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

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### Article

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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

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  $\geq 34$  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



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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

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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

1 REFERENCES

- 2 Australian Health Ministers' Conference. (2011). National Maternity Services Plan 2010  
3 (D0159). Commonwealth of Australia.
- 4 Alexander, D. A., & Klein, S. (2001). Ambulance personnel and critical incidents - Impact of  
5 accident and emergency work on mental health and emotional well-being. *British*  
6 *Journal of Psychiatry*, 178, 76-81. doi: 10.1192/bjp.178.1.76
- 7 American Psychological Association. (2000). *Diagnostic and Statistical Manual of Mental*  
8 *Disorders (IV-TR)*. Washington DC: American Psychiatric Association.
- 9 American Psychological Association. (2013). *Diagnostic and Statistical Manual of Mental*  
10 *Disorders (V)*. Washington DC: American Psychiatric Association.
- 11 Bakker, R. H. C., Groenewegen, P. P., Jabaaij, L., Meijer, W., Sixma, H., & deVeer, A.  
12 (1996). 'Burnout' among Dutch midwives. *Midwifery*, 12(4), 174-181. doi:  
13 10.1016/s0266-6138(96)80004-0
- 14 Beck, C. T. (2004). Birth trauma: In the eye of the beholder. *Nursing Research*, 53(1), 28-35.
- 15 Beck, C. T., Gable, R. K. (2012). A mixed methods study of secondary traumatic stress in  
16 labour and delivery ward nurses. *Journal of Obstetric Gynecological Neonatal*  
17 *Nursing*, 41(6), 747- 760. doi: 10.1111/j.1552-6909.2012.01386.x
- 18 Birch, L. (2001). Stress in midwifery practice: an empirical study. *British Journal of*  
19 *Midwifery*, 9(12), 730-734.
- 20 Bradley, R., & Slade, P., & Leviston, A. (2008). Low rates of PTSD in men attending  
21 childbirth: a preliminary study. *British Journal of Clinical Psychology*, 47(3), 295-  
22 302. doi: 10.1348/014466508X279495
- 23 Breslau, N. (2009). The epidemiology of trauma, PTSD, and other posttrauma disorders.  
24 *Trauma Violence & Abuse*, 10(3), 198-210. doi: 10.1177/1524838009334448

- 1 Czarnocka, J., & Slade, P. (2000). Prevalence and predictors of post-traumatic stress  
2 symptoms following childbirth. *British Journal of Clinical Psychology*, *39*, 35-51.  
3 doi: 10.1348/014466500163095
- 4 Davis, M.H. (1980). A multidimensional approach to individual differences in empathy. *JSAS*  
5 *Catalog of Selected Documents in Psychology*, *10*, 85- 104.
- 6 Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a  
7 multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1),  
8 113-126.
- 9 Dekel, S., Peleg, T. & Solomon, Z. (2013). The relationship of PTSD to negative cognitions:  
10 A 17-year longitudinal study. *Psychiatry*, *76*(3), 241- 255. doi:  
11 10.1521/psyc.2013.76.3.241
- 12 Department of Health. (2010). *Midwifery 2020: Delivering expectations*. London:  
13 Department of Health.
- 14 Department of Health. (2011). *NHS Health and Well-being Improvement Framework*.  
15 London: Department of health.
- 16 Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder.  
17 *Behaviour Research and Therapy*, *38*(4), 319-345. doi: 10.1016/s0005-  
18 7967(99)00123-0
- 19 Elmir, R., Schmied, V., Wilkes, L., & Jackson, D. (2010). Women's perceptions and  
20 experiences of a traumatic birth: a meta-ethnography. *Journal of Advanced Nursing*,  
21 *66*(10), 2142-2153. doi: 10.1111/j.1365-2648.2010.05391.x
- 22 Elwood, L. S., Mott, J., Lohr, J. M., & Galovski, T. E. (2011). Secondary trauma symptoms  
23 in clinicians: A critical review of the construct, specificity, and implications for  
24 trauma-focused treatment. *Clinical Psychology Review*, *31*(1), 25-36. doi:  
25 10.1016/j.cpr.2010.09.004

- 1 Figley, C.R. (1995). Compassion fatigue as secondary traumatic stress disorder: An overview.  
2 In C. R. Figley (Ed.), *Compassion fatigue: Coping with secondary traumatic stress*  
3 *disorder in those who treat the traumatized* (1- 20). New York, USA: Routledge.
- 4 Foa, E. B., Steketee, G., & Rothbaum, B. O. (1989). Behavioural/cognitive conceptualisation  
5 of post-traumatic stress disorder. *Behaviour Therapy*, 20, 155- 176.
- 6 Goldbort, J., Knepp, A., Mueller, C., & Pyron, M. (2011). Intrapartum nurses' lived  
7 experience in a traumatic birthing process. *MCN- The American Journal of Maternal-*  
8 *Child Nursing*, 36(6). 373-380 doi: 10.1097/NMC.0b013e31822de535
- 9 Health and Social Care Information Centre. (2009). *Adult Psychiatric Morbidity in England –*  
10 *2007, Results of a household survey*. Retrieved from  
11 <http://www.hscic.gov.uk/catalogue/PUB02931>
- 12 Health and Social Care Information Centre. (2013). *NHS workforce: Summary of staff in the*  
13 *NHS: Results from September 2012 census*. Retrieved from  
14 <http://www.hscic.gov.uk/catalogue/PUB10392>
- 15 Health Workforce Australia (2012). Health Workforce 2015: Doctors, Nurses and Midwives.  
16 Volume 1. Retrived from  
17 [http://www.hwa.gov.au/sites/uploads/FinalReport\\_Volume1\\_FINAL-20120424.pdf](http://www.hwa.gov.au/sites/uploads/FinalReport_Volume1_FINAL-20120424.pdf)
- 18 International Confederation of Midwives. (2011). *International definition of a midwife*.  
19 Retrieved from [http://www.internationalmidwives.org/who-we-are/policy-and-](http://www.internationalmidwives.org/who-we-are/policy-and-practice/icm-international-definition-of-the-midwife/)  
20 [practice/icm-international-definition-of-the-midwife/](http://www.internationalmidwives.org/who-we-are/policy-and-practice/icm-international-definition-of-the-midwife/)
- 21 Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of event scale- measure of  
22 subjective stress. *Psychosomatic Medicine*, 41(3), 209-218.
- 23 Information Services Division (ISD) Scotland (2014). NHS Scotland workforce statistics;  
24 Nursing and midwifery staff by location of service delivery, speciality, age group,  
25 NHS region and board. Retrieved from [http://www.isdscotland.org/Health-](http://www.isdscotland.org/Health-Topics/Workforce/Nursing-and-Midwifery/)  
26 [Topics/Workforce/Nursing-and-Midwifery/](http://www.isdscotland.org/Health-Topics/Workforce/Nursing-and-Midwifery/)

- 1 Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events -  
2 Applications of the schema construct *Social Cognition*, 7(2), 113-136. doi:  
3 10.1521/soco.1989.7.2.113
- 4 Jenkins, S., & Baird, S. (2002). Secondary traumatic stress and vicarious trauma: A  
5 validation study. *Journal of Traumatic Stress*, 15(5), 423- 432.
- 6 Kirkham, M. (2007). Traumatized midwives. *AIMS Journal* 19(1), 12-13.
- 7 Kline, P. (1999). *The handbook of psychological testing* (2nd ed.). London: Routledge
- 8 Leinweber, J., & Rowe, H. J. (2010). The costs of 'being with the woman': secondary  
9 traumatic stress in midwifery. *Midwifery*, 26(1), 76-87. doi:  
10 10.1016/j.midw.2008.04.003
- 11 Leiter, M. P., & Maslach, C. (2009). Nurse turnover: the mediating role of burnout. *Journal*  
12 *of Nursing Management*, 17(3), 331-339. doi: 10.1111/j.1365-2834.2009.01004.x
- 13 Malott, A. M., Davis, B. M., McDonald, H., & Hutton, E. (2009). Midwifery care in eight  
14 industrialized countries: how does Canadian midwifery compare? *Journal of*  
15 *obstetrics and gynaecology Canada*, 31(10), 974-979.
- 16 Mander, R. (2001). The midwife's ultimate paradox: a UK-based study of the death of a  
17 mother. *Midwifery*, 17(4), 248-258. doi: 10.1054/midw.2001.0275
- 18 Maslach, C., Jackson, S. E., Leiter, M.P., Schaufeli, W. B., & Schwab, R.L. (1996). *MBI: The*  
19 *Maslach Burnout Inventory: Manual*. Palo Alto: Consulting Psychologists Press.
- 20 McCann, I., Pearlman, L. A. (1990). Vicarious traumatization: A framework for  
21 understanding the psychological effects of working with victims. *Journal of*  
22 *Traumatic Stress*, 3(1), 131-149.
- 23 Mealer, M., Jones, J., Newman, J., McFann, K. K., Rothbaum, B., & Moss, M. (2012). The  
24 presence of resilience is associated with a healthier psychological profile in intensive  
25 care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing*  
26 *Studies*, 49(3), 292-299. doi: 10.1016/j.ijnurstu.2011.09.015



- 1 Mollart, L., Skinner, V. M., Newing, C., & Foureur, M. (2013). Factors that may influence  
2 midwives work-related stress and burnout. *Women and Birth*, 26(1), 26-32. doi:  
3 10.1016/j.wombi.2011.08.002
- 4 Nunnally, J.C. & Bernstein, I.H. (1994). *Psychometric Theory*. 3rd edition. New York:  
5 McGraw-Hill.
- 6 Nursing and Midwifery Council. (2008). *Statistical analysis of the register 1 April 2007 to 31*  
7 *March 2008*. Retrieved from [http://www.nmc-](http://www.nmc-uk.org/Documents/Statistical%20analysis%20of%20the%20register/NMC-Statistical-analysis-of-the-register-2007-2008.pdf)  
8 [uk.org/Documents/Statistical%20analysis%20of%20the%20register/NMC-Statistical-](http://www.nmc-uk.org/Documents/Statistical%20analysis%20of%20the%20register/NMC-Statistical-analysis-of-the-register-2007-2008.pdf)  
9 [analysis-of-the-register-2007-2008.pdf](http://www.nmc-uk.org/Documents/Statistical%20analysis%20of%20the%20register/NMC-Statistical-analysis-of-the-register-2007-2008.pdf)
- 10 Olde, E., van der Hart, O., Kleber, R., & van Son, M. (2006). Posttraumatic stress following  
11 childbirth: A review. *Clinical Psychology Review*, 26(1), 1-16. doi:  
12 10.1016/j.cpr.2005.07.002
- 13 Royal College of Midwives. (2013). State of Maternity Services Report 2012. Accessed  
14 December 2013, retrieved from [http://www.rcm.org.uk/college/policy-](http://www.rcm.org.uk/college/policy-practice/government-policy/state-of-maternity-services/)  
15 [practice/government-policy/state-of-maternity-services/](http://www.rcm.org.uk/college/policy-practice/government-policy/state-of-maternity-services/)
- 16 Sheen K., Slade P. & Spiby H. (2014). An integrative review of the impact of indirect  
17 trauma exposure in health professionals and potential issues of salience for  
18 midwives. *Journal of Advanced Nursing*, 70(4), 729-743. doi: 10.1111/jan.12274
- 19 ten Hoop-Bender, P., de Bernis, L., Campbell, J., Downe, S., Fauveau, V., Fogstad, H.,  
20 Homer, C, S. E., Kennedy, H. P., Matthews, Z., McFadden, A., Renfrew, M. J. & Van  
21 Lerberghe, W. (2014). Improvement of maternal and newborn health through  
22 midwifery. *The Lancet*.
- 23 Thomas, B. G. (2006). 'Making a difference:' midwives' experiences of caring for women.  
24 *Evidence Based Midwifery*, 4(3), 83-88.

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- 1 Wallbank, S. (2010). Effectiveness of individual clinical supervision for midwives and  
2 doctors in stress reduction: findings from a pilot study. *Evidence Based Midwifery*,  
3 8(2), 65-70.
- 4 Weiss, D., & Marmar, C. (1997). The Impact of Event Scale -Revised. In J. Wilson, T. Keane  
5 (Eds.), *Assessing psychological trauma and PTSD* (pp. 399- 411). New York, USA:  
6 Guildford  
7

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

	<i>N</i>	<i>M</i>	<i>SD</i>	<b>Range</b>
Age (years)	421	45.04	9.85	22-48
<b>Characteristics</b>	<b>Subcategory</b>	<i>N</i>	<b>%</b>	
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	
<b>Impact of Event Scale- Revised (IES-R)</b> ( <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	
<b>World Assumptions Scale (WAS)</b> ( <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	
<b>Maslach Burnout Inventory (MBI)</b> ( <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	
			<b>High level of burnout</b>	<b>Moderate level of burnout</b>	<b>Low level of burnout</b>
	<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)

	<b>Impact of Event Scale-Revised</b>			
	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>	$\beta$
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>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
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*<sup>2</sup> $= .23$ ; *DP:*  $R^2= .15$ ; *Adjusted R*<sup>2</sup> $= .14$  ; *PA:*  $R^2= .11$ ; *Adjusted R*<sup>2</sup> $= .11$ ; *IES-R= Impact of Event Scale-Revised; WAS= World Assumptions Scale; \*p<.05; \*\*p<.001*

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