

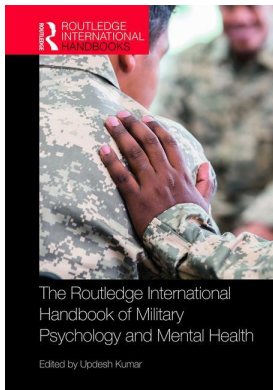
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RESILIENCE AND CLINICAL ISSUES IN SURVIVAL BEHAVIOR UNDER ISOLATION AND CAPTIVITY

Vasile Marineanu

Survival, evasion, resistance and escape (SERE) psychology, as a specialized field of both clinical psychology and operational military psychology, aims to provide training programs within SERE courses and to work through specialized intervention with recovered personnel who have gone through isolation incidents, missing persons, hostages, prisoners of war (POWs), escapees etc., who are undergoing a process of reintegration into society, family and professional life.

Although, at present, the number of cases requiring the intervention of a SERE psychologist is rather low, the consequences of the lack of adequately trained professionals in this specialty are unacceptable given the characteristics of the current security environment when we face threats at any time: terrorist attacks, abductions or hostage-taking. Moreover, to fill a vacuum of knowledge and of practical skills needed for survival in hostile environments around the world, such as major cities and other urban areas where dangers can easily be overlooked, a new area has emerged under the name Urban SERE, a civilian version of the traditional SERE domain, rooted in military experience.

SERE psychologists base their specialized knowledge, skills and techniques on evidence-based theories about human behavior. These include research from over the past 30 years of experience in risk management and specialized intervention for traumatic stress management, used both in SERE programs and in working with recovered personnel who have survived isolation incidents, missing persons, detainees, captured and/or escaped personnel.

At present, in most NATO member states, SERE activities are being carried out in line with NATO Standard 7196 (STANAG 7196, 2007). They aim at familiarizing military personnel with the core elements of SERE psychology, principles, processes and procedures of this particular field of clinical and operational applications of psychology. Thus, participants are expected to understand both captivity and the isolation environment, how military training programs can contribute to build resilience, which are the risks associated with SERE training programs and how to mitigate them. At the same time, they are familiarized with the principles of the reintegration processes, the most frequent problems that may arise during this process and the support needed by families of those who go through a situation of isolation or captivity.

Individual reactions during a survival event

The most common psychological reactions following a survival event, according to Leach (1994), include panic, paralysis anxiety, perceptual distortions, denial, depressive reactions, hyperreactivity, behavioral stereotypes, anger, guilt and psychic fall. Usually, most people who survive a disaster or a potential traumatic event develop similar psychological and emotional reactions. Most individuals will probably understand these reactions as normal responses to abnormal events and will quickly return to their previous operation. Some will remain more affected, with emotional sequelae, which will require more time and possibly professional treatment to return to the previous functional state. Eventually, a small percentage may never recover at all.

That is why it is quite difficult to predict who and what will experience and who will have long-term problems. In addition, this problem becomes even more complicated because of the well-intentioned trend of many mental health professionals to pathologize these normal reactions to traumatic stress. Many of these reactions are, in essence, the expression of defensive mechanisms, but they become problematic when they begin to substantially interfere with survival efforts or significantly inhibit adaptive behavior. Not everyone will experience these reactions at the same level of intensity and/or the same duration, but the growth in the intensity and the duration might be indicators that the person needs clinical attention.

Unfortunately, the more peritraumatic and posttraumatic risk factors, the higher probability to develop long-term clinical implications, no matter how well the person is prepared for the survival event through relevant stress inoculation training. Therefore, the extent to which these reactions will have a negative impact on recovery depends on a number of individual personality factors, the nature of survival training, the individual or group reactions during the event and the reintegration/recovery efforts following the event. The most common clinical issues related to SERE events are described below.

Clinical issues related to SERE events

It is known that POW have, over time, experienced brutality, torture, coercion, loneliness and isolation, among many other forms of deprivation and exploitation. Each of these experiences was aimed at stressing the dependence of the captive on those in whose custody they were and, through these deprivations, to obtain maximum exploitation of the prisoners. The immediate and lifetime effect of these experiences is so big that it can rarely be said to be overstated.

The military personnel captured and detained as POWs manifest significantly high rates of physical and emotional trauma, posttraumatic stress disorder (PTSD) symptoms and other mental health problems. Thus, during the Second World War, about half of the captured soldiers in Germany and Japan developed PTSD, which remained symptomatic throughout their lives (Doran, Hoyt, Hiller Lauby & Morgan, 2012). Sutker and Allain (1996) suggest that between 88% and 96% of prisoners during the Korean War have experienced psychological and behavioral problems related to captivity.

Also, among POW during World War II, extremely high mortality rates, cognitive difficulties such as memory deficits, spatial orientation problems, less efficient planning skills and problems related to impulse control were reported. Some of these problems are supposed to be related to severe malnutrition often experienced by POW; those who lost 35% or more of the body weight during captivity had the highest degree of memory, verbal and visual learning deficiency (Sutker, Allain, & Johnson, 1993). Compared to veterans who have not experienced captivity, POWs have had multiple adaptation disorders, alcohol abuse problems, depressive disorders,

anxiety disorders, compulsive eating, difficulties in couple relationships, musculoskeletal and gastrointestinal disorders, as well as premature aging (Doran et al., 2012).

Effects of captivity on health

The effects of trauma on the health of POWs and hostages, in general, have been widely discussed in the psychological literature in various contexts. Thus, a relatively recent meta-analysis (Steel et al., 2009) shows that former POWs face serious psychological consequences, including PTSD. The same meta-analysis emphasizes the importance of exploring the concept of war torture and PTSD for non-Western populations and areas. In addition, it is worth mentioning that most of the studies in this field were based on samples composed exclusively or predominantly of male populations (Saab, Chaaya, Doumit & Farhood, 2003). These studies have attempted to explain PTSD in relation to exposure to war trauma and their severity (Ghaddar, Elsouiri, & Abboud, 2016), and similar studies have explored general mental health and quality of life amongst refugees exposed to torture and traumatic events (Carlsson, Mortensen & Kastrup, 2006).

At the same time, a systematic literature review on the development and maintenance of PTSD after exposure to war trauma and torture has highlighted the importance of focusing attention on female prisoners, as female sex and advanced age are considered risk factors in the development of PTSD symptoms (Johnson & Thompson, 2008). Moreover, the differences between men and women victims of war torture, depending on the types of torture and their psychological consequences, have been highlighted in various studies on the population of former Yugoslavia. Thus, women with a higher risk for certain types of torture, such as sexual torture, have recorded higher scores than men in depression, anxiety and PTSD (Spiric et al., 2010). Also, women who have been subject to war torture in Nepal have reported, to a greater extent than men, symptoms of PTSD, persistent somatoform disorder of pain and dissociation disorders of amnesia and conversion (Van Ommeren et al., 2001).

In a study of 67 Lebanese prisoners exposed to torture, held in the Khiam detention center during Israeli occupation in Lebanon (1981–1989) and released between 1982 and 1997, the prevalence of PTSD and cardiovascular disease was high, even almost one or two decades after the release. Thus, the prevalence of PTSD was 28.4%, comparable to that of political prisoners tortured in Lebanon (30.6%), in Occupied Palestinian Territory and in Germany (33%). However, the prevalence of cardiovascular disease, adjusted by age, has been relatively high compared to the population of the same age of women who have been previously exposed to torture (16.42%–6%). The risk of developing PTSD increased with the length of detention, exposure to beatings and the threat of rape, and declined proportionally to the strength of religious beliefs, confirming once again the role of social support as a protective factor against PTSD. The risk of developing cardiovascular problems increased in proportion to the duration of detention, age and exposure to water boarding (Ghaddar, Elsouiri, & Abboud, 2016).

Long-term implications of captivity for mortality and health

Captivity during armed conflicts involves a variety of stressors and represents a traumatic experience perceived as particularly intense and prolonged. This experience often includes isolation, torture, humiliation, starvation, poor hygiene and lack of medical treatment. Former POWs have a high risk of developing a wide range of mental disorders, particularly PTSD and depression (Solomon et al., 2014).

Several studies on World War II (WWII) and Vietnam war survivors reported higher rates of morbidity among former prisoners of war compared to veterans who were not in captivity (Nice,

Garland, Hilton, Baggett, & Mitchell, 1996). Similarly, a study on Australian prisoners from WWII who were captured by the Japanese found that they reported more psychosomatic symptoms, had a higher number of medical conditions, used more drugs and were more prone to deficient functionality compared to a control group made up of veterans who were not in captivity (Creasey et al., 1999). In this respect, the findings of the study showed that the relationship between captivity and self-assessed health is mediated by the symptoms of PTSD and depression and are consistent with other studies which found that PTSD and depressive symptoms influence the relationship between exposure to trauma and physical health (Byers, Covinsky, Barnes, & Yaffe, 2012; Campbell, Greeson, Bybee, & Raja, 2008). Other studies on former military personnel with psychological and behavioral problems have shown that people diagnosed with PTSD and depression are at higher risk of cardiovascular disease, including stroke, and have weaker health condition than those without PTSD or depression (Kang, Bullman, & Taylor, 2006).

According to a study conducted by Solomon et al. (2014), former prisoners of war have an increased risk of premature mortality, with a near four times higher mortality rate compared to non-captive veterans. Some studies (Engdahl, Harkness, Eberly, Page, & Bielinski, 1993) suggest that the long-term health of people experiencing captivity is a direct result of torture and harsh physical conditions (e.g. poor hygiene, lack of food), which can make ex-prisoners more vulnerable to diseases (Creasey et al., 1999). However, a shorter duration of captivity (between 6 weeks and 8 months) and mild conditions in which captives are held may limit this increased risk of premature mortality (Solomon et al., 2014).

The relationship between captivity and the state of health of former POWs as well as their mortality rate could be explained by the impact of prolonged psychological stress on physiological functioning. McEwen (1998) has suggested that prolonged stress exposure can cause the body to hyperactivate various physiological systems, a condition encountered in chronic stress known as the allostatic load. This can lead to permanent physiological changes, including mild inflammation, elevated levels of cortisol, insulin response and low immunity, which predisposes the body to asthma and various infections, the most common being in the urinary tract. In addition, stress exposure was associated with telomere length wear, a region of the DNA molecule located at the end of each chromosome, which is involved in aging and longevity.

Posttraumatic stress disorder and the change in perception of pain

Torture in captivity may take both physical form (severe beatings, burns, penetrating injuries, suspensions, electrical shocks, etc.), affecting vulnerable parts of the body as well as psychological torture (isolation, humiliation, false executions, etc.). Therefore, survivors of torture have, over time, an increased risk of physical and emotional distress, as well as of developing psychiatric disorders and dysfunctional behaviors, including PTSD. In addition to the association of PTSD with chronic pain, posttraumatic stress among survivors of severe trauma was also associated with altered pain perception, including changes in sensitivity and reactivity to painful stimuli. Thus, the presence or absence of PTSD can mediate the perception of pain (Defrin, Lahav & Solomon, 2017).

PTSD symptoms show an interesting evolution over time. Prospective studies evaluating the longitudinal course of PTSD among major trauma survivors describe four main trajectories (Solomon, Horesh, Ein-Dor & Ohry, 2012), (1) increased resilience: lack of intense reactions to traumatic stress and lack of clinical or subclinical PTSD; (2) recovery: baseline clinical or subclinical levels, followed by PTSD remission; (3) delayed onset PTSD: an asymptomatic initial period, followed by PTSD and (4) chronic PTSD: clinical or subclinical levels of PTSD, continuously present, with severe traumatic stress reaction since the onset of trauma.

Although many indicators of PTSD have been evaluated longitudinally, it is not yet certain that dysfunctional modulation of pain in patients with chronic or delayed onset PTSD precedes or stems from chronic pain or both develop simultaneously. In addition, the sensory profile may be influenced by drugs, which could condition dysfunctional pain modulation or pain threshold (Bar et al., 2011), although this possibility is unlikely. Overall, it appears that the evolution, intensity and duration of PTSD symptoms and the resulting distress are, rather than mere trauma exposure, involved in the association between trauma and altered pain perception/modulation. Thus, the higher the intensity and duration of PTSD, the greater the risk of chronic and irreversible changes in the pain perception system (Defrin et al., 2017).

Personification of torture

Starting from the idea of personification of pain, several studies (Tsuru, Shaharb, Defrinc, Lahava & Ginzburga, 2017; Van der Kolk, & McFarlane, 2012; Van der Kolk, 1994) suggest that the traumatic ramifications and later posttraumatic stress are not limited only to emotional distress and dis-adaptive behavior, but it seems that trauma interferes with the fundamental way of interpreting body signals and with the ways in which body experiences interact with oneself. It is known that people with chronic conditions that exhibit some symptoms, such as pain, over time tend to attribute these symptoms to human characteristics in a way that is relevant to their self, a process named personification of the disease (Epley, Waytz, Akalis & Cacioppo, 2008).

Pain is thus transformed from a sensory attribute and an external obstacle into an internal phenomenon that encompasses personal meanings and attributes. In other words, individuals develop a kind of relationship with their chronic medical condition that expresses how the self and pain interact. This transformation, in which chronic pain changes from an external experience to an internal representation, suggests that the personification of pain can become both a risk factor for the psychological and behavioral problems as well as a factor of resilience to these problems. Therefore, traumatic experiences may be stored in the somatic memory and, hence, the healing process is rooted in the processing of body experiences. In this regard, studies show that catastrophic interpretations of body signals are considered pain-maintaining factors (Sullivan, 2012), including chronic pain, associated with modulation of dysfunctional pain and PTSD.

In this context, there should be an effort to reduce the symptoms of PTSD as a mechanism to protect against the development of torture personification and efforts to focus on identifying subjective somatic experience and how it contributes to building the personification of chronic symptoms. Starting from this idea, clinicians can help individuals adapt their narrative/personification to their problems so as to turn it into a more adaptive construction that redefines the sense of control of the person, independence and self-worth. However, additional research is needed to clarify how and which of the therapeutic methods should be used in the personification of pain to transform the self so that it is no more victimized by pain, but becomes stronger, more accepted and freed from traumatic experiences.

Effects of captivity on family life

Most of the literature on POWs has generally focused on studying their biographies and the political and strategic aspects associated with their release. Only in the last 30 years, the attention of the scientists has turned to the families of POWs (Boss, 2006). The family of a captive person has often been described as the “waiting family,” which coexists between hope and despair (Hunter, 1983). The captive father is present-absent in family life, because although it seems to be part of it, in the day-to-day life it is, in fact, absent. Boss (1999) called this *ambiguous loss situation*,

who described it in 2004, as an experience felt as a clear and sharp pain in the form of physical loss (e.g., due to captivity or divorce) or emotional/cognitive loss in which the absent person continues to be physically present but emotionally absent (e.g., in Alzheimer). The world, which seemed safe, familiar and stable before the loss, is left in the past, while the present and the future are wrapped in a fog of uncertainty.

In many cases, society expects that the family of a captive, hostage or POW enter into a state of mourning. However, people cannot express themselves when dealing with an ambiguous loss, rather being stuck in time, in an uncertain situation linked to the thought that the loved ones cannot return, hoping at the same time and anticipating their return. Often, an indicator of ambiguous loss is the creation of a limit ambiguity, which family members describe as a situation where it is not known who is part of the family (Boss, 2006). A clear death is undoubtedly painful, but funeral rituals can happen when there is a body, and family and friends come together to commemorate the person who died (Boss, & Yeats, 2014).

Because the current explanatory models of loss and pain can be applied only partially to the psychological processes associated with the ambiguous loss faced by the families of captives, Ben-Asher and Shalev (2015) suggest two models that can provide general frameworks for understanding these processes.

The first is related to the stages of *pain/grief and mourning* (Bowlby, 1980). Although, in recent years, researchers have raised questions about Bowlby's model, pointing out that the pain process can not necessarily be delimited (Rubin, Malkinson & Witztum, 2012), in particular, *the first stage of the model, shock and numbness*, seems to be applicable to the families of captives, who respond to the news of captivity by *shock* and *non-acceptance*. This stage is characterized by outbursts of crying, intense tension, feelings of anger and panic. At this stage, the family may stick to routine behavior or, on the contrary, may experience extreme changes in behavior and functioning.

The second stage, yearning and searching, also corresponds to the experiences of the captive's families. While individuals who suffer from the death of a loved one are finally able to accept the loss and seek that person less and less in time, captives' families are often engaged in an intensive prolonged search process, which in many cases is accompanied by a desire to engage in intensive public actions. Although, in the end, there may be a decrease in the intensity of the search process, this reduction occurs very slowly and is accompanied by doubt and ambiguity (Dempsey & Baago, 1998).

Although the trauma that captives' families face does not have the legitimacy of the final loss present in those who face death, it is still possible for the family to experience *the third stage of pain, disorganization*. This stage is characterized by despair and disintegration of the individual's internal order. At this stage, the grieving individual begins to realize that the loss really happened. The stage is characterized by a sense of emptiness, apathy and depression, resulting from the need to move away from previous patterns of thinking and behaving. The individual who had been separated from the loved one suffers from pain and grief, but these feelings differ from those experienced in the earlier stages; they become part of the new routine of the mourning person (Rubin, 2000).

The last stage of the model, the reorganization, occurs if the pain for the person's death is likely to deviate from the ambiguous loss. At this stage, the person learns to take on new roles and to form a new vision of the world in order to adapt to the loss. For captives' families, the ambiguity of loss can prevent this kind of transformation. In some cases, the uncertainty that the loss occurred may even completely prevent the family from experiencing mourning. Moreover, families faced with the captivity of a member hope that the situation will be overturned and everything will return to normal one day. However, as suggested by the participants in Ben-Asher and Shalev's (2015) study, the hope that the return of captive parent will erase his absence

is never fulfilled, but remains a simple fantasy. First of all, the father that the children remember is not the same father who returns. In this sense, some children may have a renewed sense of parent loss, which, as they realize, will never return. Secondly, when the father returns, he often stays physically or emotionally absent, for example, because of the need to undergo intense physical rehabilitation or because of a struggle to reintegrate into a family of people who now seem to be essentially foreigners.

The second model that can also help to understand the experience of ambiguous loss of a captive parent is the context of *complicated grief*. Complicated grief (DSM-V diagnosis: Other Specified Trauma and Stressor-Related Disorder, 309.89, example 5, American Psychiatric Association, 2013) is generally described as a situation where the usual mourning process is interrupted, such that an individual who has lost a loved one cannot move on with his life.

Particularly, the bereaved cannot accept the fact of the loved one's death, is unable to trust others following the loss, avoids closeness with people with whom he was close in the past and feels that his life and his future are meaningless. There are several risk factors that can influence the likelihood of a child who has lost a parent to develop complicated grief: the child's relationship with the deceased parent, the circumstances of his death, the multiple loss experience and the individual characteristics of the child.

Similarly, to children who suffer from complicated grief, those who face ambiguous loss experience prolonged sadness, embarrassment, anxiety and uncertainty; their loss is permanently felt and remains unresolved, being trapped in a deadlock. In the case of families experiencing the captivity of a member, however, the above-mentioned experiences occur in the absence of a clear, definitive information about the beloved's death—the ambiguous loss situation. In fact, this ambiguity and the expectations regarding the return of the person are those that hinder the natural course of mourning. This not only prevents children from continuing their lives, but the whole family, blocking communication between its members, eventually depriving the child of an adequate support system.

Boss and Carnes (2012) found that those who suffer such losses have strange, repetitive dreams about missing loved ones. Therefore, Ben-Asher and Shalev (2015) suggests that ambiguous loss is a special case of complicated grief involving traumatic elements, and Boss and Yeats (2014), in a study of complicated pain, identified six principles that could help families who experience ambiguous loss to overcome this blockage: finding meaning, tempering mastery, rebuilding identity, normalizing ambivalence, revising attachment and discovering hope.

Factors influencing the family's ability to rehabilitate

During captivity, both the captive person and the family imagine a perfect reunion following release. In reality, however, due to the difficult process of family reintegration, routine and changes suffered by all family members, cultural shock and disappointment in general, the experience of reunion is much different and more complex than it would have been imagined by all involved in this process. Families need time to reconnect, to get to know each other again after the transformations, to renegotiate the roles and manage the mutual expectations and independence of each member. Also, the psychological and physical state of the repatriated captive affects the family's ability to rehabilitate (Hunter-King, 1993).

However, even if some parents released from captivity were forced, for example, to spend a lot of time in hospitals and thus continued to be absent from the lives of their children, and sometimes the father's return led to a certain degree of destabilization of the balance developed during the absence of his family; the return of the parent was an essential variable that eliminated the ambiguity of the child's life. Thus, it was noticed that after the return of the captive parents,

the children had better school results, adapted better to the community, and showed a higher level of independence than children whose fathers did not return from captivity (Ben-Asher & Shalev, 2015).

On the other hand, some people experience the captivity of the parent as a catalyst for personal growth, reinforcing self-confidence and trust in the people around them. In this respect, Hunter (1983) noted that some families describe the period of captivity as an opportunity to grow, to strengthen mental power and to work more independently and maturely. This is in line with the concept of *post-traumatic growth* that occurs when a person who has suffered a severe crisis has the experience of having high personal and spiritual abilities after accepting prolonged pain and suffering and express the individual's ability to recover, to give new meaning to their own existence, followed by a sense of personal growth, strength and value.

The first reactions that occur after a traumatic event are often an indicator of what will happen in the future. Seligman (2002) describes the ability of people for hedonistic adaptation, wherein they resume their routine while adapting to changes (good or bad). Basically, all accounts of people who have learned the news of a parent's captivity refer to their first reactions or to the first actions taken by adults around them. These initial responses set the tone for the families' subsequent modes of behavior during the period of the father's absence. Some families enter a frozen state where family and personal activities stop waiting for the father to return, while others choose to continue their lives. Such changes in family routine are crucial to its functioning. Other people who have experienced such experiences describe the period of captivity as a sensory experience, to be in a fog (e.g., a black cloud surrounding everything). Such sensations are common in people who have experienced loss and bereavement (Braun & Berg, 1994). The family silence on captivity theme is somewhat in line with the *double-wall concept*, a term introduced by Bar-On (1994) to describe the silence of Holocaust survivors: parents do not say, wanting to forget and protect their children from painful memories, and children do not ask, as an expression of sensitivity to the need for silence of their parents.

Jensen, Martin and Watanabe (1996) studied the effects of the captivity of one of the parents, who were in Iraq during the Desert Storm operation, on American children and learned that more than half of the parents who remained at home (usually mothers) reported that many of their children faced depression, behavioral problems or difficulties at school, requiring treatment for these problems. According to the study, the most influential variable relating to the emotional state of children was the functioning level of the parent who remained at home, who, in the partner's absence, had to take over the roles of the other. Thus, Jensen et al. (1996) noted that many of the children who did not have behavioral problems had depressive symptoms, and with the return of the absent parent, when the situation was apparently remedied, behavioral problems, frustration and anger occurred.

A study conducted by Ben-Asher and Shalev (2015) presents the situation of Israeli adults, children of former Egyptian prisoners of war (1969–1973), showing that the long-term effects of captivity and their inner experience associated with the absence of the father create long-term effects, which also manifest in the period after his return. The findings of the study can be explained by *ambiguous loss theories* and by the theories of *loss and grief*. The author's recommendations aim at recognizing ambiguous loss as a significant stressful situation and providing social and professional assistance programs in order to build a life that prevents a frozen stage and continues both during the absence of the father and after his return.

In general, there are several practical recommendations resulting from ambiguous loss studies, which should be recognized as a stressful situation requiring professional and social assistance for family members. It is extremely important that family relationships (including intergenerational relationships) be strengthened within the family and, at the same time, create new relationships

outside the family. Family members can be encouraged to find meaning in terms of ambiguous loss (a possibility would be to engage in charity work for the benefit of others who had similar experiences), *to create ceremonies and rituals* that constantly build and maintain family and social ties, such as family events and celebrations, and young people, in particular, to look for benefits in *dyadic interactions with a parent or colleague* or even in *individual therapy sessions* (Boss & Yeats, 2014). On the other hand, Boss (1999) emphasizes the practical nature of learning to live in uncertainty, to avoid self-blaming and blaming others and the power of realistic positive thinking. While a parent is absent, it is also important to strengthen the position of the other parent as a mediator and establish a routine that is as normal as possible.

In conclusion, Ben-Asher and Shalev (2015) recommend three directions of emotional support to the families of captive individuals: (1) familiarization with the stress-associated reactions, (2) providing help in setting new routines tailored to the new situation and (3) encouraging families to seek support from non-formal systems. Support interventions can encourage the present parent to talk with their children about their concerns and their difficulty in coping with the changes associated with the absence period. Also, the parent who remains at home must be aware of the many ways in which children can express their feelings and consider them, if appropriate, as particular ways of healthy behavior. The parent who is left with the family can also benefit from therapy in order to strengthen his/her own stress management skills and become a role model so that children do not feel responsible for their extreme emotional reactions. Finally, parents should be provided with guidance on the importance of children's school requirements and on the maintenance of professional and family responsibilities while creating a sense of control over their living space.

Secondary traumatization

There are several authors who suggest that the experience of captivity affects not only the person who directly experienced that situation, but also those in his/her near environment (Hunter, 1988). This seems to be particularly the case of former prisoner's partners, as they often serve as a central element of support for their partners when they return home. There are several studies in this respect (Dekel, 2007) that showed how PTSD symptoms of former POWs may affect the emotional states of their wives, a process called secondary traumatization (ST). The term ST has been used to indicate the situation of people who have come into contact with traumatized persons and experience emotional distress and PTSD-like symptoms similar to those expressed by the survivor (Figley, 1995).

There are quite a few studies showing that ST in life partners is correlated with the severity of PTSD symptoms to war veterans and former POWs (Dekel, 2007). A possible mechanism that could contribute to this association is the partner's belief system regarding the PTSD-affected husband and the manner in which he/she interprets the situations, which affects the actual functioning of individuals (Beck, 2010). In recent years, however, some studies have shown that wives' perception of the severity of veterans PTSD symptoms is positively associated with the psychological and marital distress of spouses, and the perceptions of wives both on this aspect and on the burden to live with someone with PTSD are mediating factors of the posttraumatic effects of veterans with PTSD on the emotional distress of their wives (Renshaw, Rodebaugh & Rodrigues, 2010).

Literature dealing with the issue of veterans and former prisoners of war suggests that operational stress and/or situation of captivity is not limited to causing emotional distress and PTSD-related symptoms but inducing a wider range of manifestations. Thus, the findings of the study conducted by Zerach, Greene & Solomon (2015) showed that wives of former war

prisoners reported a worse state of general health, higher somatization levels, higher ST levels, higher levels of perceived PTSD symptoms in their spouses and lower levels of marital adjustment compared to the wives of a control veterans' group.

ST resulting from the experience of living with a former POW suffering from PTSD could increase the subjective experience of a fragile general health state, higher levels of psychosomatic problems experienced and the number of physical illnesses faced by close relatives of former POWs. Indeed, this experience of taking care of people who have been traumatized is one of the challenges faced by the partners of veterans with PTSD (Beckham, Lytle & Feldman, 1996).

Also, Zerach et al. (2015) found that the level of marital adjustment moderated the relationship between ST and the well-being state of wives so that if a wife suffers from high levels of ST and also has a low marital adjustment, she reports a low level of general health. In families with a high level of marital adjustment, the husband plays an important role in supporting the wife to find adaptive coping strategies and provides tangible support, such as meal preparation and sharing the burden of childcare. In this case, the stress model as buffer (Cohen & McKay, 1984) could explain the moderating role of marital adjustment. In a strong marriage, a life partner can be a source of emotional support, reducing the effects of stress, even when he is a source of stress. This conclusion suggests a possible area of intervention addressing both psychological and social components within couple relationships to reduce the psychological and physiological burden of wives and to increase the relationship with their traumatized partners.

Given the fact that traumatic events can have long-term consequences not only for survivors of trauma but also for other significant persons in their lives, this has raised the problem of intergenerational inheritance of war traumas for veterans' descendants, as ST (Zerach et al., 2015). This has attracted the interest of several authors, but most of the studies have focused on young children and adolescents and based their conclusions on parents' reports (Rosenheck & Fontana, 1998). A transversal study of the children of former prisoners during the war between Iran and Iraq revealed a higher prevalence of depression and general anxiety compared to an average adult group (Razavi, Razavi-Ratki, Nojomi, & Namirani, 2012). Although these studies provide insight into the long-term effects of captivity trauma on children of former POWs, their transversal study design limits the possibility of understanding the mechanisms of intergenerational transmission of captivity trauma.

A study conducted by Zerach, Kanat-Maymon, Aloni & Solomon (2016) shows that 40 years after the war between Israel and Egypt, known as the Yom Kippur War (1969–1973), the descendants of former POWs are at increased risk for ST symptoms as compared to the adult descendants of control group of veterans. Additionally, adult descendants whose parents suffer from PTSD are at higher risk for ST symptoms. These results are consistent with case studies (Rosenheck & Nathan, 1985), with empirical studies (Ahmadzadeh & Malekian, 2004), with systematic literature review (Dekel & Goldblatt, 2008) and meta-analyses (Lambert, Holzer, & Hasbun, 2014) that highlight significant associations between parents' PTSD symptoms and psychological and behavioral problems of children. Over the years, the post-traumatic stress of fathers, former POWs, both plays a role as a linear mediator between captivity and ST of their adult descendants, as well as a nonlinear risk factor of chronic and/or delayed PTSD. The authors suggest that severe interpersonal prolonged trauma of captivity triggers two parallel and interdependent processes. The first is *intrapsychic* in its nature and is reflected in the post-traumatic changes that ex-prisoners experience, and the second is *interpersonal* in nature and is reflected in damaged family relationships and in parenting practices. Both processes can put children at risk to develop ST symptoms. The results also show that depressive symptoms, both PTSD independent and comorbid PTSD, predict ST symptoms in adult descendants of captivity survivors (Zerach et al., 2015).

In other cases, for example, individuals who were exposed to the 9/11 terrorist attack, *posttraumatic stress* manifested by parents, but not depression, was associated with the severity of ST symptoms in their descendants (Fairbrother, Stuber, Galea, Fleischman, & Pfefferbaum, 2003). However, in 97 of the survivors, *parental depression* (but not PTSD) predicted ST symptomatology in their children (Zatzick et al., 2006). At the same time, people with PTSD symptoms may share a common variance with “negative” depressive symptoms. For example, the symptoms of *active avoidance* and *emotional paralysis*, which are known to be related to *negative parenting practices* and non-satisfaction (Ruscio, Weathers, King, & King, 2002), could explain the mediating role of depression between parental captivity and ST symptoms of their descendants (Zerach et al., 2015).

Moreover, considering that PTSD and depressive symptoms may be part of a common construction of general traumatic stress (Ginzburg, Ein-Dor & Solomon, 2010), the shared links between PTSD and depressive symptoms may be, in fact, a reflection of a factor that is responsible for intergenerational transmission of captivity trauma. This results in the need to examine and monitor descendants of former captive individuals who may be affected by the negative impact of their parents’ experiences in captivity and post-traumatic stress, experiences that may also have consequences on family-related relationships and maladaptive practices of parents (Zerach et al., 2016).

Factors of vulnerability and resilience

Studies (e.g. Lazarus, 1966, 1990; Lazarus & Folkman, 1984) have consistently supported the idea that realistic positive evaluations can provide a certain level of protection against stress and resilience as a positive psychological adaptation process to significant stressors that affect the development, the evolution or even the survival. On the contrary, the negative cognitive assessment of the threat and/or lack of perceived control are risk factors and are influenced by the subjective experience of stress. Lazarus (1966) was among the first to notice that when people perceive a situation as negative or threatening, they experience psychological distress as a direct result of their own negative assessment.

Preparing for extreme stress situations

Recent studies suggest that individuals may be inoculated against the negative influence of extreme stress. Operating in hostile environments induce, in general, a high amount of stress due to sleep deprivation, adverse climatic conditions, fatigue, starvation, dehydration, discomfort and physical fatigue. Such stressors affect both psychological and physical functioning (Lieberman, Georgelis, Maher, & Yeghiayan, 2005), with potentially serious consequences, especially for those performing high-risk missions. According to the stress inoculation theory (Meichenbaum, 1985), resilience to stress can be developed by specific training.

Inoculation involves both a process of stress conceptualization under certain conditions that approximate significant stressors in the real world and a process of developing specific abilities to properly manage the situations in which such stressors emerge, especially when they are reexperienced. Thus, the proper management of a wider spectrum of stressors involves a reconceptualization of stressors by reevaluating newly acquired coping options. Therefore, adaptive coping mechanisms can be developed using stress-controlled exposure, relevant to operational reality (Stetz et al., 2007). According to this model, the training should be designed in a way that, by exposure to different levels of stress, the psychological and biological mechanisms of adaptive coping are activated in order to prevent the occurrence of panic and/or cognitive

“suffocation,” without causing emotional overwhelming/exhaustion. In this regard, there are considerable efforts to develop training strategies and scenarios that can improve training in ways that reduce the risk of panic. To this end, it may be useful to train individuals to recognize early signs of panic and to offer strategies to prevent panic attack.

Coping mechanisms

Zakowski, Hall, Cousino-Klein and Baum (2001) found that coping strategies tend to be congruent with the assessment of the situation. Thus, a person’s way of dealing with a stressful situation will tend to reflect his own assessment of the situation. Positive evaluations are more often associated with positive results and negative evaluations with less successful results. Positive evaluation seems to mediate both subjective results (e.g., self-assessment of well-being) and objective results (for example, task performance). When individuals perceive an event in positive (but realistic) manner, they tend to cope more effectively, enjoy positive emotions and experience greater confidence (Janis, 1983; Skinner & Brewer, 2002).

There is a robust part of literature that examines the extent to which resilient individuals respond to stress. Thus, *hardiness*, an individual characteristic contributing to the explanation of resilience along with other factors, describes a set of *dispositional features* including a strong sense of *self-confidence* and *self-efficacy*, a *locus of internal control* (Rotter, 1954) and the belief that *life has meaning and purpose* (Kobasa, 1979). Generally speaking, resilient individuals are better able to work well under stress (Westman, 1990) and are less susceptible to stress-related illnesses (Kobasa, 1979; Kobasa & Puccetti, 1983; Pengilly & Dowd, 2000). Research also shows that resilient individuals are more likely to engage in problem-solving strategies, while less resilient individuals tend to adopt strategies focused on emotions and avoidance (Pollock, 1989; Williams, Wiebe, & Smith, 1992).

Gender differences in coping and training strategies

Differences between men and women in using coping strategies after extremely stressful or traumatic situations can explain possible differences between PTSD rates for men and women. Thus, there is evidence that some coping strategies based on emotions and avoidance are used more frequently by women than by men. These coping strategies include self-blaming, denial and rumination (Matud, 2004, Nolen-Hoeksma, 2001, 2012; Nolen-Hoeksma & Aldao, 2011).

In the only comparative study between men and women on coping styles in relation to emotional distress, conducted during a SERE course (Schmied et al., 2015) at the Centre for Security Forces SERE Learning Site West, located in San Diego, California, significant differences in the use of specific coping strategies have been identified. Thus, women tend to rely on self-blaming, denial and positive refocus more than men. Although statistically insignificant, women’s scores in employing self-distraction and planning strategies were also higher than those of men. The results are consistent with the idea that women are more likely to use all types of coping strategies, both those classified as non-adaptive (e.g. self-blaming, denial) and adaptive (e.g., positive refocusing; Nolen-Hoeksma, 2012).

A possible explanation is that women can perceive stressful events as more threatening than men, which increases their need to deal with situations, or perhaps men, because of stigmatization, avoid reporting the use of such coping strategies, especially those associated with emotional expression, in an effort to meet gender expectations (Schmied et al., 2015).

It should also be emphasized that only two coping strategies, *self-blaming* and *denial*, have significantly mediated the relationship between gender and emotional distress during the SERE

training. Two other strategies, *behavioral disengagement* and *self-distraction*, were directly associated with emotional distress at a later assessment after 24 hours, but not *planning*. In line with previous research, these results indicate that the use of maladaptive coping strategies may increase the risk of PTSD, but the use of adaptive coping strategies can prevent the occurrence of dysfunctional psychological outcomes (Nolen-Hoeksma, 2012).

Therefore, the results of this study indicate that the personnel involved in high-risk missions could benefit from training programs aimed at developing specific skills in order to ensure coping strategies before entering simulation exercises with realistic stressors and/or before high-risk missions. Moreover, these data suggest that coping abilities must be gender-adapted to meet the unique needs of men and women (Schmied et al., 2015).

Conclusion

Most of the good practice guidelines for traumatic stress management (e.g. Department of Veterans Affairs/Department of Defense *Clinical Practice Guideline for Management of Post-traumatic Stress*, 2010) recommend a series of primary prevention activities by providing realistic training programs. These should include a *simulated* or *real exposure* to traumatic stimuli that could be encountered in the situations where the training is being made for (e.g. shooting, training for survival or training in simulated captivity). This principle of primary prevention can be applied to a multitude of professional roles (for example, those who are supposed to be involved in the handling of corpses can be trained in morgue-type environments) and is consistent with classical conditioning theories which support the idea that this exposure can help reduce the physiological arousal or anxiety associated with certain traumatic stimuli.

At the same time, a realistic training program also contributes to enhancing the perceived capacity to deal with potential traumatic events and the situations after that. Instruction and practice for using a variety of coping abilities (e.g., stress inoculation training, problem solving, assertiveness and cognitive restructuring) can be useful in training the personnel to tolerate stressful work environments. In addition, people can be prepared to cope with acute stress reactions, which are common after exposure to a potentially traumatic situation. Such training experiences help maximize expectations to control the traumatic situations and the physical and emotional sequels that they produce.

The use of positive role models specific to leaders and peers is also an effective tool for increasing the feeling that people can cope with the situation. The training program should include specific practical actions by calling for adaptive coping mechanisms to change the perspective of the threatening situation in a positive learning experience. Without such a positive learning action, simulating stressful situations or stimuli can induce feelings of helplessness, transforming the training program itself into something traumatic.

Therefore, one of the inherent roles of the SERE psychologist in this training is to increase the ability of the instructors to recognize and prevent the emergence of feelings of helplessness as a consequence of the training program. The SERE psychologist brings expertise into the training environment that can be useful in developing confidence and self-efficacy, the opposite of the feeling of helplessness. Moreover, when stress control principles are applied correctly, when students get stressed during training, they can be remodeled to complete their training and increase their self-efficacy.

At the same time, adequate management of traumatic stress can be complemented by secondary and tertiary prevention programs, especially for people who recover after certain isolation/captive survival incidents. In this respect, there are promising studies suggesting new approaches to early interventions (e.g., emergency unit protocols), mainly used to calm and stabilize patients with

acute stress reactions and to process sensory and intrusive motor fragments. Used before memory consolidation, these interventions can reduce associative connections to past trauma, preventing accumulation of traumatic memories, promoting adaptive integration, expressed in self-assertion, adaptive coping, resilience and other functionality indicators. These positive changes, commonly known as post-traumatic growth, are often associated with adaptive emotional and problem-resolving ways of coping, with the personal satisfaction of social support, with accepting the situation and positive reinterpretation and generally experiencing functional emotional states. At the same time, rumination, intrusion and avoidance, although elements that could be interpreted as maintaining factors to posttraumatic stress disorder, are associated at this stage with posttraumatic growth (Linley & Joseph, 2004) as indicators of cognitive processing needed to build a more elaborate and coherent image of trauma that can be integrated into the autobiographical memory of the person.

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