

***SURVIVAL STRATEGIES IN TRAUMA* (Trauma survival strategies)
Encyclopedia of Trauma Ed Charles Figley. Sage.**

Survival strategies is a term coined by Valent (1998, 2007; <http://www.paulvalent.com/traumatic-stress-framework/>) following his observations that disaster victims used eight basically different methods to survive. Each survival strategy had already been recognized in animals and humans, but Valent brought them together for the first time to help explain the wide range of trauma responses and consequences.

Fight and flight have been the most recognised strategies of survival, and flight responses especially provide criterion 4 of PTSD, that is, what of traumatic experiences is relived and avoided.

However, while a single psychological response provides a linear measurable target of observation, it ignores of necessity many other observations, or sees them as comorbid conditions. Eight biopsychosocial responses and their radiations, on the other hand, help to highlight and make sense of a very wide range of commonly seen adaptive and maladaptive biological, psychological, and social post-traumatic manifestations. The eight survival strategies are like the notes of an octave and their interplay and harmonics make up the symphony of traumatic stress.

The eight survival strategies, the appraisals that evoke them, and their positive and negative manifestations, including traumatic conditions, are summarised in Table 1. (The anatomical substrates of survival strategies are presented elsewhere (Valent, 2007).

Eight Survival Strategies

Rescue/Caretaking

People in disasters always try to find their loved ones first to ensure their safety, and frequently apply life preserving measures to threatened and helpless others even at the expense of their own security. Rescuer bond includes intense empathy, compassion, and pity, and rescuers feel a need to pick up, hold, protect, and take care of their charges.

If demands to rescue and care are too great, people feel burdened and depleted. Saving and preserving another's life provides extreme satisfaction and purpose. Inability to satisfy the needs for care can lead to compassion fatigue and secondary PTSD (Figley, 1995; Valent, 1995), and to intense anguish and guilt for, as people see it, they abandoned or even caused the death of people they should have saved.

Physiologically, the female sex hormones estrogen, progesterone, prolactin and oxytocin promote maternal behavior, and opioids and cortisol may facilitate caregiving behavior (Panksepp, 1998).

Attachment

Attachment was first described by Bowlby (1971) as the complementary strategy to rescue/caretaking. While rescuers find and hold and tend, the attached reach out, cling, and are tended. The attachment bond reciprocates the bond rescuers feel for their charges.

Secure attachment leads to contentment and a sense of belonging. Separation leads to anxiety, yearning, searching, aloneness, helplessness, and a sense of being abandoned and cast out to die.

Opioids, oxytocin, and prolactin facilitate attachment. Its higher development is found in the orbitofrontal part of the right hemisphere of the brain (Schoore, 2000).

Separation distress is facilitated by corticoreleasing factor and glutamate. In the later 'depressed' phase of the separation response, heart rate and temperature are decreased, ACTH and adrenal cortical secretions are elevated and the immune system is depressed (Panksepp, Siviy, & Normansell, 1985).

Because caretakers are important instruments in setting points for physiological functions, continued separations may adversely affect biopsychosocial attunements such as immune system settings. This in turn may contribute to a variety of disorders such as infections and cancers, especially under further stress.

Assertiveness; Goal Achievement

Assertiveness is a frequent prerequisite to achievement of survival goals such as food, shelter and territory. Animal studies of this survival strategy concentrate on hunting and foraging. Human studies concentrate on work and combat (when it is primarily goal-not killing-directed). Aggression, if present, is cold and calculating, and is called instrumental.

Assertiveness requires will, strength, control, and a sense of potency. When thwarted, people feel frustrated, exhausted, powerless, impotent, and burnt-out.

The sympathetic nervous system is active during effort, with increased levels of epinephrine (E) and nor-epinephrine (NE), glucose, cholesterol and fatty acids, and decrease in blood coagulation time. At the same time endogenous opioids may facilitate motivation and suppress pain (Smith, 1991). 17-OHCS and cortisol levels are diminished.

Sympathetic hyperactivity may lead to hypertension and coronary heart disease (Goldstein & Niaura, 1995).

Adaptation; Goal Surrender

Adapting to new circumstances requires surrendering old goals and grieving losses.

Sadness and sorrow are accompanied by sobs and crying. Unlike the separation cry, the sobs of grief indicate acceptance that attachment bonds are irretrievably broken. Over time, the mourning process allows emergence of new hope and rebuilding of new life and new attachments. Inability to adapt can lead to unresolved grief, depression, and feelings of hopelessness and despair.

Grief and depression activate the parasympathetic nervous system and the HPA axis (with increased cortisol secretion), and suppress parts of the immune system (Selye, 1973). For instance, just recalling sadness can suppress mitogenic lymphocyte activity.

Immune system deficiencies contribute to infections, autoimmune diseases and cancers, all of which have increased frequency after bereavement. Changes in platelet function can lead to prothrombotic states that may help to explain increased cardiovascular risk in patients with depression (Spieker & Noll, 2003).

Fight

The purpose of fight is to defend life, property, and territory by attacking enemies and intruders. The aggression of fight is called defensive and hot, unlike the cold instrumental aggression in goal achievement.

At first angry vocalizations and threatening body postures may be sufficient to deter enemies. If attacks have already occurred, revenge leads to equal or greater counterattack, which is meant to punish and deter further attacks. In “kill or be killed” situations, hatred and fury are unbounded and spearhead deadly attacks on the enemy.

If the enemy is sensed to have penetrated inside, disgust is felt akin to vermin and germs whose poisons must be excreted. Hatred and disgust are ubiquitous feelings toward enemies.

Successful fight provides a sense of relief and security. If fight does not get rid of enemies, people are left insecure, vigilant, paranoid and persecutory, and ready to attack at the slightest provocation.

The sympathetic nervous system is very active in fight and flight as evidenced by high levels of E and NE (Cannon, 1963). At the same time there is reciprocal HPA and cortisol (Henry, 1986), and serotonin inhibition. On the other hand, the immune system, especially natural killer cells may be mobilized (Dopp, Miller, Myers & Fahey, 2000).

Hostility and suppressed anger contribute to vasoconstriction, high blood pressure, arrhythmias, increased levels of cholesterol, triglycerides and glucose, and endothelial damage in arteries. Thus a prolonged fight disposition may contribute to hypertensive and coronary heart disease (e.g., Goldstein & Nairura, 1995; Spieker & Noll, 2003).

Flight

Flight is the reference point in PTSD and is the best researched survival strategy. It is often compounded with its opposite, fight because the sympathetic nervous system is aroused in both (Cannon, 1963). However, Darwin (1872/1965) already described opposite mutually inhibitory emotions and activities in fight and flight.

Like fight, there are degrees of flight. Threat of danger evokes fear, which motivates retreat and hiding. Sudden danger evokes fright and startle. Being encroached and engulfed evoke terror and panic, which motivate intense flight. Inescapable danger evokes freezing (inescapable shock). Unclear sources of danger evoke anxiety, panic attacks, and avoidance. All these fears are recognised in PTSD. For instance combat veterans may hurl themselves to the ground when a car backfires.

Successful escape is associated with a sense of deliverance. Inability to escape is associated with a sense of being trapped, about to be engulfed and annihilated.

The amygdala are specially active in flight among many other midbrain structures. Flight is also associated with activation of the sympathetic nervous system with E and NE elevations (Cannon, 1963). As in fight, the HPA axis is suppressed resulting in marked reduction of ACTH and serum cortisol levels.

Flight responses contribute to anxiety disorders, phobias, and panic attacks, and may enhance cardiovascular disorders through excess sympathetic nervous system arousal.

Competition; Struggle

Survival of the fittest in competition for safety and resources (the supposed law of the jungle) has captured the general imagination. But Darwin (1872/1965) already warned that fitness may lie in society's ability to cooperate rather than in individuals in a society struggling against each other.

Social animals including humans mitigate struggle by establishing hierarchies. Competition is then contest for hierarchical levels, or status in the pecking order. Dominants have the advantages of first access to food, better shelter, more sex, and more grooming (giving respect) from inferiors. In return, dominants distribute resources down the line so that all survive, as well as provide protection and administer order throughout the community.

Winners of hierarchical contests experience triumph, power, a sense of superiority, authority, and entitlement. Losers experience a sense of defeat, lower status, and need to submit.

Struggles occur only when hierarchies break down. When the lower order fear for their survival, envy, jealousy, and a sense of injustice may fuel a re-contest. This may lead to triumph of the previously oppressed, or a crushing defeat that may result in worse oppression or migration to more promising lands.

The power drive is served by parts of the midbrain that selectively take up testosterone. In fact there is a clear consistent finding across species, including humans, of serum testosterone levels sensitively reflecting hierarchical status. Even imagining success or failure is sensitively reflected in testosterone levels (Schultheiss, Campbell & McClelland, 1999). Further, testosterone levels determine attitudes to winning or losing in subsequent contests.

Defeat and subordinate status are sensitively reflected in low levels of testosterone, high levels of cortisol (Sapolsky, Alberts & Altman, 1997), compromised immune function, and infections. In humans low socioeconomic status is generally associated with relatively poorer health.

Prolonged hierarchical struggles such as at work may lead to chronic sympathetic nervous system stimulation, raised blood pressure, ventricular arrhythmia and atherosclerosis (e.g., Sgoifo, Koolhaas, Musso & De Boer, 1999).

Cooperation; Love

In cooperation people bond without hierarchies, in mutual trust, generosity, and reciprocity. Such social cohesion was seen in the London blitz and after the 9/11 disaster. There may be a ferment of inventiveness and creativity in ways of managing hardship. We see that cooperation is the opposite survival strategy to competition.

In mammals including humans cooperation leads to affectional bonds and in humans cooperation sometimes leads to love. Love further intensifies mutuality, reciprocity, and creativity.

In general, giving and taking act as social glues, and trade establishes connections between societies.

When one party betrays the trust of the other by cheating, robbing, exploitation, or abuse, the betrayed party feels betrayed, that their goodness has been destroyed. The victim feels fragmented and alienated.

Oxytocin is the most potent affiliative hormone. Together with vasopressin, opioids, and serotonin it stimulates the visceral vagus (Porges, 1998) and in turn the parasympathetic nervous system. This leads to decrease in pulse, blood pressure, E and NE levels, cholesterol, triglycerides and glucose levels. Social bonds may thus protect against cardiovascular disease.

Loving relationships and social networks protect not only against cardiovascular disorders but also against a variety of traumatic stress consequences. On the other hand, problem relationships and isolation increases vulnerability to them. Betrayal and abuse of love bonds, especially in children, and especially if they include sexual abuse, have long-term debilitating effects.

Discussion

Survival strategies offer a shaft of light into the black hole of trauma. At one time it was thought that in traumatic situations people are simply overwhelmed. In fact they exercise their survival strategies to their utmost. When they succeed (left side of table) they cause a variety of the most intense human joys and pleasures. Their later heritage is resilience, and positive outcomes and outlooks.

When survival strategies are unsuccessful, they cause some of the greatest human pains. Their later heritage is reliving of the pains and nightmares, or fragments of them in a great variety of symptoms (see right hand columns in Table 1), depending on what aspects of the traumatic experience are disconnected from consciousness and otherwise avoided.

Survival strategies help to explain the great variety of post-traumatic symptoms. They are the octave which, with its overtones and harmonics, provide for the symphonies of traumatic consequences. For instance survival strategies give us biological, psychological and social themes, in a holism that is often forgotten by specialist disciplines. Hence survival strategies alert us to a great variety of emotions, physiological responses and social outcomes.

Survival strategies are a royal road from apparently irrational symptoms to traumatic situations in which the symptoms make sense. The nature of symptoms already provides clues to which survival strategies failed or were insufficient. For instance a sense of abandonment is likely to stem from attachment failures; despair and depression from unrieved losses; phobias and terrors from engulfment (insufficient flight), etc.

Survival strategies are useful in honing emotions. For instance, we have seen that aggression in goal directed assertiveness differs from that in defensive aggression, and each is different from aggressiveness in inter-male contests. Each survival strategy has its own aggression. Similarly each has its own anxiety: parental anxiety, separation anxiety, failure anxiety, loss anxiety, fear of being violent, engulfment anxiety, anxiety of defeat, anxiety of not being loved.

We see that survival strategies help to provide words that hone and contextualise traumas and make their consequences digestible, intelligible, and superable.

Survival strategies also make sense of meanings that people make of their traumas. Such meanings include moral judgments of survival strategies used by self and

others (see judgment columns in table 1), and images of self and the world in terms of such judgments as well as values, principles, and existential questions.

For instance, the statement “Disasters bring out the best in people,” may indicate survivors having been beneficiaries of altruistic rescue. “I am a bad father and have no right to exist in this world,” may mean a negative rescue experience relating to one’s children. Untenable meanings such as these may be causes of disconnection of the traumatic experience from consciousness. Yet they leave behind a sense of worthlessness and negativity.

Clinically it is of great relief to survivors/patients to understand their symptoms, judgements, and outlooks as results of specific traumatic situations in which they used rationally and morally appropriate survival strategies but overwhelming forces defeated their intentions.

Survivors come to understand cognitively and emotionally what, how and why their symptoms developed. They come to see themselves from a bird’s eye view, forgive their “mistakes”, acknowledge their human vulnerability, and retrieve their self-esteem and pride. They can separate past unsuccessful survival strategies from present opportunities to fulfil adaptive derivatives of the same survival strategies, and thus move from survival to fulfilment.

Conclusion

Survival strategies are eight evolutionary templates of survival behaviour that are brought into play in traumatic situations. Their adaptive and maladaptive biological, psychological, and social components, along with judgments of and meanings made from them are relived and avoided and become symptoms and illnesses of trauma consequences.

Survival strategies are the key to understanding the many variable and fluctuating consequences of trauma.

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