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Physical health after childbirth and maternal depression in the first 12 months post partum: Results of an Australian nulliparous pregnancy cohort study

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ABSTRACT

Objective: to investigate the relationship between maternal physical health problems and depressive symptoms in the first year after childbirth.
Design: prospective pregnancy cohort study.
Setting: Melbourne, Victoria, Australia.
Population: 1507 nulliparous women.
Methods: women were recruited from six public hospitals between six and 24 weeks gestation. Written questionnaires were completed at recruitment and at three, six and 12 months post partum.
Outcome measures: Edinburgh Postnatal Depression Scale (EPDS); standardised measures of urinary and faecal incontinence, a checklist of symptoms for other physical health problems.
Results: overall, 16.1% of women reported depressive symptoms during the first 12 months post partum, with point prevalence at three, six and 12 months post partum of 6.9%, 8.8% and 7.8% respectively. The most commonly reported physical health problems in the first three months were tiredness (67%), back pain (47%), breast problems (37%), painful perineum (30%), and urinary incontinence (29%). Compared with women reporting 0–2 health problems in the first three months post partum, women reporting 5 or more health problems had a six-fold increase in likelihood of reporting concurrent depressive symptoms at three months post partum (Adjusted OR=6.69, 95% CI=3.0–15.0) and a three-fold increase in likelihood of reporting subsequent depressive symptoms at 6–12 months post partum (Adjusted OR=3.43, 95% CI 2.1–5.5).
Conclusions: poor physical health in the early postnatal period is associated with poorer mental health throughout the first 12 months post partum. Early intervention to promote maternal mental health should incorporate assessment and intervention to address common postnatal physical health problems.

Introduction

Several large cohort studies show that women commonly experience a range of physical and psychological health problems after childbirth, that do not necessarily resolve in the first post-partum year (MacArthur et al., 1991; Glazener et al., 1995; Brown and Lumley, 1998; Saurel-Cubizolles et al., 2000; Schytt et al., 2004). The relationship between maternal physical health after childbirth, and maternal mental health, remains an under-researched area. Numerous studies have documented a range of psychosocial risk factors for maternal depression (O'Hara and Swain, 1996; Leigh and Milgrom, 2008; Ludermir et al., 2010; Yelland et al., 2010; Woolhouse et al., 2012). In contrast, there has been limited consideration given to the role that poor physical health may play in women's mental health in the year after childbirth, with the result that interventions to promote maternal mental health rarely identify physical health problems as a major focus of intervention. A notable exception is the trial of redesigned postnatal care evaluated by MacArthur and colleagues in the UK (MacArthur et al., 2002). Community midwives in the intervention sites in this study used symptom checklists and the Edinburgh Postnatal Depression Scale to identify maternal health problems, and then provided care for physical and psychological problems in accord with evidence based guidelines. Maternal mental health was improved in the intervention sites compared with sites

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providing usual care (MacArthur et al., 2002). Other trials of universal strategies for improving maternal mental and physical health have failed to show benefits (Morrell et al., 2000; Lumley et al., 2006).

This paper draws on longitudinal data collected in an Australian multicentre prospective pregnancy cohort study – the Maternal Health Study – to explore the relationship between common physical health problems and depressive symptoms in the 12 months after a first birth. We have previously reported findings from the study showing the extent of co-morbid physical and psychological health problems during pregnancy (Perlen et al., 2012).

Method

Design and study population

Women registered to give birth at six metropolitan public hospitals in Melbourne Australia, with a mix of high and low risk perinatal services, were recruited to the study between April 1, 2003 and December 31, 2005. To be eligible for the study women needed to be: nulliparous (i.e. have had no prior livebirths or stillbirths); have an estimated gestation ≤24 weeks at enrolment; be ≥18 years old; and have sufficient proficiency in English to complete written questionnaires and interviews. Hospital staff at six participating hospitals mailed invitation packages to women soon after booking. The sample was restricted to nulliparous women in order to facilitate assessment of the contribution of birth events to postpartum morbidity without the added complexity of needing to account for events in an earlier birth, for example a previous caesarean section or previous operative birth. The invitation package included information about the study, a letter inviting women to participate, a consent form and a copy of the baseline questionnaire. A single mailed reminder postcard was sent to women who had not returned the questionnaire within two weeks of the original mailout. No incentives or compensation for participation were offered. Follow-up questionnaires were completed at three, six and 12 months post partum. Further details regarding the study methods, including recruitment procedures, study hypotheses and primary outcomes are available in a published study protocol (Brown et al., 2006). The study was approved by the ethics committees at participating hospitals, and by institutional ethics committees at La Trobe University and the Royal Children's Hospital, Melbourne.

Measures

Maternal mental health problems were assessed in pregnancy, and at three, six and 12 months post partum using the Edinburgh Postnatal Depression Scale (EPDS). The EPDS is a ten-item self report scale designed to identify women experiencing depressive symptoms in the postnatal period (Cox et al., 1987), and has also been validated for use in pregnancy (Murray and Cox, 1990). The point prevalence of depressive symptoms at each time point was based on EPDS scores ≥13, the standard cut-off score recommended when screening for probable major depression (Cox et al., 1987; Murray and Carothers, 1990, Boyce et al., 1993). To include mild depressive symptoms, the original authors recommended a cut-off score of ≥10 (Cox et al., 1987).

Assessment of urinary and faecal incontinence in the first three months post partum was undertaken using standardised instruments previously validated in Australian, Scandinavian and United Kingdom populations (Sandvik et al., 1993; Talley et al., 1995; Lam et al., 1999; Sandvik et al., 2000). Following standardised terminology endorsed by the International Continence Society at the time of designing the study, women were defined as having urinary incontinence if they reported either stress, urge or mixed incontinence (Abrams et al., 2003), and as having faecal incontinence if they experienced leakage of either liquid or solid stool.

Data on all other physical health problems were obtained from responses to an 11-item checklist designed to encourage disclosure of common maternal health issues. Women were asked: '*Since the birth, apart from when you were in hospital immediately after having your baby, have you experienced any of the following: extreme tiredness/exhaustion, more frequent coughs/colds/minor illnesses than usual, severe headaches or migraines, lower back pain, upper back pain, painful perineum, pain from caesarean section wound, constipation, haemorrhoids, breast problems, and pelvic pain*'. Pre-given response options selected based on piloting of study instruments prior to commencement of the study were '*never*', '*rarely*', '*occasionally*' or '*often*'. For the purposes of analysis, responses were grouped to compare women who responded that they '*occasionally or often*' experienced symptoms with those who said they '*never or rarely*' experienced each health problem. Results were dichotomised in this way to give weight to more significant morbidity.

Socio-demographic data were collected in the baseline questionnaire at enrolment in the study, and included: maternal age, relationship status, country of birth, gross income during the year before pregnancy, highest educational qualification, employment status, and pension status.

Statistical analysis

Data were analysed using Stata version 11 (Statacorp, 2009). We calculated the point prevalence of maternal depressive symptoms at three, six and 12 months based on the proportion of women who scored ≥13 on the EPDS divided by the total number of women with data available for the relevant period. The period prevalence of maternal depressive symptoms between six and 12 months post partum was calculated based on combining data from questionnaires at six and 12 months post partum, to determine the total number of women who scored ≥13 on the EPDS on at least one occasion divided by the total number of respondents who completed both follow-up questionnaires. The three-month period prevalence of urinary incontinence was based on the proportion of women who reported urinary leakage at least once a month divided by the total number of women who completed questions assessing continence. For faecal incontinence, the three-month period prevalence is based on reporting of any leakage of liquid or solid stool since the birth. For the 11 other physical health problems, three-month period prevalence is based on the proportion of women who indicated that they had had each health problem '*occasionally*' or '*often*' since the birth.

In order to explore the relationship between number of physical health problems in the first three months post partum and depressive symptoms in the first postnatal year, participants were grouped into three categories: those with 0–2 health problems, those with 3–4 health problems, and those with 5 or more health problems at three months post partum. Univariable logistic regression was used to examine the extent to which the number of health problems at three months post partum was associated with concurrent depressive symptoms (at three months post partum) and subsequent depressive symptoms (at 6–12 months post partum). We deliberately focused on physical health problems reported in the first three months as this is the time when women have the most contact with health services, and when screening for depression is recommended in both Australian and UK guidelines (National Institute for Health and Clinical Excellence, 2007; Department of Education and Early Childhood Development, 2009; beyondblue, 2010). Two multivariable logistic