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Sheen, K, Spiby, H and Slade, P

Exposure to traumatic perinatal experiences and posttraumatic stress symptoms in midwives: Prevalence and association with burnout

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Sheen, K, Spiby, H and Slade, P (2014) Exposure to traumatic perinatal experiences and posttraumatic stress symptoms in midwives: Prevalence and association with burnout. International Journal of Nursing Studies, 52 (2). pp. 578-587. ISSN 0020-7489

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1 **ABSTRACT: Background:** Midwives provide care in a context where life threatening or
2 stressful events can occur. Little is known about their experiences of traumatic events or the
3 implications for psychological health of this workforce. **Objectives:** To investigate
4 midwives' experiences of traumatic perinatal events encountered whilst providing care to
5 women, and to consider potential implications. **Design:** A national postal survey of UK
6 midwives was conducted. **Participants:** 421 midwives with experience of a perinatal event
7 involving a perceived risk to the mother or baby which elicited feelings of fear, helplessness
8 or horror (in the midwife) completed scales assessing posttraumatic stress (PTS) symptoms,
9 worldview beliefs and burnout. **Results:** 33% of midwives within this sample were
10 experiencing symptoms commensurate with clinical posttraumatic stress disorder (PTSD).
11 Empathy and previous trauma exposure (personal and whilst providing care to women) were
12 associated with more severe PTS responses. However, predictive utility was limited,
13 indicating a need to consider additional aspects increasing vulnerability. Symptoms of PTS
14 were associated with negative worldview beliefs and two domains of burnout. **Conclusions:**
15 Midwives may experience aspects of their work as traumatic and, as a consequence,
16 experience PTS symptomatology at clinical levels. This holds important implications for both
17 midwives' personal and professional wellbeing and the wellbeing of the workforce, in
18 addition to other maternity professionals with similar roles and responsibilities.
19 Organisational strategies are required to prepare midwives for such exposure, support
20 midwives following traumatic perinatal events and provide effective intervention for those
21 with significant symptoms.

22

23 **KEY WORDS:** Burnout; midwives; trauma; posttraumatic stress

24

1 **MAIN PAPER**

2 **Introduction**

3 Childbirth is generally considered in the developed world to be a normal, positive event.
4 However adverse events can occur during the perinatal period, whereby the mother or her
5 child is at risk of death or serious injury. Instances such as these can fulfil criteria for a
6 traumatic event (APA, 2013). A proportion of both mothers and fathers perceive their
7 experience of or being present at childbirth to be traumatic (Czarnocka & Slade 2000,
8 Bradley et al., 2008), but there is a paucity of research considering midwives' perceptions of
9 such events (Sheen, Slade & Spiby, 2014).

10 A traumatic birth is considered to be an event involving actual or threatened serious
11 injury or death to the mother or her child (APA, 2013; Beck, 2004). There is potential for
12 midwives to indirectly experience traumatic perinatal events either by witnessing them or by
13 listening to accounts of birthing episodes from women, both of which are encompassed
14 within the definition of trauma exposure (APA, 2013). Indirect exposure to trauma has been
15 associated with a number of adverse psychological responses, including posttraumatic stress
16 disorder (PTSD).

17 PTSD is defined by the American Psychological Association (APA) in the Diagnostic
18 and Statistical Manual of Mental Disorders (DSM-V; APA, 2013), which is internationally
19 endorsed by organisations including the Royal College of Psychiatrists and the Australian
20 Centre for Posttraumatic Mental Health. Trauma exposure (referred to as Criterion A) is
21 defined as exposure to an event involving perceived threat to the self or somebody else's life
22 (APA, 2013). The predecessor to the DSM-V (the DSM-IV; APA, 2000) included
23 requirement for appraisal of the event to involve fear, helplessness or horror; however, this
24 was removed from the diagnostic criteria in the newest version. This study uses the definition
25 of trauma exposure from the DSM-IV to account for both trauma exposure and appraisal.

1 PTSD is characterised by symptoms of intrusion (distressing, involuntary
2 recollections), avoidance (of reminders, thoughts of the event) and increased arousal. The
3 fourth dimension relates to the potential for the development of negative emotions (fear, guilt,
4 shame) and exaggerated, negative worldview beliefs (APA, 2013). Exposure to trauma
5 through providing care has the potential to elicit symptomatic responses of posttraumatic
6 stress (PTS) (Elwood et al., 2011) and PTS symptoms have been reported by a variety of
7 health professional groups including nurses (Mealer et al., 2012) and ambulance drivers
8 (Alexander & Klein, 2001).

9 Burnout is often implicated in studies assessing responses to trauma in health
10 professionals, characterised by high levels of emotional exhaustion, the distancing of oneself
11 from recipients of care through depersonalisation, and reduced personal accomplishment
12 (Maslach et al., 1996). It is not a response to trauma, but a response to chronic strain in the
13 workplace; however, symptoms of burnout have been identified as highly associated with (yet
14 distinct from) symptomatic responses to trauma (Jenkins & Baird, 2005). Burnout has been
15 associated with high levels of staff turnover and absenteeism (Leiter & Maslach, 2009), with
16 important implications for professional wellbeing and organisational efficiency.

17 The International Confederation of Midwives (ICM) defines a midwife as a
18 responsible and accountable professional, who works in partnership with women to support
19 and provide care (ICM, 2011). It is important to understand aspects of midwifery practice that
20 may hold adverse implications for midwives' psychological health, and which may
21 subsequently impact upon capacity to provide sensitive maternity care. Sheen, Slade and
22 Spiby (2014) note the limited research investigating the potential for traumatic childbirth-
23 related events to elicit symptoms of traumatic stress in attending professionals. A study with
24 UK midwives and obstetricians identified symptoms of intrusion and avoidance after
25 encountering miscarriage, stillbirth and neonatal death (Wallbank, 2010). However the

1 proportion of midwives in this sample was small and it was impossible to disaggregate
2 midwives' symptomatic responses from those of obstetricians'. Beck and Gable (2012)
3 reported that 35% of their sample of labour and delivery nurses in America experienced
4 moderate to severe symptoms synonymous with PTS. Their large sample and national
5 recruitment strengthen the extent to which findings from that study can be extrapolated.

6 The majority of studies to date have been conducted with nurses specialised in the
7 provision of intrapartum care (e.g., Beck & Gable, 2012; Beck & Gable, 2013; Goldbort et
8 al., 2011). Midwives in the UK are autonomous, independent practitioners who are able to
9 provide all aspects of maternity care to women considered at low risk (Department of Health,
10 2010). Due to differences in role autonomy between these different contexts (Mallot et al.,
11 2009), large-scale research specifically considering midwives' experiences is required.

12 Several aspects identified as increasing vulnerability to traumatic stress responses in
13 other health professionals hold salience for midwives (Sheen, Slade & Spiby, 2014),
14 including empathic engagement with recipients of care and working in a stressful
15 environment. Empathic engagement with women is fundamental in maternity care
16 (Department of Health, 2010) and is a highly valued aspect of midwifery practice (Thomas,
17 2006). However, it is recognised to increase vulnerability to traumatic stress responses
18 (Figley, 1995). In addition, midwifery in the UK can be highly stressful (Birch, 2001).

19 In terms of other potential predictors, duration of a professional's experience has also
20 been identified as associated with subsequent traumatic stress responses (Beck & Gable,
21 2012). However the direction of association is not consistently identified (Sheen, Slade &
22 Spiby, 2014). Personal (and direct) experiences of trauma could also predispose to traumatic
23 stress responses following subsequent (indirect) exposure (Breslau et al., 2009). Personal
24 experience of childbirth trauma could be specifically salient for midwives (e.g., Mander,
25 2001).

1 There is potential for midwives to indirectly experience events in their professional
2 role, which may fulfil criteria for trauma. However there is a need to identify the proportion
3 of midwives experiencing and responding to traumatic perinatal events and to assess the
4 utility of factors that may identify those most vulnerable. It is also important to explore any
5 association between traumatic stress responses and burnout, to identify the potential
6 implications for professional and personal wellbeing.

7 The aim of this study was to investigate the psychological impact of exposure to
8 traumatic perinatal events in midwives. Specifically, this study aimed to report the proportion
9 of midwives experiencing traumatic perinatal events and the nature of impact these had,
10 including impacts to professional lives and prevalence of PTS symptomatology. The
11 association between aspects highlighted as increasing vulnerability (empathy, personal
12 trauma history, extent of experience in the profession, extent of exposure to traumatic events)
13 and PTS symptoms was also investigated. Finally, associations between PTS symptoms and
14 burnout were investigated.

15

16 **METHOD**

17 **Design**

18 A postal survey was conducted.

19

20 **Ethical Approval**

21 The Department of Psychology Ethics Committee, University of Sheffield provided ethical
22 approval.

23

24 **Participants**

1 Participants were qualified midwives, currently employed in the United Kingdom. Experience
2 of a traumatic perinatal event was defined Criterion A of the DSM-IV-TR (APA, 2000); that
3 the midwife witnessed or listened to an account of an event where they perceived the mother
4 and/or her child to be at risk of serious injury or death and where they (the midwife)
5 experienced a sense of fear, helplessness or horror. Postal surveys were distributed to 2800
6 midwives, randomly selected from the Royal College of Midwives' (RCM) membership
7 database between December 2011 and April 2012. The RCM is the UK's largest trade union
8 and professional organisation for midwives and the majority of midwives within the UK are
9 members. At the time of conducting the study the approximate number of members, as
10 estimated by an RCM representative, was 30,000. Qualitative descriptions and perceived
11 implications of traumatic perinatal event experiences were collated and are presented
12 separately to this manuscript.

13

14 **Measures**

15 The postal survey was developed through liaison with a reference group of expert midwives.
16 Midwives' age, gender, marital status, ethnicity, highest midwifery-related qualification,
17 parity were obtained, together with years' experience in the profession, professional
18 designation and current job role, current clinical activity, employer and NHS Band (if
19 applicable). Personal trauma experience was assessed using criterion A of the DSM-IV-TR
20 (APA, 2010) for PTSD. Midwives were also asked whether they considered their own
21 personal experience of giving birth (if applicable) to be traumatic.

22 Midwives were asked to estimate the number of events that met the criteria that they
23 had experienced over the full duration of their career. Midwives indicated whether they had
24 1) ever taken time off sick, 2) changed their professional allocation on short or long-term

Midwives' experiences of traumatic perinatal events

1 basis, and 3) whether they had ever seriously considered leaving the midwifery profession
2 due to a traumatic perinatal event experience.

3 The primary outcome measure was the severity of posttraumatic stress
4 symptomatology, measured using the Impact of Event Scale- Revised (IES-R, Weiss &
5 Marmer, 1997). There are 22 items and three subscales, measuring symptoms of intrusion,
6 avoidance and arousal. Responses are scored based on the degree of current difficulty on a
7 scale of 0 (not at all) to 4 (extremely); therefore total scores range in from 0-88. The IES-R
8 has demonstrated excellent internal validity (Weiss and Marmer, 1997). Whilst the IES-R is
9 not a diagnostic measure for PTSD, a total of ≥ 34 has been reported to predict clinical
10 diagnosis of PTSD with sensitivity of 70%, specificity of 77%, positive predictive value of
11 0.81 and negative predictive value of 0.66 (Rash, 2008). This cut off was applied to total
12 scores on the IES-R in this study to infer presence of PTS at levels indicative of clinical
13 relevance.

14 The nature of worldview beliefs held by midwives was assessed using the World
15 Assumptions Scale (WAS, Janoff-Bulman, 1989). The WAS consists of 32 items measuring
16 beliefs about the benevolence of the world, meaningfulness of the world and self-worth.
17 Responses are scored in terms of the degree of endorsement from 1 (strongly disagree) to 6
18 (strongly agree); higher scores indicate more positive worldview beliefs. Scores on the WAS
19 can therefore range from 32-192. Janoff-Bulman (1989) reported good levels of internal
20 consistency for each subscale.

21 Symptoms of burnout were measured using the Maslach Burnout Inventory Human
22 Services Survey (MBI, Maslach et al., 1996), which is designed to specifically assess
23 responses in individuals engaged in a capacity of care. The MBI measures emotional
24 exhaustion (EE; 9 items), depersonalisation (DP; 5 items) and personal accomplishment (PA;
25 8 items) using three subscales and yields three scores for each. Responses are scored in terms

Midwives' experiences of traumatic perinatal events

1 of the frequency at which each item is experienced on a scale of 0 (never) to 6 (every day).
2 Scores for EE can range from 0-54, DP 0-30 and PA 0-48. Maslach et al. (1996) reported
3 good internal consistency for each subscale of the MBI. Higher scores on the EE and DP and
4 lower scores on the PA scale indicate more severe burnout. Scores in the upper third of the
5 normative distribution are indicative of 'high' levels of burnout, 'moderate' if they are in the
6 middle third and 'low' if they are in the lower third (Maslach et al., 1986). Several items in
7 the scale referred to 'recipients' of care. To minimise confusion, this was replaced with
8 'women in my care' for the present study.

9 Empathy was measured using the Empathic Concern (EC) subscale from the
10 Interpersonal Reactivity Index (IRI; Davis, 1983). There are 7 items for this subscale, scored
11 on a scale of 1-5 thus producing scores with a potential range of 7- 35. The IRI has
12 demonstrated good internal consistency (Davis, 1980).

13

14 **Data analysis**

15 Statistical analyses were conducted using IBM SPSS 19. Descriptive statistics were computed
16 for total scores on the IES-R, MBI, WAS and IRI. Pearson product moment correlation
17 coefficients were conducted to assess associations between scores on the IES-R and MBI, and
18 IES-R and WAS. Standard multiple regression analysis was used to investigate the
19 association between variables identified as associated with PTS symptoms (empathy, number
20 and extent of exposure to traumatic perinatal event experiences, personal trauma history).
21 Standard multiple regression analysis was used to further assess the association between
22 scores on the IES-R and WAS for each subscale on the MBI. A *p* value of $\geq .05$ was
23 considered statistically significant.

24

25 **RESULTS**

1 **Sample characteristics**

2 Four hundred and sixty four questionnaires were returned (16% response rate). Of these
3 midwives, 421 had experienced at least one traumatic perinatal event and thus formed the
4 final sample for analysis. Descriptive statistics for midwives in this sample are presented in
5 Table 1. Midwives had been qualified between six months to 44 years ($M= 17.28$, $SD=$
6 10.48). The majority of midwives in this sample ($n= 397$, 94%) were employed in a National
7 Health Service (NHS) Trust, a healthcare system providing NHS maternity care which is free
8 at point-of-service. Respondents reported employment at Bands 5-8d, with the majority
9 employed at Band 6 level ($n=272$, 65%). Ninety five percent of respondents were engaged in
10 clinical practice on at least a monthly basis ($n=395$, 94%) at the time of the survey. The most
11 frequently reported area for current practice was care during labour and birth ($n= 253$, 60%).

12

13 **Experiences of traumatic perinatal events**

14 Midwives had experienced an average of 7 traumatic perinatal events ($M= 6.63$, $SD= 9.93$)
15 throughout their career. The number of traumatic perinatal events experienced throughout
16 midwives' careers was used as an indication of total exposure to traumatic perinatal events.
17 Nearly all midwives had witnessed a traumatic perinatal event ($n= 402$, 95%) and nearly three
18 quarters of the sample ($n= 318$, 76%) had listened to an account of an event from a woman in
19 their care that they (the midwife) perceived to be traumatic. The majority of the sample had
20 both witnessed and listened to accounts of events perceived to be traumatic ($n= 299$, 71%),
21 however a smaller proportion of the sample had only witnessed ($n= 103$, 24%) or only
22 listened to accounts of events perceived as traumatic ($n= 19$, 5%). The degree of exposure to
23 traumatic perinatal events was subsequently coded to indicate both types of exposure
24 (witnessed and listened to accounts), or only one type of exposure (just witnessed, or just
25 listened to accounts).

1

2 **Perceived impact of traumatic perinatal event exposure**

3 A third had seriously considering leaving the midwifery profession after experiencing a
4 traumatic perinatal event ($n= 148, 35\%$). A fifth ($n= 82, 20\%$) changed their professional
5 allocation on a short-term basis (e.g., for a small number of shifts) after experiencing a
6 traumatic perinatal event. For a smaller proportion, a long-term (or permanent) change in
7 professional allocation was sought ($n= 57, 14\%$). Just over 10% of this sample had taken time
8 away from employment after experiencing a traumatic perinatal event ($n= 50, 12\%$).

9 Mean PTS score for midwives who had seriously considered leaving the midwifery
10 profession were significantly higher than those reported by midwives who had not considered
11 leaving the profession following a traumatic perinatal event, $t(412)= 10.4, p<.001$.

12

13 **Posttraumatic stress symptoms (PTS)**

14 Midwives' mean total and factor scores on the IES-R are shown in Table 2. Cronbach's alpha
15 coefficients for intrusion, avoidance and arousal subscales were indicative of good internal
16 consistency (.90, .82 and .87 respectively). Approximately one third of midwives who
17 participated ($n= 138, 32\%$) exceeded the cut off score indicative of symptoms commensurate
18 with a clinical diagnosis of PTS.

19 Midwives' mean scores across all subscales of the WAS are shown in Table 2. Alpha
20 coefficients for the benevolence of the world, and self-worth subscales were indicative of
21 good internal consistency within this study (both .79). However the coefficient for
22 meaningfulness of the world was .69, slightly below the level considered acceptable
23 (Nunnally & Bernstein, 1994). There was a small, significant association between higher
24 scores on the IES-R and lower scores on the WAS, $r(411)= -.238, p<.001$, indicating that
25 higher symptoms of PTS were associated with more negative worldview schema..

1

2 **Factors associated with PTS**

3 Bivariate correlations (Pearson's r) were conducted to assess linearity between midwives'
4 total PTS score and their length of experience in the profession, total number of traumatic
5 perinatal experiences and their extent of exposure to these (witnessed and heard, just
6 witnessed or heard), personal trauma history (general and childbirth related considered
7 separately), and empathy (see Table 3). For the empathic concern subscale of the IRI,
8 Cronbach's alpha coefficient for the present study was acceptable (.70).

9 There were small, significant associations between total IES-R score and total number
10 of traumatic experiences ($r=.181, p=.001$), extent of exposure to traumatic perinatal events
11 ($r=.212, p<.001$), having a personal trauma history ($r= -.119, p=.034$) and higher empathy
12 ($r=.129, p=.021$). Total IES-R score was not significantly associated with midwives'
13 experience in the profession ($r= .037, p=.509$) or, where applicable, whether the midwife had
14 personally experienced a traumatic childbirth ($r=.011, p=.839$).

15 Variables that were significantly associated with total score on the IES-R were entered
16 into a standard multiple regression to further investigate these associations. There was
17 evidence of positive skew on all subscales of the IES-R, and negative skew on the empathic
18 concern subscale of the IES-R. This was improved through square-root transformation
19 (reflected where negative skew was present), however comparison of analysis on transformed
20 and un-transformed data indicated no difference in the significance of analysis and minimal
21 difference in the magnitude of associations. As the total sample was large ($n= 421$), and
22 parametric tests are considered more robust to violations of normality when conducted on
23 larger sample sizes, analysis is presented using non-transformed data. Collinearity diagnostics
24 and scatterplot diagrams were inspected for evidence of multicollinearity and histogram and
25 P-P Plots for standardised residuals were checked for each regression analysis, and indicated

1 that model parameters adequately conformed to the assumptions of multiple regression
2 analysis.

3 Total exposure to traumatic perinatal events, the extent of exposure (whether events
4 were witnessed or listened to), total score for empathy, personal trauma history (general,
5 childbirth) were entered as independent variables (see Table 4). The regression was
6 significant ($F(4, 320) = 6.388, p < .001$), but the combination of variables accounted for only
7 6% of variance in PTS symptoms.

8

9 **Associations between PTS, worldview beliefs and burnout**

10 Descriptive statistics and category interpretations for severity of scores on the MBI are
11 presented in Table 2. Alpha coefficients for subscales on the MBI for the present study were
12 .90 (EE), .69 (DP) and .73 (PA), indicating excellent (EE) and acceptable (PA) internal
13 consistency, with the DP subscale showing internal consistency just short of the level
14 considered acceptable.

15 A higher level of overall PTS symptomatology was moderately associated with a
16 higher emotional exhaustion ($r(385) = .420, p < .001$). There was a small association between
17 more severe symptoms of overall PTS and a greater level of depersonalisation ($r(385) = .247,$
18 $p < .001$). There was no significant association between overall PTS symptomatology and
19 perceptions of personal accomplishment ($r(385) = -.018, p = .339$). More negative worldview
20 schema were associated with a higher levels of emotional exhaustion ($r(386) = -.311, p < .001$)
21 and depersonalisation ($r(386) = -.259, p < .001$). More positive worldview beliefs were
22 associated with a greater level of perceived personal accomplishment ($r(386) = .263, p < .001$).
23 Findings from bivariate correlations are presented in Table 5.

24 To further assess the association between traumatic-stress responses (PTS and
25 worldview beliefs) and burnout responses, standard multiple regression analyses were

1 conducted with the linearly related subscales of posttraumatic stress (intrusion, avoidance and
2 arousal) and worldview schema (benevolence of the world, self-worth) as independent
3 variables and the level of emotional exhaustion, depersonalisation and personal
4 accomplishment as DV's (see Table 6). The benevolence of the world and self-worth
5 subscales of the WAS were negatively skewed. Similar to the IES-R subscales, the emotional
6 exhaustion and depersonalisation subscales of the MBI were positively skewed. As with the
7 previous regression analysis, transformations had little impact on the outcome of analysis and
8 results are presented from the analysis of the untransformed data. Model parameters were
9 checked and adequately conformed to the assumptions of multiple regression analysis.

10 The regression model for emotional exhaustion (EE) was significant, $F(5,378)=$
11 $24.240, p<.001$, and the combined symptoms of PTS and worldview beliefs accounted for
12 23% of the variance in EE. Avoidant symptomatology ($t(378), 2.690, p=.007$), beliefs about
13 the benevolence of the world ($t(378)= -.1997, p=.047$) and beliefs about self-worth ($t(378)= -$
14 $4.149, p<.001$) were uniquely associated with PTS. The regression model for
15 depersonalisation (DP) was significant, $F(5, 378)= 12.927, p<.001$, and accounted for 14% of
16 the variance. Avoidance ($t(377)= 2.800, p=.005$), benevolence of the world ($t(377)= -4.194,$
17 $p<.001$) and self-worth ($t(377)= -2.112, p=.035$) were uniquely associated with DP.

18 Only worldview beliefs about the benevolence of the world and self-worth were
19 linearly associated with personal accomplishment, and therefore only these were entered into
20 a standard multiple regression analysis. This was significant, $F(2, 385)= 23.661, p<.001$, and
21 accounted for 11% of variance in perceived personal accomplishment. Both regression
22 coefficients were uniquely associated with personal accomplishment; beliefs about the
23 benevolence of the world ($t(385)= 2.950, p=.003$) and self-worth ($t(377)= 4.468, p<.001$).

24

25 **DISCUSSION**

1 This is the first large UK based survey of midwives' experiences of traumatic events. A third
2 of the sample reported current posttraumatic stress symptoms at levels indicative of clinical
3 relevance following exposure to a traumatic perinatal event. Symptoms of posttraumatic
4 stress were associated with more negative worldview beliefs and higher levels of burnout in
5 the form of emotional exhaustion, and depersonalisation.

6 The age and gender ratio of the current sample was similar to qualified midwives in
7 the UK (NMC, 2008); the majority of midwives in England are female (99.6%), and the
8 largest proportion of midwives (approximately 20%) are aged between 40-45 years (RCM,
9 2013) and 50-54 years in Scotland (ISD Scotland, 2014). The proportion of midwives in this
10 sample with a personal trauma history, general or specific to childbirth, was lower than
11 percentages reported within community samples (HSCIC, 2009) and in previous research
12 with mothers in the UK (Olde et al., 2006).

13 The sampling strategy employed within this study provides a conservative estimation
14 of the minimum proportion of midwives in the UK likely to be experiencing clinically
15 relevant symptoms of PTS. By assuming that midwives not returning the questionnaire were
16 entirely non-symptomatic (85%), and the 15% who returned the questionnaire represent
17 midwives experiencing difficulty following a traumatic perinatal event, it can be estimated
18 that approximately one third of this 15% (or a minimum of 5% of the midwifery profession)
19 may at some point experience symptoms of PTS commensurate with a clinical diagnosis. This
20 will underestimate the proportion of midwives experiencing symptoms, as it is highly likely
21 that a proportion of midwives will not have returned the questionnaire due to avoidance,
22 which is in itself an element of PTS symptomatology. Furthermore this estimation does not
23 take into account midwives with sub-threshold, but highly distressing symptoms.

24 Few studies have assessed PTS in healthcare professionals using the IES-R. Wallbank
25 (2010), as part of a pilot study, assessed symptoms of intrusion and avoidance in a small

Midwives' experiences of traumatic perinatal events

1 sample of UK midwives and obstetricians ($n=30$) using the IES. The IES is the predecessor to
2 the IES-R, and assesses intrusion and avoidance factors only. However, scores for these two
3 subscales are comparable to scores from the same subscales included in the IES-R (Horowitz,
4 Wilner & Alvarez, 1979). Wallbank (2010) reported similar levels of intrusion ($M= 12.06$,
5 $SD= 8.31$) and avoidance ($M= 10.20$, $SD= 7.61$) within their sample, to those reported in the
6 current sample.

7 Midwives reporting a higher number of traumatic perinatal events, who had
8 experienced these through both types of exposure (i.e., witnessed and listened to), had
9 personally experienced trauma and were more empathic reported more severe symptoms of
10 PTS. Particularly associated were the frequency and extent of perceived event exposure,
11 indicative of a cumulative symptomatic response. However the amount of variance explained
12 within this model was low. These variables were originally selected for investigation due to
13 their pertinence in the wider trauma literature (Sheen, Slade & Spiby, 2014). However,
14 findings indicate that the predictive utility of these aspects was limited for this midwifery
15 sample. Further investigation and consideration of additional aspects increasing vulnerability
16 to traumatic stress responses within midwives is required.

17 Symptoms of PTS were associated with more negative worldview beliefs, which
18 corresponds to the revised symptom profile of PTSD in the DSM-V (APA, 2013). The
19 relationship between worldview beliefs and PTS symptomatology is potentially bidirectional
20 (Dekel, Paleg & Solomon, 2013). It could be that midwives' beliefs about the self, world and
21 others people were contradicted by the occurrence of a traumatic perinatal event, which
22 contributed to the extent of disruption and symptomatic responses afterwards (Ehlers &
23 Clark, 2000). However it could also be that midwives' perceptions of the self, world and
24 other people were negative prior to the event and the occurrence of a traumatic perinatal
25 event provided confirmatory evidence (Foa & Rothbaum, 1989). Without implementation of

1 a prospective research design, the contribution of cognitive schema for the development of
2 PTS response is unclear.

3 In comparison to normative values for burnout (Maslach et al., 1996), midwives
4 reported generally high emotional exhaustion, low depersonalisation and low personal
5 accomplishment. Respondents also reported a greater level of emotional exhaustion, less
6 perceived personal accomplishment and were exhibiting greater depersonalisation toward
7 women in their care in comparison to other studies with midwives (Bakker et al., 1996;
8 Mollart et al., 2013). Bakker et al. (1996) investigated burnout in Dutch community
9 midwives, and therefore differences between these respondents and midwives in the present
10 sample (e.g., high professional status in Holland, the majority of midwives in the UK sample
11 worked in hospital settings) may contribute to different levels of burnout.

12 Forty percent of respondents in the present study reported high levels of emotional
13 exhaustion, and four percent reported a high level of depersonalisation towards recipients of
14 care. Emotionally exhausted midwives are less likely to be able to engage in compassionate
15 care. Mollart et al's (2013) study with Australian midwives also identified a potential
16 association between increased burnout and a reduction of empathic care for women. The
17 importance of compassion in maternity care is a key priority in England, as stipulated in the
18 Department of Health's 6 C's (DOH, 2012), and on a global basis (ten-Hoope-Bender et al.,
19 2014). Elmir et al. (2010) reported that mothers who felt disregarded by professionals whilst
20 giving birth were more likely to perceive childbirth as traumatic. Therefore midwives'
21 experiences of traumatic perinatal events, and their subsequent responses to these, hold
22 important implications for the experiences of mothers receiving care and the efficiency of
23 maternity services.

24 The association between empathy and PTS responses also indicates that highly
25 empathic midwives may be most vulnerable to traumatic stress responses. In comparison to

1 normed values (Davis, 1980), midwives reported a greater level of empathic concern.
2 However, it could be argued that the nature of midwifery care may mean that high levels of
3 empathic concern are to be expected. Given the additional association identified between
4 PTS symptomatology and considerations over leaving the profession, it is possible that the
5 midwifery profession may risk losing the most empathic midwives following traumatic
6 perinatal event exposure. Furthermore a proportion of midwives in this sample took time
7 away from practice or changed their clinical allocation after a traumatic perinatal experience.
8 High levels of exhaustion, increased absenteeism and attrition from the workforce are likely
9 to increase existing constraints on UK maternity services.

10

11 **Implications and recommendations**

12 Conservative estimations suggest that at least 5% of UK midwives are experiencing
13 symptoms commensurate with PTSD, and that the severity of these symptoms are highly
14 associated with increased burnout. It must be noted that this represents the absolute minimum
15 prevalence, as it is highly likely that a proportion of midwives did not return the questionnaire
16 due to avoidance or the associated distress of recounting their experiences. This percentage
17 also does not take into account midwives with sub-threshold symptoms, who are also likely to
18 experience distress.

19 To contextualise these findings; of the 25,654 midwives registered to practice within
20 England (HSCIC, 2013), over four thousand midwives ($n= 4104$) could experience traumatic
21 perinatal events through providing care to women, and almost thirteen hundred ($n= 1282$)
22 could be experiencing PTS responses. Responses of PTS were highly associated with two
23 domains of burnout. With rising birth rates throughout most of the UK and a high proportion
24 of midwives within ten years of retirement (RCM, 2013), there is a fundamental need to
25 acknowledge aspects of practice that impact upon professional wellbeing.

1 Midwives in this sample were predominantly employed in a healthcare organisation
2 (an NHS Trust). Trusts employing midwives hold a duty of care for employees to support
3 their wellbeing (DOH, 2011). It is essential that midwifery services acknowledge the
4 potential for some midwives to experience events encountered at work as traumatic, for some
5 to experience PTS-type responses, and that the development of strategies to support midwives
6 is required.

7 Findings also hold implications for midwifery practice internationally where the ICM
8 definition of midwifery applies, and for other maternity professionals who may experience
9 similar events through their clinical practice. This study contributes to the emerging
10 international interest in maternity professionals' experiences of adverse obstetric events (e.g.,
11 Beck & Gable, 2012). A shortage of midwifery staff has been reported in contexts other than
12 the UK, such as Australia (AHMC, 2011; Health Workforce Australia, 2012). Avoiding
13 attrition from the midwifery workforce and supporting midwives in their working
14 environments are important ways of ensuring that the care provided to women is
15 compassionate and of high quality, which is of global importance (ten Hoope-Bender et al.,
16 2014).

17

18 **Strengths and limitations**

19 The large sample size for the postal survey provided sufficient power with which to conduct
20 statistical tests. The national and random nature of the sampling strategy provided a sample of
21 midwives whose demographic profile reflected that of midwives within the UK. The 16%
22 response rate of this sample indicates that extrapolation of findings to the general midwifery
23 populations must be conservatively drawn; however, similar response rates are reported in
24 studies with other healthcare professionals. Due to the recruitment strategy used details of
25 non-responders could not be obtained, and so there is potential for selection bias. Alpha

1 coefficients for most subscale scores were indicative of acceptable internal consistency
2 (Nunnally & Bernstein, 1994). Alpha coefficients for the MW subscale of the WAS and the
3 DP subscale of the MBI were slightly lower (.65 and .69 respectively). Whilst this can be
4 considered acceptable given the diversity of the construct being measured (Kline, 1999),
5 findings should be interpreted conservatively. Significant associations were identified
6 between symptoms of PTSD and empathy, number and extent of exposure to traumatic
7 perinatal event experiences, presence of a personal trauma history, but the magnitude of the
8 associations were small. The retrospective and cross-sectional design of this study enabled
9 efficient collection of a large body of data; however, to establish causal relationships
10 prospective and longitudinal research designs are essential.

11

12 **Conclusions**

13 This is the first large-scale investigation into UK midwives' experiences and responses to
14 traumatic perinatal events. Findings from this study indicate that midwives experience some
15 events they encounter in their practice as traumatic, and a significant subsample are
16 experiencing clinically relevant PTS symptomatology. A higher number of previous
17 traumatic event experiences, and a greater degree of exposure to these increased the risk of
18 developing higher symptoms of posttraumatic stress symptomatology, however the predictive
19 utility of these variables was limited. Symptoms of PTS were associated with elevated
20 symptoms of burnout, namely emotional exhaustion and reflected the depersonalisation of
21 recipients of care. There is potential for implications to extend to the experiences of women
22 in receipt of maternity care and for the efficiency of maternity services. Subsequent research
23 addressing effective ways of preparing and supporting midwives following traumatic
24 perinatal events is essential.

25

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Midwives' experiences of traumatic perinatal events

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Table 1 Personal characteristics of midwives within the postal survey ($n=421$)

	<i>N</i>	<i>M</i>	<i>SD</i>	Range
Age (years)	421	45.04	9.85	22-48
Characteristics	Subcategory	<i>N</i>	%	
Gender	Female	420	99.8	
	Male	1	.2	
Education	Bachelor's/ RM/ SCM	264	62.7	
	Diploma/ Cert.	104	24.6	
	Master's/ Doctorate	29	6.9	
Marital Status	Married/ Cohabiting	328	77.9	
	Single	50	11.9	
	Divorced	35	8.3	
Parity	Nulliparous	75	17.8	
	Multiparous	334	79.4	
NHS Band	5	9	2.2	
	6	272	63.6	
	7	108	25.4	
	8a-d	16	5.2	
Clinical practice	Yes	395	93.8	
	No	24	5.7	
Area of practice*	Labour ward/ Intrapartum care	253	60.1	
	Community	146	34.7	
	Postnatal	128	30.4	
	Antenatal	132	31.4	

Note *% not mutually exclusive as midwives reported concurrent role, % indicates

proportion of total sample (n=421)

Table 2 Descriptive statistics for posttraumatic stress symptoms (Impact of Event Scale-Revised), worldview beliefs (World Assumptions Scale) and burnout (Maslach Burnout Inventory)

Scale	Subscale (<i>n</i> items)	Range	Mean	Standard deviation	
Impact of Event Scale- Revised (IES-R) (<i>n</i> = 416)	Intrusion (8)	0-32	12.74	7.65	
	Avoidance (8)	0-28	8.13	6.14	
	Arousal (6)	0-24	6.63	5.85	
	Total (24)	0-84	27.49	17.85	
World Assumptions Scale (WAS) (<i>n</i> = 418)	Benevolence of the world (8)	68-161	122.15	15.02	
	Meaningfulness of the world (12)	13-48	37.65	5.61	
	Self-worth (12)	13-53	34.00	7.21	
	Total (32)	23-71	50.50	8.59	
Maslach Burnout Inventory (MBI) (<i>n</i> = 385)	Emotional Exhaustion (9)	0-54	23.81	11.49	
	Depersonalisation (5)	0-30	3.84	4.05	
	Personal Accomplishment (8)	0-48	38.94	5.86	
			High level of burnout	Moderate level of burnout	Low level of burnout
	<i>Emotional Exhaustion (n, %)</i>	156 (39.9)	110 (28.1)	125(32.0)	
	<i>Depersonalisation (n, %)</i>	16 (3.8)	61 (14.5)	314 (74.6)	
	<i>Personal Accomplishment (n, %)</i>	43 (10.2)	127 (30.2)	222 (52.7)	

Note: *denotes % of sample completing IES-R (*n*=416)

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Table 3 Bivariate correlations (Pearson's *r*) between personal and professional experience variables and posttraumatic stress symptoms (Impact of Event Scale-Revised)

	Impact of Event Scale-Revised			
	Total	Intrusion	Avoidanc e	Arousal
Experience in the profession	.04	.03	.05	.02
Empathic Concern	.13*	.18**	.00	.16**
Number of traumatic perinatal experience(s)	.18**	.16**	.18**	.16**
Personal trauma history	-.12*	-.11*	-.12*	-.09
Personal childbirth trauma history	-.01	.01	.01	-.06
Both types of exposure	.21**	.19**	.21**	.17**

*Note: N= 319; *p<.05; **p<.001*

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Table 4 Standard multiple regression for posttraumatic stress symptoms (Impact of Event Scale-Revised) and personal and professional experience variables

	<i>B</i>	<i>SE</i>	β
Constant	13.16	7.40	
Empathic Concern	.37	.23	.08
Number of traumatic perinatal experiences	.08	.03	.12
Personal trauma history	-.25	1.76	-.07
Both types of exposure	5.93	2.02	.15

Note. $N = 402$; $R^2 = .07$; *Adjusted* $R^2 = .06$; * $p < .05$; ** $p < .001$

Table 5 Bivariate correlations between burnout (MBI) posttraumatic stress symptoms (IES-R) and worldview beliefs (WAS)

	Impact of Event Scale-Revised (<i>n</i> =387)				World assumptions Scale (<i>n</i> =388)			
	INT	AV	AR	Total	BW	MW	SW	Total
EE	.38**	.38**	.40**	.42**	-.23**	-.08	-.32**	-.31**
DP	.20**	.26**	.22**	.25**	-.29**	-.02	-.25**	-.26**
PA	.03	-.06	-.03	-.02	.25**	-.01	.30**	.26**

Note. AR= Arousal (IES-R); AV= Avoidance (IES-R); BW= Benevolence of the World

(WAS); EE = Emotional Exhaustion (MBI), DP= Depersonalisation (MBI), INT=

Intrusion (IES-R); MW= Meaningfulness of the World (WAS); PA= Personal

Accomplishment (MBI); SW= Self-worth (WAS)

p*<.05; *p*<.001

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Table 6 Standard multiple regression analyses for subscales from the Maslach Burnout Inventory (MBI) and subscale scores on the Impact of Event Scale- Revised (IES-R) and the World Assumptions Scale (WAS)

	Maslach Burnout Inventory (MBI)								
	Emotional Exhaustion			Depersonalisation			Perceived Accomplishment		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	39.42	4.23		11.31	1.59		24.68	2.15	
Intrusion (IES-R)	.14	.13	.10	.02	.05	.05	-	-	-
Avoidance (IES-R)	.32*	.12	.17	.12*	.05	.19	-	-	-
Arousal (IES-R)	.26	.18	.13	-.01	.07	-.01	-	-	-
Benevolence of the world (WAS)	-.20*	.10	-.10	.16**	.04	-.22	.16*	.6	.16
Self-worth (WAS)	-.279**	.07	-.21	.06*	.03	-.12	.16**	.04	.24

Note. $N= 384$; *EE:* $R^2=.24$; *Adjusted R*² $= .23$; *DP:* $R^2= .15$; *Adjusted R*² $= .14$; *PA:* $R^2= .11$; *Adjusted R*² $= .11$; *IES-R= Impact of Event Scale-Revised; WAS= World Assumptions Scale; *p<.05; **p<.001*

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