

## Can Postpartum Depression be Predicted ? An Egyptian Prospective Study

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### Abstract

To identify strong predictive variables in women who are at high risk to develop postpartum depression (PPD). 432 Egyptian women registering for antenatal care in the antenatal clinic of Ain Shams University Maternity Hospital, Cairo, Egypt were approached. Of these, 346 consented to participate, and 327 completed the study. The predictive variables were: 1. Obstetric, 2. Serious medical diseases, 3. psychiatric (Past history of depressive disorders, PPD., or antepartum depression, etc.). The outcome variable was PPD. Patients were assessed at 36 week's gestation and 4 and 12 weeks postpartum, using Hamilton Rating Scale for Depression. The Possible confounding effects of a set of social variables relating to pregnancy & early puerperium were investigated. Results showed that 19% were diagnosed as having minor major depression. Significantly women with serious medical diseases (47% had PPD.) & those with past history of either depressive disorder or PPD. (33 & 28 % had PPD.), were at high risk for developing PPD. Antepartum depression was not significantly correlated with the occurrence of PPD. Except for history or recurrent still birth, Obstetric factors were not related to the occurrence of PPD. The conclusion of the study showed that women who have a past history of depressive disorders or PPD, and women who suffer from a serious medical illness during pregnancy & puerperium together with those with history of recurrent still birth are at high risk to develop PPD.

### Introduction

It has long been thought that the postpartum period is a time of increased risk for the onset of psychiatric disorders and adjustment difficulties in women. Current research on non-psychotic disorders confirms that the rates of postpartum blues depression are indeed higher during the postpartum period. The rates of postpartum depression were found to be around 10% (Campbell & Cohn, 1991). Cutrona (1983) reported a period prevalence for major depression of 8.2% during the first two months postpartum, a figure similar to the 10.4% recently reported by O'Hara et al 1990.

Postpartum depression represents a considerable public health problem affecting women and their families. It may lead to continuing or recurrent depression, and is associated with marital difficulties and disturbance in infant behavior and develop-

ment. (Warner et al, 1996). The majority of these depressed mothers had not received any sustained treatment from their primary care workers, nor had they been referred to a psychiatrist. This failure to identify depression in the puerperium, especially when such mothers were usually known to their family doctors, community midwives or health visitors, was obviously a cause for much clinical concern (Cox et al., 1987).

The peculiarities of the post partum period, coupled with the fact that it is one of repeated contact with medical care, have made the study of psychological disorders during the perinatal period an area of intense research. It is clearly of importance to establish whether women at risk for postpartum depression could be identified antenatally or in the peripartum period. Unfortunately, little progress has been made in the iden-

tification of a consistent set of aetiological factors (Cooper et al, 1991). While one possible reason for this may be that the aetiology is heterogenous, but also because the prospective studies conducted to date have been too small to detect reliable consistencies (Cooper et al, 1996). The principal aims of this study were to establish the prevalence of postpartum depression and to search for reliable predictive variables for it among a sample of pregnant Egyptian women. Egypt differs both culturally and socially from Western countries in which the majority of postpartum studies were conducted. Accordingly, searching for such predictive variables was expected to yield some different findings than those reported by western studies.

### **Subjects and method:**

#### *Sampling:*

This study was conducted at the Ain Shams University Maternity Hospital, Cairo, Egypt, which serves an urban population in Eastern Cairo of about 6 millions person, most of them are within the middle and poor social classes. The sample consisted of a consecutive series of women attending the antenatal clinics approximately 36 weeks' gestation over a period of 12 months from January 95 to December 95. Every woman presenting during the period of study was approached to take part, and informed consent was obtained after the aims and methods of the study had been explained to them. Every participating woman was interviewed at 36 weeks' gestation, four and 12 weeks postpartum. Each participant received a present for completing the first interview, and a simple baby's present was also given after completing the third interview.

#### *Procedure:*

A total of 432 women were approached, of those 346 consented to participate. 19 women were lost for follow-up for various reasons and therefore did not complete the

study. This left a final sample of 327. 87.5% were literate for written Arabic language and were asked to complete a questionnaire which elicited demographic, social, family, psychiatric and obstetric history, and to complete the Beck inventory for depression (BID). (Beck et al, 1961, Beck, 1978). The BID is a questionnaire designed to help establish the existence of depression and to provide a guide to its severity. It consists of 13 questions and the patient is asked to pick out one statement out of four that best describes how she feels at that particular point of time. According to the score, the patient is diagnosed with the depression and its degree. Two clinical psychologists were always at hand to help the illiterate group to fill the preliminary interview and the Beck inventory for depression, and to clarify any obscure points. According to BID results, the sample was divided into two groups: Group A, those who scored at least mild depression and group B who did not score any depressive symptoms.

#### *Psychiatric assesement:*

Women in group A were then interviewed by the psychiatrist in order to undergo psychiatric assesement. Psychiatric assesement was done using a semistructured interview for psychiatric diagnosis based on research diagnostic criteria of ICD-10. Those with a diagnosis of mental disorder, Depression, according to ICD-10 criteria, were further assessed for derpession severity using the Hamilton Scale for Depression (HDS) (Hamilton, 1976). This scale is designed to quantify the severity of depression and is useful mainly in follow-up. It consists of 24 items, each with several statements. Postnatal visits were performed after 4 weeks and 12 weeks for further assesement by HDS for follow up and to detect subsequent postpartum depression. For group B, the clinical psychologist went to meet them at their homes 4 weeks postnatally, and again BID was undergone. Accord-

ing to the outcome, these women were further subdivided into B1 and B2. B1 group consisted of those women showing depression, while B2 of those who were not depressed. B1 groups were then interviewed by the psychiatrist in order to be assessed as before at four and 12 weeks postnatally. B2 groups were again visited at the 12 weeks postnatal by the clinical psychologist and assessed by BID and those who were depressed were further assessed by the psychiatrist.

Statistical analysis was performed using the Statistical Package for Social Sciences (SPASS). Statistical testing was either by X<sup>2</sup> or logistic regression analysis. All the variables studied were assessed with high and low scores of BID as the outcome variable using a threshold of four. Those variables showing a significant association with high BID scores were further entered into a multivariate logistic regression analysis.

#### Results:

Among the 346 who consented to participate, 19 were lost for follow up for various reasons. This left a final sample of 327

(drop out rate 5.49%). 62 women (18.9%) were diagnosed as having a certain degree of postpartum depression (PPD). Of those, 41 (66.1%) were diagnosed at the four weeks visit and 21 (33.9%) at the 12 weeks' visit. The mean age of the study women was 25 years (range 16 to 44 years). 286 women (87.5%) were literate for written Arabic language while 41 (12.5%) were illiterate. 186 women (56.9%) were housewives and 141 (43.1%) were employed.

These factors did not demonstrate any significant associations with the development of PPD. Forty one patients (12.5%) were diagnosed with antepartum depression of those, four (9.75%) also developed PPD.

The incidence of PPD developing "De Novo" i.e. not preceded with antepartum depression was 20.3%. This difference was statistically significant ( $P < 0.005$ ,  $X^2 = 3.9$ ).

We analyzed the association of several obstetric and psychological variables with PPD using logistic regression analysis at univariate level (Table 1). Those variables with an Odds ratio at a significance level of less than 0.1 were further analyzed at multivariate level (Table 2).

**Table (1)**

**Univariate logistic regression analysis. Dependent variable: depression**  
**OR=OddsRatio. CI=Confidence interval.**

| Risk Factor                               | OR   | 95% CI      | P     |
|-------------------------------------------|------|-------------|-------|
| Nulliparity                               | 0.89 | 0.75 - 1.18 | 0.5   |
| Caesarean section                         | 0.67 | 0.34 - 1.49 | 0.3   |
| Female baby                               | 1.18 | 1.06 - 1.30 | 0.006 |
| Unplanned pregnancy                       | 1.38 | 0.95 - 1.99 | 0.3   |
| Congenital malformations                  | 2.14 | 1.59 - 2.87 | 0.09  |
| History of fetal loss*                    | 2.19 | 1.76 - 2.92 | 0.003 |
| Admission to SCBU**                       | 1.46 | 0.81 - 2.26 | 0.2   |
| Serious medical illness with pregnancy    | 03.7 | 2.1 - 4.43  | 0.006 |
| Obstetrics complications***               | 1.62 | 0.96 - 3.14 | 0.3   |
| Past history of PPD                       | 2.81 | 2.02 - 3.92 | 0.005 |
| Past history of other depressive disorder | 1.85 | 1.39 - 2.46 | 0.007 |

\* Still birth or recurrent abortion

\*\* Special Care Baby Unit

\*\*\* e.g. Preeclampsia, Antepartum haemorrhage, etc.

**Table (2)**

**Multivariate Logistic regression analysis. Dependent variable:depression**  
**OR=Odds Ratio. CI=Confidence interval.**

| Risk Factor                               | OR   | 95% CI      | P     |
|-------------------------------------------|------|-------------|-------|
| Female baby                               | 0.86 | 0.62 - 1.04 | 0.08  |
| History of fetal loss*                    | 1.56 | 1.14 - 2.12 | 0.005 |
| Serious medical illness with pregnancy    | 1.97 | 1.24 - 3.21 | 0.006 |
| Congenital malformations                  | 0.91 | 0.58 - 1.46 | 0.6   |
| Past history of PPD                       | 1.44 | 1.10 - 1.89 | 0.02  |
| Past history of other depressive disorder | 2.28 | 1.41 - 3.67 | 0.008 |

\* Still birth or recurrent abortion

### Discussion:

In the last decade several studies have provided substantial confirmation for the earlier finding of Pitt (1968) that the months following childbirth are frequently characterized by psychiatric disorders. Although these depressions tend to be of relatively short duration, they are a source of considerable distress to the women themselves and to their families (Cooper et al, 1991).

In our study the point prevalence of PPD among our sample was 18.9% which is higher than the generally agreed prevalence. This might be explained by the fact that a significant proportion of the sample were suffering from medical illnesses and this was the main reason why they delivered in the hospital, in a society where home deliveries are highly popular. The incidence of PPD was significantly higher in women with medical problems than the non-medically ill group (48% vs 11.87%,  $P < 0.001$ ,  $X^2 : 30.85$ ).

The rate of postpartum depression within the 1st month following delivery was found to be double that found within the third month. This figure is similar to those reported in other studies in the Western countries (Cooper et al, 1988, Watson et al, 1984 & Campbell & Cohn, 1991) and

that of Cox et al. (1993) who found a threefold higher rate of depression within five weeks of childbirth. This big difference is attributed to the stress of delivery, the hormonal changes in the puerperium and the immediate impact of a new family member, together with the subsequent change in the pattern of the mother's life and responsibilities (Harris 1994, Pop et al, 1993). On the contrary, other studies (Nott, 1987; Kumar & Robson, 1984) found a later onset for the peak of postpartum depression starting from the 3th month postnatally up to the 9th month. They suggested that the causes of postnatal depression are more likely to be in the psychosocial aspects of the puerperium, and perhaps the mother's own predisposition in terms of personality and background, rather than in the hormonal and other physical changes associated with childbirth itself.

Another interesting finding in our study was the relatively high percentage of women who are suffering from antepartum depression (12.5%). Cooper et al. (1988) found a point of prevalence of only 6% among their sample. This may be due to the burden on the middle class pregnant woman in developing countries, who car-

ries the responsibility of children and home duties with little husband's support during pregnancy. This situation is reversed following delivery as great family support is usually provided. Indeed, these women did not significantly suffer from PPD and even showed marked improvement if their antenatal depression scores.

The evidence about whether or not symptoms of anxiety or depression during pregnancy predict depressive disorders in the puerperium is conflicting. While some authors report an association between the two (Paykel et al 1980, Bridge et al 1985, Fink & Widnt, 1984). Others have found no such relationship (Kumar & Robnson, 1984 & Ohara et al, 1984). The latter authors found that only two of the diagnosed cases of postpartum depression among their sample were depressed during pregnancy. Indeed, as shown in our study, it seems that women may suffer from antenatal or postnatal depression, but not necessarily both (Aderibigbe et al, 1993).

Our initial analysis found significant associations between high BDI scores and six risk factors. However, when all these factors were entered into a multivariate logistic regression analysis, only four factors remained. These are: past history of PPD, past history of other depressive disorders, serious medical complications during pregnancy and history of fetal loss. The presence of congenital malformations was initially associated with a higher incidence of PPD, but this did not reach statistical significance probably due to the small number of cases with congenital malformations. Similarly, although in our culture male babies are generally more welcomed than females, delivery of a female baby showed some association with PPD on the initial analysis, but this effect was not strong enough to continue on the multivariate analysis. The presence of a past history of depressive disorder other than PPD was found to significantly increase the likelihood of de-

veloping postpartum depression. This agrees with Schaper et al. (1994), who found that history of depression was one of the important factors which strongly correlated PPD. They stated that it is not surprising that individuals who have had previous depression would be more likely to become depressed following a stressful event (e.g. childbirth). Wisner and Wheeler (1994) found that a significantly greater proportion of the women who suffered from past depressive episodes and who elected monitoring alone suffered recurrence of major postpartum depression compared with the women who received monitoring plus medications. They concluded that, prophylactic antidepressant treatment reduce the recurrence of postpartum major depression.

We also found that the presence of past history of PPD, increased the likelihood of having another attack in subsequent pregnancy. This was also reported by Cooper & Murray (1995) who found a high risk of postpartum depression recurrence.

Obstetric variables do not appear to significantly influence the development of PPD. This includes parity, maternal age, mode of delivery and development of various obstetrics risk factors. This was consistent with several other studies (Watson et al, 1984, Hannah et al, 1992; Warner et al, 1996). The only significant obstetric factor which was related to the occurrence of PPD was previous history of recurrent pregnancy loss due to either stillbirth or recurrent abortions, especially if pregnant woman has no living babies. This finding was also reported by Fink and Windt, (1984).

Contrary to the findings of Warner et al, 1996, who stressed that unplanned pregnancy is one of significant risk factors related to postpartum depression. This may be due to the religious and traditional belief among the Egyptians that pregnancy is a God given gift which should be welcomed whether planned or not.

Although many studies emphasized the role of deficient social support in the precipitation of postpartum depression (Hopkins et al, 1987, Boyce et al, 1991, Logsdon et al. 1994), again, this was not a significant factor in our study, even when there was deficient husband's support or marital disharmony. This may be explained by that, contrary to the western countries, still the Egyptians, especially the middle and the lower social classes live within the extended family and not only the immediate family. The social support given by relatives, friends and even neighbors is so strong to compensate for any deficiency, if present, in the marital support. This is usually manifested by the big number of people accompanying the woman in labour. This strong social support is usually available during pregnancy and labour, but particularly during the few weeks following delivery. Traditionally in Egypt, the woman moves to her family's home for several weeks following delivery, or alternatively her mother or another female relative, moves to her home and stays for a similar duration just to help with the new-comer. Therefore, the problem of deficient social support is almost negligible in our culture and consequently in our study.

The same applies for two other factors frequently proved to be strongly associated with PPD: bottle feeding and single mothers (Hannah et al, 1992; Warner et al, 1996). In Egypt, breast feeding is the rule even for a short duration of few weeks. Bottle feeding from the beginning is extremely rare and in most cases it will be only due to strict medical indications. "Single mothers" is a term unheard in Egypt. This is due to the the markedly different religious, social, and traditional circumstances from western countries. Even if the baby's father is absent for certain reason, working abroad for example, the family's support will provide the necessary compensation.

At the end, postpartum depression and psychosis have been underrecognized, under treated and under researched area. According to Barbara (1996) one reason for the lack of progress in this area is that until recently these disorders have not been officially recognized as a distinct entity in either the American Psychiatric association [Diagnostic and Statistical Manual of Mental disorders, 3th edition, 1993] or the World Health Organization [International Classifications of Disorders, 10th edition (ICD-10), 1994]. Increasing levels of research, the importance of clinically recognising and treating the disorders, and the devastating consequences on the individual, the family and society when not recognized, prompted the inclusion of both postpartum depression and psychosis as course modifier for mood disorders in DSM-IV [Diagnostic and Statistical Manual of Mental disorders, 4th edition, 1994]. Many lines of arguments and counter-arguments have been advanced to support the position of post partum depression as either qualitatively different or not from the nonpostpartum depression.

In our opinion, more important than to find a qualitative difference is to find a way to predict and to early treat this disorder which has sometimes a devastating effect on both mother and the newly born child and the whole family. In our culture, still the role of psychiatrist and the view to psychiatric disorders is obscure. Usually the patient and her relatives and sometimes even the treating obstetrician or physician resist the idea of referring the patient to a psychiatrist. Seeking help by means of traditional remedies or from religious people and spiritual healers is still more convenient for the patients who suffer from psychiatric disorders. This kind of thinking and behavior usually results in the prolongation and chronicity of the problem and its effects on the family. Therefore, it is necessary for those providing care to devise methods by which such a problem can be overcome. The necessity of routine screening for mood dis-

turbances in prenatal and puerperal women together with highlighting the role of the obstetrician in directing the patient towards psychiatric services when needed, is mandatory.

It is important to realise that social and cultural factors vary widely between different countries and even between different backgrounds within the same country, and what constitutes a significant risk factor in certain population does not necessarily apply to another. Identification of reliable predictive variables and risk factors for PPD in a certain population can only be achieved by large studies within this particular population.

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### امكانية التنبؤ باكتئاب ما بعد الولادة : دراسة استرجاعية لمرضى مصريين

يهدف البحث الى معرفة امكانية التنبؤ بحدوث مرض الاكتئاب فى النساء المصريات بعد الولادة. وقد اجرى البحث على عينة من ٤٣٢ مصرية مسجلين بعيادة الولادة بكلية طب عين شمس مستشفى النساء واكمل البحث على ٣٢٧ حالة وقد وجد ان المسببات المؤكدة تشمل حالات الامراض العضوية الشديدة اثناء الحمل وكذلك التاريخ الايجابى لوجود امراض نفسية قبل الحمل مثل الاكتئاب او اكتئاب ما بعد او اثناء الحمل.

تم التقنين فى الاسبوع الرابع و الثانى عشر و السادس و الثلاثون من فترة الحمل. و قد استخدم استبيان هاملتون للاكتئاب مع بحث الحالة الاجتماعية اثناء الحمل و ما بعده، وقد وجد ان الحالات التى اصببت بمرض اكتئاب ما بعد الولادة كانوا مصابين باكتئاب بسيط او شديد قبل او اثناء الحمل (١٩٪) او بمرض عضوى شديد اثناء الحمل (٤٧٪) او مرض الاكتئاب اثناء الحمل (٤٨ - ٣٣٪) و من ذلك نجد ان النساء اللائى لديهم تاريخ مرضى للاكتئاب قبل او اثناء الحمل و المصابات بموضع عضوى شديد اثناء الحمل لديهم الاستعداد لمرض اكتئاب ما بعد الولادة اكثر من الاخرى.