



Predicting posttraumatic stress disorder after childbirth

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ABSTRACT

Objective: around 50% of women report symptoms that indicate some aspect of their childbirth experience was 'traumatic', and at least 3.1% meet diagnosis for PTSD six months post partum. Here we aimed to conduct a prospective longitudinal study and examine predictors of birth-related trauma – predictors that included a range of pre-event factors – as a first step in the creation of a screening questionnaire.

Method: of the 933 women who completed an assessment in their third trimester, 866 were followed-up at four to six week post partum. Two canonical discriminant function analyses were conducted to ascertain factors associated with experiencing birth as traumatic and, of the women who found the birth traumatic, which factors were associated with those who developed PTSD.

Findings: a mix of 16 pre-birth predictor variables and event-specific predictor variables distinguished women who reported symptoms consistent with trauma from those who did not. Fourteen predictor variables distinguished women who went on to develop PTSD from those who did not.

Conclusions: anxiety sensitivity to possible birthing problems, breached birthing expectations, and severity of any actual birth problem, predicted those who found the birth traumatic. Prior trauma was the single most important predictive factor of PTSD. Evaluating the utility of brief, cost-effective, and accurate screening for women at risk of developing birth-related PTSD is suggested.

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Introduction

The arrival of a new baby is typically an event that is associated with much anticipatory and experienced joy. However, despite low mortality rates in developed countries (World Health Organization, 2004) the birthing process can, for a few, also be accompanied by feelings of terror, fear for the mother's or infant's life and a sense of helplessness or lack of control (Soderquist et al., 2002; Geller, 2004). While experiencing some anticipatory anxiety may almost be viewed as normative, there are some women whose actual birthing experience results in them meet diagnostic criteria for either partial or full PTSD. In a large Australian sample of pregnant women

(Alcorn et al., 2010), 3.6% met full PTSD criteria (diagnosed using the Posttraumatic Diagnostic Scale; Foa et al., 1997) four to six weeks post partum. By six months, this figure had risen to 5.8%. Controlling for antenatal psychopathology (pre-existing trauma and clinically significant depression and anxiety) only reduced these rates to 1.2% and 3.1% respectively. These rates are comparable to other reports where the rates of PTSD following childbirth have ranged from 1% to 6% (Creedy et al., 2000; Ayers and Pickering, 2001). These numbers are also similar to the 12-month prevalence rate of PTSD after experiencing a potentially traumatic event. Creamer et al. (2001) found the proportion of women who met criteria for PTSD following any trauma to be 2.9%.

These prevalence rates are of concern as PTSD following childbirth is associated with significant problems in mother-infant attachment (Allen, 1998), partner relationships (Beck, 2004) and increased use of the health care system (Switzer et al., 1999). It is reasonable to propose that further investigation of factors that

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predict PTSD will inform and improve clinical practice. Several studies have made a significant contribution to the field already. Soderquist and colleagues (Soderquist et al., 2006; Soderquist et al., 2009) in one of the most comprehensive studies to date, found that depression in early pregnancy, stress, coping capacity and severe fear of childbirth in late pregnancy to be significant predictors of PTSD, although pre-birth state anxiety was not. Other researchers found anxiety sensitivity (Keogh et al., 2002; Fairbrother and Woody, 2007), depression (Soderquist et al., 1996; van Son et al., 2005; Maggioni et al., 2006) and dissociation (van Son et al., 2005) to be key predictors. Obstetric intervention (Creedy et al., 2002; Soet et al., 2003; Fairbrother and Woody, 2007) also has been identified as important, as has a negative relationship with hospital staff (Creedy et al., 2000; Soet et al., 2003). Pain, a history of sexual trauma and feeling powerless during the birth have also been found to predict PTSD-type symptomatology (Soet et al., 2003). Testing a cognitive model, Ford et al. (2010) found a direct effect of social support at three months with some additional variance accounted for by cognitive variables. It is also possible that extreme pre-existing stressors such as child sexual abuse that result in post traumatic stress prior to childbirth also increase the likelihood of PTSD, a finding obtained in other areas of trauma research (Yehuda and McFarlane, 1995; McNally, 2003).

A major problem with identifying risk factors is that typically there is only access to individuals after a traumatic event. A sample of childbearing women, on the other hand, provides an opportunity to screen prospectively for predisposing factors. The current literature provides a wide range of possible predictors of birth-related trauma; however, no study has conducted a prospective, longitudinal, comprehensive examination of individual risk factors and pre-event factors and birth factors and their association with the development of PTSD, as defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). Thus, taking this body of research as a starting point we surveyed childbearing women in their third trimester regarding their history, birthing expectations (based upon previous research, as exemplified above), and then followed-up these women again one month post partum. We then assessed women for (a) finding the birth traumatic and (b) meeting the criteria for PTSD. Predictors (both pre-birth predictors and event related predictors) for both of these states were then computed.

In taking a two-stage approach, it is possible to investigate the process of the development of PTSD in a more refined and systematic manner using current diagnostic nomenclature rather than symptom severity as the key outcome variable.

Method

Sample, power and procedure

Participants consisted of consecutive attendees at antenatal clinics in Brisbane, Australia, and surrounding areas. Researchers approached consecutive attendees who were waiting for their scheduled antenatal appointments. Women were eligible to participate if they were at least 18 years of age, in their third trimester of pregnancy (from 28 weeks gestation), able to read and write in English, and contactable by phone (Alcorn et al., 2010). Nine-hundred and thirty-three women (87% of those approached) agreed to take part, and completed the first phase that took place in the third trimester of pregnancy. At the second study phase, which took place between four and six weeks post partum, data were obtained from 866 women (93% retention rate). The mean age of the 933 women who commenced the study was 28.6 years ($SD=5.64$) and average relationship length was 6 years. Approximately 86% were Caucasian, with the remaining being members of

diverse racial groups. The modal educational level was just less than high school completion (grades 10 or 11; 24.7%). Most women were married (53.9%) or cohabitating (30.1%); had a gross annual household income between \$36,000–\$50,000AUS (23%) and \$51,000–\$80,000AUS (23.2%); nominated homemaker for their employment status (48.7%); and indicated that they already had children (577 women or 61.8%). This sample of women was representative of the Australian birthing population in terms of socio-economic status, age and self-identified ethnicity (Alcorn et al., 2010). Informed consent was obtained from all participants. The Griffith University Ethics Committee and the participating hospitals granted ethics approval for human investigation.

The study consisted of four data-gathering phases: third trimester; four to six weeks post partum; 12 weeks post partum and 24 weeks post partum. Only data from the first two phases are reported in the current research.

Delineating between those who found the birth traumatic and those who did not (first phase of statistical analysis) with 16 potential predictor variables (see below), and the dependant outcome as binary (yes/no), assuming a moderate effects size ($f^2 \geq .06$), and setting the probability of a Type I Error as no greater than 5% ($\alpha < .05$); and the power level at 80% ($1-\beta=.8$), the sample needed to be at least 322. As stated, we had 933 participants. In the case of the second equation (delineating between those who developed PTSD and those who did not) the only difference was the number of potential predictor variables (14; see further below), the required sample size was 306. We had 394 participants.

Measures

Assessment of PTSD and trauma symptom severity post partum

The Post Traumatic Diagnostic Scale (PDS; Foa et al., 1997) was used to provide diagnoses of PTSD resulting from childbirth and information on symptom severity. Part 2 of the PDS was expanded to assess the nature of the birth event (i.e., whether or not it was traumatic). Importantly, in phrasing the questions, women were asked specifically in relation to their birth experience. The concurrent validity of the PDS has been examined against the Clinician Administered PTSD Scale (CAPS) with our sample and found to have good validity (Alcorn et al., 2010). Further detailed information on the scoring of DSM Criteria A1 and A2 and the administration of the questionnaire, scoring and concurrent validity is provided elsewhere (Alcorn et al., 2010). In short, all six diagnostic criteria for PTSD were assessed: the event, four symptom clusters, and functional impairment.

Assessments of predictor variables

The inclusion of possible predictor variables was based on findings from previous studies examining PTSD and symptom severity. In order to identify specific items for a possible future screening questionnaire variables included individual items from questionnaires. Antenatal and perinatal variables included depression (the Edinburgh Postnatal Depression Scale – EPDS; Cox et al., 1987), anxiety (the State-Trait Anxiety Inventory – STAI Forms Y-1 and Y-2; Spielberger et al., 1983), peritraumatic dissociation (the Peritraumatic Dissociative Experiences Self Report Questionnaire – PDEQ-SR; Marmar et al., 1997), alcohol use (the Alcohol Use Disorders Identification Test – AUDIT; Saunders et al., 1993), personality characteristics (the Revised Eysenck Personality Questionnaire – short form, EPQ-RS; Eysenck and Eysenck, 1997), social support (the Interpersonal Support Evaluation List, ISEL; Peirce et al., 1996), and coping style (the Coping Style Questionnaire, CSQ; Billings and Moos, 1981).

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