



City Research Online

City, University of London Institutional Repository

Citation: Uddin, N., Ayers, S., Khine, R. & Webb, R. (2022). The Perceived Impact of Birth Trauma Witnessed by Maternity Health Professionals: A Systematic Review. *Midwifery*, 114, 103460. doi: 10.1016/j.midw.2022.103460

This is the published version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/28536/>

Link to published version: <https://doi.org/10.1016/j.midw.2022.103460>

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. 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.



Review Article

The perceived impact of birth trauma witnessed by maternity health professionals: A systematic review ☆☆☆★★★



Nazihah Uddin^{a,*}, Susan Ayers^a, Ricardo Khine^b, Rebecca Webb^a

^a Centre for Maternal and Child Health, School of Health Sciences, City, University of London, Northampton Square, London, EC1V 0HB, United Kingdom

^b School of Health Care and Social Work, Buckinghamshire New University, High Wycombe, HP11 2JZ

ARTICLE INFO

Article history:

Received 9 August 2021

Revised 3 August 2022

Accepted 11 August 2022

Keywords:

Birth trauma

Maternity

Health professionals

PTSD

Secondary traumatic stress

Mixed-methods systematic review

ABSTRACT

Objectives: Maternity health professionals (MHPs) caring for women may witness or be involved in traumatic births. This can be associated with MHPs experiencing secondary traumatic stress (STS) or probable post-traumatic stress disorder (PTSD), which may impact MHPs emotionally and physically. The aims of this review were therefore to determine: (i) the prevalence of STS and PTSD in maternity health professionals; and (ii) the impact of witnessing birth trauma on maternity health professionals.

Methods: A mixed-methods systematic review was carried out by conducting literature searches on CINAHL, MEDLINE, PsychARTICLES, PsychINFO and PsychTESTS databases. Searches were conducted from the inception of databases up to February 2022 using search terms on MHPs and birth trauma combined. Methodological quality and bias were assessed. Data were synthesised using thematic synthesis.

Results: A total of 18 studies were included in the review. Sample size ranged from 9 to 2,165 (total $N = 8,630$). Participants included midwives, nurses and obstetricians aged 18–77 years. Many MHPs had witnessed a traumatic birth event (45%–96.9%) with the prevalence of STS ranging from 12.6%–38.7% and the proportion of participants meeting diagnostic criteria for PTSD ranging from 3.1%–46%. MHPs reported positive and negative effects associated with witnessing traumatic birth events. Synthesis of quantitative and qualitative papers identified five themes: Negative emotions and symptoms; Responsibility and regret; Impact on practice and care; Challenging professional identity; and Team support being essential.

Discussion: Witnessing traumatic birth events is associated with profound emotional and physical impacts on MHPs, signifying the importance of acknowledging and addressing this in the maternity workforce.

It is important to raise awareness of the impact of birth trauma on MHPs. Effective education and training guidelines, a supervisory network, ways to change practice and policy, and support and treatment should be provided to assist and improve the outcomes and work-life of MHPs' who witness traumatic births.

Crown Copyright © 2022 Published by Elsevier Ltd.

This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>)

INTRODUCTION

Rationale

Approximately 8% of all pregnancies involve complications (e.g., ectopic pregnancy, gestational diabetes mellitus, stillbirth, congenital anomalies etc., [Elixhauser and Wier, 2011](#); [BMJ Best Prac-](#)

[tice, 2019](#)). Complications can also occur during labour and birth (e.g., perineal tears, perinatal asphyxia, shoulder dystocia, excessive bleeding). Complications are rare but they can be unexpected and pose a severe threat to the mother and baby's health, potentially resulting in morbidity and death ([ONS, 2021](#); [MBRRACE-UK Knight et al., 2020](#)). It is reported that midwives may be involved in complicated and potentially traumatic births such as stillbirths up to 60 times per year ([Patterson, 2019](#)). Being present at, or witnessing complicated births, may lead to Maternity Health Professionals (MHPs) experiencing the birth as traumatic. For example, birth trauma in MHPs can occur when they directly or indirectly experience a birth where there is significant risk to the mother or baby, or which the MHP defines as 'traumatic' ([Goldbort et al., 2011](#); [Sheen et al., 2015](#)). A survey found approximately 85% of ob-

☆ Conflict of Interest – None Declared

☆☆ Ethical Approval – Not applicable

* Funding Sources – This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

★★ This review was not registered and no funding was sought.

* Corresponding author.

E-mail address: Nazihah.Uddin.2@city.ac.uk (N. Uddin).

stetricians and midwives stated they had been involved in a traumatic childbirth (K. Schroder et al., 2016b).

MHPs being present and/or being the care-provider at traumatic childbirths can be associated with the development of secondary traumatic stress disorder (STS) or probable post-traumatic stress disorder (PTSD). STS, or compassion fatigue, is when emotional distress develops vicariously from hearing about; seeing traumatic stories and images, or when assisting to alleviate the symptoms of someone else. Symptoms of STS include feelings of helplessness, isolation, anxiety, numbness or avoidance, and persistent arousal (Sprang et al., 2019). STS and PTSD share similar symptoms however PTSD is a defined diagnostic psychiatric disorder that can occur after witnessing a traumatic event, resulting in persistent re-experiencing of the event, avoiding trauma-related stimuli, negative changes in understanding and mood, and changes in reactivity after the exposure to the event' (American Psychiatric Association, 2013). STS and probable PTSD are estimated to be relatively common in MHPs. Studies suggest STS prevalence ranges from 12.6%–38.7%, and probable PTSD prevalence ranges from 5%–46% (Sheen et al., 2015; Beck et al., 2015; Leinweber, 2017).

Given the prevalence of STS and PTSD, it is important to consider that witnessing or hearing about a traumatic birth can affect MHPs on both an emotional and professional level. For example, qualitative research suggests that MHPs who witness a traumatic birth, experience symptoms such as feelings of horror and guilt, thinking more about the meaning of life, struggling to maintain a professional role, feeling distress over what should have been, and considering other careers (Goldbort et al., 2011; Beck and Gable, 2012; Rice and Warland, 2013; Leinweber et al., 2017). Quantitative studies find similar evidence of the impact on MHPs such as symptoms of intrusions, avoidance and arousal; as well as reduced empathy, increased work-related stress and traumatic stress responses (Sheen et al., 2013).

There are relatively few reviews on this topic. For example, a meta-ethnography of 11 qualitative studies by Elmir et al. (2017) identified professionals feeling guilty and taking on the responsibility after a traumatic or adverse labour event. Furthermore, a systematic review of 15 studies by Beck and Anderson (2018) focussed on STS developed from witnessing and attending traumatic births on midwifery students and midwives. They highlighted midwives' and midwifery students' exposure and potential reduction of effectiveness at work because of STS. Although both reviews were conducted recently, these reviews were limited to experiences of midwives and nurses rather than all MHPs, did not report on PTSD prevalence and only included qualitative studies.

Therefore, this review will build on previous work by considering the research literature on birth-related STS or probable PTSD in MHPs. It will synthesise literature on the emotional and professional impact that STS and probable PTSD may have on MHPs and identify the prevalence of both.

Objectives

This review therefore aims to synthesise both qualitative, quantitative and mixed-method literature on the prevalence and impact of birth trauma on MHPs to provide the information needed to develop strategies to prevent or reduce STS and PTSD in MHPs.

METHODS

Eligibility criteria

Studies were included if the population of the study included qualified MHPs (e.g. midwives, obstetricians, midwifery nurses)

working in the maternity setting regardless of demographic characteristics. The aim of the included studies had to be related to exploring the prevalence and/or impact of birth trauma on MHPs. Outcomes could be focussed on any perceived impact such as feelings or symptoms (see Table 1 below). Studies were not limited to type of traumatic birth event witnessed, or type of feelings/symptoms experienced.

Studies were excluded if they were not primary research; non-English publications; not conducted on the target population; the focus was not on birth trauma or traumatic birth events witnessed; the MHPs were not working in a maternity setting; and the outcome was not focused on impact of birth trauma on the target population (not discussing feelings, symptoms or any other impact).

Information sources

Searches and screening were conducted and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Page et al., 2021). Using the EBSCO online portal, an updated search was carried out on CINAHL, MEDLINE, PsychARTICLES, PsychINFO and PsychTESTS databases. Searches were conducted from the inception of databases up to and including February 2022.

Search strategy

A subject heading search was first conducted for each of the PIO concepts in Table 1. Following this, a keyword search was conducted using the search terms (see online supplementary material S1). All search terms for each concept were run in one search combined with Boolean operators "OR", then all three search results combined with "AND" (see Supplementary online material S1). Forward and backward searches of included studies were also conducted and completed in February 2022.

Selection process

Search results were imported into EPPI-Reviewer 4, filtering for English publications with no date restrictions. Following this, all titles and abstracts were screened by one author (NU) and a proportion (10%) double screened by another author (RW). Decisions to include/exclude were concordant for 88% of titles and abstracts. Disagreements were discussed and agreed and included studies are based on final agreements. Full text screening was carried then out by NU and a proportion (50%) were double screened by RW. Reviewers agreed for 86% of papers and disagreements were discussed and agreed.

Data collection process and data items

A data extraction form was developed by NU independently using Excel and the item checklist from the Cochrane Handbook by Higgins and Green (2008, page 157). This included: Study Information; Sample Characteristics; Study details; Key Results; and Robustness (see supplementary material S3). An example table has been included in supplementary material S2 (other papers available on request). It was applied to all included studies to ensure the inclusion of all relevant data (Noyes and Lewin, 2011).

Study risk of bias assessment

Methodological quality and bias were assessed by two authors using the Joanna Briggs Institute (JBI) Critical Appraisal Tools for Qualitative Research (Joanna Briggs Institute Checklist for Qualitative Research, 2017) and Studies Reporting Prevalence Data

Table 1
PIO parameters.

PIO	Definition	Example search terms
Population	Professionals working in the maternity setting (MHPs)	Midwif* OR maternity OR professionals OR obstetric*
Intervention	Birth trauma or traumatic birth event witnessed or heard about by MHPs	Childbirth OR delivery OR lab#r AND trauma* OR complicat* OR PTSD OR stress
Outcome	Any perceived impact – feelings, symptoms etc.	Experiences OR perceptions OR views OR attitudes OR feelings

Table 2
Critical appraisal domains assessed.

Prevalence/Quantitative studies	Qualitative studies
Appropriateness of the sample size and participant selection	Appropriateness of methodology
Detailed description of study subjects and setting	Consideration of researcher bias
Validity of methods and data analysis	Representation of participant's voices
Measurement of outcomes	Consideration of ethical issues
Adequacy of response rate	Validity of conclusions made

(Joanna Briggs Institute [Checklist for Prevalence Data](#), 2017). Domains appraised for prevalence studies and qualitative studies are in [Table 2](#). All domains were appraised for mixed method studies. If the majority of questions were answered 'yes' this domain was rated as high quality. If majority of questions were answered 'no' this domain was rated as low quality. If there was a mixture of 'yes' and 'no' answers the study was rated as medium quality. Methodological ratings were done by two reviewers (NU, RW) and agreement was 81%. Differences were discussed and agreed. No studies were excluded due to methodological limitations.

Synthesis methods

Thematic synthesis was used to summarise the findings. The study and sample characteristics, key results and quality ratings were extracted and tabulated on an excel spreadsheet, synthesising the data separately depending on the study design. This provided the means to interpret the data as key themes and synthesise the qualitative and quantitative studies together, drawing out particular quotes from studies to support each theme.

Results

Study selection

Results of the searches are shown in [Fig. 1](#). Searches identified a total of 890 763 citations. Removal of duplicates left 717 citations for screening. Following title and abstract screening, 685 papers were excluded, leaving 27 plus 5 papers from the new search to be screened by full text. After full text screening was complete, 14 papers were excluded, the new search identified an additional 3 papers to include in the review, leaving 17 papers from 16 studies to be included in the review. Reference list screening for each paper resulted in an additional two studies being identified and included in the review. Therefore, 19 papers reporting 18 studies were included in the synthesis.

Study characteristics

Studies used different methods with 6 qualitative, 7 quantitative and 5 mixed method studies included in this review. Studies were conducted in a range of countries including the United Kingdom (UK; $n = 2$), United States (US; $n = 4$), Australia ($n = 4$), Denmark ($n = 2$), Israel ($n = 2$), New Zealand ($n = 1$), Sweden ($n = 1$), Turkey ($n = 1$) and Uganda ($n = 1$). The MHPs recruited in the studies included midwives, intrapartum nurses, obstetric nurses, labour and delivery nurses, and obstetricians. MHPs were

aged 18–77 years, and sample sizes ranged from 9 to 2165 participants ($M = 466.6$, total $N = 8630$). Details for qualitative studies are shown in [Table 3](#), quantitative studies in [Table 4](#), and mixed methods studies in [Table 5](#).

Risk of bias in studies

The ratings of methodological quality ranged from medium to high with most studies being of high quality ($n = 16$). Only 3 studies were rated of medium quality ([Beck and Gable, 2012](#); [Wahlberg et al., 2016](#); [Walker et al., 2020](#)). Full methodological ratings can be found in Supplementary material 3.

Results

Birth trauma and the prevalence of STS and PTSD

Many different types of traumatic birth events were witnessed by MHPs. Qualitative studies suggest common traumatic events included infant or maternal death, shoulder dystocia, haemorrhage, resuscitation, or emergency hysterectomy. One participant described their feelings when discovering the baby had died in utero: 'I could not locate the baby's heart rate. I started to feel numb. I felt hot and cold at the same time.' ([Puia et al., 2013](#), p. 326)

Less frequent traumatic events included aggression or violence towards MHPs; occupational accidents; witnessing inexperienced medical staff; witnessing or being involved in abusive or poor care of women (e.g., witnessing a procedure that was not in the woman and/or baby's best interests, or witnessing disrespect where the woman's dignity or wishes were ignored). Quantitative studies suggested similar findings about the types of traumatic events that MHPs witnessed or were involved in. Some examples included maternal or infant death; violence or threat towards MHPs from the mother or family; perceived risks to mother or infant; emergency births; job accidents and lack of professionalism of medical staff.

Quantitative studies that reported prevalence either investigated midwives only or obstetricians and midwives. The majority of studies focused on PTSD ($n = 7$) with fewer on STS ($n = 4$). The prevalence of STS ranged from 12.6%–38.7% ([Beck and Gable, 2012](#); [Beck et al., 2015](#); [Sheen et al., 2015](#); [Muliira and Ssendikadiwa, 2016](#); [Wahlberg et al., 2016](#); [Schroder et al., 2016a](#); [K. Schroder et al., 2016b](#), [Cohen et al., 2017](#); [Leinweber et al., 2017](#); [Schroder et al., 2019](#); [Walker et al., 2020](#)). PTSD prevalence ranged from 3.1%–46% ([Sheen et al., 2015](#); [Wahlberg et al., 2016](#); [Cohen et al., 2017](#); [Leinweber et al., 2017](#); [Çankaya and Dikmen, 2020](#); [Walker et al., 2020](#)). Studies that measured whether MHPs had been exposed to traumatic births ($n = 8$) found that 71%–96.9% of MHPs had witnessed traumatic birth events.

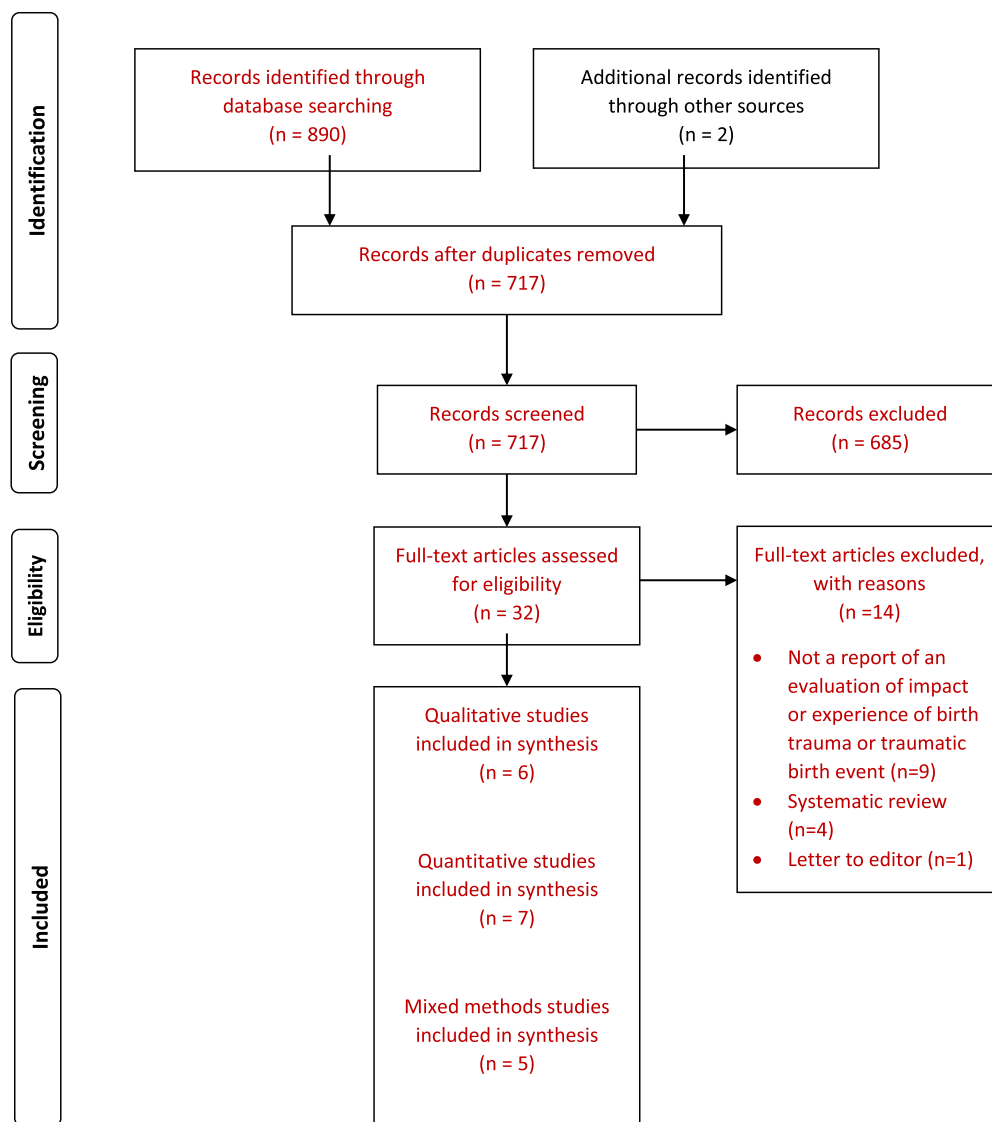


Fig. 1. Searches and screening.

Studies that reported data on sub-clinical symptoms of PTSD (re-experiencing, avoidance, hyperarousal) suggest the prevalence of subclinical symptoms ranged from 35%–66%. A higher number of traumatic birth events and increased exposure to traumatic birth events led to a greater risk of developing symptoms of STS and PTSD (Çankaya and Dikmen, 2020). Previous exposure to trauma did not have any impact on current exposure to traumatic birth experiences.

The impact of birth trauma, STS and PTSD

Synthesis of quantitative and qualitative papers identified five main themes: Negative emotions and symptoms; Responsibility and regret; Impact on practice and care; Challenging professional identity; and Team support is essential. These are described below with illustrative quotes.

Negative emotions and symptoms. Quantitative studies reported a range of negative emotions and symptoms. Common negative symptoms were re-experiencing the event (Wahlberg et al., 2016: 70% obstetricians, 66% midwives). Other symptoms included burnout, sleep disorders, general stress, somatic stress, depression, cognitive stress, compassion fatigue, avoidance and flashbacks (Beck and Gable, 2012; Sheen et al., 2013; Beck et al., 2015;

Schroder et al., K. 2016a, K. 2016b; Muliira and Ssendikadiwa, 2016; Wahlberg et al., 2016; Cohen et al., 2017; Leinweber et al., 2017; Schroder et al., 2019; Toohill et al., 2019). Common negative emotions were deep concern (Leinweber et al., 2017: 97%) and helplessness (Leinweber et al., 2017: 92%). Other negative emotions reported by MHPs included fear and guilt (K. Schroder et al., 2016b; Leinweber, 2017; Schroder et al., 2019).

Qualitative studies were consistent with this also highlighting the range of emotions and symptoms MHPs experienced after traumatic birth events. Feelings included shock when MHPs were confronted with unexpected traumatic birth events and negative emotions (Halperin et al., 2011) as one MHP describes: 'I felt terrible, such a loss. I was sad, I cried with the woman – that's the way it was – a very deep sadness' (Halperin et al., 2011, pg.390).

Feelings of powerlessness, sadness, helplessness, loss, feeling unsupported, feeling as if it is their fault and fear of lawsuits were also reported. In addition, some MHPs said they were blamed by parents. This participant describes emotions when involved in a fourth degree tear: '...I felt like a failure. I felt that everyone at work thought I was a failure' (Halperin et al., 2011, pg.390).

As well as being affected emotionally, MHPs were affected physically and reported experiencing weakness, headaches, anx-

Table 3
Details of qualitative studies included in the review.

Authors and date	Sample Profession (N)	Aims	Data collection/analysis method	Main findings
Halperin et al. (2011) Israel	Midwives (N = 18)	Explore clinical life-threatening childbirth situations which midwives see as stressful. Identify how midwives cope with those experiences.	Semi-structured in-depth interviews Thematic content analysis	- Themes: Stressful childbirth situations and their impact on midwives and Coping with stressful situations, and suggestions for change. - Long-term impact on midwives' professional and personal identities. - Midwives need to feel valued and supported to deal with the stress.
Calvert & Benn (2015) New Zealand	Midwives (N = 16)	Explore the effects of a traumatic practice experience on the midwifery practitioner.	Adapted biographical narrative interview Eclectic analysis approach	- Break of relational trust worsens the initial physiological and/or psychological symptoms experienced by midwives.
Rice & Warland (2013) Australia	Midwives (N = 10)	Explore experiences of midwives of witnessing traumatic birth.	Interviews analysed by Attride-Stirling (2001) ¹ manner	- Themes: Stuck between two philosophies; What could I have done differently; Feeling for the woman.
Sheen et al. (2016) UK	Midwives (N = 35)	Investigate midwives' experiences of traumatic perinatal events and to provide insights into experiences and responses reported by midwives with and without subsequent posttraumatic stress symptoms.	Semi-structured telephone interviews Thematic analysis	- Feelings included Feeling out of comfort zone; Emotionally upset; Self-blame; Feelings of vulnerability. - Midwives with higher distress were more likely to report being personally upset by events and feel affected.
Goldbort et al. (2011) US	Intrapartum nurses (N = 9)	Describe the essence of 9 nurses' participation in a traumatic birthing process and the impact of this experience.	Interviews/Colaizzi's ² phenomenological method of data analysis	- Subthemes: Feeling of chaos; Expect the unexpected; It's hard to forget; All hands on deck; Becoming; and For the love of obstetrics.
Puia et al. (2013) US	Obstetric nurses (N = 155)	Discover the impact of perinatal loss on obstetric nurses.	Secondary analysis / Krippendorff's ³ method for qualitative content analysis	- Themes: Getting through the shift; Symptoms of pain and loss; Frustrations with inadequate care; Showing genuine care; Recovering from traumatic experiences; Never forgetting.

Note. ¹Attride-Stirling, J., Davis, H., Markless, G., Sclare, I., & Day, C. (2001). 'Someone to talk to who'll listen': addressing the psychosocial needs of children and families. *Journal of Community & Applied Social Psychology*, 11(3), 179–191.

² Colaizzi, P. (1978). Psychological research as a phenomenologist views it. In: Valle, R. S. & King, M. (1978). *Existential Phenomenological Alternatives for Psychology*. Open University Press: New York.

³ Krippendorff, K. (2004). Measuring the Reliability of Qualitative Text Analysis Data. *Quality and Quantity*, 38 (6), 787–800. <https://doi.org/10.1007/s11335-004-8107-7>.

ity attacks, rapid heartbeat, butterflies in stomach and insomnia. MHPs had vivid memories of the traumatic birth events, which contributed to symptoms such as difficulties sleeping (Halperin et al., 2011; Puia et al., 2013; Beck et al., 2015; Calvert and Benn, 2015; Toohill et al., 2019). 'I felt strong pain physically...I wasn't able to eat...weakness, terrible hand tremor...palpitations, dizziness. I had a headache and physical pain in my stomach and feet' (Halperin et al., 2011, p. 391).

Responsibility and regret. Qualitative research highlighted how MHPs empathised with women and reflected on their own role in the traumatic birth event. Rice and Warland (2013) reported that within the theme 'feeling for the woman' midwives said they felt affected and traumatised by the woman's experience and felt upset for them. '...None of this trauma that I'm feeling is because I'm personally upset by what happened, I'm only personally upset in the sense that I can imagine how this must have been for this person' (Rice and Warland, 2013, p.1060). They began to question and reflect upon what they could have done differently, feeling responsible and a sense of regret that they played a role in the adverse outcome (Beck and Gable, 2012; Rice and Warland, 2013, pg. 1060; Beck et al., 2015).

MHPs coped with this in different ways. Some MHPs ignored how they were feeling, some developed feelings of self-blame and guilt for the mother, and many were voluntarily or involuntarily replaying the event constantly in their minds (Puia et al., 2013; K. Schroder et al., 2016b; Sheen et al., 2016). Similarly, the study

by Goldbort et al., 377) suggests that the events were 'hard to forget' and left a 'lasting impression'. MHPs attempted to process event details, reporting a period of rumination which was sometimes voluntary or involuntary: 'Just couldn't get her out of my mind. It was constantly on my mind and then you know the day that I was told that she'd died was very, very sad' (Sheen et al., 2016, pg. 66).

Impact on practice and care. Traumatic birth events could lead to positive and negative changes to the way MHPs provided care. Positive changes were found in three qualitative studies. One study identified a theme of 'Providing the best possible care: putting your heart into it'. This suggested that obstetric nurses believed by putting their best into the work they do, it was a way of making the situation more bearable following the event (Puia et al., 2013). Additionally, they recognised the importance of their role and working in such a setting, as well as how traumatic birth events positively benefitted their personal and professional development (Goldbort et al., 2011). Similarly, K. Schroder et al. (2016b) found obstetricians and midwives felt that they were developing and becoming better in their roles because of witnessing such events. Participants explained reasons why they stayed in their profession despite the trauma: 'Makes you feel so insignificant. So small and humble to be a part of that, to help these people out...but it is, it's been a blessing in my life. It's been a very positive thing in my life. This lady and the people I work with, are all of them, are part of what makes it work and worthwhile' (Goldbort et al., 2011, pg. 378).

Table 4
details of quantitative studies included in the review.

Author and date	Profession (N)	Aims	Data collection method	Main findings
Sheen et al. (2015) UK	Midwives (N = 421)	Investigate midwives' experiences of traumatic perinatal events and potential implications	National postal survey IES-R ⁵	- 33% had PTSD. - Empathy: previous trauma exposure, negative worldview, beliefs, and burnout were associated with PTSD.
Wahlberg et al. (2016) Sweden	Obstetricians (N = 706) and midwives (N = 1459)	Examine the post-traumatic stress reactions, experiences of support and professional consequences after severe events in the labour ward	Cross sectional online survey SQ-PTSD ⁴	- 84% of obstetricians/71% of midwives reported at least one severe event. - 15% of obstetricians and midwives had partial PTSD. - 7% obstetricians & 5% midwives had PTSD.
Muliira and Ssendikadiwa (2016) Uganda	Midwives (n=224)	Explore the professional quality of life and associated factors amongst Ugandan midwives working in Mubende and Mityana rural district to recommend interventions to improve professional well-being and outcomes of midwifery care.	Cross sectional survey Professional Quality of Life Scale, Perceived Well-being Scale and Job Satisfaction standardized tools.	- 68% had compassion satisfaction. - There were higher levels of compassion satisfaction, burnout, and STS amongst male midwives. - The key factors associated with levels of STS were marital status, level of professional education, involvement in non-midwifery health care activities at work and physical wellbeing. - 9.4% had high STS.
Leinweber et al. (2017) Australia	Midwives (N = 687)	Assess exposure to different types of birth trauma, peritraumatic reactions and prevalence of posttraumatic stress.	Online survey PTSD Symptom Scale Self-Report version ⁶	- 67.2% had witnessed traumatic birth event. - 17% had symptoms of PTSD. - Witnessing abusive care was associated with severe PTSD.
Cohen et al. (2017) Israel	Midwives (N = 93)	Study midwives' professional quality of life and traumatic experiences.	Questionnaires PTSD Symptom Scale - Self Report version ⁶	- PTSD levels positively and significantly correlated with burnout and STS. - 16% had PTSD symptoms. - Seniority positively and significantly correlated with burnout and PTSD.
Schroder et al. (2019) Denmark	Obstetricians and midwives (N = 593)	Describe midwives' and obstetricians' experiences in the level of support from colleagues and managers in Danish labour wards following adverse events.	National survey MITSS survey ⁷ , RISE ⁸ , Version II of the COPSQII ⁹	- 593 were involved in at least 1 traumatic childbirth at work. - High levels of social support from colleagues and social community at work. - 95% had talked to colleagues about an adverse event. - Low levels of support and feedback from immediate superiors. - 49% talked to a superior about an adverse event. - 50% thought the hospital had a clear process to report adverse events. - 44% knew how to access the necessary confidential emotional support at work.
Cankaya and Dikmen (2020) Turkey	Nurses and midwives (n = 266)	Determine the relationship between posttraumatic stress symptoms of maternity nursing/midwife and their quality of work life, cognitive distortions, and traumatic perinatal experiences.	Descriptive, cross-sectional survey. IES-R ⁵ , ProQOL R-IV ¹⁰ , PTCI ¹¹	- 48.1% witnessed a difficult birth and 34.9% attended a difficult birth. - 37.2% met the criteria for PTSD. - Higher PTSD scores in those who witnessed a traumatic event. - There was a positive correlation between number of years in the profession; number of traumatizing event experiences; burnout; compassion fatigue; negative cognitions about the world and self, and PTSD. - There was a negative correlation between QoL; posttraumatic cognition and PTSD

Note. ⁴Frans O, Rimmo PA, Aberg L, Fredrikson M. (O 2005). Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatr Scand*,111:291–9.

⁵ Weiss, D.S., & Marmar, C.R. (D.S. 1997). *The Impact of Event Scale-Revised*. In J.P. Wilson & T.M. Keane (Eds.), *Assessing Psychological Trauma and PTSD* (pp.399–411). New York: Guilford.

⁶ Foa, E., Cashman, L., Jaycox, L., & Perry, K. (E. 1997). The validation of a self-report measure of PTSD: The Posttraumatic Diagnostic Scale. *Psychological Assessment*, 9(4), 445–451. doi: 10.1037/1040-3590.9.4.445.

⁷ *Medically Induced Trauma Support Services 2009* [Available from: <http://www.mitss.org/indel.html>].

⁸ Edrees, H., Connors, C., Paine, L., Norvell, M., Taylor, H., & Wu, A. W. (2016). Implementing the RISE second victim support programme at the Johns Hopkins Hospital: a case study. *BMJ open*, 6(9), e011708.

⁹ Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (J.H. 2010). The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian journal of public health*, 38(3_suppl), 8–24.

¹⁰ Galiana, L., Oliver, A., Arena, F. et al. Development and validation of the *Short Professional Quality of Life Scale* based on versions IV and V of the *Professional Quality of Life Scale*. *Health Qual Life Outcomes* 18, 364 (2020). <https://doi.org/10.1186/s12955-020-01618-3>. ¹¹ Wells SY, Morland LA, Torres EM, Kloeze-man K, Mackintosh MA, Aarons GA. The Development of a Brief Version of the Posttraumatic Cognitions Inventory (PTCI-9). *Assessment*. 2019 Mar;26(2):193–208. doi: 10.1177/1073,191,116,685,401. Epub 2017 Jan 16. PMID: 28,092,974.

Table 5
Details of mixed method studies included in the review.

Author and date	Profession (N)	Aims	Data collection method	Main findings
Schroder et al. (2016a) Denmark	Danish Obstetricians (N = 293) and midwives (N = 944)	Investigate the self-reported psychosocial health and well-being of the sample in Denmark and their recall of their health and wellbeing immediately following the traumatic childbirth event	A national questionnaire survey and qualitative interview COPSOQII ⁹	- Midwives reported higher scores than obstetricians in the first 4 weeks following exposure to traumatic childbirth. - Those who left their job reported higher scores on all scales on the COPSOQII. - None of the scales on the COPSOQII were associated with age or seniority.
K. Schroder et al. (2016b) Denmark	Danish Obstetricians (N = 293) and midwives (N = 944)	Investigate the numbers and proportions of the sample that are involved in a traumatic birth event. Explore experiences with guilt, blame, shame and existential concern.	A national questionnaire survey and qualitative interview. COPSOQII ⁹	- 85% were involved in a traumatic birth event. - Blame from patients, clinical peers or official authorities was feared and sometimes experienced by obstetricians and midwives, however they had greater inner struggles with guilt and existential considerations. - 36–49% reported guilt. - 50% reported traumatic childbirth made them think more about the meaning of life. - 65% become a better midwife/doctor due to the traumatic birth event.
Beck and Gable (2012) US	Labour and delivery nurses (N = 464)	Determine the prevalence and severity of secondary traumatic stress (STS) in the sample. Explore nurses' descriptions of their experiences attending traumatic births.	Survey STSS ¹²	- 35% had moderate to severe levels of STS. - Themes: Magnifying the exposure to traumatic births; Struggling to maintain a professional role; Agonizing over what should have been; Mitigating the aftermath of exposure; Haunted by STS symptoms; Considering foregoing careers.
Beck et al. (2015) US	Certified Nurse-Midwives (CNM's) (N = 719)	Determine the prevalence and severity of STS in CNM'S. Explore their experiences attending traumatic births.	Survey STSS ¹²	- 29% had high to severe STS. - 36% had PTSD symptoms due to attending traumatic births. - Themes: Agonizing sense of powerlessness and helplessness; Trio of PTSD symptoms; It takes a team to provide support...or not; Nowhere to go to unburden our souls; Shaken belief in birth process impacting the midwifery practice; Moving on, where do I go from here?.
Toohill et al. (2019) Australia	Australian midwives (N = 249)	Determine prevalence of traumatic births and fear in midwives and associations with midwives' confidence to give advice and care for pregnant women. Describe their experiences and fear to traumatic births.	Online survey Approach adapted from work of Haines et al. ¹³ Practice concerns scale. ¹⁴	- 93.6% had professional or personal traumatic birth experiences. - 8% highly fearful of birth. - Trauma was not associated with practice concerns, but fear was. - Midwives categorised as 'high fear' reported more practice concerns than midwives with 'low fear'. - Professional trauma was associated with both witnessing and experiencing disrespectful care and then feeling responsible in the provision of poor care. - Feeling unsupported and fearing litigation increased trauma.
Walker et al. (2020) Australia and New Zealand	Obstetricians, trainees and GP obstetricians (n = 32)	To assess the feasibility of conducting a binational survey of Australia and New Zealand obstetricians, trainees, and general practitioner obstetricians, to determine the prevalence of trauma exposure and associated factors.	Binational online survey Posttraumatic Diagnostic Scale for Diagnostic and Statistical Manual of Mental Disorders-5 (PDS-5). PTGI-SF ¹⁵ CBI-W ¹⁶	- 96.9% exposed to traumatic births. - 25% had STS. - Obstetricians experienced substantial trauma; experienced blame from other colleagues; and only felt supported and safe in some workplaces. - Traumatic events included unexpected intrapartum stillbirth or neonatal death, severe intrapartum injury to baby, maternal death or near miss or other events. - 3.1% had probable PTSD. - 25% considered leaving their profession due to their experience - The type of trauma the professionals experienced was correlated with PTSD scores.

Note. ¹² Bride, B. E., Robinson, M. M., Yegidis, B., & Figley, C. R. (B.E. 2004). Development and validation of the secondary traumatic stress scale. *Research on social work practice*, 14(1), 27–35.

¹³ Haines, H. M., Pallant, J. F., Fenwick, J., Gamble, J., Creedy, D. K., Toohill, J., & Hildingsson, I. (2015). Identifying women who are afraid of giving birth: a comparison of the fear of birth scale with the WDEQ-A in a large Australian cohort. *Sexual & Reproductive Healthcare*, 6(4), 204–210.

¹⁴ Developed by the authors specifically for this study to measure midwives' levels of confidence (1 = confident to 10 = not confident) and levels of worry (1 = not worried to 10 = extremely worried) around advising women of their birth options and providing care for women in labour. ¹⁵ Cann, A., Calhoun, L. G., Tedeschi, R. G., Taku, K., Vishnevsky, T., Triplett, K. N., & Danhauer, S. C. (A. 2010b). A short form of the Posttraumatic Growth Inventory. *Anxiety, Stress & Coping*, 23(2), 127–137. <https://doi.org/10.1080/10615800903094273>. ¹⁶ Tage S. Kristensen, Marianne Borritz, Ebbe Villadsen & Karl B. Christensen (Tage S. 2005) The Copenhagen Burnout Inventory: A new tool for the assessment of burnout, *Work & Stress*, 19(3), 192–207, DOI: 10.1080/02678,370,500,297,720.

However, studies also identified negative changes to care or practice. These included MHPs questioning their practice (Puia et al., 2013; K. Schroder et al., 2016b; Sheen et al., 2016), losing their trust in the birth process, and becoming more 'guarded' and 'cautious' (Beck et al., 2015, p. 21). Similarly, in the study by Rice and Warland (2013), midwives explained the presence of two philosophies of care: the midwifery philosophy and the reality of the medical model of care. Having to work within the reality medical model as opposed to the midwifery philosophy impacted on their experiences when involved in traumatic birth events, creating feelings of powerlessness and anguish over their part in traumatic births. Further, working within a medical model of care often did not match up with their ideal of practicing midwifery: 'But I think sometimes just the amount of intervention that can happen in a hospital-based environment as a midwife, you just find yourself thinking, is this really midwifery?' (Rice and Warland, 2013, p. 1059).

Challenging professional identity

Traumatic birth events challenged MHPs professional behaviour and made them question their professional identity and whether they wanted to continue working as an MHP. A mixed-methods study found that midwives with high levels of distress took the event personally, had difficulties continuing with their duties and developed a feeling of physical and psychological loneliness during the event (Sheen et al., 2016). Highly distressed midwives explain how they struggled to carry on with their job:

'[. . .] it's a spiral that happens emotionally, you're a spinning top, you can't really have a conversation, I don't think I was capable of having a conversation you know, until maybe after a week' (Sheen et al., 2016, p. 66).

Similarly, Halperin et al. (2011) concluded that such events 'challenged the participants' professional behaviour'. Professionals found it difficult when faced with unexpected circumstances requiring professional intervention, assessment, and quick decisions on how to proceed (Halperin et al., 2011; Beck and Gable, 2012; Beck et al., 2015). This participant describes difficulty experienced during unexpected events:

'I called the doctor... and even though the head did not descend past the 0 station, he decided to do a vacuum. He pulled and pulled while I was asking him to stop and consider performing a caesarean. He was angry at me. I was completely sure I'd done the right thing. I did everything I could except stop the doctor with my body. It's his responsibility and you are powerless. . . you experience what happened in the present, but you can't do anything' (Halperin et al., 2011, p. 390).

Studies also described impact on professional life through the theme 'Getting through the shift' where obstetric nurses described the difficulty of maintaining their professionalism and providing care whilst coping with their stress or grief (Beck and Gable, 2012; Puia et al., 2013): 'I feel like an actress sometimes, acting calm and matter of fact, when I just want to scream out, 'Oh my god!'' (Puia et al., 2013, pg. 324).

For some MHPs, this led to them considering leaving their profession as a result. Eight quantitative studies reported that 3.2–35% of MHPs considered leaving their profession, and/or took extended sick leave: 'For a long time, I experienced these feelings, and I wasn't able to return to work...' (Halperin et al., 2011, pg.391). In qualitative studies, MHPs reported that their practice had been impacted upon so much they wanted to leave their profession, or found it difficult to continue working safely and effectively following the event (Halperin et al., 2011; Beck and Gable, 2012; Rice and Warland, 2013; Beck et al., 2015; Calvert et al., 2015; Sheen et al., 2015, 2016; Schroder et al., 2016a; K. Schroder et al., 2016b; Wahlberg, 2016; Schroder et al., 2019; Walker et al., 2020). This participant

explains how due to lack of staff, she had to compromise labour care provided to a twin pregnancy: 'I thought my standards and the woman's care had been compromised. I just felt I couldn't do that anymore and that is the reason I gave up midwifery' (Calvert and Benn, 2015, pg. 105).

Team support is essential. A factor that was critical in the impact of traumatic birth events on MHPs was team support and cohesion. Evidence from qualitative studies illustrate how MHPs coped with traumatic birth events through support from the team, debriefing, communication, and team training exercises (Goldbort et al., 2011; Beck and Gable, 2012; Beck et al., 2015): 'This team approach training helps staff feel part of a team instead of individually at fault and thus pride in effective response to the emergency. Communication amongst team members is improved and helped to decrease the anxiety of any one individual team member. Team support is essential' (Beck and Gable, 2012, p. 756).

However, quantitative studies suggest the majority of MHPs are not well supported after traumatic birth events. For example, in the study by Schroder et al. (2019) only 31% of MHPs said their colleagues provided support after the event to a great extent; and only 15.7% felt that their immediate superior provided support after the event to a great extent. Further, Schroder et al. (2019) found that 0.5% of MHPs felt 'shunned' by their colleagues after the event occurred. Similarly, a study by Walker et al. (2020) reported that only 25% ($n = 8$) felt that their employer supported them well after the event. Qualitative studies where MHPs reported blame from colleagues suggest they did not feel supported or listened to, experienced violence or bullying from other MHPs, management or staff present and began to doubt their colleagues. This resulted in feelings of exclusion, rejection, loneliness, shame, guilt and failure, interfering with their professional competency and relationships (Halperin et al., 2011; Puia et al., 2013; Calvert and Benn, 2015; Sheen et al., 2016): '...I came to work the next day, and one of the midwives asked me when I would stop causing [vaginal] tears for all the women that I am taking care of because she heard that I was doing this serially. She added that I should consider going back to midwifery school' (Halperin et al., 2011, p.391).

Another highly distressed midwife explained feelings of isolation from other members of staff: '...I felt like I was the least important person whose opinion counted' (Sheen et al., 2016, pg.66).

Discussion

Summary of evidence

This review aimed to synthesise the evidence on the prevalence and impact of witnessing traumatic births on MHPs. Results suggest that witnessing a traumatic birth event is very common for MHPs, with between 71 and 96.9% reporting it. MHPs reported positive and negative impacts of witnessing traumatic birth events in five main themes: Negative emotions and symptoms; Responsibility and regret; Impact on practice and care; Challenging professional identity; and Team support is essential. Negative impacts were more frequent than positive and included STS and PTSD symptoms. These themes were found across the qualitative and quantitative studies reviewed, suggesting the findings are reasonably consistent and robust.

Studies suggested that between 71 and 96.9% of MHPs had witnessed traumatic birth events. These included maternal or infant death, obstetric emergencies (such as shoulder dystocia, postnatal haemorrhage), emergency births, violence or threat towards MHPs and a lack of professionalism of medical staff. Both qualitative and quantitative studies showed how birth trauma can influence MHPs' feelings (e.g. feeling helpless, fearful, powerless, sad and guilty) and behaviour (e.g. replaying the event, hypervigilance and

avoidance). The review also showed that MHPs experienced psychological and physical symptoms such as sleep disorders, stress, flashbacks, weakness, and a racing heart. These results fit in with the wider literature. For example, in an integrative review of the impact of indirect trauma on health professionals, results found health professionals experienced intrusive thoughts, hyperarousal, and avoidance, as well as experiencing tiredness and helplessness (Sheen et al., 2013). Similarly, a meta-ethnography of midwives and nurses' perspectives of traumatic or adverse labour events identified powerlessness as a theme. Midwives and nurses also described feeling guilty and taking on the responsibility after a traumatic or adverse labour event (Elmir et al., 2017).

In some cases, MHPs developed STS and PTSD. Prevalence data from the review suggested that probable PTSD ranged from 3.1 to 46% and STS prevalence ranged from 12.6 to 38.7%. For the studies that reported data on sub-clinical symptoms of PTSD (re-experiencing, avoidance, hyperarousal) the prevalence of ranged from 35 to 66%. Exposure to traumatic birth events was also associated with greater levels of burnout, negative worldview beliefs and lower levels of empathy. These findings fit with the wider literature that has found burnout in medical professionals is associated with poorer mental health (Asai et al., 2007), and decreased quality of care (Klein et al., 2010).

Experiencing a traumatic birth event impacted on MHPs' practice. Some reported losing their trust in the birth process, whereas others began questioning their professional role, and felt conflicted by working within the medical model of care. This created feelings of powerlessness and anguish over their involvement in traumatic births. The conflict between the medical model and midwifery model has been reported by other studies. In a qualitative study with 11 midwives, Bradfield et al. (2019) found midwives spoke of having their judgement overridden by doctors, which meant they felt disempowered in their ability to be "with woman". They also found the power differential between midwives and doctors difficult to manage, especially if they disagreed with the care being provided. Similarly, in another qualitative study, Elmir et al. (2017) found that some midwives felt unable to advocate for women, feeling fear of being ridiculed by doctors and therefore powerless and questioning whether the care they were providing is really midwifery.

Despite this, this review found that a protective factor in the impact of traumatic births on MHPs was team support and cohesion. Qualitative studies reported that MHPs coped with traumatic birth events through team support; debriefing; communication; and team training exercises. This has been supported by previous research that has identified that support for constructive reflection and debriefing helped midwives to improve their practice (Elmir, 2017). However, this review also identified that most MHPs did not feel well supported following such events; they felt they were not listened to and experienced violence or bullying from other MHPs and management. Given the protective impact that working within a supportive team may have on MHPs experiences of traumatic birth events, good supervision, collaboration and teamwork is important within maternity care.

Limitations

There are a few limitations to this review that need to be considered. For example, the length of time between the traumatic birth event and the studies being conducted varied which may affect the accuracy of recall of the event. Other issues included broad definitions of terms such as traumatic childbirth to include a wide range of diverse events, and the use of unvalidated tools and cross-sectional designs, limiting the conclusions that can be made about causal relationships. This limited the accuracy, depth and detail of

the data obtained in some studies. However, the consistency of the findings between studies suggests they are robust.

Therefore, further research is needed using systematic sampling to determine the generalisability of these findings.

Implications on maternity workforce

This research highlights the negative impact birth trauma can have on MHPs, and therefore points to a need to develop management strategies to prevent birth trauma where possible. It also suggests support is needed for MHPs to cope with birth trauma and the psychological burden on the maternity workforce. One example may be the introduction of birth trauma training for MHPs in midwifery education programmes to improve understanding of traumatic childbirths, prepare them on how to better manage the emotions and stress, and recognise illnesses such as PTSD and STS that may be associated with this. This could include the development of advanced resources for MHPs to access and educational interventions to adequately train and educate MHPs on birth trauma and assertiveness, PTSD, STS and to support them professionally and psychologically (Leinweber et al., 2016).

Another example is a managerial supervisory network within maternity departments to advise and support MHPs following exposure to traumatic birth and direct them to necessary assessment, care or treatment interventions to address any significant symptoms they may be experiencing (Halperin et al., 2011; Goldbort et al., 2011). A supervisory network may be useful in involving peers, managers, and supervisors to allow professionals to communicate, debrief and express their feelings.

Finally, understanding ways in which practice, care and policies can be adapted so the impact that witnessing birth trauma has on MHPs can be acknowledged, the professionals themselves are prepared, and are content with the care that is being provided. For example, continuing professional training should consider the close relationships midwives develop with women and introduce trauma-informed care and practice.

Conclusions

Birth trauma has a significant impact on MHPs, affecting them emotionally, physically, and psychologically. MHPs may develop many negative emotions and symptoms, although some positive impacts have also been reported. However, the significant negative impact has not been adequately recognised within the maternity workforce, their need for support and supervision has been ignored and barriers to access support services have not been acknowledged. Therefore, it is important to raise awareness of the impact of birth trauma on MHPs and develop the maternity services and workforce to both prevent birth trauma and provide support for MHPs who experience birth trauma. Possible approaches to this include developing educational resources, providing a supervisory network, and exploring how policies and care can be adjusted to support MHPs when needed enabling them to better deal with traumatic birth events. Further research should be directed towards the specific services, resources or programmes professionals need to make them feel more supported and resilient during birth experiences and their daily work.

Other information

Registration and protocol

This review was not registered.

Support

No financial support or funding was sought for this review.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.midw.2022.103460](https://doi.org/10.1016/j.midw.2022.103460).

References

- American Psychiatric Association (2013) Diagnostic and Statistical Manual of Mental Disorders, Fifth edition. (DSM-5).
- Asai, M., Morita, T., Akechi, T., Sugawara, Y., Fujimori, M., Akizuki, N., Nakano, T., Uchitomi, Y., 2007. Burnout and psychiatric morbidity among physicians engaged in end-of-life care for cancer patients: a cross-sectional nationwide survey in Japan. *Psychooncology* 16 (5), 421–428. doi:[10.1002/pon.1066](https://doi.org/10.1002/pon.1066).
- Attridge-Stirling, J., Davis, H., Markless, G., Sclare, I., Day, C., 2001. 'Someone to talk to who'll listen': addressing the psychosocial needs of children and families. *J. Community Appl. Soc. Psychol.* 11 (3), 179–191.
- Beck, C.T., Gable, R.K., 2012. A mixed methods study of secondary traumatic stress in labor and delivery nurses. *J. Obstetr. Gynecol. Neonatal Nurs.* 41, 747–760.
- Beck, C.T., LoGiudice, J., Gable, R.K., 2015. A mixed methods study of secondary traumatic stress in certified nurse-midwives: shaken belief in the birth process. *J. Midwifery Women's Health* 60, 16–23.
- BMJ Best Practice, 2019. Overview of Pregnancy Complications - Summary of Relevant Conditions | BMJ Best Practice [online] Available at: <https://bestpractice.bmj.com/>.
- Bradfield, Z., Kelly, M., Hauck, Y., Duggan, R., 2019. Midwives 'with woman' in the private obstetric model: where divergent philosophies meet. *Women Birth* 32 (2), 157–167. doi:[10.1016/j.wombi.2018.07.013](https://doi.org/10.1016/j.wombi.2018.07.013).
- Bride, B.E., Robinson, M.M., Yegidis, B., Figley, C.R., 2004. Development and validation of the secondary traumatic stress scale. *Res. Soc. Work Pract.* 14 (1), 27–35.
- Calvert, L., Benn, C., 2015. Trauma and the effects on the midwife. *Int. J. Childbirth* 5 (2), 101–111.
- Çankaya, S., Dikmen, H.A., 2020. The relationship between posttraumatic stress symptoms of maternity professionals and quality of work life, cognitive status, and traumatic perinatal experiences. *Arch. Psychiatr. Nurs.* 34 (4), 251–260. doi:[10.1016/j.apnu.2020.04.002](https://doi.org/10.1016/j.apnu.2020.04.002), Epub 2020 Apr 17. PMID:32828357.
- Cann, A., Calhoun, L.G., Tedeschi, R.G., Taku, K., Vishnevsky, T., Triplett, K.N., Danhauer, S.C., 2010b. A short form of the Posttraumatic Growth Inventory. *Anxiety. Stress Coping* 23 (2), 127–137. doi:[10.1080/10615800903094273](https://doi.org/10.1080/10615800903094273).
- Checklist for Prevalence Studies (2017). Available at: https://joannabriggs.org/sites/default/files/2019-05/JBI_Critical_Appraisal_Checklist_for_Prevalence_Studies2017_0.pdf (Accessed: 19 December 2019).
- Checklist for Qualitative Research (2017). Available at: <http://joannabriggs.org/research/critical-appraisal-tools.html> (Accessed: 19 December 2019).
- Cohen, R., Leykin, D., Golan-Hadari, D., Lahad, M., 2017. Exposure to traumatic events at work, posttraumatic symptoms and professional quality of life among midwives. *Midwifery* 50, 1–8.
- Colaizzi, P., 1978. Psychological research as a phenomenologist views it. In: Valle, R.S., King, M. (Eds.), *Existential Phenomenological Alternatives For Psychology* (1978). Open University Press, New York.
- Edrees, H., Connors, C., Paine, L., Norvell, M., Taylor, H., Wu, A.W., 2016. Implementing the RISE second victim support programme at the Johns Hopkins Hospital: a case study. *BMJ Open* 6 (9), e011708.
- Elixhauser, A.(AHRQ), Wier, L.M., 2011. Complicating Conditions of Pregnancy and Childbirth (Thomson Reuters). HCUP Statistical Brief #113.(2011) Agency for Healthcare Research and Quality, Rockville, MD.
- Elmir, R., Pangas, J., Dahlen, H., Schmied, V., 2017. A metaethnographic synthesis of midwives and nurses experience of adverse labour and birth events. *J. Clin. Nurs.* 26 (23–24), 4184–4200. doi:[10.1111/jocn.13965](https://doi.org/10.1111/jocn.13965).
- Foa, E., Cashman, L., Jaycox, L., Perry, K., 1997. The validation of a self-report measure of PTSD: the Posttraumatic Diagnostic Scale. *Psychol. Assess.* 9 (4), 445–451. doi:[10.1037/1040-3590.9.4.445](https://doi.org/10.1037/1040-3590.9.4.445).
- Frans, O., Rimmo, P.A., Aberg, L., Fredrikson, M., 2005. Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatr. Scand.* 111, 291–299.
- Galiana, L., Oliver, A., Arena, F., et al., 2020. Development and validation of the Short Professional Quality of Life Scale based on versions IV and V of the Professional Quality of Life Scale. *Health Qual. Life Outcomes* 18, 364. doi:[10.1186/s12955-020-01618-3](https://doi.org/10.1186/s12955-020-01618-3).
- Goldbort, J., Knepp, A., Mueller, C., Pylon, M., 2011. Intrapartum nurses lived experience in a traumatic birthing process. *MCN Am. J. Matern. Child Nurs.* 36 (6), 373–380.
- Haines, H.M., Pallant, J.F., Fenwick, J., Gamble, J., Creedy, D.K., Toohill, J., Hildingson, I., 2015. Identifying women who are afraid of giving birth: a comparison of the fear of birth scale with the WDEQ-A in a large Australian cohort. *Sexual Reprod. Healthc.* 6 (4), 204–210.
- Halperin, O., Goldblatt, H., Noble, A., Raz, I., Zvulunov, I., Wischnitzer, M.L., 2011. Stressful Childbirth Situations: a Qualitative Study of Midwives. *J. Midwifery-Women's Health* 56, 388–394.
- Higgins, J., Green, S., 2008. *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.0.2. The Cochrane Collaboration, p. 157 [S.L.]Pg.
- Klein, J., Grosse Frie, K., Blum, K., von dem Knesebeck, O., 2010. Burnout and perceived quality of care among German clinicians in surgery. *Int. J. Qual. Health Care* 22 (6), 525–530. doi:[10.1093/intqhc/mzq056](https://doi.org/10.1093/intqhc/mzq056).
- Knight, M., Bunch, K., Tuffnell, D., Shakespeare, J., Kotnis, R., Kenyon, S., Kurinczuk, J.J., 2020. On Behalf of MBRRACE-UK. Saving Lives, Improving Mothers' Care - Lessons Learned to Inform Maternity Care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2016-18. National Perinatal Epidemiology Unit, University of Oxford, Oxford.
- Krippendorff, K., 2004. Measuring the Reliability of Qualitative Text Analysis Data. *Qual. Quantity* 38 (6), 787–800. doi:[10.1007/s11135-004-8107-7](https://doi.org/10.1007/s11135-004-8107-7).
- Leinweber, K., Creedy, D.K., Rowe, H., Gamble, J., 2017. Responses to birth trauma and prevalence of posttraumatic stress among Australian midwives. *Women Birth* 30, 40–45.
- Medically Induced Trauma Support Services (2009) [Available from: <http://www.mits.org/indel.html>];
- Muliira, R.S., Ssendikadiwa, V.B., 2016. Professional Quality of Life and Associated Factors Among Ugandan Midwives Working in Mubende and Mityana Rural Districts. *Maternal Child Health J.* 20 (3), 567–576. doi:[10.1007/s10995-015-1855-2](https://doi.org/10.1007/s10995-015-1855-2), PMID:26525560 .
- Noyes, J., Lewin, S., et al., 2011. Chapter 5: extracting qualitative evidence. In: Noyes, J., Booth, A., Hannes, K., Harden, A., Harris, J., Lewin, S., et al. (Eds.), *Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions*. Cochrane Collaboration Qualitative Methods Group Version 1 (updated August 2011) Available from URL.
- Office for National Statistics (2021). *Child Mortality (death cohort) Tables in England and Wales - Office For National Statistics*. [online] Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/childmortalitystatisticschildhoodinfantandperinatalchildhoodinfantandperinatalmortalityinenglandandwales> [Accessed 8 Mar 2021].
- Patterson, J., 2019. Traumatized Midwives; Traumatized Women. *AIMS J.* 30 (4). [online] Available at: <https://www.aims.org.uk/journal/item/traumatized-midwives-traumatized-women>. [Accessed 19 Dec. 2019].
- Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., et al., 2021. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 372, n71. doi:[10.1136/bmj.n71](https://doi.org/10.1136/bmj.n71).
- Pejtersen, J.H., Kristensen, T.S., Borg, V., Bjørner, J.B., 2010. The second version of the Copenhagen Psychosocial Questionnaire. *Scand. J. Public Health* 38 (3-suppl), 8–24.
- Puia, D.M., Lewis, L., Beck, C.T., 2013. Experiences of Obstetric Nurses who are present for perinatal loss. *J. Obstetr. Gynecol. Neonatal Nurs.* 42, 321–331.
- Rice, H., Warland, J., 2013. Bearing witness: midwives experiences of witnessing traumatic birth. *Midwifery* 29, 1056–1063.
- Schröder, K., Jørgensen, J.S., Lamont, R.F., Hvidt, N.C., 2016a. Blame and guilt – a mixed methods study of obstetricians' and midwives' experiences and existential considerations after involvement in traumatic childbirth. *Acta Obstet. Gynecol. Scand.* 95, 735–745.
- Schröder, K., Larsen, P.V., Jørgensen, J.S., Hjlemborg, J., Lamont, R.F., Hvidt, N.C., 2016b. *Midwifery* 41, 45–53.
- Schröder, K., Edrees, H.H., Christensen, R.D., Jørgensen, J.S., Lamont, R.F., Hvidt, N.C., 2019. Second victims in the labor ward: are Danish midwives and obstetricians getting the support they need? *Int. J. Qual. Health Care* 31 (8), 583–589.
- Sheen, K., Slade, P., Spiby, H., 2013. An integrative review of the impact of indirect trauma exposure in health professionals and potential issues of salience for midwives. *J. Adv. Nurs.* 70 (4), 729–743. doi:[10.1111/jan.12274](https://doi.org/10.1111/jan.12274).
- Sheen, K., Spiby, H., Slade, P., 2015. Exposure to traumatic perinatal experiences and posttraumatic stress symptoms in midwives: prevalence and association with burnout. *Int. J. Nurs. Stud.* 52, 578–587.
- Sheen, K., Spiby, H., Slade, P., 2016. The experience and impact of traumatic perinatal event experiences in midwives: a qualitative investigation. *Int. J. Nurs. Stud.* 53, 61–72.
- Sprang, G., Ford, J., Kerig, P., Bride, B., 2019. Defining secondary traumatic stress and developing targeted assessments and interventions: lessons learned from research and leading experts. *Traumatology (Tallahass Fla)* 25 (2), 72–81.
- Tage S. Kristensen, Marianne Borritz, Ebbe Villadsen & Karl B. Christensen (2005) The Copenhagen Burnout Inventory: a new tool for the assessment of burnout, Work & Stress, 19:3, 192–207, doi: [10.1080/02678370500297720](https://doi.org/10.1080/02678370500297720)
- Toohill, J., Fenwick, J., Sidebotham, M., Gamble, J., Creedy, D.K., 2019. Trauma and fear in Australian midwives. *Women Birth* 32, 64–71.
- Wahlberg, A., Sachs, M.A., Johannesson, K., Hallberg, G., Jonsson, M., Svanberg, A.S., Hogberg, U., 2016. Post-traumatic stress symptoms in Swedish obstetricians and midwives after severe obstetric events: a cross-sectional retrospective survey. *Int. J. Obstetr. Gynaecol.* 124, 1264–1271.

- Walker, A.L., Gamble, J., Creedy, D.K., Ellwood, D.A., 2020. Impact of traumatic birth on Australian obstetricians: a pilot feasibility study. *Aust. N. Z. J. Obstet. Gynaecol.* 60, 555–560. doi:[10.1111/ajo.13107](https://doi.org/10.1111/ajo.13107).
- Weiss, D.S., Marmar, C.R., 1997. The Impact of Event Scale-Revised. In: Wilson, J.P., Keane, T.M. (Eds.), *Assessing Psychological Trauma and PTSD*. Guilford, New York, pp. 399–411.
- Wells, S.Y., Morland, L.A., Torres, E.M., Kloezezan, K., Mackintosh, M.A., Aarons, G.A., 2019 Mar. 11The Development of a Brief Version of the Posttraumatic Cognitions Inventory (PTCI-9. *Assessment* 26 (2), 193–208. doi:[10.1177/1073191116685401](https://doi.org/10.1177/1073191116685401), Epub 2017 Jan 16. PMID:28092974 .