

## Posttraumatic stress disorder following childbirth

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### Introduction

Childbirth is an intense event that is of emotional, social, and cultural significance as well as involving great physical stress.<sup>1</sup> Physically, women have to cope with acute changes and a high degree of pain as the uterus contracts, the cervix dilates, and the baby and placenta are born.<sup>2</sup> Emotionally, labour and the birth of the baby may involve both intense positive and negative emotions. Interpersonal dynamics between the woman, her (birth) partner, and maternity staff may be supportive or may increase stress if birth attendants are perceived as unhelpful, dismissive, or even abusive.<sup>3</sup> Culturally, birth and motherhood are associated with many cultural expectations and norms, as commonly childbirth is considered a merely positive life event.<sup>4</sup>

However, as this book sheds light on diverse aspects of childbirth, it becomes clear that it is more complex than that. Indeed, research evidence from the last two decades shows that labour and delivery may have the potential to fulfil the traumatic stressor criteria, as defined in the Diagnostic and Statistical Manual of Mental Disorders.<sup>5</sup> Approximately 3–4% of women develop the full constellation of symptoms of posttraumatic stress disorder (PTSD) and thus qualify for a clinical diagnosis.<sup>6</sup> Hence, with approximately 136 million births worldwide,<sup>7</sup> more than 4.7 million women and their families are affected, every single year. As recent research on the intergenerational transmission of stress and trauma underlines the relevance

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<sup>1</sup> Antje Horsch and others, 'Improving Maternal Mental Health Following Preterm Birth Using an Expressive Writing Intervention: A Randomized Controlled Trial' (2016) 47(5) *Child Psychiatry Hum Dev* 780.

<sup>2</sup> Susan Garthus-Niegel and others, 'The Role of Labor Pain and Overall Birth Experience in the Development of Posttraumatic Stress Symptoms: A Longitudinal Cohort Study' (2014) 41(1) *Birth* 108; A Horsch and S Ayers, 'Childbirth and Stress' in George Fink (ed), *Stress: Concepts, Cognition, Emotion, and Behavior* (Academic Press 2016) 325.

<sup>3</sup> Horsch and others (n 1).

<sup>4</sup> *ibid.*

<sup>5</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders* (4th edn, American Psychiatric Association 1994).

<sup>6</sup> Rebecca Grekin and Michael W O'Hara, 'Prevalence and Risk Factors of Postpartum Posttraumatic Stress Disorder: A Meta-Analysis' (2014) 34(5) *Clin Psychol Rev* 389; Lydia King, Kirstie McKenzie-McHarg, and Antje Horsch, 'Testing a Cognitive Model to Predict Posttraumatic Stress Disorder following Childbirth' (2017) 17(1) *BMC Pregnancy and Childbirth* 32; Pelin Dikmen Yildiz, Susan Ayers, and Louise Phillips, 'The Prevalence of Posttraumatic Stress Disorder in Pregnancy and After Birth: A Systematic Review and Meta-Analysis' (2017) 208 *J Affect Disord* 634.

<sup>7</sup> Central Intelligence Agency, *The World Factbook* (2018) <<https://www.cia.gov/library/publications/the-world-factbook/geos/xx.html>> accessed 24 September 2018.

and far-reaching consequences not only for the mother but also for her offspring, PTSD following childbirth thus represents a major public health issue.<sup>8</sup>

This chapter provides an overview of the current evidence and understanding of PTSD following childbirth by focusing on: (i) childbirth as a traumatic stressor; (ii) definition and prevalence rates; (iii) protective and risk factors; (iv) the impact on maternal, child, and couple outcomes; (v) the economic costs; and (vi) evidence-based interventions.

### **Childbirth as a traumatic stressor**

Symptoms of posttraumatic stress were first identified in relation to war experiences. However, in contrast to previous diagnostic criteria, triggers are not considered anymore to be restricted to events that are outside of the range of ‘usual human experience’, such as war, rape, or road traffic accidents.<sup>9</sup> Indeed, for many years clinicians have been aware that also health-related events like heart attacks, stroke, miscarriage, stillbirth, or childbirth may act as precipitants for posttraumatic stress responses.<sup>10</sup> This comprises a peculiarity of PTSD following childbirth, because – as mentioned above – childbirth is typically associated with positive connotations (opposed to other potential traumatic events, such as war or sexual/physical abuse).<sup>11</sup> Also, in the Western world, births normally take place within the context of regular medical care, which actually represents the helper system (as opposed to crimes rated as criminal acts).<sup>12</sup> Further, pertaining to PTSD following childbirth, at least two individuals must always be considered: the mother and the child (see also below in ‘Impact on maternal, child, and couple outcomes’).<sup>13</sup> This can be challenging for the mother, as her role is to care for her baby who may be a strong reminder of the traumatic event.

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<sup>8</sup> Mallory E Bowers and Rachel Yehuda, ‘Intergenerational Transmission of Stress in Humans’ (2016) 41(1) *Neuropsychopharmacology* 232; Susan Garthus-Niegel and others, ‘The Impact of Subjective Birth Experiences on Post-Traumatic Stress Symptoms: A Longitudinal Study’ (2013) 16(1) *Arch Womens Ment Health* 1; King, McKenzie-McHarg, and Horsch (n 6).

<sup>9</sup> Pauline Slade, ‘Towards a Conceptual Framework for Understanding Post-Traumatic Stress Symptoms Following Childbirth and Implications for Further Research’ (2006) 27(2) *J Psychosom Obstet Gynaecol* 99.

<sup>10</sup> Helen Allott, ‘Picking up the Pieces: The Post-Delivery Stress Clinic’ (1996) 4(10) *BJM* 534; Antje Horsch, Ingo Jacobs, and Kirstie McKenzie-McHarg, ‘Cognitive Predictors and Risk Factors of PTSD Following Stillbirth: A Short-Term Longitudinal Study’ (2015) 28(2) *J Traum Stress* 110; C Lee, P Slade, and V Lygo, ‘The Influence of Psychological Debriefing on Emotional Adaptation in Women Following Early Miscarriage: A Preliminary Study’ (1996) 69(1) *Br J Med Psychol* 47; Slade (n 9); Josephine E Tedstone and Nicholas Tarrier, ‘Posttraumatic Stress Disorder Following Medical Illness and Treatment’ (2003) 23(3) *Clin Psychol Rev* 409.

<sup>11</sup> Kirstie McKenzie-McHarg and others, ‘Post-Traumatic Stress Disorder Following Childbirth: An Update of Current Issues and Recommendations for Future Research’ (2015) 33(3) *J Reprod Infant Psychol* 219.

<sup>12</sup> *ibid.*

<sup>13</sup> *ibid.*

Regarding posttraumatic stress responses in the context of childbirth, it is important to distinguish whether a woman suffering from PTSD following childbirth already suffered from PTSD during pregnancy, or whether the disorder has occurred only as a result of birth.<sup>14</sup> Traumatic memories such as previous sexual abuse may be triggered by child movements as well as vaginal delivery and can lead to an actualization of trauma symptoms.<sup>15</sup> Clinical experience shows that in case of prior traumatization, flashbacks may occur during childbirth triggered by a feeling of loss of control. They may also be the result of other trigger stimuli, such as physical sensations (e.g., pain, birth injuries, bleeding) or sentences like ‘It’s over soon.’ reminding the woman of the perpetrator’s language that refer to earlier trauma.<sup>16</sup> Women who have suffered from childhood abuse appear to have an increased risk of dissociation during delivery (especially in the context of additional risk factors).<sup>17</sup> In addition to previous biographical traumatisations, women may also live under present adverse conditions, such as domestic violence that may increase their risk of suffering from PTSD already during pregnancy.<sup>18</sup>

### **Definition and prevalence rates**

Studies have shown that up to one third of women perceive their delivery as traumatic, fulfilling the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) Criterion A1 (i.e., witness or experience death, threat of death, or serious injury to themselves or a significant other – in the case of postpartum PTSD usually the baby).<sup>19</sup> However, a much smaller part of women eventually develops a PTSD-profile, indicating that a traumatic childbirth experience does not automatically lead to a pathological response.<sup>20</sup> Recent meta-analyses suggest, in community samples, PTSD following childbirth affects between 3–4% of women after birth at

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<sup>14</sup> Grekin and O’Hara (n 6).

<sup>15</sup> K Hofberg and I Brockington, ‘Tokophobia: An Unreasoning Dread of Childbirth. A Series of 26 Cases’ (2000) 176 Br J Psychiatry 83.

<sup>16</sup> Kerstin Weidner, Susan Garthus-Niegel, and Juliane Junge-Hoffmeister, ‘Traumatische Geburtsverläufe: Erkennen und Vermeiden’ (Traumatic Birth: Recognition and Prevention) (2018) Z Geburtshilfe Neonatol DOI: 10.1055/a-0641-6584.

<sup>17</sup> Kristen R Choi and Julia S Seng, ‘Predisposing and Precipitating Factors for Dissociation During Labor in a Cohort Study of Posttraumatic Stress Disorder and Childbearing Outcomes’ (2016) 61(1) J Midwifery Womens Health 68.

<sup>18</sup> Jacquelyn C Campbell, ‘Health Consequences of Intimate Partner Violence’ (2002) 359(9314) The Lancet 1331; Weidner, Garthus-Niegel, and Junge-Hoffmeister (n 16).

<sup>19</sup> American Psychiatric Association (n 5); Susan Ayers, ‘Delivery as a Traumatic Event: Prevalence, Risk Factors, and Treatment for Postnatal Posttraumatic Stress Disorder’ (2004) 47(3) Clin Obstet Gynecol 552; Eelco Olde and others, ‘Posttraumatic Stress Following Childbirth: A Review’ (2006) 26(1) Clin Psychol Rev 1; Slade (n 9); Johanna E Soet, Gregory A Brack, and Colleen DiIorio, ‘Prevalence and Predictors of Women’s Experience of Psychological Trauma during Childbirth’ (2003) 30(1) Birth 36.

<sup>20</sup> Olde and others (n 19).

diagnostic levels and around 16–19% of women in high-risk groups, e.g., after preterm birth or neonatal death.<sup>21</sup> Still, a substantial number of women suffer from clinically significant PTSD symptoms, even though their symptoms remain below diagnostic threshold level.<sup>22</sup> This is because subthreshold symptomatology may also considerably impact on women's functioning, particularly if they are having symptoms of re-experiencing.<sup>23</sup>

Whether or not women develop PTSD symptoms depends to a large degree on the subjective perception of the birth. In fact, regarding childbirth, both clinical observations as well as scientific evidence indicate that what may be considered as a medically normal labour and delivery in terms of duration and mode of delivery may still be associated with subsequent posttraumatic stress responses.<sup>24</sup> Being aware of the essential role of subjective birth experiences offers a unique opportunity to prevent traumatising. If women feel safe and well taken care of, it may be easier for them to abstain from catastrophic interpretations during birth and to focus instead on the joyful outcome of their labour – the baby. Training programs to improve communication between labouring women and staff may help healthcare workers to be more sensitive and responsive to women's needs, thus potentially increasing their subjective birth experience.

Regarding the long-term course of PTSD following childbirth, there are hardly any studies available. While relatively high remission rates of up to 44% have been found for general PTSD,<sup>25</sup> future prospective studies need to show whether the clinical course of PTSD following childbirth (e.g., in terms of severity, duration, and remission with and without treatment) is comparable to that of general PTSD.<sup>26</sup> Case reports at least suggest that women with PTSD following childbirth often suffer from their symptoms for months, without being diagnosed and treated.<sup>27</sup>

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<sup>21</sup> Grekin and O'Hara (n 6); Yildiz, Ayers, and Phillips (n 6).

<sup>22</sup> Horsch and Ayers (n 2).

<sup>23</sup> McKenzie-McHarg and others (n 11).

<sup>24</sup> Louise B Andersen and others, 'Risk Factors for Developing Post-Traumatic Stress Disorder Following Childbirth: A Systematic Review' (2012) 91(11) *Acta Obstet Gynecol Scand* 1261; Garthus-Niegel and others, 'The Role of Labor Pain and Overall Birth Experience in the Development of Posttraumatic Stress Symptoms' (n 2); Garthus-Niegel and others, 'The Impact of Subjective Birth Experiences on Post-Traumatic Stress Symptoms' (n 8); Slade (n 9).

<sup>25</sup> Nexhmedin Morina and others, 'Remission from Post-Traumatic Stress Disorder in Adults: A Systematic Review and Meta-Analysis of Long Term Outcome Studies' (2014) 34(3) *Clin Psychol Rev* 249

<sup>26</sup> McKenzie-McHarg and others (n 11).

<sup>27</sup> Hofberg and Brockington (n 15).

Several studies have found substantial comorbidity between PTSD and depression in the postpartum period,<sup>28</sup> with comorbidity rates ranging between 20 and 75%.<sup>29</sup> Anxiety or other mental health problems have also been suggested to be comorbid with PTSD following childbirth, although concrete numbers are largely unknown.<sup>30</sup>

One possible explanation for the high correlation with depression is the potential symptom overlap in some of the PTSD clusters,<sup>31</sup> because measures of hyperarousal and numbing symptom clusters within the PTSD criteria tend to correlate highly with measures of depression.<sup>32</sup> It is important to keep in mind that most studies investigating comorbidity, have relied on DSM-IV criteria. The addition of the fourth symptom cluster ‘negative alterations in cognitions and mood’ in DSM-5 (e.g., ‘persistent negative beliefs and expectations about oneself or the world’ or ‘loss of interest or participation in significant activities’) might imply an increase in symptom overlap (as these symptoms could also be attributed to depression)<sup>33</sup> and thus, further increase comorbidity rates in future studies.

The course and onset of comorbid PTSD and depression are still unknown. On the one hand, depression in pregnancy has been shown to be an important predictor of PTSD following childbirth.<sup>34</sup> On the other hand, regarding the postpartum period only, clinicians have suggested that postpartum depression is usually secondary to PTSD following childbirth.<sup>35</sup> In any case, epidemiological research has shown that postpartum depression is more prevalent (10–15%) than PTSD following childbirth.<sup>36</sup> Still, from a clinical perspective, it is important that PTSD is considered as an independent diagnosis in postpartum women; because many women, who

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<sup>28</sup> Jo Czarnocka, and Pauline Slade, ‘Prevalence and Predictors of Post-Traumatic Stress Symptoms Following Childbirth’ (2000) 39(1) *Br J Clin Psychol* 35; Grekin and O’Hara (n 6); Johan Söderquist, Barbro Wijma, and Klaas Wijma, ‘The Longitudinal Course of Post-Traumatic Stress after Childbirth’ (2006) 27(2) *J Psychosom Obstet Gynaecol* 113; Claire A I Stramrood and others, ‘Posttraumatic Stress Following Childbirth in Homelike- and Hospital Settings’ (2011) 32(2) *Psychosom Obstet Gynaecol* 88; Tracey White and others, ‘Postnatal Depression and Post-Traumatic Stress after Childbirth: Prevalence, Course and Co-occurrence’ (2006) 24(2) *J Reprod Infant Psychol* 107.

<sup>29</sup> McKenzie-McHarg and others (n 11); Stramrood (n 28); White and other (n 28).

<sup>30</sup> McKenzie-McHarg and others (n 11); Stramrood (n 28).

<sup>31</sup> McKenzie-McHarg and others (n 11).

<sup>32</sup> Grekin and O’Hara (n 6).

<sup>33</sup> McKenzie-McHarg and others (n 11).

<sup>34</sup> S Ayers and others, ‘The Aetiology of Post-Traumatic Stress Following Childbirth: A Meta-Analysis and Theoretical Framework’ (2016) 46(6) *Psychol Med* 1121; Grekin and O’Hara (n 6).

<sup>35</sup> McKenzie-McHarg and others (n 11).

<sup>36</sup> Susan Ayers and others, ‘Post-Traumatic Stress Disorder Following Childbirth: Current Issues and Recommendations for Future Research’ (2008) 29(4) *J Psychosom Obstet Gynaecol* 240; Ian Brockington, ‘Postpartum Psychiatric Disorders’ (2004) 363(9405) *The Lancet* 303.

(also) suffer from PTSD following childbirth, are diagnosed with depression (only) and therefore do not receive appropriate treatment.<sup>37</sup>

### **Protective and risk factors**

In 2006, Slade suggested a framework for the development of postpartum PTSD, comprising predisposing, precipitating, and maintaining factors. Predisposing and precipitating factors may again be subdivided into internal, external, or interactional factors.<sup>38</sup> According to Slade's framework, predisposing factors are often pregnancy-related or may have been present already before conception, increasing the risk of PTSD symptoms.<sup>39</sup> Examples of predisposing factors are fear of childbirth or mental health problems (either in the woman's history or during pregnancy), an unplanned pregnancy, or low social support. Precipitating factors are birth related; they act together with predisposing factors to determine if a woman develops PTSD symptoms after giving birth.<sup>40</sup> Examples of precipitating factors are perceived low control during birth or a negative gap between expectation and experience of the birth, a lack of support of partner or staff, an emergency caesarean section, or an instrumental vaginal delivery.<sup>41</sup> Maintaining factors are factors that may either increase or reduce PTSD symptoms over time, such as insomnia during the postpartum period.<sup>42</sup>

Another theoretical approach represents the diathesis-stress model of the aetiology of postpartum PTSD by Susan Ayers that was first introduced in 2004 and recently updated in 2016 (see below, Figure 1).<sup>43</sup> The diathesis-stress model has similarities to Slade's theoretical framework, and it is based on the results of a meta-analysis. The model incorporates vulnerability factors in pregnancy, risk factors during birth, and postnatal factors. Important vulnerability factors are depression in pregnancy, fear of childbirth, complications in pregnancy, or a history of mental health problems.<sup>44</sup> Vulnerability factors may predict trauma responses directly, but they are also proposed to interact with or to be mediated by risk factors during birth. Risk factors during birth represent a negative subjective birth experience,

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<sup>37</sup> McKenzie-McHarg and others (n 11).

<sup>38</sup> Slade (n 9).

<sup>39</sup> *ibid.*

<sup>40</sup> Ayers (n **Erreur ! Signet non défini.**); Slade (n 9).

<sup>41</sup> Slade (n 9).

<sup>42</sup> Susan Garthus-Niegel and others, 'Maintaining Factors of Posttraumatic Stress Symptoms Following Childbirth: A Population-Based, Two-Year Follow-up Study' (2015) 172 *J Affect Disord* 146; Slade (n 9).

<sup>43</sup> Ayers (n **Erreur ! Signet non défini.**); Ayers and others (n 34).

<sup>44</sup> *ibid.*

operative birth, lack of support from staff during birth, and dissociation.<sup>45</sup> Crucial for whether or not subsequent traumatic stress responses occur, is the appraisal of the birth as traumatic or not. Postnatal factors might also predict initial traumatic stress responses. In addition, they may determine whether those responses get resolved or maintained over time. Postnatal factors comprise depression as well as poor coping and stress.

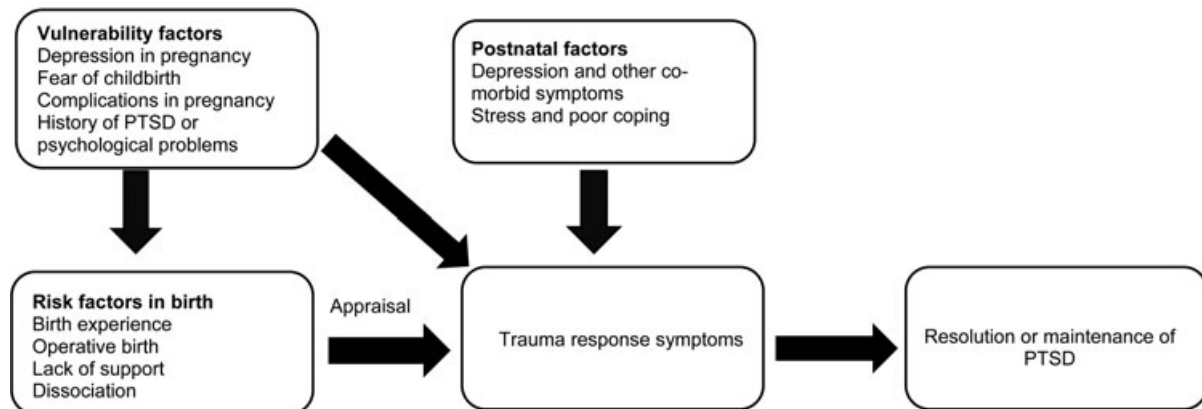


Figure 1. Revised diathesis-stress model of the aetiology of postpartum PTSD, reproduced with permission from Susan Ayers.

Cognitions also play an important role in the development of PTSD following childbirth.<sup>46</sup> The cognitive model proposed by Ehlers and Clark is a third theoretical approach and suggests that a sense of current threat is produced by negative cognitive appraisals both during and after the traumatic event, i.e., in our case the birth.<sup>47</sup> This threat, together with a fragmented and poorly integrated traumatic memory, can be unintentionally triggered by situations resembling some aspect of the birth. PTSD may then be maintained through unfavourable cognitive (e.g., thought suppression) and behavioural (e.g., reminder avoidance) strategies.<sup>48</sup> Even though these strategies are meant to control the sense of threat, they may directly produce symptoms and/or prevent change in negative appraisals of the trauma or the nature of the trauma memory.<sup>49</sup>

### Impact on maternal, child, and couple outcomes

<sup>45</sup> *ibid.*

<sup>46</sup> Elizabeth Ford, Susan Ayers, and Robert Bradley, 'Exploration of a Cognitive Model to Predict Post-Traumatic Stress Symptoms following Childbirth' (2010) 24(3) *J Anxiety Disord* 353; King, McKenzie-McHarg, and Horsch (n 6); McKenzie-McHarg and others (n 11); Anna N Vossbeck-Elsebusch, Claudia Freisfeld and Thomas Ehring, 'Predictors of Posttraumatic Stress Symptoms Following Childbirth' (2014) 14 *BMC Psychiatry* 200.

<sup>47</sup> Anke Ehlers and David M Clark, 'A Cognitive Model of Posttraumatic Stress Disorder' (2000) 38(4) *Behav Res Ther* 319; King, McKenzie-McHarg, and Horsch (n 6).

<sup>48</sup> King, McKenzie-McHarg, and Horsch (n 6).

<sup>49</sup> *ibid.*

Women with PTSD following childbirth report high levels of distress; some talk about feelings of panic, anxiety, grief, anger, and tearfulness.<sup>50</sup> Sometimes the distress experienced can become unbearable and some women report having suicidal thoughts and ideations following traumatic childbirth. One qualitative study quoted a mother who had thoughts about harming her baby: 'I just thought oh, I wanta strangle, you know I didn't want to, it just came into my head, strangle.'<sup>51</sup> Women describe being haunted by traumatic memories for many years, as one woman explained: 'It was sort of a long black hole, just endless, endless pain.'<sup>52</sup> Women may experience a loss of identity and self-esteem, particularly with regards to their competencies as a mother.<sup>53</sup>

Following traumatic childbirth, women may decide not to have further children.<sup>54</sup> Traumatized women who do embark on a new pregnancy are more likely to have a negative experience of subsequent pregnancies, with some women experiencing distress when they found out they were pregnant again: 'I took the test and crumpled over the edge of our bed, sobbing and retching hysterically for hours.'<sup>55</sup> This may be accompanied by an increased risk of maternal stress and its associated risks of negative pregnancy outcomes, such as intrauterine growth retardation, low birth weight, and premature birth.<sup>56</sup> PTSD following childbirth is also related to an extreme fear of subsequent pregnancy and childbirth (tokophobia), sexual problems, and avoidance of medical care.<sup>57</sup>

Apart from the distress experienced by the mother, PTSD following childbirth can have negative consequences for the whole family. Following traumatic childbirth, women may blame their partners for the events that took place.<sup>58</sup> A recent prospective study showed that

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<sup>50</sup> Giliane Fenech and Gill Thomson, "Tormented by Ghosts from their Past": A Meta-Synthesis to Explore the Psychosocial Implications of a Traumatic Birth on Maternal Well-Being' (2014) 30(2) Midwifery 185.

<sup>51</sup> Susan Ayers, Andrew Eagle, and Helen Waring, 'The Effects of Childbirth-Related Post-Traumatic Stress Disorder on Women and their Relationships: A Qualitative Study' (2006) 11(4) Psychol Health Med 389, 395.

<sup>52</sup> Christina Nilsson, Terese Bondas, and Ingela Lundgren, 'Previous Birth Experience in Women with Intense Fear of Childbirth' (2010) 39(3) J Obstet Gynecol Neonatal Nurs 298, 304.

<sup>53</sup> Ayers, Eagle, and Waring (n 51).

<sup>54</sup> Gottvall, Karin, & Waldenström, Ulla. (2002). Does a traumatic birth experience have an impact on future reproduction? BJOG: An International Journal of Obstetrics & Gynaecology, 109(3), 254-260.

<sup>55</sup> Cheryl Tatano Beck and Sue Watson, 'Subsequent Childbirth after a Previous Traumatic Birth' (2010) 59(4) Nursing Research 241, 245.

<sup>56</sup> Shari S Rogal and others, 'Effects of Posttraumatic Stress Disorder on Pregnancy Outcomes' (2007) 102(1-3) J Affect Disord 137; Julia S Seng and others, 'Posttraumatic Stress Disorder and Pregnancy Complications' (2001) 97(1) Obstet Gynecol 17.

<sup>57</sup> Hofberg and Brockington (n 15); Leslie Morland and others, 'Posttraumatic Stress Disorder and Pregnancy Health: Preliminary Update and Implications' (2007) 48(4) Psychosomatics 304.

<sup>58</sup> Karen Nicholls and Susan Ayers, 'Childbirth-Related Post-Traumatic Stress Disorder in Couples: A Qualitative Study' (2007) 12(4) Br J Health Psychol 491.



maternal PTSD symptoms following childbirth were prospectively related to low couple relationship satisfaction at two years postpartum, mediated by postpartum depression symptoms.<sup>59</sup>

Some studies found that PTSD following childbirth can also negatively interfere with the mother-infant relationship.<sup>60</sup> For some women, caring for their baby continues to be a reminder of traumatic experiences, which may in turn make it harder for them to develop strong bonds and secure attachments with their baby. One of the symptoms of PTSD is emotional detachment, and mothers may be therefore be unable to feel and show affection towards their baby, as was described by one mother: ‘Mechanically I’d go through the motions of being a good mother. Inside I felt nothing.’<sup>61</sup> Traumatized mothers have been shown to be more controlling and less sensitive towards their child. They also report being overprotective towards their children. This may be a consequence of hypervigilance, one of the symptoms of PTSD.<sup>62</sup> Mothers have an important role in supporting the infant’s development of self-regulation skills and prosocial behaviour. Some evidence shows that traumatized mothers struggle to be available for the regulation of their infants’ emotions, arousal, and aggression during and immediately following a stressful interaction.<sup>63</sup> This in turn may interfere with the development of emotion regulation in these children.

PTSD following childbirth is also related to other negative infant outcomes, such as behavioural and cognitive development.<sup>64</sup> Further, a prospective study found that maternal PTSD symptoms eight weeks after birth were associated with poor social-emotional development at two years, especially among boys and children with difficult temperament.<sup>65</sup>

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<sup>59</sup> Susan Garthus-Niegel and others, ‘The Impact of Postpartum Posttraumatic Stress and Depression Symptoms on Couples’ Relationship Satisfaction: A Population-Based Prospective Study’ (2018) 19 *Frontiers in Psychology* 1.

<sup>60</sup> Ayers, Eagle, and Waring (n 51); Yalva M Parfitt and Susan Ayers, ‘The Effect of Post-Natal Symptoms of Post-Traumatic Stress and Depression on the Couple’s Relationship and Parent-Baby Bond’ (2009) 27(2) *J Reprod Infant Psychol* 127.

<sup>61</sup> Cheryl Tatano Beck, ‘Post-Traumatic Stress Disorder due to Childbirth: The Aftermath’ (2004) 53(4) *Nursing* 216, 220.

<sup>62</sup> Horsch and Ayers (n 2).

<sup>63</sup> Daniel S Schechter and others, ‘Subjective and Objective Measures of Parent-Child Relationship Dysfunction, Child Separation Distress, and Joint Attention’ (2010) 73(2) *Psychiatry* 130.

<sup>64</sup> Debra K Creedy, Ian M Shochet, and Jan Horsfall, ‘Childbirth and the Development of Acute Trauma Symptoms: Incidence and Contributing Factors’ (2000) 27(2) *Birth* 104; ES Paykel, ‘Life Events and Affective Disorders’ (2003) 108(418) *Acta Psychiatr Scand* 61; Richard J Shaw and others, ‘The Relationship between Acute Stress Disorder and Posttraumatic Stress Disorder in the Neonatal Intensive Care Unit’ (2009) 50(2) *Psychosomatics* 131; Söderquist, Wijma, and Wijma (n 28).

<sup>65</sup> Susan Garthus-Niegel and others, ‘The Impact of Postpartum Post-Traumatic Stress Disorder Symptoms on Child Development: A Population-Based, 2-Year Follow-up Study’ (2017) 47(1) *Psychological Medicine* 161.

Although a recent systematic review stated that evidence for an association between maternal PTSD and mother-infant interaction, the mother-infant relationship, or child development was inconclusive, it concluded there was enough evidence for associations between maternal PTSD following childbirth with low birth weight and lower rates of breastfeeding.<sup>66</sup> A prospective relationship between PTSD following childbirth and breastfeeding initiation as well as breastfeeding continuation was recently confirmed in a large cohort.<sup>67</sup> This is likely due to dysfunctional coping mechanisms in order to avoid traumatic intrusion often triggered by mothers' close contact with their baby.<sup>68</sup> At the same time, as the mother is usually the primary caregiver during the first postpartum weeks, the constant confrontation with the baby – and thus the trauma – might also constitute a mechanism of recovery and healing.<sup>69</sup>

### **The economic costs**

Given the negative impact of PTSD following childbirth not only on the mother herself but also on her partner and her child, it is important to identify potential signs and symptoms of PTSD early on in order to offer appropriate treatment. It has clearly been shown that undetected perinatal mental health problems carry significant economic costs for society (only in the UK at least £8.1 billion for each one-year cohort of births) and that the majority of those costs is linked to the child, i.e., the future generation.<sup>70</sup> Indeed, given the increasingly complex medical needs of women who become pregnant, for example, when older and/or obese, an increase of the number of women experiencing traumatic births is likely to be expected.<sup>71</sup>

### **Prevention and intervention**

Given the mounting evidence for the negative impact of PTSD following childbirth, questions regarding its prevention and intervention arise. Childbirth is a predictable event and valuable opportunities for primary prevention therefore exist.<sup>72</sup>

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<sup>66</sup> Natalie Cook, Susan Ayers, and Antje Horsch, 'Maternal Posttraumatic Stress Disorder during the Perinatal Period and Child Outcomes: A Systematic Review' (2018) 225 J Affect Disord 18.

<sup>67</sup> Susan Garthus-Niegel and others, 'The Influence of Postpartum PTSD on Breastfeeding: A Longitudinal Population-Based Study' (2017) 54(2) Birth 193.

<sup>68</sup> Fenech and Thomson (n 50).

<sup>69</sup> Ayers, Eagle, and Waring (n 51).

<sup>70</sup> Annette Bauer and others, 'The Costs of Perinatal Mental Health Problems' (Centre for Mental Health and London School of Economics 2014).

<sup>71</sup> Gwyneth Lewis (ed), *Saving Mothers' Lives: Reviewing Maternal Deaths to make Motherhood Safer 2003-2005. The Seventh Report of Confidential Enquiries into Maternal and Child Health in the United Kingdom* (CEMACH 2007).

<sup>72</sup> Olde and others (n 19).

Primary prevention may include preparing pregnant women in a more realistic way for labour and birth.<sup>73</sup> Evidence shows that pre-existing beliefs and cognitive appraisals of the impending birth play an important role in the development of postpartum PTSD. Birth preparation should therefore also include discussing the fact that labour and childbirth may not be as planned and women and their partners should be provided with information on the incidence of obstetric interventions and the associated risks and benefits.<sup>74</sup> Given that a prediction prior to the birth of who will or will not require medical interventions is often impossible,<sup>75</sup> the development of a 'birth flow chart' with different pathways for 'what if labour starts with induction/starts preterm/ends with caesarean section', etc might be a way forward.<sup>76</sup> In that way, women are prepared for a range of possible processes and outcomes, thus preventing them from going into labour with an idealistic picture (e.g., of natural childbirth).<sup>77</sup>

Based on the evidence from previous risk factor studies regarding the aetiology of postpartum PTSD, another form of primary prevention may include the targeted detection of those pregnant women who may be particularly vulnerable, such as those with a history of PTSD or severe fear of childbirth.<sup>78</sup>

Primary prevention in women with a history of PTSD could include psychoeducation on PTSD and potentially comorbid disorders (e.g., depression) as well as teaching skills as of how to deal with trauma-associated anxiety symptoms, tensions, and dissociative conditions.<sup>79</sup> However, whether and at what point women should be confronted with profound biographical experiences through trauma exposure, ought to get decided individually. The potential benefit of such emotionally demanding treatment must be weighed against the risk of intrauterine stress exposure or even preterm contractions.<sup>80</sup> However, if a history of PTSD remains unaddressed,

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<sup>73</sup> *ibid.*

<sup>74</sup> Creedy, Shochet, and Horsfall (n 64); Horsch and Ayers (n 2); Olde and others (n 19).

<sup>75</sup> Olde and others (n 19).

<sup>76</sup> McKenzie-McHarg and others (n 11); Gill Thomson and Soo Downe, 'A Hero's Tale of Childbirth' (2013) 29(7) *Midwifery* 765.

<sup>77</sup> Julia Frost and others, 'Utopian Theory and the Discourse of Natural Birth' (2006) 4(4) *Soc Theory Health* 299; McKenzie-McHarg and others (n 11).

<sup>78</sup> Ayers and others (n 34); Grekin and O'Hara (n 6); Olde and others (n 19).

<sup>79</sup> Julia Martini and others, 'Posttraumatische Belastungsstörung (PTBS) in der Peripartalzeit: Bedingungsfaktoren, diagnostische Besonderheiten und Implikationen für Mutter und Kind' (Posttraumatic Stress Disorder (PTSD) in the Peripartal period: Conditional Factors, Diagnostic Features and Implications for Mother and Child) (2017) 11(4) *Trauma und Gewalt* 280; Weidner, Garthus-Niegel, and Junge-Hoffmeister (n 16).

<sup>80</sup> Martini and others (n 79).

an upcoming birth may cause severe fear of childbirth and may hold the potential to re-activate prior trauma and related trauma symptoms.<sup>81</sup>

Fear of childbirth is another important risk factor for a traumatic birth experience and is therefore also relevant for the primary prevention of postpartum PTSD.<sup>82</sup> Childbirth information and advice on coping with specific birth-related problems, delivered in antenatal classes, may help reduce fear of childbirth.<sup>83</sup> The application of relaxation techniques in order to reduce physical tensions and the knowledge about the availability of effective painkillers during childbirth can also have a calming effect on pregnant women.<sup>84</sup> If women suffer from severe fear of childbirth, psychological counselling may help to both increase their motivation to deliver vaginally<sup>85</sup> and to increase their trust in the health care staff,<sup>86</sup> thereby increasing the chances of a positive birth experience.<sup>87</sup> On the other hand, women who actively seek treatment for their fear of childbirth seem to belong to a particularly vulnerable group of women who, despite psychological support, often develop postpartum posttraumatic stress reactions.<sup>88</sup>

Perinatal care represents an area where there is clear potential to prevent or minimise posttraumatic stress reactions, as a considerable proportion of postpartum PTSD may be preventable if appropriate care and support is provided during labour and childbirth.<sup>89</sup> Given that perceived safety during childbirth appears to be a particularly important predictor of PTSD following childbirth,<sup>90</sup> sensitive and supportive management of events during the labour process may contribute to the woman's sense of control and positively influence their appraisals of these events. It is crucial that health care staff provide the labouring woman and her partner with as much information and choice as possible and that they are sensitive to the

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<sup>81</sup> *ibid*; Hilde Nerum and others, 'Maternal Request for Cesarean Section due to Fear of Birth: Can It Be Changed Through Crisis-Oriented Counseling?' (2006) 33(3) *Birth* 221.

<sup>82</sup> Susan Garthus-Niegel and others, 'The Influence of Women's Preferences and Actual Mode of Delivery on Post-Traumatic Stress Symptoms Following Childbirth: A Population-Based, Longitudinal Study' (2014) 14(1) *BMC Pregnancy Childbirth* 191; Martini and others (n 79).

<sup>83</sup> Martini and others (n 79).

<sup>84</sup> *ibid*.

<sup>85</sup> Nerum and others (n 81); H Rouhe and others, 'Obstetric Outcome after Intervention for Severe Fear of Childbirth in Nulliparous Women—Randomised Trial' (2013) 120(1) *BJOG* 75; Terhi Saisto and others, 'Therapeutic Group Psychoeducation and Relaxation in Treating Fear of Childbirth' (2006) 85(11) *Acta Obstet Gynecol Scand* 1315; Berit Sjögren, 'Fear of Childbirth and Psychosomatic Support. A Follow up of 72 Women' (1998) 77(8) *Acta Obstet Gynecol Scand* 819.

<sup>86</sup> Sjögren (n 85).

<sup>87</sup> Rouhe and others (n 85).

<sup>88</sup> Elsa Lena Ryding and others, 'An Evaluation of Midwives' Counseling of Pregnant Women in Fear of Childbirth' (2003) 82(1) *Acta Obstet Gynecol Scand* 10.

<sup>89</sup> Ayers and others (n 34); Horsch and Ayers (n 2).

<sup>90</sup> King, McKenzie-McHarg, and Horsch (n 6).

fact that even routine procedures during labour may be stressful and cause anxiety.<sup>91</sup> Even in emergency situations that are not life threatening or if medical procedures are unavoidable, maternity staff should provide reassurance.<sup>92</sup> Indeed, recent studies suggest that increasing psychological mindedness of the maternity service through specific perinatal mental health training may lead to a decrease in the onset of postpartum PTSD symptoms in the cared for women.<sup>93</sup>

To date, evidence-based interventions for women after traumatic childbirth are lacking,<sup>94</sup> particularly early interventions that could improve longer term outcomes for both the mother and the child.<sup>95</sup> A recent meta-analysis of trauma-focused psychological therapies (TFPT) for PTSD following childbirth found evidence for the effectiveness of TFPTs for reducing PTSD symptoms in the short term (up to three months postpartum) and medium term (three to six months postpartum). However, the authors concluded a lack of robust evidence for the effectiveness of TFPT in improving women's recovery from clinically significant PTSD symptoms.<sup>96</sup>

An early intervention so far tested is expressive writing.<sup>97</sup> The evaluated intervention consisted of 20 minutes of expressive writing according to Pennebaker's method,<sup>98</sup> noting down thoughts, expectations, and emotions related to the delivery (two or three days postpartum, respectively). This was compared to a control group of mothers who had to write about their daily activities in behavioural terms, not emotional ones. In both studies, mothers in the intervention group showed a significantly greater decrease in symptom load compared to the

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<sup>91</sup> Horsch and Ayers (n 2).

<sup>92</sup> *ibid*; King, McKenzie-McHarg, and Horsch (n 6).

<sup>93</sup> King, McKenzie-McHarg, and Horsch (n 6); Kirstie McKenzie-McHarg and others, 'Think Pink! A Pink Sticker Alert System for Women with Psychological Distress or Vulnerability During Pregnancy' (2014) 22(8) *BMJ* 590; Richard J Shaw and others, 'Prevention of Postpartum Traumatic Stress in Mothers with Preterm Infants: Manual Development and Evaluation' (2013) 34(8) *Issues Ment Health Nurs* 578.

<sup>94</sup> Maria Helena Bastos and others, 'Debriefing Interventions for the Prevention of Psychological Trauma in Women following Childbirth' (2015) 4 *Cochrane Database of Systematic Reviews* CD007194; Lisanne F de Graaff and others, 'Preventing Post-Traumatic Stress Disorder Following Childbirth and Traumatic Birth Experiences: A Systematic Review' (2018) 97(6) *Acta Obstet Gynecol Scand* 648.

<sup>95</sup> McKenzie-McHarg and others (n 11).

<sup>96</sup> M Furuta and others, 'Effectiveness of Trauma-Focused Psychological Therapies for Treating Post-Traumatic Stress Disorder Symptoms in Women Following Childbirth: A Systematic Review and Meta-Analysis' (under review).

<sup>97</sup> Paola Di Blasio and others, 'The Effects of Expressive Writing on Postpartum Depression and Posttraumatic Stress Symptoms' (2015) 117(3) *Psychol Rep* 856; Paola Di Blasio and others, 'Emotional Distress Following Childbirth: An Intervention to Buffer Depressive and PTSD Symptoms' (2015) 11(2) *EJOP* 214.

<sup>98</sup> James W Pennebaker, 'Expressive Writing in Psychological Science' (2018) 13(2) *Perspect Psychol Sci* 226.

control group.<sup>99</sup> Similar encouraging results were found for mothers who had given birth to very premature babies who carried out expressive writing for 15 minutes during three consecutive days when their babies were three months old.<sup>100</sup>

Further, cognitive psychology research suggests that visual aspects of (traumatic) memory that underpin intrusions can be disrupted by actively engaging in visuospatial tasks, since these compete for resources with the brain's sensory-perceptual resources.<sup>101</sup> In a proof-of-principle randomised controlled study, intrusive traumatic memories after emergency caesarean section (ECS) were markedly reduced by a cognitive computerised intervention (i.e., playing the computer-game Tetris for approximately 15 minutes during the first six hours following ECS), representing a first step in the development of an early intervention to prevent PTSD following childbirth.<sup>102</sup>

Even though research on prevention and intervention is preliminary, early treatment of PTSD following childbirth should be provided, given the negative impact also on the relationship with the partner and child, and the development of the child.

Several studies have looked at structured psychological interventions for women with postpartum PTSD but no standard intervention with proved effectiveness is available for women with postpartum PTSD.<sup>103</sup> In international guidelines on the management of general PTSD, trauma-focused cognitive behavioural therapy (CBT) and eye-movement desensitisation and reprocessing (EMDR) are recommended as the interventions of choice.<sup>104</sup> Initial results of studies investigating the effects in women who experienced the delivery as

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<sup>99</sup> Di Blasio and others, 'The Effects of Expressive Writing' (n 97); Di Blasio and others, 'Emotional Distress Following Childbirth' (n 97).

<sup>100</sup> Horsch and others (n 1).

<sup>101</sup> Jackie Andrade, David Kavanagh, and Alan Baddeley, 'Eye-Movements and Visual Imagery: A Working Memory Approach to the Treatment of Post-Traumatic Stress Disorder' (1997) 36(2) Br J Clin Psychol 209; Alan D Baddeley and Jackie Andrade, 'Working Memory and the Vividness of Imagery' (2000) 129(1) J Exp Psychol Gen 126; Emily A Holmes and others, 'Can Playing the Computer Game "Tetris" Reduce the Build-up of Flashbacks for Trauma? A Proposal from Cognitive Science' (2009) 4(1) PLoS One e4153; David J Kavanagh and others, 'Effects of Visuospatial Tasks on Desensitization to Emotive Memories' (2001) 40(3) Br J Clin Psychol 267.

<sup>102</sup> Antje Horsch and others, 'Reducing Intrusive Traumatic Memories after Emergency Caesarean Section: A Proof-of-Principle Randomized Controlled Study' (2017) 94 Behav Res Ther 36.

<sup>103</sup> Claire AI Stramrood and others, 'The Patient Observer: Eye-Movement Desensitization and Reprocessing for the Treatment of Posttraumatic Stress Following Childbirth' (2012) 39(1) Birth 70.

<sup>104</sup> American Psychiatric Association, 'Practice Guidelines for the Treatment of Patients with Acute Stress Disorder and Posttraumatic Stress Disorder' (2004); National Collaborating Centre for Mental Health, *Post-Traumatic Stress Disorder: The Management of PTSD in Adults and Children in Primary and Secondary Care* (Gaskell 2005).

traumatic are promising,<sup>105</sup> but predominantly comprise case studies.<sup>106</sup> Hence, randomised controlled trials are needed in order to prove the effectiveness in this particular population as well.<sup>107</sup>

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<sup>105</sup> Susan Ayers, Kirstie McKenzie-McHarg, and Andrew Eagle, 'Cognitive Behaviour Therapy for Postnatal Post-Traumatic Stress Disorder: Case Studies' (2007) 28(3) *J Psychosom Obstet Gynaecol*, 177; Leann K Lapp and others, 'Management of Post Traumatic Stress Disorder after Childbirth: A Review' (2010) 31(3) *J Psychosom Obstet Gynaecol* 113; Marianne Sandström and others, 'A Pilot Study of Eye Movement Desensitisation and Reprocessing Treatment (EMDR) for Post-Traumatic Stress after Childbirth' (2008) 24(1) *Midwifery* 62; Stramrood and others (n 103).

<sup>106</sup> McKenzie-McHarg and others (n 11).

<sup>107</sup> MAM Baas and others, 'The OptiMUM-Study: EMDR Therapy in Pregnant Women with Posttraumatic Stress Disorder after Previous Childbirth and Pregnant Women with Fear of Childbirth: Design of a Multicentre Randomized Controlled Trial' (2017) 8(1) *Eur J Psychotraumatol* 1293315; Astrid George and others, 'Effectiveness of Eye Movement Desensitization and Reprocessing Treatment in Post-Traumatic Stress Disorder after Childbirth: A Randomized Controlled Trial Protocol' (2013) 92(7) *Acta Obstet Gynecol Scand* 866; Martini and others (n 79).