



City Research Online

City St George's, University of London

Citation: Ayers, S. (2004). Delivery as a traumatic event: prevalence, risk factors, screening & treatment. *Clinical Obstetrics & Gynecology*, 47(3), pp. 552-567. doi: 10.1097/01.grf.0000129919.00756.9c

This is the unspecified version of the paper.

This version of the publication may differ from the final published version. To cite this item please consult the publisher's version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/2018/>

Link to published version: <https://doi.org/10.1097/01.grf.0000129919.00756.9c>

Copyright and Reuse: Copyright and Moral Rights remain with the author(s) and/or copyright holders. Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge, unless otherwise indicated, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way. For full details of reuse please refer to [City Research Online policy](#).

**Delivery as a traumatic event: prevalence, risk factors and treatment for
postnatal posttraumatic stress disorder**

Susan Ayers Ph.D, C.Psychol.

City University London

Please cite this paper as:

Ayers, S. (2004). Delivery as a traumatic event: prevalence, risk factors, screening and treatment. *Clinical Obstetrics & Gynecology*, 47(3), 552-567.

Abstract

This review looks at the evidence for postnatal posttraumatic stress disorder (PTSD). Postnatal traumatic stress responses are divided into: appraisal of birth as traumatic, traumatic stress responses (severe symptoms of intrusions and avoidance that do not fulfil criteria for PTSD), and PTSD. Evidence is examined for the prevalence of these types of responses after birth, and for prenatal, perinatal, and postnatal vulnerability and risk factors. Screening tools that could be used are outlined and possible intervention and treatment approaches considered. Various conceptual and methodological issues are also raised.

It is concluded that up to 10% of women have severe traumatic stress responses to birth although only 1-2% of women actually develop chronic postnatal PTSD. The limited research available suggests that a history of psychiatric problems, mode of delivery, and low support during labour put women at increased risk of postnatal PTSD, although there is unlikely to be a simple relationship between mode of delivery and traumatic stress responses. A model of the possible pathways between vulnerability/risk factors and postnatal PTSD is proposed. Current evidence suggests that brief cognitive-behavioural therapy (CBT) interventions should be used with women who have a severe traumatic stress response, and longer CBT interventions with women with postnatal PTSD. More research is needed to further explore and confirm prenatal, birth, and postnatal risk factors.

Introduction

There is increasing recognition by clinicians and researchers that a proportion of women may be traumatised by birth – some of them severely enough to develop posttraumatic stress disorder (PTSD) as a result. It is therefore important that information about postnatal PTSD is disseminated to clinicians so it is more widely recognised, screened for, and appropriately treated.

However, despite a growing amount of research being carried out into postnatal PTSD the published research in this area is currently sparse and differs widely in terms of methodology and measurement, which makes it hard to draw any firm conclusions. Thus there is a need for systematic reviews of the evidence on postnatal PTSD, vulnerability and risk factors, screening tools, and treatment. This paper tries to do this and is divided into five sections. The first section gives an overview of PTSD. The second section reviews evidence on the prevalence of postnatal PTSD. The third section looks at risk factors for postnatal PTSD, which are divided into prenatal, delivery, and postnatal risk factors. The fourth section looks at measures that can be used to screen for postnatal PTSD. Finally, the fifth section looks at intervention and treatment.

What is posttraumatic stress disorder?

Posttraumatic stress disorder was outlined by the Diagnostic Statistical Manual 4th Revision (DSM-IV) of the American Psychiatric Association ⁽¹⁾ as occurring after an event in which (1) there was threat of severe injury, death, or threat to the physical integrity of the person or a significant other; and (2) that the person responded with intense fear, helplessness or horror. It is possible for childbirth to fill these criteria through perceived threat of injury or death to the baby or the woman, or

a threat to the physical integrity of the woman. For example, Ballard, Stanley & Brockington (1995)⁽²⁾ report a case study of a woman who had an emergency caesarean section without effective anaesthesia in which “she experienced excruciating pain during an operation which took 10 minutes. She was screaming, shouting, and struggling to get off the operating table during the procedure, and was held down by attendants while the anaesthetist attempted to supplement the epidural” (p. 526).

Symptoms of PTSD fall into three clusters: (1) re-experiencing of the event e.g. flashbacks, nightmares, intrusive thoughts; (2) avoidance and numbing e.g. avoiding any reminders of the event, feeling emotionally numb and detached; and (3) arousal e.g. increased startle response, irritability, anger etc. Symptoms need to be evident for at least one month and cause significant disability/impairment to the person’s life. It should be noted that PTSD is highly comorbid with other psychological problems such as depression, anxiety, substance abuse etc. PTSD can also follow on from Acute Stress Disorder (ASD), which is acute symptoms of re-experiencing, avoidance, arousal, and dissociation within one month of an event. The lifetime prevalence of PTSD in women in the USA is between 10.4% and 18.3% with lower estimates being based on criteria from the previous version of DSM (DSM-III-R) and higher estimates being based on criteria from DSM-IV (see Breslau, 1998, for a review³).

In application to childbirth, it is important to distinguish between PTSD (where diagnostic criteria are fulfilled), appraisal of birth as traumatic, and a traumatic stress response. Appraisal of birth as traumatic is when women consciously label their experience of birth as ‘traumatic’ although they may not have any psychopathology associated with it. For example, Maclean, McDermott & May

(2000) ⁽⁴⁾ found that although women with instrumental deliveries perceived their birth as more distressing, they did not have more symptoms of PTSD than women with vaginal deliveries or caesarean sections did.

A traumatic stress response is where women have re-experiencing and avoidance symptoms, particularly in the first six weeks, but do not fulfil all the diagnostic criteria for PTSD. Although a traumatic stress response can be severe - often fulfilling criteria for ASD - it does not necessarily develop into PTSD. In fact, research into traumatic stress responses in other samples has shown that the majority of people with a traumatic stress response recover spontaneously during the first three months after the event. For example, a study of rape victims found that although 94% met symptom criteria for PTSD two weeks after rape (but not duration criterion) this decreased to 47% three months after the assault ⁽⁵⁾. This recovery has a theoretical basis as well. It has been suggested that re-experiencing and avoidance symptoms are normal following a traumatic event and allow the person to mentally process the event in manageable chunks without becoming completely overwhelmed by the event ⁽⁶⁾.

This leads to two important points. First, a traumatic stress response does not necessarily lead to PTSD and therefore we should not pathologise it. Second, when looking at research into postnatal PTSD it is important to look at both the type and timing of measures used in order to differentiate between a traumatic stress response and PTSD.

Prevalence of postnatal PTSD

The study of postnatal PTSD is still very much in its early stages and there are conceptual issues that need to be borne in mind when looking at the research evidence. For example, labelling traumatic responses to birth as 'posttraumatic stress

disorder' assumes some equivalence between childbirth and other traumatic stressors such as rape or natural disasters, which may not be the case. Delivery does differ from other traumatic events in that it is broadly predictable, is usually entered into voluntarily, and can be a positive experience for many women. Even when a woman has a traumatic birth she may see her baby as a positive outcome that makes the experience 'worth it'. Hence, other labels have been proposed for postnatal PTSD such as partus stress reaction or postnatal stress disorder^(7, 8) but as yet there has been little discussion or resolution of these conceptual matters.

Several case studies have been reported of women who have PTSD after delivery which provide evidence that PTSD can occur during the postnatal period^(2, 7-10). These cases mostly include women with objectively traumatic experiences, such as emergency caesarean without effective anaesthetic as detailed before, toxemia, or infant cardiac arrest^(2, 7). However, other cases occur after deliveries that appear to be more subjectively traumatic, for example a multiparous woman who had an obstetrically normal delivery but had high levels of pain and was left alone for long periods⁽²⁾.

To date, eight quantitative studies have been published that examine the prevalence of PTSD in the postnatal period and these are shown in Table 1⁽¹¹⁻¹⁸⁾. A number of additional studies were excluded because they were either qualitative^(19, 20), included PTSD following gynecological procedures as well as obstetric procedures⁽²¹⁾, had very low response rates⁽²²⁾, or were restricted to women who had caesarean sections⁽²³⁻²⁵⁾.

[Insert Table 1 about here]

The research included in Table 1 indicates that approximately one third of women appraise childbirth as traumatic. However, only ten percent of women have a severe traumatic stress response in the initial weeks after birth and this reduces to 2.4% at six months. Finally, between 0.8 and 6.9 percent have clinical PTSD after birth. However, this research is mostly cross-sectional so it is difficult to know whether women with postnatal PTSD also had PTSD before delivery. It is possible that the proportion of women with postnatal PTSD includes women with either ongoing PTSD (where delivery exacerbates symptoms from previous event or transfers the focus of symptoms onto birth) or recurrent PTSD (where delivery reactivates symptoms that were previously resolved). In order to determine how many women with postnatal PTSD are new cases in previously unaffected individuals (i.e. incidence) prospective studies need to be carried out that measure current and lifetime PTSD in pregnancy. To date only one study has measured PTSD symptoms in pregnancy⁽¹¹⁾ and found that 8.1% of women had PTSD in pregnancy. This is higher than the prevalence of postnatal PTSD, although this may be due to two factors. Firstly, the measure used in pregnancy was general and may have picked up on general psychopathology as well as PTSD symptoms. Secondly, postnatal measures of PTSD tend to measure symptoms only in respect to childbirth so postnatal prevalence figures will not include women with PTSD symptoms associated with other events. This study found that, after removing women with symptoms of PTSD or depression in pregnancy, there was an incidence of 1.5% six months postpartum. This figure is similar to those reported by Wijma et al (1997)⁽¹⁸⁾ 1-13 months postpartum on a sample of 1640 women (1.7%), Soderquist et al (2002)⁽¹⁶⁾ 1-14 months postpartum on a sample of 1550 women (1.8%), and Soet et al (2003)⁽¹⁷⁾ four weeks postpartum on a sample of 103 women (1.9%).

Thus, there is converging evidence that around one to two percent of women are affected by postnatal PTSD in the long term. However, as yet no studies have measured lifetime PTSD so it is impossible to know whether these figures include women with previously resolved PTSD that reoccurs after birth. Although an incidence of 1.5% appears small, the numbers of women giving birth means this results in approximately 10,000 women developing chronic postnatal PTSD in England and Wales every year. It is therefore important to ascertain possible risk factors and identify women who need help or treatment.

What are the risk factors for postnatal PTSD?

There is little quantitative research into risk factors for postnatal PTSD. Case studies and qualitative studies that have been published^(2, 7-10, 19-20) are suggestive but not a valid basis on which to draw systematic conclusions regarding risk factors and subsequently screening and treatment. Readers interested in reviews that include qualitative studies are advised to see Bailham & Joseph (2003)⁽²⁶⁾ or Olde, Van Der Hart, Kleber & Van Son (in press)⁽²⁷⁾.

In contrast to research into postnatal PTSD, there is an extensive body of research looking at risk factors for PTSD following other events. The main methodological problem with this research is that it is rarely prospective because traumatic events are not usually predictable. Prospective studies that have been done are either opportunistic (i.e. involving samples where measures have been taken for other purposes and they have later been exposed to a traumatic event) or start pre-morbidly but after the event. In general, however, this research provides a guide to the kind of risk factors that might be important. Some of the risk factors that have been identified are a history of psychopathology⁽²⁸⁾, family history of

psychopathology⁽²⁸⁾, a history of sexual or physical abuse^(29, 30), low intelligence⁽³¹⁾, and neuroticism⁽²⁸⁾. Peri-traumatic risk factors that have been identified are increased dissociation during the event (e.g. feelings of detachment, depersonalisation, unreality, time distortion) and elevated heart rate immediately after the event^(32, 33). Post-event risk factors include low levels of support⁽³⁴⁾.

Risk factors that have been identified for postnatal PTSD can be divided into prenatal risk factors, risk factors in delivery, and postnatal risk factors. These are considered in turn below.

Prenatal risk factors & postnatal PTSD

Table 2 gives an overview of prenatal risk factors that have been associated with postnatal PTSD and includes some unpublished dissertation data⁽³⁵⁾. This shows that a number of prenatal factors are associated with postnatal traumatic stress responses. Demographic factors, such as low socioeconomic status, are associated with a traumatic stress response but not with PTSD. However, the role of other demographic factors appears to be small, as other studies find no association between traumatic stress responses and factors such as marital status, age, and level of education⁽¹⁸⁾.

[Insert Table 2 about here]

Women's subjective experience of pregnancy, namely a difficult or unplanned pregnancy is associated with traumatic stress. In contrast, obstetric variables in pregnancy, such as obstetric history or risk of complications, do not appear to be associated with traumatic stress responses with the possible exception of parity. Two

large studies carried out in Sweden found that nulliparous women were at higher risk of PTSD^(16, 18). However, Soderquist et al (2003)⁽¹⁶⁾ found that the effect of parity disappeared once mode of delivery was controlled for. In addition, other studies carried out in the UK and Australia have not found that parity is associated with traumatic stress responses^(12, 13). It therefore seems likely that the effect of parity is mediated by other factors such as type of delivery. It is also possible that psychological factors such as novelty and increased anxiety also mediate between parity and PTSD. There is, for example, a large amount of research on normal stress responses showing that novel situations lead to greater stress responses.

Psychosocial factors in pregnancy appear to be strongly implicated in traumatic stress responses with, for example, anxiety, neuroticism, poor coping, low self-efficacy for birth (expectations of control over the outcome), and low support in pregnancy being associated with a severe traumatic stress response. However, fewer psychosocial factors are associated with clinical PTSD. Only a history of psychiatric problems is consistently associated with PTSD. In general, therefore, it seems that the main prenatal risk factors for severe traumatic stress responses are psychosocial (e.g. anxiety, poor coping, low support) but that only a history of psychiatric problems is consistently associated with risk of PTSD.

Risk factors in delivery and postnatal PTSD

Table 3 gives an overview of delivery factors that have been associated with postnatal PTSD. This shows that a range of delivery factors is associated with traumatic stress responses. Three dimensions of delivery appear to be particularly important – mode of delivery, pain in labour, and support in labour.

[Insert Table 3 about here]

Mode of delivery (in the form of instrumental or emergency caesarean section) is associated with traumatic stress responses⁽¹²⁾ and PTSD⁽¹⁶⁾ but not consistently so^(13, 35). More specific obstetric factors, such as duration of labour and blood loss, are only associated with appraisal of birth as traumatic and not with symptoms of traumatic stress⁽³⁵⁾. Thus medical intervention appears to be important in conscious appraisal of birth as traumatic, but is only involved in traumatic stress responses and PTSD at the broad level of mode of delivery. This may be because instrumental and/or caesarean deliveries usually indicate births that involve emergency situations and consequently more threat to the life of the woman or the baby than normal vaginal deliveries.

Similarly, pain in labour is associated with appraising birth as traumatic⁽¹⁷⁾ and severe traumatic stress responses⁽¹⁷⁾ and postnatal pain is associated with PTSD⁽¹²⁾ but not consistently so^(13, 35).

Support appears to be important in a number of ways. Firstly, low levels of support from the staff or a woman's partner is associated with appraising birth as traumatic and a severe traumatic stress response. If a partner is not present there is increased likelihood of a traumatic stress response but not of PTSD. Secondly, care factors such as whether women felt adequately cared for, adequately informed or listened to are associated with appraisal of birth as traumatic, severe traumatic stress responses and PTSD although, again, not consistently so⁽¹²⁾. A few measurement issues are important here. First, perceived support is subjective. Some women may expect more support and consequently feel less supported despite receiving similar amounts of support as other women. Second, the retrospective measurement of

support makes it difficult to know the direction of causality between support in delivery and postnatal PTSD. For example, a woman who appraises birth as traumatic and subsequently feels distressed by her experience may, in retrospect, be more likely to report being unsupported during delivery. Thus future research should take account of how much support women want as well as how much support they receive, and should try and measure support prospectively or as soon as possible after delivery.

Finally, subjective aspects of delivery are also likely to be important. Table 3 suggests that violation of expectations and lack of control might be important because they are consistently associated with appraisal of birth as traumatic and a severe traumatic stress response, although these variables have not been examined in relation to PTSD. There are sound theoretical reasons for a violation of expectations to be associated with increased stress responses. For example, Gray's (1994)⁽³⁶⁾ neurological theory of anxiety posits that anxiety increases if reality does not match expectations. Research into normal stress responses shows that unpredictable situations result in increased stress responses, and it is plausible that a violation of expectations may well lead to women feeling delivery is more unpredictable. However, the research reported in Table 3 has only measured postnatal evaluations of whether birth was 'different than expectations' or 'worse than expected', and it is possible that women who are distressed following delivery are more likely to report this. A more rigorous measure of violation of expectations would be to measure expectations in pregnancy and then contrast this with a similar measure of experiences during delivery.

Control is also likely to be important. Psychological research has found that increased control leads to lower physical stress responses and anxiety. Theories of

depression have been developed around a lack of control leading to learned helplessness⁽³⁸⁾. Research into the role of control in childbirth generally finds that increased control is associated with less analgesia use, more fulfilment, satisfaction and emotional wellbeing after birth^(39, 40). Two studies that have looked at control and postnatal PTSD both indicate that low control is associated with a traumatic stress response^(14, 35) but both these studies used basic unidimensional measures of control (e.g. how often women felt ‘in control’) whereas control in delivery is likely to be multifaceted.

Thus, overall it seems that mode of delivery, pain, and perceived support are important in traumatic stress responses and PTSD after birth. In addition, subjective factors such as violation of expectations and lack of control may be important but more research is needed to elucidate this. However, the conflicting results regarding the role of delivery factors in traumatic stress suggest the relationship between events in delivery and PTSD is not a straightforward linear one. This is consistent with research in other medical samples, which finds that severity of illness is not consistently predictive of PTSD symptoms⁽⁴¹⁾. There is now an ongoing debate about the apparent lack of a dose-response relationship between exposure to a traumatic event and the severity of PTSD⁽⁴²⁾. It has been suggested that the dose-response relationship may be nonlinear – for example, once an event reaches a certain threshold of severity then subsequent increases in the severity of exposure may not increase psychiatric morbidity⁽⁴²⁾. In other words, there may be no difference in PTSD between someone who has been tortured once and someone who has been tortured ten times (example taken from McNally, 2003)⁽⁴²⁾.

A more sophisticated explanation is the diathesis-stress approach, which proposes that characteristics of the event interact with individual vulnerability or

strength to determine whether a person develops PTSD or not. In postnatal PTSD, for example, a woman with a history of psychological problems might be traumatised by a normal vaginal delivery - particularly if she is treated insensitively or the events of delivery match onto previous problems. An example of this is a multiparous woman who developed PTSD after the birth of her third child. Her first child was born with a serious heart defect and had to have surgery very soon after birth, and again during her third pregnancy. She did not feel traumatised by the first delivery but suffered from postnatal depression. The second pregnancy and birth were fine. However, during the third delivery her labour progressed very quickly and, although she told the staff she thought the baby was coming, she was not checked until the baby's head was almost crowning. When the baby was delivered he was blue, just as her first child had been. In the subsequent few moments this woman was convinced her baby was dead and, despite the baby being fine after a few minutes, she subsequently developed PTSD ⁽³⁵⁾.

At the other extreme are women with good psychological health and coping mechanisms who recover from more objectively traumatising deliveries. An example of this is a primiparous woman who had a long labour that ended with an emergency caesarean in which the epidural anaesthetic was not effective. When the surgeon cut into her she felt excruciating pain, screamed, and was given a general anaesthetic. After delivery she had almost no symptoms of traumatic stress and was making a remarkable recovery ⁽³⁵⁾. This is in contrast to the case study outlined at the beginning of this paper where a woman with a similar delivery experience developed PTSD ⁽²⁾. The diathesis-stress model helps to account for differences like these in women's psychological responses to delivery. It also explains the inconsistent results on the role of delivery factors in postnatal PTSD.

Postnatal risk factors and postnatal PTSD

Very few studies have looked at postnatal factors associated with PTSD. What research is available suggests that additional stress, use of coping strategies, and low support is associated with postnatal traumatic stress responses^(14, 35). In addition, Czarnocka & Slade (2000)⁽¹³⁾ found that blaming oneself and/or staff for events in birth is associated with traumatic stress, although this finding is not consistent⁽³⁵⁾. Overall, these findings are broadly coherent with research in non-obstetric samples, which also finds that additional stress, low support, and possibly complex emotions like guilt, shame and blame contribute to the development of PTSD^(43, 44). However, it is currently unclear just how post-event factors affect PTSD. For example, they may contribute to the cause of PTSD by increasing the 'stress load', and/or interfere with recovery processes.

What can we conclude about risk factors?

It is hard to draw firm conclusions about risk factors and causes of postnatal PTSD because the available research is sparse, mostly retrospective, often looks at different risk factors, uses different measures of outcome, and has been carried out in different countries where birthing practices may differ. In addition, most of the research reviewed here does not account for PTSD in pregnancy, or lifetime PTSD, with the exception of one study⁽¹¹⁾. It is possible that women with a history of trauma and/or PTSD have fundamentally different risk factors than women with no history of trauma or PTSD. There are also many areas where further research is needed to consolidate findings and clarify the role of factors such as control, violation of expectations, and blame. In addition, some variables have not been examined that

might be important in postnatal PTSD, such as a history of sexual abuse or other trauma.

Therefore conclusions need to be cautious. From this review, it is possible to draw a few tentative conclusions about prenatal, delivery, and postnatal risk factors for traumatic stress responses. Appraising birth as traumatic is primarily associated with obstetric factors such as type of delivery, type of analgesia, duration of labour, blood loss, pain and medical intervention. Although appraisal of birth as traumatic is associated with both a traumatic stress response⁽³⁵⁾ and PTSD⁽¹⁸⁾ it does not necessarily mean that all women who appraise birth as traumatic will have symptoms of psychopathology.

A severe traumatic stress response, on the other hand, is associated with a broad range of factors. Psychosocial risk factors (e.g. anxiety, neuroticism, poor coping, low self-efficacy for birth, low support in pregnancy), broad obstetric factors (e.g. type of delivery, pain, low support in labour), subjective factors in delivery (e.g. control, violation of expectations), and postnatal factors (additional stress, coping, low support) are all associated with a traumatic stress response. However, as previously mentioned the majority of women with a severe traumatic stress response after birth may well recover spontaneously without intervention.

Postnatal PTSD is associated with fewer factors but this may be because the studies that have measured clinical PTSD as an outcome (using standardised measures) have tended to examine only a few risk factors. The study of postnatal PTSD also requires large samples in order to identify enough women with postnatal PTSD to carry out meaningful analyses. The research reviewed here in this paper suggests that postnatal PTSD is associated with a history of psychological problems, mode of delivery and low support during labour. These vulnerability and risk factors

for postnatal stress responses are shown in Figure 1, which summarises the main findings of research reviewed here and speculates about possible pathways between these factors and postnatal PTSD.

[Insert Figure 1 about here]

In summary, the research indicates that approximately one to two percent of women may develop chronic postnatal PTSD and that there are a range of prenatal, perinatal, and postnatal risk factors for postnatal traumatic stress. The implications of this should not be underestimated. First, there is the obvious effect on the mental health of the woman – and healthcare costs and implications of this. There are also likely to be secondary effects on the infant, existing children, and the family unit. In addition, the common comorbidity of PTSD with other disorders, such as depression and substance abuse, means that women may be misdiagnosed and treated on the basis of secondary psychopathology, which may not be successful. It is therefore really important that postnatal PTSD is more widely recognised and screened for. The next section therefore looks at how to screen for postnatal PTSD and traumatic stress responses, and the final section looks at recommendations for treatment.

Screening for postnatal PTSD

The gold standard for diagnosing PTSD is a clinical interview carried out by a psychiatrist or clinical psychologist. However, this is costly and not always realistic. There are therefore many standardised questionnaires available that can be used to screen for a severe traumatic stress response, ASD, or PTSD. For a more detailed discussion of questionnaire measures of postnatal psychological symptoms see Ayers

(2001)⁽⁴⁵⁾. A severe traumatic stress response can be screened for by using either the Impact of Event Scale (IES)⁽⁴⁶⁾ or the Revised Impact of Event Scale (Revised-IES)⁽⁴⁶⁾. The IES measures symptoms of avoidance and intrusions. The Revised-IES also measures symptoms of arousal. This scale has been widely used in obstetric samples and other patient groups. It can be applied to childbirth by asking women to answer questions with regard to their experience of childbirth. It provides separate scores for symptoms of intrusions, avoidance, and arousal (Revised-IES only). Scores of symptoms of intrusions or avoidance between 9-19 indicate a moderate traumatic stress response; 20+ indicates a severe traumatic stress response.

Clinical PTSD should be screened for using a standardised measure that follows DSM-IV criteria as outlined at the beginning of this paper. It should also be screened for one month after birth or later because of the duration criterion. In fact, because of spontaneous recovery after traumatic events it is recommended to wait until three months because there is a drop in the rate of recovery after this time⁽⁵⁾. A few questionnaires have been used to measure PTSD in obstetric samples – all of which follow diagnostic criteria for DSM-IV. However, all these questionnaires need some modification so that symptoms are measured in relation to childbirth and not other events.

The PTSD symptom scale (PSS)⁽⁴⁸⁾ can be used as a questionnaire or an interview and is easily referred to childbirth. It has been used in studies of postnatal PTSD^(11, 12) and has been validated against clinical interviews with a sensitivity of 0.62 and a specificity of 1⁽⁴⁸⁾. However, since this research was carried out, the PSS has been further developed into the PTSD Diagnostic Scale (PDS)⁽⁴⁹⁾. The PDS includes a measure of trauma history as well, which is a major advantage. However a drawback of the PDS is that the trauma history scale is completed first and if women

do not report a trauma they are not required to complete the rest of the questionnaire regarding symptoms. This is a problem because many women do not think of childbirth as comparable to the other traumatic events listed (e.g. earthquakes, sexual assault, military combat etc). Therefore many women report no traumatic events and do not complete the scale – despite some of them having symptoms that fulfil criteria for postnatal PTSD. This can be overcome by putting the trauma history questions at the end of the questionnaire and asking women to first complete the section measuring symptoms in relation to their experience of birth.

Another measure of PTSD that has been used in postnatal samples is the Traumatic Event Scale (TES)⁽¹⁸⁾. This has not been validated against clinical interviews so there are no data on sensitivity or specificity. However, it has been used in large studies of postnatal women^(16, 18).

Using these measures as simple screening tools during the postnatal period would enable us to identify women with a severe traumatic stress response or postnatal PTSD who may benefit from treatment. The next section therefore looks at intervention and treatment.

Intervention and treatment for postnatal PTSD

Whatever intervention and treatment is offered it is imperative that it is based on research evidence. Because of the lack of research into intervention in postnatal PTSD this section therefore draws on the literature into the efficacy of treating PTSD in other groups.

For postnatal PTSD, intervention is possible at primary, secondary and tertiary levels. Primary prevention is possible if vulnerable women are identified in pregnancy by screening for risk factors, such as a history of trauma or psychological

problems. These women could be offered alternative birth procedures or their notes could be marked so that staff provides extra care and support during delivery.

Secondary prevention is possible by screening women for a severe traumatic stress response or acute stress disorder (ASD) after birth and offering them appropriate treatment. Finally, tertiary prevention is possible if vulnerable or traumatised women are followed up in the long term to identify those who develop chronic PTSD so they can be offered further treatment, perhaps in conjunction with their family to address secondary effects.

In terms of tertiary prevention, research into treatment of PTSD in non-obstetric samples has established that psychotherapy in the form of cognitive behavioural therapy (CBT) is a safe and effective way to treat PTSD across a range of traumas (see Harvey, Bryant & Tarrier, 2003, for a review)⁽⁵⁰⁾. CBT typically involves education, exposure, cognitive restructuring, and anxiety management and usually comprises 9-12 sessions, each lasting between 60 and 90 minutes. This treatment is used with patients who are identified as having PTSD and is often combined with pharmacological treatment such as SSRI's.

In terms of secondary prevention, the efficacy of providing psychotherapy to people who have a severe traumatic stress response is debated because of the spontaneous recovery of many people in the initial months after the event. Subsequently, research has tried to identify people at high risk of developing PTSD with whom therapy might be effective. One possible way to do this is to identify people with ASD, as research suggests that approximately 80% of people with ASD will go on to develop PTSD⁽⁵¹⁾. Early, brief CBT interventions (5-6 sessions) with people with ASD are effective in reducing later PTSD. For example, Bryant et al (1998)⁽⁵²⁾ provided brief CBT or supportive counselling to people with ASD

following mild traumatic brain injury. Six months later only 8% of the CBT group had PTSD compared to 58% of those who received supportive counselling.

These early, brief CBT interventions should not be confused with debriefing interventions, which are currently controversial. Debriefing is a term that includes a range of approaches that usually consist of one short session within four weeks of a traumatic event where individuals are encouraged to talk about the event to promote emotional processing. Originally, psychological debriefing was proposed as a highly structured group session that included introduction, going over the facts, thoughts and impressions, emotional reactions, normalising, planning for the future, and disengagement^(53, 54). Alternative approaches to debriefing have been suggested⁽⁵⁵⁾ but different approaches share a common goal of identifying emotional responses, encouraging their expression, and legitimising them. The attraction of debriefing is the potential to prevent the development of PTSD with one short session very soon after the event. However, research examining the efficacy of debriefing in non-obstetric samples has found little evidence that it is effective and some evidence that it may increase the risk of developing PTSD⁽⁵⁶⁾.

Despite the controversy surrounding the use of debriefing interventions, it seems to be increasingly used with postnatal women. Small et al (2000)⁽⁵⁷⁾ report that 36% of UK healthcare trusts have formal arrangements for postnatal debriefing and an additional 26% plan to implement similar procedures. Two studies have looked at debriefing in postnatal samples with mixed results. Lavender & Walkinshaw (1998)⁽⁵⁸⁾ randomised 114 primiparous women in the UK into either a debriefing intervention or normal care and found that women who received the intervention had lower anxiety and depression scores three to four weeks after birth. In contrast, Small et al (2000)⁽⁵⁷⁾ randomised 1041 women in Australia into debriefing or normal care

and found no significant differences between groups in depression months after birth. There is therefore conflicting information about the efficacy of debriefing in postnatal samples. However, neither study looked at traumatic stress responses. In addition, samples were restricted to primiparous women⁽⁵⁸⁾ or women who had assisted or operative deliveries⁽⁵⁷⁾. Both studies also used midwife-led debriefing, which was unstructured and provided an opportunity for women to discuss their experience and concerns about events in birth. This type of debriefing is very different to psychological approaches and it may be that midwife-led debriefing is potentially more effective in reducing traumatic stress symptoms, but this is yet to be tested properly and there is a desperate need for more research into intervention for postnatal PTSD generally.

Recommendations for treatment

In summary, therefore, until further research is available that looks at interventions for postnatal PTSD the safest course of action is to use brief CBT interventions with women who have a severe stress response or ASD, and longer CBT interventions with women who have chronic postnatal PTSD.

Summary & Conclusion

From this review it can be concluded that up to 10% of women have severe traumatic stress responses to birth although only 1-2% of women actually develop chronic postnatal PTSD. The limited research available suggests that a history of psychiatric problems, mode of delivery, and low support during labour put women at increased risk of postnatal PTSD, although there is unlikely to be a simple relationship between mode of delivery and traumatic stress responses. Current

evidence suggests that a brief CBT intervention should be used with women who have a severe traumatic stress response, and longer CBT interventions with women with postnatal PTSD. More research is needed to confirm prenatal, perinatal and postnatal risk factors. In addition, the role of certain variables such as a history of sexual abuse, lack of control in birth and blame after birth need to be examined further. Finally, future research must differentiate between women who have pre-existing PTSD and new cases of PTSD that develop as a direct result of childbirth, as it is possible that vulnerability and risk factors differ for these two groups.

References

1. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorder, 4th Edition (DSM-IV). Washington, DC: American Psychiatric Association, 1994.
2. Ballard C, Stanley A & Brockington I. Post-traumatic stress disorder (PTSD) after childbirth. *British Journal of Psychiatry*, 1995; 166: 525-28.
3. Breslau N. Epidemiology of trauma and posttraumatic stress disorder. In R. Yehuda (Ed) *Psychological Trauma. Review of Psychiatry Series (Vol 17)*. Washington, DC: American Psychiatric Press Inc, 1998:1-29.
4. Maclean LI, McDermott ME, & May CP Method of delivery and subjective distress: women's emotional responses to childbirth practices. *Journal of Reproductive and Infant Psychology*, 2000; 18 (2): 153-162.
5. Rothbaum BO & Foa EB. Subtypes of posttraumatic stress disorder and duration of symptoms. In J.R.T. Davidson & E.B. Foa (Eds) *Posttraumatic Stress Disorder: DSM-IV and beyond*. Washington: American Psychiatric Press, 1993:23-35.
6. Horowitz MJ. *Stress Response Syndromes*. Northvale, NJ: Jason Aronson, 1986.
7. Moleman N, van der Hart O & van der Kolk B. The partus stress reaction: a neglected etiological factor in postpartum psychiatric disorders. *The Journal of Nervous and Mental Disease*, 1992; 180(4): 271-72.
8. Ralph K & Alexander J. Bourne under stress. *Nursing Times*, 1994; 90(12): 28-30.
9. Fisch RZ, Tadmor O. Iatrogenic post-traumatic stress disorder [letter]. *Lancet*, 1989; 2(8676): 1397.
10. Fones C. Posttraumatic stress disorder occurring after painful childbirth. *Journal of Nervous & Mental Disease*, 1996; 184(3): 195-196.

11. Ayers S & Pickering AD. Do women get post-traumatic stress disorder as a result of childbirth? A prospective study of incidence. *Birth*, 2001; 28:2: 111-118.
12. Creedy DK, Shochet IM & Horsfall J. Childbirth and the development of acute trauma symptoms: incidence and contributing factors. *Birth*, 2000; 27(2): 104-11.
13. Czarnocka J & Slade P. Prevalence and predictors of post-traumatic stress symptoms following childbirth. *British Journal of Clinical Psychology*, 2000; 39: 35-51.
14. Lyons S. A prospective study of post traumatic stress symptoms 1 month following childbirth in an group of 42 first-time mothers. *Journal of Reproductive and Infant Psychology* 1998; 16: 91-105.
15. Skari H, Skreden M, Malt UF, Dalholt M, Ostensen AB, Egeland T & Emblem R. Comparative levels of psychological distress, stress symptoms, depression and anxiety after childbirth – a prospective population-based study of mothers and fathers. *British Journal of Obstetrics and Gynaecology*, 2002; 109: 1154-1163.
16. Söderquist J, Wijma K, Wijma B. Traumatic stress after childbirth: the role of obstetric variables. *Journal of Psychosomatic Obstetrics and Gynecology* 2002; 23: 31-39.
17. Soet JE, Brack GA & Dilorio C. Prevalence and predictors of women's experience of psychological trauma during childbirth. *Birth*, 2003; 30(1): 36-46.
18. Wijma K, Soderquist J & Wijma B. Posttraumatic stress disorder after childbirth: a cross sectional study. *Journal of Anxiety Disorders*, 1997; 11(6): 587-597.
19. Allen S. A qualitative analyses of the process mediating variables and impact of traumatic childbirth. *Journal of Reproductive and Infant Psychology*, 1998; 16: 107-132.

20. Church S & Scanlan M. Post-traumatic stress disorder after childbirth: do midwives have a preventative role? *Postnatal Care* 2002; 5: 10-13.
21. Menage J. Post-traumatic stress disorder in women who have undergone obstetric and/or gynaecological procedures: a consecutive series of 30 cases of PTSD. *Journal of Reproductive and Infant Psychology*, 1993; 11: 221-28.
22. DeMier RL, Hynan MT, Harris HB, Manniello RL. Perinatal stressors as predictors of symptoms of posttraumatic stress in mothers of infants at high risk. *Journal of Perinatology* 1996; 16: 276-280.
23. Ryding EL, Wijma B, Wijma K. Posttraumatic stress reactions after emergency cesarean section. *Acta Obstetricia Gynecologica Scandinavica*, 1997; 76: 856-861.
24. Ryding EL, Wijma K, Wijma B. Predisposing psychological factors for posttraumatic stress reactions after emergency cesarean section. *Acta Obstetricia et Gynecologica Scandinavica* 1998; 77: 351-352.
25. Ryding EL, Wijma K, Wijma B. Emergency cesarean section: 25 women's experiences. *Journal of Reproductive and Infant Psychology* 2000; 18: 33-39.
26. Bailham D, & Joseph S. Post-traumatic stress following childbirth: a review of the emerging literature and directions for research and practice. *Psychology Health & Medicine*, 2003; 8(2): 159-168.
27. Olde E, van der Hart O, Kleber RJ, & van Son MJM. Posttraumatic stress symptoms following childbirth: A review. (in press)
28. Breslau N, Davis GC, Andreski P, Peterson E. Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry*, 1991; 48: 216-222.

29. Nishith P, Mechanic MB, Resick PA. Prior interpersonal trauma: the contribution to current PTSD symptoms in female rape victims. *Journal of Abnormal Psychology*, 2000; 109: 20-25.
30. Bremner JD, Southwick SM, Johnson DR, Yehuda R, Charney DS. Childhood physical abuse and combat-related posttraumatic stress disorder in Vietnam veterans. *American Journal of Psychiatry*, 1993; 150: 235-239.
31. Vasterling JJ, Duke LM, Brailey D, Constans JI, Allain AN Jr, Sutker PB. Attention, learning, and memory performances and intellectual resources in Vietnam veterans: PTSD and no disorder comparisons. *Neuropsychology*, 2002; 16: 5-14.
32. Ursano RJ, Fullerton CS, Epstein RS, Crowley B, Vance K, et al. Peritraumatic dissociation and posttraumatic stress disorder following motor vehicle accidents. *American Journal of Psychiatry*, 1999; 156: 1808-1810.
33. Shalev AY, Sahar T, Freedman S, Peri T, Glick N, et al. A prospective study of heart rate response following trauma and the subsequent development of posttraumatic stress disorder. *Archives of General Psychiatry*, 1998; 55: 553-559.
34. Keane TM, Scott WO, Chavoya GA, Lamparski DM, Fairbank J. Social support in Vietnam veterans with posttraumatic stress disorder: a comparative analysis. *Journal of Consulting and Clinical Psychology*, 1985; 53: 95-102.
35. Ayers S. Post-traumatic stress disorder in women following childbirth. Unpublished Ph.D. thesis. University of London, 1999.
36. Gray, J.A. Framework for a taxonomy of psychiatric disorder. In S.H.M. Van Goozen, N.E. Van der Poll and J.A. Sergeant (Eds.) *Emotions: Essays on Emotion Theory*. New Jersey: Lawrence Erlbaum Associates, 1994:29-53.

37. Ayers S & Pickering, A.D. What happens if childbirth is not as expected?
Women's emotional responses to birth. *Psychology & Health*, (in press).
38. Seligman, M.E.P. Helplessness: on depression, development, and death. San Francisco: W.H. Freeman, 1975.
39. Brewin C & Bradley C. Perceived control and the experience of childbirth. *British Journal of Clinical Psychology*, 1982; 21: 263-269.
40. Green JM, Coupland VA & Kitzinger JV. Expectations, experiences, and psychological outcomes of childbirth: a prospective study of 825 women. *Birth*, 1990; 17(1): 15-24.
41. Tedstone JE & Tarrier N. Posttraumatic stress disorder following medical illness and treatment. *Clinical Psychology Review*, 2003; 23: 409-448.
42. McNally RJ. Progress and controversy in the study of posttraumatic stress disorder. *Annual Review of Psychology*, 2003, 54: 229-252.
43. Andrews B, Brewin CR, Rose S & Kirk M. Predicting PTSD symptoms in victims of violent crime: the role of shame, anger, and childhood abuse. *Journal of Abnormal Psychology*, 2000; 109(1): 69-73.
44. Brewin CR, Andrews B, & Valentine JD. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, 2000; 68(5): 748-766.
45. Ayers S. Assessing psychopathology in pregnancy and postpartum. *Journal of Psychosomatic Obstetrics & Gynecology*, 2001; 22: 91-102.
46. Horowitz M, Wilner NR, Alvarez W. Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, 1979; 41: 209-218.

47. Weiss DS & Marmar CR. The impact of event scale – revised. In J.P. Wilson & T.M. Keane (Eds.) *Assessing Psychological Trauma and PTSD*. New York: The Guilford Press, 1997:399-411.
48. Foa EB, Riggs DS, Dancu CV, Rothbaum BO. Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress*, 1993; 6: 459-473.
49. Foa, EB. *The posttraumatic Diagnostic Scale (PDS)*. Minneapolis: National computer systems inc, 1995.
50. Harvey AG, Bryant RA, Tarrrier N. Cognitive behaviour therapy for posttraumatic stress disorder. *Clinical Psychology Review*, 2003; 23: 501-522.
51. Bryant RA & Harvey AG. Relationship of acute stress disorder and posttraumatic stress disorder following mild traumatic brain injury. *American Journal of Psychiatry*, 1998; 155: 625-629.
52. Bryant RA, Harvey AG, Dang ST, Sackville T, Basten C. Treatment of acute stress disorder: A comparison of cognitive-behavioral therapy and supportive counseling. *Journal of Consulting and Clinical Psychology*, 1998; 66(5): 862-866
53. Mitchell JT. When disaster strikes... the critical incident stress debriefing process. *Journal of Emergency Medical Services*, 1983; 8(1): 36-39.
54. Dyregov A. Caring for helpers in disaster situations: psychological debriefing. *Disaster Management*, 1989; 2: 25-30.
55. Curtis JM. Elements of critical incident debriefing. *Psychological Reports*, 1995; 77(1): 91-96.
56. Rose S, Bisson J, Wessely S. Psychological debriefing for preventing post traumatic stress disorder (PTSD) (Cochrane Review). In: *The Cochrane Library*, Issue 1. Chichester, UK: John Wiley & Sons Ltd, 2004.

57. Small R, Lumley J, Donohue L, Potter A, Waldenstrom U. Randomised controlled trial of midwife led debriefing to reduce maternal depression after operative childbirth. *British Medical Journal*, 2000; 321: 1043-47.
58. Lavender T& Walkinshaw SA. Can midwives reduce postpartum psychological morbidity? A randomized trial. *Birth*, 1998; 25: 215-219.

Table 1. Percentage of women with traumatic stress responses after delivery

Study	N	Time of measurement	Appraisal as traumatic %	Traumatic stress response ^a %	PTSD %
Ayers & Pickering (2001) ¹¹	289	36 weeks gestation 6 weeks 6 months			8.1 6.9 3.5
Creedy, Sochet & Horsfall (2000) ¹²	499	4-6 weeks	33.0		5.6
Czarnocka & Slade (2000) ¹³	264	6 weeks		9.9	3.0
Lyons (1998) ¹⁴	42	1 month		4.8	
Skari et al (2002) ¹⁵	127	0-4 days 6 weeks 6 months		9.0 1.0 2.4	0.8
Soderquist, Wijma & Wijma (2002) ¹⁶	1550	1-14 months			1.8
Soet, Brack & Dilorio (2003) ¹⁷	103	4 weeks	34.0		1.9
Wijma, Soderquist & Wijma (1997) ¹⁸	1640	1-13 months			1.7

^a Severe traumatic stress response as measured by the Impact of Event Scale (Horowitz, Wilner & Alvarez, 1979) or Revised Impact of Event Scale (Wiess & Marmar 1997) with a score of 20+ on either the intrusion or avoidance subscales.

Table 2. Prenatal risk factors & traumatic stress responses

Study	N	Time of measurement	Appraisal as traumatic	Traumatic stress response ^a	PTSD
Ayers (1999) ³⁵	289	6 weeks 6 months		Trait anxiety Parity Ethnic group (avoidance) Single status (avoidance)	
Czarnocka & Slade (2000) ^{13b}	264	6 weeks		Confidence to cope in labour Trait anxiety Unplanned pregnancy History of psychological problems	
Lyons (1998) ¹⁴	42	1 month		Difficult pregnancy Neuroticism Low socioeconomic status	
Soderquist et al (2002) ¹⁶	1550	1-14 months			History of psychiatric problems (in women with normal delivery only)
Soet, Brack & Dilorio (2003) ¹⁷	103	4 weeks	Trait anxiety Poor coping History of sexual trauma	Lower income Low social support State anxiety Trait anxiety Poor coping Low self-efficacy for birth Internal locus of control	
Wijma, Soderquist & Wijma (1997) ¹⁸	1640	1-13 months			Parity History of psychiatric problems

^bFor many analyses Czarnocka & Slade looked at differences between women with no symptoms and women with any symptoms of PTSD (partially or fully symptomatic) so it is difficult to know whether these variables are associated with a traumatic stress response and/or PTSD. Their results have therefore been included under traumatic stress responses.

Studies not included: Skari et al (2002) only looked at factors that were associated with general distress (GHQ-28) not with symptoms of PTSD. Creedy et al (2000) did not report any significant associations with prenatal variables (see below).

Factors reported as not associated with PTSD symptoms: parity, preparation for childbirth, support from partner in pregnancy, obstetric risk, state anxiety, anticipatory anxiety, likelihood of birth complications (Creedy et al 2000); parity (Czarnocka & Slade 2000); age; education level; obstetric history; family history of health problems or mental health problems, optimism, self-esteem (Ayers 1999); age, education level, marital status (Wijma et al 1997).

Table 3. Risk factors in delivery & traumatic stress responses

Study	N	Time of measurement	Appraisal as traumatic	Traumatic stress response ^a	PTSD
Ayers (1999) ³⁵	289	6 weeks 6 months	Mode of delivery Complications with baby Type of analgesia use Duration of labour Blood loss Few positive emotions Negative emotions Pain Worse than expected	Type of analgesia use Negative emotions in birth Appraisal as traumatic Worse than expected Low control over analgesia	
Creedy, Sochet & Horsfall (2000) ¹²	499	4-6 weeks			Concern for baby's life Emergency caesarean Instrumental delivery Pain after birth Perceived inadequate care Partner response

Czarnocka & Slade (2000) ^{13b}	264	6 weeks	<ul style="list-style-type: none"> Episiotomy Low control Less active role Confidence in coping in labour Fear for self or baby Distress from pain Distress at overall experience Support of staff Support from partner Partner not attending birth Unexpected procedures How well informed of labour progress Extent views & wishes listened to by staff Getting questions answered Birth worse than expected 	
Lyons (1998) ¹⁴	42	1 month	<ul style="list-style-type: none"> Low control Epidural Induced labour 	
Soderquist et al (2002) ¹⁶	1550	1-14 months		Emergency caesarean or instrumental delivery

Soet, Brack & Dilorio (2003) ¹⁷	103	4 weeks	Caesarean section Pain (1 st stage) Feeling powerless Different to expectations Medical intervention Inadequate information Higher expectations of pain Low support	Low support Pain (2 nd stage)
Wijma, Soderquist & Wijma (1997) ¹⁸	1640	1-13 months		Negative staff contact during delivery Negative appraisal of birth

¹ For many analyses Czarnocka & Slade looked at differences between women with no symptoms and women with any symptoms of PTSD (partially or fully symptomatic) so it is difficult to know whether these variables are associated with a traumatic stress response and/or PTSD. Their results have therefore been included under traumatic stress responses.

Studies not included: Skari et al (2002) looked at factors associated with general distress (GHQ-28) after birth not with symptoms of PTSD

Factors reported as not associated with PTSD symptoms: emotional care, midwifery care (Creedy et al 2000); type of labour onset, induced labour, severity of pain, type of pain relief, breech presentation, type of delivery, vaginal tear (Czarnocka & Slade 2000); type of delivery, type of onset, complications with baby, pain during labour, blood loss (Ayers 1999); duration of labour, analgesia use (Soderquist et al 2002); partner present during birth, negative contact with staff on the maternity ward (Wijma et al 1997).

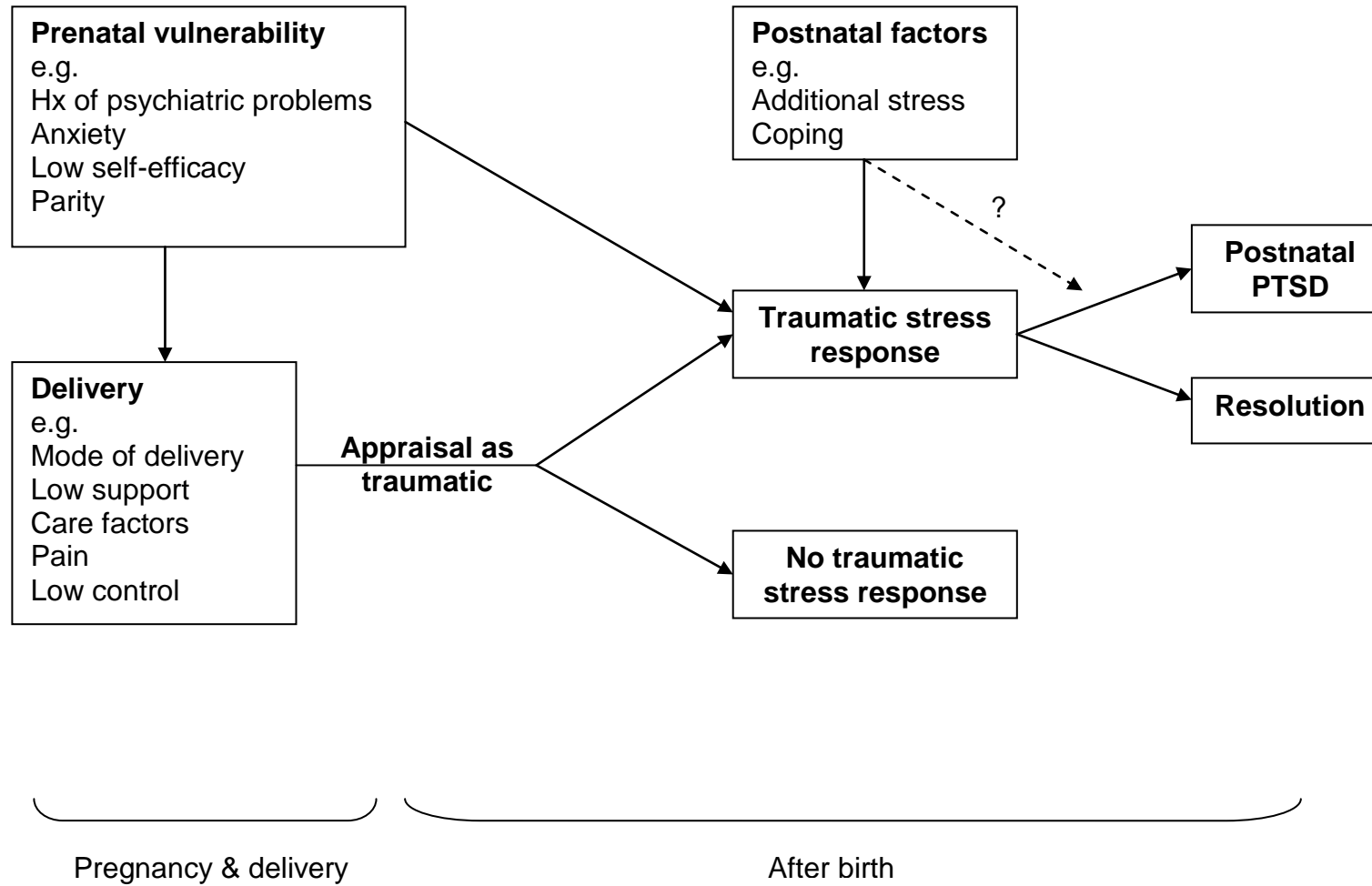


Figure legends

FIG 1. Vulnerability and risk factors for postnatal PTSD