

# Trauma and stress

## 2.1

Support and follow-up of exposed individuals and  
operational personnel

© 2025  
Michel Mentor AB  
Malméngatan 4  
65455 Karlstad  
Sweden  
po.michel@telia.com

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## Preface

There is no clear scientific basis for exactly how crisis support for exposed individuals or for operational personnel should be designed. However, there is some empirical grounds for how crisis support may be designed in general, and some recommendations also for crisis support for operational personnel. The design of crisis support should be in accordance with what is internationally perceived as evidence-based, evidence-informed or what has emerged from proven experience. The following description is therefore based on international literature, guidelines, and consensus reports.

The path to today's view of crisis support for exposed individuals and operational personnel has been somewhat winding, and previous interventions that were widely disseminated turned out not to be able to reduce mental dysfunctions after serious events. Instead, the type of intervention that would apply to all those affected, proved to be harmful in some cases and is no longer recommended. Through research, however, new knowledge has been developed over the past decades. Anyone planning interventions with affected individuals in the acute phase or later, should thus ensure that the interventions are based on empirical foundations and are evidence-based, or that the interventions are considered by consensus to have positive effects (Forbes et al., 2010). This compilation describes the basics in the field of psychotraumatology and the support measures that may be taken in the acute phase after potentially traumatic events for those directly affected and for staff in operational organizations.

This publication is primarily aimed at those who in their profession, or through voluntary activities may encounter potentially traumatic events and have the task of supporting people affected by such settings. Affected individuals may consist of people from the general population, and/or staff who work in organizations where various forms of stress are included in the work environment. The target group is thus primarily crisis support personnel in health care and municipalities as well as leaders and crisis support personnel in operational organizations, such as the Police, the Armed Forces, the Rescue Services, Customs, Maritime administrations, Coast Guards and in emergency medical care, among others. Other organizations and employers whose staff may be exposed to various forms of potentially traumatic stressors may also benefit from this publication, such as round-the-clock open service facilities or organizations, community facilities whose staff serve abroad in different conflict areas, or voluntary rescue services (first responders).

Minor revision is made May 2025.

Per-Olof Michel

# 1. Basic psychotraumatology

## Definitions

Definitions of the area may vary in some parts, depending on who claims to be able to make them. The following definitions therefore may constitute some form of compromise which may form the basis of this publication.

### **Accident**

Sudden and unintentional event that may lead to damage to life, health, environment, or property.

### **Serious event**

An event that is so extensive or serious that available resources must be organised, managed, and used in a particular way.

### **Disaster**

A serious event in which available resources are insufficient in relation to the urgent needs, and where the load is so high that, despite adequate measures, normal quality requirements may no longer be maintained.

### **Potentially traumatic event or crisis**

An unexpected event, out of the ordinary that threatens basic functions and values or that may have major consequences on an individual's health and freedom and in which the individual's own resources to deal with the same, momentarily may be insufficient.

### **Crisis support**

All practical, psychological, and social support that different societal bodies convey in connection with potentially traumatic events.

### **Operational organizations**

This refers to organizations that are often described as high-risk organizations, in which employees are exposed to occupational stress (e.g., *operational stress*). Specifically, such organizations may be the military, or civilian societal organizations such as the police, firefighters, ambulance personnel, other emergency response organizations, or voluntary sea/mountain rescue services (first responders).

### **Operational personnel**

Specially trained personnel serving in operational organizations mentioned above and who share the fact that they almost daily must manage different forms of stress. This might be trauma, bereavement, ethical or chronic (including intermittent) stress.

## Potentially traumatic events

In the field of psychotraumatology, the consequences of potentially traumatic events are studied, as well as how support may be performed in the acute phase, how follow-up and assessment should be incorporated, as well as what treatment that should be used. There are diverse types of events that may be termed as potentially traumatic. Below is a description of various forms of such events.

### **Accidents**

Accidents may range from less serious traffic accidents to severe bus or train crashes and other accidents. Aircraft accidents usually lead to many deaths, with relatives becoming the ones most in need of support.

### **Natural disasters**

There is a tendency for natural disasters to increase in the world. These include floods, tsunamis, earthquakes, volcanic eruptions, hurricanes, and severe fires. Many people remember the tsunami in Southeast Asia at Christmas 2004 when about 230,000 people lost their lives.

### **Technological disasters**

In connection with the tsunami in Japan in 2011, about 19,000 people died. This, of course, attracted attention throughout the world. However, the western media quickly shifted their attention to the nuclear power plants in Fukushima, where the tsunami knocked out the electricity supply. This led to the cooling of those nuclear plants was put out of order, which in turn led to meltdowns in some of the reactors. The result was that radioactive caesium leaked into the atmosphere. This is an example of a technological disaster in which, as in gas accidents, people cannot physically identify the danger. This, in turn, may lead to the fact that far more people in this type of disasters, compared to natural disasters, will seek help for non-specific symptoms because they believe they have been exposed. Other examples of a technological disaster are the house collapse in Bangladesh in 2013, when more than 600 people perished, and the explosion in the port of Beirut in 2020, resulting in thousands of wounded and more than 200 deaths.

### **Acts of terrorism, war, and refugees**

The examples of this type of events are unfortunately many and they are often described as man-made disasters. This means that it is about deliberately conducted actions by people, often directed at other humans with different purposes, and which are judged to lead to more serious psychological consequences than accidents and natural disasters. Wars often lead to large flows of refugees, which often also means exposure to additional stressors. This may be about potentially traumatic vulnerability during the flight itself, and the changes that it leads to when trying to find your way in a completely new country with a different culture and under completely different life circumstances.

### **Interpersonal violence**

The consequences of interpersonal violence (violence from one person directed at other individuals) in cases such as rape, beatings or abuse during childhood are shown to be more serious than what results from accidents or natural disasters. Thus, adverse childhood experiences (ACE) may result in serious health problems in adulthood, in the form of psychiatric conditions such as depression or alcohol/drug addiction. In addition, a link to physical diseases, not least cardiovascular disease, is also seen (Felitti et al., 1998). In addition, pronounced exposure to ACE has been linked to 20 years shorter life expectancy.

### **Work-related stress in operational organizations**

Specific to various forms of operational personnel, such as police, military personnel, emergency services or paramedics, is that they are trained and prepared in advance for potentially traumatic events. The background is that traumatic and chronic stress constitute a clear element in their work environment. For this reason, part of this publication is devoted to describing crucial factors regarding stress in operational organizations.

### ***Consequences of potentially traumatic events***

About 70 percent of a population will be exposed to potentially traumatic events during their lifetime (Kessler et al., 1995; 2017). In contrast, only 5-30 percent (on average around 10%) are at risk of more serious psychiatric conditions such as depression, post-traumatic stress disorder (PTSD), anxiety disorder, addiction disorder or other psychiatric conditions following potentially traumatic events. However, if you only study specific groups, such as individuals who have lost a loved one in traumatic circumstances or those who have been exposed to sexual violence, up to 50–60 percent

may have long-term problems. The incidence of PTSD in a population at a given moment is stated to be about 1–5 percent. For society, it may thus be a matter of relatively large costs in the form of suffering and sick leave. In the context of normal deaths, most people (50–60 percent) generally recover well. About 10–20 percent experience traditional grief symptoms but also recover over time. However, a smaller group, 10–15 percent (Mancini et al., 2011) may develop persistent complex grief reactions.

## Recovery

Previously, the focus after potentially traumatic events was primarily focused on the risk of disease development. Today we know that, in most cases, those exposed to potentially traumatic events will recover with or without assistance. Potentially traumatic events take place, like everything else in our lives, in a societal, organizational, and cultural context. The latter may also be described as the influence of social interaction in each cultural context. The primary factors that affect the ability to recover are what the individual carries with her/him genetically, as well as from the growing up environment, which may be expressed in risk indicators and resilience. Another key factor is the event itself and the context in which it takes place. Examples of such contextual factors are primarily the nature and severity of the event, especially if there was a threat to life. Another crucial factor is also about the losses that the event may cause. Whether and how community or organization support is designed may also affect recovery. Figure 1 summarizes factors affecting recovery after potentially traumatic events.

Figure 1. Factors affecting recovery



## Risk indicators

Principal factors for recovery over time, according to Figure 1, are thus the relationship between the individual's vulnerability in the form of risk indicators, or their resilience and the nature of the event. The design of any support may also help to increase the chance of recovery. Individual factors that may impede recovery and indicate increased risk of later post-traumatic problems may be divided into those that affect before, during, or after a potentially traumatic event (Brewin 2000; Ozer et al., 2003). Factors before the event include vulnerability due to previous exposure, for example adverse childhood experiences (Felitti et al., 1998). Other risk indicators before exposure may include ongoing parallel life stress, lower socioeconomic status, personality traits of introversion, emotional instability, passivity and dependency on others, lower aptitude/talent, and education, or being a child. In large epidemiological studies, women have suffered from PTSD to a greater extent after



potentially traumatic events, but if the trauma is clearly pronounced, one does not see such a difference between the sexes. In addition, it has been shown that women are more affected by sexual violence, which to a greater extent may lead to mental illness and which partly may explain noted gender differences in the incidence of PTSD. If, during the event itself, a victim experienced that her or his life was threatened or has pronounced reactions, this may indicate an increased risk of developing post-traumatic stress reactions. Dissociation (described in more detail later under "Consequences of stress") associated with the event, especially residual one, is linked to increased risk of PTSD over time. One of the most important risk indicators has been shown to be if the exposed individual does not have access to well-functioning social support after potentially traumatic events. In addition to these parts, in connection with the follow-up of affected individuals, it has been found that even continuous negative interpretations of the event, rumination and feelings of shame and guilt may also contribute to increased vulnerability (Bryant, 2014; Watson et al., 2014). In a study on traffic victims taken into care in emergency rooms, a couple of markers emerged that affected the risk of the exposed individual being diagnosed with PTSD 12 months after the accident compared to those who did not have PTSD at the time (Schultebrucks et al., 2021). These possible markers were lower levels of thyroid stimulating hormone (TSH); that the accident occurred late at night; lower levels of cortisol; the experience that life was threatened at the time of the accident and that the exposed individual had experienced more previous traumatic events.

### Event related factors

Factors in the event itself that may affect the outcome are thus the context in which the event occurs. Such factors may include societal and cultural background, and, in the case of operational personnel, it may depend on the organization of which one is part. Other contextual elements are the type of event the affected are exposed to and the severity, impact possibilities and whether you know what is happening or how long the event lasts in time. Additional factors are what one is at risk of losing, or in fact has already lost in connection with the event. Such losses are described through the concept of *Conservation of Resources* (Hobfoll, 1989). Based on this theory, stress is created in humans when they lose different resources or when, after a potentially traumatic event, they find it difficult to recreate important basic life values that may also be described as different forms of resources. Such resources may be internal/individual, such as loss of self-esteem, status or mastery, the latter a collective term for the experience of control and trust in one's own ability to cope with the problems one has fallen into. Alternatively, it may be about external resources - social or material: loss of important close relatives, work, or objects such as homes and possessions or other important economic values.

### Coping affects recovery

In addition to other individual differences between individuals affected by serious events regarding risk factors, there are some examples of mastery strategies for managing the experiences that have been shown to be able to limit resilience (Nash et al., 2015; Briere et al., 2006; Gupta et al., 2011). One example is exaggerated and negative rumination over the incident, such as a man who lost his wife in an accident and who for a long time afterwards focuses only on how difficult his life has become, which becomes the only thing he talks to others about. In this way, he risks wearing out his social network or resorting to other inappropriate mastery, such as, for example, alcohol. In terms of emotion regulation (see later in the text), the man in the example has difficulty changing focus and thus being able to distract himself, and problems with bringing about some kind of cognitive change in the way he emotionally manages the event. The latter not infrequently leads to the fact that the

individual in our example may find it difficult to change the meaning of what occurred to be able to move on with his life. Another example that may limit recovery is to avoid clearly and constantly thinking about or talking about the event. This does not lead to any change in approach to the event and may be an example of a variant of emotion regulation described as suppression, which is not usually successful. It may also lead to affected individuals having only limited access to social support.

### Resilience and stress resistance

Thus, some may suffer from chronic problems after traumatic events, while a substantial proportion instead show stress resistance and resilience, which in the past may not have been given enough attention (Bonanno, 2004). Stress resistance means that affected individuals may maintain balance during and after an event. Resilience is seen in individuals who may relatively quickly regain balance after a temporary failure associated with a potentially traumatic event. The concept of resilience is not easy to define but Southwick et al., (2014; 2018) have tried from biological, psychological, and social-cultural perspectives. It is believed that resilience may look different for different individuals and is also dependent on the current situation and cultural aspects. Resilience may be described in diverse ways: as a stable process that is distinguished by maintaining health; a conscious effort to continue living insightfully and positively because of the experiences provided by the event; the ability of a dynamic system to adapt or as a process of using resources that strengthen or maintain well-being. Resilience may thus be personality factors that are linked to inheritance and upbringing in combination with other environmental factors such as economic or social resources. Examples of individual resilience may consist of more outgoing personality, perceived control, good self-evaluation, independence, self-confidence, being flexible in your emotional expressions (cf. negative rumination or avoidance), optimistic basic attitude, altruism, meeting your spiritual needs, often intentionally focusing on the present moment (mindfulness), and having a good physical status.

Examples of external factors that may help strengthen resilience are related to society/culture/context and access to resources. One of the most important such resources is social support from the environment and in operational organizations, good leadership, good cohesion, adequate preparation, and training become principal factors (Bonanno et al., 2011; Southwick et al., 2005, 2018). On the other hand, it seems that resilience is not so clearly prominent after severe interpersonal traumas such as rapes (Steenkamp et al., 2012; 2013) or after chronic traumatic loads during childhood (Bonanno et al., 2013).

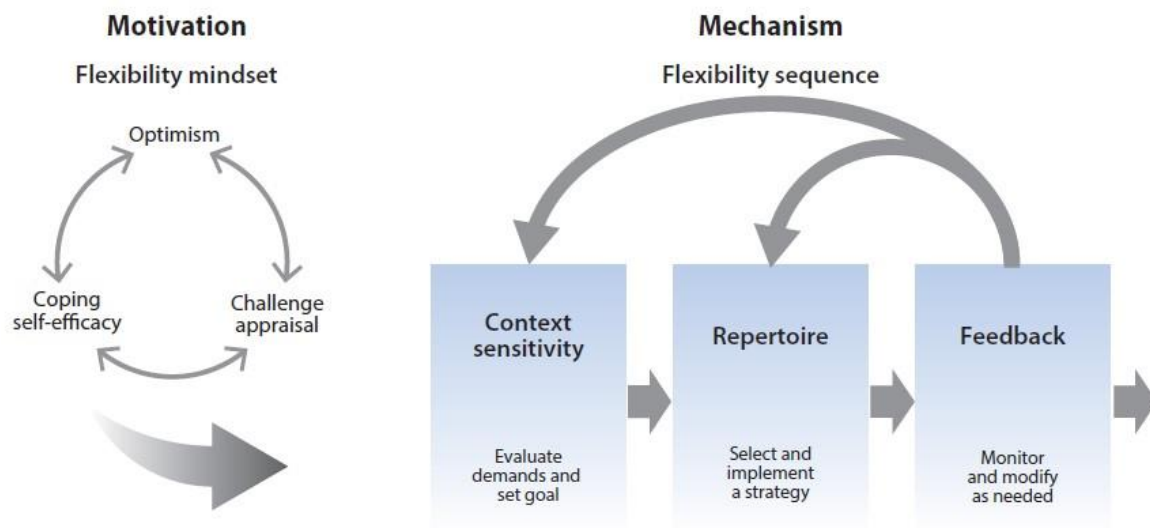
The above-mentioned individual factors that can distinguish resilience should thus be able to be measured in different individuals and thus demonstrate which ones have clear resilience or not. Unfortunately, there have turned out to be clear problems with such an entrance. For example, different scales have been tried to measure resilience, but such scales have not worked well when it comes to distinguishing those with resilience or non-resilience. Those who are doing research on resilience have explained this as a resilience paradox, as the various individual factors cannot specifically demonstrate resilience in connection with various potentially traumatic events. An important background to this paradox is stated to be a consequence of the fact that different situations can demand different things from an individual. For example, it has been shown that what has usually proven to be negative when it comes to regulating one's emotions through suppression, in some cases in the acute phase of a serious event, may be more favourable for recovery. Over time, however, suppression can continue to be negative. Another part that can contribute to the paradox

is that different situations will place different demands on affected individuals, which is why a certain resilience factor works well in a certain event but not in another.

For the above reasons, a model has been described that instead focuses on the fact that resilience is not primarily a consequence of personality traits, but instead a more dynamic and flexible way of dealing with a current potentially traumatic event (Bonanno et al., 2024). The main components of the model are *Motivation* with a flexible approach and *Mechanism* that refers to a flexible handling of the event. See Figure 2.

Thus, in terms of motivation and a flexible approach, it has been found that the interaction of different individual aspects, such as optimism, coping self-efficacy, and challenge appraisal, may contribute to resilience in a difficult situation. Regarding the mechanism for flexible management, this model is initially about context sensitivity, with evaluating demands and setting goals. Next step is to use one's repertoire by selecting and implementing a strategy. The third step is to take on board the feedback that emerges from what you have achieved and ahead change your coping if necessary.

*Figure 2. Resilience: flexibility in approach and management*



*(From Bonanno et al., 2024)*

### **Personal positive change - Posttraumatic growth**

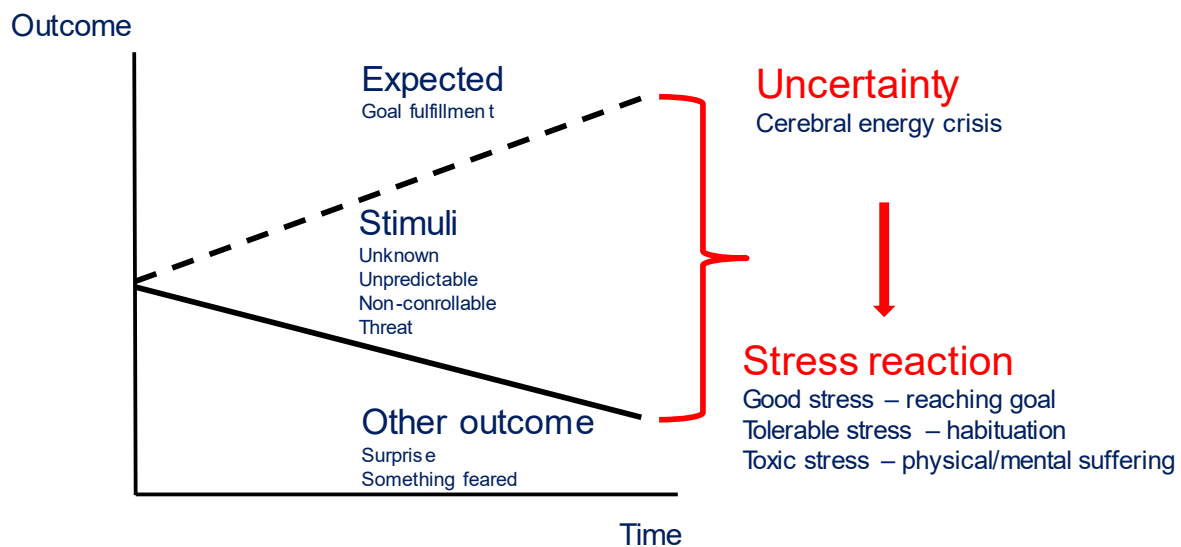
Some individuals, after exposure to potentially traumatic events, may describe experiences of positive personal or psychological changes, such as having gained a different outlook on life or that other things have become more important in their lives (Tedeschi et al., 1996). This has been referred to as Post-traumatic Growth (PTG). However, it has been found that PTG is not infrequently described by individuals who also exhibit various post-traumatic stress reactions. This has led to the assessment that PTG may encompass both a possible illusory aspect, in addition to also a constructive self-overcoming part, both as part of trying to deal with the current post-traumatic reactions (Zoellner et al., 2006). It has also been shown that PTG, may both precede PTSD symptoms as well as be a consequence of the same (Blix et al., 2016).

## Neurobiological and neurophysiological aspects

### Stress

There are many well-founded definitions of stress. Peters et al., (2017) describe stress based on more neuroscientific studies. They found that the essence of stress is uncertainty. The brain constantly evaluates all the stimuli to which an individual is exposed. In every situation where a new stimulus is identified, the brain has a certain expectation of the outcome, i.e., of what will happen, based on, among other things, recognition, and previous experiences. If the brain does not recognize the stimulus in question because it contains components that are unknown, unpredictable, non-controllable or if a stimulus is perceived as a threat, it may lead the brain to fear that the outcome will be different from the expected, or a negative surprise. This gap between expectation and something that is feared leads to uncertainty. This uncertainty may lead to an energy deficiency in the brain, both in terms of the brain's most important fuel, glucose (sugar), and to a load in the brain's various hormonal systems. This, in turn, leads to activation of the stress system, which is described in more detail below. Depending on how pronounced the uncertainty is, different degrees of stress may occur. A reasonable degree of activation, good stress, may contribute to the achievement of the individual's goals, for example, an athlete who wants to perform at the top level in a competition. If the uncertainty and stress are greater, it may be described as tolerable stress, which over time requires habituation (adaptation) in the individual. However, if the uncertainty and stress are more pronounced, it may be described as toxic and thus lead to physical or mental suffering over time. See figure 3.

Figure 3. The essence of stress is uncertainty.



(Free after Peters et al., 2017)

### Individual differences

Individual differences in how pronounced the uncertainty described above may be, may be related, among other things, to the ability to subjective cognitive assessment (Harvey et al., 2010). When the individual finds himself in a serious situation, she or he will first make a primary assessment that is about clarifying the requirements and challenges of the situation. A subsequent secondary assessment considers the adequacy of own resources. It may be about the individual's knowledge,

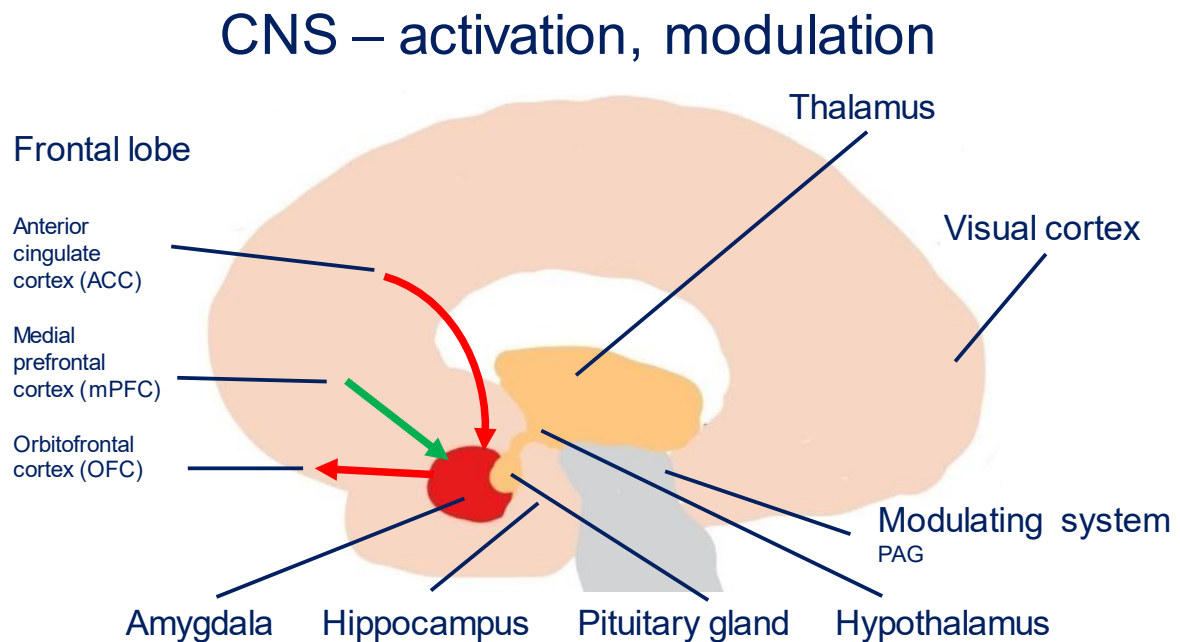
skills and access to adequate equipment or other things. In cases where the resources to deal with the current situation are deemed insufficient, and if the individual also feels she or he is being evaluated by other people, it may thus be perceived as a threat. The result may be a pronounced stress response with elevated cortisol levels. This in turn, may lead to negative influences on cognitive functions regarding memory, attention and decision making. If on the other hand, the resources are judged to be sufficient, and that the individual feels able to meet the demands of the situation and master the same, it is related to the event being seen more as a challenge, which in turn is linked to good health. It has also been shown in this context that individuals with a more optimistic attitude make greater use of more active mastery and less avoidance, more acceptance and less denial, and more humour. All this may lead to lower risk of fatigue syndrome (Gustafsson et al., 2012).

### Central nervous system (CNS)

First, it should be mentioned that what happens in the human brain is still largely unexplored even though knowledge is increasing over time. This also means that the descriptions below in parts may be seen as relative simplifications of more complicated processes. Having said that, it may still be valuable to create picture of the neurobiological basis regarding the central networks and neurophysiological processes that may be relevant in connection with different degrees of impact on these systems, for example because of stress.

What distinguishes man from most other mammals is, among other things, the development of the frontal lobe of the CNS. The cerebral cortex of the frontal lobe is activated in connection with our thinking, reflecting, and making judgments and values in our daily lives. Another of the functions of the frontal lobe is, among other things, to modulate, via different neuronal networks, the activity of our emotional systems, of which the *amygdala* (Latin for almond nucleus) is an example, see Figure 4. The portion of the frontal lobe that is part of such a network is often referred to in the literature as the *medial prefrontal cortex (mPFC)*. The amygdala is a small area located in both side lobes of the brain (temporal lobes). If the uncertainty regarding a stimulus is large, as described above (Fig. 3), it leads to an activation of the *Anterior cingulate cortex (ACC)*. This is the anterior area of one of the brain's all windings, called the *gyrus cinguli*. ACC in turn, activates the amygdala, see Figure 3. In addition, the amygdala participates in identifying threats in the context of emotional reactions, such as fear and horror, as well as in the storage of traumatic memories. That is why it is therefore sometimes referred to as a "threat centre". Something that is also evident in the context of activation of the amygdala is that the cognitive functions of the individual are impaired (exemplified by the red arrow in Figure 4 that is directed towards OFC). For example, this may lead to it becoming more difficult to make well-thought-out decisions (Arnsten et al., 2021). The *hippocampus*, located near the amygdala, is important for storing memories regarding time and facts. Thus, if our minds note something out of the ordinary or something frightening, the amygdala will be activated which in turn starts the *defence cascade* (often mentioned as *the flight or fight reaction*). Then the *hypothalamus* and *pituitary gland* are also engaged to activate the *HPA axis (cortisol system)* as well as other modulating systems, which are described in the next section. In individuals who have developed PTSD, an overactivation of the amygdala and/or a decreased ability in terms of mPFC depressant effect in relation to the amygdala has been noted (Rauch et al., 2006; Heim et al., 2016). It may help explain the symptom picture of this condition with the accumulation of traumatic memories, intrusive symptoms, and residual alarm conditions as a result.

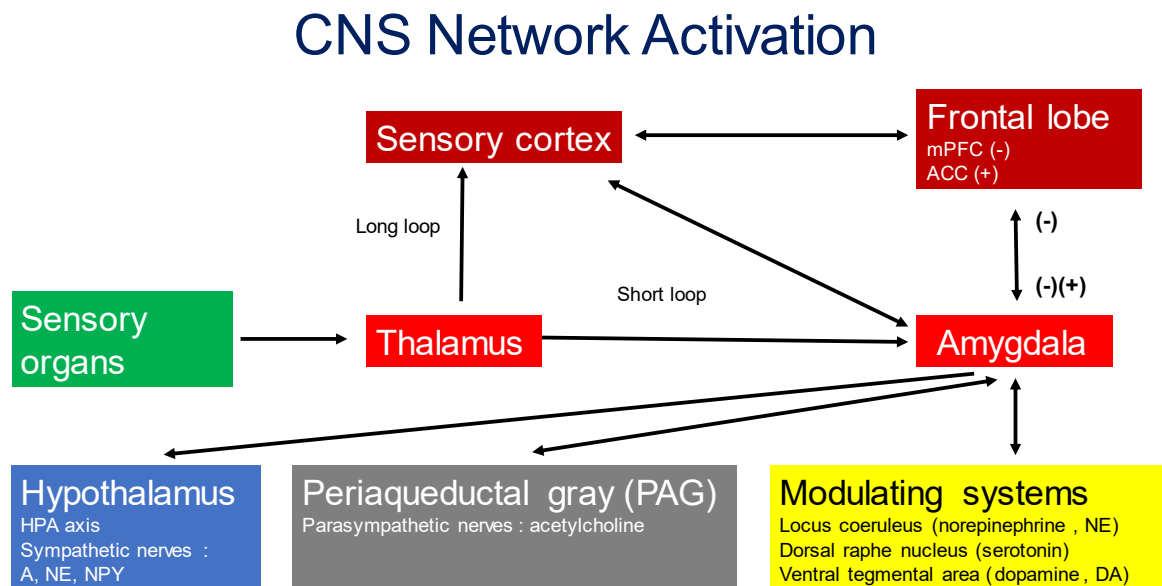
Figure 4. Right hemisphere of the brain with frontal lobe, amygdala and other areas involved in the stress response.



### Activation in the CNS in case of threat or danger

When we perceive the world around us with our senses, for example with vision, the signals go via our sensory organs to the thalamus where they are usually switched to the sensory cortex and frontal lobe (ACC and mPFC) for evaluation and reflection. The signals also reach the amygdala to determine if some kind of reaction is adequate (*Long loop*) (LeDoux, 2000; Nutt, 2000; Heim et al., 2016). However, the amygdala is constantly involved in scanning the surroundings for threats and danger. In the context of uncertainty, ACC in the frontal lobe contributes to the activation of the amygdala and, above all, in the context of threat, fear or danger. In the latter cases, the amygdala becomes much faster activated via nerve pathways directly from the thalamus (*Short loop*). In these cases, the amygdala starts a stress reaction by activating other important networks that are part of the body's stress response. However, as mentioned earlier, mPFC in the frontal lobe helps to evaluate and modulate this stress response. See Figure 5.

Figure 5. Activation of the central nervous system during stress



(Free after LeDoux, 2000; Nutt, 2000; Kozłowska et al., 2015)

### Networks activated by the amygdala

Once the amygdala is activated in the context of the threat of danger, signals also go both via the thalamus and the amygdala "upwards" to the sensory cortex and frontal lobe. Thus, somewhat later, an awareness of the danger is also initiated. In addition, other networks are activated "down" to start the stress response. These networks consist of the hypothalamus which in turn activates the HPA axis (cortisol system) and activating sympathetic nerves in the autonomic nervous system as well as Periaqueductal Gray (PAG). PAG in turn, activates the attenuating parasympathetic nerves in the autonomic nervous system. In addition, the amygdala will to different degrees activate other modulating systems as well. These networks that are activated "down" are briefly described in the following.

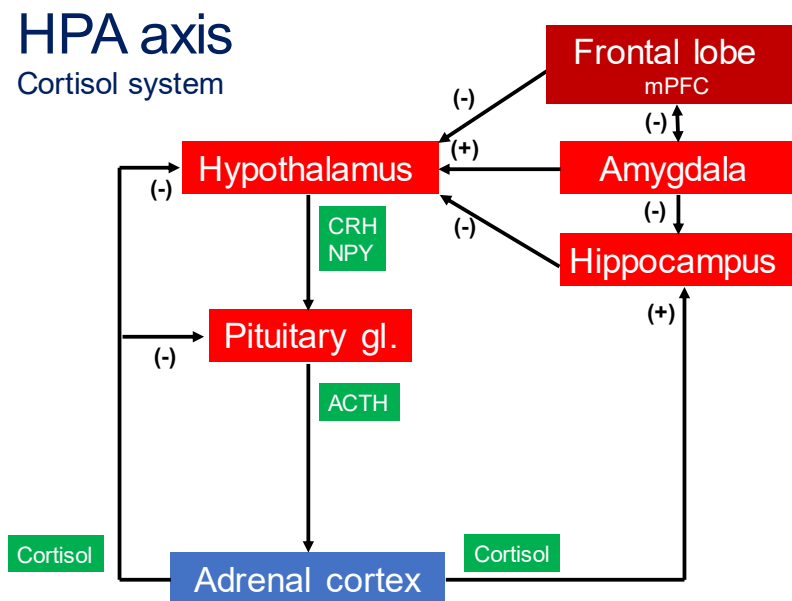
#### HPA axis; cortisol system

The HPA axis refers to the hypothalamic-pituitary-adrenal axis which also is described as the cortisol system. Signals go with a hormone (*Corticotropin-releasing hormone, CRH*) via the hypophyseal porta system from the hypothalamus to the pituitary gland, where then another hormone (*Adrenocorticotrophic hormone, ACTH*) is released, which then via the bloodstream reaches the adrenal cortex where cortisol is released. Cortisol is important for the release of glucose in connection with stress but also has clear degrading effects which is why it is important that there is a good balance in this system. This balance is exercised through various feedback systems that are there to optimize the amount of cortisol over time. In the left part of Figure 6, it is shown how cortisol, through such feedback, attenuates the release of CRH from the hypothalamus and ACTH from the pituitary gland. The activity in the HPA axis is otherwise regulated primarily via three other areas of the CNS: the amygdala that activates the stress response, the mPFC and the hippocampus that instead attenuates the activity in the HPA axis (see right part in Figure 6). The HPA axis is also likely to have an important balancing effect in the storage of frightening memories as in PTSD and for the extinguishing of such memories. In PTSD, most often the HPA axis does not work in a balanced



way, which is why the outflow of cortisol may then be impaired. This in turn leads to a lack of balancing/damping of the storage of frightening memories. This subfunction of the HPA axis may be a vulnerability factor that some carry with them hereditary or through epigenetic changes because of, for example, traumatization in childhood. Via the hypothalamus, the activating sympathetic part of the autonomic nervous system that is so important for the flight or fight reaction in the defence cascade is also initiated.

Figure 6. HPA axis - the cortisol system



(-) indicates negative feedback, attenuation; (+) indicates stimulation, activation.

### Periaqueductal Gray (PAG)

Another network that is activated "downwards" in connection with exposure to stimuli perceived as threatening via the amygdala, is an area of the brainstem called Periaqueductal Gray (PAG). There are two parts in PAG, lateral, and ventro-lateral (LPAG, VLPAG), respectively, which have different tasks associated with the defence cascade described in more detail in the section on Stress and its consequences. The ventro-lateral part of PAG also affects the attenuating part of the autonomic nervous system – the parasympathetic nerves, which are activated in connection with the freezing and immobility reactions in the defence cascade, more on that below.

### Modulating system

Thus, in addition to the HPA axis and PAG, there are some more modulating parts of the CNS that participate in the stress response: the *Locus coeruleus* which regulates norepinephrine; The *dorsal raphe nuclei* that release serotonin as well as the *Ventral tegmental area* consisting of dopamine neurons.

### Locus coeruleus; norepinephrine system

From the Locus coeruleus (LC) found in the upper part of the brainstem, nerve pathways originate that supply large parts of the CNS with norepinephrine (NE) after activation from the amygdala. LC and the norepinephrine system contribute to the storage of traumatic memories in the amygdala and contribute to the activation of the sympathetic nervous system. This system releases adrenaline and



norepinephrine peripherally in the adrenal cortex and thus starts the defence cascade or the peripheral expression of the flight and fight reaction.

#### Dorsal raphe nuclei; serotonin system

From this group of nerve cells proceed neurons with primary serotonergic (through serotonin) action in the CNS, which also are activated by the amygdala in connection with stress. Serotonin is important in the CNS for balancing the activation associated with flight or fight reaction, self-defence, access to adapted fear and aggression needed for survival. However, a not well functioning serotonin system may contribute to increased impulsivity, depressiveness, anxiety/panic, aggressiveness and to suicide attempts. It is also shown that antidepressants that increase serotonin in the CNS may positively affect conditions such as PTSD.

#### Ventral tegmental area; dopamine system

Dopamine neurons originate in the ventral tegmental area of the brainstem. Dopamine is related to desire and reward and contributes to the modulation of the amygdala and to counteract inflammation in the CNS. Lower dopamine response has been noted in individuals with PTSD.

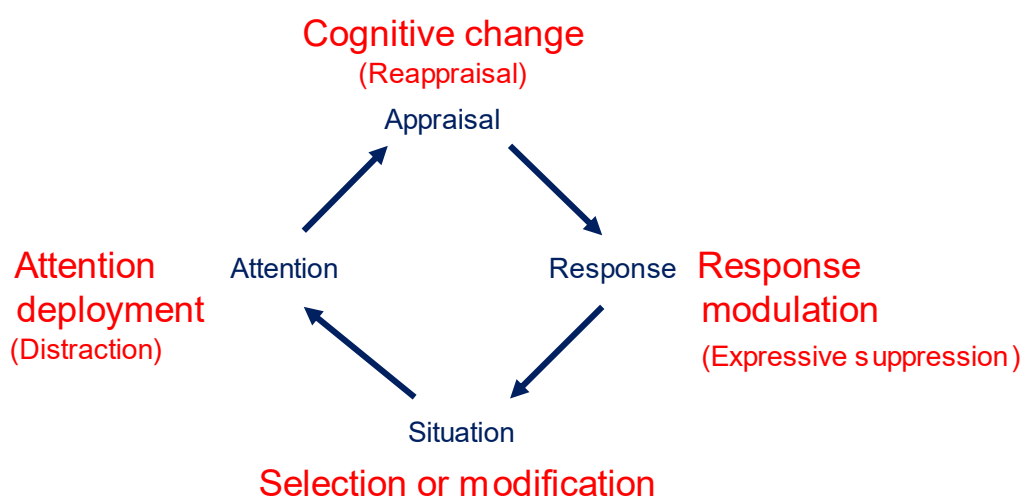
#### The emergence and regulation of emotions

##### Emotion-generating process

Emotions usually arise from our attention to external situations or stimuli that are relevant to achieve our goals, for example, we may be exposed to danger that leads to a feeling of fear, which in turn leads to the behaviour of seeking security. Alternatively, emotions, such as anticipatory anxiety, can also be generated internally within us. Different emotions can thus be described as more helpful or more negative depending on the context and they usually develop over a few seconds to minutes. The background to the ability to regulate emotions is stated to be to influence the development of emotions and thus increase the possibility that the emotions will be more helpful to us, rather than being harmful.

Thus, the process by which one generates emotions usually begins with us being exposed to a *situation*. We then *pay attention to* this situation, after which we *evaluate* it (appraisal), and then *respond* to it (Gross et al., 2007; Gross, 2015). See blue text in Figure 7.

Figure 7. Generation and regulation of emotions



(From Gross, 2015; MacNamara et al., 2016)

### Emotion regulation

When it comes to regulating our emotions, according to Gross (2015), it can thus be done based on the above-mentioned different steps, see red text in Figure 7. When it comes to the first part, situation, it is about the fact that we can sometimes *select* which situations we enter and which we refrain from exposing ourselves to. An example of the latter is choosing not to go to the cinema to see a horror movie. If you still go and see this movie, you can choose to go out if it becomes too uncomfortable, which is an example of *situation modulation*. You can also shift your attention away from the discomfort, for example by looking away at unpleasant scenes or *distracting* yourself by shifting your focus to something else or to inner thoughts. Regarding the evaluation of stimuli, individuals can regulate emotions through *reappraisal* of the situation to possibly reduce its impact. A common way of reappraisal is to change the meaning of a stimuli. For example, if you see a movie with unpleasant scenes, you can tell yourself that it's just a movie, not reality. This way of regulating emotions is also an important part of cognitive behavioural therapy. Response modulation is another way to try to deal with the impact of an emotion. One way to do this is through *expressive suppression*, such as *trying not to behave anxiously in front of others or telling them about their feelings*. In addition to regulating one's own emotions (*intrinsic emotion regulation*), the purpose can also be to help others regulate their emotions (*extrinsic emotion regulation*), which is important when we support other individuals when they are pronounced affected by their emotional state.

When it comes to regulating one's emotions, it has been found that an important aspect in this context is to use the various elements mentioned in a flexible way (Gross, 2015; MacNamara et al., 2016; Gupta et al., 2011; Bonanno et al., 2024; Kross, 2025). Flexibility here means trying to match one's emotional regulation with the environmental circumstances. Distraction can thus be adequate initially in connection with a situation but should be used flexibly over time. Instead, reappraisal can be difficult initially in the event of a serious incident, or when one feels to be out of control over what is happening. Gradually, however, there are advantages to trying to change one's approach to what has happened, or to try to look at it differently. Suppression of emotions has also been shown to be common and adequate in the acute stage when one needs to act and problem-oriented try to deal with the situation. If, on the other hand, one continuously tries to regulate one's emotions with suppression, it can instead lead to more negative emotions, reduce the opportunity to learn, and reduce the opportunity to get support over time. Flexibility has therefore proven to be a better model in this respect as well.

### Valuation of emotions over time

According to Gross (2015), we evaluate the effect of our regulation of emotions in complex cycles over time, depending on whether we perceive that the way we have used has benefited the regulation of the current emotion in a good way or vice versa. These cycles of emotion regulation are about us adapting the choice of emotion regulation based on what is happening inside us or outside of ourselves. We then take note of the current emotion, possibly choose a new strategy for regulating the emotion and act on it. This can then be repeated until a specific emotion is no longer perceived as unpleasant or harmful. It has also been shown that the use of the most appropriate strategies for regulating emotions can be strengthened over time by, for example, using mindfulness-focused meditation.

### Other ways that can help regulate emotions

There are a few additional ways that can help influence emotions, as compiled in the book "Shift" by Ethan Kross (2025). Examples of this are to shift space (changing places or make changes in the current place where you are); spending *time with people who make you feel good*; for example at your workplace, contributing to *shift the culture* (by trying to develop the social interaction); or *visualizing for yourself how emotional challenges can be handled*. The latter has been described in the model "WOOP". The letters stand for *Wish, Outcome, Obstacle, and Plan* (Oettingen, 2015) and are described in more detail later in the text under *Recovery support*.

Emotions and their expression obviously differ greatly between people considering, for example, heredity and aspects of the environment in which they grew up. As a result, the way individuals regulate their emotions will vary and possibly change and evolve over time. Regulating one's emotions can probably also be influenced to some extent, in addition to the mindfulness meditation, also through yoga, physical exercise and through other conscious exercise and training. In addition, psychotherapy may help you learn to change and adjust your emotional regulation further, if necessary.

### Consequences of stress

As mentioned earlier, stress may be viewed as a reaction which, under normal conditions of our daily lives, should be seen as a normal and important reaction that may also improve for instance athletic performance in demanding situations. It is a necessary physiological response in the face of new challenges and may also positively affect the mental and emotional state of the human being. Athletes and different professional groups will therefore also try to balance their stress in certain situations when they need to maximize their physical or mental performance. In addition to that, humans and most mammals have inherited the defence cascade to increase the possibility of survival in threatening situations. However, the problem is when the stress response becomes too dramatic and reaches levels that impair function or performance or when it leads to reactions of different severity and possible psychiatric conditions.

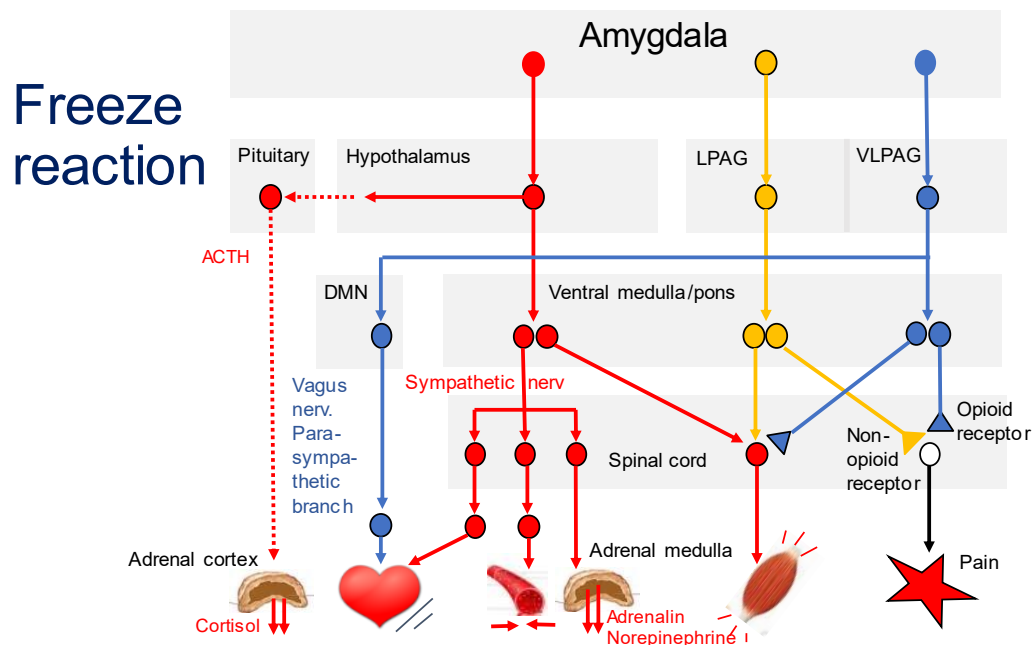
### Reactions

#### Defence cascade

The defence cascade, often referred to as the *flight or fight reaction*, human beings share with other mammals. Its main task is to increase the chance of survival associated with threat and danger. When any stimuli is perceived as a threat of danger, the defence cascade is activated, which constitutes a primitive emotional state with coordinated patterns of a motor, sensory, and autonomous response (Baldwin, 2013; Kozłowska et al., 2015). This condition may be perceived by some as pronouncedly overwhelming and may additionally form the background to possible more severe psychological consequences for some individuals. The first part of the defence cascade consists of an activation, and if the situation is perceived as a danger, it may lead to a *freeze*, or a *flight or fight reaction*. In these situations, the central and peripheral stress systems are activated from the amygdala. These parts being activated are the hypothalamus, the lateral, respectively ventro-lateral Periaqueductal Gray (LPAG, VLPAG), the pituitary gland, and areas of the brainstem (*dorsal motor nucleus, DMN; ventral medulla and pons*). Further, via the spinal cord, various organ systems such as the adrenal glands, heart, and vessels, as well as muscles and pain sensors, may also be affected. See Figure 8. In connection with the freezing reaction, the sympathetic nervous system (red), the cortisol system

(dashed red), and other systems via LPAG are activated. At the same time, however, the inhibitory parasympathetic nervous system is also activated via VLPAG (blue). Overall, this leads to a simultaneous activation and damping, which distinguishes the freezing reaction. The individual may become paralyzed and the pulse in such cases does not go above a hundred beats per minute.

Figure 8. The Freeze reaction

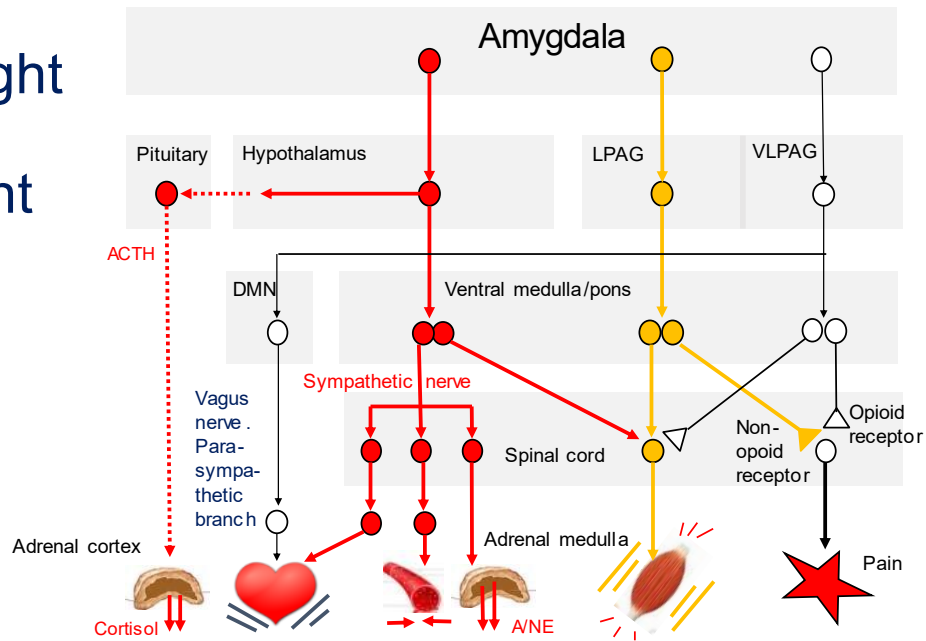


(After Kosłowska et al., 2015)

When the danger is near, the defence cascade instead consists of a complete activation and in this case without any activity in the parasympathetic nerves, leading to the individual turning to flight or fight. The pulse goes up over a hundred beats per minute, the vessels are tightened and the muscles tense. See Figure 9.

Figure 9. Flight or fight reaction

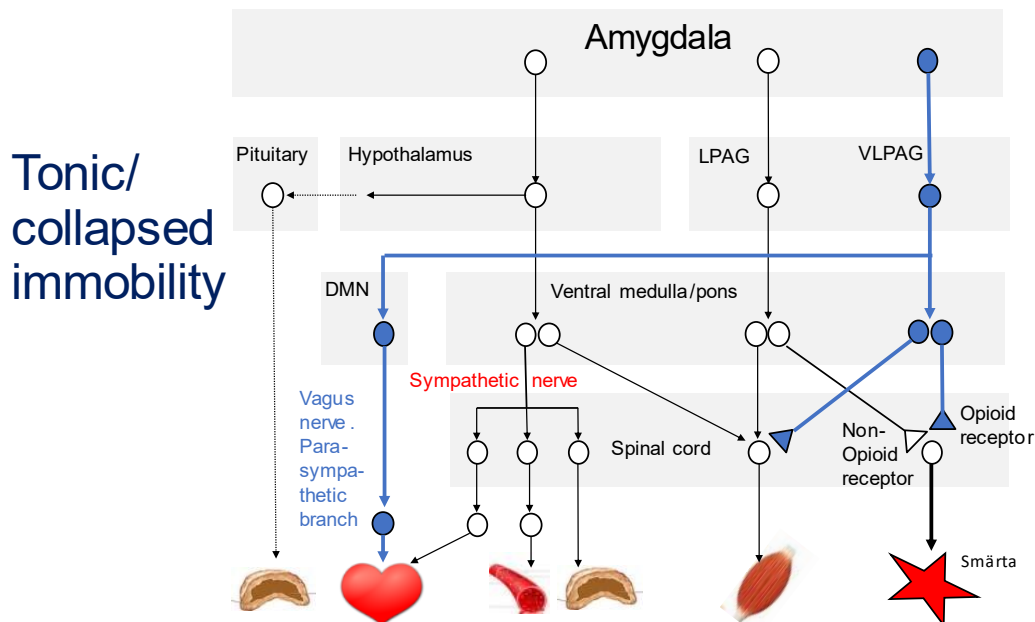
## Flight or fight



(After Koslowska et al., 2015)

In cases where an individual cannot escape, or if he or she is overwhelmed by the situation, a tonic immobility or, in the worst case, a collapse may occur. Here, only the inhibitory systems (parasympathetic nerves) in the body are activated with a low heart rate and low blood pressure as a result, which may lead to the individual fainting. See Figure 10.

Figure 10. Tonic/collapsed immobility



(After Koslowska et al., 2015)

### Acute Stress Reaction (ASR)

When the amygdala initiates the neurophysiological flight or fight reaction, cognitive and emotional reactions are also activated at the same time, which are part of an *Acute Stress Reaction (ASR)* (World Health Organization, 2022). ASR may be seen as a normal reaction as it usually begins to subside when what has caused the reaction has passed or disappeared. The intensity of ASR varies between individuals and situations, but usually four different reaction clusters may be identified: bodily, emotional, cognitive, and behavioural reactions. The bodily reactions are a result of the stress hormones activating the muscles (tension), heart (elevated heart rate) and sweating as well as redirecting blood flow from the skin and intestines which may lead to pallor, and uncomfortable sensations in the abdomen, respectively. Emotional reactions of various degrees may manifest themselves in the form of worry, fear, helplessness, perceived loss of control, anxiety, anger, horror, or disgust. Cognitive reactions during this activation may manifest as tunnel vision and decreased ability to perceive things or difficulties in dealing with intellectual challenges. The behavioural reactions may refer to overactivity, inactivity, or evasion. The organism is thus primarily focused on survival which probably is the evolutionary purpose of ASR.

### Dissociation

Another peritraumatic reaction (reaction that occurs directly in connection with the event) that may occur is *dissociation*, by which is meant that an individual may be cognitively cut off from what is happening. It may manifest itself in changes in perception, consciousness, memory, experience of presence and may also manifest itself in behaviour. There are two dissociative conditions that may become prominent in different degrees: *depersonalization* as well as *derealization* (American Psychiatric Association, 2022). Depersonalization refers to experiences of unreality, detachment, or being an outside observer with respect to one's thoughts, feelings, sensations, body, or actions (e.g., perceptual alterations, distorted sense of time, unreal or absent self, emotional and/or physical numbing). Derealization is described as experiences of unreality, or detachment with respect to surroundings (e.g., individuals or objects are experienced as unreal, dreamlike foggy, lifeless, or visually distorted). Someone may also experience *dissociative amnesia*, which usually means an inability to recall important autobiographical information related to the event. Some suggest that those exposed to adverse childhood experiences may to a greater extent experience pronounced ASR and peritraumatic dissociation (Inslicht et al., 2010). Dissociation is also related to increased risk of suffering from more severe post-traumatic stress reactions.

### Psychiatric conditions

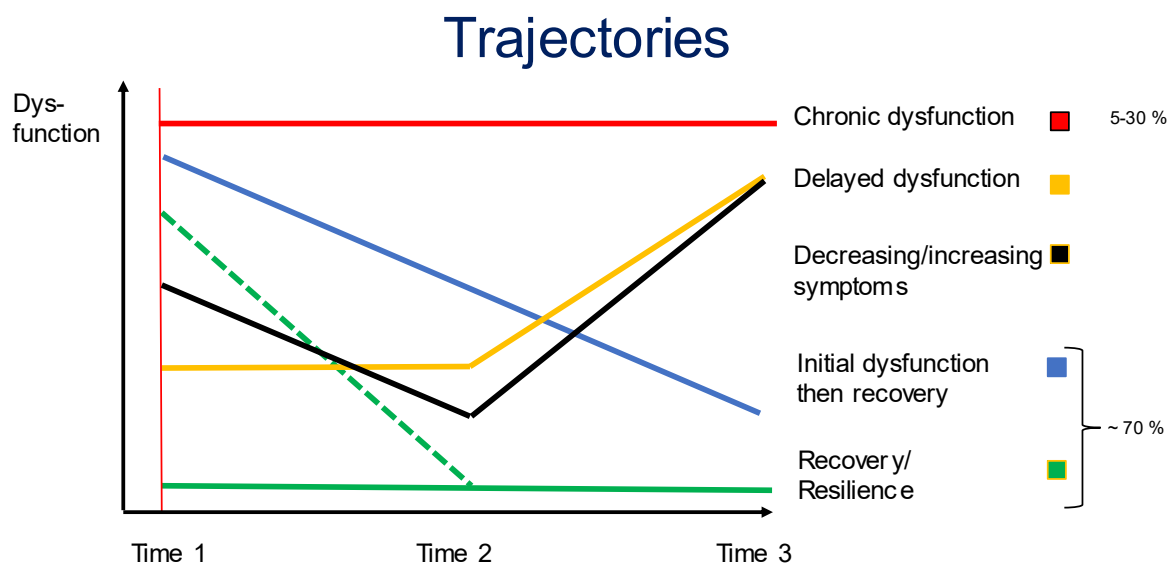
As mentioned, the acute stress reaction normally subsides after a couple of hours but in more complicated situations it may last for a few days or a week. In some cases, for example if the individual has been exposed to actual or threatened death, severe injury, or sexual violence, ASR possibly in combination with dissociative elements, may continue for more than 3 days. If a pronounced reaction thus persists from the fourth day, a so-called *Acute Stress Disorder (ASD)* (American Psychiatric Association, 2022) may have developed. ASD includes intrusive symptoms, negative mood, dissociative and avoidance symptoms, and symptoms of arousal (alarming) and may thus be a precursor to *post-traumatic stress disorder (PTSD)* (American Psychiatric Association, 2013). The criteria that make up PTSD are largely consistent with those included in ASD: intrusion symptoms, persistent avoidance of stimuli associated with the traumatic event, negative alterations in cognition and mood, marked alterations in arousal and reactivity (e.g., irritable, recklessness, hypervigilance, exaggerated startle response, problems with concentration, sleep disturbance). In

PTSD the duration of the disturbance is more than one month. In many cases, 50–80%, comorbidities with other conditions such as depression, anxiety or substance dependence may also be noted in those who have developed PTSD (Korte et al., 2021).

### Common types of trajectories

Most exposed individuals will exhibit resilience and usually recover relatively well after potentially traumatic events (Bonanno, 2004; Norris et al., 2009; Bonanno et al., 2013; Joshi et al., 2017). Others recover a little slower with or without help, mainly in the first three months. Some may develop delayed dysfunction, which requires them to be followed up. However, a certain proportion (5–30%) may develop chronic dysfunction such as PTSD, adjustment disorder, depressive disorders, various anxiety disorders or addiction disorders. Figure 11 below shows a compilation of these different trajectories. The majority, about 70% or more, will thus recover in the shorter or longer term or may be characterized as resilient, depending on the nature and type of event. Thus, it is not necessary to assume that everyone is affected, but societal response organizations may instead focus support efforts on those who need it most over time. This means that these individuals should be monitored, those with pronounced risk indicators and those who develop chronic dysfunctions. However, one should also initially stay connected with and follow up those for a brief time who do not seem to have any pronounced needs in the acute phase.

Figure 11. Trajectories



(Free after Bonanno 2004, Norris et al., 2009 and Bonanno et al., 2013 and Joshi et al., 2017; Schultebrasucks et al., 2021)

## 2. International recommendations

### Guidelines from ISTSS

*The International Society for Traumatic Stress Studies (ISTSS)* is a worldwide association of researchers in the psychotrauma field. Every year, new research results and new knowledge is being presented by researchers at conferences in North America. ISTSS has also published updated recommendations in the field that correspond to evidence-based knowledge and best practice, most recently in the book *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* by Forbes et al., (2020). In this book, a review of the literature is made to indicate recommendations primarily regarding the treatment of PTSD, see further under sections on treatment later. They note that there is no unmistakable evidence for how individuals should be treated in the acute phase but refer to the World Health Organization's (WHO, 2011) and other guidelines around the world that recommend *Psychological First Aid (PFH)* as primary support intervention for individuals exposed to potentially traumatic events.

### Handbook of PTSD

*The Handbook of PTSD* also conveys literature-based recommendations (Friedman et al., 2021). This is the third version of this book in which the authors suggest that the basic concept for supporting sufferers may be described as a pyramid in this pyramid the basis for support is primarily about first meeting basic needs, and then following up on exposed individuals and conveying support based on individual needs. Such incremental efforts have also previously been emphasized, among other things, in *the screen and treat model* (Brewin, 2005; Brewin et al., 2008; Nash et al., 2012; O'Donnell et al., 2012; Pfefferbaum et al., 2013; tentsproject.eu; Watson et al., 2014; OPSIC Project, 2015). These interventions may be described as proactive follow-up, screening, and treatment. According to this model, the immediate interventions in the acute phase should involve informing about the event, providing support, informing about normal reactions, and following up individuals to catch those with residual symptoms. The latter should then be treated with evidence-based methods. A simplified variant of such an intervention pyramid is described in Figure 12, under the section on crisis support.

### NICE report

In 2005, the British National Institute for Clinical Excellence (NICE) presented a scientific review in the field of post-traumatic stress disorder, which had a major impact internationally (NICE report, 2005). The recommendations of this report may be summarised as follows:

- Those affected should be given the opportunity for empathic support that may be practical, emotional, and social
- It is positive with information about common reactions and advice to master them, verbally and in writing
- For exposed individuals with mild reactions that have lasted less than four weeks, *watchful waiting* may be a functional model. The emphasis here is on *watchful*, which means that you should proactively follow up these individuals
- You should refrain from the old model of so-called psychological debriefing with individuals
- After three weeks to a month, it may be appropriate to screen high-risk individuals with a simple instrument



- Those individuals who at the follow-up show pronounced symptoms should have access to trauma-focused psychotherapy within one month. See more about treatment below
- If the initial reactions after a potentially traumatic event subside, they are likely to pass by themselves. On the other hand, the affected should be followed-up and the need for treatment assessed, if the reactions remain at the same level, if they increase or if they are particularly troublesome.

## TENTS

In Europe, there had been a wide variety of interventions following serious events, many of which previously had insufficient scientific evidence. This is why the EU project TENTS (*The European Network for Traumatic Stress, 2009*) was created and a European consensus report in the field has been compiled. (Bisson et al., 2010; Witteveen et al., 2012). TENTS contains the following recommendations regarding community interventions after traumatic events:

### First week

- Convey practical support with empathy
- Neither encourage nor prevent people from telling their stories
- Open a website for information and support

### First month

- Exposed individuals with difficulties should be assessed regarding the need for interventions
- Those with acute stress disorder (ASD) should be offered *trauma-focused cognitive behavioural therapy (TF-CBT)*

### From first to third month

- Those with PTSD should have access to (TF-CBT) or *Eye Movement Desensitization and Reprocessing (EMDR)*
- Individuals with pronounced symptoms should be approached proactively

### After three months

- Those who have continuing difficulties should be offered professional assessment
- Those with long-term ailments should by health care providers be offered rehabilitation.

## OPSIC

Within the EU, further guidelines have been developed, *The comprehensive guideline on mental health and psychosocial support (MHPSS) in disaster settings* (OPSIC-Project, 2015). These guidelines indicate that support should follow international knowledge standards, be based on humanitarian and equality principles, be accessible to all based on current needs, and should be implemented with step-by-step efforts from simple support to professional assessment. When it comes to the dimensioning of crisis support efforts, this should primarily be determined by the nature of the event. Like TENTS, OPSIC is also based on the five elements described by Hobfoll et al., (2007) and the practical support consists of Psychological First Aid as described below. These guidelines also relate to the Screen and treat model. OPSIC guideline may be accessed via the link:

[OPSIC\\_MHPSS\\_Comprehensive-Guideline\\_Janner2016.pdf](#)

## Five essential elements of immediate trauma intervention

After noting that previous support efforts could be too intrusive for some exposed individuals, a group of prominent researchers went back to the literature and were then able to identify five essential elements that should form the basis for support for exposed individuals in the acute phase

(Hobfoll et al., 2007). This compilation of the literature describes the scientific basis for these five basic principles and recommends that they should guide the design of support measures. These principles are about promoting:

- A sense of safety
- Calming
- A sense of self– and community efficacy
- Connectedness, and
- Hope.

To stage and implement these interventions, other concepts have been developed by support institutions: *Psychological First Aid (PFA)* and *Skills for Psychological Recovery (SPR)*, which are described in more detail below.

### Psychological First Aid

*The National Child Traumatic Stress Network* and *the National Center for PTSD* in the United States developed a compilation of evidence-informed knowledge in the field of emergency crisis support (Brymer et al., 2006). The compilation is called *Psychological First Aid, Field Operations Guide (PFA)* and is available at: <http://michelmentor.se/files/Psychological-First-Aid-manual.pdf>

PFA is designed to reduce the immediate effects of traumatic events, as well as to support adaptive functions in the short and long term. PFA follows the previously stated principles of support in the acute phase and includes the following objectives:

- *Contact and engagement*: Establish human contact in a compassionate and non-intrusive way
- *Safety and comfort*: Meet basic needs. Amplify the experience of safety and security both physically and emotionally
- *Stabilization*: Calming exposed individuals who are emotionally overwhelmed and panicked
- *Information gathering about needs and current concerns*: Help those affected articulate their immediate needs
- *Practical assistance*: Convey support so that those affected may meet their needs
- *Connection with social supports*: Contribute to the contact with loved ones and other help agencies
- *Information on coping*: Convey information that may support those affected in mastering the psychological effects of the event
- *Linkage with collaborative services*: Facilitate continued contacts with society's other support bodies

There is the opportunity to take a course in PFA in English, on The National Child Traumatic Stress Network: <http://learn.nctsn.org/course/index.php?categoryid=11>

### Skills for Psychological Recovery (SPR)

In addition to PFA, the National Child Traumatic Stress Network and the National Centre for PTSD in the US have also developed an evidence-informed model for continued support over time in what is known as *Skills for Psychological Recovery (SPR)*, (Berkowitz et al., 2010). This concept contains elements that may support the recovery when the immediate needs of the acute phase have been

met. SPR may be viewed as a model for secondary prevention. In other words, it is an intermediate intervention with the aim of reducing existing reactions, identifying mastery abilities, and improving the level of functioning, as well as possibly reducing the need for later treatment. SPR is available at: <http://michelmentor.se/files/Skills-for-Psychological-Recovery-manual.pdf>

SPR contains the following elements:

- *Building problem solving skills.* This is about defining a problem and goal, "brainstorming" about several paths to solve the problem, evaluating those paths and then evaluating the ways that seem most appropriate
- *Promoting positive activities.* Finding ways to improve mood and functional level by identifying and trying positive and pleasant activities
- *Manage reactions.* Strengthening the ability to master and reduce worrying, bodily and emotional reactions in certain demanding situations
- *Promoting helpful thinking.* The respondent is challenged to find diverse ways to identify worrying thoughts and counteract such with other ways of thinking
- *Rebuilding healthy social connections.* This element provides pathways for re-establishing important relationships and societal support.

### 3. Crisis support

Crisis support may hence be defined as all the compassionate, practical, psychological, and social support that various instances of society convey in connection with potentially traumatic events. The purpose may be described as conveying adequate information, emotional and practical support and then following up on exposed individuals or groups and ensuring that those who need it are subject to professional assessment. Those who are later judged to suffer from some form of trauma-related ill health should then have access to adequate treatment.

To implement practical crisis support for individuals in the community affected by a serious incident, it is internationally recommended to use Psychological First Aid (PFA). As previously described PFA includes measures that correspond to the mentioned five basic elements of support in the acute phase. For support to operational personnel, a similar concept has been developed based on the same literature, *Stress First Aid (SFA)*, which is described in more detail in the section on work-related stress. In connection with follow-up, components of the also previously described Skills for Psychological Recovery (SPR) may contribute to the competence of crisis support personnel.

The following describes additional components that may be included in the primary support. Such parts may consist of how acute stress reactions may be managed, how crisis support personnel may contribute to supporting recovery, for example through support for self-help. Further, how to encourage social support, which is also one of the most important means of counteracting mental illness after exposure to potentially traumatic events, is also discussed. With the support of algorithms, it is stated among other things what society's system for crisis support may look like in the form of distinct levels of interventions. How crisis support may be implemented when children and young people are affected. How group support may be implemented is also briefly described. Community support organizations should consider the needs in distinct phases after a serious incident, as well as plan how, for example, a public support centre may be designed, which is also described below. Finally, this section describes international recommendations for the treatment of post-traumatic stress disorder.

#### Management of pronounced Acute stress reactions

The Acute Stress Reaction (ASR) is to be considered as a normal reaction to experiences of threat. Nevertheless, a more severe variant may manifest itself as a freezing reaction with different degrees of dissociative elements. The reactions may take the following forms:

**Bodily:** increased heart rate, sweating, shaking.

**Cognitive:** being like in a fog, confusion.

**Emotional:** sadness, anxiety, anger, despair.

**Behavioural:** overactivity, inactivity, evasion.

Thus, the consequences of a pronounced ASR may be described as a hyperactivation of the amygdala that leads to a feeling of helplessness, an experience of loneliness or abandonment, or different degrees of confusion. If you notice an affected individual who at some point reacts with a pronounced ASR, you may use the support model "CEICI" (acronym based on the measures), which includes five points developed by Farchi et al., (2018) and Svelitsky et al., (2019). See Figure 12 below.

*Figure 12. Management of ASR with "CEICI."*

# Five-point model for managing ASR

Action (CEICI)	Description	Rational	Examples
Connect	<ul style="list-style-type: none"> <li>Make eye contact</li> <li>Mention the victim's name, ask if she/he hears you</li> <li>Touch the individual's arm, ask her/him to touch your arm as well</li> </ul>	Ensure that you captured the individual's attention via different sensory ways	"Daniel" "Look at me" "Do you hear me?" "I'll hug your arm, hug mine too"
Engage	<ul style="list-style-type: none"> <li>Assure the individual that she/he is not alone and that you are there</li> </ul>	Breaking through the individual's sense of isolation	"You're not alone" "I'm here with you"
Inquire	<ul style="list-style-type: none"> <li>Ask simple fact-based questions about chronology, quantity, names, what the individual was doing there. The questions should only require short answers and be relevant to the situation</li> </ul>	Conscious way to engage frontal lobe functions	"At what time did you end up here?" "How many people do you know here?" "Why were you here?"
Confirm	<ul style="list-style-type: none"> <li>Confirm and describe in simple terms what has happened, what is happening and what will happen</li> </ul>	Grounding the individual in the situation in different ways	"The fire seems to have started on the second floor" "The injured are taken care of now" "You are safe here"
Instruct	<ul style="list-style-type: none"> <li>Ask the individual to do simple things</li> </ul>	Encourage the individual to regain function and to reduce the experience of helplessness	"Get your bag" "We help each other move the chairs" "You can provide yourself with coffee and sandwiches over there"

(Free after Farchi et al., 2018; Svelitsky et al., 2019)

## Recovery support

As a basis for crisis support, the previously described parts, *Psychological First Aid (PFH)*, and *Stress First Aid (SFA)* are recommended to be used for those affected in society and response personnel, respectively. Elements described in *Skills for Psychological Recovery (SPR)* can also be used for additional support. Below are other components that affected individuals can be encouraged to try for themselves to support recovery in terms of regaining balance, self-confidence and to support their own resilience. First, a few points are listed as a basis for supporting recovery, after which different parts of *individual stress management* are described in more detail. These different parts can be raised by crisis supporters in the form of dialogue with the affected person based on what seems current and reasonable.

- Contact others to take advantage of social support.
- Try to maintain normal daily routines, which has proven to be good especially for children.
- Seek help when needed.

## Individual stress management

When we humans have been through serious events, we consciously or unconsciously try to deal with the same problem-oriented. If that is not possible, we try to manage our reactions more cognitively, emotionally or behaviourally. Below are several examples of how you can individually manage your reactions. First, three unhelpful ways to deal with the experiences are described. It then lists several different ways that can instead help strengthen recovery, such as problem-oriented stress management, as well as how we can deal with thoughts, emotions and when it comes to changing behaviour. Several of these parts may help activate the calming parasympathetic nervous system and thus support recovery.

### *Problem-focused stress management*

If the current stress reactions are related to a problem that can be dealt with in some way, it may be helpful to first obtain more information about the current challenge. Then you can try to analyse the problem, what it is about, try to come up with what you want to achieve, and then identify different options for action. After that, it can be good to try to find ways to best deal with the problem, for example figuring out what to start doing, and what to do next (Larsson, 2021).

### *Write about the experiences*

Writing about one's experiences can also help support recovery after serious events (Pennebaker, 1997). A simple example could be to write for 15 minutes one day about current thoughts and feelings related to what happened, and the next day the affected person can write down the reflections they make on what was written down the day before.

### *Emotion regulation*

As described earlier, regulating emotions is an important component of our mastery arsenal. We use it both unconsciously and can do it even more consciously. Below are summarized different ways to consciously regulate our emotions when needed, as described by Gross, (2015): *select or modify a situation*; *attention deployment* (e.g. distraction); *cognitive change* (e.g. reappraisal) and *response modulation* (e.g. expressive suppression). Emotion regulation is often about regulating one's own emotions, and when one is supporting someone else, one may also be able to assist them in regulating their emotions. Thus, emotion regulation in an adapted, flexible and adequate way can help support one's own and others' recovery. Below is a description of how to practically use emotion regulation to support recovery.

#### *Select or modify a situation*

Not always, but sometimes, we can select to expose ourselves, or not, to situations that can affect our emotions. For example, if a friend asks if you want to come along and see a horror movie at the cinema, you can choose not to if it doesn't feel nice. To modify the same movie situation can be about the fact that once you have agreed to see the movie, you can always leave the room if a movie scene becomes too unpleasant.

#### *Attention deployment – distraction*

Emotion regulation through conscious distraction can be adequate in the beginning after a serious event, for example by distancing oneself from the unpleasant by focusing on the task at hand. However, it has been found that distraction is less adequate over time. Instead, it is better to slowly begin to face your memories and feelings to recover well. In the context of distraction, one should try to eventually accept the feeling in question and, if possible, give it a name. As an example of distraction, you can then try to think about something else or engage in some physical activity – a walk in nature or listen to your favourite music.

#### *Cognitive change – reappraisal*

Reappraisal is described as perhaps the most important way to regulate our emotions. One can start as described above by accepting the current emotion, giving it a name and then – try to change the meaning of what happened, or try to look at what happened differently. Perhaps the affected person can remember that other people did good deeds in connection with a difficult situation, thinking about such things can also contribute to reappraisal.

### Response modulation – expressive suppression

Suppressing emotions in a severe emergency may be helpful initially. However, individuals should be aware of when they are suppressing their feelings, i.e. when they notice that they do not want to approach them or show them to others over time. The reason is that after a while it is important to start processing the experiences again. If you continue with suppression, it can lead to more negative emotions and reduce learning and the realization that the affected person is able to handle the difficult emotions over time.

### Other ways that may influence emotions

In addition to the mentioned parts for regulating emotions, there is support for a few more ways that can help manage emotions (Kross, 2025), which are described in more detail below.

#### Shift space

Seeking out places that affect you emotionally in a good way can also contribute to recovery from emotional strain. For example, it can be about going out into nature or some other place that you have positive connections to before.

#### Change your current location

Kross describes how to remove things in the immediate environment that trigger negative emotions or that lead to negative temptations or negative distractions. Instead, you should change the environment by using things that may contribute to good feelings, such as pictures of people who are important to you.

#### Socializing with people who make you feel good

To do that may also contribute to our need for empathetic treatment and affirmation, or it can contribute to changing perspectives and thus lead to the use of more adequate and adapted coping strategies.

#### Contribute to developing social interaction with others

It may be that in other social contexts, for example at work, you try to contribute to raising awareness of how beliefs, important values, norms and practices are used and thus contribute to the development of social interaction or culture in the workplace. This, in turn, can also affect one's own emotion regulation.

#### Visualize how emotional challenges can be handled

Being human means that you will continuously end up in emotional challenges of easier or more difficult value. Furthermore, it is usually not enough to just think positively. Instead, a combination of positive thinking and the identification of negative internal obstacles, as well as how to overcome them, may be more beneficial. Against this background, some researchers developed a system under the acronym "WOOP". The letters stand for *Wish, Outcome, Obstacle, and Plan* (Oettingen, 2015). For more practical information, you can download a free app called "woop". For implementation, one should first find a quiet place and then go through the emotional challenge at hand as described in the WOOP below.

1. *Wish*: here a wish is first described regarding a current challenge.
2. *Outcome*: what does a good result look like when the wish is fulfilled and how do you feel then?
3. *Obstacle*: which internal, personal obstacle(s) can be identified?
4. *Plan*: how do you need to act to handle and overcome these obstacles?

### Regulate hyperarousal

When the activating sympathetic nervous system is overactive, such as when you experience acute stress reactions of various kinds, you can try to calm yourself in different ways. Through several of the parts described below, the parasympathetic nervous system can instead be activated and thus contribute to greater calm.

#### Slow breathing

To do calming breathing exercises, it can be good to first find a quiet place where you can sit comfortably and close your eyes. After that, you can use a breathing technique that has been shown to reduce stress if used 5 minutes daily (Balban et al., 2023). You then inhale slowly through your nose, and when the lungs have expanded, you make another short inhale to fill the lungs to the maximum. Then you should make a twice as long exhalation through the mouth. Another common breathing exercise is to slowly breathe in through the nose, hold the breath for a while then make a slow and longer exhalation. An example of such an exercise could be to inhale slowly through the nose and count to 4, then make a slightly longer exhalation through the mouth and count to 6 (Chaitanya et al., 2022).

#### Grounding techniques

Here you use your senses to shift your focus from, for example, your worrying thoughts. You should start by doing a couple of breathing exercises before as described above, then focus on your senses here and now. This can be done by quietly mentioning to yourself three things you saw before you closed your eyes, you can mention some sound you hear and feel how the chair cushion feels against your buttocks and then how your feet feel in your shoes or against the floor.

#### Interested curiosity

When negative and difficult thoughts appear, it can be of value to remind yourself that thoughts are just that - thoughts and that these are not always related to reality. For this reason, it can be good to **just curiously note** when worrying thoughts appear and then try **to avoid asking yourself "why"** you think that way. If, on the other hand, such worrying thought cycles are often allowed to take charge, it can contribute to negative rumination, which in turn can lead to depression over time (Brewer, 2021).

#### Bodily relaxation

An example here could be to inhale deeply and hold your breath while tensing the large muscle groups in the body. Then you exhale slowly and release the tension in the muscles.

You can also engage in physical exercise: take a slow walk, power-walking or jogging.

#### Meditation

Mindfulness exercises focused on breathing, or yoga, can also help to support the calming parasympathetic nervous system, thereby helping to increase well-being, engagement, and resilience, as well as reducing burnout, stress, anxiety, and depression (Cohen et al., 2023; Melnyk et al., 2020).

### Self-influence

#### Visualization

It has been shown that visualization can be used to support emotional, cognitive, and behavioural change (Blackwell, 2018). For example, you can close your eyes again and do some breathing exercises and then try to see in your mind how you can cope with the difficult things in a good way.



### Positive self-dialogue

In the context of sports, it has been found that negative self-dialogue can contribute to worry and anxiety, while positive self-dialogue can instead contribute to better performance (Santos-Rosa et al., 2022). Positive self-dialogue can thus be useful in reducing anxiety and fear in stressful situations. Here are examples of how this can be used. You start again by doing some calming breathing exercises and then speak in a calming voice within yourself, where you can, for example, use the following comments and repeat them a few times: "This situation will not last forever", alternatively "You can do this" or use calming mantras such as: "I am calm and safe".

### Manage thoughts

A consequence of stress that is not uncommon is that our cognitive abilities are affected, which may lead to us falling into various forms of thought traps or cognitive distortions. Examples of such may be:

- All or nothing: Everything is black or white; if you do not perform flawlessly, you consider yourself a complete failure.
- Overgeneralization: One negative event is perceived to be part of an endless pattern of dismay and defeat.
- Mental filter: One negative episode shades everything, filters out all the light and you see only darkness.
- Disqualifying the positive: Unable or unwilling to accept a compliment or praise. Deflecting all compliments with self-deprecation.
- Jumping to conclusions: Drawing negative conclusions without checking to see if they have any foundation in fact.
- Magnification or minimization: Exaggerating problems or mistakes into catastrophe. Minimizing anything that might make you feel good.
- Emotional reasoning: Assuming your negative emotions are reflecting the way things are because it "feels like so."
- "Should" statements: Adhering to a rigid set of beliefs and internal rules about what you "should" do and feel guilty when you do not.
- Labelling: Rather than describing a mistake or challenge in your life, you label yourself negatively: "I'm a screw-up."
- Personalization: Self-blame, everything that doesn't go as planned is your fault.

To deal with these cognitive distortions, it is recommended to support affected individuals to note these thought traps and to try to help manage them through so-called cognitive restructuring. By it is meant to support the individual to try to think differently, rationally, and more realistically (Harvard Medical School, 2020; Darnall et al., 2021).

### Cognitive restructuring

An example of this is to try to persuade the individual to deal with their thought traps based on the acronym SBRC:

**Stop:** Consciously call a mental time-out when you feel stressed. By saying "Stop," you can halt the negative stress cycle in its tracks.

**Breathe:** Take a couple of slow breaths to reduce physical tension and step back from the stressor before you react.

**Reflect:** Ask yourself the following questions: Is this thought or belief true? Did I jump to a conclusion? What evidence do I have? Is there another way that I could view the situation? What is the worst that could happen? Does it help me to think this way?

**Choose.** Decide how to deal with the source of your stress. For example:

- Problem-solve what you can control. Gather information, ask advice, plan, and act.
  - Accept what you cannot change and try to draw meaning from it, if possible. Have empathy for yourself; seek social support, as appropriate; express feelings and seek counselling if needed; use your stress management tools.
  - Challenge distorted, irrational thinking and adjust your view of reality using cognitive restructuring techniques. Remember, many things we worry about never come to fruition.
- Ask yourself: How else can I think about this? What else can I do to cope more effectively?

### Acceptance

How you live your life will affect how you feel. Becoming more aware of one's own ways of reacting in different situations can therefore help to strengthen one's own resilience. Something that can contribute to the latter can be by, for example, trying to meet the outside world with a more conscious response instead of a reactive way. A more accepting approach can therefore possibly contribute to strengthening individuals regarding the handling of life's various challenges. Forms of therapy such as *Acceptance and Commitment Therapy (ACT)* and *Cognitive Behavioural Therapy (CBT)* contain components that can lead to a more accepting approach to things we cannot influence in the world around us. In CBT, *Thematic Behaviour Analysis* is used for this purpose. For example, a formula is described that can make us aware of the situations we may find ourselves in (Wadström, 2021). A simplified formula is " $S + R = C$ ". Here "S" stands for situation, i.e. what we encounter in our surroundings. The "R" is about our own response to that situation, and the "C" means consequence. The situation, the person(s) we meet, is often not easy to influence, but we ourselves can decide to a greater extent than we think how we should respond to the situation or person. How we do it leads to some consequence, i.e. how we will think, feel or behave. The more we can accept that we cannot always influence the world around us, but that we can take responsibility for our response, the better we may be able to handle life's circumstances.

A similar formula is " $S = P \times R$ ". "S" here stands for suffering, and "P" means pain while "R" refers to resistance (Young, 1995). Here it is believed that our suffering can be reduced if we to a greater extent accept that life also contains pain. So it is not the pain itself that we need to accept, but that we sometimes need to accept that we must deal with our lives that may include physical or mental pain that we suffer from.

### Change behaviours

In a scientific thesis (Almén, 2022), they found that certain behavioural changes could reduce stress, anxiety, and depression in individuals who experienced high levels of stress in their lives.

Examples of such behavioural changes that can strengthen recovery are listed below.

- Make sure to create opportunities for good sleep
- Relaxation: psychophysiological deactivation, the use of individual stress management instead of watching TV and scrolling the phone
- Control: participate in activities that provide a sense of control, both at work and in leisure time

- Focused attention: mindfulness in everyday life, for example, feeling how food tastes – distraction
- Physical activity
- Cultural activities and music
- Spending time in nature
- Social activities: self-chosen with opportunity for laughter
- Psychological detachment: from things that burden; distraction can discourage negative rumination
- Engaging in self-confidence-building challenges

### *Let go of difficult reactions, thoughts and emotions*

Here is another three-step model for managing difficult reactions, thoughts, and emotions (Harris, 2023). To achieve a good effect, do each of the below parts for about 20-30 seconds at each time. Repeat all parts several times if necessary.

#### *Acknowledge, accept and name your reactions, thoughts or feelings*

A way to contribute to some initial emotional distancing to difficult experiences, you may try to speak to yourself in the third person, use your name instead of "I", example: "(your name) now notices anxious thoughts again".

#### *Contact the body*

Breathe slowly and then slowly move the different parts of the body: the head, facial muscles, arms, hands, fingers, torso, legs and feet.

#### *Committed to what you are doing*

Start with a short grounding exercise (sight, hearing, touch), then continue with the activity that is relevant. Devote yourself primarily to what you find meaningful.

### *What to avoid*

For the above-mentioned elements to lead to positive effects on recovery, there are also some aspects that should be avoided. Here are some such examples.

- Using alcohol or drugs for sedative purposes
- Withdrawing from family and friends
- Eating too much or too little
- Working too much
- Aggressiveness or violence
- Blaming others
- Doing risky things like driving recklessly
- Extreme avoidance when it comes to thinking about or talking about own experiences
- Excessive use of various media or computer games

### *Social support*

A more modern view of crisis support in the acute phase is thus that due to the risk of being too intrusive, one has moved away from focusing primarily on "emotional processing" in the acute phase after a potentially traumatic event. Instead, the support is focused on creating safety and security for the individuals as well as on the specific needs of the individual. For most people, it is natural to primarily receive support from their loved ones, and from colleagues and managers in the workplace after potentially traumatic events. Studies have shown that such social support may lead to lower rates of psychiatric morbidity after exposure to serious events (Brewin, 2000; Ozer et al., 2003). The

social support is described as having a buffering effect because it may increase the feeling of control and self-confidence. Mastery may be strengthened by the fact that social support also makes it easier for people to reappraise the event they have been through. A key factor is also that exposed individuals may expect to be surrounded by others who want them well, who assist and who are on hand over time if necessary.

### Crisis support systems - intervention levels

The focus of a modern crisis support system according to the Screen and Treat Model should thus be to convey *support* in the emergency phase to all affected. Crisis support personnel should then *follow up* exposed individuals proactively. This means that those whose reactions and symptoms do not subside within a couple of weeks, or those who develop symptoms over time should be offered *professional assessment* and, if necessary, offered evidence-based *treatment*. This crisis support system with intervention levels is described in more detail below and summarised in Figure 13.

#### Support

- Psychological First Aid from support persons
- Appoint a contact person
- Proactive contact
- Use the concept of Skills for Psychological Recovery after 2-3 weeks for those who need support in managing thoughts, feelings, and behaviours

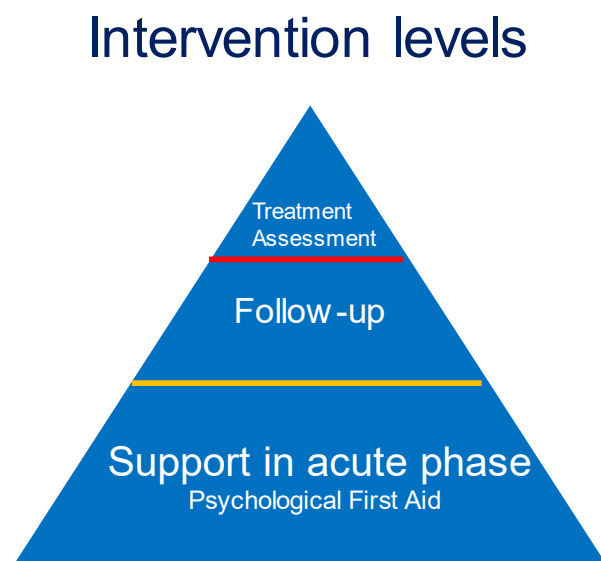
#### Follow-up

- Conduct any interventions as needed
- Refer to other support bodies if necessary
- Activation of support centres, websites, social media, and telephone support lines
- Organization of support groups, for example for bereaved individuals

#### Professional assessment/treatment

- Screening of those who do not recover after 3 weeks to 1 month (and after 3 and 12 months for possible evaluation purposes)
- Evaluate treatment needs
- Treatment offered should be evidence-based.

Figure 13. Intervention levels



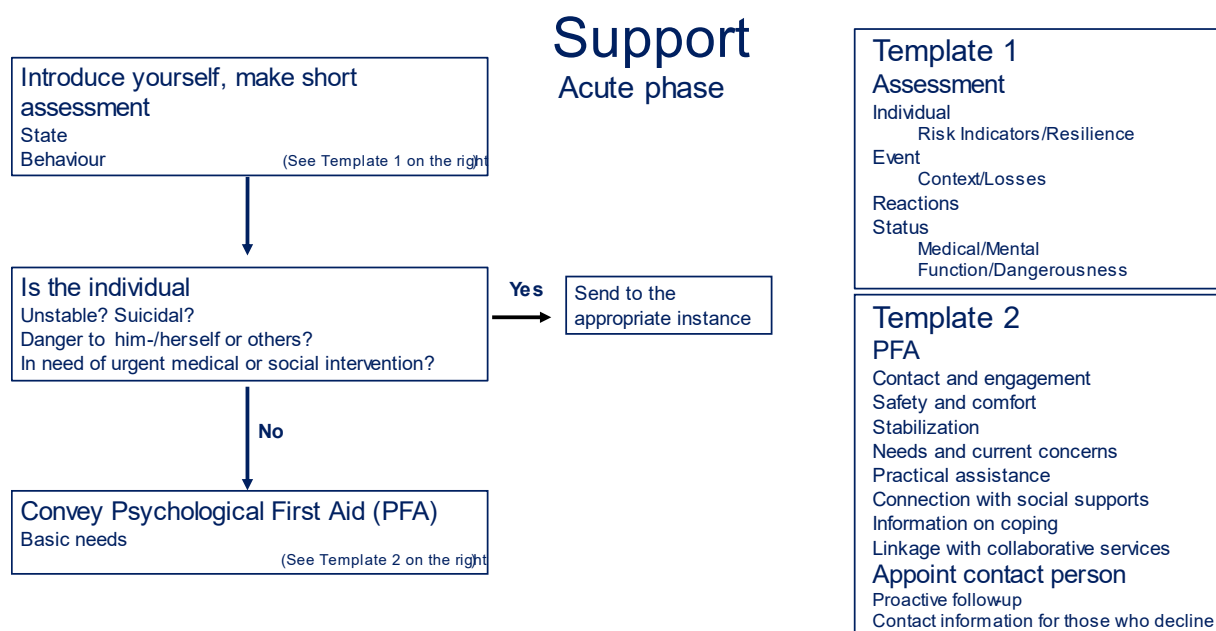
## Screening for PTSD

Screening instruments are not primarily for diagnosis. Instead, they may be used by crisis support staff as well as by leaders and peer supporters in operational organizations to find those who may have more pronounced problems through dialogue with affected individuals. The instruments may be used for follow-up of exposed individuals, thereby providing information on when an individual should be transferred for professional assessment and possible treatment. A screening questionnaire that is easy to use to support the follow-up of affected individuals is the *Trauma Screening Questionnaire (TSQ)* (Brewin et al., 2002). TSQ is recommended not to be used before 3 weeks after an event. The form includes 10 questions and if individuals answer affirmatively to 6 or more of these questions, there is a high probability that they may develop PTSD. Another such instrument for screening is the *Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)*, developed by Prins et al., (2016). PC-PTSD-5 is recommended to be used about a month after a defined serious event. It consists of 5 items, where 3 or more positive answers best balanced the false-negative and false-positive and corresponded to risk of being diagnosed with PTSD (Bovin et al. 2021). Both instruments are set out in Annex 1.

## Algorithms for support and follow-up

To further clarify the intervention levels and the model regarding support, follow-up, assessment and treatment, the content has been transferred in a slightly more detailed form in several algorithms below. These are freely based on algorithms from VA/DoD (2017) and discussed by Nash et al., (2012), and relate to the international recommendations described above. Thus, the first algorithm (Figure 14.) describes support in the acute phase that includes initial assessment and Psychological First Aid.

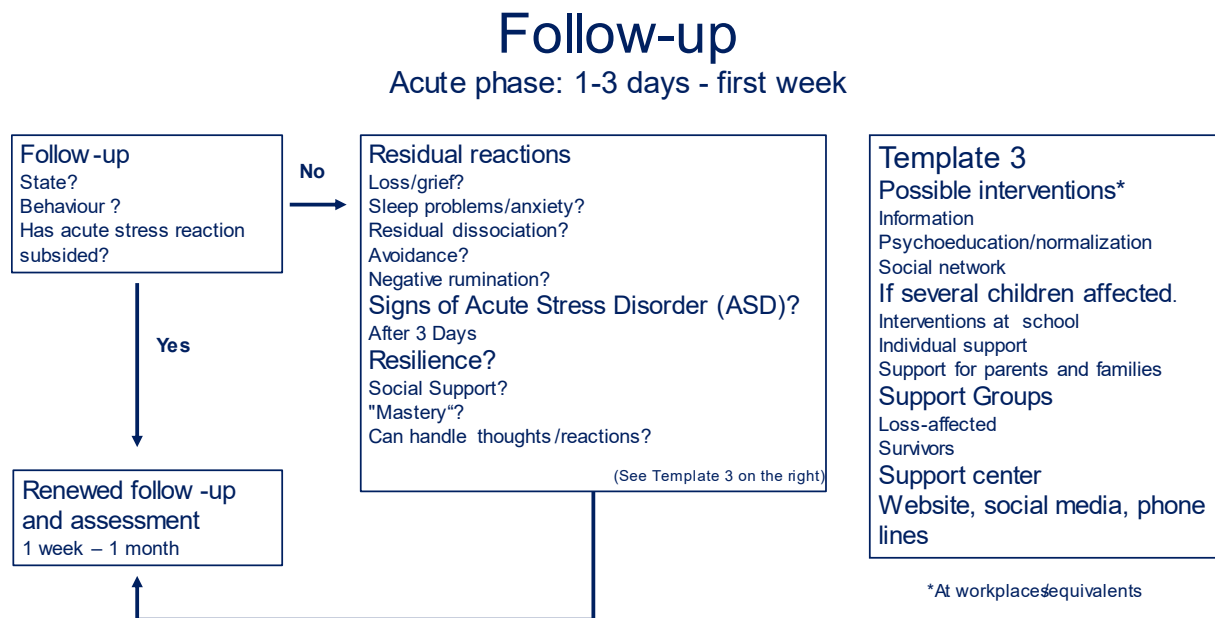
Figure 14. Algorithm regarding support in the acute phase



(Free after Brewin 2005; Watson et al., 2014; Nash et al., 2012; tentsproject.eu; Pfefferbaum et al., 2013)

In the next algorithm (Figure 15.), the first follow-up in the acute phase is described with possible measures that should primarily take place through societal crisis support organizations or healthcare systems. This may also involve support at workplaces, schools, at established support centres, via telephone lines, or through the initiation of support groups and information via websites/social media.

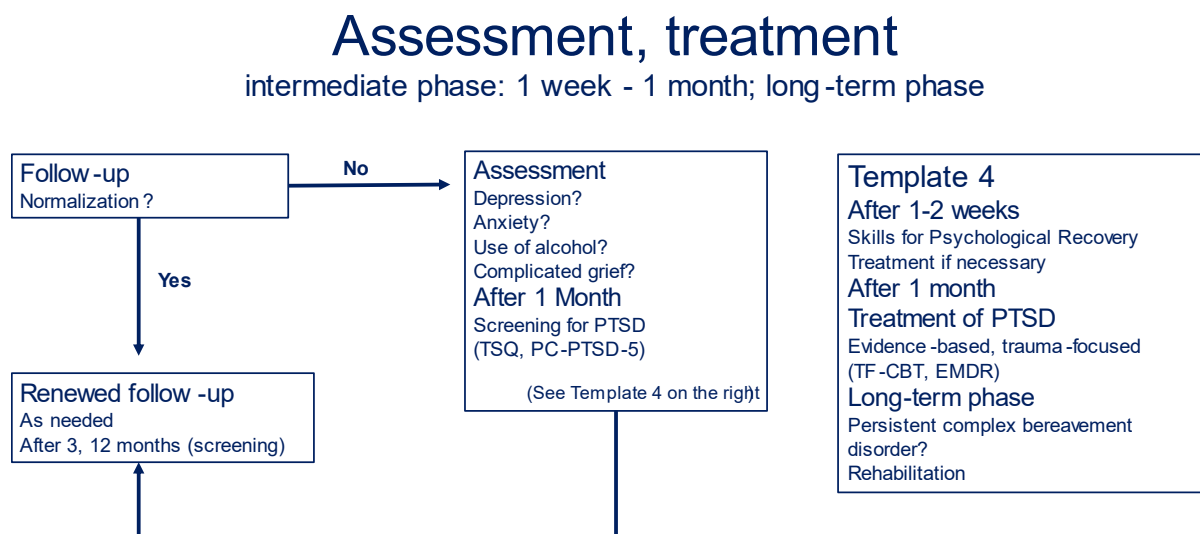
Figure 15. Follow-up in the acute phase



(Free after Brewin 2005; Watson et al., 2014; Nash et al., 2012; tentsproject.eu; Pfefferbaum et al., 2013)

The third algorithm (Figure 16.) refers to assessment and treatment in the intermediate and long-term phases.

Figure 16. Assessment and treatment in the middle and long-term phase



*(Free after Brewin 2005; Watson et al., 2014; Nash et al., 2012; tentsproject.eu; Pfefferbaum et al., 2013)*

### **Support for children and adolescents**

In a meta-analysis, it was found that the main risk factors for children and teens to develop PTSD were related to subjective experiences surrounding the event as well as post-event variables. Such variables were low levels of social support, peritraumatic fear, perceived life threat, social evasion, concomitant psychological problems, lack of family function, pre-event PTSD, and trying to keep thoughts away from things that are troublesome (Trickey et al., 2012).

PTSD in children under 6 years of age is like what was previously described for adults, but some aspects may seem different. Exposure may specifically be about the child knowing that a parent or important guardian has been affected. Intrusive symptoms are not always obvious and clear and may instead be seen in the context of play. The content of nightmares does not have to be clearly linked to the event itself.

Children's grief reactions are also similar in many ways to those seen in adults but may differ in some areas. Among other things, they will depend on the age and level of development of the child. Children of preschool age find it more difficult to understand what, for example, the concept of death means. Children who are exposed to sudden and violent death may be preoccupied with fantasies and ruminations around the death. This may make recovery more difficult and may require professional assessment if these reactions do not diminish over time.

### **Other aspects regarding support for children and adolescents**

In a large literature review, Pfefferbaum and others, (2013) summarize several interventions that are suitable for children in these contexts. The principles of support for children and adolescents after potentially traumatic events mainly follow the same model as for adults. Such interventions include Psychological First Aid in the acute phase, proactive contact with families, psychoeducation, social support, screening, as well as techniques for anxiety reduction in the intermediate phase. Children and young people should be assessed and followed up in terms of risk factors and resilience during all phases of the event. When treatment needs have been identified, it is stated that there is the best basis for cognitive behavioural therapy in groups or individually for children. It has been shown that depression, anxiety, and sadness may be improved by treating trauma symptoms. Psychotherapy for grief should be reserved for those with complicated grief reactions. Schools may be natural places to make assessments and provide support when many children have been affected. Psychopharmacological interventions are generally not used but may be necessary in some cases in children with severe reactions or psychiatric conditions.

In grief, good support from adults and friends is important in the grieving process. Children and young people who are in grief need a safe and stable framework, such as continuity in everyday life. They need open communication and concrete information about what has happened. Making the loss real by, for example having the opportunity to see the dead person or attending a funeral may be helpful. Adults should support children and adolescents in managing thoughts and regulating emotions after a loss.

### *Crisis support for children and adolescents*

Below are paragraphs that may be considered in the context of crisis support for children (Michel et al., 2018).

- Parents should be informed of children's reactions and needs, and they should find an approach to what has happened. They must understand children's reactions and needs, as well as find out where they may seek more information and knowledge.
- It is important to counteract separation between children and parents.
- Strive to maintain daily routines regarding going to kindergartens, preschools, schools, and extracurricular activities. School and recreation staff should be informed of what has happened.
- It should be explained to children what is happening. Let them talk about their own experiences, as well as give them the opportunity for play, leisure activities and creative creation.
- Children should also be indirectly supported by providing support to parents, so that they may function as compassionate and responsible adults.
- Just like adults, children should be given open and honest information. An attempt should be made to provide age-appropriate explanations for what is happening to reduce children's confusion. Abstract, complicated, and diffuse explanations should also be avoided and, as far as possible, reality should be described.
- It is important to give time for children to think and emotionally deal with what has happened and give the opportunity for conversations and questions even if you must accept that the conversations may be short. Together with children, you may look at pictures from the scene of the accident and at the deceased if they are not physically injured and frightening.
- Accept and give the opportunity for children's play. It is often their way of processing their experiences and feelings. Children who have experienced war may therefore play war and in connection with deaths they may play funerals.
- One may try to make any losses real by having the adults open about sharing parts of their own experiences.
- Children should essentially be allowed to attend funerals and rituals around death but without forcing them to do so. After funerals, children should also be allowed to visit the cemetery together with related adults.
- One should talk to children about their fear of their own and of the death of their parents, as such thoughts may arise in the event of serious events.
- One should also be aware that children may have feelings of guilt. May they have fantasized in their thoughts and dreams that the dead man was just about to die?

### *Support for groups*

The literature describes diverse types of group interventions depending among other things on the number of sessions. Some often occur on only one occasion, such as psychological debriefing. This type of intervention is no longer recommended for exposed individuals in the acute phase, above all because there are no controlled studies that show unambiguously positive effects and because the intervention does not reduce the risk of PTSD. In addition, the intervention may be harmful in some cases. Alternative models for operational personnel are described later in the text.



In reviews of the literature on group treatment of PTSD, it was found that the most studied group treatment for multi-session PTSD is TF-CBT, which has been shown to be better than waiting list (Shea et al. 2007; Beck et al., 2021). As for other forms of group therapy in PTSD that are based more on psychodynamic foundations and mindfulness-related group treatments, more research is required according to the authors. Group treatment with CBT is also listed as the standard recommendation in the ISTSS Practice Guidelines (Forbes et al. 2020).

Post-trauma interventions for couples and families may involve reducing PTSD symptoms or have other goals such as improving family function, but regardless of the purpose, there is only limited data on their effectiveness. More research is needed in this area.

Grief groups for loss-affected people are relatively common but there is no published, reliable data on their effectiveness. However, some positive effects of group therapy, family therapy and internet-based therapies, all with elements of cognitive behavioural therapy, have been described (Mancini et al., 2012). The effects are especially evident if the treatment is conducted with those who have more pronounced symptoms.

### Unique needs in separate phases

After potentially traumatic events, exposed individuals exhibit unique needs over time (Seynaeve, 2001). In the acute phase, the needs are primarily about safety and security as well as practical, emotional, and social support. In this phase, particular attention should be paid to individuals exposed to very severe interpersonal traumas that after some time show signs of pronounced psychological impact and disabilities (Litz et al., 2014). In an intermediate phase, the needs depend more on how those affected adapt to the consequences of the event. In this phase, society needs to coordinate efforts from various societal functions such as health care, social insurance, social services, and schools, as well as other actors such as NGOs and different faith communities. It is important that schools, day-care centres, and after-school recreation centres get their activities up and running as soon as possible. In the intermediate phase, family associations and self-help groups have often started, and it is possible to identify those who need treatment for their problems. In the long-term phase, it is about treating and rehabilitating those who have suffered from physical and mental sequelae.

### Support centre

From countries like the Netherlands and the United Kingdom, there is experience in organizing so-called *Information and Advice Centres (IAC)* after disaster events or terrorist attacks (Smeets et al., 2006; Seynaeve, 2001). The following description is based on a knowledge base from the Swedish National Board of Health and Welfare (2018). There is talk of a *one-stop shop*, which means that those affected should only have to turn to a single centre for help with their various needs. Such a support centre may be in a convenient place where affected individuals, loved ones and others may turn after a potentially traumatic event, to get answers to questions and get the support they need, or get referrals to other support functions in the community. A support centre may include the following functions:

- A reception where exposed individuals are received
- Spaces for various support functions

- Information, counselling, and referral of affected individuals to different faith communities or support functions for diverse cultures
- Mediation of crisis support, proactive follow-up, and assessment. Vulnerable groups, such as children, individuals with special needs and minority groups, should receive special attention
- Coordination of support from other bodies and referring victims to other institutions
- Collection and management of various data relating to the serious event
- Preparation for the intermediate and long-term phases
- Media centre.

Established support centres may form part of the community's organizational structure for crisis support in the acute phase after potentially traumatic events and facilitate planning for effective work during the intermediate and long-term phase. However, this does not necessarily mean that all activities need to be concentrated in one place. In addition, several support centres may need to be set up in large cities if there is a long distance between the site of the serious incident and the natural collection points, or a long way between the various hospitals where the victims have been taken. Support persons involved in the work could come from health care and from the municipalities' crisis support organizations. Staff should be educated, trained and co-trained to work in these circumstances. The management and coordination of possible support centres will vary depending on local conditions and presuppose good interaction between different community institutions. Larger companies and organizations today, as a rule, have their own crisis support organizations that may function in an analogous way. Similarly, NGOs, such as the Red Cross or Save the Children, may be able to contribute staff and resources to such support centres.

### When should professional assessment take place?

The time when professional assessment should take place is recommended to be approximately three weeks after the current potential traumatic event if it is noted that the affected individuals suffer from more severe and persistent reactions that have significantly impaired their well-being. Examples of such persistent reactions may include:

- That the individual no longer feels like himself or experiences loss of control
- Depressive thoughts: pronounced feelings of guilt and/or shame or negative rumination
- Intrusive memories ("flash backs") and/or obvious avoidance
- Attacks with panic or anger
- Impaired functional capacity at work or in social life.

### Treatment

The treatment of PTSD needs to be adapted individually based on the individual patient's conditions and needs. An accurate diagnosis should precede the decision on a treatment plan. Psycho-educative interventions and stabilization may be needed before initiating trauma-processing treatment. In general, it emerges from the recommendations that psychotherapy is the first choice, but pharmaceutical treatment may be relevant in some cases. The international recommendations are based on the descriptions in the book *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* by Forbes et al., (2020).

#### International recommendations

Psychotherapy is the first choice (Forbes et al., 2020).

Strong recommendation

- Cognitive Process Therapy (CPT)
- Cognitive Therapy (CT)
- EMDR
- Individual Cognitive Behavioural Therapy with Trauma Focus (TF-CBT)
- Prolonged Exposure Therapy (PE)

#### Standard recommendation

- CBT without trauma focus
- TF-CBT in groups or internet-based
- Narrative Exposure Therapy (NET)
- Present-Centered Therapy (PCT)
  - Change behaviour, psychoeducation, problem solving

#### Pharmaceuticals

- Medicines with some effect to adults with PTSD
  - Fluoxetine
  - Paroxetine
  - Sertraline
  - Venlafaxine
- Other medicines for which there is emerging support
  - Quetiapine

#### *Treatment of persistent complex bereavement disorders*

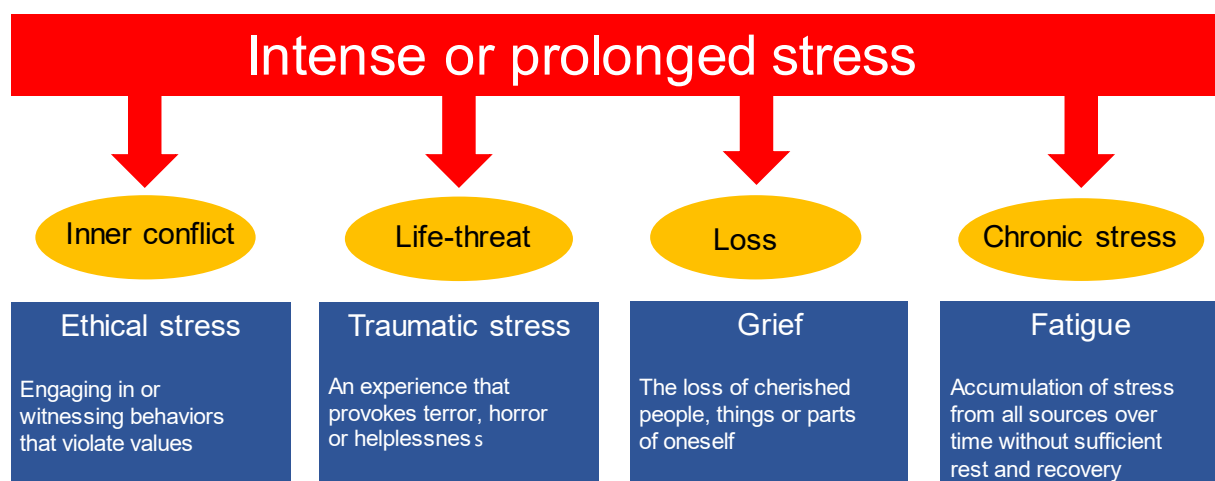
One should refrain from engaging in psychotherapy with those who exhibit mild to moderate grief reactions because there is a risk that one may interfere with the individual's recovery (Mancini et al., 2011). However, some individuals may need access to various forms of support measures. Recent studies suggest that any psychotherapeutic treatment should be targeted at those who have a high degree of symptoms, such as those who show signs of loss-related adjustment disorders and persistent complex bereavement disorders. It has been shown that cognitive behavioural therapy (CBT) with elements of exposure may produce satisfactory results in the latter group, and antidepressant medication may help to better tolerate this type of therapy. The state of research knowledge is relatively new when it comes to the treatment of complicated grief disorder, and it must so far be regarded as preliminary.

## 4. Work-related stress

### Different forms of stress

The stressors that staff in operational organizations may often be exposed to are part of the work. That makes stress reactions among staff an important work environment issue. In many countries the work environment regulations regarding organizational and social work environment, most often make clear that the employer, through its managers, is responsible for the work environment conditions. Work environment-related stress in operational organizations may be described based on the intensity of the stressors and how long they affect the individual. Intense or prolonged stressors may consist of internal conflict, life-threat, losses, or chronic stress (wear and tear). The consequences may be ethical stress, traumatic stress, grief, or fatigue. See Figure 17 for summary.

Figure 17. Intense or prolonged stress

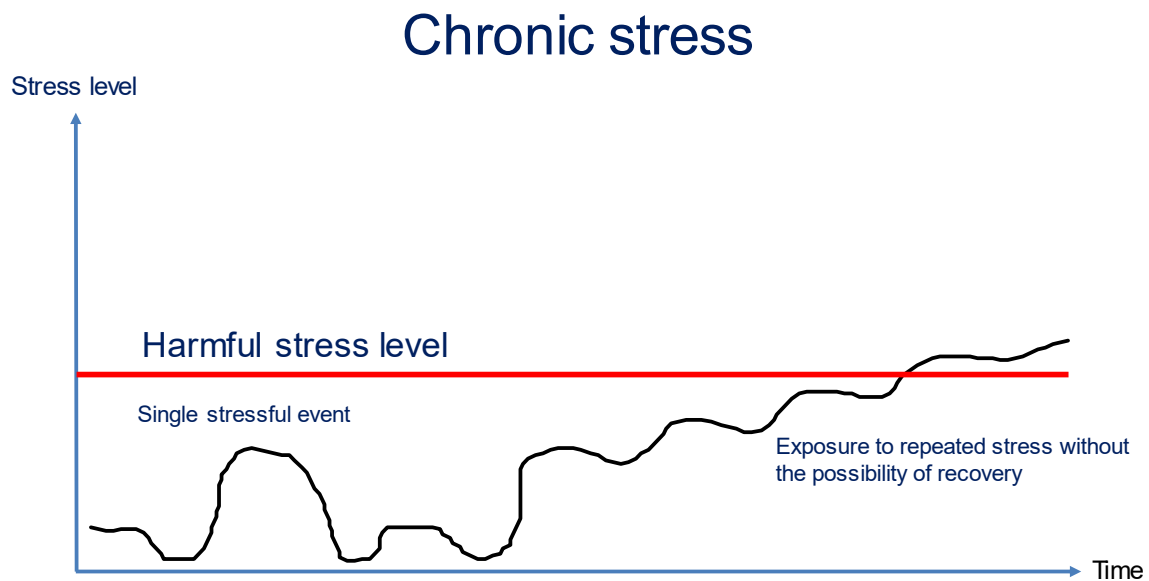


(Nash et al., 2010; Watson et al., 2013)

### Chronic stress

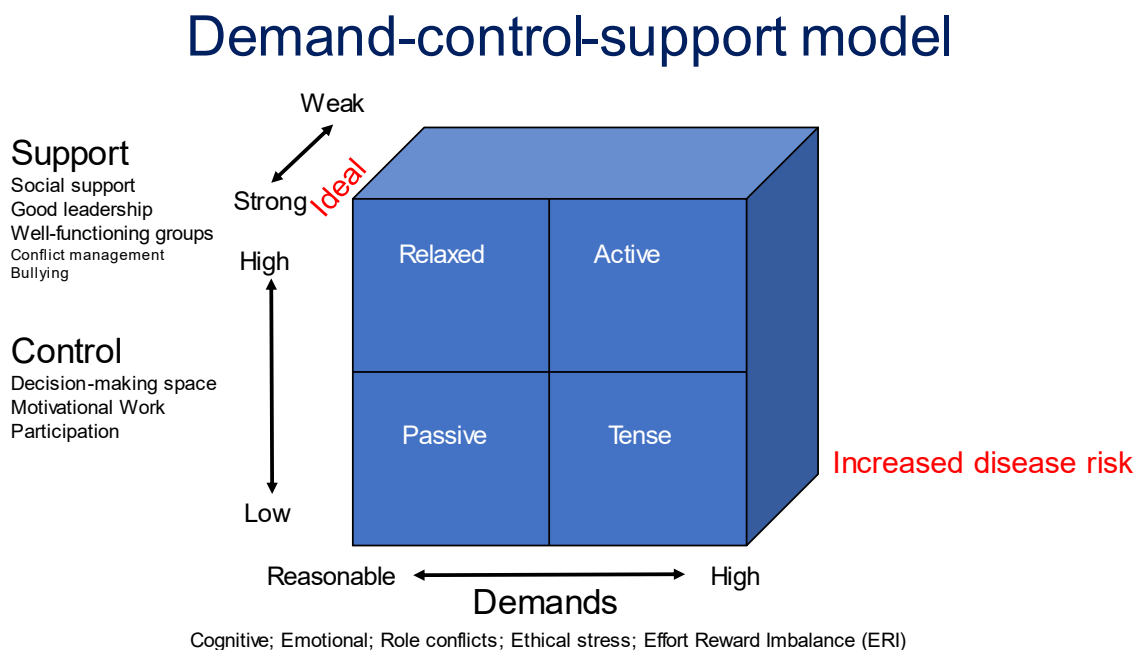
Staff working in operational organizations may have to deal with events that contain various levels of stress daily, albeit not necessarily traumatic ones. Daily hassles together with negative mastery may also increase staff stress (Larsson et al., 2016; Larson, 2021). If opportunities for rest and recovery are limited, this may eventually lead to wear and tear and chronic stress. See Figure 18.

Figure 18. Development of chronic stress



Beyond exposure to stressful events, organizational factors such as ineffective training, lack of preparation, poor planning, or inadequate leadership may also contribute to the development of chronic stress. These aspects are summarized in the demand-control-support model described by Karasek et al., (1990). If the work conditions means that one's own control over work (autonomy) is low, if the support from leaders and organization is weak, and if the demands are also too high, it may contribute to an increased risk of fatigue syndrome or physical illnesses, such as cardiovascular disease. See Figure 19. It is also shown that if there is an Effort Reward Imbalance (ERI) involved in the work, it may also contribute to stress in the work environment (Siegrist et al., 2004).

Figure 19. Demand-control-support model



### Stress continuum model

The consequences of work-related stress may be described as a stress continuum model (Nash et al., 2010; Watson et al. 2013), see Figure 20. In such a continuum, the *green zone* staff is prepared and ready for action. Once you have made a certain work-related effort, you may have been affected by some kind of stressor and may then be in the *yellow zone*. If staff have been subjected to more serious stress, such as trauma, loss, moral injury or intermittent or chronic stress, it may lead to these individuals ending up in the *orange zone*. From yellow zone, affected personnel usually recover well through support from the organization, leadership, peer support and from their own social network. Recovery normally also occurs largely from the orange zone. In this zone, however, there is the risk that some may end up in the *red zone* since they have developed mental distress due to more serious strain and may thus need professional assessment and treatment.

Figure 20. Stress continuum model

## Stress continuum model

READY (Green)	REACTING (Yellow)	INJURED (Orange)	ILL (Red)
<b>DEFINITION</b> Optimal functioning Adaptive growth Wellness <b>FEATURES</b> At one's best Well-trained and prepared In control Physically, mentally and spiritually fit Mission-focused Motivated Calm and steady Having fun Behaving ethically	<b>DEFINITION</b> Mild and transient distress or impairment Always goes away Low risk <b>CAUSES</b> Any stressor <b>FEATURES</b> Feeling irritable, anxious or down Loss of motivation Loss of focus Difficulty sleeping Muscle tension or other physical changes Not having fun	<b>DEFINITION</b> More severe and persistent distress or impairment Leaves a scar Higher risk <b>CAUSES</b> Trauma Loss Moral injury Chronic stress <b>FEATURES</b> Loss of control Panic, rage or depression No longer feeling like normal self Excessive guilt, shame or blame	<b>DEFINITION</b> Clinical mental disorder Unhealed stress injury causing life impairment <b>TYPES</b> PTSD Depression, anxiety Substance disorder Exhaustion disorder <b>FEATURES</b> Symptoms persist and worsen over time Severe distress or social or occupational impairment

(Nash et al., 2010; Watson et al. 2013)

### Organizational factors

Higher levels of past stress is linked to more negative views of the organization's support (Barnes et al., 2013). Through management, structure, processes and policies, the organization has a major impact on operational personnel's job satisfaction, ability to master stress, adaptability, and resilience (Burke, 2006). Various forms of imbalance, uncertainty and lack of clear values and respect at work have been shown to be risk factors in workplaces (Harvey et al., 2017). These aspects illustrate the necessity for the organization to deal with stress in staff early on. Training and preparation are important to strengthen operational personnel's assessment of their own abilities (Ablah et al., 2008). Factors that may reduce the risk of staff suffering from work-related PTSD, include a healthy organization and psychosocial work environment, systematic training of staff, social support from colleagues and managers, and effective follow-up of workers after potentially traumatic events (Skogstad et al., 2013). Other parts that have proven to promote employee well-being are that workplaces are characterized by a safety and security climate (Petrie et al., 2018). The

fact that organizational processes have such a profound impact on the general well-being of employees makes it urgent to focus more on how organizations should develop mechanisms of preventive measures to deal with potentially traumatic events and work-related stress.

### Leadership and cohesion

Ambiguities about roles as well as role conflicts are related to stresses in the workplace (Örtqvist et al., 2006) and to depression and anxiety (Schmidt et al., 2014; Finne et al., 2014). High demands, low control, and low degree of support from leaders have been shown to be related to increased risk of developing depression (Rugulies et al., 2006; Regehr et al., 2007) and vice versa, good guidance and support from leaders have proven to be one of the most important factors in reducing stress in various organizations (Finne et al., 2014; Britt et al., 2004; Bliese et al., 2000; Petrie et al., 2018). In addition to good support from leaders, lower degree of role conflicts, higher degree of clear roles and a higher degree of predictability may reduce stress among staff after traumatic events (Skogbrott Birkeland et al., 2015). The stated importance of good leadership, good cohesion, and spirit in reducing the risk of affected health after work operations, has also been shown in large studies on primarily military personnel in the United States (Booth-Kewley et al., 2013; Wright et al., 2009) and in the UK (Jones et al., 2012). Personnel who ranked their leaders higher in terms of managing combat-related stress, also exhibited better mental health (Adler et al., 2014). These factors may also lead staff to seek more help when needed (Britt et al., 2012).

### Crisis support systems in operational organizations

There is currently no straightforward evidence background on how crisis support should be organized in operational organizations. Once that is said, it may still be stated that there is some empirical support for various interventions, which are described below. Previous interventions such as psychological debriefing and the like are no longer recommended as this type of intervention (one intervention fits all) was not shown to have any effect, and because they took far too little account of different individual needs. At the same time, it has been shown that newer knowledge may sometimes have difficulty making an impact, as some organizations continue to use support models that are no longer recommended (Hugelius et al., 2014). Others have also shown that supportive leadership, the ability to accept individual needs, supporting individuals to master stress, and good cohesion are important means of managing work-related stress (Heir et al., 2021). Operational organizations that seriously consider stress as an important health and safety issue, are thus distinguished by a good organization that trains and prepares staff well, good leadership and good cohesion, as well as developing systems for *support*, *follow-up*, *assessment*, and *treatment* of staff. The basis of such systems should be the five principles of support described previously established by *Stress First Aid (SFA)*. In this way, SFA may provide a framework for support and continued follow-up by gathering the unit after a work-related operation. At such an After action meeting, the focus may be on social support and informally evaluating the event through so-called *After Action Review (AAR)*. Furthermore, a *Battle Buddy peer support programme* may help strengthen resilience and recovery. These parts are described in more detail below.

### Practical crisis support in operational organizations

Since good leadership and good cohesion have proven to be so essential to strengthen the resilience of staff in operational organizations, support efforts within the framework of SFA should especially focus on social support for both groups, as well as for individuals. Social support for individuals and groups in operational organizations may, just as for other affected, thus contribute to the individuals

being able to take care of each other and receive support from empathetic leaders (Halpern et al., 2009). Together, staff may also identify positive, general mastery strategies and possibly also support abilities to master the guilt and shame of those who feel they have failed during an operation. Another important part of the support is to focus on the learning of what you have implemented, which has also proven to be strengthening for intervention units. Since it is all about managing work environment related stress, these components may be included as a routine within operational organizations.

### Stress First Aid (SFA)

Based on the previously described five important principles of support and Psychological First Aid, support variants have also been developed for operational organizations. Thus, there is such a compilation for military units, *Combat and Operational Stress First Aid (COSFA)* (Nash et al., 2010), as well as for civilian operational organizations in the form of *Stress First Aid (SFA)*, the latter developed by the *National Fallen Firefighters Foundation (NFFF)* in the United States (Watson et al., 2013). SFA describes measures that are intended to be used as needed for staff who are affected by pronounced stress reactions, or whose functional capacity has been impaired because of stress reactions. SFA consists of seven parts: Check, Coordinate, Cover, Calm, Connect, Competence and Confidence (Seven Cs). The purpose of SFA is to enable operational personnel who have been exposed to varying degrees to return to the green zone according to the stress continuum model in Figure 20. Managers and peer supporters should therefore continuously keep the first two points, Check and Coordinate up to date. The other five points of SFA are considered as needed and are identical to the Hobfoll's five principles (Hobfoll et al., 2007). For graphical summary, see Figure 21.

FHS Figure 21. Summary Stress First Aid (SFA)



(Nash et al., 2010; Watson et al., 2013)



In Figure 22, a reduced summary of main measures in each part of the Seven Cs is given. SFA should be incorporated into the organization's operations in a natural and non-constructed way to be used when needed. In most cases, it will not be necessary to use all the SFA parts.

Figure 22. Reduced summary of content in SFA



The original manual may be accessed via the following link: <http://michelmentor.se/files/Stress-First-Aid-manual.pdf>

### After action meetings

To achieve the purposes of SFA, primarily strengthening social support as well as focusing on post-event learning, there are advantages to operational units routinely gathering After action meetings after different events, especially after serious ones. Managers and peer supporters then can do the following based on SFA at such meetings:

- Convey information
- Reflect on current efforts by, for example, conducting After Action Reviews.
- Convey psychoeducation and normalization
- Continuously check employees
- Focus on “Connect” - social support and cohesion
- Act on other SFA parts such as: coordinate, cover, calm, competence, and confidence as needed

### After Action Review (AAR)

Another important purpose of After action meeting, in addition to the focus on social support, is that the staff in the unit are also given the opportunity to communicate about and evaluate their own efforts. One instrument that has proven to have several different positive effects is the implementation of an informal review of the event - AAR. It is important to point out that the AAR does not aim to criticise each other, but instead to strengthen learning and cohesion. Thus, the focus

is on what happened and not on who did something. The time required during these sessions is only about 15 minutes at the end of each day of service. Examples of the questions used and what the goal is with AAR is shown in Figure 23 below. This simple and informal form of AAR may be included as a first step in the SFA crisis support also for civilian operational personnel as previously mentioned. If operational organizations continuously gather after different operations and provide the opportunity to communicate about what has been done, for example through such simple informal AAR, it may have a positive effect on the effectiveness of units (Tannenbaum et al., 2013; Keiser et al., 2020). AAR may also enhance communication and cohesion in the unit (Villado et al. 2013). The effects may thus be, improved efficiency and strengthened abilities, and it may further increase self-confidence among staff, strengthen social support and cohesion and thereby reducing stress impact. See Figure 22. These effects are fully in line with other knowledge about how social support may counteract post-traumatic stress reactions. To achieve these positive effects, the well-functioning of the working groups is also required. What distinguishes successful teams are the following five points (Rozovsky, 2015):

**Psychological safety**

- Team members feel safe to take risks and be vulnerable in front of each other

**Dependability**

- Team members get things done on time and meet the employers high bar of excellence

**Structure and clarity**

- Team members have clear rolls, plans, and goals

**Meaning**

- Work is personally important to team members

**Impact**

- Team members think their work matters and creates change.

According to Rozovsky (2015) it is possible to investigate how successful a specific team is by trying to answer the following five questions. The more yes-answers, the more of a successful team.

**Five questions to investigate whether a group is a high-performing team:**

- *Psychological safety*: Can we take risks on this team without feeling insecure or embarrassed?
- *Dependability*: Can we count on each other to do high quality work on time?
- *Structure & clarity*: Are goals, roles, and execution plans on our team clear?
- *Meaning of work*: Are we working on something that is personally important for each of us?
- *Impact of work*: Do we fundamentally believe that the work we are doing matters?

Figure 23. After action review and its relation to crisis support

## After Action Review, AAR

**Implementation** (15 min, at the end of each shift)

What happened?

What went well?

What should we improve together and how?

### AAR related to crisis support

Develop learning/abilities  
Develop communication  
Improve cohesion



Increase self-efficacy  
Increase social support  
Reduce stress impact

#### *Battle Buddy support programme (BB)*

As a result of the strain that the pandemic contributed to on healthcare professionals, the concept of the *Battle Buddy support programme (BB)* was developed (Albott et al., 2020). The aim was to help better manage work-related stress and to strengthen resilience and recovery of exposed staff. BB builds on what has been used in military systems in the form of "*Battle buddies*," where soldier comrades support each other to deal with all the extreme stressors they may be exposed to in combat situations. The implementation of BB in civilian circumstances, which is briefly described below, thus seems like an easy and effective way to make use of social support and reflection without requiring any extraordinary administrative measures in a work unit.

#### Purpose of BB

- To validate individual experiences
- Identify and address stressors early
- Keep work at work – and not to bring it home
- Develop and maintain resilience and to support recovery

#### Implementation

- Contact a colleague with the same level of responsibility at work, someone with whom you think you may communicate in this way. It does not have to be your best friend but someone you feel you may work well with in a professional context
- Aim to contact your colleague 2-3 times per week, or daily if needed
- Contact may be a quick text to check in, a short call or a digital meeting
- Listen, validate, and provide feedback; identify any issues that need more support or attention
- Identify any operational issues that need escalation

#### Sample questions for check in

- What is hardest right now?
- What worried you today?
- What went well today?

- How are things at home?
- What challenges are you facing with sleep/rest, exercise, healthy nutrition?

#### Follow-up, assessment, and treatment

The purpose of follow-up is to identify, together and in dialogue with the employees, where in the stress continuum model exposed staff are located. If after serious events the initial reactions subside, they are likely to pass by themselves and the individual will be able to return to the green zone of the stress continuum. Those who have been affected will be strengthened by support from co-workers, peer supporters, good leadership and from social support in the private life. If, on the other hand, reactions remain at the same level, if they worsen or if they are particularly troublesome, as in the orange zone for three weeks or more, the individual should be transferred for professional assessment in occupational health care or equivalent. Such follow-up, assessment and treatment systems should be well known and established in operational organizations.

For operational organizations, the system may thus be summarized as follows:

#### Support

- Stress First Aid (SAF)
- After action meeting
- Implementation of AAR

#### Follow-up

- Through managers, peer supporters and peers
- Proactive contact

#### Assessment and treatment

- Through occupational health care or equivalent
  - Screening after 1 month
  - Evaluate treatment needs
- Treatment offered should be evidence-based and trauma-focused

It is important to note that support through SFA, with after Action meeting and AAR are not individual elements, but rather that these elements together form a system for managing work-related stress. The system is based on managers and peer supporters also continuously following up their employees/colleagues individually. This is to identify those who need coordinated efforts, possibly including professional assessment, and to help them regain their functional level. It may contribute to building an organizational culture that cares about the health of the staff and thus also meets the work environment authority's regulations.

#### Peer support

Increasing focus has also been on developing peer support in operational organizations in the form of appointing special peer supporters and training staff in stress management (Steenkamp et al., 2013). Because there was a lack of literature on peer support and to improve support for staff in high-risk organizations, Creamer et al., (2012) conducted a study with the goal of creating guidelines for more knowledge-based peer support. The project led to consensus on the identification of eight points that may constitute recommendations for peer support activities in operational organizations. A starting point for these recommendations is that in organizations where staff are at elevated risk for exposure to stress, should have well-planned, integrated, and tailored peer support activities for their employees. The recommendations should not be interpreted strictly but rather should be

implemented in accordance with what fits into the specific context. A vital component of such peer support systems is the need for timely access to professional assessment and treatment for those who need it. It should be seen as a requirement for organizations to ensure that these pathways and services are available. Below are the eight points that emerged from the project.

### ***1. The goals of peer support***

Peer supporters should: (a) provide an empathetic, listening ear; (b) provide low level psychological intervention; (c) identify colleagues who may be at risk to themselves or others; and (d) facilitate pathways to professional help.

### ***2. Selection of peer supporters***

To become a peer supporter, the individual should: (a) be a member of the target population, (b) be someone with considerable experience within the field of work of the target population, (c) be respected by his/her peers (colleagues), and (d) undergo an application and selection process prior to appointment that should include interview by a suitably constituted panel.

### ***3. Training and accreditation***

Peer supporters should: (a) be trained in basic skills to fulfil their role (such as listening skills, Stress First Aid, information about referral options); (b) meet specific standards in that training before commencing their role; and (c) participate in on-going training, supervision, review, and accreditation.

### ***4. Mental health professionals***

Mental health professionals should: (a) occupy the position of clinical director, and (b) be involved in supervision and training of the peer supporters.

### ***5. Role***

Peer supporters should: (a) not limit their activities to high-risk incidents but, rather, should also be part of routine employee health and welfare; (b) not generally see “clients” on an ongoing basis but should seek specialist advice and offer referral pathways for more complex cases; and (c) maintain confidentiality (except when seeking advice from a mental health professional and/or in cases of risk of harm to self or others).

### ***6. Access to peer supporters***

Peer supporters together with ordinary leaders should normally be the initial point of contact after exposure to a high-risk incident unless the employee requests otherwise. In other situations, employees should be able to self-select their peer supporter from a pool of accredited supporters.

### ***7. Looking after peer supporters***

In recognition of the potential demands of the work, peer supporters should: (a) not be available on call 24 hours per day, (b) be easily able to access care for themselves from a mental health practitioner if required, (c) be easily able to access expert advice from a clinician, and (d) engage in regular peer supervision within the program.

### ***8. Program evaluation***

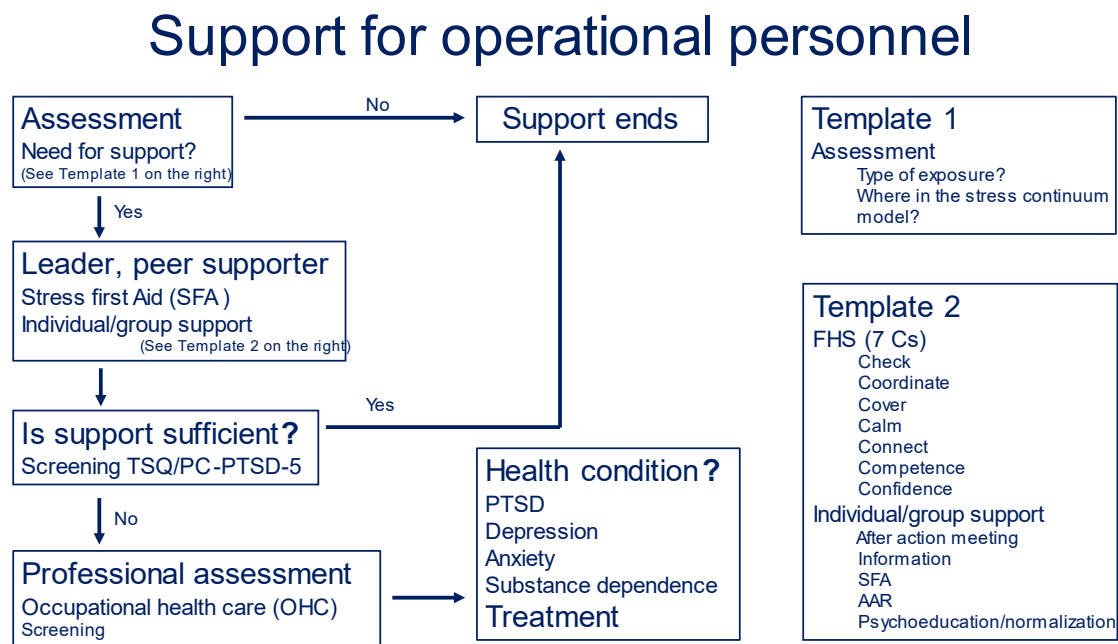
Peer support programs should establish clear goals that are linked to specific outcomes prior to commencement. They should be evaluated by an external, independent evaluator on a regular basis and the evaluation should include qualitative and quantitative feedback from users. Objective

indicators such as absenteeism, turnover, work performance, and staff morale, while not primary goals of peer support programs, may be collected as adjunctive data as part of the evaluation.

### Algorithm for crisis support for operational personnel

Practical crisis support for operational personnel may also be summarized in an algorithm (Nash et al., 2012; VA/DoD, 2017). See Figure 24 below.

Figure 24. Algorithm of support for operational personnel



(Free after Nash et al., 2012 and Watson et al., 2013)

### Management of chronic stress

The literature in the field on how individuals may manage chronic stress is limited. In addition, important parts that contribute to the development of chronic stress are often beyond the individual's ability to influence. This may apply to private life as well as to working life conditions. At the workplaces, as mentioned, it is the organization and leadership that have the main responsibility for the organizational and social work environment. Therefore, in addition to the responsibilities of the organization and managers, through training, practice and preparation, staff must become aware of potential risks and stressors in the work environment to be able to cope with chronic stress. Organizations must therefore put a lot of effort into raising awareness of current risks and stressors. It is also important to create work-private-life balance, stressing the importance of social support and good cohesion to reduce the effects of stressors and thus to promote resilience and mastery of staff. Although the literature is limited on how the individual may counteract chronic stress, there is still some experience, linked to science, that may possibly reduce stress effects. In addition to the methods of individual stress management described in previous sections, here are some examples of points that may distinguish a well-functioning organization.

#### Staff is the most valuable resource

- Necessary and adapted training and realistic exercises

- Continuous discussion of
  - Morality, ethics, and values
  - Clarification of employees' role and function
- Work-private-life balance
- Create systems for support and follow-up regarding stress management

#### **Organizational work environment**

- Risk analyses
- Awareness of the workplace challenges
  - Demand-control-support model
  - Effort Reward Imbalances
- The opportunity for reflective conversations about different stresses at work

#### **Social work environment**

- Good leadership
- Well-functioning teams
- The value of friendship, good cohesion and good support from managers and colleagues.

#### **Screening of operational personnel**

The use of screening forms should be done with discernment. It is neither desirable nor reasonable to conduct screening of all staff but should primarily be conducted on individuals who do not recover in a reasonable time, perhaps 2-3 weeks after severe strain. Examples of different instruments for mental health screening in the context of follow-up may be found in Annex 1.

#### **Access to prevention, professional assessment, and treatment**

As stated earlier in the text, the ability to easily access professional assessment and treatment becomes an important cornerstone of a developed support system in operational organizations. The most usual form of this is access to a well-adapted occupational health care (OHC). This may be a major challenge as the use of OHC is not always adapted to the nature of the specific organization. It has been described that in some organizations the HR departments (human relations, human resources departments) are often responsible for contact with OHC, and that it is unusual for collaboration to take place via safety representatives and line managers, which primarily should be the case. OHC is often used in remedial services such as rehabilitation, work ability assessments or for individual-oriented health promotion services, and only to a small extent for preventive work environment interventions in some workplaces. For operational organizations where different forms of stress are included in the work environment, preventive efforts should be prioritized along with opportunities for quick access to professional assessment and treatment as needed.

#### **Support for staff in foreign services**

As in the case of crisis support for operational personnel described above, there is also no straightforward evidence on how support systems for staff in foreign services, civilian or military, should be organised. However, there is some description in the literature of some aspects of what may be done before, during and after overseas service. Examples of such aspects is described below.

##### ***Before the foreign service***

The risk of staff in foreign services ending up with physical or mental illnesses is of course dependent on the type of operation, the degree of conflict level in operation, the staff's preparation, and

training and how the support is organized. In connection with service in the most high-intensity conflicts, up to 35% may suffer from stress related illness both after military (Milliken et al., 2007; Felker et al., 2008) as civilian operations (McFarlane et al., 2009). The motivation for service abroad may also have some significance. The most common motives for service abroad are often self-oriented and self-fulfilling (Hedlund, 2011; Tassel et al., 2011). In a supplement to a survey of veteran soldiers, it emerged that if, on the other hand, the dominant motives for participating were more of an idealistic nature, it was related to the fact that more people needed contact with a psychologist after returning home (Michel et al., 2014). The descriptions in the previous part of this compilation show the significant importance that organizational aspects, including leadership, have for the staff's view of the organization, on efficiency, job satisfaction, as well as on resilience and ability to manage stress. The major challenge for organizations is that the importance of these factors often increases in connection with operations abroad because of other contextual conditions. It is also about the fact that operational organizations, as employers, must fulfil their responsibility regarding the work environment. Where an organization only deploys individuals, but not units in missions abroad, it may require specific measures to meet the requirements for adequate support to them in line with what is set out below. It is therefore essential to prepare and train staff well before such operations. The following points are examples of parts that may then be included:

- Accurate assessment of risks during the operation, which requires relevant intelligence on threats and risks to the personnel in the actual area of operation, including medical threats and risks
- Developed selection of both leaders and personnel - medically and psychologically to be able to deploy competent personnel
- Relevant education and training for the operation in question. In addition to strengthening capacity and self-confidence, staff's ability to evaluate risks also increases through adequate training and experience (Prati et al., 2013)
- Ensured relevant vaccination and access to adequate and modern equipment (Aitken et al., 2009)
- Training of leaders and employees in stress management (Varker et al., 2012). The focus in such context may be to:
  - Understand that stress reactions are reasonable and normal in the context of foreign service and learn to recognize such reactions in oneself and one's peers to know when to seek support (Steenkamp et al., 2013)
  - Strengthening cohesion in units through training in mastering stress; strengthen relationships; improve sense of belonging; get to know their peers; listen better and not to criticize others (Williams et al., 2007)
  - Strengthen the ability to deal with moral/ethical issues that may arise in the encounter with a suffering population (Almonte, 2009), especially suffering children (Sloand et al., 2012)
  - Discuss one's own motives for the service and one's own expectations of oneself, of the organization, of leadership, and of colleagues
- Plan for communication with, and support for, loved ones at home
- Organize and inform about systems for support in the field and after returning home.



## *During the foreign service*

### **Operational personnel**

The grounds for crisis support described above are applicable in both military and civilian foreign operations. The basic principles according to Hobfoll and others, (2007) and according to the model, *support, follow-up, assessment, and treatment* may thus be systematized and adapted based on organizational and intervention context. Leaders should thus be well acquainted with the basics of primary support, for example: Stress first Aid, After action meeting, social support individual/group according to the algorithm in Figure 23 above. What may differ, depending on the organizational and intervention context, is how to organize the follow-up, assessment, and treatment parts. In the case of large-scale operations with many personnel or when there are pronounced stressors, such as military combat operations in each area of operation, the latter three functions should be on place in theatre. It may be in the form of psychiatric and psychological competence, part of some kind of health care organization (cf. *US military mental health teams*) and correspond to the follow-up, assessment and treatment that would have taken place even at home. If the operation is not of the same numerical importance or with lower threat levels, systems should be in place to be able to deploy staff quickly and easily for follow-up and assessment. In such situations, any treatment may, if possible, take place in the operational area or after repatriation in special cases.

### **Family, children, and relatives at home**

A literature review on military service abroad reveals the impact that such service may have on family members, family, and children at home (Michel, 2014). Service in international operations and then possibly being injured or suffering from mental illness, may have a negative impact on the family at home and may lead to mental illness even in the home partner or children. Problems in reintegration may also contribute to impaired health of those involved. What in one study negatively affected family relationships was whether the homecoming suffered from PTSD, exhibited emotional numbing, anger or tendencies to isolate themselves. When this occurred, families needed more support. A well-functioning partner relationship, on the other hand, led to veterans seeking help to a greater extent. Conversely, it was also found that the mental health of expatriate staff may be negatively affected if the family back home does not receive support as needed. Stresses in relationships were shown to be best described by examining satisfaction with the relationship, the presence of infidelity or plans for separation. Families that do not work well may negatively affect the treatment of veterans, which is why such treatment should also include family support.

Difficulties in communicating with home partners during service may increase difficulties in reintegration after returning home. Communication with the serving parent through information technology means may be problematic for children. Access to support groups for people at home, on the other hand, reduced depression, and anxiety in them. Children may develop problems if one parent is serving, for example because the mental illness of the serving parent may negatively affect children, with depression and suicidal thoughts as a result. This was especially pronounced if the partner at home was also affected. Children to those serving abroad exhibited more sadness, hopelessness, depressiveness as well as suicidal thoughts and lower quality of life in a dose-response pattern, related to how long the serving parent was absent. Lack of parental function also negatively affected children. Child abuse may also have an effect if parents suffer from depression, parental stress, and family conflicts.

Intimate partner violence was related to antisocial traits, aggressiveness, childhood trauma, relationship factors, and PTSD after exposure to combat, alcohol problems, financial difficulties, and shorter time on duty. Protective factors against domestic violence were being a parent, support from neighbours and from the community and individual mastery.

Although the above descriptions are primarily based on studies in the USA, adapted support for loved ones, such as family at home during the service abroad, may be of immense value to everyone involved. The need for such support for relatives, families and children may of course vary greatly. However, some basic elements should be present during the service, such as:

- Opportunity for regular information about the service abroad
- Opportunity for regular communication between serving and family members at home
- Proactive contact from local and central support resources and establishment of support groups for family and children back home as needed.

### **After the foreign service**

The purpose of follow-up after foreign service, whether it is after a military or a civilian operation, may be to support recovery and reintegration to return the individual to the green zone according to the stress continuum model. This may be done by following here again the crisis support model (intervention pyramid, Figure 12) described in the first part of this document: support, follow-up, assessment, and treatment. Thus, one may start by conducting evaluation of the entire duty cycle. Compared to crisis support in operational organizations back home, where one commonly uses an informal *evaluation*, it seems more appropriate to conduct a more formal evaluation in connection with returning home from service abroad. This seems important both for the organization and for the individual. Other essential elements may be *social support* for the individual and group, which may help to *create a story about the service* and to facilitate the reintegration of staff into the home situation through a *family support programme*. Part of this may also include a high-ranking representative of the organization, who in numerous ways conveys recognition to the participants for taking part in the specific international operation. Finally, an essential part of homecoming activities consists of *follow-up, assessment, and treatment* of physical or mental health if needed.

### **Evaluation**

Conducting a more formal After Action Review (AAR) may include various elements such as: preparation/training, the service itself and about the support for loved ones, family, and children. AAR is about describing what was the task, what went well, what could have been done better or differently. The results are compiled and should form part of the organization's lessons learned.

### **Social support individual/group**

From what has been described earlier, social support has significant importance for recovery, both through colleagues and through support from loved ones. This part therefore consists of two components: firstly, that the staff individually or unitarily should be able to meet to create a narrative about the service and, secondly, to provide the opportunity to conduct a family support programme as needed.

### **Creating a narrative about the service**

It seems reasonable that after an operation abroad, the organization should try to strengthen the recovery of its staff and examine various needs, as well as conduct formal evaluation as described

above. In addition to this, the staff should also be given the opportunity to talk (individually or in groups) about what they have experienced. In addition, creating a common narrative is likely to strengthen social support and thereby facilitate recovery and reintegration. The conversations may by advantage take place unit-wise, most commonly with a conversation leader and may include the following parts, adapted to the type of foreign service:

- Feedback regarding the pre-service training and interventions, including talks about the motivations for the service and expectations before service
- Incidents and experiences during the service, such as work itself, cohesion, and leadership
- Relationships at home and communication with loved ones, family, and children during the service
- Homecoming and its challenges (partner, family, children, and other relatives; ordinary work)
- Own function (social and professional function, feel-good ability)
- Trust (trust in the organization; hope, trust in oneself, meaningfulness)
- Psychoeducation, in oral and in written form.

### **Family support programme**

This part intends to provide an opportunity for the on-duty person to a meeting with a competent conversation leader where partner, family and children may participate. Participants, time, and place should be possible to adapt according to needs and wishes. This family support programme should be adapted to the situation and may include the following components:

- The involvement of relatives in decisions about the service?
- Communication opportunity during duty?
- The impact of the service on loved ones, partners and/or children?
  - Work, school, friends, or health?
- Impact on relationships?
- Received support from the organization/others?
- Homecoming: challenges/uplifts
- Psychoeducation
- Need for follow-up and or contacts with other support institutions such as family counselling.

### **Support, follow-up, and assessment**

- Convey recognition to the staff for their efforts through responsible representatives, for example through, speeches to the staff, recognition via the mass media, closing dinner and, where appropriate, medal awards (Halpern et al., 2009)
- Follow-up and assessment of health. Examination and screening usually do not need to be conducted on everyone. Instead, this should be adapted based on individual needs and on the threats and risks that different services may have led to and what different individuals and entities have been exposed to. This part may include:
  - Health examination, from simple health declarations to full physical and mental examination
  - Identification of individual stressors: trauma; grief; ethical or chronic stress
  - Identification of current level of stress referring to the stress continuum model for everyone
  - Screening and assessment of need for support. For mental health assessment, simple questionnaires may be used, see example Appendix 1

- Treatment or referral for treatment.
- Identify need for other support
  - Finance
  - Law/insurance
  - Work/function
- Information on continued proactive follow-up of health status (after 1, 3, 6 and 12 months on indication and as needed) and contact routes for further support as needed.

## 5. Education and training on traumatic stress and crisis support in operational organizations

This education and training program is an example of training for all employees in operational organizations regarding general aspects of psychotraumatology and more specific training in stress management for leaders and peer supporters.

### Purpose and objectives

The purpose of this training programme is to prepare the organization to better manage work-related stress. The overall goal is to increase knowledge in general for all employees and specially to prepare leaders and peer supporters in terms of their ability to function in their respective roles within the organization. The sub-goals of the education may therefore be to:

#### Increase knowledge about

- Basic parts in the field of psychotraumatology
- Stress management in operational organizations

#### Educate leaders about the necessity of

- Developing preventive measures to be able to manage potentially traumatic events as well as daily work-related stress
- Early identification and management of stress in employees
- Developing effective support programmes to reduce stress impact in the organization
- Reducing role conflicts and increasing predictability in the workplace.

#### Prepare peer supporters in their ability to

- Be an empathetic listener
- Accommodate basic psychological support
- Identify peers who may pose risk to themselves or others
- Facilitate access to professional assessment and treatment as needed
- Not only limit their activities to serious events, but also contribute to support peers in the everyday work environment
- Not in more complicated cases take responsibility alone for too long, but instead, if needed early seek specialist advice and offer referral avenues for professional assessment and treatment
- Maintain confidentiality (except when there is a risk of harm or violence)

### Content

#### Basic psychotraumatology

- Consequences of potentially traumatic events
- Recovery
- Risk indicators and resilience
- Brief insight in neurobiological and neurophysiological aspects
- Stress and its normal and more severe consequences
- Trajectories following potentially traumatic events
- Social support, peer support
- Important principles for support
- Basic self-help after potentially traumatic events and individual stress management.

### Crisis support in operational organizations

- Work-related stress – the stress continuum model
- Chronic stress
- Organizational factors
- Leadership and cohesion
- Preventive interventions – use of occupational health care (OHC)
- Practical crisis support
  - Stress First Aid (SFA)
  - After action meeting (including informal After Action Review, AAR)
  - Social support individual/group
  - Basics about Skills for Psychological Recovery (SPR)
  - Peer support
  - System for support and follow-up/algorithm for support.

### Implementation

Initially, this proposal implements a half-day lecture for all employees in each workplace, including employees, leaders, and peer supporters. After that, managers and peer supporters may be trained for another half-day of short lectures with repeated case discussions. This could then be followed up with a couple of repeated group exercises.

#### Example of timetable

Participants	Time	Content	Form
All employees, including leaders and peer supporters	Half-day	Overview of <b>Basic psychotraumatology and Crisis Support in operational organizations</b>	Lecture
Leaders and peer supporters	Half-day  Followed by repeated group training	<b>Practical Crisis Support</b> <ul style="list-style-type: none"><li>• First Aid for Stress (FHS)</li><li>• After action meeting (including informal AAR)</li><li>• Social support individual/group</li><li>• Basics about Skills for Psychological Recovery (SPR)</li><li>• Peer support</li><li>• System for support and follow-up/algorithm for support</li></ul>	Short lectures followed by case discussions

## References

- Ablah E, Hawley S, Konda KM, Wolfe D, Cook DJ. Evaluation of mental health emergency preparedness among health professionals. *Journal of Allied Health*. 2008;37(3):144-149.
- Adler AB, Saboe KN, Anderson J, Sipos ML, Thomas JL. Behavioral Health Leadership: New Directions in Occupational Mental Health. *Current Psychiatry Reports*. 2014;16:484.
- Aitken P, Leggat P, Robertson A, Harley H, Speare R, Leclercq M. Health, and safety aspects of deployment of Australian disaster medical assistance team members: results of a national survey. *Travel medicine and infectious disease*. 2009;7(5):284-290.
- Albott CS, Wozniak JR, McGlinch BP, Wall MH, Gold BS, Vinogradov S. Battle Buddies: Rapid Deployment of a Psychological Resilience Intervention for Health Care Workers During the COVID-19 Pandemic. *Anesth Analg*. 2020 Jul;131(1):43-54. doi: 10.1213/ANE.0000000000004912. PMID: 32345861; PMCID: PMC7199769.
- Almén N. Intervening stress recovery behaviors in everyday life. Scientific dissertation, Mittuniversitetet, 2022. <http://miun.diva-portal.org/smash/get/diva2:1658517/FULLTEXT01.pdf>
- Almonte ALC. Humanitarian nursing challenges: a grounded theory study. *Military medicine*. 2009;174(5):479-485.
- American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision. Washington, DC, American Psychiatric Association, 2022.
- Arnsten AFT, Shanafeldt T. Physician distress and burnout, the neurobiological perspective. *Mayo Clin Proc*. 2021 march ;96(3):763-769. Doi 10.1016/j.mayocp. 2020.12.027.
- Balban MY, Neri E, Kogon MM, Weed L, Nouriani B, Jo B, Holl G, Zeitzer JM, Spiegel D, Huberman AD. Brief structured respiration practices enhance mood and reduce physiological arousal. *Cell Reports Medicine* 4, 100895, January 17, 2023. <https://doi.org/10.1016/j.xcrm.2022.100895>
- Baldwin DV. Primitive mechanisms of trauma response: An evolutionary perspective on trauma-related disorders. *Neuroscience and Biobehavioral Reviews*. 2013;37:1549-1566.
- Barnes, J. Ben, Nickerson, A., Adler, A. B., & Litz, B. T. Perceived military organizational support and peacekeeper distress: A longitudinal investigation. *Psychological Services*. 2013;10(2):177-185. doi:10.1037/a0032607.
- Beck JG, Sloan DM. Group treatments for PTSD. In MJ Friedman, PP Schnurr, TM Keane, (Eds.) *Handbook of PTSD*. New York: The Guilford Press. 2021. pp. 400-413.
- Berkowitz S, Bryant R, Brymer M, Hamblen J, Jacobs A, Layne C, Macy R, Osofsky H, Pynoos R, Ruzek J, Steinberg A, Vernberg E, Watson P. The National Center for PTSD & the National Child Traumatic Stress Network, Skills for Psychological Recovery: Field Operations Guide. 2010.
- Bisson JI, Tavakoly B, Witteveen AB, Ajdukovic D, Jehel L, Johansen VJ, Nordanger D, Orengo Garcia F, Punamaki RL, Schnyder U, Sezgin AU, Wittmann L, Olff M. TENTS guidelines: development of post-disaster psychosocial care guidelines through a Delphi process. *Br J Psychiatry*. 2010 Jan;196(1):69-74.

Blackwell SE. Mental imagery: from basic research to clinical practice. *Journal of Psychotherapy Integration*, 2018. doi: 10.1037/int0000108

Bliese PD, Castro CA. Role clarity, work overload and organizational support: Multilevel evidence of the importance of support. *Work & Stress*. 2000;14:65-73.

Blix I, Skogbrott Birkeland M, Bang Hansen M, Heir T. Posttraumatic growth – An antecedent and outcome of posttraumatic stress: Cross-lagged associations among individuals exposed to trauma. *Clinical Psychological Science*. 2016:1-9. DOI: 10.1177/2167702615615866

Bonanno GA. Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *Am. Psychol.* 2004;59:20–28.

Bonanno A, Westphal M, Mancini AD. Resilience to loss and potential trauma. *Annu Rev Clin Psychol*. 2011;7:511–535.

Bonanno GA, Diminich ED. Annual Research Review: Positive adjustment to adversity--trajectories of minimal-impact resilience and emergent resilience. *J Child Psychol Psychiatry*. 2013 Apr;54(4):378-401. doi: 10.1111/jcpp.12021. Epub 2012 Dec 7.

Booth-Kewley S, Schmied EA, Highfill-McRoy RM, Larson GE, Garland CF, Ziajko LA. Predictors of psychiatric disorders in combat veterans. *BMC Psychiatry*. 2013;13:130. doi:10.1186/1471-244X-13-130.

Bovin MJ, Kimerling R, Weathers FW, Prins A, Marx BP, Post EP, Schnurr PP. Diagnostic accuracy and acceptability of the Primary Care Posttraumatic Stress Disorder Screen for the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition) among US Veterans (PDF). *JAMA Network Open*, 2021;4(2), e2036733. <https://doi.org/10.1001/jamanetworkopen.2020.36733>

Brewer J. *Unwinding anxiety: Train your brain to heal your mind*. London: Penguin Random House, 2021.

Brewin CR, Andrew B, Valentine JD. Meta-Analysis of Risk Factors for Posttraumatic Stress Disorder in Trauma-Exposed Adults. *Journal of Consulting and Clinical Psychology*. 2000;68:748-766.

Brewin CR, Rose S, Andrew B, Green J, Turner S, Foa E. Brief screening instrument for posttraumatic stress disorder. *British Journal of Psychiatry*. 2002;181:158-162.

Brewin CR. Systematic review of screening instruments for adults at risk of PTSD. *J Trauma Stress*. 2005;18(1):53-62. Review.

Brewin CR, Scragg P, Robertson M, Thompson M, d'Ardenne P, Ehlers A; Psychosocial Steering Group, London Bombings Trauma Response Programme. Promoting mental health following the London bombings: a screen and treat approach. *J Trauma Stress*. 2008 Feb;21(1):3-8.

Briere J, Scott C, Weathers F. Peritraumatic and persistent dissociation in the presumed etiology of PTSD. *Am J Psychiatry*. 2006 Dec;162(12):2295-301.



- Britt TW, Davison J, Bliese PD, Castro CA. How leaders can influence the impact that stressors have on soldiers. *Military Medicine*. 2004; 169:541-545. PMID:15291187
- Britt TW, Wright KM, Moore D. Leadership as a predictor of stigma and practical barriers toward receiving mental health treatment: a multilevel approach. *Psychological Services*. 2012;9(1):26-37. doi:10.1037/a0026412
- Brown RL, Leonard T, Saunders LA, Papasouliotis O. A two-item conjoint screen for alcohol and other drug problems. *Journal of the American Board of Family Practice*. 2001;14(2):95-106.
- Bryant R. Early interventions for trauma. In: Friedman MJ, Keane TM, Resick PA, eds. *Handbook of PTSD: Science and practice*. 2 ed. New York: The Guilford Press; 2014. s. 406-18.
- Brymer M, Jacobs A, Layne C, Pynoos R, Ruzek J, Steinberg A, Vernberg E, Watson P. *Psychological First Aid – Field Operations Guide*, second ed, National Child Traumatic Stress Network & National Center for PTSD, USA. 2006.
- Burke KJ. Well-being in protective services personnel: Organizational influences. *Australasian Journal of Disaster and Trauma Studies*. Massey Univ. 2006.
- Chaitanya S, Datta A, Bhandari B, Sharma VK. Effect of Resonance Breathing on Heart Rate Variability and Cognitive Functions in Young Adults: A Randomised Controlled Study. *Cureus*. 2022 Feb 13;14(2):e22187. doi: 10.7759/cureus.22187. PMID: 35308668; PMCID: PMC8924557.
- Cohen C, Pignata S, Bezak E, et al. Workplace interventions to improve well-being and reduce burnout for nurses, physicians and allied healthcare professionals: a systematic review. *BMJ Open* 2023;13:e071203. doi:10.1136/bmjopen-2022-071203.
- Creamer MC, Varker T, Bisson J, Dart K, Greenberg N, Lau W, Moreton G, O'Donnell M, Richardson D, Ruzek J, Watson P, Forbes D. Guidelines for Peer Support in High-Risk Organizations: An International Consensus Study Using the Delphi Method. *Journal of Traumatic Stress*. 2012;25:134-141.
- Darnall BD, Roy A, Chen AL, Ziadni MS, Keane RT, You DS, Slater K, Poupore-King H, Mackey I, Kao MC, Cook KF, Lorig K, Zhang D, Hong J, Tian L, Mackey SC. Comparison of a single-session pain management skills intervention with a single-session health education intervention and 8 sessions of Cognitive Behavioral Therapy in adults with chronic low back pain: A randomized clinical trial. *JAMA Netw Open*. 2021 Aug 2;4(8):e2113401. doi: 10.1001/jamanetworkopen.2021.13401. Erratum in: *JAMA Netw Open*. 2022 Apr 1;5(4):e229739. PMID: 34398206; PMCID: PMC8369357.
- Department of Veterans Affairs and the Department of Defence (VA/DoD) practice guideline for the management of posttraumatic stress disorder and acute stress disorder. Version 3.0 – 2017, page 51. Downloaded March 2021 from: [VA/DOD Clinical Practice Guideline for the Management of Posttraumatic Stress Disorder and Acute Stress Disorder](#)
- Farchi M, Levy TB, Gershon BB, Hirsch-Gornemann MB, Whiteson A, Gidron Y. The six Cs model for immediate cognitive psychological first aid: From helplessness to active efficient coping. *Int J Emerg Ment Health*. 2018;20:1–12.

- Felitti, VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM; Edwards V, Koss MP, Marks JS. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J PrevMed*. 1998;14(4):245-258.
- Finne LB, Christensen JO, Knardahl S. Psychological and Social Work Factors as Predictors of Mental Distress: A Prospective Study. *PLOSOne*. 2014;doi:10.1371/journal.pone.0102514
- Forbes D, Creamer M, Bisson JI, Cohen JA, Crow BE, Foa EB, Friedman MJ, Keane TM, Kudler HS, Ursano RJ. A guide to guidelines for the treatment of PTSD and related conditions. *J Trauma Stress*. 2010 Oct;23(5):537-52. doi: 10.1002/jts.20565.
- Forbes D, Bisson JI, Monson CM, Berliner L. Effective treatments for PTSD. Practice guidelines from the international Society for Traumatic Stress Studies. Third edition. New York: The Guilford Press, 2020.
- Friedman MJ, Schnurr P, Keane TM. Handbook of PTSD. Science and Practice, Third edition. New York: The Guilford Press. 2021.
- Gross JJ, Thompson RA. Emotion regulation: conceptual foundation. In: Gross JJ, Eds. Handbook of emotion regulation. New York: The Guilford Press; 2007. s. 3-26.
- Gupta S, Bonanno GA. Complicated grief, and deficits in emotional expressive flexibility. *Journal of Abnormal Psychology*. 2011, Vol. 120, No. 3, 635–643.
- Gustafsson H, Skoog T. The Mediation Role of Perceived Stress in The Relation Between Optimism and Burnout in Competitive Athletes. *Anxiety Stress Coping*, 2012;25:183–199. doi: 10.1080/10615806.2011.594045
- Halpern J, Gurevich M, Schwartz B, Brazeau P. Interventions for critical stress in emergency medical services: a qualitative study. *Stress and Health*. 2009;25:139-149.
- Harris R. The Happiness Trap: Stop struggling, start living. Second edition. Exisle Publishing Ltd. 2022.
- Harvard Medical School. Stress management. Enhance your well-being by reducing stress and building resilience. Special health report, Boston: [www.health.harvard.edu](http://www.health.harvard.edu), 2020.
- Harvey A, Nathens AB, Bandiera G, Leblanc VR. Threat And Challenge: Cognitive Appraisal and Stress Responses in Simulated Trauma Resuscitations. *Med. Educ*. 2010;44:587–594. doi: 10.1111/j.1365-2923.2010.03634.x
- Harvey SB, Modini M, Joyce S, Milligan-Saville JS, Tan L, Mykletun A, Bryant RA, Christensen H, Mitchell PB. Can work make you mentally ill? A systematic meta-review of work-related risk factors for common mental health problems. *Occup Environ Med* 2017;74:301–310. doi:10.1136/oemed-2016-104015.
- Hedlund E. What Motivates Swedish Soldiers to Participate in Peacekeeping Missions: Research Note. *Armed Forces & Society*. 2011;37(1):180-190. doi:10.1177/0095327X10372597

Heim C, Nemeroff CB. Neurobiological pathways in fear, stress, and PTSD. In I Liberson, KJ Ressler (Eds.). *Neurobiology of PTSD, from brain to mind*. New York: Oxford University Press, 2016. pp. 220-238.

Heir T, Stokke EH, Tvenge KP. The role of workplace on work Participation and sick leave after a terrorist attack: a qualitative study. *Int. J. Environ. Res. Public Health* 2021, 18, 1920. <https://doi.org/10.3390/ijerph18041920>

Hobfoll S. Conservation of Resources: A New Attempt at Conceptualizing Stress. *American Psychologist*. 1989;44(3):513-524.

Hobfoll SE, Watson P, Bell CC, Bryant RA, Brymer MJ, Friedman MJ, Friedman M, Gersons BP, de Jong JT, Layne CM, Maguen S, Neria Y, Norwood AE, Pynoos RS, Reissman D, Ruzek JI, Shalev AY, Solomon Z, Steinberg AM, Ursano RJ. Five essential elements of immediate and mid-term mass trauma intervention: empirical evidence. *Psychiatry*. 2007 Winter;70(4):283-315; discussion 316-69. doi: 10.1521/psyc.2007.70.4.283. Review.

Hugelius K, Berg S, Westerberg E, Gifford M, Adolfsson A. Swedish ambulance managers' descriptions of crisis support for ambulance staff after potentially traumatic events. *Prehospital and Disaster Medicine*. 2014;29(6):1-4.

Inslicht SS, McCaslin SE, Metzler TJ, Henn-Haase C, Hart SL, Maguen S, Neylan TC, Marmar CR. Family psychiatric history, peritraumatic reactivity, and posttraumatic stress symptoms: a prospective study of police. *J Psychiatr Res*. 2010 Jan;44(1):22-31. doi: 10.1016/j.jpsychires.2009.05.011. Epub 2009 Aug 14.

International society for traumatic stress studies, ISTSS. PTSD Guidelines – Methodology and Recommendations, ISTSS. 2019

Jones N, Seddon R, Fear NT, McAllister P, Wessely S, Greenberg N. Leadership, cohesion, morale, and the mental health of UK Armed Forces in Afghanistan. *Psychiatry: Interpersonal and Biological Processes*. 2012;75(1):49-59. doi:10.1521/psyc.2012.75.1.49.

Joshi S, Cerdá M. Trajectories of Health resilience and illness. I: Ursano RJ, Fullerton CS, Weisaeth L, Eds. *Textbook of disaster psychiatry*. 2 ed. Cambridge University Press; 2017. s. 76-86.

Karasek R, Theorell T. *Healthy work: stress, productivity, and the reconstruction of working life*. New York: Basic Books. 1990

Keiser NL, Arthur W. A meta-analysis of the effectiveness of the after-action review (or debrief) and factors that influence its effectiveness. *J Appl Psychol*. 2020 Aug 27. doi: 10.1037/apl0000821. Epub ahead of print. PMID: 32852990.

Kessler RC, Aguilar-Gaxiola S, Alonso J, Benjet C, Bromet EJ, Cardoso G, Degenhardt L, de Girolamo G, Dinolova RV, Ferry F, Florescu S, Gureje O, Haro JM, Huang Y, Karam EG, Kawakami N, Lee S, Lepine JP, Levinson D, Navarro-Mateu F, Pennell BE, Piazza M, Posada-Villa J, Scott KM, Stein DJ, Ten Have M, Torres Y, Viana MC, Petukhova MV, Sampson NA, Zaslavsky AM, Koenen KC. Trauma and PTSD in the WHO World Mental Health Surveys. *Eur J Psychotraumatol*. 2017 Oct 27;8(sup5):1353383. doi: 10.1080/20008198.2017.1353383. eCollection 2017.

Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*. 1995;52(12):1048-1060.

Korte KJ, Jiang T, Koenen KC, Galea S, Gradus JL. Epidemiology of trauma and PTSD in adults. In MJ Friedman, PP Schnurr & TM Keane (Eds.), *Handbook of PTSD, Science, and practice*, third edition. New York: The Guilford Press, 2021, pp 66-67.

Kozłowska K, Walker P, McLean L, Carrive P. Fear and the Defence Cascade: Clinical Implications and Management. *Harv Rev Psychiatry*. 2015 Jul-Aug;23(4):263-87. doi: 10.1097/HRP.000000000000065. Review.

Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Medical Care*. 2003;41(11):1284-1292.

Larsson G, Berglund AK, Ohlsson A. Daily hassles, their antecedents, and outcomes among professional first responders: A systemic literature review. *Scand J Psychol*. 2016;57(4):359-367.

Larsson G. Daily stress and health: An idea of effective mechanisms. (In Swedish) Lund: Studentlitteratur. 2021.

Lazarus RS, Folkman S. Stress, appraisal, and coping. New York: Springer; 1984.

LeDoux JE. Emotion circuits in the brain. *Annu. Rev. Neurosci*. 2000;23:155–184.

Litz, B. T., Steenkamp, M. M., & Nash, W. P. Resilience and recovery in the military. In L. Zoellner & N. Feeney (Eds.), *Facilitating resilience and recovery following traumatic events* (pp. 113-133). New York: Guilford. 2014

MacNamara A, Phan KL. Prefrontal-Limbic brain circuitry and regulation of emotion. In I Liberson, KJ Ressler (Eds.). *Neurobiology of PTSD, from brain to mind*. New York: Oxford University Press, 2016. pp. 169-191.

Mancini AD, Griffin P, Bonanno GA. Recent trends in the treatment of prolonged grief. *Curr Opin Psychiatry*. 2012 Jan;25(1):46-51.

McFarlane AC, Williamson P, Barton CA. The impact of traumatic stressors in civilian occupational settings. *Journal of public health policy*. 2009;30(3):311-327.

Melnyk BM, Kelly SA, Stephens J, Dhakal K, McGovern C, Tucker S, Hoving J, McRae K, Ault S, Spurlock E, Bird SB. Interventions to Improve Mental Health, Well-Being, Physical Health, and Lifestyle Behaviors in Physicians and Nurses: A Systematic Review. *Am J Health Promot*. 2020 November ; 34(8): 929–941. doi:10.1177/0890117120920451.

Michel PO, Hjemdal OK, Wentzel-Larsen T. Komplettering av levekårsundersøkelsen. Nasjonalt kunnskapssenter om vold og traumatisk stress, NKVTS. 2014.

Michel PO, Lundin T, Bergh Johannesson K, Nilsson D, Arnberg F. *Psykotraumatologi*. Lund: Studentlitteratur, 2018. Sid: 119–121.

Nash WP, Westphal RJ, Watson PJ, Litz, B. T. Combat and Operational Stress First Aid: Caregiver Training Manual. Washington, DC: U.S. Navy, Bureau of Medicine and Surgery. 2010.

Nash WP, Watson PJ. Review of VA/DOD Clinical Practice Guideline on management of acute stress and interventions to prevent posttraumatic stress disorder. *J Rehabil Res Dev*. 2012;49(5):637-48.

Nash WP, Boassa AM, Steenkamp MM, Larson JL, Lubin RE, Litz BT. Posttraumatic stress in deployed marines: Prospective trajectories of early adaptation. *Journal of Abnormal Psychology*. 2015;124(1):155–171.<http://dx.doi.org/10.1037/abn0000020>

NICE-report. National Collaborating Centre for Mental Health. Post-traumatic stress disorder (PTSD) The Management of PTSD in Adults and Children in Primary and Secondary Care. (CG 26). National Institute for Health and Clinical Excellence, 2005.

Norris FH, Tracy M, Galea S. Looking for resilience: understanding the longitudinal trajectories of responses to stress. *Soc Sci Med*. 2009 Jun;68(12):2190-8.

Nutt DJ. The psychobiology of posttraumatic stress disorder. *J Clin Psychiatry* 2000;61[suppl 5]:24–29.

O'Donnell ML, Lau W, Tipping S, Holmes ACN, Ellen S, Judson R, Varker T, Elliot P, Bryant RA, Creamer MC, Forbes D. Stepped early psychological intervention for posttraumatic stress disorder, other anxiety disorders, and depression following serious injury. *Journal of Traumatic Stress*. 2012;25:125-133.

Oettingen G. Rethinking positive thinking: inside the new science of motivation. Penguin Random House, 2015. ISBN-1-61723-023-3.

OPSIC-Project. Operationalizing Psychosocial Support in Crisis SEC-2012.4.1-2. The comprehensive guideline on mental health and psychosocial support (MHPSS) in disaster settings. 2015. Available at: <https://www.uibk.ac.at/psychologie/fachbereiche/psychotraumatology/resources/opsic-mhpss-comprehensive-guideline-june-2016.pdf>

Ozer EJ, Best SR, Lipsey TL, Weiss DS. Predictors of posttraumatic stress disorder and symptoms in adults: a meta-analysis. *Psychol Bull*. 2003 Jan;129(1):52-73.

Pennebaker JW. Writing about emotional experiences as a therapeutic process. *Psychological Science*, 1997;8(3), 162–166. <https://doi.org/10.1111/j.1467-9280.1997.tb00403.x>

Peters A, McEwen BS, Friston K. Uncertainty, and stress: Why it causes diseases and how it is mastered by the brain. *Prog Neurobiol*. 2017 Sep;156:164-188. doi: 10.1016/j.pneurobio.2017.05.004. Epub 2017 May 30.

Petrie K, Gayed A, Bryan BT, Deady M, Madan I, Savic A, Wooldridge Z, Counson I, Calvo RA, Glozier N, Harvey SB. The importance of manager support for the mental health and well-being of ambulance personnel. 2018. *PLoS ONE* 13(5): e0197802. <https://doi.org/10.1371/journal.pone.0197802>

Pfefferbaum B, Shaw JA; American Academy of Child and Adolescent Psychiatry (AACAP) Committee on Quality Issues (CQI). Practice parameter on disaster preparedness. *J Am Acad Child Adolesc Psychiatry*. 2013 Nov;52(11):1224-38

Prati G, Pietrantonio L, Saccinto E, Kehl D, Knuth D, Schmidt S. Risk perception of different emergencies in a sample of European firefighters. *Work* (Reading, Mass.). 2013;45(1):87-96.

Prins A, Bovin MJ, Smolenski DJ, Mark BP, Kimerling R, Jenkins-Guarnieri MA, Kaloupek DG, Schnurr PP, Pless Kaiser A, Leyva YE, Tiet QQ. The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5): Development and evaluation within a Veteran primary care sample (PDF). *Journal of General Internal Medicine*, 2016;31:1206-1211. <https://doi.org/10.1007/s11606-016-3703-5>

Rauch SL, Shin LM, Phelps EA. Neurocircuitry models of posttraumatic stress disorder and extinction: Human neuroimaging research – past, present, and future. *Biol psychiatry*. 2006;60:376–3820006.

Regehr C, Millar D. Situation critical: High demand, low control, and low support in paramedic organizations. *Traumatology*. 2007;13:49–58.

Rozovsky, 2015. The five keys to a successful Google team. Accessed 12 February 2021 at: <https://rework.withgoogle.com/blog/five-keys-to-a-successful-google-team/>

Rugulies R, Bültmann U, Aust B, Burr H. Psychosocial work environment and incidence of severe depressive symptoms: prospective findings from a 5-year follow-up of the Danish work environment cohort study. *American Journal of Epidemiology*. 2006;163:877–887. PMID:16571741

Santos-Rosa FJ, Montero-Carretero C, Gomez-Landero LA, Torregrossa M, Cervello E. Positive and negative spontaneous self-talk and performance in gymnastics: The role of contextual, personal and situational factors. *PLoS ONE*, 2022;17(3): e0265809. <https://doi.org/10.1371/journal.pone.0265809>

Schmidt S, Roesler U, Kusserow T, Rau R. Uncertainty in the workplace: Examining role ambiguity and role conflict, and their link to depression - a meta-analysis. *European Journal of Work and Organizational Psychology*. 2014;23:91-106.

Schultebraucks K, Sijbrandij M, Galatzer-Levy I, Mouthaan J, Olff M, van Zuiden M. Forecasting individual risk for long-term posttraumatic stress disorder in emergency medical settings using biomedical data: A machine learning multicenter cohort study. *Neurobiol Stress*. 2021 Jan 18;14:100297. doi: 10.1016/j.ynstr.2021.100297. eCollection 2021 May.

Seynaeve GJR. (Ed). Psycho-social support in situations of mass emergency. European Policy Paper concerning different aspects of psychosocial support involved in major accidents and disasters. Ministry of Public Health, Brussels, Belgium, 2001. ISBN: D/2001/9387/1.

Shea MT, McDevitt-Murphy, Ready DJ, Schnurr PP. Group therapy. In MJ Friedman, TM Keane, PA Resick (Eds.) *Handbook of PTSD*. New York: The Guilford Press. 2007. pp. 306-326.

Siegrist J, Starke D, Chandola T, Godin I, Marmot M, Niedhammer I, Peter R. The measurement of effort reward imbalance at work: European comparisons. *Soc Sci Med*. 2004;58:1483-1499.

Smeets EC, de Ruijter AM. Community-based interventions working draft. Amsterdam: Impact Dutch knowledge and advice centre for post-disaster psychosocial care. 2006.

Skogbrott Birkeland M, Birkeland Nielsen M, Knardahl S, Heir T. Associations between work environment and psychological distress after a workplace terror attack: The importance of role

expectations, predictability and leader support. PLOSOne. DOI:10.1371/journal.pone.0119492 March 13, 2015.

Skogstad M, Skorstad M, Lie A, Conradi HS, Heir T Weisæth L. Work-related post-traumatic stress disorder. *Occupational Medicine*. 2013;63:175-182. doi:10.1093/occmed/kqt003.

Sloand E, Ho G, Klimmek R, Pho A, Kub J. Nursing children after a disaster: a qualitative study of nurse volunteers and children after the Haiti earthquake. *Journal for Specialists in Pediatric Nursing: JSPN*. 2012;17(3):242-53.

Southwick SM, Vythilingam M, Charney DS. The psychobiology of depression and resilience to stress: Implications for prevention and treatment. *Annu Rev Clin Psychol*. 2005;1:255-291.

Southwick SM, Charney DS. *Resilience: The science of mastering life's greatest challenges*. Second edition. New York: Cambridge University Press, 2018.

Southwick SM, Bonanno GA, Masten AS, Panter-Brick C, Yehuda R. Resilience definitions, theory, and challenges: interdisciplinary perspectives. *European Journal of Psychotraumatology*. 2014;5:25338 - <http://dx.doi.org/10.3402/ejpt.v5.25338>

Steenkamp MM, Dickstein BD, Salters-Pedneault K, Hofmann S, Litz BT. Trajectories of PTSD symptoms following sexual assault. *Journal of Traumatic Stress*. 2012;25:469-474.

Steenkamp MM, Nash WP, Litz BT. Post-traumatic stress disorder prevention in troops: Review of the Comprehensive soldier fitness program. *American Journal of Preventive Medicine*. 2013;44(5):507-512.

Svetlitzky V, Farchi M, Ben Yehuda A, Adler AB. YaHaLOM: A Rapid intervention for acute stress reactions in high-risk occupations. *Mil Behav Health*. 2019;8:232–242.

Swedish National Board of Health and welfare. Socialstyrelsen. *Krisstöd vid allvarlig händelse*. Kunskapsunderlag. Stockholm: Socialstyrelsen, 2018.

Tannenbaum SI, Cerasoli CP. Do team and individual debriefs enhance performance? A meta-analysis. *Hum Factors*, 2013, Feb;55(1):231-45. doi: 10.1177/0018720812448394.

Tassell N, Flett R. Motivation in humanitarian health workers: a self-determination theory perspective. *Development in Practice*. 2011;21(7):959-973.

Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: measuring the positive legacy of trauma. *J Trauma Stress*. 1996 Jul;9(3):455-71

The European Network for Traumatic Stress (TENTS). 2009.

Trickey D, Siddaway AP, Meiser-Stedman R, Serpell L, Field AP. A meta-analysis of risk factors for post-traumatic stress disorder in children and adolescents. *Clin Psychol Rev*. 2012;32(2):122-138.

van de Leur JC. *Psychological Treatment of Stress-Induced Exhaustion Disorder. Towards a Contextual Behavioral Approach*. Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Social Sciences 223. 143 pp. Uppsala: Acta Universitatis Upsaliensis. 2024. ISBN 978-91-513-2128-8.

- Varker T, Devilly GJ. An analogue trial of inoculation/resilience training for emergency services personnel: proof of concept. *Journal of anxiety disorders*. 2012;26(6):696-701.
- Villado AJ, Arthur W. The comparative effect of subjective and objective after-action reviews on team performance on a complex task. *The Journal of Applied Psychology*. 2013;98(3):514-28. doi:10.1037/a0031510.
- Wadström O. Behavioural medicine: CBT for doctors. (in Swedish) Psykologinsats AB, 2021.
- Watson PJ, Gibson L, Ruzek JI. Public mental health interventions following disasters and mass violence. I: Friedman MJ, Keane TM, Resick PA, Eds. *Handbook of PTSD: Science and practice*. 2 ed. New York: The Guilford Press; 2014. s. 607-27.
- Watson PJ, Taylor V, Gist R, Elvander E, Leto F, Martin B, Tanner J, Vaught D, Nash W, Westphal RJ, Litz B. *Stress First Aid for Firefighters and Emergency Medical Services Personnel*. The National Fallen Firefighters Foundation and National Center for PTSD, Department of Veterans Affairs. 2013.
- Williams A, Hagerty BM, Andrei AC, Yousha SM, Hirth RA, Hoyle KS. STARS: strategies to assist navy recruits' success. *Military Medicine*. 2007;72(9):942-949. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/17937357>
- Witteveen AB, Bisson JI, Ajdukovic D, Arnberg FK, Bergh Johannesson K, Bolding HB, Elklit A, Jehel L, Johansen VA, Lis-Turlejska M, Nordanger DO, Orengo-García F, Polak AR, Punamaki RL, Schnyder U, Wittmann L, Olff M. Post-disaster psychosocial services across Europe: the TENTS project. *Soc Sci Med*. 2012 Nov;75(9):1708-14. doi: 10.1016/j.socscimed.2012.06.017. Epub 2012 Jul 14
- World health Organization. *Psychological First Aid: Guide for field workers*. Geneva, Switzerland: War Trauma Foundation and World Vision International. 2011.
- World Health Organization. *International Classification of Diseases Eleventh Revision (ICD-11)*. Geneva: World Health Organization; 2022. <https://icd.who.int/browse/2024-01/mms/en>
- Wright KM, Bliese PD, Thomas JL, Adler AB, Eckford RD, Hoge CW. Contrasting Approaches to Psychological Screening with U.S. Combat Soldiers. *Journal of Traumatic Stress*. 2007;20(6):965-975.
- Young Z. *Break Through Pain: How to Relieve Pain Using Powerful Meditation Techniques*. Louisville: Sounds True, 1995.
- Zoellner T, Maercker A. Posttraumatic growth in clinical psychology - a critical review and introduction of a two-component model. *Clin Psychol Rev*. 2006 Sep;26(5):626-53. Epub 2006 Mar 3.
- Örtqvist D, Wincent J. Prominent consequences of role stress: A meta-analytic review. *International Journal of Stress Management*. 2006;13:399-422.



## Appendix 1. Instruments for screening

The purpose of screening should be to provide a basis for the assessment of exposed individuals. A screening form does not replace a professional assessment but may provide guidance as to whether such an in-depth assessment is needed. The various forms below touch on topics that experience, and science have previously shown to be associated with psychiatric disorders in affected individuals. The various instruments deal with post-traumatic stress reactions, depression, substance dependence and the individual's assessment of their own need for help. Note that the questions in the various forms may contribute to excluding those individuals who do not need support. In cases where there is an indication for in-depth examination, a dialogue should be conducted with the individual in question about transfer for professional assessment.

### The different instruments

Below are five different instruments that may be used for screening purposes, where deemed appropriate.

#### Questionnaires regarding reactions following serious events

- A. Trauma Screening Questionnaire (TSQ)
- B. Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)

#### A two-question scale for depression

- C. Patient Health Questionnaire - 2 (PHQ-2)

#### Substance dependence questionnaire

- D. Two Item Conjoint Screen (TICS)

#### One question regarding need for support

- E. Psychological screening (PS).

### A. Trauma Screening Questionnaire (TSQ)

#### Background

TSQ (Brewin et al., 2002) consists of ten questions regarding the diagnosis of post-traumatic stress disorder (PTSD). Studies have shown that with a 90% probability, six or more affirmative answers could accurately classify someone with PTSD or non-PTSD, diagnosed with structured clinical interview a week later.

#### TSQ form

*Your own reactions now to the traumatic event.*

*Please consider the following reactions which sometimes occur after a potentially traumatic event.*

*This questionnaire is concerned with your personal reactions to the potentially traumatic event which happened to you. Please indicate (Yes/No) whether you have experienced any of the following, at least twice in the past week.*

- |    |   |     |    |
|----|---|-----|----|
| 1. | Upsetting thoughts or memories about the event that have come into your mind against your will. | Yes | No |
| 2. | Upsetting dreams about the event  | Yes | No |
| 3. | Acting or feeling as though the event were happening again                                      | Yes | No |
| 4. | Feeling upset by reminders of the event   | Yes | No |

5.	Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	Yes	No
6.	Difficulty falling or staying asleep	Yes	No
7.	Irritability or outbursts of anger	Yes	No
8.	Difficulty concentrating	Yes	No
9.	Heightened awareness of potential dangers to yourself and others	Yes	No
10.	Being jumpy or being startled at something unexpected	Yes	No

#### **Evaluation**

Affirmative answers to 6 or more questions suggest that there is a likelihood that the individual may develop a post-traumatic stress disorder.

☐ Fulfilled, indicates need for in-depth investigation.

#### ***B. Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)***

##### **Background**

PC-PTSD-5 developed by Prins et al. (2016), may be used one month after a defined serious event.

##### **PC-PTSD-5 form**

*If you have previously been exposed to any potentially traumatic event, or several of them, have you in the past month...*

1.	Had nightmares about the event(s) or thought about the event(s) when you did not want to?	Yes	No
2.	Tried hard not to think about the event(s) or went out of your way to avoid situations that reminded you of the event(s)?	Yes	No
3.	Been constantly on guard, watchful, or easily startled?	Yes	No
4.	Felt numb or detached from people, activities, or your surroundings?	Yes	No
5.	Felt guilty or unable to stop blaming yourself or others for the event(s) or any problems the event(s) may have caused?	Yes	No

#### **Evaluation**

In general, a cut point score of 3 Yes-answers best balanced the false negatives and false positives and corresponds to risk of later being diagnosed with PTSD (Bovin et al. 2021).

☐ Fulfilled, indicates need for in-depth investigation.

#### ***C. Patient Health Questionnaire - 2 (PHQ-2)***

##### **Background**

PHQ-2 is an excerpt from PHQ-9, a form developed for screening depression (Kroenke et al., 2003).

##### **PHQ-2 form**

*Over the last 2 weeks, how often have you been bothered by any of the following problems?*

1. Little interest or pleasure in doing things.

- ☐ Not at all                      0 points
- ☐ Several days                      1 point

- ☐ More than half the days      2 points
- ☐ Nearly every day              3 points
- 2. Feeling down, depressed, or hopeless.
- ☐ Not at all                      0 points
- ☐ Several days                  1 point
- ☐ More than half the days      2 points
- ☐ Nearly every day              3 points

#### **Evaluation**

Scores can range from 0 to 6. The recommended cut point is a score of 3 or greater. Such cases should lead to a professional assessment to determine if there is a major depressive disorder.

- ☐ Fulfilled, indicates need for in-depth investigation.

### ***D. Two Item Conjoint Screen (TICS)***

#### **Background**

TICS contains two questions about alcohol and drug habits tested by Brown et al., (2001).

#### **TICS form**

*Have you in the last year...*

1. Have you ever drunk or used drugs more than you meant to?
  - ☐ Yes
  - ☐ No
2. Have you felt you wanted or needed to cut down on your drinking or drug use?
  - ☐ Yes
  - ☐ No

#### **Evaluation**

Of those who gave 1 affirmative answer, about a third met criteria for substance dependence according to the DSM. Of those who gave two affirmative answers, 72% met substance dependence criteria.

- ☐ Fulfilled, indicates need for in-depth investigation.

### ***E. Psychological screening (PS)***

#### **Background**

One simple question that may help clarify the condition of individuals exposed to potentially traumatic events.

#### **Psychological screening form**

*Would you like to speak to a psychologist or psychiatrist?*

- ☐ Yes
- ☐ No

#### **Evaluation**

If the individual himself does not wish to see psychological or psychiatric staff, there is a high probability (> 90%) that the individual does not currently suffer from PTSD (Wright et al., 2007). Thus, affirmative answers to the question indicate the need for professional assessment.

- ☐ Fulfilled, indicates need for in-depth investigation.