

# Comorbidity of Post-traumatic Stress Symptoms and Depressive Symptoms among Obstetric Nurses with Perinatal Death Exposure

Yaira Hamama-Raz, PhD,<sup>1</sup> Reut Walker, MA,<sup>1</sup> Yuval Palgi, PhD,<sup>2</sup> Reuven Mashiach, MD,<sup>3</sup> Karin Lee-Ovadia, MsC,<sup>4</sup> Ariel Manny, MD,<sup>5</sup> and Menachem Ben-Ezra, PhD<sup>1</sup>

<sup>1</sup> School of Social Work, Ariel University, Ariel, Israel

<sup>2</sup> Department of Gerontology, University of Haifa, Haifa, Israel

<sup>3</sup> Department of Obstetrics and Gynecology, Helen Schneider Hospital for Women, Rabin Medical Center, Petach Tikva, Israel

<sup>4</sup> Division of Obstetrics and Gynecology, Assaf Harofe Medical Center, Be'er Ya'akov, Israel

<sup>5</sup> Labor and Delivery Unit, Sourasky Medical Center, Tel Aviv, Israel

## ABSTRACT

**Background:** Mental health and well-being among obstetric nurses after perinatal death is understudied. The primary goal of this study is to explore the comorbidity of post-traumatic stress disorder (PTSD) symptoms and depressive symptoms among obstetric nurses. In addition, we explore associations between personal resources – coping self-efficacy and active social support – and comorbidity symptoms.

**Method:** One hundred and twenty-five obstetric nurses who represent 25% of the entire population of Israeli obstetric nurses completed self-report questionnaires regarding demographic data, coping self-efficacy, active social support, history of exposure to traumatic events, PTSD symptoms and depressive symptoms.

**Results:** An elevated risk of PTSD among obstetric nurses was positively associated with an elevated risk of depression and age while negatively associated with coping self-efficacy.

**Conclusions:** These findings may suggest that nurse educators, administrators and leaders in the midwifery practice should promote stress intervention, supportive clinical environments and educational programs among obstetric nurses.

## INTRODUCTION

The bliss of birth in midwifery practice is sometimes replaced by the tragedy of perinatal death. Caring for and supporting parents whose fetus has died is extremely demanding, painful and stressful (1, 2). Hence, some obstetric nurses may experience difficulties providing supportive care in this area of their professional practice (3). The effects of perinatal death on obstetric nurses' comorbidity and their practice remains largely understudied (4). Two studies, conducted by Chan et al. (1, 5), which measured nurses' general attitudes toward perinatal death revealed that their attitudes were positively correlated with training needs and hospital policy support. However, their mental health was not measured. Ben Ezra et al. (6) found in a longitudinal study that Israeli obstetric nurses showed higher levels of post-traumatic stress, depressive and psychosomatic symptoms three months after exposure to two consecutive events of perinatal death among the obstetrics nurses' staff, in comparison to baseline measurement. In addition, McCool et al. (7) found consistent global reports of responses to perinatal losses, ranging from sadness to depression, sometimes motivating departure from the profession. These responses might result in ineffective coping and maladaptive reactions such as recurrent intrusive recollections of the event, a numbing of responsiveness and a myriad of cognitive, physical, behavioral and emotional symptoms (8-10).

Several studies have reported the prevalence of post-traumatic stress symptoms among health professionals who deal with critical incidents as part of their job (11). These symptoms significantly increased among

the participants with an increased number of years of professional experience (12).

Likewise, researchers have found that health care workers may suffer from secondary traumatic stress disorder (STSD), which has symptoms nearly identical to persons with PTSD symptoms (e.g., 13-17). According to Gates and Gillespie (14), nurses who experience the death of a fetus are at particular risk of STSD.

In addition, a large body of clinical and epidemiological research has identified various links between extreme stress, depression and PTSD (18, 19). Also, previous studies have found that substantial proportions (between 21% and 94%) of hospital personnel suffering from PTSD symptoms also suffer from comorbid depression (e.g., 20, 21). Thus, it may be that critical incidents like perinatal death, which occur in midwifery practice, will be associated with PTSD symptoms as well as depressive symptoms.

Beyond the maladaptive reactions that perinatal death may raise among obstetric nurses, coping strategies may play an important role in managing such events. In the current study, we focus on two coping strategies for managing stressful situations: self-efficacy and seeking social support (22-27).

Prompted by these findings, the present study seeks to explore the comorbidity of post-traumatic stress symptoms and depressive symptoms among obstetric nurses.

## SUBJECT METHODS

### DESIGN

This study used a national cross-sectional design.

### SAMPLE AND SETTINGS

In order to obtain potential participants from hospitals located all over Israel, a random selection of hospitals was chosen. With respect to this, we were able to approach about 75% of the obstetric nurses in Israel who work in delivery rooms and have actual and potential exposure to perinatal death. (The Israeli rate of perinatal death is 3.8/1,000 - [28].) Inclusion criterion was currently working as an obstetric nurse, and exclusion criterion was reporting a history of substance abuse or substance dependence. Of the obstetric nurses approached by the researchers, 125 agreed to take part in this study. (This number represents 25% of the entire population of obstetric nurses working at general hospitals in Israel.) However, seven participants lacked significant data, leading to a final sample of 118 obstetric nurses. The mean age was 43.80 (S.D. = 9.50),

100% of the sample were women (n = 118) and 66.9% were married or in co-habitation (n = 79). The mean years of experience as an obstetric nurse was 17.21 years (S.D. = 10.36); 39% (n = 46) of the nurses reported being exposed to perinatal death directly (being present and helping during a perinatal death) or indirectly (by proxy – hearing about a perinatal death from their colleagues).

### INSTRUMENTS

The respondents provided demographical data (age, marital status, income and years of experience) as well as data regarding exposure to perinatal death.

*Self-rated health* was assessed with a single-item question: “In general, how do you rate your health?” The scale ranged from 1 to 4 (1 = bad to 4 = excellent). This measure was found to be valid and highly associative with objective indicators of health (29).

*Active social support* was measured by a five-item subscale, listing coping strategies that involved seeking social support (30). Obstetric nurses were asked to rate on a four-point scale the degree to which they used a coping strategy in dealing with stressful situations that may arise during their work (0 = never used, to 3 = used a great deal; Cronbach’s  $\alpha = 0.771$ ).

*Coping self-efficacy* was measured by the modified firefighter coping self-efficacy scale that assesses the capability to deal with professional situations of hospital personnel (31). It includes 10 items that ask obstetric nurses to rate on a seven-point scale the degree to which they are able to deal with the situation (1 = unable to deal with the situation, to 7 = very capable to deal with the situation; Cronbach’s  $\alpha = 0.831$ ). Examples of items: “Coping with the death of a child,” “Dealing with blood, vomit or other bodily fluids,” “Dealing with combative or hostile patients.”

*PTSD symptoms* were assessed with the 22-item Impact of Event Scale – Revised (IES-R) (32), which rated severity of intrusion, avoidance and hyper-arousal symptoms over the previous week on a 5-point severity scale (0 = not at all; 4 = extremely; Cronbach’s  $\alpha = 0.932$ ). The scoring was the sum of the items (range 0–88). Total scores of 33 and above indicated an elevated risk of PTSD (33).

*Depressive symptoms* were assessed with the 20-item Center for Epidemiologic Studies-Depression (CES-D) scale (34), which rated symptoms over the previous week on a 4-point severity scale (0 = rarely or none of the time [less than once a day]); 3 = most or all of the time [5–7 times a day]); Cronbach’s  $\alpha = 0.893$ ). The scoring was the sum of the items after the inversion of four positive items

(range 0–60). Total scores of 16 and above serve as the cut off and indicate an elevated risk of depression (34).

### PROCEDURE

The study was approved by the Institutional Review Boards (IRBs) at several leading hospitals in Israel including Sourasky Medical Center, Rabin Medical Center, Barzilai Medical Center and Assaf Harofe Medical Center. Obstetric nurses were recruited during September–November, 2011. Potential participant obstetric nurses were approached by the social workers in their respective hospitals. Data were collected by self-report questionnaires completed by the study participants.

### DATA ANALYSIS

The sample was divided into two groups based on the IES-R cut-off point (IES-R = > 33,  $n = 36$  vs. IES-R < 33,  $n = 82$ ). Obstetric nurses in these groups were compared by demographics using the Chi-square test, t-tests and Cohen's  $d$  analysis (35).

A logistic regression for an elevated risk of PTSD was carried out (0 = IES-R < 33 vs. 1 = IES-R => 33) as the dependent variable was performed to determine its association with the study variables: demographics (age, marital status, income, years of experience), self-rated health, exposure to perinatal death, coping strategy of seeking social support, coping self-efficacy and an elevated risk of depression (CES-D = > 20). Odds ratio (OR) and 95% confidence intervals (CI) were determined.

The logistic regression was accompanied by a multicollinearity test. This preliminary analysis was conducted for potential multicollinearity, applying the rules used

in the literature, stating that tolerance of less than 0.10 and/or the variance inflation factor (VIF) of 10 and above indicate a multicollinearity problem (36). The preliminary analysis yielded tolerance ranging from 0.195–0.897 and VIF of 1.115–5.129. These results indicated that there was no multicollinearity problem.

All the analyses were conducted using the SPSS program (SPSS, version 19, Chicago, IL).

### RESULTS

Obstetric nurses who were in the risk group according to the IES-R cut-off level points ( $n = 36$ ; 30.5%) were compared for sociodemographic variables with obstetric nurses who achieved less than IES-R cut-off level points ( $n = 82$ ). No differences in age, income, years of experience or self-rated health were found between the groups. It was determined, however, that there was a higher relative proportion of married obstetric nurses in the risk group (IES-R => 33;  $\chi^2 = 2.531$ ;  $p = .011$ ) than unmarried ones. Beyond basic demographics, obstetric nurses in the risk group (IES-R => 33) had a lower level of coping self-efficacy (45.22 vs. 39.13;  $t = 2.847$ ;  $p = .005$ ), and had an elevated risk of depression (25% vs 77.8%;  $\chi^2 = 5.316$ ;  $p < .001$ ). No significant difference emerged between groups with exposure to perinatal death and the coping strategy of seeking social support. See Table 1 for more information.

The comorbidity rate between an elevated risk of PTSD (IES-R => 33) and an elevated risk of depression (CESD => 16) showed that obstetric nurses in the elevated risk of PTSD group also had 77.8% more chance of being at an elevated risk of depression. See Table 2.

**Table 1.** Participants' characteristics according to an elevated risk of PTSD symptoms ( $n = 118$ )

	IES-R < 33 ( $n = 82$ )	IES-R => 33 ( $n = 36$ )	Test statistics	p value	Cohen's $d$
Age, years, mean (S.D.)	44.83 (9.84)	41.62 (8.48)	$t = 1.664$	.099	0.35
Marital status, married, $n$ (%)	46 (56.1)	29 (80.5)	$\chi^2 = 2.531$	.011	
Income, $n$ (%)			$\chi^2 = 0.747$	.455	
Below average	23 (28.0)	7 (19.4)			
Average	38 (46.3)	20 (55.6)			
Above average	19 (23.2)	9 (25.0)			
Years of experience, years, mean (S.D.)	17.73 (10.75)	16.01 (9.07)	$t = 0.834$	.406	0.17
Exposure to perinatal death, $n$ (%)	28 (34.1)	18 (50.0)	$\chi^2 = 2.643$	.104	
Self-rated health, mean (S.D.)	3.37 (0.56)	3.25 (0.55)	$t = 1.043$	.299	0.22
Seeking social support, mean (S.D.)	12.00 (3.88)	13.23 (2.01)	$t = -1.669$	.098	0.40
Coping self-efficacy scale mean (S.D.)	45.22 (9.98)	39.13 (10.30)	$t = 2.847$	.005	0.60
CESD => 16, $n$ (%)	20 (25.0)	28 (77.8)	$\chi^2 = 5.316$	<.001	

**Table 2.** Comorbidity between an elevated risk of PTSD symptoms and an elevated risk of depressive symptoms among obstetric nurses ( $n = 118$ )

	IES-R < 33, n (%)	IES-R $\geq$ 33, n (%)
CESD < 16, n (%)	60 (50.8)	8 (6.7)
CESD $\geq$ 16, n (%)	20 (16.9)	28 (23.6)

**Note.**  $\chi^2 = 5.31$ ;  $p < .001$ . SCESD = Short Center for Epidemiologic Studies Depression. IES-R = Impact of Event Scale – Revised.

**Table 3.** Logistic regression predicting elevated risk of PTSD symptoms [IES  $\geq$  33] ( $n = 118$ )

Predictor	$\beta$	OR ( $\beta$ ) 95.0% C.I.	P value
Age	.150	1.162 (1.002-1.349)	.048
Marital status	.808	2.243 (.799-6.295)	.125
Years of experience	.059	1.061 (.934-1.206)	.362
Exposure to perinatal death	1.062	2.892 (.735-11.374)	.128
Income	.269	1.309 (.441-3.887)	.628
Self-rated health	.645	1.905 (.507-7.155)	.340
Seeking social support	.182	1.199 (.968-1.485)	.096
Coping self-efficacy scale	-.111	.895 (.811-.988)	.027
CES-D $\geq$ 20	2.408	11.109 (2.836-43.515)	.001

Note: IES-R = Impact of Event Scale – Revised

Finally, the results of the logistic regression showed an elevated risk of PTSD symptoms (IES-R  $\geq$  33) was positively associated with age (OR = 1.162; 95% C.I. = 1.002–1.349;  $p = .048$ ), positively associated with an elevated risk of depression (CES-D  $\geq$  20) (OR = 11.109; 95% C.I. = 2.836–43.515;  $p = .001$ ), and negatively associated with coping self-efficacy (OR = .895; 95% C.I. = .811–.988;  $p = .027$ ). Those with an elevated risk of PTSD had an 11-fold higher risk of being at an elevated risk of depression. See Table 3 for more information.

## DISCUSSION

### MAIN FINDINGS

The aim of the study was to explore the risk of comorbidity-post-traumatic stress symptoms and depressive symptoms among Israeli obstetric nurses when supporting parents who experienced perinatal death. Our main finding was that an elevated risk of PTSD among obstetric nurses is linked to a higher risk of depressive symptoms. This is supported by Palgi et al. (19) who reported on this connection among health personnel exposed to frequent missile attacks. Also, some other studies of different populations showed that, in most cases, depression was secondary to

PTSD (18, 37, 38) which in turn may be considered as a complication of PTSD and its impairment (39). A possible explanation may be attributed to the intensity of emotions concerning perinatal deaths for the staff, rather than just for the parents. Such intensity can create a complexity of PTSD symptoms that is more often accompanied by another disorder, instead of manifesting alone. In relation to this, O'Donnell, Creamer and Pattison (40) suggested conceptualizing the post-trauma psychopathology as a general traumatic stress factor, which is characterized by a mix of PTSD and depressive symptoms.

Another explanation might stem from the Terror Management Theory (TMT). TMT offers the ability to find meaning as central to an individual's ability to cope with frightening realities (41). Two psychological mechanisms are employed to manage those frightening realities (41). The first involves cognitive and behavioral efforts aimed at validating one's cultural worldview, enabling people to understand and give meaning to the world in which they live, thereby gaining a sense of value, as well as the promise of symbolic immortality. The second consists of cognitive and behavioral efforts to live up to the standards and values set by one's society and culture, thus increasing the sense of self-esteem. According to this view, it might be that some obstetric nurses lack tools for dealing with perinatal death (1, 5). Hence, fears, helplessness and maladaptive reactions such as avoidance might arise (42), causing a reduction in the self-esteem of obstetric nurses and evoking depressive symptoms. A third explanation might be related to what is already known about the susceptibility of women to develop PTSD and the high association between PTSD and depression (43).

Regarding the negative link between the elevated risk of PTSD and a coping self-efficacy, our findings are consistent with previous studies which have found that the coping self-efficacy was negatively correlated with PTSD symptoms and general psychological distress among survivors of bombings (24) while in military combat (44), and survivors of different types of traumatic experiences like natural disasters, technological catastrophes, terrorist attacks, military combat, and sexual and criminal assaults (45). This finding suggests that when obstetric nurses have a self-belief capability to manage their personal functioning and the myriad of environmental demands of the aftermath occasioned by a traumatic event such as perinatal death, they will be able to perform actions like the need to provide efficient, safe and compassionate care for parents experiencing the loss of a fetus.

Our study also points to age as a factor connected to

a higher risk of PTSD symptoms. This finding is in line with previous studies which noted that an older age of personnel which, most of the time, reflects the amount of work experience in the field, in turn reflects a sense of personal and professional identity. Thus, the nurse has the confidence and professional ability to better regulate his/her coping efforts with distress (46-48).

Another finding found to link to obstetric nurses with a higher risk of PTSD symptoms was marital status. This finding is somewhat surprising since marriage seems to offer protection. Studies have suggested that married individuals have better mental health, more emotional support, less psychological distress and lower rates of psychiatric disorder than the unmarried (49). A possible explanation for this may stem from the tendency of women's emotional well-being to be affected by physical, psychological and environmental conditions (50). Thus, when facing perinatal death, which evokes emotional distress, married nurses may bear more burdens and pressures associated with each of the roles that they fill and may be less able to get support from their partner. Another explanation may relate to the fact that married women tend to be more engaged with expanding the family and, therefore, are likely to respond more strongly to perinatal death. In any case, the role of marital status and exposure to perinatal death require further research if we are to gain a better understanding of its role in depressive and post-traumatic symptoms.

### STRENGTHS AND LIMITATIONS

Our study has both strengths and limitations. The major strengths include the opportunity, which has not been well-documented in previous studies, to measure mental health reactions of obstetric nurses facing perinatal deaths. Midwifery practice requires providing prompt, efficient, safe and compassionate care. To provide such care, it is important that obstetric nurses be free from maladaptive reactions such as depression and PTSD symptoms, which might affect their patients' care, lead to decreased nursing productivity and harm their personal life.

Nonetheless, the study has several limitations. First, this study is cross-sectional rather than longitudinal and is based on a relatively small sample size of obstetric nurses in Israeli hospitals (25%). Therefore, caution should be taken in generalizing the findings. Furthermore, longitudinal research could determine whether the results are causative. Second, a self-report questionnaire was used that may cause response bias (51). Third, the study was restricted to mental health aspects accompanying the professional practice of obstetric nurses and does not examine salutogenic aspects

following caring for perinatal deaths (i.e., meaning in life, post-traumatic growth). In addition, the study does not address broad coping patterns that obstetric nurses may have applied. It may be that other ways of coping rather than seeking social support and self-efficacy are being adopted by obstetric nurses. Moreover, it cannot be ruled out that the obstetric nurses' comorbidity varies according to personality traits, which were not assessed in the study.

### CONCLUSION

Our findings highlight the potential vulnerability of obstetric nurses in taking care of families involved in perinatal deaths. Since women's health care providers are at particularly high risk of secondary traumatic stress (14), nurse educators, administrators and leaders should enable obstetric nurses to cope with the stress of perinatal stress as part of their work and encourage them to maintain healthy professional lives in a supportive clinical environment. Cooper and Cartwright (52) reviewed stress intervention in the workplace and emphasized the need to distinguish primary intervention (organizational/structural change), secondary intervention (stress management/coping strategies) and tertiary intervention (intervention targeted at those who are actually stressed). Thus, we recommend providing a periodic health assessment of obstetric nurses' physical well-being, and screening at-risk obstetric nurses for distress so that psychological intervention may be offered to them. Additionally, education and training programs that provide mental preparedness training in connection with neonatal deaths, trauma therapy and structural facilitation contribute to the psychological well-being of obstetric nurses.

Further research is suggested to examine other factors that affect comorbidity among obstetric nurses. This would include personality features as well as various ways of coping and work organization characteristics.

### References

1. Chan ME, Wu LH, Day MC, Chan SH. Attitudes of nurses toward perinatal bereavement: Findings from a study in Hong Kong. *J Perinat Neonatal Nurs* 2005; 19:240-252.
2. Gold KJ. Navigating care after a baby dies: A systematic review of parent experiences with health providers. *J Perinatol* 2007; 27:230-237.
3. Mitchell M. Preparing student midwives to care for bereaved parents. *Nurse Educ Pract* 2005; 5:78-83.
4. Thompson SR. Birth pains: Changing understandings of miscarriage, stillbirth and neonatal death in Australia in the twentieth century. Unpublished doctoral dissertation, University of Western Australia, Perth, WA, Australia, 2008.
5. Chan ME, Chan SH, Day MC. A pilot study on nurses' attitudes toward perinatal bereavement support: A cluster analysis. *Nurse Educ Today* 2004; 24:202-210.

6. Ben-Ezra M, Palgi Y, Walker R, Many A, Hamama Raz Y. The impact of perinatal death on obstetrics nurses: A longitudinal and cross-sectional examination. *J Perinat Med* 2014; 42: 75-81.
7. McCool W, Guidera M, Stenson M, Dauphinee L. The pain that binds us: Midwives' experiences of loss and adverse outcomes around the world. *Health Care Women Int* 2009; 30:1003-1013.
8. MacNab A, Sun C, Lowe J. Randomized controlled trial of three levels of critical incident stress intervention. *Prehosp Dis Med* 2003; 18:367-371.
9. Michael R, Jenkins HJ. Recovery from work-related trauma by preoperative nurses: The effects of social and personal resources. *Collegian* 2001; 8:8-13.
10. van der Ploeg E, Kleber RJ. Acute and chronic job stressors among ambulance personnel: predictors of health symptoms. *Occup Environ Med.* 2003 ; 60:40-46.
11. Laposa JM, Alden LE, Fullerton LM. Work stress and posttraumatic stress disorder in ED nurses/personnel. *J Emer Nurs* 2003; 29:23-28.
12. Mills LD, Mills TJ. Symptoms of post-traumatic stress disorder among emergency medical residents. *J Emer Med* 2004; 28:1-4.
13. Figley CR. *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized.* New York: Brunner-Routledge, 1995.
14. Gates DM, Gillespie GL. Secondary traumatic stress in nurses who care for traumatized women. *J Obstet Gynecol Neonatal Nurs* 2008; 37:243-249.
15. Courtois CA. Complex trauma, complex reactions: Assessment and treatment. *Psychother Theor Res Pract Train* 2004; 41:412 - 425.
16. Beck CT. Secondary traumatic stress in nurses: A systematic review. *Arch Psychiatr Nurs* 2011; 25: 1-10.
17. Abendroth M, Flannery J. Predicting the risk of compassion fatigue: A study of hospice nurses. *J Hosp Palliat Nurs* 2006; 8: 346-356.
18. Ginzburg K, Ein-Dor T, Solomon Z. Comorbidity of posttraumatic stress disorder, anxiety and depression: A 20-year longitudinal study of war veterans. *J Affect Disord* 2010; 123:249-257.
19. Palgi Y, Ben-Ezra M, Essar N. The effect of prolong exposure to war stress on the comorbidity of PTSD and depression among hospital personnel. *Psychiatry Res* 2009; 168:262-264.
20. Ginzburg K. Comorbidity of PTSD and depression following myocardial infarction. *J Affect Disord* 2007; 94:135-143.
21. Frayne SM, Seaver MR, Loveland S, Christiansen C, Spiro A, Parker VA, et al. Burden of medical illness in women with depression and posttraumatic stress disorder. *Arch Intern Med* 2005; 164:1306-1312.
22. Bandura A. *Self-efficacy: The exercise of control.* New York: W. H. Freeman, 1997.
23. Benight CC, Harper M. Coping self-efficacy perceptions as a mediator between acute stress response and long-term distress following natural disasters. *J Trauma. Stress* 2002; 15: 177-186.
24. Benight CC, Freyaldenhoven R, Hughes J, Ruiz J M, Zoesche TA, Lovallo W. Coping self-efficacy and psychological distress following the Oklahoma City Bombing: A longitudinal analysis. *J Appl Psychol* 2000; 3: 1331-1344.
25. Pisanti R. Coping self-efficacy and psychological distress: Results from an Italian study on nurses. *Euro Health Psycholog* 2012; 14: 11-14.
26. Coffey M, Coleman M. The relationship between support and stress in forensic community mental health nursing. *J Adv Nurs* 2001; 34: 397-407.
27. Hamaideh S, Mrayyan M, Mudallal R, Faouri I, Khasawneh N. Jordanian nurses' job stressors and social support. *Int Nurs Rev* 2008; 55: 40-47.
28. [http://www.health.gov.il/PublicationsFiles/Infant\\_mortality\\_rate-2008-2011.pdf](http://www.health.gov.il/PublicationsFiles/Infant_mortality_rate-2008-2011.pdf)
29. Benyamini Y, Blumstein T, Lusky A, Modan B. Gender differences in the self-rated health-mortality association: Is it poor self-rated health that predicts mortality or excellent self-rated health that predicts survival? *Gerontologist* 2003; 43:396-405.
30. Folkman S, Lazarus RS. If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *J Per Soc Psychol* 1985; 48:150-170.
31. Lambert JE, Benight CC, Harrison E, Cieslak R. The firefighter coping self-efficacy scale: Measure development and validation. *Anxiety Stress Coping* 2012; 25:79-91.
32. Weiss DS, Marmar CR. The Impact of Event Scale - Revised. In JP Wilson, TM Keane (eds.), *Assessing Psychological Trauma and PTSD* (pp. 399-411). New York, N.Y.: Guilford, 1997.
33. Creamer M, Bell R, Failla S. Psychometric properties of the Impact of Event Scale - Revised. *Behav Res Ther* 2003; 41:1489-1496.
34. Radloff LS. The CES-D scale: A self-report depression scale for research in the general population. *App Psychol Measure* 1977; 1:385-401.
35. Cohen J. *Statistical power analysis for the behavioral sciences* (2nd Ed.). New York: Lawrence Erlbaum Associates, 1988.
36. O'Brien RM. A caution regarding rules of thumb for variance inflation factors. *Qual Quant* 2007; 41: 673-690.
37. Franko DL, Thompson D, Barton BA. Prevalence and comorbidity of major depressive disorder in young black and white women. *J Psychiatric Res* 2005; 39:275-283.
38. Palgi Y, Shrira A, Haber Y, Wolf JJ, Goldray O, Shacham-Shmueli E, et al. Comorbidity of posttraumatic stress symptoms and depressive symptoms among gastric cancer patients. *Eur J Oncol Nurs* 2011; 15:454-458.
39. Breslau N. Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Can J Psychiatry* 2002; 47:923-929.
40. O'Donnell ML, Creamer M, Pattison P. Posttraumatic stress disorder and depression following trauma: Understanding comorbidity. *Am J Psychiatry* 2004; 161:1390-1396.
41. Pyszczynski T, Solomon S, Greenberg J. *In the wake of 9/11. The psychology of terror.* Washington, DC: American Psychological Association, 2002.
42. Sa'wflund K, Sjogren B, Wredling R. The role of caregivers after a stillbirth: views and experiences of parents. *Birth* 2004; 31:132-137.
43. Tolin DF, Foa EB. Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychol Bul* 2006; 132: 959-992.
44. Solomon Z, Benbenishty R, Mikulincer M. The contribution of wartime, pre-war, and post-war factors on self-efficacy: A longitudinal study of combat stress reaction. *J Trauma Stress* 1991; 4: 345-361.
45. Benight CC, Bandura A. Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behav Res Ther* 2004; 42: 1129-1148.
46. Adams KB, Matto HC, Harrington D. The Traumatic Stress Institute Belief Scale as a measure of vicarious trauma in a national sample of clinical social workers. *Fam Soc* 2001; 82: 363-371.
47. Baird S, Jenkins SR. Vicarious traumatization, secondary traumatic stress, and burnout in sexual assault and domestic violence agency staff. *Violence Vict* 2003; 18:71-86.
48. McMillan M. Secondary traumatic stress, burnout and compassion satisfaction in predoctoral interns in clinical psychology. PsyD dissertation, Adler School of Professional Psychology, Chicago, IL, U.S., 2012.
49. Waite LJ, Gallagher M. *The case for marriage: Why married people are happier, healthier, and better off financially.* New York: Doubleday, 2000.
50. Madden TE, Barrett LF, Pietromonaco PR. Sex differences in anxiety and depression: Empirical evidence and methodological questions. In: AH Fischer (Ed.), *Gender and Emotion: Social Psychological Perspectives* (pp. 277-297). Cambridge, U.K.: Cambridge University, 2000.
51. Polit DF, Hungler BP. *Nursing Research: Principles and Methods* (5th Ed.). Philadelphia: Lippincott, 1995.
52. Cooper CL, Cartwright S. An intervention strategy for workplace stress. *J Psychosom Res* 1997; 3:7-16.