

Psychological trauma symptoms of operative birth

By Jenny Gamble and Debra Creedy

ABSTRACT

This is the first in a series of articles on operative birth and psychological issues. This paper looks at negative childbirth experiences and how they can result in the development of trauma symptoms and post-traumatic stress disorder (PTSD). Psychological trauma symptoms following childbirth are debilitating, and may affect a woman's ability to care for her baby. This study aimed to examine the relationship between type of birth and symptoms of psychological trauma at 4–6 weeks postpartum. 400 Australian women in the last trimester of pregnancy were recruited from three public antenatal clinics. Participants were interviewed about the birth within 72 hours postpartum and telephone interviews conducted at 4–6 weeks postpartum to assess symptoms of psychological trauma. Results showed that women who had an emergency caesarean delivery or operative vaginal delivery were more likely to meet the diagnostic criteria for PTSD than women who had an elective caesarean section or spontaneous vaginal birth.

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In 1985 the World Health Organization (WHO) recommended that caesarean section rates be no more than 10–15% and yet the incidence of operative deliveries continues to escalate, particularly in the private sector. In Queensland, Australia current caesarean rates are 43.6% for insured women in the private sector and 24.7% for women using public services (Queensland Health Department, 2004). There is no evidence to suggest that this high level of intervention is essential to safeguard the well being of mothers and babies.

Surgical intervention in childbirth can be a psychologically adverse experience for many women. A prospective study of 270 primiparous women found those delivering via elective or emergency caesarean section, experienced adverse emotional effects such as anxiety and depression postpartum (Fisher, Astbury and Smith, 1997). Boyce and Todd (1992) found women delivering by emergency caesarean section were more than six times at risk of developing postnatal depression (PTSD) three months postpartum compared with spontaneous vaginal births.

There is evidence that psychological trauma symptoms and PTSD may develop as a consequence of childbirth experiences (Ayers and Pickering, 2001; Creedy, Shochet and Horsfall, 2000; Wijma, Soderquist and Wijma, 1997) and some gynaecological procedures (Menage, 1993). Creedy et al. (2000) identified 6% of women met the diagnostic criteria for PTSD at 4–6 weeks postpartum. The development of trauma symptoms was associated with operative birth, specifically emergency caesarean.

According to the American Psychiatric Association (APA, 2000), a traumatic event has a number of characteristics (as outlined in *Table 1*). It happens suddenly and unexpectedly, it disrupts a person's sense of control, their beliefs, values and basic assumptions about the world and others (APA, 2000).

The stressor is usually experienced with intensity, terror and helplessness. There may be a perception of life-threatening danger, with physical and emotional symptoms. Immediately after the event, the person may experience numbness, tearfulness, anger, loss and concern, hyperarousal and intrusion of trauma stimuli. As a result of the perceived trauma, the person may feel unsupported and distressed.

A traumatic birthing experience can overwhelm a woman's normal ability to cope with stress and carries the potential risk of intensifying into PTSD. When exposed to things that remind a woman of the trauma, symptoms may include flashbacks, nightmares, numbness, irritability, sleep disturbances, anger, being easily startled, hyper-vigilance (especially regarding the baby), avoidance of all reminders of the traumatic event, panic attacks, and physiological responses such as sweating and palpitations (*Table 1*).

Women are at greater risk for developing PTSD than men and this increased susceptibility may be partially attributable to higher rates of sexual trauma for women (Seedat and Stein, 2001). Case study reports indicate

that previous sexual abuse is a factor in the development of PTSD following traumatic obstetric or gynaecological events (Josephs, 1996). Furthermore, the risk of developing trauma has been shown to be dependent on the type of trauma, with a higher risk after assault (e.g. rape, physical assault, combat) than other forms of trauma (Seedat and Stein, 2001). Interpersonal violence is particularly damaging when perpetrated by those trusted to care (Horowitz, 1999). The victim's worldview is shaken when the expected constancy, fidelity and support are replaced with perceived malevolence of harmful actions.

In addition to Australia's high rates of caesarean section, the average rate of operative vaginal births (using forceps and vacuum) is also high at 12.3% for privately insured

women in private facilities (Queensland Health Department, 2004). Operative vaginal birth carries serious medical risks to woman and baby. Forceps birth carries significantly higher risk for pain, both during birth and the postpartum period. A forceps delivery results in more physical trauma to the woman's vagina and perineum, and creates greater need for pudendal blocks and other forms of regional anaesthesia for birth (MacLennan et al, 2000). Furthermore, the use of forceps or vacuum may affect the appearance of the baby and cause severe bruising (Towner et al, 1999). The appearance of physical damage to the baby may repulse some women or contribute to a sense of guilt and failure. The experience of an operative vaginal birth has been related to lowered self-esteem and

Table 1. Diagnostic criteria for Post-Traumatic Stress Disorder (PTSD)

A. The person has been exposed to a traumatic event in which both of the following factors were present:

- (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others
- (2) the person's response involved intense fear, helplessness, or horror

B. The traumatic event is persistently re-experienced in one (or more) of the following ways:

- (1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions
- (2) recurrent distressing dreams of the event
- (3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on waking or when intoxicated)
- (4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
- (5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three or more of the following:

- (1) efforts to avoid thoughts, feelings or conversations associated with the trauma
- (2) efforts to avoid activities, places, or people that arouse recollections of the trauma
- (3) inability to recall an important aspect of the trauma
- (4) markedly diminished interest or participation in significant activities
- (5) feeling of detachment or estrangement from others
- (6) restricted range of affect (e.g. unable to have loving feelings)
- (7) sense of a foreshortened future (e.g. does not expect to have a career, marriage, children, or a normal lifespan)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

- (1) difficulty falling or staying asleep
- (2) irritability or outbursts of anger
- (3) difficulty concentrating
- (4) hypervigilance
- (5) exaggerated startled response

E. Duration of the disturbance is more than one month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

The experience of an operative vaginal birth has been related to lowered self-esteem and depressed mood in women 4–6 weeks after delivery

depressed mood in women 4–6 weeks after delivery (Fisher et al, 1997). There have also been links between operative vaginal birth and trauma symptoms (Creedy et al, 2000), but further work in this area is required.

Although some studies attempted to compare the psychological effects of vaginal and caesarean deliveries, few have included the impact of operative vaginal births. Furthermore, few studies have specifically investigated the occurrence of trauma symptoms following operative childbirth. This study examines the relationship between type of birth and symptoms of psychological trauma at 4–6 weeks postpartum. It is timely, given the high rates of obstetric intervention in childbirth in developed countries and useful to confirm and extend findings of earlier studies.

Method

Recruitment

Participants were recruited from antenatal clinics of three maternity teaching hospitals in Brisbane, Australia between April 2001 and February 2002. Participants were over 18

years of age, in the last trimester of pregnancy, expected to give birth to a live infant, and able to complete questionnaires and interviews in English. Women experiencing still-birth or neonatal death were excluded. Women meeting the inclusion criteria were invited to participate and written consent was obtained. The study obtained university and health agency Human Research Ethics Committee approval.

Data collection

Women were recruited during their last trimester of pregnancy and completed a questionnaire that included demographic information and details of their reproductive history. At 72 hours postpartum or before discharge women were interviewed about birthing events. Creedy et al. (2000) reported that at 4–6 weeks postpartum birthing women provided reliable information on events during labour and birth. There was a 96% agreement between women's self-report and medical records. This study aimed to reduce possible difficulties with retrospective recall by limiting the time between birth and data collection. Speaking to women during their hospital stay also enabled any uncertainties about the birth to be clarified by staff or by referral to medical records.

At 4–6 weeks postpartum, participants were contacted by telephone and completed the Mini-International Neuropsychiatric Interview-Post-Traumatic Stress Disorder (MINI-PTSD), a structured diagnostic interview for Diagnostic and Statistical Manual of Mental Disorders 4th Edition (DSM-IV) and International Classification of Diseases 10th Revision ICD-10 psychiatric disorders (Sheehan et al, 1998). It elicits information on perceptions of the traumatic event, re-experiencing, avoidance, symptoms of increased arousal, and disturbance of everyday function. Scoring allows for a determination on the number of trauma symptoms (possible total of 13) and whether women meet the diagnostic criteria for acute PTSD. For this study, wording on the MINI was modified to reflect birth as the possible traumatic event. Validation and reliability studies have compared MINI to other standardized diagnostic measures and determined a Kappa value of 0.78, sensitivity = 0.85, specificity = 0.96, positive predictive value = 0.82, and negative pre-

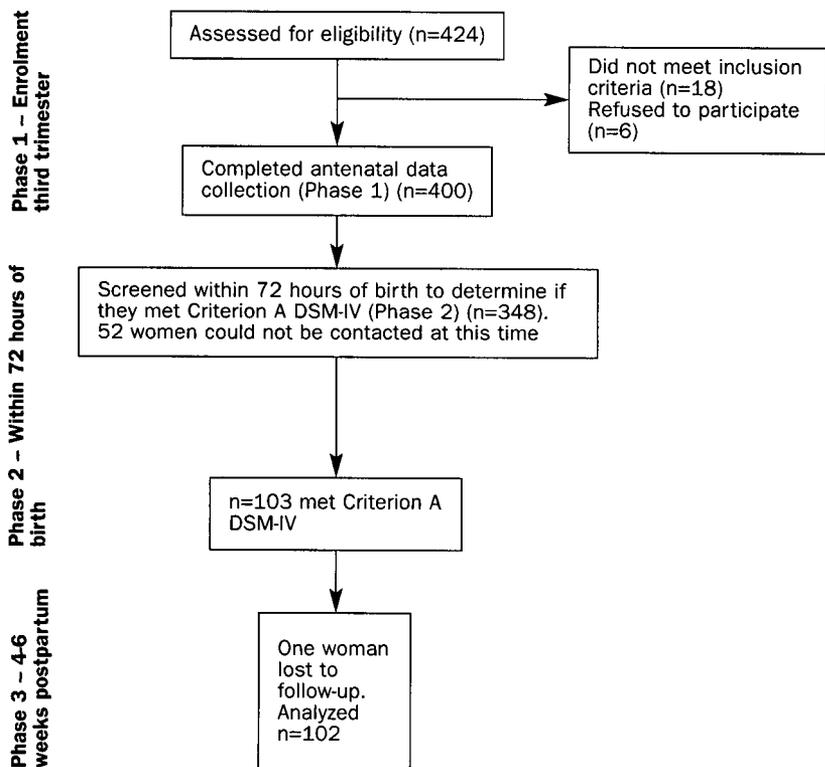


Figure 1. Participation rates in each phase of the study.

dictive value = 0.97. Interrater and test-retest reliability was high (Sheehan et al, 1998).

Data analysis

Descriptive analyses report on sample characteristics, incidence of type of delivery, as well as trauma symptom scores and presence of PTSD. Women were categorized according to type of delivery and whether diagnostic criteria for PTSD were met. Differences between groups (type of delivery) and outcome variables (e.g., trauma versus no trauma) were analysed using chi-square tests.

Results

Response rate and sample characteristics

Of the 424 women approached to participate in the study, 24 women refused or did not meet the inclusion criteria relating to fluency in English. 400 women participated in the antenatal phase of the study. See *Figure 1* for participation rate details. The sample was comparable to the state birthing population for age, marital status, education, ethnicity and parity (Australian Bureau of Statistics, 2000; Queensland Health Department, 2003). Demographic details are shown in *Table 2*.

The mean age of women in the sample was 27.84 years. Most were Caucasian/European (91.4%). The majority had achieved all or part of their secondary education (68%) while 30% had some form of tertiary education and 2% had completed postgraduate studies. Slightly fewer women in the sample had achieved tertiary education compared with national data. There were slightly more primiparous women in the sample than the state birthing population. 348 women were interviewed within 72 hours of birth. Rates for type of birth are outlined in *Table 3* and comparable with the state birthing population. The overall caesarean section rate of 22.7% (n=79) was similar to state figures although there were slightly fewer elective caesarean sections. 8.3% of women experienced forceps or vacuum extraction delivery – similar to the state average of 8.2% for both public sector and privately insured women.

Comparisons between women lost to follow-up at 72 hours postpartum and study participants

Fifty-two women (13%) were lost to follow-up when contact was attempted within 72

Table 2. Demographic characteristics of sample compared with state or national populations in Australia

Demographic characteristics	Sample n (%)	State or National population data (%)
Age Group		
Less than 20 years	27 (6.8)	6.5
20-24	91 (22.8)	18.2
25-29	128 (32)	32.3
30-34	101 (25.2)	28.1
35-39	45 (11.2)	12.6
40 years and over	6 (1.5)	2.3
Non-response	2 (.5)	
Total	400	
Marital status#		
Married/Defacto	336 (84)	87.1
Single	51 (12.7)	11.5
Separated/divorced	11 (2.7)	1.3
Non-response	2 (0.5)	
Total	400	
Ethnicity#		
Caucasian/European	361 (91.4)	88
Aboriginal/Torres Strait Islander		3 (.8) 5.6
Asian	17 (4.3)	3.5
Other	14 (3.5)	2.9
Non-response	5 (1.3)	
Total	400	
Occupational category*		
Manager/administrator	21 (5.4)	4.1
Professional/associate professional		43 (11) 30.6
Trades person	10 (2.6)	2.9
Clerical/sales & service	145 (37.2)	37.2
Production and transport	4 (1)	2.4
Home duties+	121 (31)	-
Student+	17 (4.4)	-
Unemployed+	29 (7.4)	-
Non-response	10 (2.5)	
Total	400	
Education*		
Secondary education	270 (68)	
Tertiary study	119 (30)	36.4
Higher degree	8 (2)	5.3
Non-response	3 (.8)	
Total	400	
Parity		
Nulliparous	194 (48.5)	40.1
Multiparous	206 (51.5)	59.9

Queensland Health (2003) Perinatal Statistics, Queensland 2000

* Australian Bureau of Statistics (2000) data.

+ Category not included in ABS data (2000)

hours postpartum. Women who could not be contacted following childbirth were more likely to be unemployed [c2 (7) 21.017, $p = .005$] and more likely to be primiparous [c2 (1) 5.357, $p = .025$]. There were no statistically significant associations for age, marital status, ethnicity, and level of education between participants and non-participants. It may be that unemployed women having their first baby are more geographically mobile and do not necessarily give birth at the hospital where they were recruited, or are more difficult to contact (i.e. changing contact details).

Incidence of trauma symptoms and PTSD

At 4–6 weeks postpartum, 102 women reported a distressing birth experience, and reported a range of psychological trauma symptoms (sample mean = 1.87, SD = 3.038, range 0–12) such as re-experiencing the event, concerted efforts to avoid thinking about the birth and hypervigilance towards the baby. One woman was lost to follow-up at this stage. Thirty-three (9.6%) women met the diagnostic criteria for acute PTSD.

Association between birth type, trauma signs and PTSD at 4–6 weeks postpartum

Type of birth was associated with the development of trauma symptoms at 4–6 weeks

postpartum [c_(3) 94.447, $p < .001$]. Women experiencing an emergency caesarean section or operative vaginal birth being more likely to report trauma symptoms and a traumatic birth experience than women experiencing a spontaneous vaginal birth or elective caesarean as shown in *Table 4*.

Similarly, a statistically significant association was found between type of birth and the development of the full symptom profile for PTSD at 4–6 weeks postpartum [c_(3) 34.836, $p < .001$]. Findings suggest that the frequency of PTSD was greater than expected in women who had emergency caesarean and operative vaginal birth and less than expected for women who had elective caesarean and spontaneous vaginal birth.

Discussion

This study identified a consistent association between an operative birth and development of psychological trauma symptoms. In particular, the experience of an emergency caesarean section was found to contribute to the development of acute trauma symptoms for nearly 73% of these women. Nearly a third of women who later developed acute PTSD had an emergency caesarean delivery. Similarly, the majority of women (79.3%) who had an operative vaginal birth were more likely to suffer psychological trauma symptoms.

There are a number of strengths associated with the present study in the recruitment of a representative sample of women from the public sector, low attrition across phases of the study and use of a standardized measure to assess psychological trauma symptoms. Unlike other research (e.g. Wijma et al, 1997), the present study specifically investigated the relationship between type of delivery and PTSD symptoms and diagnosis.

The development of PTSD following adverse birthing events extends our understanding of mothers' reactions to operative delivery. In addition to the presence of trauma symptoms and acute PTSD found in the present study, other researchers have reported adverse emotional consequences such as low self-esteem and depression following an emergency caesarean birth (Boyce and Todd, 1992; Enkin, 1989; Fisher et al, 1997; Garell, Lelong and Kaminski, 1987). Extreme disappointment, a sense of inadequacy and failure, hostility towards medical and midwifery staff

Table 3. Type of birth of sample compared with state population

Type of birth	Participants n (%)	Perinatal Data, Queensland (2000) (%)
Emergency caesarean section	44 (12.6)	11.8
Elective caesarean section	35 (10.1)	14.4
Forceps/vacuum extraction	29 (8.3)	8.5
Spontaneous Vaginal Birth	239 (68.7)	64.5

Table 4. Number of women reporting a traumatic birth by type of birth

Type of birth	Traumatic birth (n)	Not traumatic birth (n)	Total (n)
Spontaneous vaginal birth	39	201	240
Elective caesarean section	9	26	35
Emergency caesarean section	32	12	44
Forceps/ vacuum birth	23	6	29
Total	103	245	348

and intense anxiety have also been observed among surgically delivered women (Cartwright and Murray, 1995; Fisher et al, 1997; Marut, 1978; Thune-Larsen and Moller-Pedersen, 1988).

Psychological trauma of operative vaginal birth

Rates of operative vaginal birth are known to be higher among primiparous women compared to multiparous women (Stephenson et al, 1995). In the present study, the overall rate of operative vaginal delivery for primiparous women was 8.3%. This level was considerably lower than rates of operative vaginal births reported in studies with privately insured, primiparous women. Previous studies (Fisher, 1994; Carey 1990) both reported rates for operative vaginal birth of around 30% for privately insured primiparous women. Those studies found operative vaginal births to be less stressful for women than emergency caesarean section. This study, however, found operative vaginal birth to be consistently associated with acute trauma symptoms and a higher proportion of women adversely affected.

The traumatic nature of operative vaginal births is rarely considered, as the literature tends to focus on the impact of caesarean section (e.g. Marut, 1978). Operative vaginal births are emergency procedures in response to identified fetal distress or failure to progress and require additional analgesia (Johanson and Menon, 2004). The experience of extreme pain, in addition to fear for the baby's life, may contribute to dissociative responses and emotional numbing symptoms reported by women in this study and may precipitate acute PTSD. Furthermore, an operative birth may adversely affect women's confidence to give birth naturally in future or desire to have further children. It is possible women in the present study reporting PTSD symptoms or meeting the diagnostic criteria for PTSD had a history of the disorder that was subsequently transferred to childbirth. Future studies should consider screening for PTSD symptoms before birth.

Implications for practice

Women who have an operative birth face a number of physical and emotional challenges in the short and long term. These adverse consequences demand changes to

maternity care. Firstly, there needs to be a continued review to reduce the use of invasive obstetric procedures during labour and delivery. The contribution of operative vaginal birth to the development of acute trauma symptoms was previously reported by Creedy et al (2000). Given that nulliparous women are more likely to experience operative interventions (Wagner, 1994), obstetric staff need to be aware of possible adverse psychological consequences, and more importantly, review the use of such interventions during delivery.

Secondly Kendall-Tackett and Kaufman-Kantor (1995) suggested that the adverse consequences of an emergency caesarean procedure may be mediated by ample support during and after surgery. Therefore, opportunities need to be provided for women to talk about the birth. Staff need to ensure that women are kept informed and explanations are offered at each step of procedures.

Thirdly, although women often report being satisfied with their preparation for labour and birth, events preceding an emergency caesarean section can be perceived as unanticipated (Creedy et al, 2000). It is therefore necessary to realistically prepare women for labour and birth, including the provision of information on incidence of interventions and associated risks and benefits. Frank discussions about emergency procedures during the antenatal period may lessen the impact of unexpected events and enable women to better understand and participate in the decision-making process if such an emergency should arise during labour. Fourthly, given that some psychological trauma symptoms such as flashbacks have a delayed onset, postoperative care needs to provide ongoing emotional support to women and assess for trauma symptoms.

Conclusion

Results of this study provide evidence that the use of obstetric procedures during childbirth significantly contribute to the presence of acute trauma reactions in the postpartum. This study extends the findings of others (Boyce and Todd, 1992; Cartwright, 1979; Creedy et al., 2000; DiMatteo, Kahn and Berry, 1993; Fisher et al, 1997; Oakley, 1980; Simkin, 1991) in identifying the adverse implications of obstetric interventions on the psychological wellbeing of mothers. As

Frank discussions about emergency procedures in the antenatal period may lessen the impact of unexpected birth events

'emergency' intervention rates rise there is a possibility that the incidence of acute trauma reactions will increase.

The next article in this three-part series will look at managing uncertainty in child-birth, midwives coping strategies of midwives and their attitudes to CS. **BJM**

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KEY POINTS

- Psychological trauma symptoms and post-traumatic stress disorder (PTSD) may develop as a result of birth experiences.
- The average rate of caesarean and operative vaginal births in Australia is high.
- Adverse consequences of operative birth demand changes to maternity care.
- Postoperative care needs to provide ongoing emotional support to women due to incidences of delayed onset of PTSD and flashbacks.

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