

Special topic

A national audit of joint mother and baby admissions to UK psychiatric hospitals: an overview of findings*

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Summary

The Marcé Clinical Audit is an ongoing data collection exercise that gathers socio-demographic and clinical information about mothers and their infants, admitted jointly to specialist units in UK psychiatric hospitals. The maternal and parenting outcomes, in particular of mothers with schizophrenia and mothers who harm themselves and/or their infants, were determined and analysed. The majority of women had a primary diagnosis of either depression (43%) or schizophrenia (21%). Mothers with schizophrenia were three times more likely to experience a poor outcome than non-schizophrenic mothers, were more likely to be separated from their infant at discharge and were perceived, by staff, to be at greater risk of harming their infant. They were, however, shown to be no more likely to cause actual harm to their infant, or themselves, than non-schizophrenic mothers.

Keywords: Mother and baby unit; schizophrenia; self-harm; harm to child.

Introduction

A woman is more likely to suffer mental illness following childbirth than at any other time in her life (Kendell et al., 1987) and the risk of her developing a psychotic illness is greatly increased during the first 30 days following childbirth (Kendell et al., 1987; Terp and Mortensen, 1998). In the UK, special units have been established to care for such women who, as well as having to cope with a possible first episode of mental illness, also have the added responsibility of motherhood. These units are referred to as either mother and

baby units (MBUs) or mother and baby facilities (MB facilities¹), and there are a number of them located across the UK (12 MBUs and 14 MB facilities). Their function is to provide specialist psychiatric care for women experiencing a postnatal disorder and in addition, to provide space for their infants, up to one year old, and to assess their parenting skills.

The advantages of admitting mothers and their infants to these specialist units have been recognised by psychiatrists and others for some time (Main, 1958; Baker and Morrison, 1961; Fowler and Brandon, 1965). Studies have demonstrated that mothers separated from their infants while hospitalised with psychiatric disorders, have a longer period of illness and experience greater difficulty bonding with their infants than those mothers jointly admitted with their infant to a specialist unit (Main, 1958; Baker and Morrison, 1961; Fowler and Brandon, 1965). More recently, research has also shown evidence of impaired cognitive and emotional development in the school age children of mothers who have experienced a postpartum depressive illness (Murray, 1991; Sinclair and Murray, 1998).

In 1996, under the auspices of the Marcé Society, a National Audit of UK MBUs was established and to date, this audit has compiled data on the socio-demographic, clinical and outcome aspects of mothers and their infants admitted to either an MBU or an MB facility. The aims

* The material was presented during a symposium on "Mother-Baby joint admission for mental health care in different countries" at the Marcé Society International Biennial Scientific Meeting in Sydney (Australia) in 2002 (25–27 September 2002).

¹ Hospitals where one or two mother and baby beds are provided in the absence of a designated MBU.

were three-fold: first, to enable a national audit of services for joint mother and baby admissions. Second, to establish areas of multi-centre research need and third, to establish a large dataset to support research in severe postpartum disorders.

To date, three aspects of the MBU audit have been examined:

- 1) predictors of maternal clinical and parenting outcome (Salmon et al., 2003);
- 2) mothers with schizophrenia and
- 3) mothers who harm themselves and their infants.

Each of these investigations forms the basis of a separate report, and the aim of this paper is to provide an overview of the findings and discuss their implications.

Patients and methods

Lead consultant psychiatrists from all UK MBUs and MB facilities were approached during 1996 and asked to take part in the audit – 9/12 MBUs and 3/14 MB facilities agreed to provide data, although data was only submitted by 8/12 MBUs. Those who agreed then designated a senior clinician to administer the audit questionnaire and return the completed forms to the lead centre on a quarterly basis. The audit tool was the Marcé Clinical Checklist, devised by Appleby and Friedman in 1990 (presented at the Marcé Meeting, London, 1996), a 10-part questionnaire that ascertains the socio-demographic status of the mother and clinical information. It was completed in two parts, one (socio-demographic status, psychiatric history, referral details) on admission and two (maternal clinical outcomes) at the time of discharge.

All were inpatients admitted jointly with their infants to the eight MBUs and three MB facilities that had agreed to participate in the audit. Some mothers were admitted during pregnancy (3.6%) but the majority was admitted following childbirth. Their consultant psychiatrist assigned their primary diagnosis at discharge and according to ICD 10 criteria (see Table 1).

Data analysis was performed in three stages: (i) descriptive statistics of the main clinical and social variables; (ii) 8 socio-demographic and 8 clinical variables considered most likely to be associated with maternal and/or parenting outcome were selected and analysed, and (iii) logistic regression analysis was performed. Analyses for both the *maternal clinical outcome and parenting skills* reports (Salmon et al., 2003), and the *harm* report were based on 1081 mothers. In both the univariate and multivariate analyses the clinical outcome possibilities were dichotomised. The variables for maternal clinical outcome, self-harm and harm to child were dichotomised as either “good” or “poor” outcome; the variable for schizophrenia was dichotomised as either “schizophrenia” or “no schizophrenia” and the three parenting skills variables (significant practical problems in baby care, significant problems of emotional response and risk of significant harm to child) were described as either “present” or “absent”. Self-harm and harm to child were separately recorded under the

Table 1. The demographic/social and clinical data on 1081 joint MBU admissions

Variables	% of admissions*
Age in years	
16–25	26
26–50	73
Ethnicity	
Black African	11
Black Caribbean	6
Indian/Pakistani/Bangladeshi	8
Chinese	1
White	66
Other	7
Social class	
Professional, managerial	23
Skilled manual	18
Semiskilled, unskilled	42
Unclassified (student/armed forces)	4
Never employed	7
Marital status	
Married/cohabiting	68
Divorced/separated	5
Single	24
Widowed	0.2
Other	1
Sex of baby	
Male	51
Female	45
Quality of mother's relationship with partner	
No partner	16
Predominantly good	57
Predominantly poor	26
Quality of other supportive relationships	
None	18
Predominantly good	56
Predominantly poor	22
Psychiatric illness in partner	
None	81
Illness requiring treatment by GP	3
Illness requiring out patient treatment	3
Illness requiring psychiatric admission	5
Primary diagnosis	
Depressive illness	43
Schizophrenia	21
Bipolar affective disorders	14
Anxiety/phobia/panic disorder	3
Obsessive-compulsive disorder	1
Personality disorder	3
Other/Unknown	15

* Percentages do not add to 100 due to missing data.

following categories:

- 1) no thoughts or actions,
- 2) thoughts only,
- 3) non-fatal action, and
- 4) suicide/infanticide.

Respondents were requested to record the timing of any harm, eg first postnatal week and to choose the category of the worst scenario.

Subsequent analyses for the *mothers with schizophrenia* report were based on 239 mothers diagnosed with schizophrenia (out of a total 1,153 mothers). Rates of poor parenting outcome were estimated and compared to those in a comparison group (mothers with affective disorder, $n=693$). Predictors of poor outcome were assessed only in mothers with schizophrenia, with explanatory variables selected according to backwards-stepwise procedures.

Results

Between 1996 and 2002, 1217 cases were entered onto the Marcé database (Table 1). On average each MBU admitted 40 patients per annum for an average six-week stay; the number of admissions for MB facilities varied greatly from 1–30 per annum.

The first report (Salmon et al., 2003) has reported on maternal clinical outcome and parenting skills and concluded that, in general, the majority of mothers (78%) and their infants had a good outcome (symptom free/considerably improved) on discharge from an MBU (Table 2). That is, the mother was deemed to be clinically well enough, and have sufficient parenting skills, to return home and care for her child unsupervised. A small number of women (18%) experienced a poor outcome because they did not recover well and they were, therefore, either transferred to an inpatient ward for further treatment or deemed fit to go home but not fit to care for their child on discharge without social services supervision. Children of these women were then placed into the care of social services.

Socio-demographic and clinical variables that were considered likely to influence maternal clinical outcome and parenting skills were analysed (Table 1). The major-

ity of women had either a primary ICD 10 diagnosis of a depressive illness (43%) or schizophrenia (21%) (Table 1) and were included in further analyses to determine if diagnosis had an effect on outcome. Age (<25 years), social class, level of social support, and “difficult behaviour” (aggression and harm to others but not harm to infant) were predictors of poor maternal clinical outcome and poor parenting skills. Mothers with schizophrenia were also three times more likely to experience poor outcome than were mothers with other diagnoses. Results on these comparisons are not shown in the present paper.

The second report (Abel et al., 2003, *submitted*) focused on mothers with schizophrenia by analysing socio-demographic and clinical characteristics, estimating the prevalence of parenting outcomes in these mothers and identifying independent predictors of outcome in these mothers. A comparison was also made between mothers with schizophrenia and mothers with affective disorder. Findings confirmed those of the first report (Salmon et al., 2003) in that mothers with schizophrenia were most likely to experience a poor outcome following admission to MBU. In addition, independent predictors of good outcome for this group were established. These were: being of higher social class, reporting social relationships and having a partner without psychiatric illness. Just over a half of mothers with schizophrenia had at least one subjective (staff-rated) poor parenting outcome compared to a fifth of those with affective disorder. The most common staff-rated poor outcome was ‘significant problems of emotional response to infant’ (43%: schizophrenia vs. 14%: affective disorders), followed by ‘significant problems caring for infant’ (36% vs. 12%), and then ‘significant risk of harm to child’ (20% vs. 6%) (Table 3). Analysis suggested that mothers with schizophrenia were no more likely to have actually harmed their infant (before/during admission) than other mothers (2.7% for schizophrenia – $n=7$ vs. 3.2% for affective disorder, $n=21$; $RR=1.0$ 95% CI 0.4–2.2; $p=0.705$; Table 3). Nevertheless, mothers with schizophrenia were more likely to be separated from their infants at discharge than were mothers with affective disorder (25% for schizophrenia vs. 6% for affective disorder; Table 3).

The third report focused on all mothers who harm themselves and/or their infants, to examine the predictors of maternal self-harm and harm to the child. The majority of mothers had no thoughts about or had made no attempts to either harm themselves (60%) or harm their infants (84%) during admission, and thoughts of self-harm (29%) were considerably greater than thoughts of harm to the child (13%). No incidents of either suicide or infanticide occurred during admission,

Table 2. An assessment of the maternal clinical outcome and parenting skills of mothers at discharge

	% of mothers*
Maternal clinical outcome	
Symptom free	43
Considerably improved, symptoms persist	35
Slightly improved, symptoms persist	9
No change, symptoms worse	9
Parenting skills	
No significant problems	54
Significant practical problems in baby care	17
Significant problems of emotional response	20
Risk of significant harm to child	9

* Percentages do not add to 100 because of non-recorded data.

Table 3. Prevalence of poor parenting outcomes and clinical evidence of harm to infant: Relative risk (RR) for mothers with schizophrenia (SZ) vs. mothers with affective disorder (AD)

Parenting outcomes and clinical evidence of harm	Schizophrenia (n = 239)		Affective disorders (n = 693)		Relative risk (RR) (95% CI)	
	n	%	n	%		
Objective outcome (social services intervention):						
Home with mother without formal supervision	119	50	595	88	–	
Under social services supervision	118	50	80	12	4.2 (3.3–5.4)	
Subjective outcomes (staff-rated):						
Significant problems caring for infant	87	36	80	12	3.1 (2.4–4.0)	
Significant problems of emotional response	103	43	96	14	3.1 (2.4–3.9)	
Significant risk of harm to child	48	20	40	6	3.4 (2.3–5.1)	
At least one poor parenting outcome	123	51	139	20	2.5 (2.1–3.1)	
Clinical evidence of harm to infant:						
Actual harm to child (before/during admission)*	7	3	21	3	1.0 (0.4–2.2)	
Any clinical evidence (thoughts or acts)	26	11	141	21	0.5 (0.4–0.8)	
Comparison of subjective vs. objective poor parenting outcomes	All mothers admitted		≥1 staff-rated poor outcome		Significant risk of harm to infant	
	SZ (n = 237) %	AD (n = 693) %	SZ (n = 121) %	AD (n = 135) %	SZ (n = 47) %	AD (n = 36) %
With mother: no formal supervision	50	88	25	60	15	25
With mother: on 'at risk' register	13	3	15	7	11	17
With mother: care/protection order	12	3	12	6	6	11
Voluntary foster care	11	4	21	19	26	25
Statutory care/adopted	14	2	27	8	43	22

* All 27 cases of actual harm were of a non-fatal nature.

but a link between harm and diagnosis was determined. Mothers with schizophrenia were found to be less likely to harm themselves (OR = 0.34 95% CI 0.17–0.66; schizophrenia vs. no schizophrenia) and also much less likely to report thoughts about self-harm. Details leading to these results are not shown in the present paper.

According to this study, the only independent predictor of self-harm was found to be depressed mood. Mothers who harmed themselves were at least four times more likely to experience depressed mood during admission than those who had not (OR = 4.55 95% CI 1.63–12.72) and 50% had a previous diagnosis of depression. Twelve per cent harmed themselves during the antenatal period. Behavioural disturbance (aggressive or 'odd' behaviour), self-harm and age of mother (16–25) were found to predict harm to the child. The majority of mothers (66%) experienced depressed mood at some time during their illness (Table 1) regardless of final diagnosis.

Discussion

This national audit of UK MBUs is the largest reported sample of joint mother-baby psychiatric admissions to

date and has enabled the study of maternal and clinical outcomes and predictors of outcome following admission. (Questions from the Marcé Checklist have also been used in systematic data collection in other countries, France, Belgium, New Zealand, as reported by Glangeaud et al. and Wilson et al. in this issue). Most of those mothers admitted showed a good clinical outcome, in agreement with other outcome studies of women admitted to psychiatric units suffering severe puerperal psychiatric illness (Cawley et al., 1999; Robling et al., 2000; Videbeck and Gouliav, 1995; Kumar et al., 1995), and were deemed capable of being discharged home unsupervised with their infant. However, no randomised controlled trial has, to date, evaluated the effectiveness of MBU admission and this requires further study.

A significant number of mothers required further inpatient psychiatric care, were assessed as having poor parenting skills, either self-harmed or harmed their infant, and/or were separated from their infant at discharge. These women also shared vulnerabilities such as low social class and poor social supports. Further intervention should be aimed at providing improved support to parents and the family as a whole because being in a

supportive relationship and having social support were found to be predictors of good outcome.

Mothers with schizophrenia were far more likely to experience poor outcome than other mothers admitted to an MBU (Salmon et al., 2003), and were also more likely to be supervised or separated from their infants at discharge. This is consistent with a study by Kumar et al. (1995), which reported that only 50% of mothers admitted to an MBU with schizophrenia were discharged home with their infants. Mothers with schizophrenia were no more likely to harm their infants (before or during admission) than other mothers. However, compared to mothers with affective disorder, mothers with schizophrenia were more likely to be perceived by staff as having practical parenting problems, and were more likely to have problems with their emotional responses.

The observed discrepancy between the risk of harm to the child, as perceived by staff, and actual harm to the child requires further study. Mothers with schizophrenia were three times more likely to be perceived as a risk to their child by emotional/physical neglect than other mothers, and this may relate to the pervasive cognitive and emotional difficulties of the social interaction associated with schizophrenia. A validated, standardised, assessment tool is therefore required to facilitate more accurate assessment of risk to the infant. Follow-up studies of mothers with schizophrenia have reported that these women are more likely than those with affective disorders to experience further psychiatric episodes, which may jeopardise the quality of the mother-child relationship (Videbech and Gouliaev, 1995). Furthermore, Hipwell (1992) reported that the majority of mothers with postpartum mental illness take between 3–6 months postnatally to fully recover. It is therefore important to collect long-term follow up data on these women and their children to assess the effects of the mothers illness on the mother-child relationship, and to determine the outcome of those children separated from their mothers. Also, an infant's exposure to maternal mental illness during the postpartum period has potentially deleterious effects on their emotional, cognitive, behavioural, social and sensorimotor development and to date no study has assessed the developmental outcomes of the offspring of mothers admitted to MBUs.

Mothers with schizophrenia were also found to be less likely to self-harm or to have thoughts about self-harm compared with other mothers during admission. No incidents of either suicide or infanticide were found. Although infanticide is rare (Wissow, 1998), it is linked to mental illness (Spinelli, 2001) and so should be high-

lighted as a cause for concern. However, during the postnatal period, both suicide and infanticide are relatively rare (Appleby, 1991; Marzuk, 1997) and because standardised mortality ratios for postnatal suicide (SMR = 0.017) and suicide during pregnancy (SMR = 0.05) were both lower than expected, Appleby (1991) suggested that pregnancy and childbirth appear to protect against suicide. The only independent predictor of self-harm before/during admission in these studies was found to be depressed mood.

Limitations

It is acknowledged that various methodological limitations apply to these findings. Due to the nature of the sample and its distribution, the sample is only representative of mothers in England admitted to an MBU. Furthermore, not all women have access to MBU services due to the limited number of beds and the uneven distribution of service provision: MBUs are mainly situated in the South of England (Prettyman and Friedman, 1991). Nevertheless, this is the largest study of supervision outcomes for joint mother and baby admissions to date.

The Marcé checklist assessments are also cross-sectional and no longitudinal data has, to date, been collected to enable assessment of outcomes following discharge. Additionally, the staff-rated parenting outcomes are based on clinical judgements, and although a high degree of inter-rater agreement has been demonstrated and the assessments are made through consensus within the senior clinical team during an average seven-week stay, they are not operationalised or standardised. Staff assessments of parenting outcomes may be more prone to error in the context of observed poor supports or ill partners. The items in the checklist do, however, have reasonable face validity.

Information provided by certain items on the Marcé checklist is also limited. For example, there is not much information about the child's father; the checklist ascertains the mother's marital status, but does not specify whether the mother's partner is the child's biological father. The checklist also ascertains whether the partner has a psychiatric illness but does not specify the type of illness. This additional information about the child's biological father would be of great benefit for follow-up studies of the infants and their development and would also help provide appropriate care for those infants who may be at increased risk of developing a mental illness. It is generally agreed that the risk of a child having a mental illness is increased if both parents are affected.

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