Perinatal psychiatric disorders: a leading cause of maternal morbidity and mortality

Margaret Oates

Nottingham University Medical School, Nottingham, UK

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The Confidential Enquiry into Maternal Deaths 1997 to 1999 finds that psychiatric disorder, and suicide in particular, is the leading cause of maternal death. Suicide accounted for 28% of maternal deaths. Women also died from other complications of psychiatric disorder and a significant minority from substance misuse. Some of the findings of the Confidential Enquiry confirm long established knowledge about postpartum psychiatric disorder. The findings highlight the severity and early onset of serious postpartum mental illness and of the risk of recurrence following childbirth faced by women with a previous history of serious mental illness either following childbirth or at other times. These findings led to the recommendation that all women should be asked early in their pregnancy about a previous history of serious psychiatric disorder and that management plans should be in place with regard to the high risk of recurrence following delivery. Other findings of the Enquiry were new and challenged some of the accepted wisdoms of obstetrics and psychiatry. It is likely that the suicide rate following delivery is not significantly different to other times in women's lives and for the first 42 days following delivery may be elevated. This calls into question the so-called 'protective effect of maternity'. The overwhelming majority of the suicides died violently, contrasting with the usual finding that women are more likely to die from an overdose of medication. Compared to other causes of maternal death, the suicides were older and socially advantaged. The Enquiry findings suggest that the risk profile for women at risk of suicide following delivery may be different to that in women at other times and in men. None of the women who died had been admitted at any time to a Mother and Baby Unit and their psychiatric care had been undertaken by General Adult Services. None of the women who died had had a previous episode correctly identified and none had had adequate plans for their proactive care. The conclusion is that there is a need for both Psychiatry and Obstetrics to acknowledge the substantial risk that women with a previous psychiatric history of serious mental illness face following delivery.

Correspondence to: Dr Margaret Oakes, Nottingham University Medical School, Division of Psychiatry, Duncan Macmillan House, Porchester Road, Nottingham NG3 6AA, UK. E-mail: Margaret.Oates@nottingham.ac.uk

Background

Since antiquity, it has been recognized that some women develop a particularly florid and severe mental illness in the days and weeks following

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childbirth. Puerperal insanity was first described in the psychiatric literature by Esquirol and later by his pupil Marcé in 1857. Over the last 40 years the epidemiology of this condition, now known as puerperal psychosis, and its clinical features have been well established. The incidence of two per thousand deliveries seems to have been remarkably constant over time[1]. It is also well established that this condition has a tendency to recur following future childbirth[1–3]. Most studies regard puerperal psychosis as a variant of severe affective disorder (manic depressive illness or bipolar disorder)[3]. However this does not do justice to the condition's phenomena, lability and complexity. First rank symptoms of schizophrenia are often present and may result in the categorization of the illness as 'schizo-affective disorder'. A previous history or family history of bipolar disorder substantially increases the risk of developing a puerperal psychosis. Some women may go on not only to have postpartum episodes but non-postpartum episodes as well. This further supports the view that puerperal psychosis belongs to the spectrum of affective disorders[3].

Puerperal psychosis remains a rare event. Since the 1960s there has been increasing research and clinical interest in the more common non-psychotic affective disorders that follow childbirth, now known as post-natal depression or its acronym 'PND'. In total, 10–13% of women are said to suffer from a postnatal depressive illness that meets the criteria for DCM IIIR minor and major depression[4]. These illnesses will include a variety of subtypes and severities as at other times. Between 3 and 5% of women will suffer from a moderate to severe depressive illness following childbirth[5]. In addition to the two per thousand women who are admitted to hospital suffering from puerperal psychosis, a further two per thousand will be admitted suffering from non-psychotic illnesses, usually very severe postnatal depression.

The incidence of postpartum psychiatric disorder is shown in Table 1.

The majority of women who develop severe mental illness following childbirth will have been well during pregnancy and previously. However the prevalence of all psychiatric conditions (with a possible exception of anorexia nervosa) is the same at conception as at other times. Few psychiatric disorders are associated with a reduction in biological fertility.

Table 1 Incidence of perinatal psychiatric disorders

15%	'Depression'
10%	PND
3–5%	Moderate/severe depressive illness
2%	Referred psychiatry
0.4%	Admitted
0.2%	Admitted psychosis
0.2%	Births to schizophrenic mothers

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Pre-existing psychiatric disorder therefore can complicate pregnancy. Whilst the incidence of serious mental illness in pregnancy is probably lower than at other times[1], depression and anxiety are common in pregnancy and may continue after delivery.

Risk and childbirth

The risk of a woman developing a psychotic episode in the year following delivery is said to be a 14-fold increase in relative risk and for 30 days following the first childbirth a 35-fold increase in risk[1]. The incidence of severe depressive illness and the rate of referral to Psychiatric Services is also increased following childbirth and has been estimated to be at least five times greater than in non-childbearing women[6]. Women with a previous history of bipolar illness or puerperal psychosis face an elevated risk of recurrence following delivery, recently estimated to be as high as one in two[2]. Women with chronic schizophrenia who continue to take their medication throughout pregnancy may not be at elevated risk of a relapse in their condition following delivery[1]. However those who suffer from episodic or paranoid schizophrenia may be at equivalent risk to those who suffer from bipolar disorder[1,7].

Postnatal depression is the commonest postpartum psychiatric disorder. Except for its most severe forms, there is no evidence to suggest that depression is any more common following childbirth than at other times in young women's lives, that is to say women are not at increased risk of suffering from a mild depressive illness following childbirth[4]. However those who have already suffered from postnatal depressive illness, of any severity, following a previous childbirth are at increased risk following subsequent childbirths, a risk estimated at one in three[8].

Perinatal psychiatric disorder can therefore be seen to complicate a substantial number, at least 15%, of maternities both in pregnancy and the postpartum period. A minority of these illnesses will be very severe with risk factors that have a high predictive value and will require specialist care.

The findings of the Confidential Enquiries into Maternal Deaths (CEMD) 1997 to 1999 'Why Mothers Die'[9] reflect established knowledge of serious mental illness following childbirth: the importance of past history and the risk of recurrence as well as the particular severity of serious postpartum illness. However they also reveal new findings which challenge some of the conventional wisdoms of obstetric and psychiatric practice, particularly that suicide is the leading cause of maternal death.

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The Confidential Enquiries into Maternal Deaths: psychiatric causes of death

Suicide and other psychiatric deaths have always been reported to the CEMD. However it is only in the last two triennia that a psychiatrist has been a member of the CEMD, and psychiatric deaths separately analysed.

A psychiatric maternal death is one that would not have occurred in the absence of a psychiatric disorder. All psychiatric deaths are classified as indirect or coincidental. An argument could be made for regarding suicide in a woman suffering from puerperal psychosis or severe postnatal depression as a direct death. However it is by no means widely accepted that such illnesses are directly caused by childbirth and neither the ICD 10 nor DCM IV recognize these as specific disorders. The majority of psychiatric deaths were due to suicide, a minority to substance misuse (mainly accidental overdoses of heroin and a few to other causes, for example pulmonary embolism and homicide) (Table 2).

Suicide

Between 1997 and 1999, there were 2,123,614 maternities and 242 maternal deaths, from both direct and indirect causes, reported to the CEMD, a maternal mortality rate of 11.4 per hundred thousand. Adding coincidental and late deaths, the total was 378 maternal deaths, an overall maternal mortality rate of 17.8 per hundred thousand (Table 3).

In total, 11% of the maternal deaths reported to the CEMD were due to psychiatric causes. The majority of the coincidental psychiatric deaths were due to accidental overdose of heroin and 12% of indirect deaths were due to suicide. Thus in cases reported to the CEMD, suicide was the lead cause of indirect death and the second lead cause of death overall (Table 4).

Table 2 Causes of death, Confidential Enquiries into Maternal Death, 1997–99

	Pregnant	Early	Late	Total
Suicide	6	6	16	28
Illicit drugs—overdose	2	0	6	8
Other				6
Pulmonary embolus		1	1	
Adverse drug reactions		1		
Murder		1		
Alcohol-related	2			
Total	10	9	23	42

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Table 3 CEMD/UK 1997/99; maternal mortality

2,124,000	Maternities
242 deaths	(direct and indirect)
Mortality	11.4/100,000
Direct	5.0/100,000 falling
Indirect	6.4/100,000 rising
378 deaths total (+ coincidental)	17.8/100,000

Table 4 Suicide leading cause of maternal death; CEMD UK 1997/99

Total psychiatric maternal deaths	
42/378	11%
CEMD suicides	
28/242	12%
Additional 40 'ONS' suicides	
68/242	28%

The ONS Linkage Study

Under ascertainment has been a problem for all Committees of Enquiry and for all suicide research. It was likely that many cases of suicide were not reported to the CEMD, particularly if late in the postpartum year. An Office of National Statistics (ONS) Linkage Study was conducted to complement the 1997/99 CEMD. By linking death certificates with birth certificates in the preceding year, a further 200 maternal deaths were identified, of which 59 were psychiatric. These 59 'extra' deaths included 40 suicides, 8 open verdicts and 11 accidental overdoses of illicit drugs, which were not reported to the CEMD. None of the suicides occurred in the first 42 days after birth. The majority of the 'extra' psychiatric deaths were late indirect or coincidental. The mode of death was known but no other psychiatric information was available for analysis. Adding the 40 suicides to the CEMD data, 28% of maternal deaths were due to suicide, which then emerges as the leading cause of maternal death (Table 4).

The characteristics of maternal suicide

In keeping with the findings of the 1994/1996 CEMD[10], 86% of the suicides died violently, mainly by hanging or jumping. Only three women died from an overdose of medication. Despite the inability to include the ONS cases in this report, the method of suicide was known and the findings of the CEMD in this respect would not have been altered by their inclusion. Previous suicide research has consistently found gender differences in methods of suicide. Women are less likely to die violently and more likely to die from an overdose[11,12].

The findings of both the CEMD and the ONS Linkage Study stand in stark contrast to this.

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Compared to maternal deaths from physical causes and from substance misuse, maternal suicides were distinguished by being relatively socially advantaged and supported. The majority had higher education and a worrying number were health professionals. This confirms recent suicide research[13] which finds that female suicide is less associated with unemployment, adversity, single status and divorce than is male suicide.

The protective effect of maternity?

The suicide rate in women is lower than in men, decreasing at a greater rate and thought to be lowest of all in pregnancy and the 2 years following the birth[11,13,14], leading to the widespread belief in the 'protective effect of maternity'. The suicide rate amongst all women is estimated to be 3.4 per hundred thousand[12].

The incidence of postpartum mental illness, admission to psychiatric hospital following delivery and contact rate with Psychiatric Services is well established[1,6]. It is therefore possible to estimate the number of maternities likely to have suffered from puerperal psychosis, to have been in contact with Psychiatric Services or admitted to a psychiatric hospital during 1997–1999.

It can be seen from Table 5 that following delivery, the maternal suicide rate is not significantly different to that of the female suicide rate overall. It can also be seen that the suicide rate in women in contact with Psychiatric Services and in particular those suffering from puerperal psychosis is grossly elevated. These findings must challenge the previously held belief that pregnancy and the postpartum year exerted a protective effect on maternal suicide.

The importance of current and past serious mental illness

In total, 56% of all psychiatric deaths reported to the CEMD and 68% of suicides suffered from a serious mental illness (psychosis or a severe depressive illness). Unfortunately, no diagnosis was possible for the ONS Linkage cases, therefore the finding that the majority of the

Table 5 Maternal suicide. Protective effect of maternity?

- Postpartum:pregnant, 4:1
- Estimated 2 suicides/1000 puerperal psychoses
  Estimated 1 suicide/1000 admissions
  Estimated 0.3 suicides/1000 contacts
- Maternal suicide, 3/100,000 births
- Female suicide, 3.4/100,000 population

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women who died from suicide were seriously ill may not be maintained if these missing cases had been included. Nonetheless, all the early suicides were suffering from a serious mental illness and there were no early deaths in the ONS study. All of the early psychiatric deaths had an abrupt onset psychotic illness usually within days of childbirth.

In total, 46% of suicides reported to the CEMD had been admitted to a psychiatric hospital during a previous episode of illness. All of these who died from substance misuse had previous contact with Substance Misuse Services. Of the women with a previous psychiatric history, half had been admitted to a psychiatric hospital following a previous childbirth. This is in keeping with our knowledge of postpartum illness and the known risk of recurrence following childbirth of a previous illness postpartum, or otherwise, of one in two.

There were very few cases where either the Psychiatry or Maternity Services had been aware of the past history and risk of recurrence following delivery and even fewer where management plans had been put in place. Despite the established risk of recurrence following childbirth and despite the clinical knowledge that such illnesses are likely to recur at the same time and in the same way as previously, reports to the coroner suggest that the outcome took all by surprise.

Almost half of the women who died from suicide therefore might not have died if their past history had been accurately identified and if plans for proactive management had been put in place. At the very least they should have received close surveillance for the maximum period at risk following delivery and perhaps prophylactic medication.

Problems with the term 'PND'

The CEMD was surprised to find that in those few cases where a previous postpartum psychiatric history had been recorded in the maternity notes, it was described as postnatal depression (PND) not as a psychosis requiring inpatient treatment. The CEMD speculates that this might have diminished the seriousness of the condition and its need for proactive management. This highlights the importance of not using the term postnatal depression or 'PND' as a generic term for all types of mental illness with an assumption of psychosocial aetiology and management.

Detection or management?

In total, 85% of all the women who died had been identified and were receiving treatment; 46% of the suicides were in contact with Psychiatric

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Table 6 CEMD 1997–99; current psychiatric contact

Highest level of psychiatric care provided	Index maternity
Inpatient	9
Outpatient/community mental health team	9
Referral but not seen	4
General practitioner treatment only	6
Substance misuse service	5
No contact	3
Unknown	3

Services, of whom half had been inpatients during the index episode. The majority of those who died from substance misuse had been in contact with Substance Misuse Services during this pregnancy. In only three cases were women not receiving any care (Table 6).

Use of specialist services

None of the women who died from suicide had been seen by a Specialist Perinatal Community Mental Health Team and none of the women who had been admitted, either during the index pregnancy or previously following childbirth, had ever been admitted to a Mother and Baby Unit. All of the women who had been admitted to a psychiatric hospital following childbirth either currently or in the past had therefore been separated from their babies. The impact this had on their management and suicide risk can only be imagined.

Over the last 10 years, initiatives to identify women suffering from postnatal depression in the community have become widespread in the UK. These have mainly involved midwives and health visitors by increasing their awareness of postnatal depression and by the widespread use of screening tools such as the Edinburgh Postnatal Depression Scale (EPDS)[15]. Despite its widespread use, the NICE National Screening Committee[16] does not support the routine use of the EPDS either to predict or to detect postnatal depression[15]. The identification of postnatal depression and the development of treatment protocols in primary care is part of the National Service Framework for Mental Health[17]. By implication, the problem of postpartum mental illness is seen as one to be managed in primary care. There has been much less national emphasis on service provision for those suffering from serious mental illness in relation to childbirth. There are very few specialist Mother and Baby Units in the UK and even fewer Trusts that provide Specialist Liaison Psychiatry Services to Maternity Units[18]. The findings of the CEMD confirm this.

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Table 7 Recommendations

- Enquiries about previous psychiatric history, its severity, care received and clinical presentation should be routinely made in a systematic and sensitive way at the antenatal booking clinic
- Protocols for the management of women who are at risk of a relapse or recurrence of a serious mental illness following delivery should be in place in every Trust providing maternity services
- The use of the term post nataldepression or PND should not be used as a generic term for all types of psychiatric disorder. Details of previous illness should be sought and recorded in line with the recommendations above
- Women who have a past history of serious psychiatric disorder, postpartum or non-postpartum, should be assessed by a psychiatrist in the antenatal period and a management plan instituted with regard to the high risk of recurrence following delivery
- Women who have suffered from serious mental illness either following childbirth or at other times should be counselled about the possible recurrence of that illness following further pregnancies

CEMD recommendations

Recommendations informed by the key findings of the enquiries are shown in Table 7. They are included in the clinical risk management standards for Maternity Services issued by the Clinical Negligence Scheme for Trusts[19]. It is of concern that in many localities the skills and resources to meet these standards may not be in place. Similar recommendations have been made in the past by the Royal College of Psychiatrists[18] and the Framework for Maternity Services in Scotland[20].

Conclusions

Suicide following childbirth is rare but the rates are higher than previously thought. Suicide is the leading cause of maternal death. Psychiatric morbidity is common during pregnancy and in the postpartum period. Much is severe and some predictable and preventable.

Some women died despite exemplary care. For others it is impossible to know, because of the methodology of the CEMD, whether factors that appear to have contributed to their deaths were not also to be found in women who did not die. Nonetheless a quarter of suicides might not have died if their high risk of postpartum recurrence had been identified and managed.

The findings, that suicide is now the leading cause of maternal death and that the profile of women who kill themselves following delivery is different to that of other women and men, are new. They will hopefully inform Psychiatric Practice, particularly in regard to risk assessment.

The finding that a previous psychiatric history, postpartum or otherwise, predicts a high rate of recurrence following delivery is not new. It

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is consistent with research findings over the last 40 years. That these should have had apparently such little impact on psychiatric and obstetric practice is concerning. Unique amongst the known antecedents of psychiatric illness, childbirth comes with a 9 month warning, ample time for the detection of risk and putting into place of management plans. Half of the women who died following delivery were suffering from serious mental illness. For half of these women, their deaths might have been prevented if systems had been in place for the identification of their previous psychiatric history at booking and protocols had been in place for the management of their postpartum period. For others, better management of their acute postpartum illness might have improved the outcome. Hopefully the findings too will inform psychiatric and obstetric practice.

The suggestion that the widespread acceptance of postnatal depression 'PND' might have been counter-productive for those suffering from severe mental illness was unexpected. It perhaps leads to the conclusion that differential diagnosis is as important in perinatal psychiatry as it is in other specialities of medicine.

Hopefully, the recommendations of the CEMD will save the lives of some women in the future. They should also improve the care of the majority of women with serious mental illness associated with childbirth.

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