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Original Research

Commonly occurring adverse birth outcomes and maternal depression: a longitudinal study

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ABSTRACT

Objectives: Little is known about whether commonly occurring adverse birth outcomes have a long-term impact on the mental health of mothers. The aim of this study was to investigate whether commonly occurring adverse birth outcomes predicted mothers' depressive-symptom trajectories over a 27-year period following the birth of a baby.
Study design: Longitudinal study.
Methods: Participants comprised a sub-group of women from the longitudinal cohort of the Mater and University of Queensland Study of Pregnancy. Maternal depression was measured at six time points from the first clinic visit of an index pregnancy to 27 years after birth. A semi-parametric mixture model was used to identify three symptom trajectories of low-stable, moderate-stable and moderate-rising depression. Multinomial logistic regression was then used to determine whether a number of commonly occurring birth outcomes predicted moderate-stable and/or moderate-rising depression trajectories over the subsequent 27 years. Sociodemographic and behavioural factors were used to adjust for possible confounding.
Results: After adjustment for potential confounders, none of the adverse birth outcomes predicted subsequent maternal depression trajectories. Teenage pregnancy, not completing high school, low family income, obesity, poorer quality partnership and not exercising, measured at women's first clinic visit, and small social networks at three to five days after birth, were significantly associated with women's moderate-rising depressive-symptoms trajectory over 27 years.
Conclusions: Commonly occurring adverse birth outcomes do not predict long-term depressive trajectories. A number of sociodemographic and behavioural factors present at the index pregnancy predict women's long-term pattern of depression throughout their reproductive life course.

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Introduction

The literature documenting women's depression following the birth of a child is vast.[1,2] Despite concerns about perinatal depression, there is little evidence of pregnancy or birth events contributing to the depression experienced by women after the birth of a baby. This longitudinal study will examine whether commonly occurring adverse birth outcomes predict women's depressive-symptoms trajectories following the birth of a baby.

Adverse birth outcomes

Findings of adverse birth outcomes being associated with maternal depression are varied and conflicting. The strongest evidence affirming this association is found in a systematic review of 26 studies involving women who had a preterm or low birth-weight baby. (Preterm birth was defined in studies as <38-week gestation or if not defined then when studies reported maximum gestational age as <38 weeks, and similarly low birth-weight was defined as <2500 g or if not defined then when studies reported maximum birth-weight as <2500 g).[3] It found that for women with preterm babies, the rate of postnatal depression was high in the early postpartum period, whereas persistent depression of up to 12 months after the birth was associated with very preterm birth (that is, gestational age at birth <33 weeks), lower-birth-weight (that is, birth-weight <1500 g) and ongoing infant illness/disability. Most of the studies reviewed however, had not considered antenatal depression as a confounding variable.[3] Other reviews found mothers of babies admitted into neonatal intensive care had higher rates of postnatal depression compared with mothers of healthy babies,[4] and similar to the previously mentioned study by Vigod et al.,[3] mothers of very preterm of low birth-weight babies, had major depression for up to 12 months after the birth.[5] Findings from prospective studies suggested severe obstetric complications,[6,7] and birth and neonatal complications[7] were associated with maternal high-level depressive symptoms at 6 and 8 weeks postnatal and independent of sociodemographic characteristics. Whereas other findings have suggested that no link existed between traumatic births[8] or caesarean section[9] and maternal postnatal depression.

Studies of differing methodologies and with smaller sample sizes of mainly targeted or homogenous groups also produced few consistent findings. Having a very low birth-weight baby[10,11] was a risk factor for maternal depression, as was having a preterm birth.[11,12] Illness severity in very low birth-weight babies in a neonatal intensive care unit was not associated with mothers' depressive symptoms.[13] In contrast to those latter findings, a large prospective study found that having a high Edinburgh Postnatal Depression Scale score at 2 to 6 weeks postnatal was associated with birth outcomes of major anomalies, necrotizing enterocolitis, neonatal death, and stillbirth.[14]

Reverse causation

Considerable evidence appears to suggest a reverse causation, that is, antenatal maternal depression predicting adverse birth outcomes,[15,16] with findings suggesting that pregnant women with poor mental health were at risk of preeclampsia,[17] preterm birth[17,18] and low birth-weight babies.[17,19] Also women who had a caesarean birth were found to have higher levels of antenatal depression and anxiety.[20] In contrast, other findings suggest that although it was common for women to experience high-level symptoms of depression and anxiety during pregnancy, there was little evidence to suggest these symptoms were associated with babies' preterm birth or birth-weight.[21]

Sociodemographic factors

Findings from a study conducted on predictors of maternal depression trajectories in families with preterm or low birth-weight babies suggested cumulative risks predicted depression trajectories over 2 years and were led by maternal and family sociodemographic risks rather than by baby risks.[22] Certainly there is significant evidence to support this association between women's depression and sociodemographic predictors both in the postnatal period and beyond.[23–27]

Study hypothesis and aim

Although there is some evidence linking adverse birth outcomes to maternal depression in the postnatal period, the relevant studies are not without their limitations, and other findings point to a reverse causal effect. Pertinent to this study was the finding that suggested the more risk factors women experienced, the greater the risk of depression and was led by sociodemographic risk factors rather than baby risk factors. It appears that the association between commonly occurring adverse birth outcomes and women's depressive-symptoms trajectories has not been broadly tested, particularly over the longer term. This study investigates whether commonly occurring adverse birth outcomes predict mothers' depressive-symptom trajectories over a 27-year period following the birth. We test the hypothesis that an association exists between commonly occurring adverse birth outcomes and women's depressive-symptoms trajectories following baby's birth (from the index pregnancy).

Methods

Participants

In 1981, the Mater and University of Queensland Study of Pregnancy (MUSP; Brisbane, Australia) commenced recruitment of a birth cohort which continued until 1983. Some 7223 mother-infant dyads formed the birth cohort which included 520 women who birthed a second child as part of the study and 50 women who had a multiple birth. This cohort and its recruitment methods have been described elsewhere.[29,30] All consecutive pregnant women booking into Mater Mothers' Hospital were invited to participate in the original survey, and only 1% declined the invitation. Informed consent was obtained, with women being ensured of their confidentiality, privacy, and the secured storage of their information.[30] Administration of existing or adapted versions of validated scales and indices included in the original questionnaire,