Original Article

Traumatic Event Scale: A Pilot Study in Greece

Pinelopi Varela, RM, MSc, PhD(c)
General Hospital of Athens ''Alexandra'', Department of Midwifery, University of West Attica, Athens, Greece

Ioannis Zervas, MD, PhD
Professor of Psychiatry and Psychosomatic Medicine, National and Kapodistrian University of Athens Medical School, Head of the Women's mental health and reproductive psychiatric clinic, Eginition University Hospital, Athens, Greece

Aikaterini Lykeridou, RN, RM, PhD
Professor of Midwifery, Department of Midwifery, University of West Attica, Athens, Greece

Anna Deltsidou, RN, RM, MSc, MPH, PhD
Professor of Midwifery, Department of Midwifery, University of West Attica, Athens, Greece

Name and postal address of the place where the work was carried out: General Hospital of Athens "Alexandra", Lourou 4-2, Athens 115 28.

Correspondence: Pinelopi Varela, Ag. Spyridonos 28, Aegaleo, 12243, Athens, Greece e-mail address: pinelopimid@yahoo.gr

Abstract

Background: The perinatal Posttraumatic Stress Disorder (PTSD) symptomatology is associated with negative consequences. One of the most often used method for its assessment is the Traumatic Event Scale (TES).
Aims: This pilot study aimed to pretest the TES in Greece.
Methodology: Pregnant women completed the TES, the State-Trait Anxiety Inventory (STAI) and the Edinburgh Postnatal Depression Scale (EPDS). Translation, test-retest and internal consistency reliability of the TES were performed. The scores of the TES were examined for correlations with the STAI and the EPDS scores.
Results: Our findings provided evidence for good test-retest reliability and satisfactory values of Cronbach's a.
Conclusion: The validation of the TES in Greece it seems to be an achievable goal in the future.

Key words: pretraumatic stress; posttraumatic stress; PTSD; pregnancy; childbirth; pilot study.

Introduction

Although childbirth is a natural experience for a woman, may become a complicated and often traumatic event that could represent a danger to the life of the mother and/or her child. The occurrence of Post-traumatic Stress Disorder (PTSD) may preexist pregnancy or develop across the perinatal period (Howard et al., 2014) and described as lasting from the beginning of pregnancy up to one year after delivery (McKenzie-McHarg et al., 2015). Prenatal PTSD may be the result of a traumatic event such as an abuse resulting from interpersonal relationships, an accident or natural disaster (Yildiz, Ayers, & Phillips, 2017).

Following a rough or traumatic birth at which women think or fear they and/ or their child may die or be badly injured, P TSD may grow during postnatal period.

Also, it is possible PTSD be re-triggered by incidents during pregnancy and delivery if women have a history of PTSD (Halvorsen et al.,2013).

According to the Diagnostic and Statistical Manual (DSM-V), from the American Psychiatric Association (APA), PTSD consists of four sets of symptom clusters: (1) intrusion or re-experiencing, (2) avoidance, (3) negative alterations cognitions and mood and (4) arousal.

The disturbance lasts more than one month, significantly impair individual's functioning and is not a result of a physiological effect of a substance abuse or another medical condition. Individuals must have been exposed to actual or threatened death, serious injury, or sexual violence in one of the following ways or more: direct, witnessed, indirect, repeated or extreme indirect exposure (American Psychiatric Association, 2013).

The negative consequences of perinatal PTSD have previously been reported by a number of studies. Some of them are the negative impact on women, their relationship and birth outcomes (Nicholls & Ayers, 2007;Shaw et al., 2014; Yonkers et al., 2014). Moreover, there are indications that PTSD may affect the emotion regulation and development of the infant of an exposed mother to PTSD (Bosquet Enlow et al., 2011; Parfitt, Pike, & Ayers, 2014).

A recent large longitudinal study found that maternal postpartum PTSD symptoms at eight weeks after delivery were associated with poor social-emotional development of children at two years (Garthus-Niegel et al., 2017).

Interviews and diagnostic self-report questionnaires, such as the Traumatic Event Scale (TES), are among the diagnostic measures used to identify PTSD (Yildiz et al., 2017). Previous authors of published studies have already pointed out the importance of identifying and screening for PTSD during the perinatal period (Yildiz et al., 2017; Cook, Ayers, & Horsch, 2018).

The measurement of the perinatal PTSD in Greece, is limited. The primary aim of the present pilot study was to distinguish possible obstacle areas and shortcomings in the main research project concerning perinatal PTSD in Greece. The secondary aims were to determine the feasibility of the main study protocol, to examine if the recruitment methods of participants are suitable, to pretest the TES (version A & B) and to investigate the preliminary psychometric characteristics of the two Greek versions of the TES.

Method

Design and Setting: We conducted a pilot study with features of an observational cohort study, which will be the main future research project. The research was carried out in an Athens public maternity unit. Data were collected from January to May 2020.

Participants and recruitment of participants: In order to participate pregnant women had to meet the subsequent inclusion criteria: aged over 18 years, with adequate understanding of the Greek language and with a low risk pregnancy. Pregnant women having a severe chronic disease, a high risk pregnancy, a psychiatric illness or intaking a psychiatric medication and with twin or multiple pregnancy were excluded. Eligible pregnant women during the second or the third trimester of pregnancy were invited by the primary investigator to enroll in the study following their usual antenatal examination. Participants were informed about the purpose of the study and they were given enough time to decide whether or not to participate. Once they accepted, the main researcher gave them the instructions for properly filling out the questionnaires. Participants were also asked to note any questions if they faced difficulty in answering. The primary researcher spent about 20 minutes to clarify the purpose of the study and to obtain participants' consent. Due to the large number of pregnant women who waited for their appointment, the main researcher described the process of identifying eligible pregnant women as prolonged.

Any of the invited participants who were eligible accepted to take part in the study. The questionnaires were filled out in the waiting room as the participants waited for their appointments. There were no issues with the questionnaires for the retest, that were submitted to the main researcher by e-mail.

Pretesting of the TES (version A & B): Participants completed each version of the scale in about 10 minutes on average, and they answered all questions. Participants did not find any vague or contradictory objects on the whole scale.

Sample size: The sample size composed of 30 women and there has been no sample size justification because of the pilot nature of the study and the goal was to test the final version of TES (A & B) in a sample from the target population.

Data collection: Participants were asked to fill in a set of questionnaires in two phases. During the first phase (i.e. at some point in the second or third trimester of pregnancy) respondents were asked to complete a questionnaire with demographic characteristics, questions concerning the obstetric and mental health

history, the Traumatic Event Scale (TES version A), the Greek version of State-Trait Anxiety Inventory (STAI) and the Greek version of Edinburgh Postnatal Depression Scale (EPDS). During the second phase (i.e. 4 weeks postpartum) participants were asked to complete the Traumatic Event Scale (TES version B), the EPDS and a questionnaire relating to childbirth and postpartum period.

Measurement tools

The Traumatic Event Scale (TES): The Traumatic Event Scale (TES) has been developed especially to measure traumatic stress symptoms, related to the forthcoming delivery (version A) and following childbirth (version B). It was developed according to the DSM-IV criteria for PTSD and comprises all symptom criteria for PTSD. The criterion A includes four statements, that are adjustable for the specific trauma of interest. Each statement is followed by four alternate responses: "not at all", "somehow", "much", and "very much". Subsequent to criterion A, there are 17 sentences containing the DSM-IV PTSD symptoms which comprise criteria B, C, and D, (i.e., intrusive thoughts, avoidance and numbing, and arousal). Participants rate the occurrence of the symptoms mentioned in the statements by selecting one of four options: "never/not at all", "rarely", "sometimes" or "often". Criterion F is assessed by the degree of the "severity" on a scale from 0-10 (not at all to extremely influenced) for every statement, telling how much a participant is influenced in daily life by means of the statement's content. Criterion E (i.e. the duration of symptoms) is assessed by means of a 13-point scale, ranging from "less than 4 weeks" to "more than 12 months." The Cronbach's alpha of original version was 0.84 and split-half reliability was 0.90 (Wijma, Söderquist, & Wijma, 1997). Although the TES is remarkably used in studies on perinatal PTSD symptoms (Söderquist, Wijma, & Wijma, 2004; Stramrood et al., 2010; Goutaudier et al., 2019), so far has not been translated and validated in the Greek language.

The State-Trait Anxiety Inventory (STAI): The Spielberger State-Trait Anxiety Inventory (STAI) consists of two subscales. The first scale is the State subscale which measures the anxiety at the time of assessment, that may change over time. The second one is the Trait subscale which assesses the anxiety level as a personal characteristic, that remains constant over time. Each scale has 20 statements scored on a 4-point Likert scale from 1 to 4. For each subscale, the overall score ranges from 20 to 80, the higher scores showing higher levels of anxiety (Spielberger et al., 1983). The STAI has been translated and validated in the Greek population and the Cronbach's alpha was found to be 0.93 for the state anxiety subscale and 0.92 for the trait anxiety subscale (Fountoulakis et al., 2006).

Edinburgh Postpartum Depression Scale (EPDS): The EPDS is a commonly used instrument with high validity and reliability in both prenatal and postnatal populations. The scale is composed of ten items that describe depressive symptoms and four possible responses scored from 0 to 3 according to the intensity or duration of the symptom and their overall sum is determined at the end (Cox, Holden, & Sagovsky, 1987). The scale has been translated and validated in the Greek population, with an very satisfactory internal consistency reliability (Cronbach's alpha = 0.9) (Leonardou et al., 2009).

Translation of the Traumatic Event Scale (TES version A & B) into Greek: The translation process was consisted of four phases and started after the approval of the author of the original version (Professor Klaas Wijma) (Wijma, Söderquist, & Wijma, 1997). At first phase performed the forward translation by two bilingual translators, with dissimilar profiles, whose mother tongue was the Greek language and they produced two independent forward translations of the instrument from the English language. At second phase carried out the synthesis of the translations by the two forward translators and one of the researchers (AD) who synthesized and reviewed the results of the translations. The back translation done during the third phase by two translators, whose mother tongue was the English language and they performed independently the back translation. The final fourth phase included the Expert Committee and the Submission of documentation to the developer. One of the researchers (AD), the translators (forward and back translators) and three health professionals were the members of the Expert Committee. All the reports of the translated version submitted to the developer of the instrument.

Test-Retest Reliability of TES (version A & B): One of the purposes of the current study was to examine the test–retest reliability of both versions of the scale. In order to achieve it, versions A & B were administrated to the same sample group of participants at a different period.

Ten days elapsed between the administration of both versions. The answers for the retest were e-mailed to the primary researcher.

Ethical Considerations: The Research Ethics Committee of the University of West Attica (Reference number: 41087) and the Scientific Committee of the Hospital where the study conducted, approved the study protocol. Study participants having informed for the purpose of the study and their right to withdraw at any point gave to the main researcher their written informed consent.

Statistical analysis: Descriptive statistics are presented as mean values and standard deviations (SD) for the quantitative variables and as frequency distributions for the qualitative variables. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were not possible to be done due to the small sample size and so the total score on both versions of the TES scale was calculated. The intraclass correlation coefficients (ICCs) were used for reporting the findings of test–retest reliability. The similarity between values from the same group is considered low when the ICC is up to 0.4, moderate when it ranged from 0.41 to 0.6, high when it ranged from 0.61 to 0.80 and very high when was greater than 0.8 (Akoglu, 2018). The Cronbach's alpha was used to evaluate the internal consistency of both TES versions and values > 0.7 were considered as acceptable (Streiner, 2003). To examine the construct validity the scores of both TES versions were correlated with those of the STAI and the EPDS scales. The Spearman correlation coefficient (r) was used and was designated as weak (<0.30; measuring unrelated constructs), as moderate (0.31-0.50; measuring related, but dissimilar constructs) and as high (≥0.50; measuring similar constructs) (Mokkink et al., 2018). Data analysis was performed by SPSS v. 22.0 and p-values of < 0.05 were considered statistically significant.

Results

Characteristics of participants

The mean age of the total sample was 34.3 years (SD=3.8). The majority of the participants were married (90.0%), had graduated from college or university (73.3%) and had a full paid employment (53.3%). Twelve women had visited a specialist of mental health in the past and two of them because of PTSD. Eight women had the experience of psychotherapy in the past. The 43.3% of the participants were primigravidas. The majority of the participants (73.3%) gave birth vaginally and without complications during the delivery. Table 1 shows the participants' characteristics in detail.

The mean score on the dimension «Anticipation of trauma» of TES-A was 8.4 (SD=2.3) and of TES-B was 7.7 (SD=2.8), with no statistically significant difference (p=0.115). The mean score on the dimension «Intrusion» of TES-A was 8.4 (SD=3) and of TES-B was lower and equal to 6 (SD=1.9) with statistically significant difference (p<0,001). The mean score on the dimension «Avoidance» of TES-A was 4.3 (SD=1.2) and of TES-B was lower and equal to 3.5 (SD=0.7) with statistically significant difference (p=0,005). The mean score on the dimension «Numbing» of TES-A was 6.6 (SD=2.2) and of TES-B was lower and equal to 5.1 (SD=1.7) with statistically significant difference (p=0,008). The mean score on the dimension «Hyperstimulation» of TES-A was 7.9 (SD=3.4) and of TES-B was 7.4 (SD=3.1), with no statistically significant difference (p=0,343) (Table 2).

Preliminary psychometric characteristics of TES (version A & B)

The test–retest reliability (ICC) on 21 items of TES-A ranged from 0.76 to 0.96 and for TES-B ranged from 0.56 to 1.00. Cronbach's a reliability coefficient of five dimensions for both versions of the scale ranged from 0.62 to 0.87 (Table 2).

Table 3 presents the correlations between TES (A & B), STAI and EPDS. The EPDS prenatally was positively correlated with «Numbing» (r=0.46, p < 0.05) and «Hyperstimulation» (r=0.41, p < 0.05) dimensions of the TES-A scale. The EPDS postnatally was positively correlated with the dimensions of the TES-A «Anticipation of trauma» (r=0.36, p < 0.05), «Intrusion» (r= 0.38, p < 0.05) and «Hyperstimulation» (r= 0.71, p < 0.05) and with the dimensions of the TES-B «Anticipation of trauma», (r= 0.40, p < 0.05), «Intrusion» (r= 0.46, p < 0.05), «Numbing» (r= 0.38, p < 0.05) and «Hyperstimulation» (r= 0.44, p < 0.05). The subscale state anxiety of the STAI was positively correlated with the dimensions «Anticipation of trauma» (r= 0.45, p < 0.05), «Intrusion» (r= 0.68, p < 0.05), «Numbing» (r= 0.44, p < 0.05) and «Hyperstimulation» (r= 0.60, p < 0.05) of the TES-A and with the dimensions «Anticipation of trauma» (r= 0.39, p < 0.05), «Intrusion» (r= 0.50, p < 0.05) and «Hyperstimulation» (r= 0.39, p <

0.05) of the TES-B. The subscale trait anxiety of the STAI was positively correlated with the dimensions «Anticipation of trauma» (r= 0.45, p < 0.05), «Intrusion» (r= 0.42, p < 0.05), «Numbing» (r= 0.46, p < 0.05) and «Hyperstimulation» (r= 0.66, p < 0.05) of the TES-A.

Table1: Characteristics of participants

		N	%
Age, mean (SD)		34.3 (3.8)	
Marital status	Married	27	90.0
	Single in a relationship	2	6.7
	Single without a relationship	0	0.0
	Cohabitation with a partner	0	0.0
	Separated	0	0.0
	Divorced	0	0.0
	Cohabitation agreement	1	3.3
	Widow	0	0.0
Educational level	Primary	0	0.0
	Secondary	5	16.7
	Tertiary	22	73.3
	Other	3	10.0
Professional status	Full paid employment	16	53.3
	Part-time employment	5	16.7
	Self-employment	1	3.3
	Unemployed	6	20.0
	Household	2	6.7
Other children	No	13	43.3
	Yes	17	56.7
Visit to a specialist of mental health in the past		12	40.0
If yes, mention the psychological difficulties	Depression	2	6,7
	Postnatal depression	0	0,0
	Anxiety	7	23,3
	Panic attacks	1	3,3
	PTSD	2	6,7
	Other	2	6,9
Psychotherapy in the past		8	26,7
Miscarriage in the past	No	22	73.3
	Yes	8	26.7
Complications in previous pregnancy	No	25	83.3
	Yes	5	16.7
Parity	1	13	43.3
	2	11	36.7
	3	5	16.7
	4	1	3.3
The present pregnancy was	Planned	17	56.7
	Unplanned, but desirable	12	40.0
	Unplanned, but not so desirable	1	3.3
	Unwanted	0	0.0
Complications in the current pregnancy	No	22	73.3
	Yes	8	26.7
Gestational age at delivery, mean (SD)		38.7 (0.9)	
Type of delivery	Vaginal delivery	22	73.3

	Instrumental delivery	0	0.0
	Cesarean section	8	26.7
Complications during delivery	No	21	70.0
	Yes	9	30.0

Table 2: Mean total score, test–retest reliability ICCs and Cronbach's a

	Mean (SD)	ICC	Cronbach's a
TES-A (dimensions of pretraumatic stress symptoms)		0.76 - 0.96	
Anticipation of trauma	8.4 (2.3)		0.66
Intrusion	8.4 (3)		0.79
Avoidance	4.3 (1.2)		0.63
Numbing	6.6 (2.2)		0.62
Hyperstimulation	7.9 (3.4)		0.87
TES-B(dimensions of posttraumatic stress symptoms)		0.56 -1.00	
Anticipation of trauma	7.7 (2.8)		0.79
Intrusion	6 (1.9)		0.76
Avoidance	3.5 (0.7)		0.64
Numbing	5.1 (1.7)		0.64
Hyperstimulation	7.4 (3.1)		0.86

Abbreviations: ICC: Intraclass correlation coefficients; TES: Traumatic Event Scale

Table 3: Correlations between TES (A & B), STAI and EPDS.

		State anxiety	Trait anxiety	EPDS (prenatal)	EPDS (postnatal)
TES-A (dimensions of pretraumatic stress symptoms)					
Anticipation of trauma	r	0.45**	0.45**	0.17*	0.36**
Intrusion	r	0.68**	0.42**	0.26*	0.38**
Avoidance	r	0.24*	0.12*	0.15*	0.14*
Numbing	r	0.44**	0.46**	0.46**	0.33*
Hyperstimulation	r	0.60**	0.66**	0.41**	0.71**
TES-B (dimensions of posttraumatic stress symptoms)					
Anticipation of trauma	r	0.39**	0.11*	0.38*	0.40**
Intrusion	r	0.50**	0.35*	0.31*	0.46**
Avoidance	r	0.35*	0.13*	-0.04*	0.07*
Numbing	r	0.09*	0.01*	0.21*	0.38**
Hyperstimulation	r	0.39**	0.11*	0.24*	0.44**

Abbreviations: EPDS: Edinburgh Postpartum Depression Scale; r: Spearman correlation coefficient; TES: Traumatic Event Scale * P-values of > 0.05, ** P-values of < 0.05.

Discussion

The feasibility of the study protocol has been shown by this pilot study. The approaches used to enroll participants were appropriate based on the study's inclusion criteria. Moreover, all of the research procedures seemed to be compliant to participants not only in the waiting room, but also during the postnatal phase. The pilot test of TES scale revealed that there were no questions that participants failed to respond or that seemed to be misinterpreted or impossible to understand.

It was found that the mean scores on three dimensions of TES-B (i.e. after delivery) were significantly lower than those of TES-A. This finding possibly indicates that women expressed lower levels of posttraumatic stress symptoms after their delivery. Unfortunately, this cannot be proven owing to the current study's pilot nature and the scale's lack of validation. Our results revealed satisfactory ICCs, indicating a high degree of correlation between scores from the same group. Thus, this is considered evidence for good test-retest reliability. The half of the values of Cronbach's a reached the desirable limits but the rest half were close to this limit. This finding does not allow us to have a clear opinion on the reliability of the scale. The future validation of the TES will provide more evidence on reliability.

The results of the correlations between the TES and the other scales showed interesting results. More specifically, the prenatally performed EPDS was significantly positively related with the dimensions «Numbing» and «Hyperstimulation» of TES-A. The postnatally performed EPDS was positively related with the dimensions «Anticipation of trauma», «Intrusion» and «Hyperstimulation» of TES-A and with the dimensions «Anticipation of trauma», «Intrusion», «Numbing» and «Hyperstimulation» of TES-B with statistically significant difference. The state subscale of STAI was positively related with the dimensions «Anticipation of trauma», «Intrusion», «Numbing» and «Hyperstimulation» of TES-A and with the dimensions «Anticipation of trauma», «Intrusion» και «Hyperstimulation» of TES-B with statistically significant difference. The trait subscale of STAI was positively related with the dimensions «Anticipation of trauma», «Intrusion» and «Hyperstimulation» of TES-A with statistically significant difference. Our findings are preliminary and cannot completely determine the correlations between the TES and other scales. However, this first attempt can provide us an initial estimate for the construct validity in the future.

Conclusions: The forthcoming validation of both versions of the TES scale will give the possibility to the researchers of the current study to assess the levels of perinatal traumatic stress symptoms accurately in the Greek population, it will allow them to perform comparisons with pregnant populations of different cultures and moreover will permit them to present clearly the psychometric properties of the scale. The aim of this study was to perform a pilot test on a limited sample size in order to figure out any of the potential complications and challenges that could lead to the main testing procedure failing and this purpose was reached

References

Akoglu, H. (2018). User's guide to correlation coefficients. *Turkish Journal of Emergency Medicine*, *18*(3), 91–93.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed). Washington DC.

Bosquet Enlow, M., Kitts, R. L., Blood, E., Bizarro, A., Hofmeister, M., & Wright, R. J. (2011). Maternal posttraumatic stress symptoms and infant emotional reactivity and emotion regulation. *Infant Behavior and Development*, *34*(4), 487–503.

Cook, N., Ayers, S., & Horsch, A. (2018). Maternal posttraumatic stress disorder during the perinatal period and child outcomes: A systematic review. *Journal of Affective Disorders*, *225*, 18–31.

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of Postnatal Depression. Development of the 10-item Edinburgh Postnatal Depression scale. *British Journal of Psychiatry*, *150*(JUNE), 782–786.

Fountoulakis, K. N., Papadopoulou, M., Kleanthous, S., Papadopoulou, A., Bizeli, V., Nimatoudis, I., … Kaprinis, G. S. (2006). Reliability and psychometric properties of the Greek translation of the State-Trait Anxiety Inventory form Y: Preliminary data. *Annals of General Psychiatry*, *5*(5), 2.

Garthus-Niegel, S., Ayers, S., Martini, J., Von Soest, T., & Eberhard-Gran, M. (2017). The impact of postpartum post-traumatic stress disorder symptoms on child development: A population-based, 2-year follow-up study. *Psychological Medicine*, *47*(1), 161–170.

Goutaudier, N., Bertoli, C., Séjourné, N., & Chabrol, H. (2019). Childbirth as a forthcoming traumatic event: pretraumatic stress disorder during

pregnancy and its psychological correlates. *Journal of Reproductive and Infant Psychology*, *37*(1), 44–55.

Halvorsen, L., Nerum, H., Øian, P., & Sorlie, T. (2013). Giving birth with rape in one's past: A qualitative study. *Birth*, *40*(3), 182–191.

Howard, L. M., Molyneaux, E., Dennis, C. L., Rochat, T., Stein, A., & Milgrom, J. (2014). Non-psychotic mental disorders in the perinatal period. *The Lancet*, *384*(9956), 1775–1788.

Leonardou, A. A., Zervas, Y. M., Papageorgiou, C. C., Marks, M. N., Tsartsara, E. C., Antsaklis, A., … Soldatos, C. R. (2009). Validation of the Edinburgh Postnatal Depression Scale and prevalence of postnatal depression at two months postpartum in a sample of Greek mothers. *Journal of Reproductive and Infant Psychology*, *27*(1), 28–39.

McKenzie-McHarg, K., Ayers, S., Ford, E., Horsch, A., Jomeen, J., Sawyer, A., … Slade, P. (2015). Post-traumatic stress disorder following childbirth: an update of current issues and recommendations for future research. *Journal of Reproductive and Infant Psychology*, *33*(3), 219–237.

Mokkink, LB., Prinsen, C., Patrick, DL., Alonso, J., Bouter, LM., de Vet, H., Terwee, C. (2018). *COSMIN manual for systematic reviews of PROMs COSMIN methodology for systematic reviews of Patient-Reported Outcome Measures (PROMs) user manual*. Retrieved from www.cosmin.nl

Nicholls, K., & Ayers, S. (2007). Childbirth-related post-traumatic stress disorder in couples: A qualitative study. *British Journal of Health Psychology*, *12*(4), 491–509.

Parfitt, Y., Pike, A., & Ayers, S. (2014). Infant developmental outcomes: A family systems perspective. *Infant and Child Development*, *23*(4), 353–373.

Shaw, J. G., Asch, S. M., Kimerling, R., Frayne, S. M., Shaw, K. A., & Phibbs, C. S. (2014). Posttraumatic stress disorder and risk of spontaneous preterm birth. *Obstetrics and Gynecology*, *124*(6), 1111–1119.

Söderquist, J., Wijma, K., & Wijma, B. (2004). Traumatic stress in late pregnancy. *Journal of Anxiety Disorders*, *18*(2), 127–142.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto: CA: Consulting Psychologists Press.

Stramrood, C. A. I., Huis In 'T Veld, E. M. J., Van Pampus, M. G., Berger, L. W. A. R., Vingerhoets, A. J. J. M., Schultz, W. C. M. W., … Paarlberg, K. M. (2010). Measuring posttraumatic stress following childbirth: A critical evaluation of instruments. *Journal of Psychosomatic Obstetrics and Gynecology*, *31*(1), 40–49.

Streiner, D. L. (2003). Starting at the beginning: αn introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, *80*(1), 99–103.

Wijma, K., Söderquist, J., & Wijma, B. (1997). Posttraumatic stress disorder after childbirth: A cross sectional study. *Journal of Anxiety Disorders*, *11*(6), 587–597.

Yildiz, P. D., Ayers, S., & Phillips, L. (2017). The prevalence of posttraumatic stress disorder in pregnancy and after birth: A systematic review and meta-analysis. *Journal of Affective Disorders*, *208*, 634–645.

Yonkers, K. A., Smith, M. V., Forray, A., Epperson, C. N., Costello, D., Lin, H., & Belanger, K. (2014). Pregnant women with posttraumatic stress disorder and risk of preterm birth. *JAMA Psychiatry*, *71*(8), 897–904.