

Title page

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First page

- (i) Title: Impact of perinatal trauma on Australian obstetricians: a pilot feasibility study
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Title: Impact of perinatal trauma on Australian obstetricians: A pilot feasibility study

Abstract

Background:

Traumatic stress can adversely affect obstetricians' mental health and may affect care provision. Little is known about the impact of perinatal trauma on the Australasian obstetric workforce.

Aim:

To assess the feasibility of conducting a binational survey of Australia and New Zealand obstetricians, trainees, and General Practitioner obstetricians, to determine the prevalence of trauma exposure and associated factors.

Materials and Methods:

Feasibility was assessed using a convergent mixed methods design. The pilot online survey assessed traumatic exposure and included the Posttraumatic Diagnostic Scale, Copenhagen Burnout Inventory (work subscale), and Posttraumatic Growth Inventory (short form). Qualitative data were generated from survey comments and telephone interviews and analysed thematically.

Results:

Using various recruitment strategies, 32 participants completed the survey, and eight completed interviews. Most participants were consultant obstetricians. Nearly all (n=31, 96.9%) had been exposed to traumatic birth(s). Three quarters had current symptoms of traumatic stress, one quarter had symptoms of work-related burnout, but over two fifths reported significant posttraumatic growth. Thematic analysis revealed perceptions that 'obstetricians experience substantial trauma', there is a 'culture of blame in obstetrics', and

only 'in some workplaces it's supportive and safe'. Feasibility issues included the need to identify the respondent's level of training at the time when their most traumatic birth occurred, ensure anonymity of responses, and use a different tool to assess traumatic stress symptoms.

Conclusions:

Conducting a full study of this important topic appeared feasible. Standardised measures were acceptable. Revision of some questions is required. Anonymity needs to be promoted.

Main text:

Background:

Traumatic births, such as maternal ¹ or perinatal death or severe injury to a baby, impact not only the family but maternity staff, and may contribute to a range of traumatic stress-related psychological responses, including Post-traumatic Stress Disorder (PTSD) ². Obstetricians are likely to be involved in higher risk births, and may be at least as exposed to traumatic births as midwives and other maternity professionals. Recent cross-sectional studies of European obstetricians showed rates of exposure to traumatic birth of 12.6% in The Netherlands ³, 84% in Sweden ⁴, and 93% in Denmark ⁵, with higher exposure rates recorded in obstetricians than in midwives ^{4,5}. Rates of probable PTSD were 1.5% in Dutch ³ and 7% in Swedish ⁶ obstetricians. Stressful experiences may contribute to PTSD ⁷. For health practitioners this may include stress related to being reported to regulatory authorities ⁸.

Burnout, or work-related emotional exhaustion ⁹, is prevalent in health practitioners, including Australian gynaecological oncologists ¹⁰. Those experiencing PTSD also show higher rates of burnout ¹¹. Medical practitioners with these mental health conditions may be less able to provide appropriate patient care, with implications for patient safety ¹²⁻¹⁴. Those affected by work-related trauma may leave the workforce ¹⁵. Swedish midwives and obstetricians with work-related PTSD were three times more likely to cease working with birthing women ⁶. People experiencing PTSD may attempt suicide ¹⁶. Little is known about the mental health of Australasian obstetricians, and its workforce implications.

Traumatic experiences may, however, trigger personal development, known as post-traumatic growth ¹⁷. One US team assessed post-traumatic growth in labour and delivery nurses ¹⁸, and found a significant rate of moderate growth ¹⁹. Of Danish maternity

professionals, 65% felt they had become ‘better obstetricians or midwives’ as a result of experiencing traumatic birth ⁵.

Study rationale: There is minimal published literature on traumatic stress, burnout, or post-traumatic growth in the Australian and New Zealand obstetric workforce, despite the potential adverse consequences for patient care and personal well-being. Mental health issues can be difficult to discuss. Therefore, pilot work was undertaken in preparation for a proposed larger study.

Aim:

To assess the feasibility of conducting a binational survey of Australia and New Zealand obstetricians, trainees, and General Practitioner obstetricians, to determine the prevalence of trauma exposure and associated factors.

Material and Methods

A convergent mixed methods design was used to synthesise quantitative and qualitative data ²⁰. Participants were recruited from the pilot hospital, an Australian tertiary hospital, August-September 2017. The response rate was low, with no volunteers for interviews. The study was then expanded to another Australian tertiary hospital via professional contacts (using purposive sampling) October-November 2017. Those recruited included consultant obstetricians and trainees, male and female, Specialist International Medical Graduates (SIMG) and Australian trained, urban and rural, public and private practitioners.

Participants accessed the link to an anonymous online survey. Limited demographics were collected to preserve anonymity. Lists of birth-related ^{2, 4, 21}, personal ²², and professional ^{4, 5} traumatic events were developed based upon published studies. Birth trauma included exposure to maternal death or near miss, and severe intrapartum injury to baby.

Professional trauma included medicolegal claims, and being reported to regulatory authorities. Personal trauma included life-threatening accident or illness, and assault. The survey included questions about support post-trauma, and free-text comments. Validated survey tools were used with prior written permission. The Posttraumatic Diagnostic Scale for DSM-5 (PDS-5)²³ has 22 items that assess intrusion, avoidance, hyperarousal, and negative cognitions, with a score of 28 or higher giving a diagnosis of probable PTSD. It has good internal reliability with a Cronbach's alpha of .95. The Copenhagen Burnout Inventory⁹ has been used internationally with medical practitioners, midwives, and other health professionals. The CBI-Work subscale (CBI-W) has 7 items, can be used as a stand-alone scale, and has a Cronbach's alpha of .87. A score over 50 correlates with at least moderate burnout and above 75 with high burnout²⁴. The Posttraumatic Growth Inventory short form (PTGI-SF) has 10 items and a Cronbach's alpha of .86¹⁷. The PTGI-SF authors did not nominate a cut-off score, however others have used 10 or above²⁵.

Survey respondents could also volunteer for a recorded telephone interview with the first author. Interview questions included feasibility of the proposed larger survey, such as completion time, questions to be omitted or altered, the participant's emotional response to survey questions, as well as desired outcomes. Participants were provided contact details for support and counselling services. The study obtained relevant institutional ethics approval (Griffith University NRS 2017/686). All interviewees gave informed consent prior to the interview and transcripts were de-identified.

Feasibility considered ease of recruitment, diversity of sample obtained, and validity of findings compared to those of previous studies. Feasibility was assessed from survey comments and interviews.

Quantitative data were entered into SPSS (version 22.0) and descriptive statistics and frequencies used to describe the sample. The summed number of different types of traumas experienced in each category (birth, professional, personal) was analysed. Standardised tools were tested for internal consistency using Cronbach's alpha. Pearson's and Spearman's correlation were used to identify associations between continuous variables.

Recorded interviews were professionally transcribed, then analysed thematically²⁶, together with qualitative survey comments. All qualitative data were given an identification code, such as I4 for interview participant 4, S28 for survey participant 28. Each transcript was read several times, initial codes were generated, followed by provisional themes, which were then refined. A thematic map was developed with connections between themes and subthemes. Data saturation was reached after eight interviews.

Results

Of 106 invitees, 32 (30.2%) completed the survey, with the highest response (63.6%, n = 7) from 11 professional contacts. Twelve (21.8%) of 55 invitees responded from site A, and 13 (32.5%) from approximately 40 at site B. The majority (59.4%, n = 19) were consultant obstetricians. Most practised in an Australian, urban, public setting.

Nearly all respondents (96.9%, n = 31) had been exposed to some type of birth trauma, with almost all finding these experiences personally traumatic (see Table 1). Twenty-four (75%) had been involved with unexpected intrapartum stillbirth or unexpected neonatal death, and 21 (65.6%) with maternal death or near miss. Nearly 72% (n = 23) of respondents had experienced at least one adverse professional event, with over 95% (n = 22) finding their experiences traumatic. Half the respondents reported experiencing at least one personal traumatic event in their lifetime, with three (9.4%) describing their own (or their partner's) birthing experience as traumatic.

(Insert Table 1 approximately here)

One quarter of respondents had considered leaving obstetric practice due to their experience, but were still practising. Only eight (25%) respondents felt that their employer provided sufficient support after the adverse event. Half reported receiving sufficient support from family. Of the 16 who accessed professional counsellors, 12 found this 'not at all' supportive.

All scales related to PTSD, burnout, and post-traumatic growth had Cronbach's alphas above .85. Three quarters (n=24) of respondents reported current symptoms of traumatic stress, including nine of the twelve (75%) registrars exposed to traumatic birth. Over a third of respondents (n = 12, 38.2%) reported continued symptoms for months since the trauma. Table 2 shows the prevalence of PTSD, work-related burnout, and post-traumatic growth. Only one respondent scored in the range suggesting probable PTSD. A quarter of respondents reported moderate work-related burnout, with one in the high range. Over 40% reported significant post-traumatic growth.

(insert Table 2 approximately here)

The summed types of trauma experienced in all three categories (birth, professional, personal) correlated with post-traumatic symptom scores (see Table 3). Post-traumatic symptom scores correlated with work-related burnout scores and post-traumatic growth scores. No other significant correlations were noted.

(insert Table 3 approximately here)

Three main themes were derived. Respondents felt that obstetrics was a high-risk profession, with the theme that '*obstetricians experience substantial trauma*'. Most respondents mentioned the word '*blame*', and felt that experiencing a traumatic birth was worsened by '*the reaction of those around us*' (14). The theme of a '*culture of blame in*

obstetrics’ was derived from descriptions of this culture as *‘bullying’* (S18) and *‘sink or swim’* (S10). Some reported feeling unsupported as junior doctors involved with a traumatic birth and being adversely affected for years afterwards. One mentioned suicidal ideation but was receiving psychological counselling. Examples of systems able to help those who had experienced trauma developed the theme *‘in some workplaces it’s supportive and safe’*. Several participants wanted appropriate debriefing and counselling to be available, provided there were no adverse professional consequences or *‘retribution’* (15) for seeking help. At least one found the confidential rostered discussion sessions provided at site B *‘beneficial’* (18). Others discussed the importance of mentorship, resilience, mindfulness, and training in advanced obstetric skills to help deal with potentially traumatic births. Several reflected on how they used what they had learned from their traumatic experience to teach and support obstetric and midwifery staff and students. One interviewee mentioned how completing the survey revealed the amount of emotional growth achieved since the traumatic experience.

Feasibility: Respondents supported the planned future binational study. They suggested emphasising that survey results could guide how support is provided to obstetric staff affected by perinatal trauma. Two described fear of being identified if responding to surveys originating from RANZCOG. Six reported that it was difficult to think about past trauma in order to answer the survey. Some questions needed refining, such as including peers and mentors as answer options when asking about support. Several suggested adding questions asking about the training level of the respondent when the traumatic birth occurred, and barriers to seeking help such as fear of mandatory reporting. Most interviewees reported completing the survey in 10-20 minutes. Respondents appreciated that adding more questions would increase survey completion time, possibly decreasing the response rate.

Discussion

Participants had a high rate of exposure to traumatic births, with three quarters currently experiencing trauma symptoms. Although the sample was small compared to recent European studies^{3-6, 21}, prevalence of trauma exposure was higher. Trauma symptom scores were associated with experiencing different types of adverse events, including stressful professional events as well as traumatic births. This was a novel finding, not reported in previous studies with obstetricians and other maternity health professionals.

The rate of work-related burnout was comparable to that found in Australian midwives²⁴. Comparison of burnout rates with other samples of obstetricians was not possible due to the use of different instruments. Burnout was shown to correlate with post-traumatic stress symptoms, similar to the findings in Israeli hospital doctors¹¹. Gender is associated with rates of burnout²¹ and will be asked in the larger study.

Post-traumatic growth was explored, with participants acknowledging that distressing experiences often led them to become better clinicians, a similar finding to other studies^{5, 19}. Those who have reflected upon and learned from difficult births may develop the ability to guide others facing similar situations²⁷. However, one quarter of participants, including trainees, were considering leaving obstetrics due to experiencing traumatic births, comparable to the 33.7% of obstetricians in The Netherlands considering leaving for various reasons³. GP obstetricians and trainees will be included in the larger study.

Similar to other studies, obstetricians and trainees reported self-blame^{1, 5, 28}. In Swedish obstetricians, feelings of guilt were significantly associated with PTSD symptoms⁶. Self-blame for a medical error resulting in severe harm to a patient increases the chance of a gynaecologist becoming a traumatised 'second victim'¹⁵. Birth-related interpersonal conflicts and medical errors were considered potentially traumatic events for Dutch

obstetricians³, and need to be considered for inclusion in our larger survey, as will questions about guilt.

The greatest impacts after traumatic birth for participants were perceived blame from others, including senior colleagues, and lack of support. While support from peers and mentors was valued, more was needed, similar to the Dutch findings³. Respondents advised that safe, rather than punitive, supportive structures and processes need to be put in place. Seeking help needs to be normalised. Location (rural/urban) and type (public/private/mixed) of practice will again be asked in the larger study to identify where support is needed. Debriefing was mentioned both positively and negatively in our study, as in the Swedish findings⁶. One participant who disclosed involvement with confidential debriefing sessions for obstetric registrars at site B suggested that all hospitals should provide similar support. These sessions appear similar to those described at another Australian maternity hospital²⁹ where facilitated monthly group discussions led to significant reductions in burnout and secondary traumatic stress symptoms.

This pilot study suggests that the planned larger study is feasible. The online survey seemed easy to use. To encourage participation, it will be important to explicitly assure anonymity of responses, and emphasise potential research benefits such as improving workplace support. Recently, the International Consortium for Health Outcomes Measurement (ICHOM) recommended the use of a standardised measure to assess PTSD, the Impact of Events Scale Revised (IES-R)³⁰, which will be used in the larger study.

Limitations of the study included the small purposive sample, so the results are not generalisable. The survey was cross-sectional rather than prospective, so causation cannot be implied. Only those currently working in obstetrics were surveyed, so workforce implications could not be assessed. Traumatic stress prevalence may have been underestimated as those

who have left obstetrics due to distressing experiences were not included. Trauma data refer to current issues experienced over the last month relating to the worst or most significant traumatic events, and reflect current prevalence, not lifetime incidence of post-traumatic stress symptoms. Medical errors and other safety issues were not assessed, thus correlation with PTSD and burnout was not possible. A strength of the study was the mixed-methods approach, so that qualitative feedback was elucidated on participants' experience of trauma to refine the survey.

Table 1. Exposure to birth trauma and professional events

Birth trauma	Exposed	Found traumatic	Found traumatic
	n (%)	n (% of total)	n (% of those exposed)
Unexpected intrapartum stillbirth or unexpected neonatal death	24 (75.0)	19 (59.4)	19 (79.2)
Severe intrapartum injury to baby	23 (71.9)	20 (62.5)	20 (87.0)
Maternal death (or near miss)	21 (65.6)	15 (46.9)	15 (71.4)
Other traumatic birth or intrapartum emergency	24 (75.0)	16 (50.0)	16 (66.7)
Other work-related trauma during birth such as violence/threat to yourself	8 (25.0)	6 (18.8)	6 (75.0)
None of the above	1 (3.1)	2 (6.3)	N/A
Any birth trauma(s)	31 (96.9)	30 (93.8)	30 (96.8)
Professional event			
Personal criticism in morbidity and mortality meeting	11 (34.4)	8 (25.0)	8 (72.7)

Incident report made about your management	14 (43.8)	7 (21.6)	7 (50.0)
Formal patient complaint	13 (40.6)	6 (18.8)	6 (46.2)
Performance review made by your employer after an adverse event	3 (9.4)	2 (6.3)	2 (66.7)
Named in a medicolegal claim	10 (31.3)	9 (28.1)	9 (90.0)
Media coverage critical of your management	5 (15.6)	5 (15.6)	5 (100.0)
Reported to medical board or other regulatory authority	6 (18.8)	5 (15.6)	5(83.3)
Restrictions on, or suspension from, practice	1 (3.1)	1 (3.1)	1 (100.0)
Other	3 (9.4)	2 (6.3)	2 (66.7)
No adverse professional events/No stress	9 (28.1)	10 (31.3)	N/A

Any professional event(s)	23 (71.9)	22 (68.8)	22 (95.7)
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Personal trauma

Physical violence or sexual assault (experiencing or witnessing)	5 (15.6)	Not asked	Not asked
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Life-threatening injury or illness	1 (3.1)	Not asked	Not asked
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Combat deployment or living in war zone	2 (6.3)	Not asked	Not asked
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Traumatic birth when you (or your partner) were giving birth to your baby	3 (9.4)	Not asked	Not asked
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Any other extremely traumatic event	6 (18.8)	Not asked	Not asked
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Any personal trauma(s)	16 (50.0)	Not asked	Not asked
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Table 2. Current prevalence of probable post-traumatic stress disorder, moderate-high burnout, and significant post-traumatic growth.

Outcome	Threshold	Mean (SD) or Median (Min, Max)	Number above threshold (%)
PTSD (N=32)	PDS-5 >27	Median = 5 (0, 73)	1 (3.1)
Burnout (N=32)	CBI-W >50	Mean = 45.5 (17.6)	>50 = 8 (25.0)
	High >75		>75=1 (3.1)
Post-traumatic Growth (N=31)	PTGI-SF >10	Mean = 11.0 (9.1)	13 (41.9)

PDS-5: Posttraumatic Diagnostic Scale for DSM-5 ²³

PTGI-SF: Post Traumatic Growth Inventory Short-Form ¹⁷

CBI-W: Work subscale of the Copenhagen Burnout Inventory ⁹

Table 3. Correlations between post-traumatic stress symptoms, work-related burnout, and post-traumatic growth responses, and traumatic exposure

Independent Variable	Dependent Variable	r (or rho)	significance
Post-traumatic stress (PDS-5)	Post-traumatic growth (PTGI-SF)	rho=.402	<.05*
Post-traumatic stress (PDS-5)	Work-related burnout (CBI-W)	rho=.405	<.05*
Work-related burnout (CBI-W)	Post-traumatic growth (PTGI-SF)	r=.166	.37
Birth Trauma types total#	Post-traumatic stress (PDS-5)	rho=.205	.26
Birth+Professional Trauma types total#	Post-traumatic stress (PDS-5)	rho=.338	.06
Birth+Professional+Personal Trauma types total#	Post-traumatic stress (PDS-5)	rho=.353	<.05*
Birth Trauma types total#	Work-related burnout (CBI-W)	r=.344	.05
Birth+Professional Trauma types total#	Work-related burnout (CBI-W)	r=.339	.06
Birth+Professional+Personal Trauma types total#	Work-related burnout (CBI-W)	r=.343	.06

Birth Trauma types total#	Post-traumatic growth (PTGI-SF)	r=.133	.48
Birth+Professional Trauma types total#	Post-traumatic growth (PTGI-SF)	r=.266	.15
Birth+Professional+Personal Trauma types total#	Post-traumatic growth (PTGI-SF)	r=.307	.09

* p<.05

See Table 1 for types of birth trauma, personal trauma, and professional events.

PDS-5: Posttraumatic Diagnostic Scale for DSM-5 ²³

PTGI-SF: Post Traumatic Growth Inventory Short-Form ¹⁷

CBI-W: Work subscale of the Copenhagen Burnout Inventory ⁹

References

1. Cauldwell M, Chappell LC, Murtagh G, Bewley S. Learning about maternal death and grief in the profession: A pilot qualitative study. *Acta Obstetrica et Gynecologica Scandinavica*. 2015;94(12):1346-53.
2. Leinweber J, Creedy DK, Rowe HJ, Gamble J. Responses to birth trauma and prevalence of posttraumatic stress among Australian midwives. *Women and Birth*. 2017;30(1):40-5.
3. Baas MA, Scheepstra KW, Stramrood CA, Evers R, Dijkman LM, van Pampus MG. Work-related adverse events leaving their mark: A cross-sectional study among Dutch gynecologists. *BMC Psychiatry*. 2018;18(1):73.
4. Wahlberg Å, Andreen Sachs M, Johannesson K, Hallberg G, Jonsson M, Skoog Svanberg A, et al. Self-reported exposure to severe events on the labour ward among Swedish midwives and obstetricians: A cross-sectional retrospective study. *International Journal of Nursing Studies*. 2017;65:8-16.
5. Schrøder K, Jørgensen JS, Lamont RF, Hvidt NC. Blame and guilt—a mixed methods study of obstetricians' and midwives' experiences and existential considerations after involvement in traumatic childbirth. *Acta Obstetrica et Gynecologica Scandinavica*. 2016;95(7):735-45.
6. Wahlberg Å, Andreen Sachs M, Johannesson K, Hallberg G, Jonsson M, Skoog Svanberg A, et al. Post-traumatic stress symptoms in Swedish obstetricians and midwives after severe obstetric events: A cross-sectional retrospective survey. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2017;124(8):1264-71.
7. van den Berg LJ, Tollenaar MS, Spinhoven P, Penninx BW, Elzinga BM. A new perspective on PTSD symptoms after traumatic vs stressful life events and the role of gender. *European Journal of Psychotraumatology*. 2017;8(1):1380470.
8. Horsfall S. Doctors who commit suicide while under GMC fitness to practice investigation. *General Medical Council*; 2014.
9. Kristensen TS, Borritz M, Villadsen E, Christensen KB. The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress*. 2005;19(3):192-207.
10. Stafford L, Judd F. Mental health and occupational wellbeing of Australian gynaecologic oncologists. *Gynecologic oncology*. 2010;116(3):526-32.
11. Einav S, Shalev AY, Ofek H, Freedman S, Matot I, Weiniger CF. Differences in psychological effects in hospital doctors with and without post-traumatic stress disorder. *The British Journal of Psychiatry*. 2008;193(2):165-6.
12. Ruitenburt MM, Frings-Dresen MH, Sluiter JK. The prevalence of common mental disorders among hospital physicians and their association with self-reported work ability: A cross-sectional study. *BMC health services research*. 2012;12(1):292.
13. Panagioti M, Geraghty K, Johnson J, Zhou A, Panagopoulou E, Chew-Graham C, et al. Association between physician burnout and patient safety, professionalism, and patient satisfaction: A systematic review and meta-analysis. *JAMA internal medicine*. 2018;178(10):1317-30.
14. Brown SD, Goske MJ, Johnson CM. Beyond substance abuse: Stress, burnout, and depression as causes of physician impairment and disruptive behavior. *Journal of the American College of Radiology*. 2009;6(7):479-85.
15. Carugno J, Winkel AF. Surgical Catastrophe. Supporting the Gynecologic Surgeon after an Adverse Event. *Journal of Minimally Invasive Gynecology*. 2018.
16. Krysinska K, Lester D. Post-traumatic stress disorder and suicide risk: A systematic review. *Archives of Suicide Research*. 2010;14(1):1-23.
17. Cann A, Calhoun LG, Tedeschi RG, Taku K, Vishnevsky T, Triplett KN, et al. A short form of the Posttraumatic Growth Inventory. *Anxiety, Stress, & Coping*. 2010;23(2):127-37.
18. Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*. 1996;9(3):455-71.

19. Beck CT, Eaton CM, Gable RK. Vicarious posttraumatic growth in labor and delivery nurses. *Journal of Obstetric, Gynecologic & Neonatal Nursing*. 2016;45(6):801-12.
20. Creswell JW, Plano Clark VL. *Designing and Conducting Mixed Methods Research*. 3rd ed. Los Angeles: SAGE Publications; 2017.
21. Schrøder K, Larsen PV, Jørgensen JS, vB Hjelmberg J, Lamont RF, Hvidt NC. Psychosocial health and well-being among obstetricians and midwives involved in traumatic childbirth. *Midwifery*. 2016;41:45-53.
22. Mills KL, McFarlane AC, Slade T, Creamer M, Silove D, Teesson M, et al. Assessing the prevalence of trauma exposure in epidemiological surveys. *Australian and New Zealand Journal of Psychiatry*. 2011;45(5):407-15.
23. Foa EB, McLean CP, Zang Y, Zhong J, Powers MB, Kauffman BY, et al. Psychometric properties of the Posttraumatic Diagnostic Scale for DSM-5 (PDS-5). *Psychological Assessment*. 2015;28(10):1166.
24. Creedy DK, Sidebotham M, Gamble J, Pallant J, Fenwick J. Prevalence of burnout, depression, anxiety and stress in Australian midwives: A cross-sectional survey. *BMC Pregnancy and Childbirth*. 2017;17(1):13.
25. Kehl D, Knuth D, Hulse L, Schmidt S. Predictors of postevent distress and growth among firefighters after work-related emergencies—A cross-national study. *Psychological Trauma: Theory, Research, Practice, and Policy*. 2015;7(3):203.
26. Fenwick J, Hauck Y, Downie J, Butt J. The childbirth expectations of a self-selected cohort of Western Australian women. *Midwifery*. 2005;21(1):23-35.
27. Wahlberg Å, Högberg U, Emmelin M. The erratic pathway to regaining a professional self-image after an obstetric work-related trauma: A grounded theory study. *International journal of nursing studies*. 2019;89:53-61.
28. Schrøder K, la Cour K, Jørgensen JS, Lamont RF, Hvidt NC. Guilt without fault: A qualitative study into the ethics of forgiveness after traumatic childbirth. *Social Science & Medicine*. 2017;176:14-20.
29. Allen R, Watt F, Jansen B, Coghlan E, Nathan EA. Minimising compassion fatigue in obstetrics/gynaecology doctors: Exploring an intervention for an occupational hazard. *Australasian Psychiatry*. 2017;25(4):403-6.
30. Weiss D, Marmar C, Wilson J, Keane T. The Impact of Events Scale—Revised. In: JP W, Keane T, editors. *Assessing Psychological Trauma and PTSD*. New York: Guilford; 1997. p. 399-411.