and satisfaction with marital harmony).

Ratings are made on a four point scale, i.e., 0: satisfactory, no difficulties, 1: mild dissatisfaction, mild difficulties, 2: marked dissatisfaction, marked difficulties and 3: severe dissatisfaction

and severe difficulties. The interview takes approximately 30-45 minutes to administer.

Statistical Analysis

SPSS was used to analyse the data. The Chi-square test was used to test nominal data involving frequencies. When the expected cell value was less than 5, Fisher's exact tests were applied. T test and confidence intervals were performed on means of numerical values and categorical data of just two groups, depressed and non-depressed. Since the results did not follow a normal distribution, the nonparametric test, the Mann-Whitney U-test, was used since the two score groups were independent of each other.

Results

Two hundred and forty women were randomly sampled at booking. One of the women miscarried immediately after the interview leaving a total of two hundred and thirty nine women (n=239) at booking. Ten women were lost to the initial sample, six dropped out during pregnancy and another four in the postnatal period. Two hundred and twenty nine women were interviewed postnatally. The mean age of the women was 27.1 years (SD: 5.6, 95% CI: 26.4-27.9). Two hundred and eighteen (91%) were married, 16 (7%) were single and five (2%) cohabited. Two hundred and thirty six (98.7%) women were practicing Roman Catholics. The average gestation at booking was 18.6 weeks (SD: 5.3, 95% CI: 17.9-19.2). One hundred and fourteen (47.7%) women were primiparae and 125 (52.3%) had one or more children. Thirty-one subjects (12.9%) had a personal history of psychiatric illness and 49 (20.5%) had family history of psychiatric illness. One hundred and thirty nine (60%) husbands and 198 (89%) of the women's mothers offered instrumental support.

In order to assess onset and recovery from depression during the postpartum period, the total sample of 239 women were divided into two groups: those who were nondepressed at the prepartum assessments (n=193, 80.75%) and those who received an ICD-10 diagnosis of severe, moderate or mild depression during pregnancy (n=46, 35 at the first assessment and the nine new cases at the second assessment, 19.2%).

Onset of depression

Group differences

Of the 193 women who were not depressed at the time of the prepartum assessments, 20 (10.36%) subsequently received a diagnosis of depression when assessed during the postpartum period. With respect to demographic characteristics, t test conducted on woman's age (t=0.95, df 26, p=0.35), number of years married (t=1.08, df 24, p=0.29) and duration of acquaintance (t=1.12, df 23, p=0.27) all assessed during pregnancy, revealed no significant differences between women who became depressed in the postpartum and women who remained non-depressed. In addition, Chi-square analyses conducted on marital status, level of education, planning of pregnancy, woman's, partner's and

family's reaction to pregnancy and marital adjustment of subjects in these two groups were also non-significant. Being primiparous ($p=0.004$) and employed during pregnancy ($p=0.03$) were significantly associated with postpartum depression. With respect to their score on the EPDS and CISR obtained during pregnancy, there was no significant difference between those who became depressed postnatally and those who remained non-depressed. Women who became depressed in the postpartum and the women who remained non-depressed differed on postpartum measures. Compared with their non-depressed counterparts, the depressed women obtained higher scores on the EPDS ($t=-2.97, df 19, p=0.008$), which corroborates the diagnostic interview data and the CISR score. Moreover, depressed women were less satisfied with their leisure activities than their non-depressed counterparts (Chi-square value 23.152, $df 2, p<0.001$)

Recovery from depression

Group differences

A total of 46 women received a diagnosis of depression during pregnancy. Of these, 33 (71.7%) had remitted by the time of the postpartum assessment and 13 (28.3%) maintained their diagnosis of depression. The *t* tests conducted on age, number of years married and duration of acquaintance revealed no significant differences between the two groups at pregnancy. In addition, Chi-square analyses conducted on marital status, level of education, number of children, employment during pregnancy, marital adjustment and planning of pregnancy of women in the two groups were also non significant. Depressed women who remained depressed postnatally had a past personal psychiatric history which was of a significant level. Depressed women who recovered did not differ during pregnancy from depressed women who remained depressed with respect to level of depressive symptoms on the EPDS scores at booking and at 36 weeks, nor on the CISR score recorded at booking. However, the women who remained depressed postnatally had significantly higher scores on the CISR recorded at 36 weeks gestation.

Not surprisingly, these two groups of subjects differed on the level of depressive symptomatology, the EPDS score and in the postpartum assessment. As compared with the still depressed women, women who had recovered had lower scores on the EPDS and the CISR. No other significant differences were noted between the two groups.

Discussion

A limited number of psychosocial variables that may be implicated both in the onset of postpartum depression and in recovery from depression in pregnancy were examined in this paper.

In examining onset of postpartum depression, an attempt was made to determine which variables, during pregnancy,

would differentiate women who subsequently became depressed from those who remained well. Women diagnosed as depressed in the postpartum were more likely to be primiparous and to have been employed just before or during pregnancy. It is possible that a biological cause precipitates a depressive reaction postpartum. However, one cannot exclude that this might be a reaction in primiparae adapting to motherhood.¹⁵

In contrast to other studies, the women in this study who were depressed postpartum did not report lower marital satisfaction or exhibit higher levels of depressive symptomatology during pregnancy.¹⁶ Further work in this area is required to investigate if other factors differentiate the women who have an onset of depression postpartum. Antenatal prediction and prevention of postnatal depression seem to be totally unsuccessful.^{17,18} Brugh *et al* (1998) claims that 'predictors of depressive symptoms development differ from predictors of recovery from clinical depression in women'.¹⁷

Variables involved in the recovery after childbirth from depression during pregnancy were studied. The two factors, which proved to be significant, were that the women who remained depressed were older and that they had a past personal psychiatric history. Risk factor linked with postnatal depression include a past history of psychological or psychiatric disorders.¹⁹⁻²² Both showed a poorer marital adjustment than those who were not depressed but the difference in the two groups regarding recovery was not statistically significant. Postpartum depression has frequently been found to be associated with having a less supportive spouse.⁵ A prospective, randomized controlled trial of an education intervention on primiparous women to reduce postnatal depression showed that the education intervention had no effect and women, overall, were more depressed prenatally than postnatally. Hayes and Muller (2004) concluded that this contributes further evidence to the view that the prenatal period is a separate entity from the postnatal period with distinctive psychoneuro-endocrine pathways suggesting different profiles of women's experience, thus indicating the necessity to treat prenatal maternal mood as an entity in its own right.²³ A substantial number of pregnant women screened in obstetrics settings have significant symptoms of depression and most of them are not being monitored in treatment during this vulnerable time.²⁴

The antenatal period and early puerperium are theoretically times of opportunity for prevention of postnatal depression because of the frequent contact with health professionals. It is also increasingly recognized that some women who become depressed postnatally have been depressed during the antenatal period,^{8,21} although there is also a subgroup of women who are not detected in the antenatal period. As a result of this it is important to detect and treat symptoms of depression antenatally by screening during the antenatal period as this can be beneficial both for the mother and the foetus.

References

1. Stein A, Gath DH, Bucher J, Bond A, Day A, Cooper PJ. The relationship between postnatal depression and mother-child interaction. *British Journal of Psychiatry* 1991;158, 393-397
2. Boath EH, Pryce AJ, Cox JL. Postnatal depression: the impact on the family. *Journal of Reproductive Infant Psychology*,1998; 16:199-203
3. Lovestone S, Kumar R. Postnatal psychiatric illness: the impact on partners. *British Journal of Psychiatry* 1992; 163:210-216
4. Cooper P, Murray L. Course and recurrence of postnatal depression: evidence for the specificity of the diagnostic concept, *British Journal of Psychiatry* 1995; 168, 191-195
5. O'Hara MW, Swain AM. Rates and risks of postpartum depression- a meta-analysis. *International Review of Psychiatry* 1996; 8:37-54
6. Felice E, Saliba J, Grech V, Cox C. Prevalence rate and psychosocial characteristics associated with depression in pregnancy and postpartum in Maltese women. *Journal of Affective Disorder* 2004; 82:297-301
7. Wickberg B and Hwang CP Screening for postnatal depression in a population-based Swedish sample. *Acta Psychiatrica Scandinavica* 1997; 94:181-184
8. Evans J, Heron J, Francomb H, Oke S, Golding J. Cohort study of depressed mood during pregnancy and after childbirth. *British Medical Journal* 2001; 231:257-260
9. Josefsson A, Angelsiö L, Berg G, et al. Obstetric, somatic, and demographic risk factors for postpartum depressive symptoms. *Obstet Gynecol* 2002; 99:223-8
10. Dennis C. Psychosocial and psychological interventions for prevention of postnatal depression: systematic review. *British Medical Journal* 2005; 331:15
11. Lewis L, Pelosi A, Araya R. Measuring psychiatric disorder in the community: a standardized assessment for use by lay interviewers. *Psychological Medicine* 1992; 22:465-486
12. Cox JL, Holden JM. and Sagovsky R. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 1987; 150:782-786.
13. Clair AW. and Cain VE. Design, development and use of a standardized interview to assess social maladjustment and dysfunction in community studies. *Psychological Medicine*,1987; 8:589-604
14. ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic Criteria for Research. 1993 WHO, Geneva
15. Elliot SA, Leverton TJ. Is the EPDS a magic wand? 'Myths' and the evidence base. *Journal of Reproductive and Infant Psychology* 2000; 18:296-307
16. Gotlib I, Whiffen V, Wallace M, Mount J. Prospective Investigations of Postpartum depression: Factors involved in Onset and recovery. *Journal of Abnormal Psychology* 1991; 2:122-132
17. Brugh TS, Sharp HM, Cooper SA, et al. The Leicester 500 Project. Social support and the development of postnatal depressive symptoms: a prospective cohort survey. *Psychological Medicine* 1998; 28:63-79
18. Brugh T, Wheatley S, Taub NA, et al. Pragmatised randomized trial of antenatal intervention to prevent postnatal depression by reducing psychosocial risk factors. *Psychological Medicine* 2000; 30:1273-1281
19. Boyce PM. Risk factors for postnatal depression : a review and risk factors in an Australian population . *Archives of Women's Mental Health* 2003;6 (Suol 2):43-50
20. Buist A, Westley D, Hill C, Antenatal prevention of postnatal depression. *Archives of Women's Mental Health* 1999 1, 1-7.
21. Kumar R. and Robson K M A prospective study of emotional disorders in childbearing women. *British Journal of Psychiatry* 1984; 144:35-47
22. Marks MN, Weick A, Checkley SA, Kumar R. Contribution of psychological and social factors to psychotic and non-psychotic relapse after childbirth in women with previous histories of affective disorder. *Journal of Affective Disorders* 1992; 29:253-64
23. Hayes BA, Muller R. Prenatal depression: a randomized controlled trial on the emotional health of primiparous women. *Res Theory Nurs Pract.* 2004; 18(2-3):165-83
24. Marcus SM, Flynn HA, Blow FC, Barry KL. Depressive symptoms among pregnant women screened in obstetrics settings. *J Womens Health (Larchmt)* 2003; 12(4):373