Postpartum psychiatric disorders

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This review summarises the psychiatry of the puerperium, in the light of publications during the past 5 years. A wide variety of disorders are seen. Recognition of disorders of the mother–infant relationship is important, because these have pernicious long-term effects but generally respond to treatment. Psychoses complicate about one in 1000 deliveries. The most common is related to manic depression, in which neuroleptic drugs should be used with caution. Post-traumatic stress disorder, obsessions of child harm, and a range of anxiety disorders all require specific psychological treatments. Postpartum depression necessitates thorough exploration. Cessation of breastfeeding is not necessary, because most antidepressant drugs seem not to affect the infant. Controlled trials have shown the benefit of involving the child’s father in therapy and of interventions promoting interaction between mother and infant. Owing to its complexity, multidisciplinary specialist teams have an important place in postpartum psychiatry.

The traditional view that there are three postpartum psychiatric disorders—the maternity blues, puerperal psychosis, and postnatal depression—is an oversimplification. The range of disorders is wide. This review focuses on those important to general psychiatrists and family practitioners. It does not cover mild disorders that require no treatment (such as the maternity blues), nor grieving over fetal loss, nor rare complications (such as organic psychoses), nor the effect of childbirth on eating disorders or ethanol misuse. It draws attention to gaps in knowledge and research priorities.

Postpartum psychoses
The sudden onset of psychosis after childbirth has intrigued medical practitioners for centuries. More than 2000 papers have been published. This group of disorders is diverse, including psychogenic and organic psychoses.1 Only one form is commonly seen in countries with modern obstetric services. This form is generally called puerperal psychosis and takes the form of mania, severe depression (with delusions, confusion, or stupor), or acute polymorphic (cycloid) psychosis. Record-linkage studies2,3 give an incidence of about one per 1000 births. The claim that this is a “disease in its own right” was disproved long ago by the long-term case studies of Esquirol,4 and there is now much evidence for a link with manic depressive psychosis.1 Childbirth, together with abortion5,6 and menstruation,7 is one of the triggers of bipolar episodes in susceptible women. Research on these triggers is a promising avenue to a greater understanding of manic depression. Puerperal psychosis has a high and specific heritability (figure 1).7 The recurrence rate is about one in four pregnancies. In treatment, haloperidol should be used with caution, because dangerous side-effects including neuroleptic malignant syndrome have been reported.8,9 The newer neuroleptic drugs, such as olanzapine, seem to be safer, although their safety has not yet been proven by treatment trials. Electroconvulsive treatment is useful,10 and lithium can be effective prophylaxis.11

Disorders of the mother-infant relationship
Childbirth presents many challenges to the mother: trauma, sleep deprivation, breastfeeding, adjustments in conjugal and other relationships, and social isolation. However, the central and most important psychological process is development of the relationship with the infant. Disturbances in this process were recognised long ago, when hatred of children12,13 and child abuse14 were described. Various terms have been used for these disturbances. “Bonding” is a useful lay term, but neither “bonding” nor “attachment” describes the essential symptom, which is the mother’s emotional response to the infant—aversion, hatred, or pathological anger. “Mother-infant interaction” reflects this response and has the advantage that it can be recorded and measured. But the concept of “postnatal depression with impaired mother-infant interaction” is inadequate to encompass such a profound emotional disorder, which can occur without depression.15 The concept of mother-infant relationship disorder is controversial. It is not recognised in the tenth revision of the International Classification of Diseases (ICD-10) nor the Diagnostic and Statistical Manual IV (DSM-IV). One of the challenges for ICD-11 and DSM-V is to find a place for these disorders, so that they can be recognised by practitioners and referred for expert treatment and prevention trials, weighty and unusual studies, and those that best illustrated well-affirmed points.
For more direct evidence, there are studies of the effects of “postnatal depression” on the child. Most have not assessed the mother-infant relationship, but Murray and colleagues\textsuperscript{14} made brief audio recordings and videotapes of mother-child interaction. They compared 61 mothers in Cambridge, UK, depressed 5–6 weeks after childbirth, with 42 controls. Mother-child interaction was assessed at 2 months, and the children were followed up for 5 years. Cognitive functioning was not affected by maternal depression but was predicted by mother-infant interaction ($r=0·29$, $p<0·05$). More research should be focused on the effects of these disorders on children’s intellectual development and mental health, and their relation to child abuse and neglect.

The diagnosis is facilitated by screening questionnaires,\textsuperscript{15,16} which can also be used to chart progress in treatment (figure 2). An interview, in which 24 probes explore the mother-infant relationship, has been published.\textsuperscript{1} Observational data can be obtained in hospital\textsuperscript{22,23} or at home.\textsuperscript{24} Other objective measures, such as videotapes,\textsuperscript{25} can be used. However, more research is needed to improve our recognition and measurement of these disorders, clarifying the link between symptoms explored by interviews and questionnaires and direct observations of mother-infant interaction.

In management, depression should be treated, even when signs are negligible. The specific psychological treatment is play therapy in various forms,\textsuperscript{26} interaction coaching, or baby massage,\textsuperscript{27,28} which can be undertaken by nursing staff or psychologists. The aim is to help the mother to enjoy her interactions with the child. There have been two prophylactic intervention studies. In Brazil, Wendland and colleagues\textsuperscript{29} randomly assigned videotape instruction of two kinds to 37 mothers: one group received information about interaction with their babies, and the other information about care-giving skills. A month later, home observations showed increased sensitive responsiveness in mothers receiving guidance on mother-infant interaction. In South Africa, Cooper and colleagues\textsuperscript{30} reported an intervention study in a Xhosa community, involving unqualified community workers. 20 visits improved not only mother-infant interaction but also the height and weight of the infants.

**Depression**

Although puerperal melancholia has been recognised for centuries, American research in the 1950s drew attention to the prevalence of milder postpartum depression.\textsuperscript{31} A concept of postnatal depression emerged, which has been useful as a lay term. It reduces stigma and enables mothers with various postpartum psychiatric disorders to recognise that they are ill and to seek help. It is a focus for self-help groups and lobbying to improve services.

As a medical concept, however, it is less useful. Unless practitioners appreciate that the concept is merely a rubric, research and clinical practice will be left at a basic level.\textsuperscript{32} Patients who score above threshold on screening questionnaires or meet criteria for major depression are heterogeneous: their illnesses include a variety of anxiety, obsessional, and post-traumatic stress disorders, together with depression associated with adversity and primary depression linked to bipolar disorder. A diagnostic concept needs an epidemiological association, indicating the presence of specific causal factors. This association is lacking for postpartum depression. Depression is common in all women, whether infertile, menopausal, pregnant, puerperal, or involved in child-rearing. The rates of depression show little difference between women just after childbirth and other women.\textsuperscript{33,34} In Najman and
colleagues’ cohort study of 8556 pregnant women, depression rates were highest during pregnancy and at 5-year follow-up and lower during the postpartum period (figure 3).3 There is no confirmation of the severity of postpartum depression in suicide statistics. A Finnish record-linkage study34 found 30 suicides within 12 months of childbirth in 1987–94 (519139 births). The rate therefore was six per 100 000 births, which is lower than the rate in the overall Finnish female population of nine per 100 000 per year.37 A Danish record-linkage study38 found only 14 suicides within a year of childbirth in a 20-year period (1973–93) during which there were 1270117 births; the rate is one per 100000 births, compared with the rate in the Danish female population of 12 per 100000 per year.39 Nevertheless, the suicide of newly delivered women, which can be combined with filicide, is a matter of great concern. Data on the predictors of melancholic filicide are lacking.

Maternal morbidity and mortality are not the only reasons why effective action to deal with postpartum depression is necessary. Postpartum depression can have pervasive effects on the family. Although deficits are not universal in depressed mothers, depression can lead to reduced interaction and irritability misdirected at the children.

Depression may be the most frequent psychiatric disorder seen after childbirth. During the past 7 years, the output of publications on this subject has greatly increased. Of 868 articles listed by PubMed, 128 were published in 1977–95 and 760 since then. Research has been done worldwide, with more than 50 studies from outside northern Europe, North America, and Australia. Most have confirmed the frequency of the disorder. Of particular interest are studies comparing minority groups, in Malaysia,58 the USA,71 and Australia.41 One study involved 11 centres: it showed that depression was most frequent in India (32%), Korea (36%), Guyana (57%), and Taiwan (61%). Causal associations include previous and hereditary depression, life events, and disturbed relationships. Several large cohort studies have confirmed these associations. A Danish study of 5252 women, of whom 5-5% were depressed at 4 months after childbirth, identified four risk factors: previous psychiatric illness, high parity, prepartum distress, and social isolation.7 The Avon Longitudinal Study of Pregnancy and Childhood, which involved 9208 women in Bristol, UK, found that depression at 8 weeks post partum was related to material deprivation and low social support.70 Some studies have reported unusual associations: grand multiparity in Turkey,72 disappointment with the sex of the child in Hong Kong,73 and immigration in Israel.74 The influence of heredity has been explored by use of an Australian twin register. Responses from 339 monozygotic and 299 dizygotic twins showed that genetic factors explained 25–38% of the variance.75 A hormonal influence on some postpartum depressions was shown by Bloch and colleagues,76 who induced hypogonadism in 16 women by means of leuprolide acetate, an agonist of gonadotropin-releasing hormone. They replaced oestrogen and progesterone to mimic pregnancy, achieving mean oestrogen concentrations of 278 pg/mL and progesterone 64 ng/mL (well below peak pregnancy values). To mimic the puerperium, they abruptly replaced hormones with placebo. Eight women without a history of psychiatric disorders remained well, but five of eight who had had postpartum depression developed mild affective disorders, one hypomania and four depression.

The diagnosis of postpartum depression is facilitated by the involvement of midwives and health visitors in the puerperium. The Edinburgh postnatal depression scale (EPDS)36 is widely used and has been translated into many languages. A Norwegian paper reviewed 18 validation studies.77 The EPDS also measures anxiety49,77 and could be a general screening tool for the whole range of postpartum psychiatric disorders.78 Other questionnaires used are the general health questionnaire, the Beck depression inventory,79 and the postpartum depression screening scale.80

Table 1: Randomised controlled treatment trials

<table>
<thead>
<tr>
<th>Ref</th>
<th>Location</th>
<th>Participants</th>
<th>Intervention</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>Edinburg, UK</td>
<td>50 women with postpartum depression</td>
<td>8 counselling visits by health visitor</td>
<td>Less depression</td>
</tr>
<tr>
<td>69</td>
<td>Toronto, Canada</td>
<td>142 newly delivered women</td>
<td>8 supportive group sessions</td>
<td>No effect</td>
</tr>
<tr>
<td>70</td>
<td>Johannesburg, South Africa</td>
<td>189 primigravidae without a supportive companion</td>
<td>Companionship during labour</td>
<td>Less depression</td>
</tr>
<tr>
<td>71</td>
<td>Sweden</td>
<td>41 women with postpartum depression</td>
<td>6 counselling visits by a nurse</td>
<td>Less depression</td>
</tr>
<tr>
<td>72</td>
<td>Manchester, UK</td>
<td>61 women with postpartum depression</td>
<td>6 sessions of cognitive-behavioural counselling</td>
<td>Less depression</td>
</tr>
<tr>
<td>73</td>
<td>Queensland, Australia</td>
<td>181 vulnerable postpartum women</td>
<td>Home visits by a nurse, supported by a social worker and paediatrician</td>
<td>Less depression and better mother-infant interaction</td>
</tr>
<tr>
<td>74</td>
<td>4A, USA</td>
<td>120 women with postpartum depression</td>
<td>12 weeks interpersonal psychotherapy</td>
<td>Less depression</td>
</tr>
<tr>
<td>75</td>
<td>Vancounver, Canada</td>
<td>29 women with postpartum depression</td>
<td>7 psychoeducational visits, involving partners</td>
<td>Less depression in both mothers and fathers</td>
</tr>
<tr>
<td>76</td>
<td>Taiwan</td>
<td>60 women with postpartum depression</td>
<td>4 supportive group sessions</td>
<td>Less depression</td>
</tr>
<tr>
<td>77</td>
<td>Toulouse, France</td>
<td>859 puerperal women scoring ≥9 on EPDS</td>
<td>A single counselling session on obstetric unit, then 5–6 home visits</td>
<td>Less depression</td>
</tr>
<tr>
<td>78</td>
<td>Cardiff, UK</td>
<td>45 women with postpartum depression</td>
<td>8 psychoeducational groups</td>
<td>Less depression</td>
</tr>
<tr>
<td>79</td>
<td>Toronto, Canada</td>
<td>42 women with high EPDS scores</td>
<td>Telephone-based peer support</td>
<td>Less depression</td>
</tr>
<tr>
<td>80, 81</td>
<td>Cambridge, UK</td>
<td>193 depressed mothers</td>
<td>3 forms of psychological treatment from 8 to 18 weeks post partum, 5 years follow-up</td>
<td>Less depression and mother-infant relationship difficulties, but only in short term</td>
</tr>
</tbody>
</table>
A positive score on a self-rating questionnaire needs to be followed by an interview clarifying the symptoms of depression and coexisting psychiatric disorders. The wider context must be explored, including the woman's life history, personality, and circumstances; the course of the pregnancy, including parturition and the puerperium; and relationships with partner, other children, family of origin, and, especially, the infant. In addition to diagnosing depression and other disorders, vulnerability factors and the availability of support must be identified.

Treatment is focused on depression and any underlying vulnerability. It will always involve psychotherapy, generally given by hospital and community nurses, health visitors, and lay counsellors. It may involve medication or other specific treatments. In pharmaceutical treatment, no drug is clearly superior, but there have been many publications on drug treatment in lactating women, with breastfeeding might be helpful.

Patients who are pregnant or breastfeed might be helpful.

Post-traumatic stress disorder (PTSD)

Bydloowski and Raouf-Duval described PTSD after childbirth in 1978. Long ordeals during labour led to secondary tocophobia, and the recurrence of tension, nightmares, and flashbacks towards the end of the next pregnancy. There are now about 40 publications on this disorder, which has been called the fourth postpartum mental disorder. The stressful experience is pain in most cases, but loss of control and fear of death can be the focus. There have been eight quantitative studies (table 3) that used psychological interventions, some of which were disappointing. Prophylactic antidepressive drug therapy is rational in women at risk of recurrence, but a double-blind randomised trial showed unexpectedly that nortriptyline did not prevent recurrence in mothers with a history of postpartum depression.

The findings in tables 1 and 2 show that the involvement of the babies' fathers had a positive effect, and that three intervention studies improved mother-infant interactions, and sexual dysfunction.

**Table 3: Quantitative studies of postpartum PTSD**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Location</th>
<th>Participants</th>
<th>Frequency of PTSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>93</td>
<td>Paris, France</td>
<td>4000</td>
<td>10 cases</td>
</tr>
<tr>
<td>97</td>
<td>Linköping, Sweden</td>
<td>1640</td>
<td>28 cases</td>
</tr>
<tr>
<td>98</td>
<td>Dorchester, UK</td>
<td>42</td>
<td>3 cases with medium, one with high distress</td>
</tr>
<tr>
<td>99</td>
<td>Sheffield, UK</td>
<td>264</td>
<td>8 cases</td>
</tr>
<tr>
<td>100</td>
<td>Queensland, Australia</td>
<td>499</td>
<td>5.6% at 4–6 weeks post partum</td>
</tr>
<tr>
<td>101</td>
<td>London, UK</td>
<td>289</td>
<td>5–6% at 4–6 weeks post partum</td>
</tr>
<tr>
<td>102</td>
<td>Bonn, Germany</td>
<td>424</td>
<td>2.8% at 6 weeks 1.5% at 6 months post partum</td>
</tr>
<tr>
<td>103</td>
<td>Atlanta, GA, USA</td>
<td>103</td>
<td>3.8% with intrusions, 10 subsyndromal and 4 full cases</td>
</tr>
</tbody>
</table>

Post-traumatic stress disorder (PTSD)
dysfunction can result. In Stockholm, half of mothers with a very negative birth experience at their first delivery avoided any further pregnancy.16 These women should be referred for specific psychological treatment, such as massed practice, which might accelerate accommodation to the traumatic memory.

**Various morbid preoccupations**

Distress about the bodily changes resulting from pregnancy and childbirth are common. Such women complain of weight gain, stretch marks, or scars. They are reluctant to undress in front of their partners, avoid looking at themselves naked, and can even avoid being seen in public. In an unpublished prospective interview study of over 200 patients in the UK and New Zealand, this distress amounted to dysmorphophobia in 14% of clinic patients.

Conjugal jealousy is another disorder sometimes linked to pregnancy and childbirth. Preoccupying worries about the spouse’s fidelity are an understandable reaction to pregnancy changes and the relative quiescence of sexual life. Most publications are case reports.1 In the unpublishe study mentioned above, postpartum morbid jealousy was evident in 5% of women.

Compulsions about obstetric management can be preoccupying. They are relatively common after emergency caesarean section.16 Childbirth is a key experience, and a woman may feel bitter disappointment over delivery perceived as mishandled. Such feelings can lead to litigation and in some cases preoccupy the woman for weeks or months and interfere with care of the infant. These disorders are sometimes confused with PTSD, but the dominant emotion is ruminate anger not anxiety, and the treatment is different—distraction from the perceived injury and redirection of attention to positive activity. The frequency in the above-mentioned unpublished study was 10%.

**Anxiety disorders specific to the puerperium**

Several studies have reported the effect of pregnancy on panic disorder. A review of eight studies showed no overall effect: in 41% pregnancy brought an improvement, but in 44% there was an exacerbation in the postpartum period and in 10% new onset in the puerperium.105 Recent studies suggest that postpartum anxiety disorders are underemphasised and are more common than depression.108,109 There could be a biological function that results in anxiety.110,111 The central symptom is of impulses to attack the child, but the setting is different from the pathological anger that precedes child abuse. The mother is gentle and devoted. She experiences extravagant infantile impulsions, together with fantasies of the family’s horror and grief, causing intense distress and leading to reduced contact with the baby. The content can include child sexual abuse.121 Classic papers were written by Chapman122 and Button and Reivich,123 who found 42 cases among 1317 consecutive consultations. Buttolph and Holland124 reported that 27 of 39 female patients with obsessive compulsive disorder had onset or worsening in pregnancy or after childbirth. Jennings and colleagues125 interviewed 100 depressed mothers: 21 had repeated thoughts of harming their children and took precautions, and 24 were afraid to be alone with their children. An Italian group126 studied the triggers of obsessive compulsive disorder and found that childbirth was the only life event significantly associated with onset. The management involves specific psychological treatment as well as antidepressant therapy. Avoidance of the child should be discouraged, and cuddling and play encouraged, strengthening positive maternal feelings.

**Specialist teams**

Given the diversity of postpartum mental illness and its risks for infants, there is a case for setting up specialist services for pregnant and puerperal women. In the UK, after the pioneering initiative of Main 30 years ago,127 a wealth of experience has been gained, through the concentration of severe cases in mother and baby units. However, in the absence of service evaluation, good clinical practice is based on ideas and innovation, rather than rigorous outcome data. The essence of these services is a multidisciplinary specialist team, including psychiatrists, psychologists, nurses (probably also nursery nurses), and social workers. The aims are prevention, early diagnosis, and versatile intervention, with the minimum family disruption. Such teams can serve a wide area, taking over the treatment of severe and intractable illness, developing services, training staff, and conducting research. They can provide a trial of mothering in
complex cases, and give medicolegal advice. Domiciliary assessment and home treatment are appropriate. A day hospital, with a wide range of interventions—groups, play therapy, motherhood classes, anxiety management, and occupational therapy—has the advantage of putting women with similar disorders in touch with each other, without disrupting family life. If a woman must be admitted to hospital, joint admission of mother and infant has advantages over admission of the mother alone, because it preserves their relationship. Units devoted to postpartum care are probably safer and more effective than general psychiatric wards. A research priority is to investigate the advantages and safety of these units. The specialist teams need links with obstetric units, which have an important role, especially in early diagnosis and prevention. They also need links with paediatric units, social services, and the child protection teams to collaborate in the prevention of child abuse. Links with voluntary agencies are important because self-help groups provide much support for depressed and isolated mothers and can collaborate in treatment.129 There are many specialist services in the UK and Australasia, fewer in European countries, and very few elsewhere. There is a case for establishing them in every country and all major cities and conurbations, a case that will be strengthened by research into their cost-effectiveness. In the UK, the Confidential Enquiries into Maternal Deaths recommended that specialist knowledge, skills, and experience should be available to every woman at risk of or suffering from serious postpartum mental illness.130

Conflict of interest statement
None declared.

Role of the funding source
At the time of my preliminary work, I was Visiting Professor, Centre for Developmental Psychology and Psychiatry, University of Nagoya, Nagoya, Japan. The funding source had no role in the preparation of this seminar or in the decision to submit it for publication.

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