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# Introductory Chapter: Psychological Trauma

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## 1. Definition of trauma experience

Trauma generally presents a complex issue and we all know it all too well in its basic simplicity, but in other ways, we know nothing about trauma. Sometimes it can be heartbreaking and very difficult, but if we do not deal with trauma what is processing with us will keep going. Individual experience of a trauma event can be specifically related to different reactions of an individual to similar traumatic event and, of course, not all individuals who experience a potentially traumatic event will get psychologically traumatized. Most severe and nowadays very common for some individuals is to develop post-traumatic stress disorder after being experienced to some complex traumatic event. Coping mechanisms present maybe the most important parameter for an individual being traumatized to continue with normal life without any manifest or major consequences. Temperamental and environmental factors are the most influential from all the others.

Trauma is defined as an emotional response to an extremely negative situation. Trauma, as a physiological response to negative effects that impact the brain, can be so severe that they interfere person's ability to live a normal life, and help may be needed to treat the stress and caused by the trauma impact and to develop a person's state of emotional well-being.

## 2. Some of origins of psychological trauma

Traumatic experience creates psychological trauma when it overwhelms one's ability to cope with the situation and own emotions, and leaves that person fearing death, annihilation, mutilation, and the cause of traumatic experience most often include abuse of power, betrayal of trust, entrapment, helplessness, pain, confusion, and loss of something or someone very important in one's life. This consideration is very broad and it might include responds to specific violent events, accidents, and natural disasters, which are nowadays very common. Psychological trauma is also related to chronic and repetitive experiences, such as child abuse, neglect, combat, and constant deprivation. The term and situation that refers to it must be considered objectively, as it is up to each survivor to determine if it traumatic, as it can be manifested clinically by various psychiatric disorders. That means that two different individuals can experience the same provoke factor or situation which is mostly related as trauma, and one can be intensively traumatized and the other remain unscathed. It is really not possible to make one pattern or blanket generalizations. It can be different and highly specific from one individual to the next. Trauma comes in many forms, and there are differences among people who experience trauma, as not each brain is the same, its anatomy and physiology.

### **3. Emotions**

It is all about emotions. Emotions are very complex. Not only defined as one specific, maybe the most important mental function, based on discoveries made through neural mapping of highly specific limbic system structures, the neurobiological explanation of human emotion is that emotion is a pleasant or unpleasant mental state organized in the limbic system of the mammalian brain. Emotions are our feelings. Literally, we can feel the emotions as tingles, hot areas, and tension in different muscular region, especially posterior neck region. We must mention the cognitive aspects, but the physical sensation is what makes them really different.

They are described as a positive or negative influence that is commonly associated with a particular pattern of physiological activity and produce different physiological, behavioral, and cognitive changes that are often manifested in different brain structural changes as well as behavioral pathological patterns. Motivation of adaptive behavioral patterns would have contributed to its continuation in different ways, reproductive or psychological. Cognitive functions present very important aspects of emotion. Mental processes are still essential, particularly in the interpretation of events. Consciously experiencing an emotion is exhibiting a mental representation of that emotion from a past or hypothetical experience, which is linked back to a content state of pleasure or displeasure. The content states are established by verbal explanations of experiences, describing an internal state.

Emotions are complex. According to some theories, they are states of feeling that result in physical and psychological changes that influence our behavior. Emotions are closely linked to arousal of the central nervous system with different levels and strengths of arousal related to specific emotions and consequently to behavioral tendency. Like, extroverted people are more likely to be social and express their emotions; introverted people are more likely to be more socially withdrawn and settled in circle of their own emotions, often manifested as the driving force behind motivation. Controlling the emotions involve different components, such as subjective experience, cognitive processes, expressive behavior, psychophysiological changes, and instrumental behavior. The core of coping with psychological trauma is specific and appropriate identification of specific emotion and dealing with different components of emotion, as the most complex psychological function. In psychology and philosophy literature, emotion includes a subjective, conscious experience characterized primarily by psychophysiological expressions, biological reactions, and mental states.

Emotional and therefore psychological trauma is often manifested as the result of highly specific stressful life situations that shatter your sense of well-being, making you feel helpless in a dangerous world. Traumatic events often induce very strong feeling of life threat. Also, if any event makes an individual feel overwhelmed and isolated can result in trauma, and its psychophysiological aspects and clinical manifestations without any physical harm.

### **4. Effects on brain and its structures**

All stress effects that can cause major pathological changes in brain physiology occur in different brain regions. The most affected is hippocampus and amygdala as well as prefrontal cortex and its interrupted connections with other brain areas and structures. It is not the objective circumstances that determine whether an event is traumatic, but your subjective emotional experience of the event. The more frightened and helpless you feel, the more likely you are to be traumatized. Trauma very often changes brain network activity and its patterns as default mode networks re-organizes activity mode of the brain as it drifts toward unpleasantness. It is considered that negative cognitive

bias we inherit, making threat detection a primary task, is amplified by unresolved trauma, and brain networks are therefore prejudiced and compromised. Trauma draws processing brain energy in different directions from working memory, making it harder for us to think clearly. Sometimes, it is just like keeping the balance when talking about coping mechanisms and psychological trauma care. When evaluating and coping the psychological traumatic event, we must crucially consider loosing of dynamic balance of up to date dynamic connection between different brain regions that might be affected. Some are separated by dissociation, by an absence of connection, while others are over-connected, stuck together. Executive control networks are off-kilter [1].

Identification with trauma can be protective, but also make it hard to let go and move forward, which can be seen within the borderline personality disorder. Also, trauma can mimic narcissism, dependency, schizoid states, and so on, wearing many guises. In the situations when people fear to lose their identity, process of change is harder and it is not because we are about to lose ourselves, but because that is what we may fear and feel, the pain or re-experiencing the trauma event again, in our minds, which in summary present itself a symptom of trauma.

One of the best investigation results in the field of stress and trauma is the dose-response relationship which is related to one of the laws of physics, and that means the higher the dose of trauma experience is the more possible disturbing the consequences, which might lead to severe psychiatric stress-related disorders and illnesses [2, 3].

There are a lot of impacts that stress does to a human organisms, from beneficial to very critical and damaging. As at first it can be very stimulative, when increased and chronic, it can induce very serious changes in different brain structures, especially those involved in memory and cognition, which is most often manifested in different psychiatric disorders, such as PTSD and depression. Those brain structures are hippocampus, amygdala, prefrontal cortex, putamen, thalamus, and caudate nucleus, but as they are also interconnected with other brain structures, we cannot exclude other brain structures as they might be also involved [4, 5]. There are a lot of neuroimaging studies obtained, and these showed volumetric changes and defined neuroanatomical substrates in PTSD [6, 7].

## 5. Instead of conclusion

Therefore, a lot of research studies should be conducted in order to confirm, add, or decline the research results and findings till date. As we all learn new data from research studies about the stress impact and development of psychological trauma, we can add that they present synergy of biological, sociological, and genetic factors.


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