

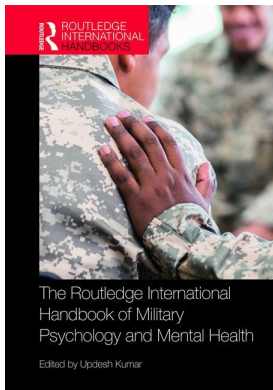
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Reoot Cohen-Koren, Dror Garbi, Shirley Gordon, Nirit Yavnai, Yifat Erlich Shoham, Leah Shelef

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RESILIENCE AND STRESS IN MILITARY COMBAT FLIGHT ENGINEERS

*Reoot Cohen-Koren, Dror Garbi, Shirley Gordon, Nirit Yavnai,
Yifat Erlich Shoham, and Leah Shelef*

Israeli military combat evacuation and rescue helicopter crews include pilots, medical rescue staff and flight engineers. Just like the pilots and the medical rescue staff, the flight engineers, too, are considered aircrew fighters since they take part in military operations and evacuate wounded soldiers from fighting zones under conditions that are defined as life threatening.

While there are clear definitions for the job descriptions of pilots and medical rescue staff, flight engineers are responsible for a wide range of operations within the helicopter and out of it, both in the air and on the ground. While in the air, they are in charge of the technical operations and maintenance of the aircraft. On the ground, they take part in the evacuation of casualties. According to instructions, in dangerous circumstances, it is their duty to help the medical staff take care of the casualties, despite them not having any medical knowledge or prior preparation. The flight engineers are a critical and integral part of the helicopter rescue teams, who are exposed to the distressing sights, sounds and smells of wounded or dead people. War scenarios and exposure to traumatic events, combined with life-risking situations, increase the vulnerability of the individuals to emotional distress.

Exposure to traumatic events

Experiencing a single traumatic event or repeated ones increases the risk of developing psychopathology (Mitchell & Everly, 2001; Thomas et al., 2010). Exposure to traumatic events may also contribute to posttraumatic stress disorder. Such exposure is a necessary criterion for a diagnosis of posttraumatic stress disorder (PTSD) (American Psychiatric Association, 2013). There are four sets of symptoms that characterize PTSD based on the DSM-V: intrusion (e.g., flashbacks, nightmares and recollections of the traumatic event), avoidance (dissociation and detachment, loss of interest in previously enjoyed activities), hyper-arousal (e.g., irritability, startle reaction, loss of concentration and sleep difficulties) and negative changes in thoughts and mood that occur or worsen following the experience of the traumatic event (e.g., 'The world is an evil place'; a negative emotional state such as shame, anger or fear) (American Psychiatric Association [APA], 2013).

It is also well known that exposure to others who have PTSD can contribute to the phenomenon known as secondary PTSD that occurs even without exposure to a traumatic event. Secondary PTSD is a condition that imitates posttraumatic symptoms such as exhaustion,

increased alertness, avoidance and emotional numbness (Baird & Kracen, 2006; Boscarino, Figley, & Adams, 2004). A number of studies have found significant levels of secondary traumatization among care-givers like emergency unit nurses (Gates & Gillespie, 2008; Palgi, Ben-Ezra, Langer, & Essar, 2009).

Exposure to traumatic events, when untreated, may result in more severe symptoms and influence all areas of life (Solomon & Dekel, 2008). In addition, among both, civilians and soldiers, mental distress in the wake of exposure to traumatic events is often co-morbid with drug abuse (Breslau, Davis, & Schultz, 2003; Jacobsen, Southwick, & Kosten, 2001), alcohol consumption (Maes, Delmeire, Mylle, & Altamura, 2001) and suicide risk (Krysinska & Lester, 2010).

Epidemiology of posttraumatic stress disorder

Civilians

Posttraumatic stress disorder is the most frequent disorder that occurs after traumatic events (Galea, Nandi, & Vlahov, 2005; Neria, Nandi, & Galea, 2008). Although most people do not develop PTSD, many of those exposed to a traumatic event will show some of the symptoms, at least for a short period of time, with a variety of psychological consequences (American Psychiatric Association [APA], 2000). Based on the DSM-IV, it was found ($n = 34,000$), that lifetime PTSD prevalence among U.S. adults was between 6.4% and 6.8% (Kessler et al., 2005; Pietrzak, Goldstein, Southwick, & Grant, 2011). Similar percentages ($n = 36,309$) were found based on DSM-V criteria, namely 6.1% for lifetime PTSD prevalence and 4.7% current PTSD prevalence (Goldstein et al., 2016). Thus, the percentages of PTSD among U.S. adults did not change even when the DSM criteria changed.

Military staff and combat experience

Combat exposure among military service staff has been repeatedly linked to a myriad of negative health consequences (Hoge et al., 2004). It can lead not only to PTSD (Hoge, Riviere, Wilk, Herrell, & Weathers, 2014; Vasterling et al., 2010) but to a variety of emotional distress disorders (Ferrier-Auerbach et al., Erbes, Polusny, Rath, & Sponheim, 2010). Depression and anxiety are prominent amongst those diagnoses (Hoge et al., 2014; Lapierre, Schwegler, & LaBauve, 2007). Behavioral problems were also associated with emotional distress, particularly alcohol and substance abuse (Hoge et al., 2014; Petrakis et al., 2012) and suicide (Bryan, Goodman, Chappelle, Thompson, & Prince, 2018). Those emotional distress disorders were particularly associated with military personnel who have been deployed to war zones (Chappelle et al., 2014; Ferrier-Auerbach et al., 2010). In studies conducted by the Mental Health Advisory Team in U.S. Army combat-deployed soldiers (Ferrier-Auerbach et al., 2010), 18% of participants ($n = 2,677$) reported some psychological problems, 16% met criteria for PTSD and 7% reported depression. In another study on National Guard soldiers deployed to Iraq, they found that 9% met the criteria for depression and 7% met the criteria for PTSD (Ferrier-Auerbach et al., 2010).

Combat experience can lead to occupational burnout as well (Bryan et al., 2018). A study among U.S. Air Force military personnel found that emotional exhaustion and lack of personal accomplishment, which constitute subscales of burnout, were correlated with depression, whereas cynicism was correlated with PTSD (Bryan et al., 2018).

As mentioned above, among civilians, the findings were similar even when referring to criteria of different versions of the DSM. Naturally, among soldiers who experienced combat conditions, the rates are much higher. In a study of 1,822 U.S. infantry soldiers, 946 of whom had been deployed to Iraq or Afghanistan, 13% ($n = 224$) demonstrated all the criteria of PTSD according

to the DSM-IV and 12% (n = 216) according to the DSM-V. However, when considering only the results of the soldiers who had been exposed to combat, the percentages rise to 19% (n = 177) who fully meet DSM-IV PTSD-criteria and 18% (n = 165) for DSM-V criteria (Hoge et al., 2014).

It appears that after exposure to combat, the likelihood of emotional distress (Ramchand, Rudavsky, Grant, Tanielian, & Jaycox, 2015) and of PTSD at various levels (Creamer, Wade, Fletcher, & Forbes, 2011; Gates et al., 2012; Kok, Herrell, Thomas, & Hoge, 2012; Richardson, Frueh, & Acierno, 2010; Sofko, Currier, & Drescher, 2016) in combatants increases.

It is notable that a study in UK troops deployed to Iraq or Afghanistan found the prevalence of PTSD to be only 4% (Fear et al., 2010). Similarly, the prevalence of PTSD in Dutch infantry veterans who had served in Iraq was estimated at 4% (Engelhard et al., 2007). Hunt, Wessely, Jones, Rona and Greenberg (2014) indicate that the prevalence of reported PTSD is lower in the UK armed forces than in military forces of other countries such as the United States, Australia, and Canada.

The rates of PTSD found among Israeli veterans of the Yom Kippur War (Belenky, Noy, Solomon & Del Jones, 1985) and the First Lebanon War (Noy, Nardi & Solomon, 1986) were 10%–20%. In a recent study conducted on soldiers who participated in the second Lebanon war (July 12–August 14, 2006) and in operation ‘Cast Lead’ (December 27, 2008–January 18, 2009), it was found that PTSD prevalence was similar among treatment-seeking veterans who had been deployed to high exposure combat-zones (59.5% vs. 61.4%) (Levi & Lubin, 2018).

Distress among military flight engineers

While there are several medical studies on flight engineers, as far as we know, only one study deals with the psychological aspects of this population. This study was published in 1992 and presents the profile of flight engineers (n = 164) who were involved in a labor dispute. While the participants in that study were found to be committed to their careers and to identify with the goals of the company, the possibility of redundancy brought about emotions that were related to distrust in management, as well as depression, anxiety, psychosomatic stress symptoms, decrease in general well-being, strained family life and impaired relations with their spouses. The findings raised concerns about the possible effects on in-flight safety and organizational effectiveness (Visser & Van Staden, 1992).

One of the reasons for the scarcity of studies on flight engineers is probably the long-held belief that they are only technicians, unrelated to the medical teams’ job and devoid of any interaction with the casualties.

The first survey on the effects of combat on flight engineers ever performed in the Israel Defense Forces (IDF) (albeit not published) took place 5 months after the end of the Second Lebanon War and was administered to 24 flight engineers (mean age 31.5; range 23–42). Most of them (73%) were married at the time the survey was done and served as career soldiers (82%). Average seniority in the unit was 9.2 years (range 2–23 years). Seventy-two percent of the flight engineers had participated in more than 10 medical evacuation events, and for 82%, that was their first war experience. Seventy-seven percent of the flight engineers reported that the harsh sights were moderately distressful. The most common coping mechanisms were ignoring and repressing the emotions evoked by the experience and concentrating on the task. A small minority among the participants reported that they found talking to friends about the experience could be helpful in coping with it (Moriya & Luria, 2016).

Another study among Israeli soldiers was done after the ‘Protective Edge’ operation (July 8, 2014–August 26, 2014). This study included 49 (40.2%) infantry soldiers, 24 (19.7%) pilots and flight engineers and 49 (40.2%) soldiers engaged in electronic warfare. The levels of emotional distress (e.g. PTSD symptoms, somatization and state anxiety) were higher in the infantry group

compared to the other two groups (Shelef et al., 2018). However, since the flight engineers and pilots were bundled into one group, it is impossible to draw accurate conclusions regarding specifically the flight engineers.

This chapter's authors came to understand that there is a need for research that focuses on flight engineers. This resulted in a recent study (Cohen-Koren et al., n.d.), that included 112 flight engineers, the vast majority of whom were male (99.1%); 29.5% were between the ages of 18 and 30, 25% were between the ages of 31 and 40 and almost half of them (45.5%) were 41 years or older. Fifty percent (50.9%) had been in military service for over 20 years, another 25.0% had been in military service between 10 and 19 years and the rest between 0 and 9 years. The majority (66.1%) were career soldiers, with 34% at officer rank. Almost half of the participants (47.2%) had been exposed to 11 or more emotionally distressing sights. More than half (55.8%) had participated in more than four rescue missions that included fatalities. Only one participant was found to have PTSD (above the cutoff point in PCL-5), while 76.6% ($n = 85$) reported states of anxiety but did not surpass the PCL-% cutoff point. State anxiety was found in 23.6%. It is important to stress that this study was not done following a military war operation but rather during a time of regular activity in the IDF.

That study found that 13.4% suffered from mild depression ($n = 15$), with BDI scale scores ranging from 10 to 18. The point of intersection that indicates psychological distress ($n = 7$) was passed by 6.2% of the population, and 22.3% reported impairments in social functioning.

The highest percentage of flight engineers with anxiety (66.7%) was among those who reported participating in 1–5 missions with distressing sights. A similarly high percentage of anxiety sufferers (66.7%) was also found among those who were exposed to 1–3 events that included fatalities ($p = 0.015$). While the flight engineers did not demonstrate full-criteria PTSD (with one exception), they did report having multiple PTSD symptoms, as well as depression and anxiety. The authors would like to stress yet again the fact that this study did not follow and was not related directly to any military operation or war.

Coping with stress

People try to cope in a variety of ways when faced with threats to their person or their life or to people who are close to them. Coping strategies are cognitive, emotional and behavioral efforts to cope with stressful situations. Literature identified two main coping categories: problem-focused coping and emotion-focused coping. In problem-focused coping, a person attempts to reduce or manage the problem by removing or changing the stressful factor. In emotion-focused coping, they try to reduce or eliminate the emotional stress and the emotions that arise following exposure to a traumatic event (Folkman, 2011; Helgeson, 2011; Sever, Somer, Ruvio & Soref, 2008; Shalev, 1996).

Currently, most accepted coping theory includes three coping strategies: problem-focused coping (active coping, planning and using instrumental support), emotion-focused coping (acceptance, positive reframing, humor, religion, using emotional support, self-distraction, venting) and non-adaptive coping (denial, substance use, behavioral disengagement and self-blame) (Carver, 1997; Carver, Scheier & Weintraub, 1989). In the above-mentioned study, Cohen-Koren and her colleagues (n.d.) found that flight engineers who were between the ages of 31–40 reported using significantly more emotion-focused coping strategies than other age groups. It was also found that the group that was exposed to 1–3 events with fatalities reported using significantly more emotion-focused coping strategies than participants who were exposed to 4 or more events with fatalities. Flight engineers who were exposed to 1–5 events with distressing sights (as well as flight engineers who were exposed to 1–3 events with fatalities) had

higher scores in non-adaptive coping strategies as compared to flight engineers that were exposed to more such events. The explanation may be that this age group is under higher stress due to being career soldiers still in the process of building their military career while at the same time building a family life through marriage and childbirth.

According to Lazarus, & Folkman (1984), the more effective the coping strategies, the less the sense of stress and the more efficient the adaptation. Even though most stress factors lead to usage of both problem-focused and emotion-focused coping strategies, problem-focused coping strategies are used more often when people feel in control and can change the situation through their actions. Emotion-focused coping strategies are used primarily when people feel unable to effect a change in the situation (Lazarus, & Folkman, 1984). In the long run, emotion-focused coping, namely inactive coping, leads to more problems than problem-focused coping, namely active coping (Bal, Van Oost, De Bourdeauthuij & Crombez, 2003; Tolan, Gorman-Smith, Henry, Chung & Hunt, 2002).

Prevention of posttraumatic stress disorder in the army

Yehuda, Vermetten, McFarlane & Lehrner (2014) raised an important point when it came to prevention of PTSD. They claimed that countries that do not take into account the cost of mental health outcomes as part of the cost of war may not make appropriate provisions for treatment.

The U.S. military has been active in fighting zones for many years. The attitude towards PTSD and its prevention has changed over those years and attention has turned from post-deployment to pre-deployment efforts in attempts to reduce the harmful effects of exposure to trauma (Hourani, Council, Hubal & Strange, 2011). In their literature review on primary prevention efforts to stem the outbreak of PTSD, Hourani and colleagues (2011) showed that the most promising preventive approaches are still those that utilize exposure strategies, especially when used in conjunction with psycho-education, stress reduction and increased skills training. The innovation of using preventive approaches was in their focusing on secondary prevention by reducing the impact of stressors, thus reducing the likelihood of developing PTSD among symptomatic personnel deployed to combat zones. Vermetten et al. (2014) compared PTSD prevention practices and organization in soldiers deployed to Afghanistan in the United Kingdom, Canada, Australia, the United States and the Netherlands. All the countries had to work to reduce stigma related to mental health problems. Training for 'social leadership' and 'paraprofessional peer supporters' were identified as important components that may help reduce the probability for developing PTSD. The advantage of these approaches is in their potential to speed up responses to mental health issues within the units, lowering dependency on mental health professionals (Vermetten et al., 2014). Castro (2014), elaborates in his article on the elements of the prevention programs mentioned in Vermetten et al.'s (2014) article. However, in his review, Castro (2014) claimed that the only mental health training program for military personnel to have undergone rigorous scientific validation is 'battle mind training'. The battle mind program is a cognitive and skill-based program that reframes transition difficulties as a failure to adapt skills learned in combat to the home environment. According to this program, mental health training is provided before, during and after deployment and could attenuate the adverse effects of combat. Since the first battle mind program publication, other resilience-based training programs have expanded upon its concepts while maintaining its core elements (Castro, 2014). Needless to say, these programs focused primarily on infantry combat soldiers and were mostly directed at combat veterans from Iraq and Afghanistan.

Thompson and Jetly (2014) suggest that scenario-based operational ethics training as part of high-intensity military field training may constitute an important addition to traditional military

ethics education and training. Much has been written about the effectiveness of the ‘debriefing’ technique. Most studies have failed to find it clinically beneficial. Some studies even found that they caused worsening in the participants’ condition (Bisson, 2003; Lewis, 2003). However, these studies were characterized by several methodological drawbacks which weaken validity and reliability. The studies that have found debriefing to be clinically efficient pointed out certain populations that would gain the most benefit from the intervention. In a large randomized trial of combat veterans returning from a year-long deployment to Iraq, a follow-up conducted 4 months after returning home found that psychological (battle mind) debriefing reduced the psychological symptoms associated with PTSD in those with high level combat exposure better than standard post-deployment stress education (Adler, Bliese, McGurk, Hoge & Castro, 2009). According to Castro (2014), the use of psychological debriefings, at least within a military context, appears to provide a useful early intervention tool for lessening the impact of combat and deployment stress on the mental health and well-being of service members.

Prevention of posttraumatic stress disorder in the Israeli army

The IDF developed a cognitive behavior therapy-based training program for their soldiers called ‘Magen’ (‘Shield’ in Hebrew) that is mandatory and aims to prevent or reduce the prevalence of posttraumatic stress disorder. Soldiers are taught how to deliver mental first aid to fellow soldiers in the field. Magen is based on the SIX Cs model that aims to help shift the person from helplessness and passiveness to active effective functioning within minutes following a perceived traumatic event (Farchi et al., 2018). Preliminary evidence suggests that ‘Magen’ is efficacious in reducing PTSD symptoms (Ginat, Svetlizky, Barezin, Pharchi & Fruchter, 2015). ‘Magen’ is guided by three principles: ‘Timing’—intended for immediate implementation, even when still under fire; ‘Compatibility’—suited to the military culture, mission-focused and ‘Simplicity’—easy to implement and use even by non-professionals.

The philosophy underlying the provision of mental health care in the IDF as well as ‘Magen’ is based on Salmon’s (1919) principles: proximity—offering the care in close proximity to the combat unit even within the combat zone; immediacy—providing treatment right at the onset of emotional difficulties; expectancy—providing the treatment with the expectation for the patient to return to full duty at the front line within a short period of time; simplicity—utilization of short-duration, simple interventions (Ginat et al., 2015). These principles serve as a theoretical model for mental health care and were designed to preserve the readiness and numbers of military personnel on the battlefield by reducing the impact of traumatic and potentially debilitating experiences (Chappelle, & Lumley, 2006; Lamberg, 2004).

The ongoing Middle East conflict requires the IDF mental health department to provide training programs for prevention and treatment, thus ensuring minimal disruptions to the readiness of combat units. In a sample of 429 IDF soldiers who served in the 1982 Lebanon War, the front-line treatment for combat stress-reactions was found to yield significant reductions in PTSD and other psychiatric symptoms—reductions that persisted for up to 20 years post-combat (Solomon, Shklar, & Mikulincer, 2005).

The ‘Magen’ program is unique not only in using the soldiers in the field to provide immediate help on the battlefield to other soldiers, right when anxiety symptoms appear, but also in that it leads to usage of cognitive-focused strategies rather than emotion-focused strategies (Bal et al., 2003; Tolan et al., 2002). As is well known, focus on cognitive strategies may neutralize the emotional response to an overwhelming event and make it possible to increase one’s level of functioning. As trauma is associated with increased amygdala activity and less with functions of the prefrontal cortex (PFC), using emotional communication may increase and worsen the effects

of the perceived trauma (Admon et al., 2012, Hantman & Farchi, 2015). The more the amygdala is activated, the less the need for PFC activation in order to perform (Siddiqui, Chatterjee, Kumar, Siddiqui & Goyal, 2008). The 'Magen' program was designed to provide tools that activate the PFC, thus reducing amygdala activation.

In study on the entire maneuver component of an infantry brigade that consisted of 719 male soldiers aged 18–27 years, it was found that 4-month post-combat PTSD prevalence was higher (7.8%) in a control group that received no training compared to soldiers who received either eight or four sessions of attention bias modification training (6.7% and 2.6%, respectively). In general, this computer-based intervention was designed to mitigate stress-related symptoms by targeting disruptions in threat monitoring and thus mentally preparing the soldiers for traumatic combat events (Wald et al., 2016). These findings are supported by another study among IDF soldiers (Wald et al., 2017). One hundred thirty male IDF soldiers, from an infantry brigade which participated in a battle, received the attention bias modification training mentioned above. Findings revealed that solely combat exposure accounted for 4.6% of the variance from baseline to follow-up in stress-related symptoms. One conclusion was that this specific training has the potential to reduce risk for stress-related symptoms associated with combat exposure and may thus be used as a preventative intervention (Wald et al., 2017).

In recent years, clinical experience and data have begun to accumulate in the mental health department of the IDF. The 'Team Resource Intervention' technique is an immediate intervention technique that originated in the debriefing technique (Rose, Bisson, Churchill, Wessely, 2002) but instead of engaging traumatic injury, it emphasizes unit strength.

This intervention is taught by the commander of the unit and immediately after operational missions in order to help soldiers return to full functioning as quickly as possible. The team resource protocol is short in time and focused on five stages: (a) an explanation of the purpose of the team conversation; (b) thoughts and impressions, based on the debriefing stage (Rose et al., 2002); (c) assessment of mental resources (what helped to cope during the event and now); (d) summary, assessment of function, validation, normalization of responses and emphasis on values and norms and (e) finally, providing tasks to continue, directing attention to the future and following for a return to function. Moreover, the IDF Medical Corps have developed for this idea mental health guidelines requiring medical teams to undergo Resource Intervention after administering preventive intervention to casualties following a potentially stressful event (Knobler, Nachshoni, Jaffe, Peretz & Yehuda, 2007).

Prevention of posttraumatic stress disorder in the Israeli Air Force and mental preparation for flight engineers

Readiness is the primary principle guiding the pre-combat PTSD prevention programs used in the IDF to prepare the ground combat force. Prevention programs for air crews, however, are few. The most prominent is administered to pilots and recently also to operators of remote piloted aircraft.

Professional debriefing is a predominant tool in the Israeli Air Force, performed prior to and following each flight. Its purpose is to help improve performance by learning from experience and drawing conclusions for the next flight.

The team resource, as practiced in the IDF, is also embedded in the air force among fighters and rescue teams. The main purpose of the team resource intervention among combat rescue teams is to investigate the circumstances of the event, analyze the medical team's functioning and draw the relevant conclusions and the manner of their implementation. The purpose of the guidelines is to encourage using the tool to help cope mentally and possibly prevent stress reactions and help in screening individuals who need further professional intervention for stress reactions. Currently,

medical Team Resource Intervention is conducted as a routine after potentially traumatic events, especially after incidents involving fatalities. However, as mentioned earlier, even though flight engineers are part of the rescue team, they are not considered part of the medical team and therefore do not participate in the Team Resource Intervention following exposure to traumatic events. Although in a previous study by the authors, no PTSD was found among flight engineers, there were clear symptoms of anxiety that support the fact that this population should also be included in those receiving intervention after potentially traumatic events (Cohen-Koren et al., n.d.).

Recently, the Psychology branch of the Israeli Air Force has developed a Mental Training program for IDF flight engineers according to the findings of Cohen-Koren et al. (Ibid). The program comprises four components:

1. 'Personal Resilience'—A prevention component that is implemented in the flight engineers' training course, the purpose of which is to increase personal resilience and to help prepare them for the mental challenges of their work. This is a 2-day mental training program. The first day attempts to prepare the participants mentally for distressing sights by visiting a trauma room, watching the staff in action and attending a lecture by the head psychologist of the department about the mental implications of treating a severely wounded person. The second day, held by the clinical psychologist of the unit, teaches tools for coping with the experience of encountering fatalities, rescue under fire and with life-threatening situations while managing fear of failure prior to and during a rescue mission.
2. 'Resource Intervention'—The second phase of the program focuses on group interaction. This phase is based on the principles of a program developed for air combat teams, namely the Cognitive Inoculation program that was devised as preparation for air combat (Oz & Lurie, 2013). The principal of the Cognitive Inoculation program is: (1) strengthening the program participants' belief in their ability to cope in stressful situations; (2) creating a work-language, proper tools and legitimacy for dealing with the issue in all its aspects; (3) achieving group cohesion; (4) enriching the commander's 'toolkit' in a field that is not his core occupation; (5) defining the commander as a resource in general and particularly during combat, as well as upgrading his abilities. This part consists of a workshop run by the unit's clinical psychologist where all aircraft commanders are taught how to conduct a Resource Intervention after rescue missions that included fatalities or life-threatening situations. It should be noted that this program constitutes the first ever intervention program for flight engineers.
3. 'Squadron Strength'—This phase focuses on various groups and includes:
 - a. A workshop for new flight engineers who were exposed to distressing sights or events that may have included corpse evacuation. In this half-day workshop, new flight engineers are given tools that help them handle the sights they have encountered during a rescue mission.
 - b. A workshop for middle-aged flight engineers (31–40), those who were found to be at the highest risk of developing emotional distress (Cohen-Koren, n.d.). This part consists of half-day workshops during which participants are offered additional tools for managing stressful situations, fear of failure and encounters with fatalities alongside tools for balancing the stress that is created from the combination of work load with family life and rescue missions.
4. 'Monitoring'—This component of the program teaches how to preserve mental fitness as a routine. Included is administration of a short questionnaire (10 minutes) that tests distress. This questionnaire is routinely administered at the Air Medicine Unit and, when necessary, is followed by referral to targeted intervention by professional clinicians.

Summary

The psychological branch of the Israeli Air Force started to internalize the fact that flight engineers are fully active participants in rescue operations. Hence, the psychological branch of the Israeli Air Force has developed a prevention program to be administered prior to potentially traumatic events and an intervention for thereafter in order to increase mental resilience and improve coping skills before an event occurs and reduce morbidities such as PTSD and other psychological distress symptoms after the event.

References

- Adler, A. B., Bliese, P. D., McGurk, D., Hoge, C. W., & Castro, C. A. (2009). Battlemind debriefing and battlemind training as early interventions with soldiers returning from Iraq: Randomization by platoon. *Journal of Consulting and Clinical Psychology, 77*(5), 928–940.
- Admon, R., Lubin, G., Rosenblatt, J. D., Stern, O., Kahn, I., Assaf, M., & Hendler, T. (2012). Imbalanced neural responsivity to risk and reward indicates stress vulnerability in humans. *Cerebral Cortex, 23*(1), 28–35.
- American Psychiatry Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., Text revision). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., DSM-5). Washington, DC: American Psychiatric Association.
- Baird, K., & Kracen, A. C. (2006). Vicarious traumatization and secondary traumatic stress: A research synthesis. *Counselling Psychology Quarterly, 19*(2), 181–188.
- Bal, S., Van Oost, P., De Bourdeaudhuij, I., & Crombez, G. (2003). Avoidant coping as a mediator between self-reported sexual abuse and stress-related symptoms in adolescents. *Child Abuse & Neglect, 27*(8), 883–897.
- Belenky, G. L., Noy, S., Solomon, Z., & Del Jones, F. (1985). Psychiatric casualties (battle shock) in Israeli defense forces in the war in Lebanon June–September 1982. In P. Pichot, P. Berner, R. Wolf, & K. Thau (Eds.), *Psychiatry* (pp. 479–484). Boston, MA: Springer.
- Bisson, J. I. (2003). Single-session early psychological interventions following traumatic events. *Clinical Psychology Review, 23*(3), 481–499.
- Boscarino, J. A., Figley, C. R., & Adams, R. E. (2004). Compassion fatigue following the September 11 terrorist attacks: A study of secondary trauma among New York City social workers. *International Journal of Emergency Mental Health, 6*(2), 57–66.
- Breslau, N., Davis, G. C., & Schultz, L. R. (2003). Posttraumatic stress disorder and the incidence of nicotine, alcohol, and other drug disorders in persons who have experienced trauma. *Archives of General Psychiatry, 60*(3), 289–294.
- Bryan, C., Goodman, T., Chappelle, W., Thompson, W., & Prince, L. (2018). Occupational stressors, burnout, and predictors of suicide ideation among US Air Force remote warriors. *Military Behavioral Health, 6*(1), 3–12.
- Carver, C. S. (1997). You want to measure coping but your protocol too long: Consider the brief cope. *International Journal of Behavioral Medicine, 4*(1), 92–100.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267–283.
- Castro, C. A. (2014). The US framework for understanding, preventing, and caring for the mental health needs of service members who served in combat in Afghanistan and Iraq: A brief review of the issues and the research. *European Journal of Psychotraumatology, 5*(1), 1–12.
- Chappelle, W. L., McDonald, K. D., Prince, L., Goodman, T., Ray-Sannerud, B. N., & Thompson, W. (2014). Symptoms of psychological distress and post-traumatic stress disorder in United States Air Force “drone” operators. *Military Medicine, 179*(Suppl. 8), 63–70.
- Chappelle, W., & Lumley, V. (2006). Outpatient mental health care at a remote US air base in Southern Iraq. *Professional Psychology: Research and Practice, 37*(5), 523–530.
- Cohen-Koren, R., Garbi, D., Gordon, S., Yavnai, N., Erlich-Shoham, Y., & Shelef, L. (n.d.). *Predictors of emotional distress reported by combat military flight engineers*. Unpublished manuscript.
- Creamer, M., Wade, D., Fletcher, S., & Forbes, D. (2011). PTSD among military personnel. *International Review of Psychiatry, 23*(2), 160–165.

- Engelhard, I. M., Van den Hout, M. A., Weerts, J., Arntz, A., Hox, J., & McNally, R. J. (2007). Deployment-related stress and trauma in Dutch soldiers returning from Iraq prospective study. *The British Journal of Psychiatry*, *191*(2), 140–145.
- Farchi, M., Levy, T. B., Gershon, B. B., Hirsch-Gornemann, M. B., Whiteson, A., & Gidron, Y. (2018). The SIX-Cs model for immediate cognitive psychological first aid: From helplessness to active efficient coping. *International Journal of Emergency Mental Health and Human Resilience*, *20*(2), 1–12.
- Fear, N. T., Jones, M., Murphy, D., Hull, L., Iversen, A. C., Coker, B., ... Wessely, S. (2010). What are the consequences of deployment to Iraq and Afghanistan on the mental health of the UK armed forces? A cohort study. *The Lancet*, *375*(9728), 1783–1797.
- Ferrier-Auerbach, A. G., Erbes, C. R., Polusny, M. A., Rath, M., & Sponheim, S. R. (2010). Predictors of emotional distress reported by soldiers in the combat zone. *Journal of Psychiatric Research*, *44*(7), 470–476.
- Folkman, S. (2011). Stress, health, and coping: Synthesis, commentary, and future directions. In S. Folkman, (Ed.), *The Oxford Handbook of Stress, Health and Coping* (pp. 453–462). New York, NY, US: Oxford University Press, Inc.
- Galea, S., Nandi, A., & Vlahov, D. (2005). The epidemiology of post-traumatic stress disorder after disasters. *Epidemiologic Reviews*, *27*(1), 78–91.
- Gates, D. M., & Gillespie, G. L. (2008). Secondary traumatic stress in nurses who care for traumatized women. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *37*(2), 243–249.
- Gates, M. A., Holowka, D. W., Vasterling, J. J., Keane, T. M., Marx, B. P., & Rosen, R. C. (2012). Posttraumatic stress disorder in veterans and military personnel: Epidemiology, screening, and case recognition. *Psychological Services*, *9*(4), 361–382.
- Ginat, K., Svetlizky, V., Barezin, N., Pharchi, M., & Fruchter, E. (2015). MAGEN—Mental health enhancement in the front line. Paper presented at the *German Military Mental Health Conference*, Berlin.
- Goldstein, R. B., Smith, S. M., Chou, S. P., Saha, T. D., Jung, J., Zhang, H., ... Grant, B. F. (2016). The epidemiology of DSM-5 posttraumatic stress disorder in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions-III. *Social Psychiatry and Psychiatric Epidemiology*, *51*(8), 1137–1148.
- Hantman, S., & Farchi, M. (2015). From helplessness to active coping in Israel: Psychological first aid. In E. M. Schott, & E. L. Weiss, (Eds.), *Transformative Social Work Practice* (pp. 467–484). Thousand Oaks: Sage Publications.
- Helgeson, V. S. (2011). Gender, stress, and coping. In S. Folkman, (Ed.), *The Oxford Handbook of Stress, Health and Coping* (pp. 63–85). New York, NY, US: Oxford University Press, Inc.
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, *351*(1), 13–22.
- Hoge, C. W., Riviere, L. A., Wilk, J. E., Herrell, R. K., & Weathers, F. W. (2014). The prevalence of post-traumatic stress disorder (PTSD) in US combat soldiers: A head-to-head comparison of DSM-5 versus DSM-IV-TR symptom criteria with the PTSD checklist. *The Lancet Psychiatry*, *1*(4), 269–277.
- Hourani, L. L., Council, C. L., Hubal, R. C., & Strange, L. B. (2011). Approaches to the primary prevention of posttraumatic stress disorder in the military: A review of the stress control literature. *Military Medicine*, *176*(7), 721–730.
- Hunt, E. J., Wessely, S., Jones, N., Rona, R. J., & Greenberg, N. (2014). The mental health of the UK Armed Forces: Where facts meet fiction. *European Journal of Psychotraumatology*, *5*(1). doi.org/10.3402/ejpt.v5.23617.
- Jacobsen, L. K., Southwick, S. M., & Kosten, T. R. (2001). Substance use disorders in patients with posttraumatic stress disorder: A review of the literature. *American Journal of Psychiatry*, *158*(8), 1184–1190.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*(6), 593–602.
- Knobler, H. Y., Nachshoni, T., Jaffe, E., Peretz, G., & Yehuda, Y. B. (2007). Psychological guidelines for a medical team debriefing after a stressful event. *Military Medicine*, *172*(6), 581–585.
- Kok, B. C., Herrell, R. K., Thomas, J. L., & Hoge, C. W. (2012). Posttraumatic stress disorder associated with combat service in Iraq or Afghanistan: Reconciling prevalence differences between studies. *The Journal of Nervous and Mental Disease*, *200*(5), 444–450.
- Krysinska, K., & Lester, D. (2010). Post-traumatic stress disorder and suicide risk: A systematic review. *Archives of Suicide Research*, *14*(1), 1–23.

- Lamberg, L. (2004). Military psychiatrists strive to quell soldiers' nightmares of war. *JAMA*, 292(13), 1539–1540.
- Lapierre, C. B., Schwegler, A. F., & LaBauve, B. J. (2007). Posttraumatic stress and depression symptoms in soldiers returning from combat operations in Iraq and Afghanistan. *Journal of Traumatic Stress: Official Publication of the International Society for Traumatic Stress Studies*, 20(6), 933–943.
- Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. In W. D. Gentry (Ed.), *The Handbook of Behavioral Medicine* (pp. 282–325). New York: Guilford.
- Levi, O., & Lubin, G. (2018). Treatment seeking for posttraumatic stress in Israel Defense Forces veterans deployed in the Second Lebanon War (2006) and “Operation Cast Lead” in the Gaza Strip (2009): A comparative study. *Anxiety, Stress, & Coping*, 31(3), 328–337.
- Lewis, S. J. (2003). Do one-shot preventive interventions for PTSD work? A systematic research synthesis of psychological debriefings. *Aggression and Violent Behavior*, 8(3), 329–343.
- Maes, M., Delmeire, L., Mylle, J., & Altamura, C. (2001). Risk and preventive factors of post-traumatic stress disorder (PTSD): Alcohol consumption and intoxication prior to a traumatic event diminishes the relative risk to develop PTSD in response to that trauma. *Journal of Affective Disorders*, 63(1–3), 113–121.
- Mitchell, J. T., & Everly, G. S. (2001). *The Basic Critical Incident Stress Management Course*. Ellicott City, MD: International Critical Incident Stress Foundation.
- Moriya, G., & Luria, A. (2016). Group intervention for air-born mechanics following the Second Lebanon War and establishment of a prevention program—A case study. *Aviation Psychology* (pp. 149–179). Air Force Psychology Branch, Air Force/Ministry of Defence. [Hebrew]
- Neria, Y., Nandi, A., & Galea, S. (2008). Post-traumatic stress disorder following disasters: A systematic review. *Psychological Medicine*, 38(4), 467–480.
- Noy, S., Nardi, C., & Solomon, Z. (1986). Battle and military unit characteristics and the prevalence of psychiatric casualties. In N. A. Milgram, (Ed.), *Stress and Coping in Time of War: Generalizations From the Israeli Experience* (pp. 73–77). New York: Brunner/Mazel.
- Oz, I. & Lurie, O. (2013). Aviation disaster crisis management—Multidimensional psychological intervention. In C. H. Kennedy, & G. G. Kay, (Eds.). *Aeromedical Psychology* (pp. 309–324). London: CRC Press.
- Palgi, Y., Ben-Ezra, M., Langer, S., & Essar, N. (2009). The effect of prolonged exposure to war stress on the comorbidity of PTSD and depression among hospital personnel. *Psychiatry Research*, 168(3), 262–264.
- Petrakis, I. L., Ralevski, E., Desai, N., Trevisan, L., Gueorguieva, R., Rounsaville, B., & Krystal, J. H. (2012). Noradrenergic vs serotonergic antidepressant with or without naltrexone for veterans with PTSD and comorbid alcohol dependence. *Neuropsychopharmacology*, 37(4), 996–1004.
- Pietrzak, R. H., Goldstein, R. B., Southwick, S. M., & Grant, B. F. (2011). Prevalence and Axis I comorbidity of full and partial posttraumatic stress disorder in the United States: Results from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Anxiety Disorders*, 25(3), 456–465.
- Ramchand, R., Rudavsky, R., Grant, S., Tanielian, T., & Jaycox, L. (2015). Prevalence of, risk factors for, and consequences of posttraumatic stress disorder and other mental health problems in military populations deployed to Iraq and Afghanistan. *Current Psychiatry Reports*, 17(5), 37–48.
- Richardson, L. K., Frueh, B. C., & Acierno, R. (2010). Prevalence estimates of combat-related post-traumatic stress disorder: Critical review. *Australian and New Zealand Journal of Psychiatry*, 44(1), 4–19.
- Rose, S. C., Bisson, J., Churchill, R., & Wessely, S. (2002). Psychological debriefing for preventing post traumatic stress disorder (PTSD). *Cochrane Database of Systematic Reviews*, 2(2), 1–46.
- Salmon, T. W. (1919). War neuroses and their lesson. *New York Medical Journal*, 108, 993–994.
- Sever, I., Somer, E., Ruvio, A., & Soref, E. (2008). Gender, distress, and coping in response to terrorism. *Affilia*, 23(2), 156–166.
- Shalev, A. Y. (1996). Stress versus traumatic stress: From acute homeostatic reaction to chronic psychopathology. In B. A. Van Der Kolk, A. C. McFarlane, & L. Weisaeth, (Eds.), *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society* (pp. 77–101). New York: Guilford Press.
- Shelif, L., Fruchter, E., Gordon, S., Garbi, D., Yavnai, N., Haber, Y., ... Shahar, G. (2018). Impairment among soldiers who were exposed to combat during military operation. *International Journal of Psychiatry*, 3(1), 1–5.
- Siddiqui, S. V., Chatterjee, U., Kumar, D., Siddiqui, A., & Goyal, N. (2008). Neuropsychology of prefrontal cortex. *Indian Journal of Psychiatry*, 50(3), 202–208.
- Sofko, C. A., Currier, J. M., & Drescher, K. D. (2016). Prospective associations between changes in mental health symptoms and health-related quality of life in veterans seeking posttraumatic stress disorder residential treatment. *Anxiety, Stress, & Coping*, 29(6), 630–643.

- Solomon, Z., & Dekel, R. (2008). The contribution of loneliness and posttraumatic stress disorder to marital adjustment following war captivity: A longitudinal study. *Family Process, 47*(2), 261–275.
- Solomon, Z., Shklar, R., & Mikulincer, M. (2005). Frontline treatment of combat stress reaction: A 20-year longitudinal evaluation study. *American Journal of Psychiatry, 162*(12), 2309–2314.
- Thomas, J. L., Wilk, J. E., Riviere, L. A., McGurk, D., Castro, C. A., & Hoge, C. W. (2010). Prevalence of mental health problems and functional impairment among active component and National Guard soldiers 3 and 12 months following combat in Iraq. *Archives of General Psychiatry, 67*(6), 614–623.
- Thompson, M. M., & Jetly, R. (2014). Battlefield ethics training: integrating ethical scenarios in high-intensity military field exercises. *European Journal of Psychotraumatology, 5*(1). Published online. doi: 10.3402/ejpt.v5.23668.
- Tolan, P. H., Gorman-Smith, D., Henry, D., Chung, K. S., & Hunt, M. (2002). The relation of patterns of coping of inner-city youth to psychopathology symptoms. *Journal of Research on Adolescence, 12*(4), 423–449.
- Vasterling, J. J., Proctor, S. P., Friedman, M. J., Hoge, C. W., Heeren, T., King, L. A., & King, D. W. (2010). PTSD symptom increases in Iraq deployed soldiers: Comparison with nondeployed soldiers and associations with base line symptoms, deployment experiences, and postdeployment stress. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies, 23*(1), 41–51.
- Vermetten, E., Greenberg, N., Boeschoten, M. A., Delahaje, R., Jetly, R., Castro, C. A., & McFarlane, A. C. (2014). Deployment-related mental health support: Comparative analysis of NATO and allied ISAF partners. *European Journal of Psychotraumatology, 5*(1), 1–19.
- Visser, D., & Van Staden, F. (1992). The experience of work circumstances and stress; a profile of flight engineers in a labour dispute. *SA Journal of Industrial Psychology, 18*(1), 1–6.
- Wald, I., Bitton, S., Levi, O., Zusmanovich, S., Fruchter, E., Ginat, K., ... Bar-Haim, Y. (2017). Acute delivery of attention bias modification training (ABMT) moderates the association between combat exposure and posttraumatic symptoms: A feasibility study. *Biological Psychology, 122*, 93–97.
- Wald, I., Fruchter, E., Ginat, K., Stolín, E., Dagan, D., Bliese, P. D., ... Bar-Haim, Y. (2016). Selective prevention of combat-related post-traumatic stress disorder using attention bias modification training: A randomized controlled trial. *Psychological Medicine, 46*(12), 2627–2636.
- Yehuda, R., Vermetten, E., McFarlane, A. C., & Lehrner, A. (2014). PTSD in the military: Special considerations for understanding prevalence, pathophysiology and treatment following deployment. *European Journal of Psychotraumatology, 5*(1). Published online. doi: 10.3402/ejpt.v5.25322.