

Evidence Review – Trauma in Healthcare Staff

Interventions include:

- Counselling (Armstrong, Gorden, & Santorella, 1995)
- Critical incident stress debriefing (Jiggetts & Hall, 1995) (Cudmore, 1996) (Hammond & Brooks, 2001)
- Cognitive behavioural therapy (Bonner & McLaughlin, 2007)
- Eye movement desensitization and reprocessing (Bonner & McLaughlin, 2007)
- Meditation (Waelde et al., 2008)
- The [Just Culture](#) model in cases of medical errors (Roesler, Ward, & Short, 2009)
- Problem-focused coping (Adriaenssens, de Gucht, & Maes, 2012)
- Social support from colleagues and supervisors (Adriaenssens et al., 2012)
- [Trauma Risk Management](#) (Whybrow, Jones, & Greenberg, 2015)
- Interventions that foster post-traumatic growth (Itzhaki et al., 2015)
- Resilience (Harker, Pidgeon, Klaassen, & King, 2016)
- Mindfulness (Harker et al., 2016)
- The [Three Good Things](#) initiative (Rippstein-Leuenberger, Mauthner, Bryan Sexton, & Schwendimann, 2017)

Flannery (Flannery, Fulton, Tausch, & DeLoffi, 1991) reported on the Assaulted Staff Action Programme – a voluntary programme which offered support to victims of patient assaults in a state mental hospital. Ten days after the assaults many of the victims had not regained a sense of control, did not have a support network, and were unable to make sense of the incident.

Weissberg (Weissberg & Katz, 1991) studied 15 people who had worked with the victims of an aeroplane crash while they were in hospital. Eight said they had developed at least one symptom in each domain of PTSD within two weeks of the crash and the remaining seven all endorsed at least one re-experiencing symptom. Half also reported serious disruptions at home and in their work with other patients. 13 experienced significant worries about flying and four actually changed travel plans. Subjects were still symptomatic at 12-18 months.

Armstrong (Armstrong et al., 1995) describes counselling interventions for healthcare workers exposed to HIV. These promoted discussion of the event and any relevant past unresolved traumatic experiences; evaluated and aided the worker and his or her support system; provided information on stress reactions and helped to reintegrate workers back into the work environment.

Jiggetts (Jiggetts & Hall, 1995) describes the use of critical-incident stress debriefings as a means to reduce distress in the wake of mass-casualty care.

Cudmore (Cudmore, 1996) reviewed the literature and found that ‘defusing,’ immediately following a resuscitation “may help to reduce abnormal stress reactions ... critical incident stress debriefing is recommended following critical incidents to help prevent emergency personnel developing post-traumatic stress disorder.”

Hammond (Hammond & Brooks, 2001) described critical incident stress debriefing as “a peer-driven, therapist-guided, structured, group intervention, designed to accelerate the recovery of personnel.”

Luce (Luce & Firth-Cozens, 2002) found that after the Omagh bombings doctors reported lower levels of PTSD than other staff. Junior doctors reported higher levels of PTSD than more senior ones. Another study by Luce (Luce, Firth-Cozens, Midgley, & Burges, 2002) found that after the bombing staff involved both professionally and as a civilian, particularly those who had witnessed the trauma, or those who had experienced previous emotional problems and trauma, had the highest levels of symptoms. Although staff with higher PTSD symptoms were more likely to seek professional help, only a minority contacted professionals for support.

Laposa (Laposa, Alden, & Fullerton, 2003) studied 51 staff in a Canadian hospital. She found that interpersonal conflict was significantly associated with PTSD symptoms. Two-thirds of respondents believed they had received inadequate support from hospital administrators following the incident and 20% had thought about changing jobs as a result of the trauma. Only 18% went to critical-incident stress debriefing and none sought outside help for their distress.

Caine (Caine & Ter-Bagdasarian, 2003) argued that “although debriefing in and of itself is effective, a single-session semistructured crisis intervention will not prevent posttraumatic stress; thus, the use of CISD as part of a comprehensive multifaceted approach to the management of acute stress related to a critical incident is recommended.

In 2003 Sabin-Farrell (Sabin-Farrell & Turpin, 2003) argued that evidence to support vicarious traumatization was “meagre and inconsistent.”

Grieger (Grieger, Fullerton, Ursano, & Reeves, 2003) studied the emotional and behavioural effects on hospital staff after a series of sniper shootings in Washington D.C. Of 382 employees 6% met the criteria for acute stress disorder. 3% reported increased alcohol use and 8% met the criteria for depression. Risk factors included being a women (2.59x), increased alcohol use (5.1x), co-morbid depression (7.28x), lower perceived safety; higher perceived threat; higher levels of peri-traumatic dissociation, and greater numbers of decreased activities.

Chan (Chan & Huak, 2004) studied the psychological impact of SARS in a regional general hospital. 20% had developed PTSD with doctors and single healthcare workers being more at risk than nurses or married ones. Areas for coping strategies were: clear directives and precautionary measures; the ability to give feedback and to obtain support from managers; support from supervisors and colleagues; support from the family; the ability to talk to someone; and religious convictions. Support from supervisors and colleagues was a significant negative predictor for psychiatric symptoms and PTSD.

Sim (Sim, Chong, Chan, & Soon, 2004) also studied the after effects of SARS in a sample of 91 doctors and 186 nurses. Sim found post-traumatic morbidity in 9.4% which was associated with higher scores on coping efforts including: self-distraction; behavioural disengagement ; social support; venting; planning and self-blame. Post-traumatic morbidity was associated with being younger; being married; psychiatric morbidity; self-distraction; behavioural disengagement; religion; less venting; less humour and less acceptance.

Lancee (Lancee, Maunder, Goldbloom, & Coauthors for the Impact of, 2008) found that incidence of new episodes of psychiatric disorders after the SARS outbreak were similar to, or lower than, community incidence rates. New episodes of psychiatric disorders were directly associated with having a psychiatric disorder before the SARS outbreak and were lower for staff with more years of experience and for those who felt their training and support were adequate.

Wu (Wu et al., 2008) studied 549 hospital employees after the 2003 SARS outbreak. Wu found that current alcohol abuse/dependence three years after the outbreak were positively associated with having been quarantined, or working in high-risk locations. Symptoms of PTSD, particularly hyperarousal, and of depression, and having used drinking as a coping method, were also significantly associated with increased drink problems.

Fullerton (Fullerton, Ursano, & Wang, 2004) studied PTSD among disaster workers comparing 207 exposed to the consequences of a plane crash with 421 unexposed people. She found that exposed workers had significantly higher rates of PTSD at 13 months than comparison subjects with more depression too. Those who were younger and single were more likely to develop PTSD as were those with high exposure and previous disaster experience.

A study of staff at the emergency department of Johannesburg Hospital Trauma Unit found that staff reported “a significant level of post-traumatic symptoms.” (Crabbe, Bowley, Boffard, Alexander, & Klein, 2004)

Worthington (Worthington, Ross, & Bergeron, 2006) discusses the case of two healthcare workers who developed PTSD after needlestick injuries which, potentially, exposed them to HIV.

Jonsson (Jonsson & Halabi, 2006) found that work-related post-traumatic stress was associated with poor social support. Jonsson recommended that staff support and counsel their staff and for management to promote and encourage support.

Richter (Richter & Berger, 2006) studied the effects of assaults by patients in mental-health units. 46 assaulted staff members took part in the study of whom 17% met the criterion for PTSD.

Sterud (Sterud, Ekeberg, & Hem, 2006) reviewed studies on the health of ambulance workers and found that in five of the seven studies included over 20% suffered PTSD symptoms.

Ben-Ezra (Ben-Ezra, Palgi, & Essar, 2007) studied the impact of war stress of PTSD symptoms in hospital personnel. He found high levels of PTSD in 10.5% of physicians and 35.7% of nurses with nurses being over five times more likely to develop PTSD.

Kolkow (Kolkow, Spira, Morse, & Grieger, 2007) studied healthcare workers returning from Iraq and Afghanistan. Of 102 people 9% met the criteria for PTSD and 5% met the criteria for depression. Direct and perceived threats of personal harm were risk factors for PTSD but exposure to wounded or dead patients did not increase risk.

Bonner (Bonner & McLaughlin, 2007) argued that post-incident support and interventions for staff experiencing the psychological effects of aggression “remain inconsistent and curtailed in many areas.” Bonner discussed the use of cognitive behavioural therapy and eye-movement desensitization and reprocessing.

Waelde (Waelde et al., 2008) studied the effect of a meditation programme for mental-health workers following hurricane Katrina. She found that the participants' PTSD and anxiety symptoms significantly decreased over the eight weeks of the intervention.

Alden studied 100 emergency department workers comparing those who had experienced a direct threat to those who had witnessed one being made. The two groups displayed similar levels of PTSD symptoms but the direct threat group experienced significantly greater fear during the event, more ongoing arousal symptoms and more job dissatisfaction. The witnessed threat group was more likely to appraise their PTSD symptoms as reflecting personal weakness.

Mealer (Mealer, Burnham, Goode, Rothbaum, & Moss, 2009) studied 332 nurses. 22% had symptoms of PTSD, 18% met diagnostic criteria. 86% met the criteria for burnout syndrome. 98% of those with PTSD had burnout as well. Years of employment as a nurse; perceptions of collaborative nursing care; confidence in doctors; and perception that their work affected patient outcomes all had effects on PTSD and burnout and nurses with PTSD and burnout were significantly more likely to have difficulty in their life outside work.

Roesler (Roesler et al., 2009) reports on the use of a [Just Culture](#) model to support the recovery and reintegration of NICU staff after an accidental heparin overdose that killed three children.

Gates (Gates, Gillespie, & Succop, 2011) found that 94% of nurses experienced at least one PTSD symptom after a violent event, with 17% having scores high enough to be considered to have full-blown PTSD. There were significant indirect relationships between stress symptoms and work productivity.

Lavoie (Lavoie, Talbot, & Mathieu, 2011) carried out a qualitative study of 12 emergency-department nurses. The frequency of being exposed to a traumatic event increased with experience but the frequency of PTSD symptoms decreased with age. Having a supportive social network was important as was being able to talk things over with colleagues. Support activities consisted of: a peer-support system; psycho-education; and emergency-room simulations.

A review of 11 studies, including 3,866 participants by de Boer (de Boer et al., 2011) concluded that "work-related critical incidents are positively related to post-traumatic stress symptoms, anxiety, and depression in hospital-based health care professionals."

Czaja (Czaja, Moss, & Mealer, 2012) studied PTSD among paediatric acute care nurses. She found that 21% had strong PTSD symptoms. Nurses with PTSD symptoms had more co-morbid symptoms of anxiety, depression and burnout and were more often considering a career change. Symptoms affected not only their work but also their personal lives.

Adriaenssens (Adriaenssens et al., 2012) studied 248 nurses from 15 hospitals. He found that they were frequently confronted with work-related traumatic events. Death or serious injury of a child/adolescent was perceived as the most traumatising event. Almost one out of three nurses met sub-clinical levels of anxiety, depression and somatic complaints and 8.5% met clinical levels of PTSD. Emotional coping made things worse and avoidant coping was related to more somatic complaints. Problem-focused coping was related to a decrease in psychological distress and perceived fatigue. Social support from colleagues and supervisor(s) was found to have a protective effect against PTSD.

Iranmanesh (Iranmanesh, Tirgari, & Bardsiri, 2013) studied 150 paramedics and 250 emergency personnel and found that 94% of them reported moderate PTSD.

Fullerton (Fullerton et al., 2013) studied PTSD among public-health workers after the 2004 Florida hurricanes. Total mental and behavioural health burden (probable PTSD, probable depression, increased alcohol and/or tobacco use) was 11%. More than 4% had probable PTSD, and 3.8% had probable depression. Among those with probable PTSD 29.2% had increased alcohol use, and 50% had increased tobacco use. Among those with probable depression, 34% indicated increased alcohol use and 55.6% increased tobacco use. Workers with greater exposure were more likely to have probable PTSD and probable depression.

Ben-Ezra (Ben-Ezra, Palgi, Hamama-Raz, Soffer, & Shrira, 2013) compared nurses' and civilians' reactions to the 2011 Tohoku earthquake and tsunami. He found that nurses had a lower level of PTSD symptoms and higher self-rated health, life satisfaction, and perceived coping.

Gillespie (Gillespie, Bresler, Gates, & Succop, 2013) studied 208 emergency-department workers. He found that fewer than half reported traumatic stress symptomatology. However "workplace aggression has the potential to adversely affect the mental health of ED workers." "Occupational health nurses can establish or maintain a nurturing and protective environment open to discussing the personal thoughts, feelings and behaviours of ED workers ... this ... may aid in reducing the negative impact of posttraumatic stress symptoms."

McGarry (McGarry et al., 2013) studied psychological distress among paediatric healthcare professionals. She found that trauma "can adversely affect a health professional's wellbeing, particularly those under 25 who make less use of positive coping strategies and more use of non-productive coping."

Mealer (Mealer & Jones, 2013) interpreted PTSD among nurses in the context of [Wounded Healer](#) theory. Essential attributes include intrusions, avoidance, and hyperarousal and consequences include worldview changes, retention issues, sleep disruption, and social network disturbances. Schwab (Schwab, Napolitano, Chevalier, & Pettorini-D'Amico, 2016) also used wounded healer theory as a framework to help nurse managers develop strategies such as critical incident stress debriefing to address emotional distress.

Jacobowitz (Jacobowitz, 2013) reviewed the literature on PTSD among psychiatric nurses. He found that most studies reported a prevalence rate of between nine and 10%. Training in the management of aggressive patients, participating in critical-incident debriefing and having routine structured debriefing meetings "may play a role in facilitating the development of resilience."

Fjeldheim (Fjeldheim et al., 2014) studied 131 paramedic trainees. 94% had directly experienced trauma, with 16% meeting PTSD criteria. A high rate of depression (28%), alcohol abuse (23%) and chronic perceived stress (7%) and low levels of social support were found. The number of previous trauma exposures, depression, resilience and social support significantly predicted PTSD status.

Zaffina (Zaffina et al., 2014) studied 30 people who had been involved in a fire in a paediatric unit. Six met the diagnostic criteria for PTSD. Risk factors included a prior psychiatric

disorder, the level of involvement in the fire and the presence of phobias in the days immediately after the event.

Cavanaugh (Cavanaugh, Campbell, & Messing, 2014) studied 1,044 nurses. She found that those who reported one, two, or three or more types of violence victimisation at the start of the study were 2.41x more likely to subsequently screen positive for PTSD.

Kiliç (Kılıç & İnci, 2015) studied 135 emergency workers. Those who were older and had higher education reported higher numbers of traumatic events. The number of work-related events predicted traumatic stress among younger participants and those who were less well-educated but no such link was observed among older, or more educated, participants.

Whybrow (Whybrow et al., 2015) discusses [Trauma Risk Management \(TRiM\)](#) – a peer support system developed within the British Armed Forces. “The process appears to enhance trauma-exposed personnel’s reliance on peer support and TRiM was reportedly acceptable and sustainable.”

Itzhaki (Itzhaki et al., 2015) studied 118 mental health nurses concluding that their life satisfaction was affected more by their resilience, post-traumatic growth (PTG) and job stress than by workplace violence. “Therefore, it is recommended that intervention programmes that contribute to PTG and staff resilience ... be explored and implemented.” Xu (Xu et al., 2016) also studied post-traumatic growth defined as “positive psychological change in the wake of highly challenging circumstances.” Xu studied the effectiveness of a new psychological intervention based on Chinese traditional culture to improve PTG in hospital healthcare workers. 579 people took part in the study which increased PTG, particularly among women, nurses and college graduates.

Harker (Harker et al., 2016) studied 133 human service professionals looking into the links between resilience, mindfulness, and psychological distress. Harker found that higher levels of resilience were significant predictors of lower levels of psychological distress and burnout. Higher levels of mindfulness were also a significant predictor of lower levels of psychological distress and burnout.

Moylan (Moylan, McManus, Cullinan, & Persico, 2016) studied 57 nurses who had previously been assaulted by mental-health patients. 57% said they would be interested in going to specialized support groups and 41% said they would definitely be interested.

Tang (Tang, Pan, Yuan, & Zha, 2017) studied 102 medical staff who had been exposed to the H7N9 influenza virus. Around 20.59% showed PTSD symptoms. Nurses, women, staff lower down the hierarchy, those who had had more contact with the virus, those aged between 20 and 30, those with less than five years of work experience and less well-trained staff were all more at risk.

Luftman (Luftman et al., 2017) studied 546 healthcare workers. He found that 33% screened positive for PTSD. Pre-hospital providers were twice as likely to screen positive compared to in-hospital providers. Only 55% had ever received any information or education about PTSD and only 13% had ever sought treatment.

Mealer (Mealer, Jones, & Meek, 2017) studied 744 critical-care nurses and found that those who had higher scores for resilience were 18-50% less likely to experience PTSD than nurses with low scores.

Rippstein-Leuenberger (Rippstein-Leuenberger et al., 2017) studied the use of the [Three Good Things](#) intervention among nurses. 32 people took part in the study and got daily emails asking them to reflect and respond on “what are the three things that went well today?” Three main themes emerged: having a good day at work; having supportive relationships; and making meaningful use of self-determined time. She concluded “the Three Good Things exercise acknowledges the importance of self-care in healthcare workers and appears to promote wellbeing, which might ultimately strengthen resilience.”

Shi (Shi et al., 2017) studied 2,706 workers from 39 hospitals. The prevalence of PTSD among the healthcare workers who had experienced physical violence was 28%. Shi concluded that “effective coping styles and receiving social support have potential roles in the recovery from trauma after experiencing physical violence.”

Kerai (Kerai et al., 2017) studied 518 people working in emergency medicine. People with a dysfunctional coping style, anxiety and depression were more likely to have more severe PTSD. Younger people were more likely to get PTSD.

Carmassi (Carmassi et al., 2018) studied PTSD in emergency-department staff and found that 21.4% reported DSM-5 PTSD. PTSD scores were higher among health-care assistants, older staff, and non-graduates.

Sun (Sun et al., 2018) studied the links between workplace bullying and PTSD. Sun found that workplace bullying was a predictive factor for PTSD and that psychological capital played a mediating role in this relationship.

Adriaenssens, J., de Gucht, V., & Maes, S. (2012). The impact of traumatic events on emergency room nurses: findings from a questionnaire survey. *International journal of nursing studies*, 49(11), 1411-1422. doi:<http://dx.doi.org/10.1016/j.ijnurstu.2012.07.003>

Armstrong, K., Gorden, R., & Santorella, G. (1995). Occupational exposure of health care workers (HCWs) to human immunodeficiency virus (HIV): stress reactions and counseling interventions. *Social work in health care*, 21(3), 61-80.

Ben-Ezra, M., Palgi, Y., & Essar, N. (2007). Impact of war stress on posttraumatic stress symptoms in hospital personnel. *General hospital psychiatry*, 29(3), 264-266.

Ben-Ezra, M., Palgi, Y., Hamama-Raz, Y., Soffer, Y., & Shrira, A. (2013). Reactions to the 2011 Tōhoku earthquake and tsunami: a preliminary matching study comparing nurses and civilians. *The Journal of nervous and mental disease*, 201(6), 534-536.

doi:<http://dx.doi.org/10.1097/NMD.0b013e318294828e>

Bonner, G., & McLaughlin, S. (2007). The psychological impact of aggression on nursing staff. *British journal of nursing (Mark Allen Publishing)*, 16(13), 810-814.

Caine, R. M., & Ter-Bagdasarian, L. (2003). Early identification and management of critical incident stress. *Critical care nurse*, 23(1), 59-65.

Carmassi, C., Gesi, C., Corsi, M., Cremone, I. M., Bertelloni, C. A., Massimetti, E., . . . Dell'Osso, L. (2018). Exploring PTSD in emergency operators of a major University Hospital in Italy: a preliminary report on the role of gender, age, and education. *Annals of general psychiatry*, 17, 17. doi:<http://dx.doi.org/10.1186/s12991-018-0184-4>

Cavanaugh, C., Campbell, J., & Messing, J. T. (2014). A longitudinal study of the impact of cumulative violence victimization on comorbid posttraumatic stress and depression among female nurses and nursing personnel. *Workplace health & safety*, 62(6), 224-232.

doi:<http://dx.doi.org/10.3928/21650799-20140514-01>

- Chan, A. O. M., & Huak, C. Y. (2004). Psychological impact of the 2003 severe acute respiratory syndrome outbreak on health care workers in a medium size regional general hospital in Singapore. *Occupational medicine (Oxford, England)*, 54(3), 190-196.
- Crabbe, J. M., Bowley, D. M. G., Boffard, K. D., Alexander, D. A., & Klein, S. (2004). Are health professionals getting caught in the crossfire? The personal implications of caring for trauma victims. *Emergency Medicine Journal : EMJ*, 21(5), 568-572.
- Cudmore, J. (1996). Preventing post traumatic stress disorder in accident and emergency nursing. A review of the literature. *Nursing in critical care*, 1(3), 120-126.
- Czaja, A. S., Moss, M., & Mealer, M. (2012). Symptoms of posttraumatic stress disorder among pediatric acute care nurses. *Journal of pediatric nursing*, 27(4), 357-365. doi:<http://dx.doi.org/10.1016/j.pedn.2011.04.024>
- de Boer, J., Lok, A., Van't Verlaat, E., Duivenvoorden, H. J., Bakker, A. B., & Smit, B. J. (2011). Work-related critical incidents in hospital-based health care providers and the risk of post-traumatic stress symptoms, anxiety, and depression: a meta-analysis. *Social science & medicine (1982)*, 73(2), 316-326. doi:<http://dx.doi.org/10.1016/j.socscimed.2011.05.009>
- Fjeldheim, C. B., Nöthling, J., Pretorius, K., Basson, M., Ganasen, K., Heneke, R., . . . Seedat, S. (2014). Trauma exposure, posttraumatic stress disorder and the effect of explanatory variables in paramedic trainees. *BMC emergency medicine*, 14, 11. doi:<http://dx.doi.org/10.1186/1471-227X-14-11>
- Flannery, R. B., Fulton, P., Tausch, J., & DeLoffi, A. Y. (1991). A program to help staff cope with psychological sequelae of assaults by patients. *Hospital & community psychiatry*, 42(9), 935-938.
- Fullerton, C. S., McKibben, J. B. A., Reissman, D. B., Scharf, T., Kowalski-Trakofler, K. M., Shultz, J. M., & Ursano, R. J. (2013). Posttraumatic stress disorder, depression, and alcohol and tobacco use in public health workers after the 2004 Florida hurricanes. *Disaster medicine and public health preparedness*, 7(1), 89-95. doi:<http://dx.doi.org/10.1017/dmp.2013.6>
- Fullerton, C. S., Ursano, R. J., & Wang, L. (2004). Acute stress disorder, posttraumatic stress disorder, and depression in disaster or rescue workers. *The American journal of psychiatry*, 161(8), 1370-1376.
- Gates, D. M., Gillespie, G. L., & Succop, P. (2011). Violence against nurses and its impact on stress and productivity. *Nursing economic\$,* 29(2), 59-66, quiz 67.
- Gillespie, G. L., Bresler, S., Gates, D. M., & Succop, P. (2013). Posttraumatic stress symptomatology among emergency department workers following workplace aggression. *Workplace health & safety*, 61(6), 247-254. doi:<http://dx.doi.org/10.3928/21650799-20130516-07>
- Grieger, T. A., Fullerton, C. S., Ursano, R. J., & Reeves, J. J. (2003). Acute stress disorder, alcohol use, and perception of safety among hospital staff after the sniper attacks. *Psychiatric services (Washington, D.C.)*, 54(10), 1383-1387.
- Hammond, J., & Brooks, J. (2001). The World Trade Center attack. Helping the helpers: the role of critical incident stress management. *Critical care (London, England)*, 5(6), 315-317.
- Harker, R., Pidgeon, A. M., Klaassen, F., & King, S. (2016). Exploring resilience and mindfulness as preventative factors for psychological distress burnout and secondary traumatic stress among human service professionals. *Work (Reading, Mass.)*, 54(3), 631-637. doi:<http://dx.doi.org/10.3233/WOR-162311>
- Iranmanesh, S., Tirgari, B., & Bardsiri, H. S. (2013). Post-traumatic stress disorder among paramedic and hospital emergency personnel in south-east Iran. *World journal of emergency medicine*, 4(1), 26-31. doi:<http://dx.doi.org/10.5847/wjem.j.1920-8642.2013.01.005>
- Itzhaki, M., Peles-Bortz, A., Kostistky, H., Barnoy, D., Filshtinsky, V., & Bluvstein, I. (2015). Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *International journal of mental health nursing*, 24(5), 403-412. doi:<http://dx.doi.org/10.1111/inm.12151>

- Jacobowitz, W. (2013). PTSD in psychiatric nurses and other mental health providers: a review of the literature. *Issues in mental health nursing, 34*(11), 787-795.
doi:<http://dx.doi.org/10.3109/01612840.2013.824053>
- Jiggetts, S. M., & Hall, D. P. (1995). Helping the helper: 528th Combat Stress Center in Somalia. *Military medicine, 160*(6), 275-277.
- Jonsson, A., & Halabi, J. (2006). Work related post-traumatic stress as described by Jordanian emergency nurses. *Accident and emergency nursing, 14*(2), 89-96.
- Kerai, S. M., Khan, U. R., Islam, M., Asad, N., Razzak, J., & Pasha, O. (2017). Post-traumatic stress disorder and its predictors in emergency medical service personnel: a cross-sectional study from Karachi, Pakistan. *BMC emergency medicine, 17*(1), 26.
doi:<http://dx.doi.org/10.1186/s12873-017-0140-7>
- Kılıç, C., & İnci, F. (2015). [Traumatic Stress in Emergency Medical Technicians: Protective Role of Age and Education]. [Acil Tıp Çalışanlarında Travmatik Stres: Yaş ve Eğitimin Koruyucu Etkisi.]. *Türk psikiyatri dergisi = Turkish journal of psychiatry, 26*(4), 236-241.
- Kolkow, T. T., Spira, J. L., Morse, J. S., & Grieger, T. A. (2007). Post-traumatic stress disorder and depression in health care providers returning from deployment to Iraq and Afghanistan. *Military medicine, 172*(5), 451-455.
- Lancee, W. J., Maunder, R. G., Goldbloom, D. S., & Coauthors for the Impact of, S. S. (2008). Prevalence of psychiatric disorders among Toronto hospital workers one to two years after the SARS outbreak. *Psychiatric services (Washington, D.C.), 59*(1), 91-95.
doi:<http://dx.doi.org/10.1176/ps.2008.59.1.91>
- Laposa, J. M., Alden, L. E., & Fullerton, L. M. (2003). Work stress and posttraumatic stress disorder in ED nurses/personnel. *Journal of emergency nursing: JEN : official publication of the Emergency Department Nurses Association, 29*(1), 23-28.
- Lavoie, S., Talbot, L. R., & Mathieu, L. (2011). Post-traumatic stress disorder symptoms among emergency nurses: their perspective and a 'tailor-made' solution. *Journal of advanced nursing, 67*(7), 1514-1522. doi:<http://dx.doi.org/10.1111/j.1365-2648.2010.05584.x>
- Luce, A., & Firth-Cozens, J. (2002). Effects of the Omagh bombing on medical staff working in the local NHS trust: a longitudinal survey. *Hospital medicine (London, England : 1998), 63*(1), 44-47.
- Luce, A., Firth-Cozens, J., Midgley, S., & Burges, C. (2002). After the Omagh bomb: posttraumatic stress disorder in health service staff. *Journal of traumatic stress, 15*(1), 27-30.
- Luftman, K., Aydelotte, J., Rix, K., Ali, S., Houck, K., Coopwood, T. B., . . . Davis, M. (2017). PTSD in those who care for the injured. *Injury, 48*(2), 293-296.
doi:<http://dx.doi.org/10.1016/j.injury.2016.11.001>
- McGarry, S., Girdler, S., McDonald, A., Valentine, J., Lee, S.-L., Blair, E., . . . Elliott, C. (2013). Paediatric health-care professionals: relationships between psychological distress, resilience and coping skills. *Journal of paediatrics and child health, 49*(9), 725-732.
doi:<http://dx.doi.org/10.1111/jpc.12260>
- Mealer, M., Burnham, E. L., Goode, C. J., Rothbaum, B., & Moss, M. (2009). The prevalence and impact of post traumatic stress disorder and burnout syndrome in nurses. *Depression and anxiety, 26*(12), 1118-1126. doi:<http://dx.doi.org/10.1002/da.20631>
- Mealer, M., & Jones, J. (2013). Posttraumatic stress disorder in the nursing population: a concept analysis. *Nursing forum, 48*(4), 279-288. doi:<http://dx.doi.org/10.1111/nuf.12045>
- Mealer, M., Jones, J., & Meek, P. (2017). Factors Affecting Resilience and Development of Posttraumatic Stress Disorder in Critical Care Nurses. *American journal of critical care : an official publication, American Association of Critical-Care Nurses, 26*(3), 184-192.
doi:<http://dx.doi.org/10.4037/ajcc2017798>
- Moylan, L. B., McManus, M., Cullinan, M., & Persico, L. (2016). Need for Specialized Support Services for Nurse Victims of Physical Assault by Psychiatric Patients. *Issues in mental health nursing, 37*(7), 446-450. doi:<http://dx.doi.org/10.1080/01612840.2016.1185485>

- Richter, D., & Berger, K. (2006). Post-traumatic stress disorder following patient assaults among staff members of mental health hospitals: a prospective longitudinal study. *BMC psychiatry*, 6, 15.
- Rippstein-Leuenberger, K., Mauthner, O., Bryan Sexton, J., & Schwendimann, R. (2017). A qualitative analysis of the Three Good Things intervention in healthcare workers. *BMJ open*, 7(5), 1. doi:<http://dx.doi.org/10.1136/bmjopen-2017-015826>
- Roesler, R., Ward, D., & Short, M. (2009). Supporting staff recovery and reintegration after a critical incident resulting in infant death. *Advances in neonatal care : official journal of the National Association of Neonatal Nurses*, 9(4), 163-171; quiz 172-163. doi:<http://dx.doi.org/10.1097/ANC.0b013e3181afab5b>
- Sabin-Farrell, R., & Turpin, G. (2003). Vicarious traumatization: implications for the mental health of health workers? *Clinical psychology review*, 23(3), 449-480.
- Schwab, D., Napolitano, N., Chevalier, K., & Pettorini-D'Amico, S. (2016). Hidden Grief and Lasting Emotions in Emergency Department Nurses. *Creative nursing*, 22(4), 249-253. doi:<http://dx.doi.org/10.1891/1078-4535.22.4.249>
- Shi, L., Wang, L., Jia, X., Li, Z., Mu, H., Liu, X., . . . Fan, L. (2017). Prevalence and correlates of symptoms of post-traumatic stress disorder among Chinese healthcare workers exposed to physical violence: a cross-sectional study. *BMJ open*, 7(7), 1. doi:<http://dx.doi.org/10.1136/bmjopen-2017-016810>
- Sim, K., Chong, P. N., Chan, Y. H., & Soon, W. S. W. (2004). Severe acute respiratory syndrome-related psychiatric and posttraumatic morbidities and coping responses in medical staff within a primary health care setting in Singapore. *The Journal of clinical psychiatry*, 65(8), 1120-1127.
- Sterud, T., Ekeberg, Ø., & Hem, E. (2006). Health status in the ambulance services: a systematic review. *BMC health services research*, 6, 82.
- Sun, Y. Q., Ge, Y. X., Ke, Z. W., Li, Y. Y., Jin, Q. X., & Lu, Y. F. (2018). [Effect of workplace bullying on posttraumatic stress disorder in nursing staff]. *Zhonghua lao dong wei sheng zhi ye bing za zhi = Zhonghua laodong weisheng zhiyebing zazhi = Chinese journal of industrial hygiene and occupational diseases*, 36(1), 22-25. doi:<http://dx.doi.org/10.3760/cma.j.issn.1001-9391.2018.01.006>
- Tang, L., Pan, L., Yuan, L., & Zha, L. (2017). Prevalence and related factors of post-traumatic stress disorder among medical staff members exposed to H7N9 patients. *International journal of nursing sciences*, 4(1), 63-67. doi:<http://dx.doi.org/10.1016/j.ijnss.2016.12.002>
- Waelde, L. C., Uddo, M., Marquett, R., Ropelato, M., Freightman, S., Pardo, A., & Salazar, J. (2008). A pilot study of meditation for mental health workers following Hurricane Katrina. *Journal of traumatic stress*, 21(5), 497-500. doi:<http://dx.doi.org/10.1002/jts.20365>
- Weissberg, M. P., & Katz, T. A. (1991). The crash of Continental 1713: the impact on hospital-based personnel. *The Journal of emergency medicine*, 9(6), 459-463.
- Whybrow, D., Jones, N., & Greenberg, N. (2015). Promoting organizational well-being: a comprehensive review of Trauma Risk Management. *Occupational medicine (Oxford, England)*, 65(4), 331-336. doi:<http://dx.doi.org/10.1093/occmed/kqv024>
- Worthington, M. G., Ross, J. J., & Bergeron, E. K. (2006). Posttraumatic stress disorder after occupational HIV exposure: two cases and a literature review. *Infection control and hospital epidemiology*, 27(2), 215-217.
- Wu, P., Liu, X., Fang, Y., Fan, B., Fuller, C. J., Guan, Z., . . . Litvak, I. J. (2008). Alcohol abuse/dependence symptoms among hospital employees exposed to a SARS outbreak. *Alcohol and alcoholism (Oxford, Oxfordshire)*, 43(6), 706-712. doi:<http://dx.doi.org/10.1093/alcac/agn073>
- Xu, X., Hu, M.-L., Song, Y., Lu, Z.-X., Chen, Y.-Q., Wu, D.-X., & Xiao, T. (2016). Effect of Positive Psychological Intervention on Posttraumatic Growth among Primary Healthcare Workers in China: A Preliminary Prospective Study. *Scientific reports*, 6, 39189. doi:<http://dx.doi.org/10.1038/srep39189>

Zaffina, S., Camisa, V., Monducci, E., Vinci, M. R., Vicari, S., & Bergamaschi, A. (2014). PTSD prevalence and associated risk factors after a fire disaster that broke out in a paediatric hospital: a cross-sectional study. *La Medicina del lavoro*, *105*(3), 163-173.