

**PREVALENCE AND RISK FACTORS FOR POSTTRAUMATIC STRESS  
AMONG AUSTRALIAN MIDWIVES**

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## **Abstract**

### **Background**

Midwives are frequently exposed to traumatic birth events which may place them at risk of developing posttraumatic stress (PTS) symptoms. Posttraumatic stress can reduce empathic and cognitive abilities and increase perceptions of risk and danger. PTSD research and theory have identified personal, trauma event-related and work environment related variables as risk factors for PTSD. It is not known whether these factors also apply among midwives.

### **Aims**

1. To identify prevalence of posttraumatic stress among Australian midwives.
2. To identify risk factors for posttraumatic stress and use a socioecological model to explain posttraumatic stress in midwives.

### **Methods**

A national internet survey of midwives who are members of the Australian College of Midwives was conducted. Trauma symptoms were assessed with the PTSD Symptom Scale Self-Report version (PSS-SR). Probable PTSD was assessed as meeting DSM IV PTSD diagnostic criteria B, C and D (a score of at least 'one' on the four-point frequency scale for a minimum of one intrusion, three avoidance and two arousal symptoms) and a total PSS-SR score  $\geq 14$ . The Traumatic Experiences in Perinatal Care List (TEPCL) assessed which types of birth events were perceived as traumatic by midwives. The Sensitivity in Perinatal Care Scale (SPCS) was developed to assess sensitivity in perinatal caregiving. Other measures included the Interpersonal Reactivity Index (IRI) to assess empathy and the Job Content Questionnaire (JCQ) to assess job demands and job control.

Associations between probable PTSD with personal, trauma event-related and environmental risk factors were assessed. A socioecological model for the development

of posttraumatic stress in midwives was developed. Variables that showed significant associations with probable PTSD were entered in a multivariate analysis to identify predictors for probable PTSD among midwives.

## Results

A total of 707 surveys were completed (response rate 15.4%). The predominant birth trauma events were poor care ( $n = 336$ , 49.4%), witnessing death ( $n = 269$ , 39.6%), and witnessing harmful acts ( $n = 267$ , 39.3%). Among the 601 respondents who completed the PSS-SR, the prevalence of probable PTSD was 17% ( $n = 102$ , 95% CI [14.2, 20.0]).

Three factors were independently associated with probable PTSD; each factor more than doubled the risk for probable PTSD: (1) a reaction of horror during the traumatic birth event witnessed (AOR = 2.57, 95% CI [1.20, 5.51]); (2) feelings of guilt associated with the traumatic birth event (AOR = 2.14, 95% CI [1.12, 4.08]) and (3) a personal history of a traumatic experience when giving birth (AOR = 2.12, 95% CI [1.24, 3.64]).

The odds for a peritraumatic reaction of horror were almost four times higher (AOR = 3.89, 95% CI [2.71, 5.59]) when the index birth trauma included disrespectful and abusive care. Odds for peritraumatic feelings of guilt were almost two times higher (AOR = 1.90, 95% CI [1.36, 2.65]) when the index birth trauma included disrespectful and abusive care. Low workplace decision making authority at the time of the index birth trauma also increased the odds for a peritraumatic reaction of horror (AOR = 2.68, 95% CI [1.81, 4.00]) and peritraumatic feelings of guilt (AOR = 1.62, 95% CI [1.15, 2.28]).

## Discussion

This is the first study of its kind with a large national sample of Australian

midwives. Almost one fifth of respondents met criteria for probable PTSD. The SPCS appears to be a valid indicator of relational sensitivity in midwives. The TEPCL was able to identify and categorise features of traumatic birth events experienced as distressing by midwives.

Associations between a peritraumatic reaction of horror and feelings of guilt with witnessing disrespectful or abusive care highlight the negative effects of care-related interpersonal birth trauma. Associations of peritraumatic horror and guilt with low decision authority suggest a relationship between professional autonomy and posttraumatic stress in midwives.

Identification of a personal traumatic experience of trauma when giving birth to one's own baby(ies) as a predictor of probable PTSD suggests that birth trauma may retraumatise midwives by activating previous traumatic memories. Posttraumatic stress may also affect professional functioning and reduce the quality of midwifery care.

### **Recommendations**

Posttraumatic stress in midwives should be acknowledged as occupational stress by health services, unions and professional associations. Actions for prevention and amelioration should reduce care-related interpersonal birth trauma and increase workplace decision authority among midwives. Trauma informed care and practice (TICP), which acknowledges the impact of trauma among women and their care providers and aims to reduce the incidence of traumatic birth events, are recommended.

**Statement of Originality**

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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**List of Abbreviations**

ACM	Australian College of Midwives
APA	American Psychological Association
CI	Confidence Interval
DSM	Diagnostic and Statistical Manual of Mental Disorders
CF	Compassion Fatigue
IRI	Interpersonal Reactivity Index
IRI-EC	Interpersonal Reactivity Index-Empathic Concern subscale
IRI-PD	Interpersonal Reactivity Index-Personal Distress subscale
JCQ	Job Content Questionnaire
JCQ-DA	Job Content Questionnaire-Decision Authority subscale
JCQ-PD	Job Content Questionnaire-Psychological Demand subscale
L&D nurse	Labour and delivery nurse
OR	Odds Ratio
PSS-SR	PTSD Symptom Scale Self-Report
PTS	Posttraumatic Stress
PTSD	Posttraumatic Stress Disorder
PTSS	Posttraumatic Stress Symptoms
SPCS	Sensitivity in Perinatal Care Scales
STS	Secondary Traumatic Stress
STSS	Secondary Traumatic Stress Scale
TEPCL	Traumatic Events in Perinatal Care List
TICP	Trauma Informed Care and Practice

### **Publications and Presentations Arising from the Thesis**

#### **Refereed Publications**

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2016) Responses to birth trauma and prevalence of probable posttraumatic stress disorder among Australian midwives. Accepted for publication (with minor revisions) by *Women and Birth* on June 15th 2016.

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2016) A socioecological model for posttraumatic stress among Australian midwives. Submitted to *Midwifery* in April 2016.

#### **Non-Refereed Publications**

Leinweber, J. (2013) Germany. Empathiemüdigkeit: Hat emotionale Zugewandtheit ihren Preis? *Die Hebamme* (26), 124-1

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2013) The emotional costs of 'being with' woman: An Australian study of midwives' experiences. *Australian Midwifery News* (4), 80-83.

#### **International Conferences**

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2016) Prevalence and risk factors for probable posttraumatic stress disorder among Australian midwives. 18th Conference of the International Society of Psychosomatic Obstetrics and Gynaecology, Malaga, Spain.

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2016) Prevalence and risk factors for posttraumatic stress following exposure to traumatic birth events among Australian midwives. Poster Presentation. 3rd International Conference of the German Society for Midwifery Science, Fulda, Germany.



Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2014) Traumatic stress in midwifery: are midwives at risk of “double exposure”? International Confederation of Midwives Conference (ICM), 30th Triennial Congress, Prague, Czech Republic.

### **National Conferences**

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2013) Traumatic stress in midwifery: is there a paradox in the midwife –women relationship? Pathways to Motherhood Conference, Gold Coast, Australia.

### **Significant Seminars**

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2014) Midwives’ experiences of witnessing trauma in birthing women. Australian College of Midwives (QLD) ‘Midwives Making a Difference’ Program, Mater Hospital, Brisbane, Australia.

Leinweber, J., Creedy D. K., Rowe, H. & Gamble, J. (2013) What is the nature of traumatic stress in midwives? Midwifery Presentation Day, School of Midwifery and Nursing, Sunshine Coast University. Sippy Downs, Australia.

## **Chapter 1**

### **Introduction**

The quality of encounters with a midwife is a central aspect of women's birth experiences (Lundgren, Karlsdottir, & Bondas, 2009; Milan, 2003). Midwifery care has been shown to reduce obstetric interventions during labour and birth and improve birth outcomes for women and their babies (Dahlen et al., 2012; Sandall, Soltani, Gates, Shennan, & Devane, 2013; Tracy et al., 2014). Supporting the wellbeing of midwives is one of the most effective ways of ensuring best practice in maternity care (Austin, Smythe, & Jull, 2014; Chana, Kennedy, & Chessell, 2015). It is therefore important to understand aspects of midwifery practice that may negatively affect midwives' psychological health and subsequently impact upon the quality of midwifery care.

The main aim of this thesis is to identify prevalence and risk factors for posttraumatic stress following professional exposure to birth trauma in Australian midwives. To give insight into my motivation to study the topic of traumatic stress symptoms this chapter starts with a reflection of my position as researcher. Following this, the Australian context of midwifery practice will be introduced with a description of the Australian maternity care systems and the role of midwives. The terms traumatic birth event and Posttraumatic Stress Disorder (PTSD) which are central to this thesis will be defined. Potential detrimental effects of posttraumatic stress on the quality of midwifery care will be discussed to highlight the significance of the study. The chapter concludes with a short outline of the thesis.

### **Researcher positioning**

My previous Masters study introduced me to the concept of 'second victim' of traumatic or adverse events in health care (Leinweber and Rowe, 2010). This led me to

think that understanding midwives' reactions to witnessing birth trauma as a form of traumatic stress response may be a useful approach.

My range of work experiences as midwife in different settings includes practice in birthing suites in a hospital, a birthing center, as hospital affiliated midwife and as community midwife. My observations and experiences as a midwife and considerations derived from my Masters study have informed the design of the questionnaire for this study.

### **Midwifery and Maternity Services in Australia**

Australia has a two-tier health system and maternity services are provided in both the public and private sectors (Li, Zeki, Hilder, & Sullivan, 2013). Australian women have access to free or low cost maternity services through a scheme called 'Medicare' which is financed through a taxation levy. The majority of births (96.9%) take place in hospital settings; 31% of women give birth in private hospitals under private obstetric care (Hilder, Zhichao, Parker, Jahan, & Chambers, 2014).

Midwives are most often salaried and employed by public hospitals and provide care to public patients (Van Gool, 2009). Midwives in the public sector care for women during pregnancy and labour and birth as well as the immediate postpartum. They refer to an obstetrician if pathology develops during pregnancy or birth; in private hospitals midwives work under the supervision of an obstetrician.

Compared with the UK and New Zealand, midwifery in Australia has been more closely associated with nursing since the 1920s and there has been no separate midwifery training or registration until recently (Taylor, 2009). As a result, Australian midwifery was virtually a sub-specialty of nursing and Australian midwives had less autonomy than midwives in Britain and Europe (Pincombe & McKellar, 2007).

More recently, the Commonwealth government has recognised a greater role for

midwives as recommended by the National Maternity Services Review (Commonwealth of Australia, 2009). Subsequent maternity care reform has resulted in a small but growing number of self-employed registered midwives providing caseload care to women throughout the antenatal, birthing and postnatal period (Wilkes, Gamble, Adam, & Creedy, 2015). The current professional role and identity of midwives in the Australian maternity system is comparable, but not identical to that of midwives in other English speaking nations (Taylor, 2009). However, midwives in Australia perceive a lack of status and influence (Sidebotham, Fenwick, Rath, & Gamble, 2015).

### **Traumatic Birth Events**

Trauma is defined as a psychological wound or injury following a particular frightening or distressing event or experience (Australian Psychological Society, 2015). Childbirth can be experienced as traumatic and birth trauma can produce symptoms that meet criteria for trauma according to the fourth edition of the Diagnostic and Statistical Manual of the American Psychiatric Association (APA) (American Psychiatric Association, 2000; Grekin & O'Hara, 2014).

Evidence suggests that in Australia around 43% of childbirth events are experienced as traumatic by women (Alcorn, O'Donovan, Patrick, Creedy, & Devilly, 2010). Next to emergency procedures and obstetric interventions 'normal birth' can also be experienced as traumatic (Alcorn et al., 2010). The notion that events surrounding normal birth may be perceived as traumatic suggests that the label 'normal birth' refers only to the mode of birth, but not the nature of the experience, and thus that birth trauma is in 'the eye of the beholder' (Beck, 2004). This observation may also apply to midwives' experiences of witnessing trauma during labour and birth.

The high prevalence of traumatic birth experiences in women suggests that Australian midwives, similar to their colleagues in the UK (Sheen, Spiby, & Slade,

2015) and USA (Beck, LoGiudice, & Gable, 2015; Sheen et al., 2015), are frequently exposed to birth trauma. Midwives' exposure to traumatic birth events has been shown to cause traumatic stress which can lead to Posttraumatic Stress Disorder (PTSD) (Beck et al., 2015; Sheen et al., 2014). In many occupations, PTSD following exposure to trauma in the workplace is now acknowledged as a form of occupational risk that needs to be anticipated and managed (McFarlane & Bryant, 2007; Skogstad et al., 2013).

### **Posttraumatic Stress Disorder (PTSD)**

Posttraumatic stress can occur as a response to traumatic events and is most commonly assessed as Posttraumatic Stress Disorder (PTSD). PTSD is defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; DSM-IV TR & DSM 5) (American Psychiatric Association, 1994, 2000, 2013) as an emotional reaction that individuals experience following exposure to traumatic events. Trauma exposure sufficient for a diagnosis of PTSD is defined as an individual experiencing, witnessing or being confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others (APA, 2000). At the time of commencing this PhD program in 2012 and collecting data in 2013, the core phenomenology of PTSD as stated in the DSM-IV-TR (APA, 2000) had three clusters. The first cluster involves intrusive symptoms such as re-experiencing of the traumatic event through nightmares, flashbacks, and/or intrusive memories. The second cluster involves avoidance symptoms such as avoidance of associated stimuli, social withdrawal, and emotional numbing. The third cluster involves hyperarousal symptoms including hypervigilance, irritability and an exaggerated startle response (APA, 2000). Whilst there is some debate as to the extent to which these three core symptom clusters accurately capture the condition (Friedman, Resick, Bryant, & Brewin, 2011), they are generally observed in individuals who fail to recover psychologically from a traumatic

event (Dorahy et al., 2009). In addition to the three core symptom clusters, symptoms must have been present for at least one month and the reported symptoms must lead to clinically significant distress or impairment (APA, 2000).

Irrespective of the type of traumatic event, PTSD is up to three times more common among women as men (Ditlevsen & Elklit, 2010). Accordingly, the lifetime prevalence of PTSD is significantly higher in women (14.4%) than in men (6.5%) (Kilpatrick et al., 2013). The effects of traumatic stress place both the physical and psychological health of an individual at risk (McFarlane, 2010). PTSD is associated with significant physical morbidity in the form of chronic musculoskeletal pain, hypertension, hyperlipidaemia, obesity and cardiovascular disease (McFarlane, 2010; Sumner et al., 2015). Remission from PTSD takes longer following interpersonal trauma than other trauma experiences such as natural catastrophes (Chapman et al., 2012) and less than fifty per cent of individuals with a diagnosis of PTSD remit within three years (Lobbrecht, Wicherts, Morina, & Priebe, 2014).

### **Socioecological Trauma Theories**

Feminist trauma theorists have critiqued the DSM PTSD diagnostic criteria for being based on assumptions about the biological basis of women's emotional distress (Berg, 2002; McHugh & Treisman, 2007; Tseris, 2013). This focus on the individual rather than the social and cultural context of the traumatic event limits our understanding of the causes and consequences of trauma in women's lives (Berg, 2002; McHugh & Treisman, 2007; Tseris, 2013). However, it has also been argued that there are advantages in conceptualising women's experiences of trauma within the psychiatric PTSD model because it enables assessment and quantification of trauma symptoms which promote an understanding of previously unacknowledged mental health burden in women (Quosh & Gergen, 2008; Tseris, 2013). In the current study the usefulness of

conceptualising midwives' trauma according to DSM PTSD diagnostic criteria is acknowledged and traumatic stress is measured according to DSM diagnostic criteria.

Trauma research shows, however, that PTSD risk is dependent on social phenomena (Brewin, Andrews, & Valentine, 2000b; Maercker & Horn, 2013; Tahaney et al., 2013), and the phrase 'social ecology of PTSD' reflects the importance of social and cultural phenomena in the development of PTSD (Charuvastra & Cloitre, 2008). Ecological models of trauma suggest that responses to traumatic events are best understood in the ecological context of human community and that individual differences in posttraumatic response result from complex interactions among person, trauma event, and environmental variables (Campbell, Dworkin, & Cabral, 2009; Charuvastra & Cloitre, 2008; Harvey, 1996, 2007). Socioecological theory emphasises the importance of transactions between different levels, ranging from people's direct interactions with the immediate environment to larger social processes that shape individual experiences, for understanding PTSD (Tudge, Mokrova, Hatfield, & Karnik, 2009).

Socioecological models have been applied in a variety of mental health research fields (Campbell et al., 2009; Harvey, 2007) including PTSD research (DiGangi et al., 2013), confirming the usefulness of the socioecological model for investigating mental health. A socioecological model of trauma has also been recommended for investigating risk factors for PTSD following birth in childbearing women (Ayers, Joseph, McKenzie-McHarg, Slade, & Wijma, 2008), suggesting that the model is suitable for the analysis of trauma in the context of labour and birth. To ensure consideration of the social and cultural context of midwifery practice in Australia, a socioecological framework was applied to the current investigation of risk factors for the development of traumatic stress following professional exposure to trauma in

midwives.

### **Rationale and Significance of the Study**

#### **Effects of Posttraumatic Stress**

Recent evidence associates PTSD with regional alterations in brain structure and function (Scott et al., 2015). These alterations are hypothesised to affect neuropsychological functioning (Stricker, Keller, Castillo, & Haaland, 2015). This highlights the interconnection between psychological, biological and social effects of trauma. In regards to the possible effects of traumatic stress on midwives, these findings suggest that in addition to causing personal suffering PTSD symptoms may also affect important areas of midwives' professional functioning including empathy and clinical decision making.

**Reduced empathic abilities.** PTSD can lead to deficits in the recognition and labelling of emotional states (Egger, Theunissen, Verhoeven, Wingbermühle, & Kessels, 2012; Poljac, Montagne, & de Haan, 2011) and reduces empathic abilities (Avenanti, Minio-Paluello, Bufalari, & Aglioti, 2009; Nietlisbach, Maercker, Rossler, & Haker, 2010; Parlar et al., 2014). The ability to empathise with others, particular one's client is a critical skill for effective clinical practice in the helping professions (Hojat et al., 2011; Lelorain, Brédart, Dolbeault, & Sultan, 2012). Empathic impairment can lead health care professionals to withdraw from clients and their experiences and contribute to emotionally distant care (Jonsson & Segesten, 2004b; Kearney, Weininger, Vachon, Harrison, & Mount, 2009; Raja, Hasnain, Hoersch, Gove-Yin, & Rajagopalan, 2015).

In midwifery practice, empathic abilities facilitate good care by enabling midwives to create and maintain supportive relationships with women (Moloney & Gair, 2015; Williams et al., 2013). This is of particular relevance for relational models of midwifery care which emphasise the connection between a midwife and the woman in her care and



allow for one-to-one midwifery care (Thelin, Lundgren, & Hermansson, 2014). Relational models of midwifery care lead to better birth experiences (Dahlberg & Aune, 2013; Fontein, 2010) and improve birth outcomes in women and newborns (Dahlen et al., 2012; Sandall et al., 2013; Tracy et al., 2014).

Conversely, reduced empathic abilities in midwives may lead to emotionally distant care. Emotionally distant care during labour and birth may be reported by women as unsupportive or even neglectful care. In turn, experiences of unsupportive care are associated with decreased perinatal mental health and can affect women beyond the postnatal period (Creedy & Gamble, 2007; Ford & Ayers, 2011; Harris & Ayers, 2012).

**Judgement bias in clinical decision making.** PTSD can also affect neuropsychological functioning in the areas of attention and information processing (Scott et al., 2015; Stricker et al., 2015). Successfully working as a midwife requires critical thinking and the skill to respond quickly and adequately to unexpected events including medical emergencies during labour and birth (Jefford, Fahy, & Sundin, 2010).

Individuals with PTSD show a lack of discrimination between danger and safety cues and have a reduced capacity to suppress fear under safe conditions (Jovanovic et al., 2010). This together with negative cognitions, a potential PTSD symptom which includes doubts about one's own competence and perceptions of the world as dangerous, can lead to an overestimation of the likelihood of adverse events occurring, also referred to as judgment bias (Cox, Resnick, & Kilpatrick, 2014; Jovanovic, Kazama, Bachevalier, & Davis, 2012).

In emergency personnel, PTSD symptoms have been found to predict judgment bias (Nortje, Roberts, & Moller, 2004; Roberts, 2000). For midwives, an overestimation of the likelihood of adverse events occurring may have severe

implications for their clinical decision making and affect their overall professional performance (Jefford, Fahy, & Sundin, 2011; Martijn, Jacobs, Harmsen, Maassen, & Wensing, 2012). Midwives are obliged by law to assess any aberration from the 'normal birth process' that might confer potential risk. Failure to identify risk and refer a woman to an obstetrician may lead to investigation by the professional regulator and possible deregistration. Biases in risk judgement in emergency personnel with PTSD also extended to clinical situations which were previously perceived as benign (Nortje et al., 2004), suggesting that PTSD may potentially affect midwives' perception of risk during labour and birth.

These potential alterations in assessment of clinical risk subsequent to professional exposure to trauma have been confirmed in qualitative research on midwives' experiences of witnessing trauma. Beck et al. (2015) found that exposure to traumatic birth events reduced midwives' belief in normal birth. In their study, midwives described increased feelings of suspicion and fear during perinatal caregiving after they had witnessed a traumatic birth event.

Belief in the normality of pregnancy, labour and birth and a long tradition of protecting and promoting this is integral for the practice and profession of midwifery (Crabtree, 2008). Midwives' perceptions of risk affect women's decision-making in labour (Healy, Humphreys, & Kennedy, 2016) and midwives' beliefs can affect length of labour (Sauls, 2007). An intervention study of telephone counselling by midwives who express a belief in giving birth naturally was found to reduce childbirth fear in pregnant women (Toohill et al., 2014). The absence of trust in natural birth and intense concern about possible obstetric risk will make it harder for midwives to fulfil their professional role and provide supportive care. Consequently, traumatic stress might reduce the quality of midwifery care by biasing midwives' risk assessment and

undermining midwives' beliefs in the natural birth process.

Posttraumatic stress is likely to affect retention and recruitment of midwives, which is an important consideration in light of the shortage of midwives in some parts of Australia (Twigg & Pugh, 2011). In nurses, workplace-related stress has been found to increase professional turnover (Adriaenssens, De Gucht, & Maes, 2015) but there has not been similar work conducted with midwives.

In summary, evidence indicates that in addition to the personal burden of having a mental health condition, posttraumatic stress in midwives may reduce the quality of their care by reducing empathy, biasing clinical judgment, and contributing to midwives leaving the profession. These possible consequences of posttraumatic stress in midwives can also affect perinatal health outcomes in women and babies. Reducing traumatic stress in midwives thus has significance for promoting a healthy start to life, which is a priority of the Australian National Health and Medical Research Council (NHMRC) (2014).

To date, research on the prevalence, nature and determinants of traumatic stress in midwives is limited. Beck et al. (2015) researched prevalence of traumatic stress in US nurse-midwives and Sheen et al. (2015) investigated prevalence and risk factors of traumatic stress in UK midwives. Both studies identified the presence of traumatic stress and its relevance to these health professionals. However, the US and UK maternity systems differ from the Australian context. There is a need, therefore, to investigate the prevalence and risk factors of posttraumatic stress following professional exposure to traumatic birth events in the Australian maternity care context.

Findings from this research will increase knowledge about risk and protective factors for traumatic stress following professional exposure to birth trauma. This information will inform maternity care policies and the development of preventative

strategies to address traumatic stress in midwives.

### **Organisation of this Thesis**

This chapter has provided an overview of midwives' role in the Australian maternity care system, defined possible elements of traumatic birth, and outlined the concepts of traumatic stress and Posttraumatic Stress Disorder (PTSD). Potential detrimental effects of PTSD on midwives' professional functioning have also been discussed.

**Chapter 2** presents a mixed studies review of the literature relevant to the investigation of risk factors for the development of posttraumatic stress following professional exposure to birth trauma in midwives. The review appraises literature relevant to the identification of personal, event-related and professional risk factors.

**Chapter 3** describes the methods used in the study. An online survey was conducted. The study design, recruitment strategies, and development of survey content are described. Research questions are outlined. This is followed by the procedures for data collection, statistical methods and ethical considerations for the study.

**Chapter 4** presents the results of this study. Demographic and professional characteristics of participants are described and where possible compared to the national midwifery workforce. Personal, trauma event-related and professional variables associated with probable PTSD in midwives are identified. Results from a multivariate analysis of risk factors for probable PTSD in midwives are presented.

**Chapter 5** discusses the results of the study in the context of the existing literature. In the first section the prevalence of probable PTSD in the current sample is discussed. The second section discusses results from the measurement scales designed for this study: (1) the Trauma Events in Perinatal Care List (TEPCL) and (2) the Sensitivity in Perinatal Care Scale (SPCS). In the third section associations of probable

PTSD with personal, trauma event-related and professional variables and results of the multivariate analysis are discussed. The chapter concludes with an overview of the strengths and limitations of the study.

**Chapter 6** presents the main conclusions of the study and highlights a number of practical considerations resulting from the research findings. Recommendations for maternity care policy, midwifery clinical practice and midwifery education and for future directions regarding research on posttraumatic stress in midwives are provided.

## **Chapter 2**

### **Literature Review**

#### **Introduction**

This chapter presents a mixed studies review of research on traumatic stress in nurses and midwives following professional exposure to birth trauma. Studies investigating the phenomenon of traumatic stress following professional exposure to birth trauma in nurses and midwives will be discussed. In addition, research findings on prevalence and risk factors for traumatic stress in maternity professionals will be presented and critiqued.

#### **Background**

It is now recognised that exposure to traumatic events in the workplace can lead to posttraumatic stress (PTS) (McFarlane & Bryant, 2007; Robertson & Perry, 2010; Skogstad et al., 2013). PTS may be severe enough to meet diagnostic criteria for a psychiatric anxiety disorder known as posttraumatic stress disorder (PTSD). PTSD is diagnosed by the presence of three clusters of symptoms that can result from exposure to a traumatic event. PTSD symptoms are specified in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013).

Some researchers have described workplace-related trauma as Secondary Traumatic Stress (STS). Although STS, which is also referred to as compassion fatigue (Bride, Radey, & Figley, 2007), is conceptually similar to PTSD, there are important differences. STS occurs following exposure to a traumatised individual, not to a traumatic event and is conceptualised as ‘stress resulting from helping or wanting to help a traumatised or suffering person’ (Figley, 1995a, p. 7). Importantly no diagnostic criteria for STS exist as it is not a recognised psychiatric entity and not included in the

DSM (Elwood, Mott, Lohr, & Galovski, 2011).

PTSD diagnostic criteria of DSM IV specify which events and emotional reactions can precede and lead to the onset of PTSD and is required for diagnosis. Criterion A1 stipulates that an individual “experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (APA, 2000, p. 467) and criterion A2 specifies that ‘the person’s response to the event involved intense fear, helplessness, or horror’ (APA, 2000, p. 467). Other criteria include re-experiencing the traumatic event in a distressing way (Criterion B), avoiding or numbing oneself to reminders of the event (Criterion C), prolonged and persistent hyperarousal after the event has ended (Criterion D), duration of symptoms for more than 30 days (Criterion E), and significant impairment as a result of experiencing trauma symptoms (Criterion F) (American Psychiatric Association, 2000).

In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders edition (DSM-5) (American Psychiatric Association, 2013), PTSD moved from the class of anxiety disorders into a new class of trauma and stress-related disorders. In addition, several changes to the criteria for a posttraumatic stress disorder diagnosis were made. These changes included the modification of the A1 stressor criterion which now requires exposure to ‘actual or threatened death, serious injury or sexual violation’ and the elimination of Criterion A2, which required that the A1 stressor event produce fear, helplessness, or horror. Furthermore DSM-5 organises PTSD symptoms in four symptom clusters (e.g., Criteria B-E) as opposed to the three symptom clusters (B-D) as required in DSM-IV (American Psychiatric Association, 1994) and DSM-IV-TR (American Psychiatric Association, 2000).

**PTSD Measurement**

The ‘gold standard’ for assessment of posttraumatic stress is the Clinician-Administered PTSD Scale (CAPS) (Blake et al., 1995). The CAPS is a structured interview that provides a categorical PTSD diagnosis, as defined by DSM-IV. However, since the CAPS needs to be completed in a one-to-one interview that takes between 30 and 60 minutes, many studies assess posttraumatic stress using self-report measures (Wilson, 2015). Most PTSD self-report measures only assess DSM IV criteria B (re-experiencing symptoms), C (avoidance symptoms) and D (hyperarousal symptoms), also referred to as the ‘PTSD symptom triad’ (Wilson, 2015). Validation of self-report measures against the CAPS has shown that assessment of the PTSD symptom triad is a reliable way to assess posttraumatic stress (Brewin, 2005). However, as this form of assessment does not allow for a clinical diagnosis of PTSD, the outcome of self-report measures is referred to as probable PTSD (Wilson, 2015).

**Defining Trauma**

There is controversy in the field of PTSD research about what constitutes trauma (DiMauro, Carter, Folk, & Kashdan, 2014). The fact that the definition of criterion A1 in DSM IV restricts the number of events that can be considered potentially traumatic to a short list has been criticised (Dewey & Schuldberg, 2013; Weathers & Keane, 2007). Events not listed (also referred to as ‘stressful life events’) however, have been found to be associated with similar or higher rates of PTSD symptoms compared to rates for criterion A1 events (Long et al., 2008; Van Hooff, McFarlane, Baur, Abraham, & Barnes, 2009). In addition, the distribution of PTSD symptoms across the DSM 5 PTSD symptom clusters appeared to be similar regardless of whether Criterion A is satisfied (Zelazny & Simms, 2015). Considerable interrater disagreement in the classification of events as either traumatic events according to DSM IV or as stressful



life events indicate that interpreting Criterion-A1 may be a “highly subjective process” (Van Hooff et al., 2009, p. 85). Studies with women during the postpartum period show that even normal childbirth events can be experienced as traumatic (Beck, 2004; Elmir, Schmied, Wilkes, & Jackson, 2010; Harris & Ayers, 2012). Together these findings highlight the subjectivity of trauma. This suggests that the notion that birth trauma is ‘in the eye of the beholder’ (Beck, 2004) may also hold meaning for midwives.

In summary, workplace exposure to trauma can lead to traumatic stress. Traumatic stress is most commonly assessed using DSM PTSD diagnostic criteria. Self-report measures mainly assess probable PTSD. It is acknowledged that the subjective experience of trauma, including birth trauma, is key for the development of trauma symptoms. This background information on the concept and measurement of trauma will inform the mixed studies review of the literature on traumatic stress in nurses and midwives following professional exposure to birth trauma.

This review considered evidence for traumatic stress responses in maternity professionals following exposure to birth trauma. Three main questions were addressed:

- What is the phenomenology of traumatic stress following professional exposure to birth trauma?
- What is the prevalence of traumatic stress responses in maternity professionals?
- What are risk factors for traumatic stress responses in maternity professionals?

## **Method**

A systematic mixed studies review (MSR) which includes evidence from quantitative, qualitative and mixed methods research was chosen to maximise the

findings (Pluye, Gagnon, Griffiths, & Johnson-Lafleur, 2009). MSR reviews include integrative, narrative syntheses and meta-synthesis of qualitative literature but exclude concept analysis papers (Pluye, Gagnon, Griffiths, & Johnson-Lafleur, 2009). In MSRs, similar to mixed methods research, the strengths of qualitative and quantitative methods are combined by integrating the in-depth descriptions of complex phenomena obtained by qualitative methods with the statistical generalisability of quantitative methods to maximise the findings (Pace et al., 2012; The Joanna Briggs Institute, 2014). The review was conducted according to PRISMA guidelines (Liberati et al., 2009).

### **Search Strategy**

A systematic search was performed to identify articles published in English between 1994 and November 2015. Medline, CINAHL, Psychinfo, and Scopus databases were consulted as they include midwifery, nursing, medical, psychological and multidisciplinary areas. Search terms were: 'midwives', 'midwifery', 'nurses', 'nursing', 'traumatic birth', 'birth trauma', 'posttraumatic stress', 'PTSD', 'secondary traumatic stress' and 'STS'.

The timeframe for the search was theoretically-driven by the revision of PTSD guidelines in 1994 in DSM IV (American Psychiatric Association, 1994) which changed the definition of the disorder to include subjective perceptions, with the result that childbirth could be recognised as a trigger event for PTSD. Papers published in English, which used quantitative or qualitative methods to investigate midwives' or nurses' responses to professional exposure to traumatic birth events were included. The term 'professional exposure to birth trauma' included witnessing or experiencing birth trauma when caring for a woman during labour and birth. Birth trauma was defined as traumatic events that occur during labour and birth. Studies with qualified midwives and nurses reporting exposure to traumatic birth events when providing care during

labour and birth were included. Papers were excluded if personnel included in the study were not qualified midwives or nurses.

### Search Outcomes

The initial search, after filtering for date and language, identified 146 papers of which 116 remained after removing duplicates. After applying the exclusion criteria, six papers remained. Figure 1 presents the selection process used.

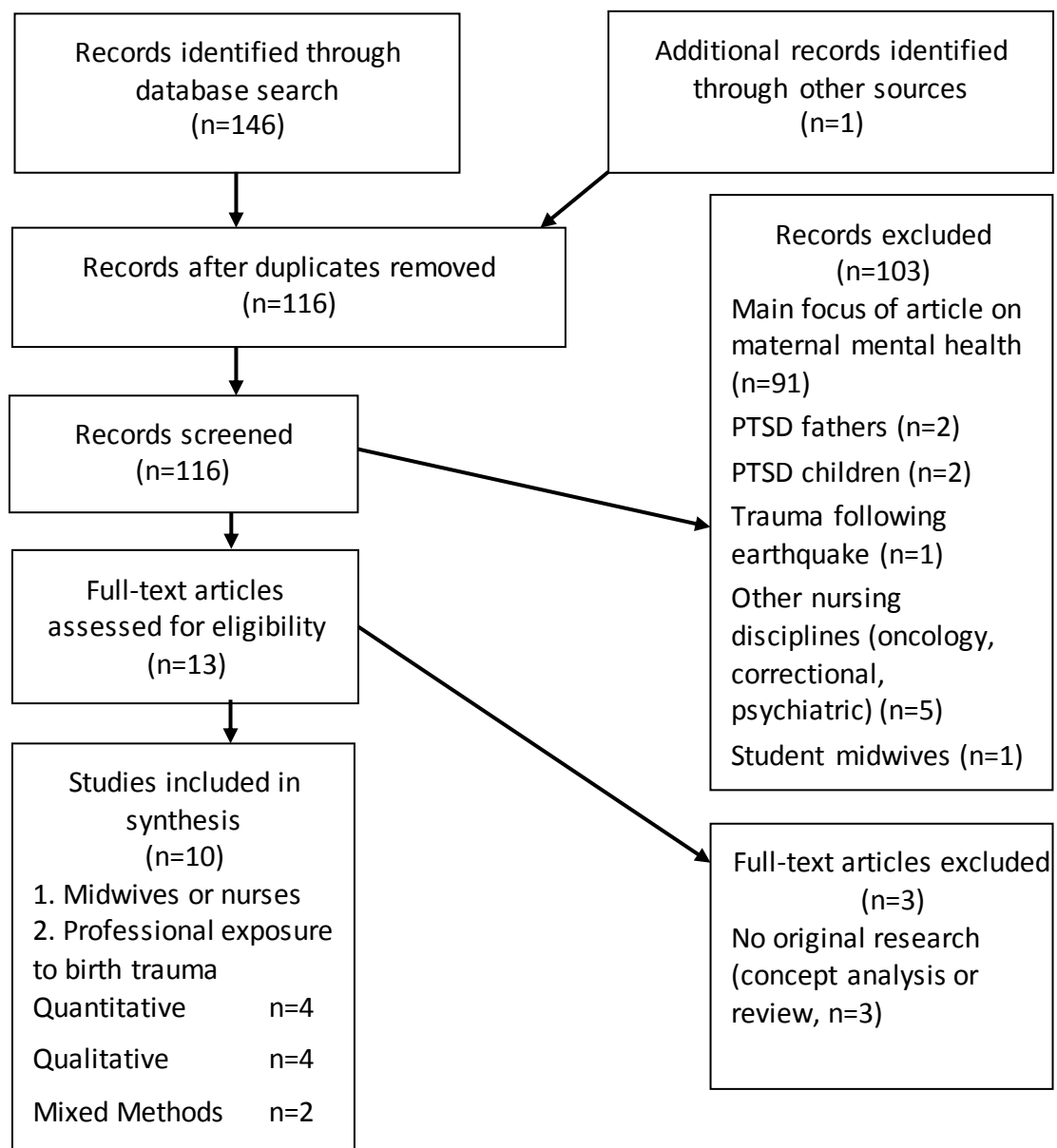


Figure 1. PRISMA Flow Diagram Showing the Screening and Selection of Articles for

## Synthesis

**Quality Appraisal**

There is at present no consensus regarding methods for quality assessment of studies in mixed methods systematic reviews (Pearson et al., 2015; The Joanna Briggs Institute, 2014). For the current review Pluye, Gagnon, Griffiths, and Johnson-Lafleur's (2009) Mixed Methods Appraisal Tool (MMAT) was used to concurrently appraise the methodological quality of qualitative, quantitative, and mixed methods studies. The MMAT judges each study type within its methodological domain. Evaluation of the MMAT found it to be a reliable and efficient tool quality assessment in mixed studies reviews (MSRs) (Pace et al., 2012).

The MMAT contains five sets of criteria: (1) a 'qualitative' set for qualitative studies, and qualitative components of mixed methods research; (2) a 'randomised controlled' set for randomised controlled studies, and randomised controlled components of mixed methods research; (3) a 'non-randomised' set for non-randomised quantitative studies, and non-randomised components of mixed methods research, (4) an 'observational descriptive' set for observational descriptive quantitative studies, and observational descriptive components of mixed methods research; and (5) a set 'mixed methods' for mixed methods research studies (Pace et al., 2012). The selected papers were assessed according to their methodology using one or several sets of the MMAT criteria. For qualitative and quantitative studies, the score is the number of criteria met divided by four (scores varying from 25% (\*) =one criterion met, to 100% (\*\*\*\*) =all criteria met). For mixed methods research studies, the overall quality score is the lowest score of the study components. The score is 25% (\*) when QUAL= 1 or QUAN = 1 or MM = 0; it is 50% (\*\*) when QUAL= 2 or QUAN = 2 or MM = 1; it is 75% (\*\*\*) when QUAL = 3 or QUAN = 3 or MM = 2; and it is 100% (\*\*\*\*) when QUAL= 4 and

QUAN = 4 and MM = 3 (QUAL being the score of the qualitative component; QUAN the score of the quantitative component; and MM the score of the mixed methods component) (Pluye et al., 2009).

The reviewed studies had MMAT scores of  $\geq 50\%$ . Three studies (Beck & Gable, 2012; Beck et al., 2015; Wallbank & Robertson, 2013) had a score of 50%, indicating reduced quality. One study had a MMAT score of 75% (Sheen et al., 2015) and six studies received full MMAT scores (Baxter, 2012; Ben-Ezra et al., 2014; Goldbort et al., 2011; Mander, 2001; Mizuno et al., 2013; Rice & Warland, 2013). Specific issues are commented on throughout the review. No studies were excluded due to poor quality. MMAT scores are presented in Appendix A.

## Results

The search identified ten studies that investigated professional exposure to birth trauma in nurses and/or midwives (see Table 1). The findings show that professional exposure to traumatic birth events has predominantly been investigated in the USA maternity system with obstetric nurses or certified nurse-midwives (Baxter, Kavanaugh, & Vonderheid, 2014; Beck & Gable, 2012; Beck et al., 2015; Ben-Ezra, Palgi, Walker, Many, & Hamam-Raz, 2014; Goldbort, Knepp, Mueller, & Pyron, 2011). Three studies focused on midwives' exposure to birth trauma (Mander, 2001; Rice & Warland, 2013; Sheen et al., 2015) and two studies had mixed samples including nurses and midwives (Mizuno, Kinefuchi, Kimura, & Tsuda, 2013; Wallbank & Robertson, 2013). Whilst midwives are the main providers of perinatal care in Australia, UK and most of Europe, in the USA care during labour and birth is predominantly provided by nurses who specialised in obstetric care, referred to as 'obstetric', 'intrapartum' or 'labour and delivery suite' nurses. In some parts of the USA, perinatal care is provided by 'certified nurse-midwives' (CNM), who are trained in both midwifery and nursing and have a wider

scope of practice than obstetric nurses (American College of Nurse-Midwives, 2009).

Four studies applied qualitative (Baxter et al., 2014; Goldbort et al., 2011; Mander, 2001; Rice & Warland, 2013) and four studies quantitative methods (Ben-Ezra et al., 2014; Mizuno et al., 2013; Sheen et al., 2015; Wallbank & Robertson, 2013). A mixed methods approach was used in two studies (Beck & Gable, 2012; Beck et al., 2015). The total number of participants in the reviewed studies is 1640.

Table 1

*Studies Investigating Professional Exposure to Birth Trauma*

Author and Country	Sample, size, setting	Aims and Methodology	Focus (measure)	Main findings	Limitations	MMAT Quality Score
Mander (2001) UK	Midwives, n = 36, Intrapartum settings across the UK	To identify the meaning of the death of a mother to the midwife providing care for her. Qualitative, semi-structured interviews	PTS	Midwives experienced witnessing the death of a mother as traumatic Experiencing the death of a mother is traumatic and affected midwives personally and professionally. Midwives identified with what happened to women in their care.		100%
Goldbort et al. (2011) USA	Labour and delivery suite nurses, n = 9 Intrapartum settings across the state of Indiana (USA)	To describe the essence of nine nurses' participation in an unexpected/traumatic birthing process, to ascertain what impact this experience had on the nurse. Descriptive phenomenology, semi-structured interviews	STS	Nurses understood traumatic birth event as an exclusive, private experience being understood by only those in attendance. Exposure to birth trauma has long lasting effects on care providers. Themes: 1. 'Feeling the Chaos' 2. 'Expect the unexpected' 3. 'It's hard to forget' 4. 'All hands on deck' 5. 'Becoming' 6. 'For the love of OB'	Birth trauma in the absence of obstetric emergencies was not considered.	100%

Author and Country	Sample, size, setting	Aims and Methodology	Focus (measure)	Main findings	Limitations	MMAT Quality Score
Baxter (2012) USA	Obstetric nurses, n = 10 Intrapartum settings across New York City	To describe and analyse the lived experience of trauma among obstetric registered nurses. Qualitative, open ended, unstructured interviews	PTS	<p>Obstetric nurses ‘experienced’ birth trauma.</p> <p>Trauma experience has lasting effects on nurses’ professional and private life.</p> <p>Nurses experienced helplessness, guilt and anger; however, need to suppress their emotions following trauma to keep up professional image.</p> <p>Pattern of avoidance of engaging with trauma to be able to suppress emotions.</p> <p>Themes:</p> <ol style="list-style-type: none"> <li>1. ‘An internal process’</li> <li>2. ‘Being faced with the unexpected’</li> <li>3. ‘Going through the motions’</li> <li>4. ‘Inability to take action’</li> <li>5. ‘Engaging others’</li> <li>6. ‘A visceral imprint’</li> <li>7. ‘A changed person’</li> </ol>		100%



Author and Country	Sample, size, setting	Aims and Methodology	Focus (measure)	Main findings	Limitations	MMAT Quality Score
Rice and Warland (2013) Australia	Midwives, n = 10 Intrapartum settings across Australia	To explore midwives experiences of witnessing traumatic birth, to enable midwives to describe their experiences of witnessing traumatic birth.  Descriptive qualitative approach, semi-structured interviews	STS	Exposure to birth trauma elicited strong emotions in midwives including guilt, responsibility and powerlessness.  Tension between medical model and midwifery philosophy amplified emotional distress.  Witnessing disrespectful care was experienced as traumatising by midwives.  Themes: 1. 'Stuck between two philosophies' 2. 'What could I have done differently' 3. 'Feeling for the woman'		100%
Beck and Gable (2012) USA	Labour and delivery nurses, n = 464 Intrapartum settings across the USA	To determine prevalence and severity of secondary traumatic stress in labor and delivery (L&D) nurses, to explore nurses' descriptions of their experiences attending traumatic births.  Mixed Methods, Postal survey including open	STS (STSS) (Bride, Robinson, Yegidis, & Figley, 2004)	Quantitative results: 35% STS 26% probable PTSD Qualitative results: Most commonly experienced type of birth trauma 1. Infant/fetal demise 2. Maternal death 3. Shoulder dystocia	Used STSS to determine PTSD  Conceptualised exposure to birth trauma as 'indirect trauma exposure'.  Focus was on obstetric emergencies.  Potential for response bias due	50%

Author and Country	Sample, size, setting	Aims and Methodology	Focus (measure)	Main findings	Limitations	MMAT Quality Score
		ended questions, response fraction 11%		Themes: 1. 'Magnifying the exposure to traumatic births' 2. 'Struggling to maintain a professional role while with traumatised patients' 3. 'Agonizing over what should have been' 4. 'Mitigating the aftermath of exposure to traumatic births' 5. 'Haunted by secondary traumatic stress symptoms' 6. 'Considering foregoing careers in L&D to survive'	to low response rate	
Beck et al. (2015) USA	Nurse-midwives, n = 473 Intrapartum settings across the USA	To determine the prevalence and severity of STS in certified nurse-midwives (CNMs), to explore their experiences attending traumatic births. Mixed Methods Online survey including open ended questions, response fraction 5%	STS (STSS) (Bride et al., 2004)	Quantitative study: 29% STS 35% probable PTSD Qualitative study: Most commonly experienced type of birth trauma 1. perinatal fetal death 2. shoulder dystocia 3. infant resuscitation Birth trauma exposure increased perception of birth as risk, reduced trust in natural birth process	Used STSS to determine PTSD. Focus on obstetric emergencies although 'abusive care' as trigger for trauma symptoms is described, failure to conceptualise care-related interpersonal traumatic events as birth trauma.	50%

Author and Country	Sample, size, setting	Aims and Methodology	Focus (measure)	Main findings	Limitations	MMAT Quality Score
				Themes:	Likely response bias due to low response fraction.	
Wallbank and Robertson (2013), UK	Midwives, n = 104, Nurses, n = 42 Physicians, n = 38 Five UK hospitals	To explore the extent of staff distress following perinatal death and its predictive factors. Cross-sectional, survey, (paper and online version available), response fraction 54%	Distress (IES) (Horowitz, Wilner, & Alvarez, 1979)	55% prevalence of clinically relevant distress in staff exposed to perinatal death Negative appraisal of care given to the family cumulative number of losses experienced maladaptive ways of coping and staff perceptions of support outside work were associated with higher levels of distress.	Use of IES (only measures PTSD intrusion and avoidance, but not arousal symptoms). Heterogeneous sample that also included physicians.	75%
Ben-Ezra et al.(2014), Israel	Obstetric nurses, n = 27 Sourasky Medical Center in Tel Aviv	To test if exposure to perinatal death would lead to exacerbation in mental health and wellbeing. Longitudinal, cross-sectional, survey (paper), response fraction 39%	PTS (IES-R) (Weiss & Marmar, 1997)	Exposure to perinatal death leads to increased posttraumatic stress in obstetric nurses.		100%

Author and Country	Sample, size, setting	Aims and Methodology	Focus (measure)	Main findings	Limitations	MMAT Quality Score
Mizuno et al. (2013), Japan	Obstetric nurses, n = 169 Midwives, n = 86 Maternity units across Japan	To explore the relationship between professional quality of life and emotion work and the major stress factors related to abortion care. Cross-sectional, survey (paper), response fraction 60%	STS (CF) ProQOL (Stamm, 2009)	Study identified no high risk cases for CF Identified predictors for CF: Negative emotions, sensitivity requirements, thinking that the aborted fetus deserved to live, difficulty in controlling emotions during abortion care and parity		100%
Sheen et al. (2015), UK	Midwives, n = 421 Intrapartum settings across the UK	To investigate the psychological impact of exposure to traumatic perinatal events in midwives. Postal survey, response fraction 16%	PTS (IES-R) (Weiss & Marmar, 1997)	33% probable PTSD Empathy and previous trauma experiences were associated with more severe PTS.	Hearing about a traumatic birth event from the woman was considered as a form of trauma exposure. Explanatory power of model was only 6%. Likely response bias due to low response fraction.	75%

PTS, Posttraumatic stress; STS, Secondary traumatic stress; CF, Compassion Fatigue; STSS, Secondary Traumatic Stress Scale; IES, Impact of Event scale; IES-R, Impact of event scale revised; ProQOL, Professional Quality of Life Scale

### **Phenomenology of Posttraumatic Stress**

Mander (2001) first suggested that midwives may experience trauma when witnessing birth trauma in a woman in their care. Mander (2001) interviewed midwives ( $n = 36$ ) in the UK about their experiences of caring for a woman who died during labour or birth. Applying a phenomenological approach to the interpretation of midwives' narratives, Mander (2001) identified four themes. In the first theme, 'Images intruding', midwives described re-experiencing the death of the mother in professional situations and in their private life. One midwife described seeing the death of the woman whenever she worked in the room where the death occurred and another midwife said she thought about the dead woman when she was giving birth herself. In the second theme, 'Identifying with the mother', midwives described how aware they were that the death could happen to them or (in older midwives) to their daughters. Theme three, 'Encountering death' and theme four, 'Being unprepared', revealed that for many midwives, the experience of having a woman die in their care was their first encounter with death and they felt very unprepared. Mander (2001) compared midwives' experiences to those of emergency personnel attending disaster sites. Overall, the findings suggest that traumatic birth events have the potential to prompt symptoms of traumatic stress in midwives.

In a qualitative study, Goldbort, Knepp, Mueller, and Pyron (2011) conducted semi-structured interviews over a 9-month period with nurses working in labour suites in the USA. There were two areas of focus: 'Tell me about your experience of participating in an unexpected/traumatic birth' and 'How did that experience make you feel?' Applying a phenomenological approach, Goldbort et al. (2011) extracted 27 narratives. 'From behind closed doors' was identified as the overarching theme that described nurses' understanding of the traumatic birth event as an exclusive, private experience being

understood by only those in attendance. Continued analyses produced six subthemes. The first theme, 'Feeling the chaos', described exposure to birth trauma as an emotionally charged experience that unfolds in an accelerated way. In the second theme, 'Expect the unexpected', nurses emphasised distress due to the unexpected nature of the traumatic events. Theme three, 'It's hard to forget', illustrated the long lasting impression of traumatic events on the nurses, which in one case extended over a time period of 35 years. Theme four, 'All hands on deck', underscored how teamwork in the form of immediate response and support helped nurses to deal with the traumatic event. Theme five, 'Becoming', expressed an understanding of trauma experiences as an unavoidable part of what it means to become a nurse. In theme six, 'For the love of OB', nurses described that passion for the job prevented them from leaving the profession after the traumatic experience (Goldbort, 2010, p. 373). While this study considered only unexpected traumatic events triggered by obstetric emergencies, evidence shows that women frequently experience birth trauma in the absence of emergency situations (Beck 2004a; Olde & Van der Hart et al., 2006) and perhaps the same applies to maternity professionals. Despite this limitation Goldbort et al. (2011) was the first to demonstrate that a traumatic birth event can have a lasting impact on intrapartum caregivers.

Baxter (2012) used a qualitative phenomenological approach to analyse interviews with US obstetric nurses (n = 10). Participants were asked to describe one or more birth trauma events they experienced while caring for women. Seven themes emerged from the data. Theme one, 'An internal process', described how nurses experienced the trauma event by instinctively sensing a problem, engaging in internal dialog, and asking themselves why the trauma had happened. In the second theme, 'Being faced with the unexpected', nurses described how the unexpectedness of some traumatic events added to their distress. Theme three, 'Going through the motions',

illustrated how nurses retreated to a routine by going through an automatic reaction that included trying anything to comfort themselves and others, compartmentalising thoughts and emotions and restraining emotions. Theme four, 'Inability to take action', described feelings of helplessness from knowing their actions were futile, being prevented from acting, or fearing the consequences of acting according to what they thought was right. The fifth theme, 'Engaging others', illustrated that nurses valued the connection with others to share their experiences. This enabled them to remember more details of the event, receive feedback, or have an opportunity to talk it out. Attempting to talk about the traumatic events, however, also prompted nurses to feel that no one really cared and their experience was hard to communicate to outsiders. Theme six, 'A visceral imprint', showed the physical impact of witnessing birth trauma. Following the initial physical reactions, nurses described a sensory memory and lasting physical discomfort resulting from their experience which acted as permanent reminder of the trauma. In the last theme, 'A changed person', nurses emphasised that the experience of living through birth trauma had a negative, defeating effect on the way they care for future women by diminishing confidence in their skills and decision-making.

Baxter's (2012) analysis showed that nurses experienced traumatic birth events and these experiences changed them personally and professionally. In addition, participants described strong emotional reactions including helplessness, guilt and anger following exposure to birth trauma and the need to suppress these reactions to appear competent as a nurse. This emphasis on the negative effects of witnessing birth trauma was different to findings by Goldbort et al. (2011) who depicted an understanding of the exposure to birth trauma as a normal or even formative experience for nurses.

Only one qualitative investigation into midwives' experiences of exposure to birth trauma was conducted in the Australian health care context. Rice and Warland

(2013) interviewed ten currently or previously registered midwives who described their experiences of witnessing traumatic births. Using thematic analysis, the authors identified three main themes. The first theme, 'Stuck between two philosophies', described distress arising from conflicting demands of providing care according to a 'with woman philosophy', in which meeting the woman's needs during labour and birth was the primary focus of perinatal care, whilst working in a medical model of care often required prioritising institutional processes and rules above women's needs. The second theme, 'What could I have done differently', illustrated that midwives were aware that some traumatic situations were caused by suboptimal care. Midwives reflected on their role and could experience feelings of guilt when they felt responsible for what happened to the woman. The third theme, 'Feeling for the woman', described that midwives felt a strong connection with the woman in their care and due to this connection experienced amplified distress when witnessing birth trauma.

Beck and Gable (2012) conducted a mixed methods study to investigate secondary traumatic stress in labour and delivery nurses (L&D, n= 464) in the USA. More than 70% of their sample (n = 322) participated in the qualitative part of the survey in which they described their care for women who experienced a traumatic birth. Using content analysis, Beck and Gable (2012) identified six themes. Theme one, 'Magnifying the exposure to traumatic births', identified four situations that appeared to intensify nurses' distress when witnessing birth trauma including being a new nurse, abusive deliveries, patients with a language barrier and adolescents. Theme two, 'Struggling to maintain a professional role while with traumatised patients', illustrated that nurses experience distressing emotions during traumatic births including fear, anger, horror, anxiety, terror, guilt and shame. Theme three, 'Agonizing over what should have been', brought attention to nurses' feelings of powerlessness and helplessness. Nurses described questioning their actions and



feeling like they failed to protect their patients, particularly when witnessing abusive deliveries which included physical or psychological violence by the responsible physician. In theme four, 'Mitigating the aftermath of exposure to traumatic births', nurses described different ways of coping with their experiences including prayer or exchange with colleagues. Theme five, 'Haunted by secondary traumatic stress symptoms', illustrated symptoms of re-experiencing, avoidance and arousal symptoms by nurses following exposure to birth trauma. Theme six, 'Considering foregoing careers in L&D to survive', identified that traumatic events led some nurses to consider leaving Labour and Delivery nursing. Infant/fetal demise, maternal death, and shoulder dystocia were the birth situations most commonly perceived as traumatic by nurses.

Using a postal survey including a questionnaire and open ended questions, Beck et al. (2015) applied a mixed methods approach to investigate secondary traumatic stress (STS) and experiences of exposure to birth trauma in USA certified nurse-midwives (CNMs, n = 473). The qualitative part of the study identified three types of birth situations most commonly described as traumatic: fetal death, shoulder dystocia, and infant resuscitation. Content analysis of nurse-midwives' narratives revealed 6 themes: 1) 'Protecting my patients: agonizing sense of powerlessness and helplessness'; 2) 'Wreaking havoc: trio of posttraumatic stress symptoms'; 3) 'Circling the wagons: it takes a team to provide support'; 4) 'Litigation: nowhere to go to unburden our souls'; 5) 'Shaken belief in the birth process: impacting midwifery practice'; and 6) 'Moving on: where do I go from here?'. Beck et al. (2015) reported that nurse-midwife participants described how witnessing birth trauma lessened their beliefs in the normal birth process and increased their focus on obstetric risk.

**Witnessing obstetric violence.** Physical or psychological violence in the context of labour and birth, also referred to as 'obstetric violence' (Pérez D'Gregorio,

2010) was described in qualitative research on perinatal care providers' experience of witnessing birth trauma. Obstetric nurses, nurse-midwives and midwives described rough and violent approaches by physicians (Beck & Gable, 2012; Beck et al., 2015; Rice & Warland, 2013). Nurses identified the negative impact of care-related interpersonal trauma and pointed out that unavoidable traumatic birth events are much easier to reconcile psychologically. They identified anxiety and stress linked to feeling powerless and helpless when witnessing another person in authority causing unnecessary trauma to the woman and baby (Beck & Gable, 2012).

Nurses described their distress when witnessing obstetric violence with phrases such as 'the physician violated her', 'a perfect delivery turned violent,' 'unnecessary roughness with her perineum' and 'felt like an accomplice to a crime' (Beck & Gable, 2012, p. 755). Although analyses identified obstetric violence as a stressor Beck and Gable (2012) did not identify obstetric violence as one of the birth situations most commonly perceived as traumatic. Obstetric violence is, together with factors like being a young nurse or caring for an adolescent patient, conceptualised as an environmental factor that may amplify distress rather than a risk factor for traumatic stress in nurses.

This is different, however, to findings of Rice and Warland (2013) and Baxter (2012) who suggested that the witnessing of disrespectful or abusive treatment of women traumatises midwives and nurses. Rice and Warland (2013) described how one midwife wanted to stop the obstetrician from performing an unnecessary episiotomy and ventouse delivery but was prompted to leave the room by another midwife. The narrative demonstrated midwives' strong emotional involvement when witnessing obstetric violence.

Baxter (2012) described a similar situation of a midwife assisting an obstetrician in performing an unnecessary vacuum extraction and the distress experienced from not

being able to advocate for the woman. Overall, the findings suggest that care-related events may have an even stronger potential to cause trauma symptoms than exposure to obstetric emergencies.

**Moral distress.** Nurses and midwives in Baxter's (2012) and Rice and Warland's (2013) investigations described strong emotional responses to witnessing trauma. These emotions included powerlessness ('to change the way birth was being managed'), 'unable to stop a cascade of intervention' and feeling guilty and responsible about what the women in their care had experienced (Rice et al., 2013, p. 4; Baxter, 2012). Baxter (2012) suggested that nurses' strong emotional reactions during and following birth trauma including unnecessary interventions were indicators of 'moral distress'. Moral distress is defined as distress that arises when a person knows the right thing to do, but because of institutional constraints finds it nearly impossible to pursue the right course of action (Jameton, 1984).

Understanding nurses' and midwives' emotional reactions to birth trauma as an indicator for moral distress suggests that trauma symptoms in maternity professionals may be related to tensions between the medical model of care which emphasises institutional requirements and the 'with woman' philosophy which places women's needs at the centre of care. Midwives who work according to a 'with woman' philosophy can develop strong emotional connections with women in their care (Kennedy & Shannon, 2004). Rice and Warland (2013) suggested that emotional connections between midwives and women effect strong emotional responses in midwives when witnessing birth trauma particularly if it involves disrespectful care.

Emotional stress in midwives arising from conflict between institutional and 'with-woman' philosophies of perinatal care has been described previously. Hunter (2004) emphasised that midwives need to understand the distress arising from

ideological differences as a universal concern, not as a personal failing, in order to avoid guilt and self-blame.

This approach is different from Goldbort et al. (2011) who focused more on birth trauma related to obstetric emergency events and places less emphasis on nurses' emotions and their connection with women in their care. Goldbort (2011) depicts professional exposure to birth trauma as a "unique and private" experience that "can be understood by only those in attendance" (p. 376). This approach situates the experience of witnessing trauma in the private sphere and discourages professional exchange about exposure to birth trauma. This may promote an understanding of distress arising from witnessing birth trauma as a personal failing, rather than institutional inadequacy or a feature of work culture and may lead to victim blaming.

### **Prevalence and Severity of Posttraumatic Stress**

Six studies assessed prevalence and severity of traumatic stress symptoms following professional exposure to birth trauma. Beck and Gable (2012) mailed out a survey including the Secondary Traumatic Stress Scale (STSS) (Bride et al., 2004) to Labour and Delivery nurses in the USA and obtained a response rate of 11% (n = 464). Thirty-five percent of their sample reached a STSS cut-off score of 38 indicating moderate to severe secondary traumatic stress. Beck and Gable (2012) also used the STSS to determine PTSD symptoms and suggested that 26% of their sample met DSM IV criteria for a diagnosis of PTSD.

Beck et al. (2015) also used the STSS to assess the prevalence of trauma symptoms in nurse-midwives (CNMs, n = 473) in the USA. The response was low at 6%. Twenty-nine percent of the CNMs had high to severe STS. In addition, Beck and colleagues interpreted STSS scores to meet PTSD symptoms according to DSM IV as suggested by Bride et al. (2004). They determined that 36% of their sample had symptoms of PTSD.

Sheen et al. (2015) used a postal survey to investigate posttraumatic stress in UK midwives ( $n = 421$ ). The response rate was 16%. Assessing PTSD symptom clusters with the Impact of Event Scale (IES) (Weiss & Marmar, 1997), Sheen et al. (2015) reported that 33% of midwives were experiencing symptoms commensurate with clinical posttraumatic stress disorder.

Three studies focused specifically on the effects of nurses' exposure to perinatal death including miscarriage, stillbirth and neonatal loss. In the UK, Wallbank and Robertson (2013) surveyed a group ( $n=180$ ) of nurses, midwives and doctors. Using the IES (Horowitz et al., 1979) to assess distress, they identified that 55% of participants had symptoms of clinically relevant distress in response to professionally experienced miscarriage, stillbirth and neonatal loss.

A longitudinal cross-sectional examination of posttraumatic stress following exposure to perinatal death was conducted with obstetric nurses ( $n = 27$ ) in Israel (Ben-Ezra et al., 2014). PTSD symptoms were assessed using the Impact of Event Scale (IES-R) in their two studies. In the first study, obstetric nurses completed the IES-R at baseline, with no recent history of exposure to perinatal death in the past 3 months and again 3 months after exposure to a perinatal death. The second study was cross-sectional comparing obstetric nurses with a history of exposure to perinatal death (nurses from study 1) to obstetric nurses with no history of exposure to perinatal death in the past 6 months. In the first study obstetric nurses had higher levels of posttraumatic stress at the second time of measurement following exposure to perinatal death compared to baseline. In the second study, nurses who had been exposed to perinatal death had higher levels of posttraumatic stress compared to nurses who had not professionally experienced perinatal death (Ben-Ezra et al., 2014). The results of both studies emphasised the severity of effect of exposure to perinatal death in obstetric nurses.

In Japan, Mizuno, Kinefuchi, Kimura, and Tsuda (2013) assessed compassion fatigue (CF) with the Professional Quality of Life Scale (ProQOL) (Stamm, 2009) in nurses and midwives providing abortion care ( $n = 255$ ). Using the recommended cut-off for the CF subscale of the ProQOL (2010), the authors identified no high risk cases for CF.

A key reason for the differences in prevalence of trauma symptoms among the five studies may be related to the low survey response rates in three of the studies. Very low response rates make representativeness of the samples unlikely, resulting in great variation from a 'true' prevalence. Differences in conceptualisation and measurement of trauma symptoms may also have contributed to difference in prevalence.

**Differences in the assessment of trauma.** Wallbank and Robertson (2013) used the IES (Horowitz et al., 1979) which only considers re-experiencing and avoidance, but not arousal symptoms (APA, 2000) to assess distress following professionally experienced perinatal death. While many researchers treat the IES as a measure of PTS symptoms, for example Haagsma et al. (2012) and O'Connor, Christensen, Jensen, Møller, and Zachariae (2011), it does not contain any items tapping Criterion D (hyperarousal symptoms). In addition, the IES does not sample some Criterion C symptoms traditionally considered related to the emotional numbing aspects of posttraumatic response (detachment, diminished interest) (Koch, 2006). Given that Criterion C is considered a 'gatekeeper' criterion for diagnosing PTSD (North et al., 1999) assessment with the IES may lead to an overestimation of probable PTSD compared measures that assess PTS according to DSM IV PTSD criteria.

Beck and Gable (2012) and Beck et al. (2015) both used the Secondary Traumatic Stress Scale (STSS) a measure designed to assess secondary traumatic stress (STS) (Bride et al., 2004). However, STS refers to exposure to an individual who has

been traumatised or is suffering rather than exposure to a traumatic event (Figley 1995b). Two studies used the STSS to identify secondary traumatic stress and in both studies about one third of nurses (35% in Beck and Gable [2012] and 29% in Beck et al. [2015]) scored above the recommended STSS cut-off for moderate to severe STS. These researchers also used the STSS to determine PTSD.

Following assessment of trauma symptoms with the STSS, Beck et al. (2015) reported that 36% of nurse-midwives screened positive for PTSD. Beck et al. (2015) argued that the developers of the STSS (Bride et al., 2004) had considered the possibility that the scale may be used to assess PTSD. However, the original scale authors (Bride et al., 2004) emphasised that the STSS was intended to assess the effects of exposure to people who had experienced trauma not to assess exposure to a traumatic event through witnessing. Bride et al. (2004) stated that the STSS was designed to measure “secondary traumatic stress conceptualised as indirect exposure to traumatic events by means of a professional helping relationship with a person or persons who have directly experienced traumatic events” (p. 28).’.

Because of this conceptual discrepancy and lack of validation of the STSS for assessing PTSD, it is uncertain whether the STSS assesses PTSD symptoms reliably (Elwood, 2011). Consequently, a PTSD diagnosis derived from assessment of trauma symptoms with the STSS may not reflect true symptom burden.

**Differences in the conceptualisation of trauma.** Beck et al.’s (2015) approach to derive a positive PTSD screen following assessment of trauma symptoms with the STSS reflects controversy about whether professional exposure to birth trauma constitutes direct (primary) or indirect (secondary) exposure to traumatic material. Several authors have conceptualised care providers’ exposure to birth trauma as indirect and as a result have conceptualised (and measured) the stress following exposure to

birth trauma as secondary traumatic rather than posttraumatic stress (Beck & Gable, 2012; Goldbort et al., 2011; Leinweber & Rowe, 2010; Rice & Warland, 2013; Sheen, Slade, & Spiby, 2014).

However, the findings of qualitative investigations of professional exposure to birth trauma suggest that nurses' and midwives' exposure to birth trauma is not passive observation of trauma as denoted by the term 'indirect trauma exposure'. An obstetric nurse in the study by Goldbort et al. (2011) described how she experienced trauma when witnessing extremely distressing birth situations as being "very traumatic for [me]" (p. 376). Similarly, an obstetric nurse who participated in Beck and Gable's (2012) study described experiences of trauma that led her to "have many traumatic memories that will be with me always" (p. 10).

Midwives' narratives in Rice and Warland's (2013) study also suggested that exposure to birth trauma does not constitute passive witnessing but is *experienced* by midwives as a result of a close emotional connection with the birthing woman. Midwives described how their emotional connection to the women in their care enabled them to feel similar emotions to a woman and that these emotions pose a challenge to them.

Similarly, obstetric nurses in Baxter's (2012) study described exposure to birth trauma as a "very personal and internal experience" (p. 78). Her findings suggested that nurses live through and thus experience trauma when witnessing birth trauma. Adding to conceptual heterogeneity regarding the nature of professional exposure to birth trauma, Sheen et al. (2015) described the experiences of midwives who had not witnessed a traumatic birth event but had heard about it postpartum from women in their care and found this to be traumatic.



### **Risk Factors for Posttraumatic Stress**

Studies on posttraumatic stress following professional exposure to birth trauma show that not all perinatal caregivers are equally affected (Beck & Gable, 2012; Beck et al., 2015; Sheen et al., 2015). Three studies by Mizuno et al. (2013, Japan), Wallbank and Robertson (2013, UK) and Sheen et al. (2015, UK) investigated risk factors for the development of posttraumatic stress following professional exposure to birth trauma in nurses and midwives.

Mizuno et al. (2013) investigated correlations between compassion fatigue (CF) with emotion work and stress factors related to abortion care. Emotion work was assessed using the Frankfurt Emotional Work Scale (FEWS) which has five subscales (1) the requirement of displaying positive emotions (2) the requirement of displaying negative emotions (3) the necessity for displaying sensitivity to the needs of the client (4) the ability of an employee to decide when to engage in an interaction with a client and when that interaction will end (5) emotional dissonance. Stress factors were identified from several published surveys on experiences of nurses while providing abortion care. Multivariate analyses identified the following variables as predictors for CF: negative emotions ( $\beta = 0.21, p < .001$ ), sensitivity requirements ( $\beta = 0.18, p < .05$ ), thinking that the aborted fetus deserved to live ( $\beta = .20, p < .05$ ), difficulty in controlling emotions during abortion care ( $\beta = .16, p < .01$ ) and parity ( $\beta = -.11, p < .01$ ).

Wallbank and Robertson (2013) investigated associations between staff stress assessed following professionally experienced miscarriage, stillbirth and neonatal loss with negative emotions, social climate at the workplace and coping. Negative emotions were assessed using the negative affect subscale of the Positive And Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988). Social climate was assessed using the peer support, cohesion and involvement subscales of the Work Environment Scale

(WES) (Moos, 1986), and coping with the abbreviated version of the COPE measure (Brief COPE) (Carver, 1997). Multiple regression revealed that negative affect experienced at time of care ( $\beta = .45, p < .001$ ); negative appraisal of care given to the family ( $\beta = 1.93, p < .01$ ); and negative coping style ( $\beta = .74, p < .001$ ) predicted stress. Overall the model explained 42% of the variance in predicting staff distress.

However, as Wallbank and Robertson (2013) assessed distress using the IES (Horowitz et al., 1979), the identified variables can be understood as predicting subjective distress rather than PTS. Another factor that reduces the generalisability of the findings to midwives is the use of a heterogeneous sample that included midwives, nurses and physicians. Whilst the role of midwives and nurses in perinatal care may be comparable, physicians perform different tasks and occupy a different position in the health system. Differences in professional roles are likely to reduce the relevance of identified risk factors for midwives.

Sheen et al. (2014) reviewed studies ( $n = 42$ ) on indirect trauma exposure in health professionals to identify salient factors for midwives' reactions to traumatic birth events. The review identified empathic engagement with recipients of care, organisational stress and the extent of professional experience as being associated with traumatic stress in related disciplines.

Following this Sheen et al. (2015) assessed posttraumatic stress in UK midwives ( $n=421$ ) and investigated risk and protective factors for posttraumatic stress including length of registration, trauma history, worldview beliefs, burnout and empathy. Bivariate analysis identified small, significant associations between posttraumatic stress and total number of traumatic experiences ( $r = .181$ ) direct exposure to birth trauma through witnessing, as opposed to hearing about, the event ( $r = .212$ ), having a personal trauma history ( $r = .119$ ) and higher empathy ( $r = .129$ ). Posttraumatic stress was not

significantly associated with midwives' length of experience in the profession ( $r = .037$ ) or, where applicable, whether the midwife had personally experienced a traumatic childbirth ( $r = .011$ ).

In their analysis of associations between PTS and dimensions of burnout, Sheen and colleagues (2015) found a moderate association between a greater PTS symptomatology and higher scores on the Maslach Burnout Inventory (MBI), (Maslach, Jackson, Leiter, Schaufeli, & Schwab, 1996) emotional exhaustion subscale ( $r = .420$ ) and a small association between more severe symptoms of PTS and a greater level of the MBI depersonalisation subscale which assesses emotional distancing from recipients of care ( $r = .247$ ). No association between overall PTS symptomatology and MBI subscale assessing personal accomplishment was identified ( $r = -.018$ ). To identify predictors for PTS in midwives, the researchers conducted a multivariate analysis with the following variables: number of traumatic perinatal experiences, the extent of exposure (whether events were witnessed or listened to), total score for empathic concern and a personal trauma history (general, childbirth). Two variables, the number of traumatic experiences ( $\beta = .08, p < .05$ ) and the combination of both types of exposure ( $\beta = 5.93, p < .05$ ) predicted PTS. Whilst the regression was significant, the combination of variables only accounted for 6% of variance in PTS symptoms.

### **Conclusion**

Professional exposure to birth trauma may affect many midwives and nurses profoundly. Witnessing birth trauma including obstetric violence can provoke strong emotional reactions and lead to moral distress in some midwives and nurses. Importantly, exposure to birth trauma can trigger symptoms of (post)traumatic stress. Between 29% and 36% of nurses and midwives were affected by symptoms of traumatic stress. However, in light of low recruitment rates and ambiguity in the

conceptualisation of exposure to birth trauma, these findings need to be interpreted with caution.

Little is known about risk factors for posttraumatic stress in midwives following exposure to birth trauma. This indicates the need to consider PTSD literature and PTSD theory to identify factors that place midwives at risk for posttraumatic stress.

The majority of studies to date have been conducted in the US (e.g., Baxter 2012; Beck & Gable, 2012; Beck et al., 2015; Goldbort et al., 2011) and the UK (Sheen et al., 2015). No large, quantitative studies have been conducted in Australia. There is a need, therefore, to assess prevalence and risk factors for posttraumatic stress following professional exposure to birth trauma in midwives in the Australian maternity care context.

## **Chapter 3**

### **Conceptual Framework**

#### **Introduction**

The review of the literature identified significant gaps in our understanding of trauma in midwifery practice. Evidence for risk factors for posttraumatic stress following professional exposure to birth trauma is limited indicating the need to include findings from research in the broader field of PTSD and specifically work-related PTSD. In this chapter findings from PTSD and workplace-related PTSD research relevant for identifying candidate risk factors for posttraumatic stress in midwives will be presented, followed by a proposed conceptual model for the development of posttraumatic stress in midwives.

#### **Multi-Faceted Aetiology of Posttraumatic Stress**

Psychological distress and mental disorder, including PTSD, are multi-faceted (Deacon, 2013; Ozer, Best, Lipsey, & Weiss, 2003). Systematic reviews with large samples of military and civilian participants found weak associations between PTSD and previous traumatic experiences, female gender, vulnerable personality, emotional reactions during and shortly after the event, lack of support and coincidental life stress (Bisson, 2007; Brewin et al., 2000b; Ozer et al., 2003).

A systematic review of 17 studies on risk and protective factors for workplace-related PTSD in a variety of occupations identified associations with personal, trauma-related and work environment-related factors (Johnston & Kumar, 2010). Personal/non-modifiable factors included previous life trauma, psychiatric history, peritraumatic dissociation defined as the lack of integration of some elements of the traumatic experience in the trauma memory, and lower socio-economic status. These were all

weakly associated with workplace-related PTSD.

Stronger associations were found between PTSD with environmental/modifiable factors including organisational stress due to conflict with colleagues and unsupportive management, low social support, low self-esteem, cognitive beliefs and coping strategies. Overall, trauma related risk factors including nature and severity of the trauma and repeated exposure to traumatic events had the strongest associations with workplace-related PTSD. An important finding of the review was that the interaction of risk factors from multiple layers had stronger associations with workplace-related PTSD than single factors alone (Johnston & Kumar, 2010).

Risk factors including previous traumatic experiences, lack of support and stress were very similar in generic PTSD and work related PTSD. However, the review on workplace-related PTSD highlighted the importance of work environment-related variables and of the interplay between personal, event-related and workplace-related variables (Johnston & Kumar 2010). Overall the findings suggest that the development of posttraumatic stress in midwives may be affected by variables that have not previously been considered in investigations of traumatic stress in nurses and midwives.

### **Exposure to Interpersonal Trauma**

Traumatic events are commonly distinguished as interpersonal trauma, such as sexual and physical or psychological assault and abuse, and noninterpersonal trauma, such as accidental injury and natural disaster (Huth-Bocks, Krause, Ahlfs-Dunn, Gallagher, & Scott, 2013; Kessler & Ustun, 2004a). Epidemiologic studies have consistently identified higher rates of PTSD following exposure to interpersonal trauma compared to noninterpersonal trauma (Forbes et al., 2012; Forbes et al., 2014; Kessler et al., 2005; Kessler et al., 1994; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

Individuals exposed to traumas of a noninterpersonal nature including accidents

or natural disasters had a less than 10% probability of developing PTSD (Kessler et al., 2005). Data from the US National Comorbidity Survey (NCS) (Kessler et al., 2005; Kessler & Merikangas, 2004b) indicates that in particular for women, exposure to interpersonal trauma commonly leads to the development of PTSD.

The particular pathogenic nature of exposure to interpersonal trauma was confirmed by Forbes et al. (2012) in their examination of PTSD symptom data from traumatic injury survivors. Participants ( $n = 715$ ) were assessed 3, 12, and 24 months after injury using the Clinician-Administered PTSD Scale to identify the specific symptom profile of survivors of interpersonal and noninterpersonal trauma. Forbes and colleagues found that interpersonal trauma resulted in more severe PTSD symptoms, and that over time, fear-based symptoms persisted following interpersonal trauma.

It has been argued that emotional and psychological maltreatment also constitutes a form of interpersonal violence. Huth-Bocks et al. (2013) investigated associations between relational trauma and PTSD in pregnant women ( $n = 120$ ) and identified that not only physical, but also psychological and emotional interpersonal violence can lead to PTSD symptomatology. While emotional and psychological maltreatment may not threaten the physical integrity of the individual, it does threaten and seriously degrade the individual's psychological integrity. This may lead to the development of characteristic PTSD symptoms that are distressing, impairing and likely to persist over time (Huth-Bocks et al., 2013). It has been suggested that interpersonal trauma may be particularly pathogenic because it can violate an individual's assumptions about the safety and predictability of the world and is a stark reminder of the capacity of other humans to engage in deliberately harmful activities (Forbes et al., 2014).

**Interpersonal birth trauma.** Mistreatment of women during labour and birth

occurring at the level of interaction between the woman and provider has been identified as a global problem (Bohren et al., 2015). Physical or psychological violence in the context of labour and birth has been described in many countries (Birthrights, 2013; Bowser & Hill, 2010; Freedman et al., 2014; Goer, 2010; Hodges, 2009; McConville, 2014; Zidari & Skubic, 2015). Care by perinatal caregivers that reflects emotional and psychological maltreatment have been described by childbearing women (Elmir et al., 2010; Harris & Ayers, 2012; Thomson & Downe, 2008). Distress due to witnessing disrespectful and abusive perinatal care has been depicted by midwives and nurses (Baxter, 2012; Beck & Gable, 2012; Beck et al., 2015; Rice & Warland, 2013).

Overall the studies suggest that psychological and physical violence in the context of labour and birth constitute a form of interpersonal violence that has the potential to traumatise nurses and midwives. Despite evidence for the prevalence of abusive and disrespectful perinatal care and the distress it can cause to midwives and nurses, exposure to obstetric violence has not been investigated as a risk factor for posttraumatic stress.

### **Prior Interpersonal Trauma**

Exposure to traumatic events can in some individuals lead to re-experiencing of previous trauma, called retraumatisation (Duckworth & Follette, 2012).

Retraumatisation is common after interpersonal trauma experiences and can cause or intensify posttraumatic stress symptoms following exposure to traumatic events (Duckworth & Follette, 2012).

The salience of previous interpersonal trauma experiences for the development of PTSD following subsequent trauma exposure has been demonstrated in two meta-analyses. Brewin et al. (2000) found that a history of childhood abuse was correlated with the development of PTSD in trauma-exposed adults. Similarly, Ozer et al. (2003) found that prior trauma involving interpersonal violence predicted PTSD following



current trauma exposure.

More recently, a large epidemiological study ( $n = 1037$ ) found severe maltreatment in the first decade of life was significantly associated with the risk of PTSD among those exposed to adult trauma ( $OR = 2.64$ ) (Breslau et al., 2014). The relationship between childhood maltreatment and PTSD has also been investigated in women seeking help for recent intimate partner violence (IPV). Gobin et al. (2013) found that PTSD symptoms of IPV survivors ( $n = 425$ ) were consistently associated with childhood maltreatment. Huth-Bocks et al. (2013) who investigated PTSD in pregnant women ( $n = 122$ ) found similarly that childhood maltreatment and recent IPV contributed to current trauma symptoms.

Early theorising on the impact of workplace trauma exposure suggested that unresolved trauma experiences in trauma workers who listened to traumatic accounts of their clients may lead to trauma symptoms (Figley, 1995b, p.21). More recently, a meta-analysis of 38 studies examining risk factors for STS among trauma workers found significant associations with STS and prior interpersonal trauma (Hensel, Ruiz, Finney, & Dewa, 2015). In paramedics ( $n = 635$ , Canada), Maunder (2012) identified an acute stress response including physical arousal, irritability and social withdrawal following an index critical incident occurred more frequently among those with a history of childhood abuse or neglect.

Compared to men, women are more likely to experience high exposure to interpersonal trauma throughout childhood and adulthood. Based on large scale studies, it is estimated that at least 20% of women report childhood experiences of abuse (Finkelhor, Turner, Ormrod, & Hamby, 2009). A large multi-country study sponsored by WHO found that globally 35% of all women will experience either intimate partner or non-partner violence (Garcia-Moreno et al., 2013). A recent national (USA) study of

trauma exposure found that 58.6% of women had been exposed to sexual or physical assault, including childhood physical abuse, aggravated assault, rape, and other sexual assault (Kilpatrick et al., 2013). In Australia, data from the most recent Personal Safety Survey (Australian Bureau of Statistics, 2012) indicated that one in three women have experienced physical violence from a known man. These findings are of great significance for the midwifery profession in Australia where the workforce is predominately female (Australian Institute for Health and Welfare, 2014).

Sheen et al. (2015) found that prior trauma exposure (personal and professional) was associated with posttraumatic stress in midwives. However, Sheen and colleagues did not specifically investigate the impact of prior interpersonal trauma. Therefore, it is unclear whether midwives who have been exposed to interpersonal trauma are at increased risk of PTSD following exposure to birth trauma compared to individuals who have not experienced interpersonal trauma.

### **Job Control**

Characteristics of the work environment can increase the risk for developing distress following exposure to workplace trauma (Johnston & Kumar, 2010). Work related trauma exposure is now acknowledged as a hazard in many occupations (McFarlane & Bryant, 2007; Skogstad et al., 2013). Studies on professional exposure to birth trauma suggest that workplace-related posttraumatic stress in maternity professionals constitutes a form of occupational stress (Beck et al., 2015; Sheen et al., 2015). This suggests that validated models of occupational stress may be useful to identify risk factors for work-related posttraumatic stress in midwives. Job control and job demands form the basis of the Job Demand Control (JDC) model (Karasek, 1979) one of the most frequently used models to examine work stress (LaMontagne, Krnjacki, Kavanagh, & Bentley, 2013).

There are three elements of the JDC model. Job demands refer to psychological stressors at work, (e.g., having to work hard and fast and having a high workload). Job control consists of two theoretically distinct concepts, decision authority and skill discretion. Decision authority refers to the opportunity to make independent decisions and to have a say in what happens in the workplace; skill discretion refers to the extent to which an individual can choose to employ their skills (Theorell & Karasek, 1996). Because the decision authority component concerns ‘opportunities for control and decision and therefore job control per se’ (Fernet, Guay, & Senécal, 2004, p.45), it has been recommended that measures of job control should focus on the decision authority component (Wall, Jackson, Mullarkey, & Parker, 1996). The combination of high psychological job demands and low job control have been identified as a risk factor for adverse mental health outcomes in employees (LaMontagne & Keegel, 2012). Employee control over tasks and job execution is often gender dependent (LaMontagne et al., 2013) and women are more likely to work in occupations with low decision making authority (Niedhammer, Sultan-Taïeb, Chastang, Vermeylen, & Parent-Thirion, 2012).

Job control as conceptualised in the decision authority subscale of the JCQ (Theorell & Karasek, 1996) has not been investigated in relation to work-related PTSD (Johnston & Kumar, 2010). Findings of Mealer et al.’s (2009) investigation of correlates for traumatic stress and burnout in nurses (n = 332) showed that nurses who take leadership roles have half the risk of PTSD compared to nurses who do not, and suggests a relationship between opportunities for control and decision authority and work-related PTSD.

### **Job Control in Health Professionals**

The salience of the JDC model for health care occupations has been demonstrated by various researchers. To explore the cross-national application of the JDC in nursing

Baba et al. (2013) tested the model on nurses from China (n = 550), Japan (n = 240), Argentina (n = 304) and the Caribbean (n = 252). The researchers found that whilst there were differences among nurses from each country in their response to specific aspects of the JDC model, it was nevertheless useful to explain occupational stress in nurses in different workplace contexts. Regarding the relationship between job control and job demands in nursing, Baba et al. (2013) found a constant relationship between job demand and job stress for nurses who have low control over their role. These findings suggest that job control moderates the effects of job demand on job stress in nurses.

The specific importance of job control as a moderator of high job demands and predictor of employee wellbeing in the health care environment has also been highlighted in earlier studies. Munro, Rodwell, and Harding (1998) investigated occupational stress in psychiatric nurses (n = 60) and found that an increase in control over tasks/ job execution and the work environment were associated with less workplace stress.

De Jonge et al. (2010) tested the DMC in a longitudinal study with health care employees (n = 267). De Jonge et al.'s (2010) findings support the core assumption of the demand/control model but emphasise both emotional and mental demands as well as decision authority as important predictors of healthcare employee well-being. These findings are supported by cross-sectional studies with healthcare workers in nursing homes which identified that decision authority in particular makes healthcare workers less vulnerable to adverse effects of high job demands (Schmidt & Diestel, 2011; Willemse, de Jonge, Smit, Depla, & Pot, 2012).

Overall, these findings indicate that in healthcare high levels of decision authority buffer the effects of high psychological demands. Exposure to work-related trauma is perceived as very stressful (McFarlane & Bryant, 2007; Skogstad et al., 2013)

and exposure to work related trauma may be associated with increased psychological demand. Decision authority levels may therefore affect the reaction to trauma exposure and low workplace decision authority may be associated with higher levels of posttraumatic stress following workplace trauma.

In many cases, midwives' clinical working environments are characterised by low levels of job control (Newton, McLachlan, Willis, & Forster, 2014; Zhang, Haycock-Stuart, Mander, & Hamilton, 2015). Midwifery work is acknowledged as psychologically demanding (Mollart, Skinner, Newing, & Foureur, 2013), making midwifery in many cases a high demand/ low control occupation. Working in high demand/low control occupations has been found to affect employee health, particular in women, where it is associated with an increased risk of stroke (Huang et al., 2015).

In summary, there is evidence for the salience of the DCM in nursing and many midwifery jobs appear to have features of high demand and low control. This indicates that DCM might be useful to explain variance in occupational stress, including workplace-related posttraumatic stress, in midwives. To date the validity of the DCM for the midwifery context has not been tested, and associations between job control, psychological demand and posttraumatic stress have not been investigated in midwives.

### **'Being With' Women During Labour and Birth**

Sheen et al. (2015) suggested that empathy, the capacity to share the affective experiences of others (Singer & Lamm, 2009), may be a risk factor for the development of posttraumatic stress in midwives. Whilst there is evidence for the importance of empathic relationships between midwives and women in perinatal caregiving (Moloney & Gair, 2015; Williams et al., 2013), the concept of medical empathy does not capture the dynamics of the midwife-women relationship adequately (Leinweber & Rowe, 2010).

This dynamic is characterised by midwives' provision of emotional, physical,

spiritual and psychological support according to the needs of the woman in their care, denoted as ‘being with’ a woman (Hunter, 2009; Thelin et al., 2014). The concepts of availability, presence, responding and respecting, support, and mutuality have also been used to describe features of ‘being with’ a woman (Berg, Olafsdottir, & Lundgren, 2012; Hunter, 2006; Kennedy & Shannon, 2004; Lundgren & Berg, 2007; Lundgren et al., 2009; Thelin et al., 2014).

### **Dyadic Relationships**

One characteristic of midwives’ interaction with women in their care is the dyadic, interdependent nature of the relationship. The concept of interdependence between woman and midwife has been investigated in several studies. Fleming (1998) used grounded theory to explore midwives’ interactions with women. Midwives (n = 250) and women (n = 219) in New Zealand and Scotland were interviewed. The core finding of her study was the concept of reciprocity or interdependence between midwife and women that embraces the whole midwife-client relationship. The importance of reciprocity was also identified by Hunter (2006) who explored emotion work experiences of UK community midwives (n = 19) using an ethnographic approach. Midwives expressed their need to feel valued by women and experienced relationships which had ‘give and take’ on both sides as emotionally rewarding. Conversely, relationships with unequal exchanges were reported as ‘emotionally draining’.

Lundgren and Berg (2007) performed a secondary analysis of eight qualitative studies exploring the midwife–mother relationship and elucidated six pairs of concepts, describing each from both the woman’s and midwife’s perspective: surrender–availability, trust–mediation of trust, participation–mutuality, loneliness–confirmation, differences–support uniqueness and creation of meaning–support meaningfulness.

Kennedy’s (2004) ethnographic study used interpretative analysis to understand

American midwives (n = 14) narratives of their practice. The stories described how engagement in a mutual relationship with a woman during childbirth implied sharing the woman's experience of childbirth. Kennedy et al. (2004) pointed out how a midwife's openness could allow for a birth experience she shared with a woman to become part of her own experience and memory, and therefore part of the midwife's self and her life journey. One midwife described mutual engagement as "the ability to be close to someone is so available and so ripe if you're only willing to take the moment and to share yourself as much as we ask them to share with us" (Kennedy et al., 2004 p. 16). Likewise, Pembroke and Pembroke (2008, p.5) argued that the midwife needs to open herself to the woman in her care in order to "mentally establish an open space that will be filled by the woman's needs and preferences" (p. 5). Overall the findings illustrate that the relationships between midwives and women are of a dyadic nature with midwives and women affecting each other.

### **Identifying with Women**

Identification with women in their care has been described as a specific element of 'being with' a woman. Hunter (2006) described that midwives who develop close relationships with women feel "more involved" (p. 319), but also more emotionally vulnerable when women experienced an adverse event. One midwife expressed that the closeness with women in her care contributed to her experiencing the women's emotionally traumatic event herself, as "a personal bereavement" (Hunter 2006, p. 319).

In Rice and Warland's (2013) study on midwives experiences of witnessing traumatic birth events a midwife explains: "If you have the emotional connection and able to build a rapport with them (the women), there's a part of you that actually feels what they feel" (p. 6) Lundgren and Dahlberg (2002) conducted interviews with nine Swedish midwives to explore experiences of their encounters with women and their

pain during childbirth. Midwives reported identifying with a woman during labour to the extent that they may feel the woman's pain and "become more like her [the woman]" (Lundgren & Dahlberg, 2002, p. 160). Midwives described that through a process of identification with a woman, they could increase their ability to 'be with' a woman (Lundgren & Dahlberg 2002). Sensitivity and responsiveness towards women's needs have been identified as essential for meeting women's needs for connection and support during labour and (Berg et al., 2012; Lundgren & Berg, 2007). This necessity for displaying sensitivity to the needs of the woman has also been identified to predict CF in nurses and midwives following exposure to perinatal death (Mizuno et al., 2013).

Sensitivity and responsiveness towards women has not been previously explored as an indicator for the quality of midwifery care. Similarly, associations between midwives' sensitivity and responsiveness during perinatal caregiving and the development of posttraumatic stress following professional exposure to birth trauma have not been investigated.

### **Peritraumatic Distress**

Emotional reactions during and shortly after the traumatic event, also referred to as peritraumatic distress, reflect the subjective interpretation of the trauma (Olf, Langeland, & Gersons, 2005; Thomas, Saumier, & Brunet, 2012). There is considerable agreement regarding the role of subjective appraisal of the traumatic event in influencing prevalence and severity of posttraumatic stress symptoms. It has been suggested that peritraumatic distress may enhance trauma-related memory and sensitises the neurobiological systems implicated in the pathogenesis of PTSD (Sherin & Nemeroff, 2011).

A meta-analysis identified appraisal of traumatic events as an important risk factor for PTSD pathology (Ozer et al., 2003). As part of the World Mental Health Surveys, Karam et al. (2010) assessed the role of peritraumatic emotions in



lifetime DSM-IV PTSD in 52,826 respondents from 21 countries. They found peritraumatic fear, horror and helplessness, significantly predicted a diagnosis of PTSD.

### **Peritraumatic Distress and Work Related Trauma**

The connection between peritraumatic distress and PTSD has also been confirmed when exposure to trauma was workplace-related. Declercq, Meganck, Deheegher, and Hoode (2011) examined if subjective responses to critical incidents predicted PTSD in Dutch emergency personnel ( $n = 136$ ) and found that emergency personnel who reacted with fear, horror or helplessness to a critical workplace incident had PTSD symptoms. In addition, the authors found that the emotional reaction to the critical incident was more predictive of PTSD than the frequency of exposure to critical incidents. Wallbank and Robertson (2013) identified that negative emotions experienced at time of care were a predictor of stress in staff that had professionally experienced miscarriage, stillbirth and neonatal loss. Rice and Warland (2013) described midwives' strong emotional reactions to witnessing birth trauma. Emotions described by midwives in Rice and Warland's (2013) qualitative investigation included helplessness, guilt, anger and responsibility for what happened to the women in their care. However, peritraumatic emotions have not been investigated as a potential risk factor for PTSD following exposure to birth trauma in midwives (Sheen et al., 2015).

### **Extent of Professional Experience**

Associations between the extent of professional experience and traumatic stress have been investigated in several studies on trauma exposure in health professionals. A study with Swedish ambulance personnel ( $n=362$ ) found greater experience to be associated with more frequent symptoms of PTSD (Jonsson & Segesten, 2004a). Conversely, several authors suggest that experience in the profession is protective.

In labour and delivery nurses ( $n = 464$ ), less experience was associated with

more frequent symptoms (Beck & Gable 2012). Van Ruden et al. (2010) investigated traumatic stress in trauma nurses (n=262) and found those with high levels of traumatic stress had fewer years in nursing than those with less traumatic stress. Mealer, Burnham, Goode, Rothbaum, and Moss (2009) investigated PTSD in hospital nurses (n = 332) and found that years practicing as a nurse were significantly associated with the prevalence of PTSD. The odds for PTSD in nurses decreased by 5% per year as the years practicing nursing increased (Mealer et al. 2009).

Mealer, Shelton, and Berg (2007) who investigated prevalence of PTSD in intensive care nurses (n = 491) did not find any significant differences in length of registration between nurses with or without PTSD. Sheen et al. (2014) identified length of registration as a potential risk factor for posttraumatic stress in midwives, but could not confirm an effect of length of registration on levels of posttraumatic stress in their empirical investigation (Sheen et al., 2015).

In summary, some studies indicate that increased length of professional experience may reduce the risk of developing posttraumatic stress in nurses and midwives; however, this effect is likely to be a result of the interaction between extent of professional experience with other work-related factors.

### **Proposed Socioecological Model**

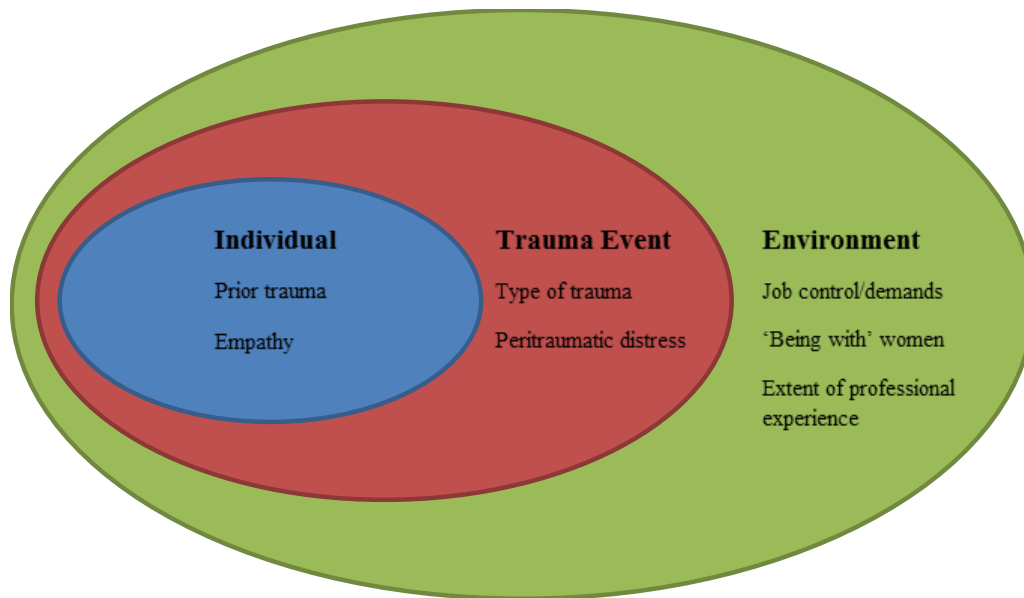
Findings from research on risk factors for PTSD and workplace-related PTSD show that PTSD and workplace-related PTSD are influenced by personal, trauma-related and environmental factors. This suggests that posttraumatic stress in midwives following professional exposure to birth trauma needs to be examined in the context of multiple influences.

To enable an understanding of risk factors for posttraumatic stress in midwives following professional exposure to birth trauma, a socioecological approach which

builds upon the classic work of Bronfenbrenner (1979) was chosen as the conceptual framework for this study. Socioecological models of trauma are based on the assumption that response to trauma is determined by interactions among contextual variables and have been used to explain traumatic responses in a variety of contexts (Campbell et al., 2009; Charuvastra & Cloitre, 2008; Harvey, 1996).

The current model for traumatic stress in midwives was influenced by Harvey's (1996) socioecological trauma model. Harvey (1996) argues that risk factors for PTS are multidimensional and suggests the investigation of variables related to the person, the event and to environmental factors to identify factors that influence individual posttraumatic response.

The proposed socioecological model for the development of posttraumatic stress in midwives captures three levels of influence (see Figure 2). The first level refers to individual (or personal) factors, including prior exposure to traumatic events and empathy. The second level describes factors related to the traumatic birth event including the type (nature) of the traumatic event and peritraumatic distress. The third level refers to factors related to midwives' professional (work) environment including job control and job demands, 'being with' women during labour and birth and extent of professional experience.



*Figure 2.* Proposed Socioecological Model of Posttraumatic Stress in Midwives

(Adapted from Harvey [1996])

### Objectives and Research Questions

#### Objectives

The objectives of the study were: to understand the impact of exposure to birth trauma on Australian midwives and identify risk factors for the development of posttraumatic stress in midwives; and devise a model of birth trauma PTSD among midwives based on ecological trauma principles that include personal, event-related and workplace-related factors.

#### Research Questions

The following research questions were investigated:

- What is the prevalence of posttraumatic stress following professional exposure to traumatic birth events in midwives registered in Australia?
- Which personal, traumatic event-related and professional variables are associated with the development of trauma symptoms following professional exposure to traumatic birth events in midwives?

- Which care-related interpersonal birth trauma events are associated with an increased likelihood for posttraumatic stress?
- To what extent are the concepts of ‘responsiveness’ and ‘sensitivity’ useful to assess differences in midwives’ intrapartum caregiving?
- To what extent are midwives who engage in sensitive and responsive caregiving at risk for developing trauma symptoms following exposure to a traumatic birth event?

In this descriptive study no specified hypotheses were tested. The intention was to build a model on the basis of socioecological trauma theory and known risk factors.

## **Chapter 4**

### **Methods**

#### **Introduction**

This chapter describes the study design, participants, setting and recruitment. The development of the survey instrument is also described. This includes details of the approach taken to scoring the PTSD Symptom Scale Self-Report (PSS-SR) to determine probable PTSD. Further, the development of two tools, (1) the Sensitivity in Perinatal Care Scale (SPCS) and (2) the Traumatic Events in Perinatal Care List (TEPCL) is described. Results from psychometric testing of the SPCS are then presented.

Following this, the process of expert review and piloting of the survey are described. Approaches to data management, coding and analysis are detailed. The chapter finishes with an explanation of how ethical issues concerning this study were addressed.

#### **Design**

An observational, cross-sectional approach was chosen. Cross-sectional studies are a useful and inexpensive way to determine prevalence and identify associations (Creswell & Plano Clark, 2011). Cross-sectional studies, however, do not allow for differentiating cause and effect from simple associations and do not provide an explanation for the findings (Mann, 2003).

#### **Participants and Setting**

Participants were midwives who held membership with the Australian College of Midwives (ACM). The ACM is the peak professional body for midwives in Australia. At the time of conducting the study the number of members, as estimated by

an ACM representative, was 4578.

To minimize the margin of error a survey sample size calculation using Raosoft (2014) software was performed. The calculation yielded a recommended sample of 580 in order to achieve a 99% confidence level with a 5% margin of error. Current registration as a midwife in Australia was the only inclusion criterion.

### **Survey Instrument**

A self-report questionnaire was developed to assess prevalence and risk and protective factors for posttraumatic stress. The development of survey items was informed by a critical review of the literature and by PTSD theory to identify potential risk and protective factors. Professional midwifery experience of the PhD candidate, expertise in perinatal psychology and midwifery within the research team and the views of a sample of experts who were registered midwives in Australia further informed the development of items.

A self-report format was used to collect data for the study and is presented in Appendix B. Congruent with socioecological trauma theory, the questionnaire investigated personal, trauma event-related and professional risk and protective factors for probable PTSD. Posttraumatic stress, empathy and job control and job demands were investigated using standardised questionnaires. Study specific measures and questions were used to investigate other risk factors.

The survey also included two open ended questions inquiring about participants' experience of witnessing birth trauma. However, qualitative data derived from these questions were too voluminous for analysis in this thesis. Analyses of qualitative data and publishing of the results will be performed as a post-doctoral project.

**Primary Outcome**

The primary outcome, probable PTSD, was assessed with the PTSD Symptom Scale Self-Report (PSS-SR) (Foa, Riggs, Dancu, & Rothbaum, 1993). PTSD symptoms were assessed using the DSM-IV PTSD diagnostic criteria (American Psychiatric Association, 2000) because the current edition of DSM (DSM 5) (American Psychiatric Association, 2013) was introduced after the commencement of this PhD program in 2012. In addition, most standardised self-report measures assess PTSD symptoms according to DSM IV as the development of standardised measures that assess PTSD according to DSM 5 are still in their infancy (Miller, Wolf, & Keane, 2014).

**PTSD Symptom Scale Self-Report (PSS-SR).** The PSS-SR consists of 17-items which are mapping onto DSM-IV PTSD symptoms. It uses a four-point Likert scale ranging from ‘not at all’ to ‘5 or more times per week/ almost always’ to rate the frequency of these symptoms in the past week. The questions are grouped in three symptom clusters identified in DSM IV: re-experiencing, avoidance, and arousal (Criteria A, B and C) (American Psychiatric Association, 1994, 2000; Foa, Riggs, Dancu, & Rothbaum, 1993). The PSS-SR produces scores ranging from 0 to 51.

Advantages of the PSS-SR include adherence to DSM IV criteria, high specificity (Fein et al, 2010; Foa et al, 1993) and the frequency of its use to assess PTSD following childbirth in women (Ayers & Pickering, 2001; Creedy, Shochet, & Horsfall, 2000; Czarnocka & Slade, 2000; Zaers, 2008) as it is theoretically plausible that midwives’ experiences of witnessing birth trauma have some similarity with childbearing women’s experiences of birth trauma. The PSS-SR has also been used in the assessment of posttraumatic stress following exposure to workplace traumatic events in emergency personnel (Bracken-Scally, McGilloway, Gallagher, & Mitchell, 2014; Nortje et al., 2004).



Participants were instructed to identify a single index traumatic birth event they had experienced or witnessed when providing care for a woman during labour and birth to serve as the basis for symptom inquiry. This unspecific index event query was informed by evidence suggesting that providing participants with a more specific index traumatic event query does not significantly affect the types of events selected or their associated current PTSD symptom ratings (Naifeh & Elhai, 2010). The instruction to rate PTSD symptoms from a single traumatic birth event was informed by evidence indicating that PTSD symptoms do not vary between the worst and second worst event (Elhai & Fine, 2012).

A definition of trauma based solely on the individual's perception of the event was chosen and no DSM IV criteria were applied to guide participants' choice of event. This approach was informed by evidence for the limited predictive power of DSM IV A1 criteria pointing to the need to consider traumatic stress responses in the context of the subjective appraisal of the experience (Creamer, McFarlane, & Burgess, 2005; Friedman et al., 2011; Long et al., 2008). Furthermore, the underlying principle that birth trauma is in eye of the beholder was also informed by recent studies that show that midwives and nurse-midwives appraise a variety of witnessed birth events as traumatic (Beck et al. 2015, Rice & Warland, 2013).

The PSS-SR has high internal reliability for the total scale ( $\alpha = .91$ ) and subscale alphas are 0.78 for re-experiencing, 0.80 for avoidance and 0.82 for the arousal subscale (Foa et al., 1993). The internal reliability of the PSS-SR total scale in the current study was excellent ( $\alpha = .92$ ) and good for subscales: re-experiencing ( $\alpha = .83$ ), avoidance ( $\alpha = .84$ ) and arousal ( $\alpha = .86$ ). The PSS-SR has a specificity of 1.0 and a sensitivity of 0.62 using the Structured Clinical Interview for DSM (SCID) and identified 86% of PTSD cases (Foa et al., 1993). The fact that the PSS-SR does not produce false positives

(specificity of 1) is important for the present study in order to establish that probable PTSD in midwives following professional exposure to birth trauma is a genuine phenomenon.

Three PSS-SR scoring methods have been proposed to determine presence of probable PTSD: an algorithm method (Foa et al., 1993), a continuous scoring method (Coffey, 2006) and a combination of algorithmic and continuous scoring (Dunmore, Clark, & Ehlers, 1999). In the algorithm method, probable PTSD is determined using the PSS author's recommended algorithmic method, in which at least one re-experiencing, three avoidance/numbing, and two hyperarousal symptoms are identified with a score of 1 or greater on the measure (Foa et al., 1993).

In the continuous scoring methods probable PTSD is determined using a PSS-SR cut-off. A PSS-SR score of 14 as a cut-off (i.e., a PSS-SR total score of 14 or greater), has been identified as resulting in sensitivity and specificity of .90 in classifying PTSD diagnoses derived from the Composite International Diagnostic Interview (CIDI) by Wohlfahrth, van der Brink & Smitten (2003) in a sample of male and female crime victims ( $n = 97$ ). The high sensitivity and specificity of a PSS-SR cut-off  $\geq 14$  was confirmed by Coffey, Gudmundsdottir et al. (Coffey, 2006) who evaluated a range of cut-off scores for the PSS-SR in a sample of motor vehicle accident survivors ( $n = 229$ ).

To ensure at least moderate symptom severity in those with probable PTSD, a combination of algorithm and continuous scoring method can be applied. This includes the additional use of a PSS-SR cut-off score together with algorithmic scoring (Ayers & Pickering, 2001; Dunmore et al., 1999; Nortje et al., 2004).

In the current study combined algorithmic and continuous scoring were applied to determine probable PTSD. Participants were considered to suffer from probable

PTSD if they met DSM-IV criteria for PTSD (American Psychiatric Association, 2000) (a score of at least 'one' on the four point frequency scale for a minimum of one intrusion, three avoidance and two arousal symptoms) and scored 14 or more on the PSS-SR. A conservative estimate of PTSD which was achieved by the additional PSS-SR cut-off  $\geq 14$  was deemed prudent for the present study in regards to the controversial nature of the disorder in maternity professionals.

The PSS-SR, like many self-report PTSD measures (Wilson, 2015), does not measure DSM IV event criteria (Criteria A1 and A2), duration of symptoms (Criterion E) and impaired functioning (Criterion F). Hence a formal diagnosis of PTSD was not possible and the outcome was referred to as probable PTSD which denotes the symptom triad of PTSD (avoidance, hyperarousal, re-experiencing) according to the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) (Wilson, 2015).

### **Empathy**

The literature review identified empathy as a risk factor for traumatic stress. Empathy was assessed with the Interpersonal Reactivity Index (IRI) (Davis, 1980). The IRI is a self-report questionnaire that assesses trait empathy (Davis, 1980). The scale consists of 28 items divided into four subscales: Empathic Concern (EC), Personal Distress (PD), Perspective Taking (PT) and Fantasy (FS). There are 7 items for each subscale, scored on a four point Likert scale where 1 = 'does not describe me very well' to 4 = 'describes me very well', producing scores with a potential range of 7–28.

The IRI has demonstrated adequate internal consistency (Cronbach's alpha for EC = .72, for PD = .78) (Davis, 1980) and has satisfactory validity and reliability when used with nursing populations (Cronbach's alpha between .68 and .76) (Yu & Kirk, 2009). Validation studies showed a Cronbach's alpha coefficient for internal reliability above 0.7 for all four subscales (Carrasco Ortiz, Delgado Egidio, Barbero Garcia,

Holgado Tello, & del Barrio Gandara, 2011; Davis, 1980). In this study internal reliability was adequate for both the empathic concern subscale (Cronbach's  $\alpha = .72$ ) and the personal distress subscale (Cronbach's  $\alpha = .70$ ). Although not originally intended for healthcare professionals, when compared to the Jefferson Scale of Physician Empathy (JSPE, specifically developed for administration to health professionals), the IRI showed a statistically significant correlation ( $r = 0.45$ ,  $p < 0.01$ ) (Hojat, Mangione, Kane, & Gonnella, 2005).

The IRI has been used to measure empathy in midwives in two recent studies. Williams et al. (2013) used the IRI to explore associations between empathy and midwives' estimations of labour pain and Sheen et al. (2013) measured empathy using the empathic concern (EC) subscale of the IRI in British midwives to explore possible correlation with traumatic stress. In order to minimise participant burden, only the empathic concern (EC) and personal distress (PD) subscales were used in the current survey. EC and PD are considered two independent measures of emotional empathy focusing on self- and other- oriented sets of feelings (Ezequiel & Jean, 2013).

### **Job Control and Job Demands**

The literature review suggested that the interactions between control over workplace tasks and job execution with psychological workplace demands may affect midwives' risk to develop probable PTSD. Control over workplace tasks and job execution and psychological demand were assessed using the decision authority and psychological demands subscales of the Job Content Questionnaire (JCQ) (Karasek et al., 1998). The JCQ short version consists of three subscales including psychological demands, decision authority and skill discretion (Mausner-Dorsch & Eaton, 2000); however, subscales can also be used independently (Choi et al., 2008).

The psychological demands subscale assesses job stress and consists of five

items (Choi et al., 2008). Decision authority is a valid predictor of job control in health care occupations (De Jonge et al., 2010; Willemse et al., 2012). The decision authority subscale consists of three items. Both subscales are scored on a four-point Likert scale (where 1 = strongly disagree to 4 = strongly agree) with possible scores ranging from 3-12 for decision authority and 5-20 for psychological demands.

Internal consistency of the Job Content Questionnaire (JCQ) subscales is similar across populations and between men and women (Cronbach's alpha coefficients generally acceptable at above .72) (Karasek et al., 1998). The JCQ decision authority (DA) and JCQ psychological demand (PD) subscales used in the current study showed adequate internal reliability ( $\alpha = .76$  for DA,  $\alpha = .71$  for PD).

In order to be able to associate decision authority and psychological demands subscale scores with respondents' index traumatic event, the JCQ stem was altered to refer to the workplace in which the index trauma had occurred so that it read as: 'Please read the following statements and indicate on a four point scale ranging from strongly disagree to strongly agree how much the statement does apply to your job *at the time of the traumatic event.*'

### **Study Specific Measures**

Two measures were developed for this study (1) the Sensitivity in Perinatal Care Scale (SPCS) and (2) the Traumatic Events in Perinatal Care List (TEPCL).

**Sensitivity in Perinatal Care Scale (SPCS).** The Sensitivity in Perinatal Care Scale (SPCS) was developed specifically for the present study because there was no one composite tool that measured sensitivity in midwives' intrapartum caregiving. The constructs and items for the SPCS were drawn from a critical review of the literature and the Maternal Infant Responsiveness Instrument (MIRI) a self-report measure for maternal responsiveness and sensitivity (Amankwaa, Pickler, & Boonmee, 2007).

Participants were asked to report on the extent to which each of the 13 statements reflected their attitudes and intrapartum care practices. The present study adopted DeVellis (2012) scale development guidelines. The first step involved generating a pool of items for the questionnaire. Items were generated from three sources, (1) a critical review of the literature, (2) a review of items from existing scales that measure sensitivity and responsiveness, and (3) insights from clinical practice. In the second step, items were discussed with an expert panel of academic midwives (n = 14). Further content validity was established by asking a convenience sample of 11 practising midwives to make critical contributions to the measure's design, and recommendations about whether questions were relevant, appropriate and comprehensible. Ambiguous and/or complex terms were removed or rephrased. This confirmed that the final questionnaire had good face validity and that items assessed midwives' relationships with women in their care, with a focus on midwives' sensitivity during intrapartum care.

A five-point Likert scale (1 = strongly disagree to 5 = strongly agree) was chosen because a neutral point was considered important. This approach ensured that respondents were not forced to respond at either the positive or negative end of the spectrum (DeVellis, 2012). Participants were asked to report on the extent to which each statement reflected their attitudes and intrapartum care practice. Scores for negatively worded items were reversed and item scores were summed to create a total score.

**Factor analysis.** In order to find underlying latent constructs and investigate coherent subscales, principal factor component analysis was undertaken. With 13 items and 705 responses, the case to variable ratio was 1:54 which is considered adequate for factor analysis (DeVellis, 2012). Visual inspection of the correlation matrix revealed a

sufficient number of correlations suggesting suitability for factor analysis. As no items correlated too strongly, which might have suggested duplication, all 13 items were included in the factor analysis. Bartlett's test of sphericity was significant ( $p < 0.0001$ ). The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.9, which is considered excellent (Dziuban & Shirkey, 1974).

Principal component analysis was used for factor extraction and varimax (Kaiser Normalisation) as the method of rotation. Extracted eigenvalues were examined. Two factors had eigenvalues of greater than one and explained 48.7% of the variance. A two-factor solution was extracted (see Table 2). However, because of the poor internal consistency of subscale two (Cronbach's  $\alpha < .6$ ) (Nunnally, 1994), which was not improved by removal of any items, only subscale one was included in the scale.

Table 2

*Rotated Pattern Matrix for Two Factor Solution*

	<b>Factor</b>	
	1	2
Item 1	.686	
Item 2	.689	
Item 3		.774
Item 4	.731	
Item 5	.774	
Item 6		.440
Item 7	.754	
Item 8	.806	
Item 9	.662	

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Item 10	.306	.544
Item 11		.608
Item 12		.564
Item 13	.740	

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**Reliability and validity.** The reliability (internal consistency) of the SPCS was very good ( $\alpha = .88$ ) and removal of items did not further increase Cronbach's alpha. To establish concurrent and discriminant validity, the SPCS was compared with the Interpersonal Reactivity Index (IRI) empathic concern and personal distress subscale scores. Spearman's correlations showed that the SPCS was moderately positively correlated with the empathic concern subscale of IRI ( $r_s = .256, p < .001$ ) and moderately negatively correlated with the personal distress subscale of the IRI ( $r_s = -.249, p < .001$ ), although these correlations did not exceed 0.5. This indicates that the SPCS is associated with, but independent of, general relational sensitivity.

**Traumatic Events in Perinatal Care List (TEPCL).** The Traumatic Events in Perinatal Care List (TEPCL) was specifically developed for this study because no composite tool existed that described different types of traumatic events that could be witnessed by care providers during labour and birth. Research with intrapartum nurses in the United States (Beck & Gable, 2012; Goldbort et al., 2011) and with midwives in Australia (Rice & Warland, 2013) has identified a variety of events during labour and birth that seem to trigger the development of traumatic stress responses in maternity professionals. These events included not only obstetric emergencies (Goldbort et al., 2011) but also "rough approaches" towards women by physicians (Beck & Gable, 2012, p. 20). These descriptors together with findings from research into traumatic childbirth experiences with women (Harris & Ayers, 2012) were used to create a list in which a variety of interpersonal and noninterpersonal trauma event features were



described.

To establish the face validity of these events in the Australian context for the current study, a convenience sample of midwives ( $n = 45$ ) was presented with the proposed list of trauma events as shown in Appendix C. Midwives were asked to indicate if they considered the feature relevant in the context of professional trauma exposure in midwives (relevant, not sure, not relevant) and if the trauma feature would concern them personally (yes/no). In addition midwives were asked for feedback regarding the clarity of wording in the description of the trauma event (clear, not sure, unclear).

The findings indicated that in addition to distress following trauma involving death or severe injury of women and babies, midwives were also affected by trauma related to physical and psychological violence by perinatal caregivers in the context of labour and birth.

Five categories of trauma features were derived from the analysis of midwives' responses to the proposed list of trauma features.

1. Death (maternal or fetal, actual or threat of)
2. Injury (maternal or fetal, actual or threat of)
3. Harmful acts (e.g., witnessing abusive care and management)
4. Poor care (e.g., witnessing or participating in a procedure that is not in the woman's and/or the baby's best interest)
5. Interpersonal disrespect (e.g., witnessing the woman's dignity being ignored, her wishes overridden).

Exposure to interpersonal trauma events is associated with higher likelihood for PTSD than exposure to noninterpersonal traumatic events (Kilpatrick et al., 2013). In order to establish if, in the context of professional exposure to birth trauma, care-related

interpersonal trauma is associated with a higher risk for probable PTSD, participants were asked to indicate (yes/no) if their index traumatic birth event had features described in each category. To investigate whether the interaction between different types of birth trauma contributes to posttraumatic stress symptoms in midwives, respondents could nominate multiple categories of birth trauma.

Furthermore, in order to establish prevalence of general professional exposure for each category of trauma features, respondents were asked to indicate (yes/no) for each of the five trauma categories if they had *ever* during their career as a midwife been professionally exposed to a traumatic event that fits this description.

### **Study Specific Questions**

Peritraumatic reactions, previous traumatic life events and demographic and work-related respondent characteristics were investigated using study-specific questions.

#### **Demographic and professional characteristics.**

Respondents were asked to indicate how old they were, how long they had been registered as midwives (in years), how many births they attend per month and how many hours they work per week. To inquire about their current primary place of work, respondents were asked to select one of five categories (public hospital, private hospital, Birth Centre, private obstetric practice, private midwifery practice and 'other'). Highest educational qualification was assessed in five categories (Certificate, Diploma, Bachelor degree, Master's degree, Ph.D.). Intention to leave the midwifery profession was assessed as 'no', 'yes with no specific time in mind', 'yes within the next five years', and 'other').

#### **Previous traumatic life events.**

Individuals who have experienced previous traumas are more prone to develop

PTSD following current traumas (Olf, Langeland, Draijer, & Gersons, 2007).

Experiences of previous traumatic events were assessed by asking participants if they recalled any experience (yes/no) of (1) 'serious accident with threat of death or injury', (2) 'sudden death of a family member/ loved one', (3) 'physical assault', (4) 'witness to someone being assaulted, abused or killed', (5) 'natural disaster', (6) 'victim of crime with threat of force, sexual abuse or assault', (7) 'personal experience of traumatic birth of own baby', or (8) other (free text).

### **Peritraumatic distress.**

Peritraumatic distress has been identified to predict PTSD symptoms (Dewey & Schuldberg, 2013). In order to establish the prevalence of peritraumatic distress and possible associations with probable PTSD, respondents were asked to indicate whether or not (yes/no) they recalled feeling fear, horror, and helplessness during or shortly after the traumatic event. In addition, they were asked to indicate (yes/no) whether or not they recalled feeling during or shortly after the index birth trauma event angry or guilty about what happened to the women, responsible for what happened, or powerless to change the management of the birth.

## **Procedure**

### **Pilot Study**

The questionnaire was uploaded onto the Griffith University website using Qualtrics (2013). Ten currently practising midwives reviewed the questionnaire and were asked to comment on face and content validity and time for completion. Minor changes in the section inquiring about demographic and professional characteristics were made according to their feedback. Number of births was revised to the number of births attended each month. The midwives reported taking approximately 30 minutes to complete the questionnaire.

## **Data Collection**

Data were collected exclusively via the online survey questionnaire (Lime Survey Project Team, 2012). Midwives could access the survey platform and participate in the study for a period of three months (from the 3<sup>rd</sup> of March 2014 to the 30<sup>th</sup> June 2014). Internet data collection methods are considered equivalent to paper-and-pencil data collection and online survey questionnaires have the distinct advantages of minimal cost and avoidance of inaccuracy of data entry (Weigold, Weigold, & Russell, 2013).

## **Recruitment**

On the 3<sup>rd</sup> of March 2014, the Australian College of Midwives (ACM) distributed an e-mail to all members (n= 4,578 at the time of the survey [ACM, personal communication, December 18<sup>th</sup>, 2014]) calling for participants and including the link to the online survey. The text of the ACM e-bulletin invitation to participate in the study is presented in Appendix D. Two weeks after the initial invitation to participate, a reminder email was sent to all ACM members. Participation in the study was also promoted at local midwifery meetings, via the Midwifery@Griffith Facebook page, and through the Australian Private Midwives Association [APMA] and Maternity Choices Australia [MCA]).

## **Data management and Coding**

### **Data Management**

Data collected from the online survey was reviewed for completeness and exported via Lime Survey software (Lime Survey Project Team, 2012) into the Statistical Package for the Social Sciences (SPSS) Version 22.0 software (IBM SPSS Version 22, 2013) for analysis. The accuracy of data entry was double-checked by visually comparing the data entered in the dataset and data obtained from the online

survey.

The presence of outliers was checked by inspecting the frequency distributions of variables. Two outliers were identified in the SPCS; however, they did not affect the mean (5% trimmed mean almost identical to mean), so these cases were retained.

Preliminary data analysis was conducted to identify any missing values. A conservative approach was adopted to handle missing cases. Cases in which respondents did not complete the first survey section were removed from the dataset. Frequency distributions were constructed for each variable to identify the number of cases of missing values. Pairwise deletion of missing values was conducted for bivariate associations and listwise deletion of missing values was applied for the multivariate analysis. Graphical displays of data values were inspected to evaluate the distribution skew for each variable.

### **Coding**

Several variables were recoded to enable analyses. A continuous outcome variable representing 'posttraumatic stress' (PTS) was created by summing items on the PSS-SR to produce a total score. Possible values range from 0-51. In order to be able to determine point prevalence of probable PTSD three steps were taken. First, the continuous variable representing Posttraumatic Stress (PTS) was recoded into a binary variable (yes/no) that identifies cases that meet DSM A, B and C criteria for a diagnosis of PTSD which require the presence of one re-experiencing symptom, three avoidance symptoms, and two arousal symptoms (American Psychiatric Association, 1994; Foa et al., 1993). Second, using a cut-off score of  $\geq 14$  a binary variable (PSS-SR total score of 0-13 versus 14-51) was created to identify cases with at least moderate symptom severity (Coffey, 2006; Wohlfarth et al., 2003). Finally, the outcome variable for probable PTSD was created: meeting DSM-IV A, B and C

criteria and a PSS-SR total score of  $\geq 14$ .

A continuous variable representing 'empathic concern' was created by summing items on the IRI empathic concern (EC) subscale to produce a total score. Similarly, items on the IRI personal distress subscale were summed to create a continuous variable 'personal distress'.

To create a continuous variable representing 'sensitivity in perinatal care', items on the Sensitivity in Perinatal Care Scales (SPCS) were summed to produce a total score. To enable comparison of participants with high and low levels of self-reported sensitivity in perinatal caregiving, the SPCS was recoded into a binary variable 'low sensitivity' versus 'high sensitivity'.

A continuous outcome variable representing 'psychological demand' was created by summing items on the JCQ psychological demand subscale to produce a total score; a continuous outcome variable representing 'decision authority' (DA) was created by summing items on the JCQ decision authority subscale to produce a total score. In order to distinguish between participants with low and high decision authority, the JCQ 'decision authority' subscale was recoded into a binary variable 'high DA versus low DA' using the scale mean as a cut-off (Peacock, Sauzet, Ewings, & Kerry, 2012).

Variables representing birth trauma features were recoded into two binary variables (1) 'noninterpersonal birth trauma' including 'maternal or fetal death (actual or threat of)' and 'maternal or fetal injury (actual or threat of)' and (2) 'care-related interpersonal birth trauma' including 'harmful acts (e.g., abusive care and management)', 'poor care (e.g., witnessing or participating in a procedure that is not in the woman's and/or the baby's best interest)' and 'interpersonal disrespect (e.g., witnessing the woman's dignity being ignored, her wishes overridden)'. In order to identify associations

with interpersonal and noninterpersonal trauma event features two binary variables ‘only interpersonal birth trauma’ and ‘only noninterpersonal birth trauma were created’.

Experiences of previous lifetime traumatic events were recoded into a dichotomous variable (no previous event versus one or more events). Additionally, three variables representing experiences of lifetime traumatic events that included interpersonal violence (‘physical assault’, ‘victim of a crime with the threat of force, sexual abuse or assault’ and ‘witness to someone being assaulted, abused or killed’) were recoded into a binary variable ‘interpersonal life trauma’.

In order to avoid bias due to low numbers of participants with a Doctor of Philosophy and Master Degrees as highest educational qualifications, the two variables were combined into one variable. Similarly, the groups ‘Diploma’ and ‘Certificate’ were collapsed into one variable. Intention to leave the profession variables ‘have you ever considered leaving the profession - yes, but without any specific time frame in mind’ and ‘have you ever considered leaving the profession - yes, I want to leave midwifery within the next 5 years’ were recoded into one variable ‘intention to leave the profession’.

## **Data Analysis**

### **Descriptive Statistics**

Total and subscale scores for all standardised measures were calculated. Tests of skewness and kurtosis were performed to assess assumptions of normality. Descriptive statistics were used to explore the mean score, standard deviation, and range of all continuous variables. Calculation of outcome measure scores was performed according to recommended PSS-SR, JCQ and IRI scoring guidelines. The reliability of each scale was calculated. Cronbach’s alpha values above .7 were deemed acceptable. Where continuous measures were skewed and relationships between variables were

non-linear, dichotomous variables were created to analyse associations.

### **Bivariate and Multivariate Associations**

Results are presented as mean, standard deviation, and range. Associations are expressed as odds ratios (ORs) with 95% confidence intervals (CI) in order to be able to quantify risk factors. Probability (p) of a Type 1 error was set at .05.

Bivariate associations between personal, professional, workplace and traumatic event-related factors and probable PTSD were analysed. Non-parametric tests of association were conducted where assumptions of normality were violated. Tests of associations used include Chi-Square analysis, Spearman's rho correlation, Mann-Whitney U test, Kruskal-Wallis test, One Sample t-test, Independent t-test, z-test and Mantel-Haenszel test. In order to understand complex interactions of probable PTSD with trauma type and decision authority, bivariate associations between trauma event features with a negative appraisal of the traumatic events and decision authority were analysed.

In order to develop a model of traumatic stress symptoms in midwives, a multivariable logistic regression analysis was conducted. Variables found to be associated with probable PTSD in bivariate analyses were entered in a logistic regression. Results are presented as adjusted odds ratios (ORs) with 95% confidence intervals (CI). Variables that emerged as significant contributors from the logistic regression analyses were further analysed.

### **Ethical Considerations**

Ethics approval was obtained. Voluntary participation, protection of privacy and possible harm caused by participating in the research were identified as possible ethical concerns.



**Ethics Approval**

Approval to conduct the study was given by the Griffith University Human Research Ethics Committee on the 26th February 2014 (Ref No: NRS/50/13/HREC).

**Voluntary Participation**

Completion of the survey was taken as implied consent. The 'Participant Information Statement' was displayed on the first screen. This included the identity of the researcher(s), contact details, the reason for conducting the survey, and how the data would be used. The consent procedure also included explaining to participants that they give consent for participation in the study by completing the online survey. Participants were informed that they could exit the survey at any point.

**Protection of Privacy**

One of the key ethical advantages to using online survey tools is that participants cannot be traced if IP numbers are not collected (The British Psychological Society, 2007). Therefore, to maintain anonymity and to protect the privacy of participants, the option to collect computer IP addresses was switched to 'No'. The researchers did not have access to participants' email addresses as the e-invite to the survey was distributed via the ACM who do not disclose their membership database. Electronic data was saved with password protection on the Griffith University server. Participant surveys were identified by a unique ID number. All data collected from participants was treated confidentially, only accessed by members of the research team and will be securely kept for a minimum of five years according to NHMRC guidelines (National Health and Medical Research Council, 2007).

**Possible Harm**

It is acknowledged that some questions may have prompted participants to reflect on their emotional well-being when caring for women. However, the targeted group

were registered midwives who voluntarily agreed to engage with the topic of traumatic workplace stress and are therefore not considered a vulnerable group. There is, however, potential for distress to be aroused because of reflecting and/or disclosing experiences of witnessing traumatic birth. The last screen of the questionnaire provided a referral pathway to professional counselling and included the advice to contact their General Practitioner or access Lifeline services by phone or the internet. Participants who felt the need to talk about the research and /or their experiences were invited to contact the research supervisors Professors Debra Creedy and Jenny Gamble for telephone support.

### **Summary**

In this chapter study design, participants and components of the survey instrument including standardised questionnaires, measures and questions developed for this study were presented. In addition data collection, coding, approach to analysis and ethical considerations were described. In the following chapter, the survey findings are presented.

## **Chapter 5**

### **Results**

#### **Introduction**

This chapter provides a description of the survey findings. In the first part the response rate and characteristics of the sample are described. Following this, findings on the prevalence of posttraumatic stress and probable PTSD are presented. Results in regards to risk and protective factors associated with posttraumatic stress in midwives following professional exposure to birth trauma are presented through a series of bivariate analyses. Finally, to test the developed model for posttraumatic stress in midwives, a regression analysis was conducted with variables found to be significantly associated with probable PTSD.

#### **Response to Survey**

An invitation to participate in the survey was sent to 4,578 members of the Australian College of Midwives (ACM). Of the surveys initiated online ( $n = 768$ ), 61 only completed the demographic information section and were thus discarded leaving 707 surveys included in the analyses (response rate = 15.4%). However, the additional use of Facebook for recruitment through professional networks makes the calculation of a response rate an approximation. The number of responses to each section of the survey declined as participants proceeded through the survey. Out of the 707 surveys included in the analyses 578 (81.8%) provided complete data.

#### **Personal and Professional Sample Characteristics**

In order to assess the representativeness of the sample, demographic and professional characteristics of the respondents were compared with available midwifery

workforce data from the Australian Institute of Health and Welfare (AIHW, 2014) (see Table 3).

Table 3

*Personal and Professional Sample Characteristics (n=707)*

Characteristics	Sample N= 707		National Midwifery Workforce
Mean (SD, range, 95% CI) age (years)	43.02 (10.82, 21-71, [42.28, 43.81])		48.1 *
Mean (SD, range, 95% CI) hours worked per week	30.81 (12.07, 0-80, [29.97, 31.69])		37.7 *
Main place of practice	n	%	%
• Hospital	578	81.7	68.5*
• Public	539	76.2	NA
• Private	39	5.5	NA
• Private midwifery practice	45	6.4	1.3*
• Birth centre	23	3.3	NA
• Education	20	2.8	2.8
• Private obstetric practice	5	0.7	1.0
• Other (including community practice, aboriginal health services, and outpatient clinics)	36	5.1	26.4
Attended a birth in the last 12 months	578	81.1	37.6*

NA = data not available, \* difference statistically significant (p<.05)

Mean years of registration was 14.18 (SD = 11.20, range = 1-44; 95% CI [13.40, 15.00]) for midwives in this sample. They attended a mean number of 7.14 births per month (SD = 8.28, range = 0-60; 95% CI [6.59, 7.77]). The majority had a Bachelor degree (n = 397, 56.5%), followed by a diploma/certificate (n = 136, 19.3%) and a Masters or PhD (n = 170, 24%).

Midwives in the current study sample were significantly younger and more likely to work in a hospital when compared to employed midwives in Australia (AIHW, 2014). In addition, the proportion of midwives who had attended a birth in the last 12 months in this sample was more than double compared with employed midwives in the national workforce. This may indicate that the study attracted the participation of midwives whose main area of midwifery practice was working with birthing women, whilst it may have been of lesser interest to midwives whose practice did not involve perinatal care, for example, those working exclusively in postnatal wards.

In addition, the proportion of self-employed respondents was five times higher in this sample than in the national midwifery workforce. This discrepancy may reflect recent reforms to maternity services in Australia that have enabled eligible midwives to work in private practice with fee rebates through Medicare and professional indemnity insurance since 2010 (Wilkes et al. 2015).

Almost half of the sample (n = 327, 47.2%) expressed an intention to leave the profession. More than one in 10 (n = 83, 11.7%) indicated that they intended to leave in the next five years.

### **Experiences of Traumatic Life Events**

The experience of a traumatic life event was common in this sample. Only a quarter of respondents did not recall any previous traumatic life events. More than one-fifth of respondents had had a traumatic experience when giving birth and more than

60% had experienced a form of interpersonal trauma (see Table 4).

Table 4

*Prevalence of Traumatic Life Events (n = 601)*

<b>Traumatic event</b>	<b>n</b>	<b>%</b>
No traumatic life events	142	23.6
Exposure to at least one traumatic life event	459	76.4
Serious accident with threat of death or injury	120	20.0
Sudden unexpected death of a family member/ loved one	254	42.3
Physical assault	119	19.8
Witness to someone being assaulted, abused or killed	126	21.0
Victim of crime with threat of force, sexual abuse or assault	124	20.6
Assaultive trauma combined	369	61.4
Personal traumatic experience when giving birth	130	21.6
Natural disaster	85	14.1
Other	54	9.0

### **Empathy**

Empathy was assessed using the IRI empathetic concern (EC) and the IRI personal distress (PD) subscales. The mean IRI empathic concern subscale score was 21.94 (SD = 4.06; range = 8-28). Empathic concern showed a weak negative association with length of registration. Respondents who had been registered for longer had lower mean IRI empathic concern scores ( $p = .024$ ). The mean IRI personal distress subscale score was 9.00 (SD = 4.43; range = 0-24). Personal distress showed a weak negative association with length of registration. Respondents who had been registered for longer had lower mean IRI personal distress scores ( $p < .001$ ).

**Workplace Decision Authority and Workplace Psychological Demand**

Workplace decision authority and workplace psychological demands were assessed using the Job Content Questionnaire (JCQ). The JCQ decision authority (DA) subscale had a mean score of 7.48 (SD = 2.12, range = 3-12). The mean JCQ psychological demands subscale score for this sample was 15.37 (SD = 2.48, range = 9-20).

**Prevalence of Posttraumatic Stress and Probable PTSD****Posttraumatic Stress**

The mean PSS-SR total score was 7.68 (SD = 8.29, range = 0-46; 95% CI [7.02, 8.34]). The mean PSS-SR re-experiencing subscale scores was 2.86 (SD = 2.77; 95% CI [2.64, 3.09]); the mean PSS-SR avoidance subscale score was 2.64 (SD = 3.62; 95% CI [2.36, 2.94]); the mean PSS-SR arousal subscale score was 2.18 (SD = 3.03; 95% CI [2.76, 3.30]).

**Probable PTSD**

Participants identified a single index traumatic birth event they had experienced or witnessed when providing care for a woman during labour and birth to serve as the basis of symptom inquiry. The rate of probable PTSD was 17% (n = 102, 95% CI [14.2, 20.0]).

**Sensitivity in Perinatal Care Scales (SPCS)****Frequencies SPCS**

The possible range of SPCS scores (after exclusion of subscale 2) was 8 to 40. The mean SPCS score in the current study was 33.00 (SD = 3.97, range = 8-40; 95% CI [32.70, 33.27]). Frequencies for individual items of the SPCS are described in Appendix

E. Midwives who were older and had been in practice for longer had higher levels of sensitivity than those who were younger and had not practised as long ( $p < .001$ ).

Respondents working in education and private midwifery practice had higher SPCS scores compared with respondents working in public and private hospitals, private obstetric practice or birthing centres ( $p = .02$ ). Highest educational qualification was not associated with SPCS scores ( $p = .07$ ).

Respondents who had thought about leaving midwifery, but without any specific timeframe in mind scored significantly lower on the SPCS than those who did not express an intention to leave the profession and those who intended to leave within the next five years ( $p = .031$ ). Midwives who had higher levels of decision authority (JCQ-DA) were more likely to have a higher score on the SPCS ( $p = .05$ ). Psychological demand (JCQ-PD) did not show any associations with the SPCS ( $p = .17$ ).

### **Associations Between Trauma Features and SPCS**

Using the mean score (33.0) as a cut-off, the SPCS scores were dichotomised into low and high sensitivity. Midwives with high levels of sensitivity were almost twice as likely to recall a traumatic birth event that included features of 'injury' (actual or threat of) ( $OR = 1.76$ ; 95% CI [1.26, 2.44]) and 1.5 times more likely to recall a traumatic birth event that included features of harmful acts (abusive care) ( $OR = 1.45$ , CI [1.06, 1.97]). Analysis of associations between other trauma features (death, poor care, and interpersonal disrespect) did not show any significant associations.

### **Associations Between Peritraumatic Distress and SPCS**

Respondents with high levels of sensitivity were almost twice as likely to recall an emotional reaction of horror when compared to midwives with 'low emotional sensitivity' ( $OR = 1.81$ ; 95% CI [1.25, 2.62]). Analysis of associations between other peritraumatic emotions (fear, helplessness, guilt, responsibility, anger, deep concern and



powerlessness) and low/high sensitive attunement during perinatal caregiving did not show any significant associations.

### **Traumatic Events in Perinatal Care List (TEPCL)**

#### **Prevalence of Professional Exposure to Birth Trauma Features**

Respondents indicated (yes/no) if they had ever been exposed to a traumatic event involving the five nominated features ('death', 'injury', 'abusive care', 'poor care' or 'interpersonal disrespect'); multiple nominations were possible. Participants who completed this section (n=687) all reported having been exposed to at least one of the nominated traumatic event features during their career (mean exposure to traumatic event features = 4.4, SD = 0.85, range = 1-5).

Exposure to traumatic events involving death (actual or threat of) had been experienced by 76.7% (n = 527) of respondents and 93.3% (n = 641) reported exposure to traumatic events including injury (actual or threat of). Exposure to trauma events including harmful acts (abusive care) was recalled by 83.6% (n = 574), exposure to events including poor care by 96.2% (n = 661) and exposure to events characterised by interpersonal disrespect was recalled by 92.1% (n = 633) of midwives.

#### **Features of Index Traumatic Birth Event**

Participants also nominated a single index traumatic birth event and if their recalled traumatic birth event had features of death, injury, harmful acts, poor care or interpersonal disrespect. Respondents could enter free text into a section labelled 'other'. Multiple nominations of trauma features were possible.

Respondents recalled a mean of two (SD = 1.3, range = 0-5) traumatic event features associated with the traumatic event. The majority of respondents (n = 378, 55.0%) recalled one event feature, 88 (12.8%) respondents recalled two event features, 101 (14.7%) recalled three features, 72 (10.5%) recalled four features and 41

(6.0%) recalled six event features. Seven respondents (1%) did not recall any event features.

The index traumatic events selected by respondents fell into the categories of death ( $n = 269$ , 39.6%), injury ( $n = 226$ , 33.2%), poor care ( $n = 336$ , 49.4%), harmful acts ( $n = 267$ , 39.3%) and interpersonal disrespect ( $n = 252$ , 37.1%). Only three respondents (0.4%) described additional traumas in free text ('5 litre PPH', 'dystocia FUID' and 'previous sexual abuse and woman's subsequent birth').

### **Interpersonal and Noninterpersonal Features of Index Birth Trauma Event**

The majority of respondents ( $n = 462$ , 67.2%) recalled that their index traumatic event involved at least one care-related interpersonal event feature (harmful acts, poor care, and interpersonal disrespect) and more than one-third recalled an event consisting of interpersonal trauma features only ( $n = 260$ , 37.9%). An event consisting of at least one noninterpersonal feature (death or injury) was recalled by 420 (61.1%) respondents and 218 (31.7%) recalled an event consisting of noninterpersonal features exclusively. An event that involved both, interpersonal and noninterpersonal trauma features was recalled by 209 (30.4%) respondents.

### **Associations between injury and death with interpersonal birth trauma.**

Index trauma events that included 'injury' were significantly more likely to also include interpersonal event features when compared to index trauma events that included 'death' ( $z = 8.28$ ,  $p < .001$ ). Out of 226 index trauma events including 'injury', 165 (73%, OR = 1.49, CI [1.05, 2.12]) also included one or more interpersonal features ('harmful acts', 'poor care' or 'disrespect'). Only 96 (35%, OR = 0.08, CI [0.05, 0.12]) of index traumatic events involving death ( $n = 269$ ) also involved one or more interpersonal trauma features.

### **Associations between index trauma event features and type of previous life**

**trauma.** Table 5 shows the likelihood to recall an index trauma event with specific characteristics in respondents who had experienced a specific type of prior trauma compared to respondents who had not experienced this type of prior trauma.

Odds ratios suggested that a previous experience of interpersonal trauma was associated with an increased likelihood of recalling of an index event with features of 'injury', 'harmful acts', 'poor care' and 'interpersonal disrespect' by the factor 0.5. Previous exposure to 'natural disaster' was associated with increased likelihood to recall an event involving death. A previous experience of trauma when giving birth to the respondent's own baby(ies) was associated with an increased likelihood to recall an index event that had features of 'injury'.

Table 5

*Associations Between Previous Life Trauma and Features of Index Birth Trauma Event (n=601)*

Traumatic life event	Recalled trauma event feature														
	Death			Injury			Harmful acts			Poor care		Interpersonal disrespect			
	Yes	No	OR, 95% CI	Yes	No	OR, 95% CI	Yes	No	OR, 95% CI	Yes	No	OR, 95% CI	Yes	No	OR, 95% CI
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Events including interpersonal violence	99 (39.9)	142 (40.2)	0.99 [0.71, 1.38]	94 (37.9)	95 (26.9)	<b>1.66</b> [1.17, 2.35]	111 (44.8)	121 (34.3)	<b>1.55</b> [1.11, 2.17]	134 (54.0)	154 (43.6)	<b>1.52</b> [1.10, 2.11]	105 (42.3)	114 (32.3)	<b>1.54</b> [1.10, 2.16]
Events not including interpersonal violence	176 (41.5)	74 (37.2)	1.20, [0.85, 1.70]	132 (32.8)	57 (28.6)	1.22 [0.84, 1.77]	154 (38.3)	78 (39.2)	0.96, [0.68, 1.37]	191 (47.5)	97 (48.7)	0.95 [0.68, 1.34]	147 (36.6)	72 (36.2)	1.02, [0.71, 1.45]
Serious accident with threat of death or injury	50 (41.7)	191 (39.7)	1.09 [0.72, 1.63]	46 (38.3)	143 (29.7)	1.47 [0.97, 2.23]	54 (45)	178 (37.0)	1.39 [0.93, 2.09]	67 (55.8)	221 (45.9)	1.49 [0.99, 2.22]	47 (39.2)	172 (35.8)	1.16 [0.77, 1.75]
Sudden unexpected death of a family member/loved one	109 (42.9)	132 (38.0)	1.22 [0.88, 1.70]	82 (32.3)	107 (30.8)	1.07 [0.76, 1.51]	100 (39.4)	132 (38.0)	1.06 [0.76, 1.47]	116 (45.7)	172 (49.6)	0.86 [0.62, 1.18]	85 (33.5)	134 (38.6)	0.80 [0.57, 1.12]
Physical assault	50 (42.0)	191 (39.6)	1.10 [0.74, 1.66]	54 (45.4)	135 (28.0)	<b>2.14</b> [1.41, 3.22]	55 (46.2)	177 (36.7)	1.48 [0.99, 2.22]	68 (57.1)	220 (45.6)	<b>1.59</b> [1.06, 2.38]	55 (46.2)	164 (34.0)	<b>1.67</b> [1.11, 2.50]

	Recalled trauma event feature														
	Death			Injury			Harmful acts			Poor care			Interpersonal disrespect		
Witness to someone being assaulted, abused or killed	52 (41.3)	189 (39.8)	1.06 [0.71, 1.59]	51 (40.5)	138 (29.1)	<b>1.66,</b> <b>[1.10, 2.50]</b>	63 (50.0)	169 (35.6)	<b>1.81,</b> <b>[1.22, 2.70]</b>	68 (54.0)	220 (46.3)	1.36 [0.92, 2.02]	60 (47.6)	159 (33.5)	<b>1.81,</b> <b>[1.21, 2.69]</b>
Natural disaster	45 (52.9)	196 (38.0)	<b>1.8</b> <b>[1.16, 2.91]</b>	22 (25.9)	167 (32.4)	0.73 [0.43, 1.13]	32 (37.6)	200 (38.8)	0.95, [0.59, 1.53]	36 (42.4)	252 (48.8)	0.77, [0.48, 1.22]	29 (34.1)	190 (36.8)	0.89, [0.55, 1.44]
Victim of crime with threat of force, sexual abuse or assault	52 (49.1)	189 (39.6)	1.10, [0.74, 1.64]	47 (37.9)	142 (29.8)	1.44 [0.95, 2.18]	56 (45.2)	176 (36.9)	1.41, [0.94, 2.10]	66 (53.2)	222 (46.5)	1.31, [0.88, 1.94]	46 (37.1)	173 (36.3)	1.04, [0.69, 1.56]
Personal traumatic experience when giving birth	56 (43.1)	185 (39.3)	1.17 [0.79, 1.73]	50 (38.5)	139 (29.5)	<b>1.50</b> <b>[1.00, 2.24]</b>	57 (43.8)	175 (37.2)	1.32 [0.90, 1.96]	62 (47.7)	226 (48.0)	0.99 [0.67, 1.46]	56 (43.1)	163 (34.6)	1.43 [0.96, 2.12]

### Associations between index trauma event features and JCQ-decision

**authority.** JCQ decision authority subscale scores were dichotomised into low and high decision authority using the mean score (7.5) as the cut-off. Table 6 shows the likelihood of recalling low decision authority at the time of the index trauma in respondents who recalled specific trauma features compared with respondents who did not recall these features.

Table 6

*Associations Between Index Trauma Features and Decision Authority (DA)(n =590)*

Index trauma feature	Low DA		High DA		OR (95% CI)
	n	(%)	n	(%)	
Death	84	(35.1)	155	(64.9)	0.39, [0.28, 0.55]
Injury	106	(56.7)	81	(43.3)	1.59, [1.12, 2.25]
Harmful acts	144	(63.4)	83	(36.6)	2.64, [1.87, 3.72]
Poor care	149	(53.2)	131	(46.8)	1.40, [1.01, 1.94]
Interpersonal disrespect	125	(58.1)	90	(41.9)	1.80, [1.29, 2.54]

Respondents who recalled an index birth trauma event including death were more likely to recall high decision authority at the time of the traumatic event. Respondents who recalled an index trauma event that included injury, harmful acts, poor care and interpersonal disrespect were more likely to recall low decision authority at the time of the traumatic event. Overall respondents who recalled an index trauma that included care-related interpersonal trauma features were 2.5 times more likely to recall low decision authority compared to respondents who recalled an index trauma without care related, interpersonal trauma features (OR = 2.45, 95% CI [1.72, 3.49]).

### **Peritraumatic Distress**

Respondents were asked about the presence of reactions and feelings during their index traumatic event (yes/no). A peritraumatic reaction of fear or horror or helplessness was recalled by the majority of respondents (n=657, 96.2%). Helplessness (n = 625, 91.5%) and horror (n = 511, 74.8%) were the most frequently reported peritraumatic reactions. Half of the respondents (n = 349, 51.1%) recalled an immediate post-trauma exposure reaction of fear and more than a third (n = 267, 39.1%) recalled all three reactions.

In addition, a majority of respondents recalled deep concern (n=664, 97.2%), anger (n = 575, 84.2%) and powerlessness (n = 560, 82%). More than two thirds of respondents (n = 446, 65.3%) recalled feeling guilty about what happened to the woman and almost half (n = 319, 46.7%) felt responsible for the traumatic event they were witnessing.

### **Association between Peritraumatic Stress and Features of the Index Traumatic Event**

Table 7 shows the likelihood of peritraumatic stress reactions during the index trauma event in those who recalled care-related interpersonal trauma features compared to those who did not. In addition, peritraumatic stress reactions in those who recalled noninterpersonal trauma features with those who did not are compared. Odds ratios suggest emotional distress during the index trauma event was associated with noninterpersonal event features ('injury' and 'death') and with care-related interpersonal trauma features ('harmful acts', 'poor care' and 'interpersonal disrespect').

Table 7

*Associations Between Peritraumatic Distress and (Non-) Interpersonal Index Trauma Event Features (n = 682)*

Features of index trauma	Horror	Fear	Helplessness	Deep concern	Anger	Powerlessness	Guilt	Responsibility
	n	n	n	n	n	n	n	n
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Index trauma included noninterpersonal features	295 (70.2)	255 (60.7)	383 (91.2)	411 (97.9)	321 (76.4)	323 (76.9)	271 (64.5)	190 (45.2)
Index trauma did not include noninterpersonal features	215 (82.1)	93 (35.5)	241 (92.0)	253 (96.2)	254 (96.6)	236 (90.1)	174 (66.4)	129 (49.2)
OR,	0.52,	2.81	0.90	1.81	0.11	0.37	0.92	0.85
95% CI	<b>[0.35,0.75]</b>	<b>[2.04,3.87]</b>	[0.52,1.58]	[0.72, 4.50]	<b>[0.06, 0.23]</b>	<b>[0.23, 0.58]</b>	[0.67,1.27]	[0.62,1.16]
Index trauma event included interpersonal features	385 (83.5)	207 (44.9)	427 (92.6)	449 (97.2)	446 (96.5)	419 (90.9)	323 (70.1)	240 (52.1)
Index trauma event did not include interpersonal features	125 (56.6)	141 (63.8)	197 (89.1)	215 (97.3)	129 (58.4)	140 (63.3)	122 (55.2)	79 (35.7)
OR,	3.89	0.46	1.53	0.96	19.880	5.77	1.90	1.95
95% CI	<b>[2.71,5.59]</b>	<b>[0.33,0.64]</b>	[0.88, 2.65]	[0.36, 2.57]	<b>[11.28,35.01]</b>	<b>[3.80, 8.76]</b>	<b>[1.36, 2.65]</b>	<b>[1.40, 2.72]</b>



Respondents who recalled traumatic birth events that included care-related interpersonal trauma features, compared to respondents who did not, were less likely to recall feeling fear. However, they were much more likely to recall other forms of peritraumatic distress, including being about 20 times more likely to recall feeling anger, six times more likely to recall feeling powerless, four times more likely to recall a reaction of horror and twice as likely to feel guilty or responsible for what happened to the woman.

However, when the index birth trauma event in addition to care-related interpersonal features also included noninterpersonal features, participants were less likely to feel anger and powerlessness. Compared with respondents who did recall an index event with noninterpersonal and interpersonal trauma features, respondents who recalled an index event with only noninterpersonal trauma features had an increased likelihood of experiencing fear during the trauma exposure.

#### **Association between Peritraumatic Distress and JCQ-Decision Authority**

Table 8 shows the likelihood of recalling low decision-making power at the time of the traumatic event in respondents who recalled a peritraumatic emotion compared with respondents who did not. When compared with respondents who did not experience these emotions, respondents who experienced peritraumatic powerlessness, anger, horror and guilt were significantly more likely to recall working in a clinical environment in which they had low levels of decision-making authority at the time of the index trauma event.

Table 8

*Associations Between Decision Authority (DA) and Peritraumatic Stress (n = 590)*

	<b>Low DA</b>	<b>High DA</b>	<b>OR, 95% CI</b>
<b>Peritraumatic stress reaction</b>	n (%)	n (%)	
Fear	152 (52.8)	149 (49.3)	1.15, [0.83, 1.59]
Horror	242 (84.0)	200 (66.2)	2.68, <b>[1.81, 4.00]</b>
Helplessness	271 (94.1)	266 (88.1)	2.16, <b>[1.18, 3.94]</b>
Deep concern	279 (96.9)	295 (97.7)	0.74, [0.27, 2.00]
Anger	266 (92.4)	233 (77.2)	3.58, <b>[2.15, 5.97]</b>
Powerlessness	260 (90.3)	220 (72.8)	3.46, <b>[2.17, 5.51]</b>
Guilt	203 (70.5)	180 (59.6)	1.62, <b>[1.15, 2.28]</b>
Responsibility	145 (50.3)	132 (43.7)	1.31, [0.94, 1.80]

### **Risk Factors for Posttraumatic Stress**

#### **Univariate Associations Between Personal Variables and Probable PTSD**

**Previous life trauma and probable PTSD.** Table 9 shows the risk for probable PTSD in those who had experienced a previous traumatic life event compared to the risk of probable PTSD in those who had not.

Table 9

*Associations Between Previous Traumatic Life Events and Probable PTSD (n = 601)*

Traumatic event	Probable PTSD		
	Traumatic event Yes	Traumatic event No	OR, (95%) CI
	n (%)	n (%)	
One or more traumatic life event(s)	85 (18.5)	17 (12.1)	1.64, [0.94, 2.88]
Events including Interpersonal violence	57 (23.0)	45 (12.8)	2.03, <b>[1.32, 3.12]</b>
Events not including interpersonal violence	40 (14.1)	62 (19.7)	0.67, [0.43, 1.03]
Serious accident with threat of death or injury	24 (20.0)	78 (16.3)	1.29, [0.77, 2.14]
Sudden unexpected death of a family member /loved one	35 (13.8)	67 (19.4)	0.66, [0.43, 1.04]
Physical assault	26 (21.8)	76 (15.8)	1.49, [0.90, 2.45]
Witness to someone being assaulted, abused or killed	31 (24.6)	71 (15.0)	1.85, <b>[1.15, 2.98]</b>
Natural disaster	12 (14.1)	90 (17.5)	0.77, [0.40, 1.59]
Victim of crime with threat of force, sexual abuse or assault	29 (23.4)	73 (15.4)	1.68, <b>[1.04, 2.73]</b>
Personal traumatic experience when giving birth	31 (23.8)	71 (15.1)	1.76, <b>[1.09, 2.83]</b>
Other	8 (14.8)	94 (17.3)	0.83, [0.38, 1.82]

Odds ratios in the above table suggest having experienced interpersonal life trauma doubled respondents' likelihood for probable PTSD. A personal traumatic experience when giving birth also increased respondents' risk of probable PTSD.

**Empathy and probable PTSD.** Respondents with probable PTSD had significantly higher mean IRI empathic concern scores ( $p < .001$ ) and significantly higher mean IRI personal distress scores ( $p < .001$ ).

**Age and probable PTSD.** There was no significant difference in age between respondents with and those without probable PTSD ( $p = .77$ ).

#### **Univariate Associations Between Trauma Event-Related Variables and Probable PTSD**

**Index trauma event features and probable PTSD.** Probable PTSD was not significantly associated with any feature of the index traumatic event. The relationship between harmful acts and probable PTSD approached significance (OR = 1.51, 95% CI [0.99, 2.32]). Similarly, the relationship between injury and probable PTSD was close to reaching significance (OR = 1.52, 95% CI [0.98, 2.37]).

**Index trauma event features and PTS.** Significant associations were found between PTS (PSS-SR total score and PSS-SR symptom clusters) and index trauma event features. Respondents who recalled an index trauma event that included 'harmful acts' had a significantly higher PSS-SR total score ( $p = .02$ ) and significantly more avoidance ( $p = .03$ ) and arousal ( $p = .03$ ) symptoms compared with those who did not recall that their event included 'harmful acts'.

Respondents who recalled 'injury' had significantly higher total PSS-SR scores ( $p = .01$ ) and showed significantly more re-experiencing ( $p < .001$ ) and arousal symptoms ( $p < .001$ ) when compared to respondents who did not recall 'injury'. Event features 'death', 'poor care' and 'interpersonal disrespect' were not significantly associated with PSS-SR total scores or any of the three PSS-SR symptom clusters.

**Number of index trauma event features and probable PTSD.** To identify if recall of a higher number of trauma features was associated with more trauma symptoms, associations between the number of recalled trauma features and probable PTSD were investigated but did not show any statistically significant association (see Table 10).

Table 10

*Associations Among Number of Index Trauma Event Features and Probable PTSD (n = 144)*

Number of recalled features	Probable PTSD		OR, 95% CI
	Yes n (%)	No n (%)	
More than one	51 (19.1)	51 (14.9)	1.42, [0.93, 2.18]
More than two	38 (20.8)	64 (15.4)	1.44, [0.92, 2.25]
More than three	21 (21.9)	81 (16.1)	1.46, [0.85, 2.50]
More than four	7 (20.6)	95 (16.8)	1.28, [0.54, 3.03]

**Peritraumatic stress and probable PTSD.** Table 11 shows the risk for probable PTSD in respondents who recalled a peritraumatic stress reaction compared to the risk in respondents who did not recall this reaction.

Table 11

*Association Between Peritraumatic Stress and Probable PTSD (n = 599)*

	Prevalence of probable PTSD				
Peritraumatic stress reaction	Reaction Yes		Reaction No		OR, (95%) CI
	n	(%)	n	(%)	
Fear	68	(22.3)	34	(11.6)	<b>2.19, [1.40, 3.43]</b>
Horror	93	(20.6)	9	(6.1)	<b>4.01, [1.97, 8.17]</b>
Helplessness	98	(18.0)	4	(7.4)	2.74, [0.97, 7.77]
Deep concern	99	(17.0)	3	(17.6)	0.96, [0.27, 3.39]
Anger	92	(18.1)	10	(11.0)	1.79, [0.89, 3.59]
Powerlessness	90	(18.4)	12	(10.8)	1.87, [0.98, 3.54]
Guilt	84	(21.6)	18	(8.5)	<b>2.98, [1.73, 5.08]</b>
Responsibility	62	(22.2)	40	(12.5)	<b>2.00, [1.29, 3.09]</b>

Emotional reactions during the index trauma event were significantly associated with probable PTSD. Compared with respondents who did not recall a reaction of horror, those who did were four times more likely to meet criteria for probable PTSD. Compared with respondents who did not recall feeling guilt, those who did were three times more likely to meet criteria for probable PTSD.

#### **Univariate Associations Between Work-Related Variables and Probable PTSD**

##### **Workplace decision authority/psychological demand and probable PTSD.**

Respondents with probable PTSD had significantly lower mean JCQ decision authority scores than respondents without PTSD ( $p=.035$ ) and respondents with 'low decision authority' at the time of the traumatic event had 1.56 (95% CI [1.01, 2.41] increased odds of developing probable PTSD compared to respondents with 'high decision

authority’.

Respondents with probable PTSD had significantly higher mean JCQ psychological demand scores than respondents without PTSD ( $p < .001$ ).

**Professional characteristics and probable PTSD.** There was no significant difference in mean length of registration between respondents with probable PTSD compared with respondents who did not meet criteria for probable PTSD ( $p = .259$ ). Similarly, respondents primary place of work ( $p = .239$ ) highest educational qualification ( $p = .539$ ) and the number of births they attended per month ( $p = .357$ ) was not associated with probable PTSD. However, respondents who worked more hours per week had a higher likelihood for probable PTSD ( $p = 0.04$ ). Intention to leave the profession had the strongest association with probable PTSD (OR = 3.7, 95% CI [2.30, 5.88]). Respondents who indicated an intention to leave the profession had significantly higher mean JCQ psychological demands scores ( $p < .001$ ) and significantly lower JCQ decision authority scores ( $p = .02$ ) than respondents with no intention to leave the profession.

**Sensitivity in perinatal care and probable PTSD.** There were no differences in mean Sensitivity in Perinatal Care Scales (SPCS) scores between respondents with and those without probable PTSD ( $p = .27$ ). Positive associations between PSS-SR total and subscales with SPCS scores were weak but significant for PSS-SR total score ( $p = .03$ ), PSS-SR re-experiencing ( $p = .02$ ) and PSS-SR arousal ( $p = .01$ ). PSS-SR avoidance was not correlated with the SPCS ( $p = 1.00$ ).

### **Summary of Significant Univariate Associations with Probable PTSD**

Significant associations between independent variables ( $n = 14$ ) with probable PTSD are presented in Table 12. A summary of significant and non-significant associations with probable PTSD is presented in Appendix F.

Table 12

*Statistically Significant Univariate Associations with Probable PTSD*

Outcome	Group							t	df	p-value
	Probable PTSD			No Probable PTSD						
	Mean	SD	n	Mean	SD	n	95% CI for Mean Difference			
Hours worked per week	33.02	12.38	102	30.38	11.63	497	[0.13, 5.15]	2.07	597	.04
IRI-empathic concern	23.11	3.66	98	21.70	4.10	480	[0.53, 2.29]	3.16	576	< .01
IRI personal distress	10.64	4.38	98	8.67	4.37	480	[1.02, 2.93]	4.07	576	<.001
JCQ-decision authority	7.07	2.12	100	7.56	2.11	490	[-0.95, -0.04]	-2.12	588	.035
JCQ-psychological demand	16.19	2.22	100	15.20	2.50	490	[0.46, 1.52]	3.67	588	<.001
n (%)			n (%)			OR , 95% CI				
Peritraumatic fear	68 (66.7)			237 (47.7)			2.19, [1.40, 3.43]	*	*	<.001
Peritraumatic horror	93 (91.2)			358 (72.0)			4.01, [1.97, 8.17]	*	*	<.001
Peritraumatic responsibility	62 (60.8)			217 (43.7)			2.00, [1.29, 3.09]	*	*	.002
Peritraumatic guilt	84 (82.4)			304 (61.2)			2.96, [1.73, 5.08]	*	*	<.001



Outcome	Group		t	df	p-value
	n (%)	n (%)	OR , 95% CI		
Experience of interpersonal traumatic life event(s)	57 (55.9)	191 (38.4)	2.03, [1.32, 3.12]	*	*
Witness to someone being assaulted, abused or killed	31 (30.4)	95 (19.1)	1.85, [1.15, 2.98]	*	*
Victim of crime with threat of force, sexual abuse or assault	29 (28.4)	95 (19.1)	1.68, [1.04, 2.73]	*	*
Personal traumatic experience when giving birth	31 (30.4)	99 (19.9)	1.76, [1.09, 2.83]	*	*

\* does not apply

### **Proposed Model for Posttraumatic Stress in Midwives**

Multivariate logistic regression was performed to identify variables that predict probable PTSD in midwives. In this model the dichotomous PTSD variable (probable PTSD versus no probable PTSD) functioned as the dependent variable. Thirteen variables significantly associated with probable PTSD were entered in the model (see Table 13).

The full model containing all predictors was statistically significant,  $\chi^2(13, N = 578) = 105.136, p < 0.001$ , indicating that the model was able to distinguish between respondents who had probable PTSD and those who did not. The model as a whole explained between 13.5% (Cox and Snell R square) and 22.6 (Nagelkerke R square) of the variance in PTSD symptoms, and correctly classified 84.1% of cases.

Factors associated with probable PTSD in multivariate analyses are presented in Table 13. Six variables made a statistically significant contribution to the model. Odds ratios indicated that a peritraumatic reaction of horror, peritraumatic feelings of guilt, and a personal traumatic experience when giving birth were the strongest predictors of probable PTSD.

Table 13

*Factors Associated with Probable PTSD in Multivariate Analyses*

Variable	AOR	95% CI	p
Hours worked per week	<b>1.03</b>	<b>[1.01, 1.05]</b>	<b>&lt;.01</b>
Peritraumatic fear	1.53	[0.92, 2.54]	.10
Peritraumatic horror	<b>2.57</b>	<b>[1.20, 5.51]</b>	<b>.02</b>
Peritraumatic responsibility	1.10	[0.65, 1.86]	.71
Peritraumatic guilt	<b>2.14</b>	<b>[1.12, 4.08]</b>	<b>.02</b>
JCQ-decision authority	1.00	[0.92, 1.01]	.87
JCQ-psychological demand	<b>1.05</b>	<b>[1.00, 1.10]</b>	<b>.03</b>
One or more interpersonal traumatic life events	1.42	[0.68, 2.94]	.35
Victim of crime with threat of force, sexual abuse or assault	1.49	[0.76, 2.94]	.25
Witness to someone being assaulted, abused or killed	1.00	[0.51, 1.97]	1.00
Personal traumatic experience when giving birth	<b>2.12</b>	<b>[1.24, 3.64]</b>	<b>&lt;.01</b>
IRI-empathic concern	1.07	[1.00, 1.14]	.06
IRI personal distress	<b>1.14</b>	<b>[1.07, 1.20]</b>	<b>&lt;.001</b>

### Summary

Prevalence of probable PTSD in the current sample was 17%. The Sensitivity in Perinatal Care Scale (SPCS) was able to assess aspects of the quality of midwives' relationships with women in their care. The Traumatic Events in Perinatal Care List (TEPCL) was a useful tool to elucidate different types of trauma exposure in midwives.

A peritraumatic reaction of horror, peritraumatic feelings of guilt and a personal history of trauma when giving birth were identified as main predictors for probable PTSD among midwives in multivariate analysis. The recall of care-related interpersonal

trauma features was associated with a peritraumatic reaction of horror and peritraumatic feelings of guilt. Peritraumatic horror was associated with higher sensitivity in perinatal caregiving. Peritraumatic guilt was associated with lower decision authority.

## **Chapter 6**

### **Discussion**

#### **Introduction**

This study is the first of its kind in Australia to collect comprehensive data about prevalence and risk factors for probable PTSD following professional exposure to traumatic birth events among midwives. The sample was broadly representative of employed midwives in Australia, large enough to provide statistical rigour and included data from midwives working in diverse settings. Analysis of results provided information about the prevalence of posttraumatic stress among midwives registered in Australia. Using a socioecological framework, personal, event-related and professional factors were found to be associated with the development of posttraumatic stress following professional exposure to a traumatic birth event. In this chapter, the main findings of the study are discussed.

#### **Prevalence of Probable PTSD**

The analysis of results showed that 17% of midwives fulfilled criteria for probable PTSD. This prevalence estimate is lower than the 33% established by Sheen et al. (2015) in UK midwives and lower than the 36% PTSD prevalence established in US nurse-midwives by Beck et al. (2015). Differences in the assessment of PTSD following professional exposure to birth trauma might explain these discrepancies.

The current study applied a cautious approach to determine probable PTSD. To ensure a conservative estimate of symptom burden, probable PTSD was determined by using a validated PSS-SR cut-off score in addition to assessing DSM-IV Criterion B, C and D symptoms. A conservative approach to measurement was deemed prudent given

the controversial nature of the disorder in maternity professionals following exposure to traumatic birth events.

Sheen et al. (2015) used the Impact of Event Scale (IES) which establishes PTSD through a recommended cut-off score. The IES, however, has lower specificity (.77) (Rash, Coffey, Baschnagel, Drobles, & Saladin, 2008) than the PSS-SR (.84) (Sin, Abidin, & Lee, 2012) and is, therefore, more likely to lead to an overestimation of PTSD symptoms.

Beck et al. (2015) identified PTSD by applying an algorithmic scoring method on the Secondary Traumatic stress Scale (STSS). This is problematic because the STSS was designed to assess the impact of indirect exposure to traumatic stress in social workers after listening to the traumatic accounts of their clients (Bride, Robinson, Yegidis, & Figley, 2004) and therefore, it has only been validated to determine secondary traumatic stress (Bride et al., 2004). It is unclear if assessing PTSD with the STSS is likely to result in lower specificity and thus overestimate the posttraumatic stress burden. This might explain why Beck et al. (2015) identified a prevalence (36%) which is more than double the prevalence estimate identified in the current study.

### **Acknowledging Exposure to Birth Trauma as Occupational Hazard**

The finding that 17% of midwives met criteria for probable PTSD has implications for midwives, midwifery practice, and maternity services. Posttraumatic stress following professional exposure to traumatic events appears to be common in midwives and should, therefore, be acknowledged as a form of occupational stress. Professional trauma exposure has already been identified as a workplace hazard in other professions including ambulance and intensive care unit personnel (McFarlane & Bryant, 2007; Skogstad et al., 2013). Apart from its immediate symptomology, posttraumatic stress leads to significant impairment in functioning across a variety of

domains and contributes to decrements in quality of life (Westphal et al., 2011).

Research has identified associations between PTSD and long-term physical morbidity in the form of chronic musculoskeletal pain, hypertension, hyperlipidaemia, obesity and cardiovascular disease (McFarlane, 2010). In addition to the cost of these symptoms to individuals, associations between probable PTSD and intention to leave the profession in midwives in the current study suggest that traumatic stress may also affect recruitment and retention of midwives. Overall the high prevalence of trauma symptoms in the current study indicates that traumatic stress due to professional exposure to birth trauma may contribute to considerable suffering by midwives and affect their personal and professional lives.

For midwifery practice, PTSD symptoms such as emotional avoidance and withdrawal from relationships have particular salience. Emotional dysfunction, which is acknowledged as a PTSD symptom in the DSM 5, has been found to reduce capacity to discern facial expressions and associated feelings and emotions accurately (Eichhorn, Brahler, Franz, Friedrich, & Glaesmer, 2014). Accurate interpretation of emotional states and intentions of others, as well as the capacity to express personal emotions, are essential for effective social interactions and the provision of empathic care (Poljac, Montagne, & de Haan, 2011; Yu & Kirk, 2008). Empathic, sensitive and responsive care are essential features of midwifery care that enable midwives to build supportive relationships with women (Lundgren & Berg, 2007). Importantly, insensitive perinatal caregiving by clinicians has been identified as a risk factor for the development of PTSD in childbearing women (Creedy & Gamble, 2007; Ford & Ayers, 2011). The possibility that PTSD symptoms may affect empathy and responsiveness in caregiving during labour and birth make traumatic stress a particularly pressing problem because involvement with, and connection to, women is vital for high-quality midwifery care

(Hunter, 2010; Hunter, Berg, Lundgren, Ólafsdóttir, & Kirkham, 2008).

### **Traumatic Events in Perinatal Care List (TEPCL)**

This study aimed to investigate whether exposure to certain traumatic birth events was associated with an increased likelihood of posttraumatic stress in midwives. In order to identify different types of birth trauma, the Traumatic Events in Perinatal Care List (TEPCL) was developed for this study. The TEPCL described different features of birth trauma and differentiated between noninterpersonal and care-related interpersonal traumatic events in maternity care. Development of trauma categories in which features of birth trauma events are described was informed by the literature on trauma types and feedback from practising midwives.

The majority of midwives in the current study (67%) chose an index trauma event that included care-related interpersonal trauma. This suggests that exposure to care-related interpersonal birth trauma is critical for posttraumatic stress in midwives. Findings of the current study also show that noninterpersonal and care-related interpersonal birth trauma can occur concurrently.

### **Associations Between Trauma Features and Posttraumatic Stress**

In the current study recall of an index traumatic birth event that included 'harmful acts' (abusive care) was associated with higher levels of posttraumatic stress in midwives. The second feature associated with increased posttraumatic stress in midwives was 'injury'. 'Injury', was originally conceptualised as a noninterpersonal, non-care-related trauma event feature. However, analyses identified associations between index trauma events that included 'injury' with concurrent care-related interpersonal trauma features. In addition, an index trauma event including injury was associated with previous interpersonal traumatic life experiences. This suggests that 'injury' may actually represent care-related



interpersonal trauma. These findings are of significance as it indicates that midwives, similar to childbearing women, may be particularly vulnerable to care-related interpersonal birth trauma.

Disrespect and abusive treatment of women during labour and birth has been described by other researchers investigating PTSD following childbirth (Elmir et al., 2010; Harris & Ayers, 2012) and in research on midwives experiences of witnessing birth trauma (Beck, LoGiudice, & Gable, 2015; Rice & Warland, 2013). However, investigations of posttraumatic stress among maternity professionals have not considered different types of birth trauma (Sheen et al., 2015; Beck et al., 2015) and, for the most part, focused on trauma related to obstetric emergencies (Goldbort et al., 2011; Beck et al., 2015). This is surprising as obstetric events that involve actual or threat of severe injury or death are rare in developed countries. Only around 1% of births in the UK involve life-threatening complications to the mother (Waterstone, Bewley, & Wolfe, 2001) and 0.8% result in stillbirth or perinatal death (Bowyer, 2008).

### **Sensitivity in Perinatal Care Scale**

This study aimed to investigate whether midwives who are particularly sensitive and engaged in emotionally connected relationships with women in their care are of elevated risk of symptoms of traumatic stress. It was theorised that midwives who maintain emotionally connected relationships with women display an increased level of sensitivity towards women's needs during labour and birth.

The review of the literature did not yield a suitable measure of perinatal caregiver sensitivity. Therefore, the Sensitivity in Perinatal Care Scale (SPCS) was developed for the current study. It was found to be a reliable and theoretically coherent measure of emotionally responsive caregiving in midwives. SPCS scores had a good spread with some participants showing low, some medium and some high scores.

However, the scores were truncated at the upper end and, therefore, the SPCS did not discriminate well amongst high scores. Adding additional questions should be considered to improve discrimination amongst high scores. Respondents with high levels of sensitivity in caregiving also had high levels of empathic concern which gives early evidence of the concurrent validity of the SPCS.

Some items for the SPCS were adapted from the Maternal Infant Responsiveness Instrument (MIRI), a measure of maternal caregiving based on attachment theory (Drake, Humenick, Amankwaa, Younger, & Roux, 2007). Adult attachment style influences a person's capacity to relate to others. The usefulness of attachment theory for building supportive patient-client relationships had first been established in psychotherapy (Holmes, 2014; Soderberg, Elfors, Larsson, Falkenstrom, & Holmqvist, 2014) and is now also considered in nursing (Nicholls, Hulbert-Williams, & Bramwell, 2014). In the context of labour and birth, attachment theory has been given recent attention. Findings indicate that adult attachment style appears to influence women's perceptions of pain in labour (Quinn, Spiby, & Slade, 2015) and the development of postpartum PTSD (Ayers, Jessop, Pike, Parfitt, & Ford, 2014; Quinn et al., 2015). Unlike the client-practitioner relationship in nursing or psychotherapy, in maternity care, the relationship between caregiver and woman has not been conceptualised as an attachment relationship. However, as midwives endeavour to provide care in relational models (Leap, Sandall, Buckland, & Huber, 2010; Noseworthy, Phibbs, & Benn, 2012; Thachuk, 2007), key concepts of attachment theory are considered applicable to the midwife-woman relationship. For example, midwives provide nurturing care to ease new mothers' transition into motherhood, also referred to as 'matrescence' (Pembroke & Pembroke, 2008; Walsh, 2006).

Attachment theory also suggests that responsiveness is an essential element of

such relationships (Bowlby, 1969). Responsiveness and sensitivity to essential needs of child-bearing women are also central to the midwife-woman relationship (Lundgren & Berg, 2007). Attachment theory points to the importance of the presence, availability and responsiveness of the caregiver to elicit feelings of safety in the child (Bowlby, 1969). In midwifery, responsiveness, availability, and presence are key qualities of emotional sensitive caregiving that help midwives to serve as a secure base or an ‘anchored companion’ (Lundgren & Dahlberg, 2002) to women during labour and birth. Women gain security to explore the unknown terrain of pregnancy, birth, breastfeeding and mothering from a midwife who is attentive, empathic, and reliable. These qualities also encourage the woman and promote her autonomy in the process. During labour and birth, women experience a feeling of safety when midwives respond promptly to their physical and emotional needs, not unlike children who receive responsive care from their primary caregiver.

Attachment theory emphasises the importance of the dyadic relationship between caregiver and recipient of care. The SPCS, however, only assesses the ‘caregiver’ part of this dyad. Future validation studies should assess how women experience sensitive and responsive caregiving in labour and birth.

### **Associations Between SPCS Scores and Professional Variables**

Midwives who had been in the profession for longer reported higher sensitive attunement with women during perinatal caregiving. This could be interpreted in two ways. Midwives’ capacity for sensitive attunement with a woman might be a professional skill that develops over time and increases with experience. This would be in accordance with the archetypal image of the midwife as an experienced older woman (Hulubaş, 2011). However, younger midwives are clearly capable of providing this kind of care because women describe satisfaction with the quality of care they receive

from younger midwives (Garratt & Kirkham, 2011). A more likely explanation is offered when workplace decision-making authority is also considered. In this current study, midwives who had greater workplace decision authority also had more experience and showed more sensitive attunement. Experienced midwives may have more seniority and be able to exercise more decision authority. Exerting influence on birth management and perinatal care decisions may allow midwives to be autonomous and less constrained in their responses to women's needs, and thus deliver more sensitive care during labour and birth.

### **Associations Between SPCS Scores and Posttraumatic Stress**

High sensitive attunement during perinatal caregiving was associated with increased posttraumatic stress symptoms, in particular, re-experiencing and hyperarousal, in midwives. In addition, high levels of sensitive attunement (1) almost doubled midwives' likelihood of a reaction of horror and (2) were associated with recalling traumatic events involving abusive care. Respondents who recalled witnessing a traumatic event that featured abusive care were almost five times more likely to have a reaction of horror to the event. These associations indicate that high sensitive attunement with women during perinatal caregiving may increase midwives' vulnerability to posttraumatic stress following professional exposure to birth trauma. In particular, high levels of sensitive attunement may predispose midwives to be sensitive to witnessing trauma caused by abusive care, fostering a reaction of horror. This suggests that in midwives, sensitive attunement with women during labour and birth may constitute a risk factor for posttraumatic stress.

This finding is of importance for midwifery practice. Awareness that close emotional engagement with women may increase their vulnerability to experience suffering when the birth is traumatic may contribute to reduced responsiveness and

empathy during perinatal caregiving. This may happen as a result of conscious decision-making or more likely in the form of a subconscious protective mechanism that reduces midwives' emotional connection with women in their care.

In nursing, limited genuine engagement with patients and focusing on the technical aspects of care has been identified as leading nurses to feel dehumanised and professionally impotent (Austin, Goble, Leier, & Byrne, 2009). For midwives, reduced emotional investment means withdrawal from supportive relationships with women. This may detract from the quality of care, contradict their professional ethos, and lead to feelings of impotence as a midwife. More research is needed to identify influences that may moderate the impact of traumatic stress on midwives' engagement in supportive relationships with women in their care. Future research could identify if the model of care in which midwives practice and their degree of decision authority influence the interplay between midwives' level of sensitive attunement and the development of posttraumatic stress. It might be possible that midwife-led models of care in which midwives have more autonomy over birth management allow for higher levels of sensitive attunement without increasing midwives' risk of posttraumatic stress.

### **Risk Factors for the Development of Posttraumatic Stress**

The logistic regression model distinguished between those who have probable PTSD and those who do not. The model as a whole explained between 13.5 and 22.6% of the variance in PTSD symptoms and correctly classified 84.1% of cases. This is a high level of sensitivity. The linear regression model to predict PTS symptoms in UK midwives developed by Sheen et al. (2014) explained only 6% of the variance in PTSD symptomology. The higher explanatory power of the current study compared to the model by Sheen et al. (2014) may be explained by the use of socioecological theory as a framework for the conceptualisation of risk factors. Socioecological theories are

characterised by a focus on the transactions between different levels that shape individual experiences (Bronfenbrenner & Morris, 2007). Similarly, these transactions may influence the development of trauma symptoms (Campbell et al., 2009; Charuvastra & Cloitre, 2008). Based on trauma theory and the review of the literature, the current results were based on the associations among personal, trauma event-related and professional factors. Sheen et al.'s (2015) study was limited to personal and professional factors.

There were three original findings from the multivariable analysis. The risk of probable PTSD was independently associated with (1) a peritraumatic reaction of horror, (2) peritraumatic feelings of guilt, and (3) a personal traumatic birth experience.

#### **A Peritraumatic Reaction of Horror**

Respondents who recalled reacting with horror to the traumatic event exposure were more than twice as likely to develop probable PTSD as respondents who did not. Horror is defined as an extremely strong feeling of fear and shock (Cambridge Dictionaries Online, 2015). This finding is consistent with other researchers who linked an intense emotional reaction to the trauma event with increased prevalence not only of PTSD, but also a range of other psychiatric conditions (Andersen, Melvaer, Videbech, Lamont, & Joergensen, 2012; Boals & Schuettler, 2009; Brewin, Andrews, & Rose, 2000a; Creamer et al., 2005), particularly in women (Olf et al., 2007; Valdez & Lilly, 2014). Findings from Ozer et al.'s (2003) meta-review on risk factors for PTSD suggested that self-reported peritraumatic responses might explain additional variability in PTSD symptoms over and above the objective trauma characteristics.

Creamer et al. (2005) suggested that memory of the traumatic event might mediate the relationship between strong emotional reactions and development of PTSD. Individuals who experience powerful emotional reactions at the time are more likely to

report distressing memories of the trauma, and those with distressing memories of the trauma are more likely to develop psychiatric symptoms.

Olf et al. (2005) proposed that appraisal reflects a person's subjective perception, interpretation, and evaluation of the traumatic event. Appraisal is thus considered as the crucial first step in the cascade of psychobiological responses that can eventually lead to pathological symptoms (Olf et al., 2005). A reaction of horror to the trauma indicates that the trauma is appraised as a personal threat (Olf et al., 2005). The current study identified associations of midwives' reactions of horror with care-related trauma, reduced decision authority and sensitive perinatal caregiving. Future research on the relationship between these variables may provide further insight into why midwives may perceive witnessing birth trauma as a personal threat.

**Horror and care-related interpersonal trauma.** Reactions of horror during or shortly after the trauma event exposure in the current study were more likely when the index trauma included care-related interpersonal trauma features. Respondents who recalled being exposed to abusive care and disrespectful treatment of women were almost four times more likely to recall a reaction of horror than their counterparts who did not. Physical or psychological violence in the context of labour and birth, also termed 'obstetric violence' (Pérez D'Gregorio, 2010), has been described in American and European maternity care settings (Birthrights, 2013; Goer, 2010; Hodges, 2009; McConville, 2014; Zidari & Skubic, 2015). In the Australian maternity care context, obstetric violence has been described in a qualitative exploration of midwives' experiences of witnessing trauma (Rice & Warland 2013).

The association of witnessing care-related interpersonal trauma with feelings of being horrified in the current study is consistent with findings from large epidemiologic studies. Breslau and Kessler (2001) as well as Creamer et al. (2005) identified that the

likelihood of a peritraumatic reaction of fear, horror or helplessness varied according to the nature of the trauma. Individuals who experienced interpersonal trauma including physical attack, rape or sexual molestation consistently had the highest odds of reacting with fear, horror or helplessness compared with individuals who experienced noninterpersonal trauma including natural disaster or a life-threatening accident (Breslau & Kessler, 2001; Creamer et al., 2005).

King, Gudanowski, and Vreven (1995) suggested that horror in response to a violation of basic norms of human conduct contributed to a higher vulnerability for PTSD when trauma events included interpersonal features. Charuvastra and Cloitre (2008) proposed that this may reflect the evolutionary significance of social bonding, whereby survival of the species has depended on the ability to form cooperative social networks based on trust and norms of behaviour. They suggest that exposure to interpersonal trauma including cruelty or betrayal may lead to a greater sense of threat. Interpersonal trauma represents not just the risk of physical injury but also the breakdown of social norms as well as the sense of safety associated with being a member of a rule-guided community (Charuvastra & Cloitre, 2008).

In midwifery and maternity services respectful and caring conduct towards childbearing women are basic norms in the provision of maternity care (White Ribbon Alliance For Safe Motherhood, 2012). Witnessing disrespectful treatment and/or abusive care of a woman with whom the midwife has developed a caring relationship, without acting, may be perceived as an act of transgression that exemplifies a breakdown of social norms that govern maternity care. Midwives may perceive that they are betraying the woman's trust by not intervening in care situations which have features of disrespect or are perceived as abusive.

In the current study, midwives with high levels of sensitive attunement were



almost twice as likely to recall a reaction of horror and 1.5 times more likely to recall features of abusive care and management when compared to midwives with low levels of sensitive attunement. This suggests that the closeness of the midwife's bond with the woman experiencing the trauma does influence the midwife's perceptions. Midwives who spend long hours in close connection with women in their care may develop a high degree of empathic identification with them (Leinweber & Rowe, 2010). When trauma occurs during labour or birth, midwives who identify with the women in their care may not only witness, but also to a certain extent experience the traumatic event. This is in line with Baxter's (2012) findings that obstetric nurses experience trauma when being involved in a traumatic birth. The possibility that professionally witnessed birth trauma may be experienced as a form of personal trauma would explain a reaction of horror which is ultimately a reaction to a threat to one's personal integrity (Olf et al., 2005).

It has been suggested that emotional reactions of professionals exposed to occupational trauma appear to be of limited value for predicting PTSD because professional training might prevent strong emotional reactions to the traumatic event (Friedman et al., 2011). The current findings indicate that this proposition may not apply to midwives. Midwives' engagement in close relationships with women in their care might explain their strong emotional reactions following the witnessing of birth trauma.

This finding has implications for midwifery education. Midwives need to be informed about the possibility that close bonds with women in their care may make them more vulnerable to emotional distress. Midwifery curricula should introduce the concept of trauma stewardship (Van Dernoot Lipsky & Burk, 2009), which involves being mindful of taking on women's trauma when providing care in traumatic birth situations.

Emotional literacy defined as the capacity to register one's own emotional

responses, acknowledge those responses and recognise the ways in which they influence our thoughts and actions (Burman, 2009) is an important part of trauma stewardship. Awareness of emotional responses when caring for women may help midwives to reduce their own affective reactions during traumatic events without withdrawing from providing support to the woman in their care.

**Interactions between horror, care-related interpersonal trauma features and low decision authority.** A reaction of horror in the current study was also associated with low decision authority at the time of the traumatic event. Decision authority reflects the degree to which employees are allowed to make decisions on their own, have freedom to decide how they do their job and generally have a lot of say about what happens at their workplace (Karasek et al., 1998). Among midwives, low workplace decision authority may reduce midwives' scope to practise in accordance with their ideals. Midwives in the current study who indicated low workplace decision authority at the time of the traumatic event were almost three times more likely to recall a reaction of horror than midwives who recalled high levels of decision authority.

Midwives in the current study who indicated low workplace decision authority also were more than twice as likely to recall care-related interpersonal trauma features, such as witnessing disrespectful or even abusive care. This suggests that midwives with low decision authority are more likely to be involved in traumatic birth events with care-related interpersonal features.

Together, the interactions between horror, care-related interpersonal trauma features, low decision authority and high sensitive attunement during perinatal care constitute an important finding of the current study. These findings suggest that care-related interpersonal trauma, horror and low decision authority and sensitivity in perinatal caregiving may be interrelated. Future research should further analyse the

contribution of these factors to posttraumatic stress in midwives.

### **Peritraumatic Feelings of Guilt**

Guilt is defined as a cognitive or emotional experience that occurs when a person realises or believes, accurately or not, that they have compromised their own standards of conduct or violated a moral standard for which they bear significant responsibility (Colman, 2009). Feelings of guilt during or after traumatic events have been linked to decreased post-trauma functioning (Arntz, Tiesema, & Kindt, 2007; Miller et al., 2013). For individuals experiencing interpersonal trauma including domestic violence and sexual abuse, higher levels of guilt were found to be associated with more severe levels of PTSD symptoms (Feiring, Taska, & Chen, 2002; Gibson & Leitenberg, 2001).

Midwives who reported feelings of guilt about what had happened to the woman in their care were more than twice as likely to develop probable PTSD compared to those midwives who did not. This finding is consistent with those from other trauma samples which identified that feelings of guilt during or after the traumatic event predicted PTSD morbidity (Barker, 2011; Beck et al., 2015; Ojserkis et al., 2014; Rice & Warland, 2013; Wilson, Drozdek, & Turkovic, 2006). Qualitative research into midwives' experiences of attending traumatic births has highlighted the presence of feelings of guilt and responsibility in midwives (Beck et al. 2015). The findings of the current study showed that guilt has a key role in the development of posttraumatic stress in midwives.

**Guilt and care-related interpersonal trauma.** In the present study, respondents' feelings of guilt were almost twice as common when the traumatic birth event they witnessed included care-related interpersonal features. This indicates that exposure to care-related birth trauma constitutes a particular emotional and moral

challenge for midwives. The findings further suggest that when midwives witness disrespectful or abusive care they may feel guilty about having compromised their personal and professional moral standards. This is consistent with trauma theories that emphasise the salience of stressor events that have the potential to violate deeply held moral beliefs for the development of emotional distress (Nash et al., 2013).

McGibbon, Peter, and Gallop (2010) argued that in nursing a clear distinction between occupational stress, moral distress, and traumatisation is often not possible when discussing profound experiences and responses to caring work. The current findings also suggest that traumatisation and moral distress interact in the development of posttraumatic stress in midwives following exposure to traumatic birth events. The concepts of ‘moral injury’ or ‘inner conflict’ have been discussed as an aftermath of exposure to interpersonal traumatic events in war veterans and may mediate the development of PTSD (Litz et al., 2009; Nash & Litz, 2013; Nash et al., 2013). Potentially morally injurious experiences have been defined as “perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations” (Litz et al., 2009, p. 697). ‘Inner conflict’ is defined as stress arising due to moral damage from carrying out or bearing witness to acts or failures to act that violate deeply held belief systems (US Marine, 2010).

In maternity care, respectful treatment and prevention from unnecessary harm for women are strongly held values (White Ribbon Alliance For Safe Motherhood, 2012). Witnessing care-related interpersonal trauma events, in particular obstetric violence, may be perceived as a moral transgression. Midwives may experience significant stress due to inner conflict arising as a result of moral damage from carrying out or bearing witness to acts or failures to act that violate their beliefs about women-centred care and their role as midwives. The concepts of ‘moral injury’ and ‘inner

conflict' may therefore offer a useful framework for interpretation of associations amongst guilt, PTSD and interpersonal trauma features identified in the current study and deserve further investigation in the context of professional exposure to birth trauma.

**Guilt and decision authority.** Midwives in the present study who recalled having had low decision authority at their workplace at the time of the traumatic event were significantly more likely to remember feeling guilty for what happened to the woman in their care compared to their colleagues who recalled high decision authority. This seems paradoxical because guilt arises when a person realises or believes that she bears significant responsibility for the violation of a moral standard (Colman, 2009). Low decision authority at the time of the traumatic event means that midwives had less say about perinatal care and as such were not likely to bear responsibility for suboptimal or traumatising care during labour and birth. This suggests that working in a setting that fosters low levels of decision authority does not alter midwives' sense of responsibility for what happens to women in their care.

The provision of psychosocial support during childbirth is a key feature of women-centred care (Rossiter, 2008; Seefat-van Teeffelen, Nieuwenhuijze, & Korstjens, 2011). It is not unusual for midwives to perceive a need to safeguard birthing women's dignity and emotional health in clinical birthing environments (Beck et al., 2015; Berg, 2005; Birthrights, 2013). Meanwhile, there is little discussion in the midwifery profession regarding the extent to which midwives can be held accountable for detrimental emotional health outcomes in women who birth in maternity care settings where midwives have little or no say over birth management.

The findings of the current study suggest that midwives may have internalised a strong sense of responsibility for women's emotional well-being during childbirth regardless of the agency they have to prevent potential harmful events. Further

discussion about the interactions between decision authority, professional autonomy and ‘with woman’ midwifery care is necessary to inform the profession’s understanding of the mechanisms involved in posttraumatic stress in midwives.

### **A Personal Traumatic Experience when Giving Birth**

A midwife’s own, personal traumatic experience when giving birth was identified as third significant predictor of probable PTSD. Multivariable modelling identified that midwives who had a personal traumatic experience when giving birth were twice as likely to develop probable PTSD after witnessing a traumatic birth event in their role as midwives. This finding differs from that of Sheen et al. (2014) who found no significant associations between midwives’ personal traumatic birth experiences and PTSD. However, PTSD research has consistently identified a greater risk of PTSD for individuals with a history of previous traumatic events (Breslau, Chilcoat, Kessler, & Davis, 1999; Brewin et al., 2000b). The findings of the current study suggest that personal previous birth trauma may sensitise midwives for developing posttraumatic stress following professional exposure to traumatic birth events.

Previous exposure to interpersonal violence also doubled midwives’ risk of developing probable PTSD. This finding is consistent with epidemiologic evidence that exposure to interpersonal violence in the general population is associated with an increased likelihood of psychiatric disorders (Chen et al., 2010). Breslau et al. (2014) identified that PTSD risk increased by the factor 2.6 after a subsequent traumatic event in those individuals previously exposed to assaultive violence compared to individuals previously exposed to other types of trauma.

Consistent with findings from epidemiologic studies, life exposure to interpersonal violence was high (61.4%) in the current study (Iverson et al., 2013;

Steven Betts, Williams, Najman, & Alati, 2013). Exposure to interpersonal violence has been shown to have lasting effects that persist long after the traumatic event (Roby & Hetzel-Riggin, 2013). In childbearing women, previous exposure to interpersonal violence has been linked to an increased risk of PTSD following birth (Lev-Wiesel, Daphna-Tekoah, & Hallak, 2009). Lev Wiesel et al. (2009) suggested that among women who have experienced prior intimate interpersonal trauma, the childbirth event might trigger memories of these events and prompt PTSD symptoms.

The possibility that the psychosexual nature of pregnancy and obstetric care can exacerbate traumatic stress from previous interpersonal violence has also been acknowledged by obstetric care providers (American College of Obstetricians and Gynecologists, 2011). It is argued that the intimacy associated with childbirth may provoke particular fear and anxiety in women who have previously been exposed to interpersonal traumatic experiences (Barlow & Birch, 2004; Garratt, 2008). Providing midwifery care during labour and birth involves physical as well as emotional intimacy with the woman (Hunter, 2010; Zidari & Skubic, 2015). During labour and birth midwives may touch women's intimate body parts and deal with her body fluids. During the often strong emotional tides of labour and birth midwives are required to function as a stable base to women in their care (Lundgren & Berg, 2007) and offer encouragement, reassurance, and consolation.

Midwives' intimate involvement with birth and the birthing woman may be central to understanding why exposure to traumatic birth events may serve as re-traumatisation for midwives' previous traumatic experiences. This approach to interpreting associations between prior traumatic experiences and elevated posttraumatic stress symptoms after witnessing traumatic birth events is consistent with a biobehavioral learning theory perspective on traumatic stress, which suggests that

traumatic sequelae are never 'erased' and may reappear in contexts similar to the original traumatic event (Bouton & Waddell, 2007).

It has been emphasised that exposure to stimuli that trigger re-experiencing inhibits the proper location of the trauma in the past and cause the trauma to remain a contemporary experience which makes it difficult to overcome (Van der Kolk & McFarlane, 2012). For midwives with previous personal traumatic experiences when giving birth and/ or interpersonal violence, the reappearance of their trauma sequel in their professional context may constitute an obstacle to coping and resolving previous traumatic experiences. A sense of safety has been identified as essential to the recovery from PTSD (Charuvastra & Cloitre, 2008). In particular the exposure to care-related interpersonal trauma in women with whom they have developed a close bond may affect midwives' sense of safety and therefore hinder their full recovery from previous trauma.

In the current sample, more than one fifth of midwives recalled experiencing trauma when giving birth themselves and more than 60% recalled a prior exposure to interpersonal violence. The high prevalence of these prior traumatic experiences suggests that professional exposure to traumatic birth events, which may be re-traumatising, has important implications for midwives, the midwifery profession, and maternity care services.

Informing midwives about the possibility that witnessing traumatic birth events might trigger previous personal traumatic experiences needs to be approached in a sensitive way as disclosures of previous experiences of interpersonal trauma are often associated with shame (Freed & D'Andrea, 2015; Overstreet & Quinn, 2013). The possibility of re-traumatisation through midwifery practice could be discussed with midwives and with midwifery students to enable them to make informed decisions about their involvement in perinatal care. The possibility that other components of



midwifery work including postpartum care or work in a special care nursery may also involve exposure to traumatic events should be part of this discussion. Discourse about the topics of professional exposure to trauma and re-traumatisation could be in the form of professional development activities and needs to be accompanied by opportunities for psychological support if desired.

Hunter (2010) suggested that discussions in the midwifery literature about midwives' personal reactions to birth are notably absent. Some midwives may be reluctant to acknowledge the intimate nature of childbirth or engage with their personal reactions to it. This may also explain why, compared to other professions, the midwifery profession appears reluctant to engage with the possibility that professional exposure to traumatic birth events may cause trauma symptoms in midwives (Leinweber & Rowe, 2010; Sheen et al., 2014). Consequences of trauma exposure in midwives have only been discussed in recent years. However, evidence for workplace-related trauma in nursing and ambulance personnel has been building since an earlier qualitative investigation of traumatic stress in ambulance personnel (Laposa & Alden, 2003).

Midwives with a history of a personal traumatic birth experience or previous interpersonal trauma may attempt to 'solve' the problem of being haunted by past memories when providing care for birthing women by moving to less trauma-prone areas of midwifery, for example private practice midwifery, or decide to leave midwifery altogether. This latter option had been considered by almost half of the midwives in the current study.

### **Limitations**

The findings of this study need to be considered in light of some methodological limitations. Retrospective reporting means that recollections of event features, emotions and decision authority may have been modified over time and therefore might differ

from reports obtained immediately following the witnessing of a traumatic birth event. The possibility of recall bias is by definition a problem in most trauma research because traumatic events are rarely predictable.

The cross-sectional design of this study precludes ruling out that some participants may have had PTSD symptoms not associated with professional exposure to birth trauma. However, noted differences in respondents' emotional reactions during or shortly after the trauma event exposure are consistent with the contention that exposure to a traumatic birth event may, in fact, have had an effect.

There are also some limitations related to sampling. Comparison of responders with non-responders was not possible because the survey was anonymous. In order to increase recruitment, reminders to participate in the study were placed on the ACM and other midwifery Facebook sites. It has been noted that difficulties in calculating of accurate response rates are an unavoidable consequence of the use of social media for participant recruitment in research (Harris & Ayers, 2012). The additional use of social media in the current study makes it difficult to determine a 100% accurate response rate which may affect sampling bias and generalisability of results.

In addition, because the survey was presented to potential respondents as being about their experiences of witnessing trauma in birthing women, it is possible that midwives with experience of witnessing trauma were more likely to complete the survey than those without such experiences or midwives who were not affected by witnessing traumatic birth events. This might have led to a higher prevalence estimate of probable PTSD.

Another consideration is that midwives without home internet access might have been less likely to respond to this online survey. However, home internet rates are high in Australia and no internet access is generally limited to people who are socially disadvantaged (Australian Bureau of Statistics, 2014) which is unlikely among

employed registered midwives.

However, comparison with national workforce data and respondent characteristics in this large sample suggested representativeness of the current sample. Comparison of respondents' demographic and professional data with national workforce data showed that the sample was roughly representative of the midwifery workforce in Australia. The large sample reflected a breadth in personal and professional characteristics such as age and length of registration, and employment in diverse practice settings. In addition, to avoid an overestimation of symptom burden, scoring criteria applied to calculate prevalence of probable PTSD were stringent.

The absence of existing measures on midwives' attitudes and practice of sensitive caregiving created the need for a new measure, the SPCS. However, as a consequence a comparison of SPCS outcomes with other research assessing midwives' perception of relating to birthing women was not possible and concurrent validity was not established. Similarly, birth trauma type prevalence was determined with the Traumatic Event in Perinatal Care Scales (TEPCS), a measure created for this study. Because prevalence of different birth trauma features had not previously been assessed, it was also not possible to compare these findings with other studies. Furthermore social support and peritraumatic dissociation were not included in this study.

## **Chapter 7**

### **Conclusion**

Almost one fifth of midwives in this sample met criteria for probable PTSD, indicating the need to acknowledge posttraumatic stress in midwives as an occupational stressor. Understanding and investigating posttraumatic stress in midwives using a socioecological perspective allowed identification of personal, birth trauma-related and work environment-related risk factors for probable PTSD among midwives. The findings highlighted connections between posttraumatic stress, peritraumatic emotions and close connections between midwives and women. Furthermore, findings suggest that there needs to be debate about midwives' accountability for birth trauma in clinical settings. The findings also encourage discourse about the relationships between disrespectful treatment of women during labour and birth and disrespectful treatment of women in society, including midwives own experiences of interpersonal violence. Overall the findings show that posttraumatic stress needs to be understood as a facet of contemporary midwifery practise, not as a mental illness.

### **Introduction**

This study identified the prevalence and factors associated with probable PTSD in an Australian population of midwives. The major conclusions from this research relate to traumatic stress as a form of occupational stress, the contribution of care-related interpersonal trauma to the symptom burden and importance of job re-design to increase midwives' decision making authority. A systemic approach to prevention of traumatic stress is suggested, which provides a framework for recommendations for maternity care policies, midwifery practice, education, and future research.

### **Traumatic Stress as Occupational Stress in Midwives**

Using a rigorous, conservative assessment approach, the current study identified a relatively high (17%) prevalence of probable PTSD. This is suggestive of substantial psychological burden in the Australian midwifery workforce and indicates that many midwives endure substantial emotional distress related to their professional exposure to traumatic birth events. The high level of trauma symptom burden suggests that traumatic stress constitutes a form of occupational stress for midwives that can develop as response to witnessing workplace trauma and highlights the need to acknowledge midwives' exposure to birth trauma as an occupational hazard.

The understanding of traumatic stress in midwives as occupational stress has potential implications for maternity care providers. Occupational stress is understood as a transaction between employees and their work environment management (Cox & Griffiths, 2005). The concept of work stress has led to Occupational Health and Safety (OHS) legislation that reinforces employers' responsibility to provide a work environment that is free of risk to employees' psychological health. (Kasperczyk, 2010). Accordingly, in settings where traumatic stress is acknowledged as an occupational hazard, employers have a duty of care to anticipate possible traumatic exposures, develop strategies to reduce cumulative traumatic exposures that may affect the workforce, and minimise the causes of traumatic stress in the workplace (McFarlane & Bryant, 2007).

In response to the trauma burden in the midwifery workforce, maternity services need to be challenged to acknowledge the presence of trauma symptoms and to develop strategies for the prevention of this form of occupational stress in midwives.

### **Recommendations for the Prevention of Traumatic Stress in Midwives**

Theories and research on occupational stress can inform the development of traumatic stress prevention strategies for midwives. Occupational stress interventions

have been categorised in two ways: (1) the level of prevention, as primary, secondary and tertiary; and (2) the level of organisational involvement, as organisation-wide, team-based or individually-based (Sutherland & Cooper, 2000).

Primary prevention aims to reduce, control or eliminate the sources of work-related mental health problems, for example through job redesign. Secondary interventions, or ameliorative prevention, aim to modify an individual's response to stressors, for example, through supervision or stress management classes to help employees to modify or control their appraisal of stressful situations. Tertiary interventions are considered 'reactive interventions' as they aim to address the enduring health outcomes of stress through rehabilitation and return-to-work programs (LaMontagne & Keegel, 2012).

Research on occupational stress in different workplace settings suggest that occupational stress can be prevented and controlled effectively using a systems approach that integrates primary, secondary and tertiary intervention (LaMontagne & Keegel, 2012). However, studies on professional exposure to birth trauma in obstetric nurses and midwives do not recommend the use of a systems approach but recommend non-systemic, individual prevention focusing on educating and supporting midwives to manage symptoms of traumatic stress (Beck et al., 2015; Goldbort et al., 2011; Sheen et al., 2014).

### **Prioritising Systemic Approaches to Prevention**

Individual interventions are based on the assumption that altering the individual's perceptual, information processing, cognitive and behavioural responses will reduce the probability of harmful stress effects (Kasperczyk, 2014). Individual interventions fundamentally ascribe the responsibility for managing stress to the individual. Although individual prevention may be useful, they aim to manage the

effect of stress rather than to prevent it (Bober & Regehr, 2006; Killian, 2008; Parikh, Taukari, & Bhattacharya, 2004).

Systemic prevention strategies focus on primary prevention directed at the organisation and environment, integrated with either secondary and/or tertiary interventions (Kasperczyk, 2010; LaMontagne & Keegel, 2012). Participation of stakeholders from multiple organisational levels, identification of those aspects of work that constitute a risk to employees' psychological health and executive management commitment are hallmarks of intervention programs that can be classified as systemic or organisation-wide (Giga, Noblet, Faragher, & Cooper, 2003; Kasperczyk, 2010). Research on occupational stress in different workplace settings suggest that occupational stress can be prevented and controlled effectively using a systems approach that integrates primary, secondary and tertiary intervention (LaMontagne & Keegel, 2012). Prevention efforts for the reduction of traumatic stress in midwives should therefore focus on systemic approaches.

### **Trauma Informed Care and Practice**

Trauma informed care and practice (TICP) approaches are systemic approaches towards the prevention of trauma (Poole & Greaves, 2012). TICP target the whole organization aiming to introduce an organisational culture of trauma awareness (Poole & Greaves, 2012). TICP approaches are based on the assumption that many people experience trauma and recognise how trauma affects all individuals involved with an organization or system, including its own workforce. In addition to client's trauma also care-providers' own reactions to trauma in clients as well as their own traumatic life experiences are acknowledged (National Center for Trauma-Informed Care, 2015; Raja et al., 2015). An essential component of TICP is that health services do not inflict any additional trauma or reactivate past traumatic experiences in consumers or staff

(Harvey, Juriansz, & Ennals, 2012). It has been argued that TICP approaches are therefore of benefit for everyone, including staff and consumers who have not experienced trauma as they promote compassionate settings that provide choice and safety (Harvey et al., 2012).

### **TICP in Maternity Care**

In reaction to a growing body of research that highlights the prevalence and impact of traumatic experiences TICP approaches are recommended for health care, social work and schools settings (National Center for Trauma-Informed Care, 2015).

The findings of the current study emphasise the need to introduce TICP principles including the information that experiences of trauma are in fact common and not, as previously perceived, a problem of selected groups. Whilst the focus of TICP approaches in maternity care are on childbearing women, TICP principles imply the need to consider professional exposure to birth trauma which may cause or reactivate trauma in midwives. Furthermore there may be a connection between posttraumatic stress symptoms in midwives and posttraumatic stress in women. Distant caregiving, which can be perceived as unsupportive or neglectful care and has been found to contribute to PTSD in childbearing women, can be an effect of traumatic stress in midwives. This highlights that consideration of midwives' experience of witnessing (birth) trauma need to be a key element of trauma informed maternity care.

### **Primary, Secondary and Tertiary Prevention Within Trauma Informed Maternity Care**

To be successful as an intervention for reducing occupational traumatic stress in midwives TICP in maternity care needs to combine primary, secondary and tertiary measures of prevention.



**Primary prevention – organisational level.** Reducing the incidence of birth trauma is the most essential measure of primary prevention of traumatic stress for midwives. Midwives may experience initial trauma or re-traumatisation through the witnessing of a traumatic birth event. Therefore, measures aiming to reduce the incidence of birth trauma are primary prevention strategies for traumatic stress. Birth trauma is regarded as unforeseen and not preventable. The majority of midwives in the current study, however, were affected by ‘preventable’ care-related interpersonal trauma including abusive care and disrespect. Thus the focus of primary prevention of traumatic stress responses in midwives needs to be on the reduction of care-related birth trauma. In the current study, the recall of abusive care which may have included acts like unnecessary long or rough vaginal examinations were associated with a clinical environment in which midwives had low decision making authority. Decision making authority is a reflection of autonomous midwifery practice and is highest for midwives practising in midwife-led models of care (Walsh & Devane, 2012). Midwife-led models of care also emphasise relational caregiving and working in partnership with women (Maillefer, de Labrusse, Cardia-Vonèche, Hohlfeld, & Stoll, 2015), features that are congruent with the TICP principles that power sharing and working collaboratively with women reduce the risk of (re)traumatisation (Cleary & Hungerford, 2015). In the context of maternity care it seems evident that when caregiving takes place in models that give more choice and control to women, caregivers are less likely to perform acts that can be perceived as abusive by women.

The findings of this study indicated that job-redesign for midwives in the form of the widespread roll-out of midwife-led models of care may be an important strategy to reduce abusive care and thus midwives’ trauma exposure. The relationship between birth trauma incidence and models of maternity care needs to be further investigated.

Outcomes of future research that evaluates costs and benefits of midwife-led models of care should include traumatic birth events.

**Secondary prevention – team/group level.** Secondary or ameliorative prevention of traumatic stress in midwives aims to alter midwives' cognitive and behavioural responses to traumatic birth events. The findings of the current study indicate that a peritraumatic reaction of horror and peritraumatic feelings of guilt were key for the development of traumatic stress in midwives. Therefore, preventative strategies that aim to alter midwives' reaction to and appraisals of birth trauma could play an important role as secondary prevention within a TICP approach.

Clinical supervision which has been found to reduce trauma associated distress in social workers who work with traumatised populations (Bride, 2014) may also help alleviate distress in midwives following traumatic birth events. Clinical supervision could facilitate regular reflection on traumatic birth events to help midwives to understand their own involvement in the traumatic birth events they witnessed. This could help alleviate feelings of responsibility and guilt for the trauma.

Another important area for prevention is education. As part of the TICP approach all individuals involved in maternity care need to be introduced to TICP principles which include the acknowledgement of the prevalence and impact of trauma and the importance of minimising re-traumatisation.

TICP principles should also be part of midwifery education and professional development activities for registered midwives. Correlates of probable PTSD and posttraumatic stress following professional exposure to birth trauma in midwives were identified in the current study. They include (1) midwives' reaction of horror and feelings of guilt in response to witnessing trauma; (2) the influence of an individual's own previous trauma experiences on the perception of birth trauma; (3) the implications

of sensitive and empathic relationships between midwives and women; (4) the development of care-related trauma following abusive care; and (5) the relationship between decision authority and risk for trauma. These findings indicate that should inform curricula development for pre-registration education and continuing professional development for midwives. As part of a trauma-sensitive education emotional literacy should be included to support midwives in dealing with overwhelming emotions that can follow exposure to birth trauma. In addition mechanisms that connect previous experiences of trauma with symptom development after professional exposure to birth trauma should be discussed. Midwives should also be guided in distinguishing between noninterpersonal and interpersonal birth trauma and understand that exposure to interpersonal birth trauma is associated with more trauma symptoms. The introduction of these topics to midwives' pre-registration education and continuing professional development curricula would facilitate exchange about birth trauma and its potential consequences for midwives within the profession.

Knowledge about birth trauma is also necessary to promote reflective midwifery practice in the face of traumatic birth events. Future research needs to identify effective ways of introducing these concepts into undergraduate and professional curricula.

**Tertiary prevention – individual level.** In addition to organisational approaches to reduce birth trauma incidence and educate midwives about the potential effect of witnessing birth trauma, individual strategies must be in place for midwives who have been traumatised by witnessing birth trauma and are at risk of developing PTSD. Whilst debriefing appears to be an ineffective intervention to reduce symptoms and prevent PTSD (Rose, Bisson, Churchill, & Wessely, 2002), there is evidence that brief trauma-focused cognitive behavioural therapy (CBT) may reduce PTSD symptom severity in trauma-exposed individuals (Forneris et al.,

2013; Gartlehner et al., 2013). In the context of TICP in maternity, future research needs to evaluate how CBT intervention can be delivered to midwives who are experiencing initial trauma or are re-traumatised by professional exposure to birth trauma.

### **Ongoing Evaluation of Trauma Informed Maternity Care**

Ongoing evaluation of primary, secondary and tertiary levels of prevention needs to be an integral part of the implementation of TICP approaches in maternity care.

Evaluation research should assess if TICP meets the requirements for being a systems approach to the prevention of traumatic stress in midwives, including clear determination of stress factors, management commitment, and stakeholder participation. Whether or not TICP in maternity care improves the recognition of current and past trauma in childbearing women and care providers, in particular midwives, should be assessed. In addition, it should be evaluated if the implementation of TICP principles in maternity care and educational organisations addresses both the consequences and causes of traumatic stress in midwives. A reduction of care-related interpersonal birth trauma and a decrease in trauma symptoms in midwives should be defined as markers for a successful implementation of TICP in maternity care settings.

### **Future Research**

Future research on the prevalence of posttraumatic stress following professional exposure to birth trauma should measure posttraumatic stress with standardised PTSD measures to enable comparison between studies. In addition, the use of longitudinal research study designs should be considered to enable a differentiation between traumatic stress resultant from previous life trauma and the effects of professional exposure to birth trauma. Additionally pre-trauma and post-trauma assessment of risk factors would improve our understanding of temporal relationships among influencing

factors.

Another important area for future research is the investigation of different types of birth trauma and its effects on posttraumatic stress levels in perinatal care providers. Based on the Traumatic Events in Perinatal Care List (TEPCL) developed for this study, future research should develop a more detailed scale to enable clear differentiation of symptom burden following different types of birth trauma. This would enable description and comparison of birth trauma exposure in perinatal care providers across different maternity care settings and across countries.

The current study identified decision authority as a factor that affects midwives' appraisal of the traumatic birth event. Future research should investigate the concept of decision authority and associations with occupational health in midwives in depth. Researching job control and psychological demands in a bigger sample and in different settings would allow for identification of the proportion of midwives who have low job control but experience high psychological demands at work. In addition, the extent to which midwife-led models of care increase decision authority and allow midwives to practise within close relationships with women in their care without increasing their risk of intense emotional reactions and developing probable PTSD following traumatic birth experiences should be investigated. New studies identifying an increased risk of stroke for women in low control/high demand occupations further emphasise the need to investigate decision authority in midwives.

The current study investigated the concept of sensitivity as a measure of the quality of midwifery care. Future research should further explore the usefulness of an attachment theory for understanding how the dynamics of midwives' relationships with women may affect the quality of midwifery care. The SPCS which was developed to measure midwives practice and attitudes towards sensitive caregiving needs to be

further validated. This could be through investigating if women during labour and birth who are receiving what was conceptualised as sensitive care also experienced this care as supportive.

### **Summary**

The findings of this study have contributed to the evolving field of research on the development of trauma symptoms following professional exposure to birth trauma. The findings showed that, similar to midwives in the UK and the USA, many Australian midwives are affected by traumatic stress following exposure to traumatic birth events, suggesting that traumatic stress in midwives may be a global phenomenon. The high prevalence of probable PTSD in midwives showed that maternity care organisations need to acknowledge professional exposure to birth trauma as an occupational stressor and address traumatic stress following exposure to birth trauma as a form of occupational stress.

The study highlighted the importance of midwives' appraisal of a traumatic birth event and the significance of midwives' own previous experiences of trauma for the development of probable PTSD following exposure to birth trauma. In addition midwives' decision-making authority, the witnessing of care-related trauma, and sensitive and empathic caregiving were found to be associated with higher levels of traumatic stress.

Overall, the findings suggest that midwives' risk for a traumatic stress response following exposure to birth trauma is influenced by the interplay of personal, event-related and professional factors. Systemic prevention in the form of trauma informed care and practice (TICP) approaches in maternity care organisations is recommended to reduce traumatic stress in midwives.

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## Appendix A

### Mixed Methods Appraisal Tool (MMAT) Table

[illegible]

Types of mixed methods study components or primary studies	Methodological quality criteria	Baxter (2012)	Beck & Gable (2012)	Beck et al. (2015)	Ben-Ezra (2014)	Goldbort et al. (2011)	Mander (2000)	Mizuno et al. (2013)	Rice & Warland (2013)	Sheen et al. (2015)	Wallbank & Robertson (2013)
<b>1. Qualitative</b>	1.1. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?	Y	Y	Y	*	Y	Y	*	Y	*	*
	1.2. Is the process for analysing qualitative data relevant to address the research question (objective)?	Y	Y	Y	*	Y	Y	*	Y	*	*
	1.3. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?	Y	Y	Y	*	Y	Y	*	Y	*	*

[illegible]



[illegible]

[illegible]

Types of mixed methods study components or primary studies	Methodological quality criteria	Baxter (2012)	Beck & Gable (2012)	Beck et al. (2015)	Ben-Ezra (2014)	Goldbort et al. (2011)	Mander (2000)	Mizuno et al. (2013)	Rice & Warland (2013)	Sheen et al. (2015)	Wallbank & Robertson (2013)
<b>4. Quantitative descriptive</b>	4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?	*	Y	Y	Y	*	*	Y	*	Y	Y
	4.2. Is the sample representative of the population under study?	*	Y	Y	Y	*	*	Y	*	Y	N
	4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?	*	N	N	Y	*	*	Y	*	Y	Y
	4.4. Is there an acceptable response rate (60% or above)?	*	N	N	Y	*	*	Y	*	N	Y

Types of mixed methods study components or primary studies	Methodological quality criteria	Baxter (2012)	Beck & Gable (2012)	Beck et al. (2015)	Ben-Ezra (2014)	Goldbort et al. (2011)	Mander (2000)	Mizuno et al. (2013)	Rice & Warland (2013)	Sheen et al. (2015)	Wallbank & Robertson (2013)
<b>5. Mixed methods</b>	5.1. Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?	*	Y	Y	*	*	*	*	*	*	*
	5.2. Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?	*	Y	Y	*	*	*	*	*	*	*

Types of mixed methods study components or primary studies	Methodological quality criteria	Baxter (2012)	Beck & Gable (2012)	Beck et al. (2015)	Ben-Ezra (2014)	Goldbort et al. (2011)	Mander (2000)	Mizuno et al. (2013)	Rice & Warland (2013)	Sheen et al. (2015)	Wallbank & Robertson (2013)
	5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results*) in a triangulation design?	*	Y	Y	*	*	*	*	*	*	*
<b>Overall Score (%)</b>		100	50	50	100	100	100	100	100	75	75%

Y = Yes, N = No, \* does not apply

## **Appendix B**

### **Survey Instrument**

#### **Section One: About you**

**Q1 How many years have you been registered as a midwife?**

Please write your answer here:

**Q2 Where is your primary place of work?** (The setting in which the majority of your midwifery practice takes place.) Please choose at most 1 answers:

- ☐ Public Hospital
- ☐ Private Hospital
- ☐ Birth Centre
- ☐ Private Obstetric Practice
- ☐ Private Midwifery Practice
- ☐ Education
- ☐ Other:

**Q3 On average how many births do you attend per month?**

Please write your answer here:

If you are currently not working with birthing women please write 0 here.

**Q4 How many hours do you work on average per week?**

Please write your answer here:

**Q5 How old are you?**

Please write your answer here:

**Q6 What is your highest qualification?**

Please choose all that apply:

- ☐ Certificate
- ☐ Diploma
- ☐ Bachelor Degree
- ☐ Masters Degree
- ☐ Doctor of Philosophy

**Q7 Have you ever considered leaving the midwifery profession?**

Please choose all that apply:

- ☐ No
- ☐ Yes, but without any specific time frame in mind
- ☐ Yes, I want to leave midwifery within the next 5 years
- ☐ Other:

**Section Two: Features of your midwifery care**

We are interested in your thoughts about providing care for women during labour and birth. Although each care situation is unique please think about your usual *experiences and beliefs* of providing care for women during labour and birth. If *currently* your work does not include intrapartum care please answer the questions with regard to your *most recent experiences*.

**Q8 Please answer the following statements as honestly as you can. Tick the best answer for you (Strongly disagree, Disagree, Somewhat agree, Agree, Strongly agree).**

*When providing care during labour and birth*

Please choose the appropriate response for each item:

	Strongly disagree	Disagree	Somewhat agree	Agree	Strongly agree
I can usually comfort a woman when she is distressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually know what a woman wants during the different stages of labour and birth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe some women want too much from me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually achieve an emotional connection with a woman.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually know when a woman wants me to give emotional support.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I tend to respond slowly to women's emotional needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe women respond well to my emotional support.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually know when a woman wants me to 'be with' her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually allow myself to get 'in sync' with a woman's emotions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe a woman cannot ask for too much emotional support from me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sometimes I feel overwhelmed when caring for a woman.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually maintain an emotional boundary between me and a woman.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel good about how I respond to women in my care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



### Section Three: Your experience of witnessing trauma in birthing women

**Q9 When providing care for women during labour and birth have you ever witnessed one of the following events and did this cause you emotional distress?**

(more than one box can be ticked)

Please choose the appropriate response for each item:	witnessed		caused me distress	
	no	yes	no	yes
Death (of the mother or baby– actual or fear of)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injury (of the mother or baby– actual or fear of)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harmful acts (witnessing abusive care/management, causing pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor care (such as witnessing or participating in a procedure that was not in the woman's best interest/ done incompetently or insensitively)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interpersonal disrespect (such as witnessing the woman's wishes being overridden, even though alternative pathways of action were possible or witnessing a woman's dignity being ignored)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q10 Please think of one specific traumatic event/experience and answer the following questions in relation to this experience:**

**What was the nature of this traumatic event? (more than one box can be ticked)**

Please choose all that apply:

- ☐ Death (of the mother or baby–actual or fear of)
- ☐ Injury (of the mother or baby– actual or fear of)
- ☐ Harmful acts (such as causing pain; witnessing abusive care/management)
- ☐ Poor care (e.g., witnessing, performing or participating in a procedure that is not in the woman's and/ or the baby's best interest/ done incompetently or insensitively)
- ☐ Interpersonal disrespect (e.g., witnessing the woman's dignity being ignored, her wishes overridden)
- ☐ Other:

**Q11 Did your response to the event involve an intense feeling of**

Please choose the appropriate response for each item:

	<b>no</b>	<b>yes</b>
Fear?	<input type="checkbox"/>	<input type="checkbox"/>
Horror?	<input type="checkbox"/>	<input type="checkbox"/>
Helplessness?	<input type="checkbox"/>	<input type="checkbox"/>

**Q12 Did you recall feeling**

Please choose the appropriate response for each item:

	<b>no</b>	<b>yes</b>
Powerless to change the way birth was being managed?	<input type="checkbox"/>	<input type="checkbox"/>
Responsible for what happened to the woman?	<input type="checkbox"/>	<input type="checkbox"/>
Guilty about what happened to the woman?	<input type="checkbox"/>	<input type="checkbox"/>
Angry about what happened?	<input type="checkbox"/>	<input type="checkbox"/>
Deep concern/sadness for the woman?	<input type="checkbox"/>	<input type="checkbox"/>

**Section Four: ‘Hotspots’ within your experience**

**Q13 Some moments during a traumatic event are recalled vividly as being especially distressing. These are known as “hotspots”. Hotspots can be very brief moments or longer episodes. Please take a moment to think about elements of your experience that especially distressed you and describe them here. Write as much detail as you wish, dot points are also fine.**

Please write your answer here:

### Section Five: Reactions to events you experienced

Some events may still affect us years after they took place.

Please answer these questions in regard to your *most recent or most severe distressing experience of witnessing trauma* in a woman in your care.

**Q14 Below is a list of reactions that people sometimes report after a traumatic event.**

**Please think about your experience and tick the box that best describes how often that problem bothered you IN THE LAST WEEK.**

Please choose the appropriate response for each item:	Not at all or only one time	Once a week or less/once in a while	2 to 4 times per week/ half the time	5 or more times per week/almost always
Upsetting thoughts or images about the trauma came to mind when I didn't want them to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bad dreams or nightmares about the trauma.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relived the trauma, acted or felt as if it was happening again.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Felt very upset when reminded of the trauma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Experienced physical reactions when reminded of the trauma (for example, breaking out in a sweat, heart beating fast).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tried not to think about, talk about, or have feelings about the trauma.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tried to avoid activities, people, or places that reminded me of the trauma.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not able to remember an important part of the event.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Much less interest or participating much less often in important activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please choose the appropriate response for each item:	Not at all or only one time	Once a week or less/once in a while	2 to 4 times per week/ half the time	5 or more times per week/almost always
Felt distant or cut off from people around me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Felt emotionally numb (for example, being unable to cry or unable to have loving feelings).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Felt as if future plans or hopes will not come true.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trouble falling asleep or staying asleep.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Felt irritable or had fits of anger.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trouble concentrating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being over-alert (for example, checking to see who is around you).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being jumpy or easily startled (for example, when someone walks up behind you).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section Six: Your work environment at the time of the traumatic event

The work environment can influence how people cope with stress. We are interested in your perceptions of your job at the time of your most recent or most severe traumatic event.

**Q15 Please read the following statements and indicate on a four point scale ranging from *strongly disagree* to *strongly agree* how much the statement applied to your job at the time of the traumatic event.**

Please choose the appropriate response for each item:

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
My job allowed me to make a lot of decisions on my own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My job required a high level of skill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In my job I had very little freedom to decide how I did my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I did a variety of things in my job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had a lot of say about what happened in my job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had an opportunity to develop my own special abilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My job required working very quickly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My job required working very hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was not asked to do an excessive amount of work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had enough time to get the job done	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was free of conflicting demands others have made on me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Further comments and thoughts regarding your experience**

**Q16 If there is there anything else you would like to share about your experience of witnessing trauma in a birthing woman, please do so in the space below.**

Please write your answer here:

**Section Seven: Stressful events in your life**

**Q17 Many people experience stressful life events. Have you experienced any of the following stressful life events?**

Please choose all that apply:

- ☐ Serious accident with threat of death or injury
- ☐ Sudden unexpected death of a family member /loved one
- ☐ Physical assault
- ☐ Witness to someone being assaulted, abused or killed
- ☐ Natural disaster
- ☐ Victim of crime with threat of force, sexual abuse or assault
- ☐ Personal traumatic experience when giving birth to a baby
- ☐ Other:



### Section Eight: Emotions

People experience a variety of different emotions in daily life.

**Q18 Please read the following statements and indicate your response on a scale of**

**A (“does not describe me very well”) to E (“describes me very well”). There are no right or wrong answers.**

Please choose the appropriate response for each item:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
	<b>Does not describe me very well</b>				<b>Describes me very well</b>
I often have tender, concerned feelings for people less fortunate than me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In emergency situations, I feel apprehensive and ill-at-ease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sometimes I don't feel very sorry for other people when they are having problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I see someone being taken advantage of, I feel protective towards them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I sometimes feel helpless when I am in the middle of a very emotional situation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other people's misfortunes do not usually disturb me a great deal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I see someone get hurt, I tend to remain calm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I tend to lose control during emergencies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am often quite touched by things that I see happen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being in a tense emotional situation scares me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would describe myself as a pretty soft-hearted person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I see someone who badly needs help in an emergency, I go to pieces.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
	<b>Does not describe me very well</b>				<b>Describes me very well</b>
When I see someone being treated unfairly, I sometimes don't feel very much pity for them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am usually pretty effective in dealing with emergencies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Thank you very much for your time and the information you provided!**

Sometimes recalling difficult experiences can be distressing

If you would like to discuss this we suggest you contact your health care provider or

Professors Debra Creedy and/or Jenny Gamble for telephone support under the

following number: (0)7 33821083. Additionally you can contact the telephone

counselling service "Lifeline" under the number 131114 or at

<http://www.lifeline.org.au/>. For general enquiries concerning the questionnaire please

do not hesitate to contact Julia Leinweber at [julia.leinweber@griffithuni.edu.au](mailto:julia.leinweber@griffithuni.edu.au)

**May we contact you?**

**Q19 We would like to invite you to participate in an interview about your experiences.**

**Everyone has different experiences of providing care. Your particular experiences may help us better understand the emotional work of midwives. Would you consider being interviewed?**

Please choose only one of the following:

☐ Yes

☐ No

**Q20 If so please provide your contact details: Name and email**

Please write your answer here:

**Q21 Please write your email address again to make sure there are no errors.**

Please write your answer here:

**We will publish the results of the survey, however, if you wish to receive a summary of the results directly, please provide your email address.**

Please write your answer here:

## Birth Trauma Event Content Validity Index Recorder

I am trying to identify which events midwives perceive as  
traumatising/distressing when providing care to childbearing women. Could you please  
read through the below items and give me your feedback on

- Thank you very much for your input.

[illegible]

Nr	Traumatic event	Relevance			Clarity of wording		
		Relevant	Not Sure	Not relevant	Clear	Not sure	Unclear
8	Witnessing a medical intervention that was not clinically necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Witnessing a woman's traumatic response to the management of the birth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Witnessing the woman being very fearful of being harmed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Witnessing the woman's dignity being ignored	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Witnessing the woman's wishes being overridden (even though alternative pathways of action were possible)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Witnessing abusive care/management by a colleague midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Witnessing abusive care/management by obstetrician/doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Witnessing physical harm during vaginal operative birth (vacuum extraction/ forceps)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Performing or participating in a procedure that is not in the woman's best interest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Can you think of any other experience that has the potential to cause trauma in the midwife?

Please specify:

Thank you again for your feedback.

## **Appendix D**

### **Australian College of Midwives (ACM) E-Bulletin Invitation**

Email sent out to all ACM members on the 3<sup>rd</sup> and 17<sup>th</sup> march 2014

#### **Subject line: Have your say! A survey on traumatic stress in midwives**

Midwives do their best to provide optimal care to new mothers and their families. Although childbirth is usually joyful, up to 40% of women may experience frightening and life-threatening events and develop symptoms of posttraumatic stress disorder.

Midwives in a close, caring relationship with women during labour and birth may also be exposed to these traumatic events. This study aims to identify how often midwives witness a traumatic event and determine the possible impact of trauma on midwives' care and emotional wellbeing.

Please help us by completing this anonymous survey. Simply click on the link to access the survey. Results will be made available through College publications and help to promote the well-being of our midwifery workforce and care for women and their babies.

## Appendix E

## Frequencies for Items in SPCS

Table 14

*Frequencies Sensitivity in Perinatal Care Scale (n=705)*

Items		Strongly disagree	Disagree	Somewhat agree	Agree	Strongly agree	Mean (SD) score per item
		n (%)	n (%)	n (%)	n (%)	n (%)	
1	I can usually comfort a woman when she is distressed.	4 (0.6)	2 (0.3)	47 (6.6)	364 (51.5)	290 (41.0)	4.32 (0.66)
2	*I usually know what a woman wants during the different stages of labour and birth.	3 (0.4)	12 (1.7)	120 (17.0)	416 (58.8)	156 (22.1)	4.00 (0.71)
3	I believe some women want too much from me.	73 (10.3)	298 (42.1)	198 (28.0)	106 (15.0)	31 (4.4)	2.61 (1.00)
4	*I usually achieve an emotional connection with a woman.	3 (0.4)	5 (0.7)	80 (11.3)	422 (59.7)	196 (27.7)	4.14 (0.66)
5	*I usually know when a woman wants me to give emotional support.	3 (0.4)	6 (0.8)	81 (11.5)	443 (62.7)	173 (24.5)	4.10 (0.65)



Items		Strongly disagree	Disagree	Somewhat agree	Agree	Strongly agree	Mean (SD) score per item
		n (%)	n (%)	n (%)	n (%)	n (%)	
6	I tend to respond slowly to women's emotional needs.	157 (22.2)	437 (61.8)	68 (9.6)	35 (5.0)	9 (1.3)	2.01 (0.80)
7	*I believe women respond well to my emotional support.	4 (0.6)	2 (0.3)	58 (8.2)	476 (67.3)	166 (23.5)	4.13 (0.60)
8	*I usually know when a woman wants me to 'be with' her.	3 (0.4)	1 (0.1)	69 (9.8)	434 (61.4)	198 (28.0)	4.17 (0.63)
9	*I usually allow myself to get 'in sync' with a woman's emotions.	3 (0.4)	33 (4.7)	158 (22.3)	378 (53.5)	133 (18.8)	3.86 (0.79)
10	I believe a woman cannot ask for too much emotional support from me.	16 (2.3)	164 (23.2)	213 (30.1)	193 (27.3)	119 (16.8)	3.33 (1.08)
11	Sometimes I feel overwhelmed when caring for a woman.	37 (5.2)	182 (25.7)	213 (30.1)	213 (30.1)	60 (8.5)	3.11 (1.05)
12	I usually maintain an emotional boundary between me and a woman.	32 (4.5)	187 (26.4)	265 (37.5)	187 (26.4)	34 (4.8)	3.01 (0.95)
13	*I feel good about how I respond to women in my care.	4 (0.6)	6 (0.8)	50 (7.1)	385 (54.5)	260 (36.8)	4.26 (0.68)

\*These items belong to subscale 2 which was deleted from the final version of the SPCS

## Appendix F

## Summary of Univariate Associations with Probable PTSD

Table 15 *Summary of Univariate Associations for Probable PTSD*

Outcome	Group							t	df	p-value
	Probable PTSD			No Probable PTSD						
	Mean	SD	n	Mean	SD	n	95% CI for Mean Difference			
Length of registration (years)	13.24	10.24	102	14.62	11.41	497	[-3.77, 1.01]	-1.13	597	.259
Number of births attended per month	7.63	8.91	102	7.05	8.24	496	[-1.21, 2.36]	0.64	596	.524
Hours worked per week	33.02	12.38	102	30.38	11.63	497	[0.13, 5.15]	2.07	597	<b>.039</b>
Age	43.49	10.79	102	43.15	10.89	496	[-1.98, 2.67]	0.29	596	.770
SPCS	33.36	3.22	102	32.89	4.07	497	[-0.37, 1.31]	1.11	597	.270
IRI-empathic concern	23.11	3.66	98	21.70	4.10	480	[0.53, 2.29]	3.16	576	<b>.002</b>
IRI personal distress	10.64	4.38	98	8.67	4.37	480	[1.02, 2.93]	4.07	576	<b>&lt;.001</b>

Outcome	Group							t	df	p-value
JCQ -decision authority	7.07	2.12	100	7.56	2.11	490	[-0.95, 0.04]	-2.12	588	.035
JCQ-psychological demand	16.19	2.22	100	15.20	2.50	490	[0.46, 1.52]	3.67	588	<.001
n (%)				n (%)		OR , 95% CI				
Primary place of work										
Public Hospital	76 (74.5)			377 (75.9)		0.93, [0.57, 1.52]		*	*	.773
Private Hospital	5 (4.9)			24 (4.8)		1.02, [0.38, 2.73)		*	*	.975
Birth Centre	2 (2.0)			16 (3.2)		0.60, [0.14, 2.66]		*	*	.751
Private Obstetric Practice	2 (2.0)			1 (0.2)		9.92, [0.89, 110.56]		*	*	.077
Private Midwifery Practice	9 (8.8)			23 (4.6)		1.99, [0.89, 4.45]		*	*	.086
Education	1 (1.0)			15 (3.0)		0.32, [0.04, 2.44]				.331
Highest qualification (3 groups)										.539
Certificate/Diploma	21 (20.6)			98 (19.9)		1.05, [0.62, 1.77]				.870
Bachelor	60 (58.8)			268 (54.4)		1.19, [0.78, 1.85)				.409
Master/PhD	21 (20.6)			127 (25.8)		0.75, [0.44, 1.26]				.271

Outcome	Group		t	df	p-value	
	n (%)	n (%)	OR , 95% CI			
Intention to leave the profession	74 (72.5)	208 (41.9)	3.67, [2.30, 5.88]	*	*	<.001
Index trauma event included ‘death’	38 (37.3)	202 (40.6)	0.87, [0.56, 1.35]	*	*	.525
Index trauma event included ‘injury’	40 (39.2)	148 (29.8)	1.52, [0.98, 2.37]	*	*	.061
Index trauma event included ‘harmful acts’	48 (47.1)	184 (37.0)	1.51, [0.99, 2.32]	*	*	.058
Index trauma event included ‘poor care’	50 (49.0)	236 (47.5)	1.06, [0.69, 1.63]	*	*	.777
Index trauma event included ‘interpersonal disrespect’	41 (40.2)	178 (35.8)	1.21, [0.78, 1.86]	*	*	.403
Recalled of more than one event features	51 (50.0)	205 (41.2)	1.42, [0.93, 2.18]	*	*	.104
Recall of more than two event features	38 (37.3)	145 (29.2)	1.44, [0.92, 2.25]	*	*	.107
Recall of more than three event features	21 (20.6)	75 (15.1)	1.46, [0.85, 2.50]	*	*	.168

Outcome	Group		t	df	p-value
	n (%)	n (%)			
Recall of more than four event feature	7 (6.9)	27 (5.4)	1.28, [0.54, 3.03]	*	.570
Index trauma event included interpersonal features	72 (70.6)	324 (66.1)	1.28, [.081, 2.04]	*	.294
Index trauma event included noninterpersonal features	61 (59.8)	305 (61.4)	0.94, [0.61, 1.45]	*	.768
Peritraumatic fear	68 (66.7)	237 (47.7)	2.19, [1.40, 3.43].	*	<.001
Peritraumatic horror	93 (91.2)	358 (72.0)	4.01, [1.97, 8.17]	*	<.001
Peritraumatic helplessness	98 (96.1)	447 (89.9)	2.74, [0.97, 7.77]	*	.049
Peritraumatic powerlessness	90 (88.2)	398 (80.1)	1.87, [0.98, 3.54]	*	.054
Peritraumatic responsibility	62 (60.8)	217 (43.7)	2.00, [1.29, 3.09]	*	.002
Peritraumatic guilt	84 (82.4)	304 (61.2)	2.96, [1.73, 5.08]	*	<.001
Peritraumatic anger	92 (90.2)	416 (87.3)	1.79, [0.89, 3.59]	*	.096
Peritraumatic deep concern	99 (97.1)	483 (97.2)	0.96, [0.27, 3.39]	*	.945
Experience of one or more traumatic life event(s)	85 (83.3)	374 (74.3)	1.64, [0.94, 2.88]	*	.079

Outcome	Group		t	df	p-value	
	n (%)	n (%)	OR , 95% CI			
Experience of interpersonal traumatic life event(s)	57 (55.9)	191 (38.4)	2.03, [1.32, 3.12]	*	*	.001
Experience of noninterpersonal traumatic life event(s)	71 (69.6)	331 (66.6)	1.15, [0.72, 1.82]	*	*	.556
Serious accident with threat of death or injury	24 (23.5)	96 (19.3)	1.29, [0.77,2.14]	*	*	.333
Sudden unexpected death of a family member/ loved one	35 (34.3)	219 (44.1)	0.66, [0.43, 1.04]	*	*	.070
Physical assault	26 (25.5)	93 (18.7)	1.49, [0.90, 2.45]	*	*	.118
Witness to someone being assaulted, abused or killed	31 (30.4)	95 (19.1)	1.85, [1.15, 2.98]	*	*	.011
Natural disaster	12 (11.8)	73 (14.7)	0.77, [0.40,1.59]	*	*	.441
Victim of crime with threat of force, sexual abuse or assault	29 (28.4)	95 (19.1)	1.68, [1.04, 2.73]	*	*	.034
Personal traumatic experience when giving birth	31 (30.4)	99 (19.9)	1.76, [1.09, 2.83]	*	*	.019
Other traumatic life experience	8 (7.8)	54 (9.0)	0.83, [0.38, 1.82]	*	*	.646

\* does not apply

