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Original research paper

## STRESS, TRAUMA AND POST-TRAUMATIC STRESS DISORDER (PTSD)

An integrative model

### **Abstract:**

*In this paper, we will attempt to describe an integrative model that links stress, trauma, and post-traumatic health disorders through biological, psychological, and behavioral mechanisms of influence. Each of these phenomena has its specificities but also shares common characteristics (sources, symptoms, and consequences) related to health and an individual's functioning. Prolonged stress and sudden experiences can lead to trauma, and repeated experiences of trauma over time can result in the development of post-traumatic stress disorder (PTSD). This key mechanism illustrates how long-term stress and trauma can lead to severe health impairment.*

*A review of the literature on this topic, along with our many years of experience and research in these areas, reveals that the majority of authors in their research primarily focus on one of these topics, usually stress. There are fewer studies that provide a comprehensive representation of both stress and trauma. We have not come across any research that unifies all three topics in their presentation, highlighting the common elements as well as the specificities and differences.*

*The aim of this paper is to demonstrate, through an integrative approach, the combined impact of these three phenomena on health and an individual's functioning. First, we will describe each of these phenomena along with their respective specifications. Finally, we will attempt to integrate the knowledge of physiological and psychological mechanisms for dealing with stress, trauma, and post-traumatic stress disorder. Although challenging, we will also touch upon prevention strategies towards the end.*

**Keywords:** stress, trauma and post-traumatic stress disorder - PTSD

## Stress

Stress is a commonly used term in general and professional communication. But there is often no agreement on what stress actually means?

### What is stress?

Stress is a normal reaction that occurs in everyone. It is a physical and emotional response that individuals experience when they face challenges in life. In fact, the human body is designed to experience stress and react to it. When we encounter changes or challenges, known as stressors, our bodies generate physical and mental responses. This is what we call stress.

Responses to stress aid our bodies in adapting to new situations. Stress can have a positive impact by keeping us alert, motivated, and prepared to avoid danger. For instance, when we have an important test approaching, the stress response can help us work harder and stay awake longer. However, stress becomes problematic when stressors persist without relief or periods of relaxation.

When a person experiences long-term (chronic) stress, it can lead to the development of physical, emotional, mental, and behavioral symptoms.

- **Physical symptoms of stress** include chest pain or a sensation of a racing heart, exhaustion, sleep difficulties, headaches, dizziness, high blood pressure, muscle tension, digestive problems, and a weakened immune system.
- **Emotional and mental symptoms of stress** encompass anxiety, irritability, guilt, depression, sadness, and panic attacks.
- **Behavioral symptoms** associated with chronic stress often involve unhealthy coping mechanisms such as excessive alcohol consumption, the development of eating disorders, gambling, smoking, drug use, internet addiction, and excessive shopping.

Regular practice of stress management techniques can help prevent or alleviate most physical, emotional, and behavioral symptoms of stress.

### Sources of stress

The root cause of stress is often fear, which can stem from various sources such as the fear of experiencing different types of losses. These losses may include the loss of loved ones, the end of relationships, job loss, family breakdowns, financial setbacks, concerns about illness, fears of wars and life-threatening situations, as well as the stress caused by everyday inconveniences

### Types of stress

Stress can manifest as either a short-term or long-term problem, depending on the changes occurring in your life. Various types of stress include:

- **Acute stress:** Acute stress is a short-term form of stress that can be either positive or distressing. It is the type of stress we commonly encounter in our daily lives.
- **Chronic stress:** Chronic stress is characterized by an ongoing sense of stress that feels never-ending and unavoidable. Examples include the stress from a troubled marriage or highly demanding jobs. Chronic stress can also arise from traumatic experiences and childhood traumas.
- **Episodic acute stress:** Episodic acute stress refers to recurrent instances of acute stress that seem uncontrollable and become a way of life, leading to a state of constant distress.

Not all forms of stress are necessarily harmful or negative. One such example is eustress.

- **Eustress:** Eustress is a positive type of stress that can be enjoyable and exciting. It helps maintain energy levels and is often associated with adrenaline rushes, such as those experienced during competitive events resulting in achievement.

### Stress and anxiety

In the literature, stress is often associated with anxiety. Stress and anxiety can be closely linked, as experiencing a significant amount of stress can contribute to feelings of anxiety. Anxiety, in turn, can make it more challenging to cope with stress and can contribute to other health problems, including increased depression, susceptibility to illness, and digestive issues. Both stress and anxiety can lead to symptoms such as continuous nervousness, poor sleep, high blood pressure, muscle tension, and excessive worry.

In many cases, stress is caused by external events or circumstances, while anxiety arises from our internal stress response. Stress may dissipate once the threat or situation is resolved, while anxiety can persist even after the initial stressor has been resolved.

### Trauma

Trauma refers to any event that an individual experiences as harmful or threatening and that has long-term effects on their well-being. It can arise from the impact of stress or from sudden events with severe consequences. The term 'trauma' signifies a wound, encompassing significant physical or mental injuries, including threats to life or physical integrity. Trauma can give rise to enduring emotional, physical, and psychological reactions that persist for years, even after the event has passed.

**Sources of trauma** vary widely. It is often the result of an overwhelming amount of stress that exceeds one's ability to manage or integrate the associated emotions. Trauma can result from a single upsetting experience or from repeated events that gradually accumulate over weeks, years, or even decades,

ultimately leading to serious long-term negative consequences. Common sources of trauma include abuse, violence (physical, psychological, and sexual), war, crime, natural disasters, and discrimination.

All psychological traumas originate from stress, which is defined as a physiological response to an unpleasant stimulus. Long-term stress increases the risk of impaired mental health and mental disorders. Prolonged 'toxic stress' can lead to further negative consequences, such as depression, drug use, suicide, and cardiovascular disease.

Intense feelings of anger may often arise, sometimes in inappropriate or unexpected situations, as the danger of re-experiencing past events is always present. Disturbing memories, such as intrusive images, thoughts, or flashbacks, may haunt the person, and nightmares may be frequent.

It is important to distinguish between trauma caused by recent events and long-term trauma that may have been buried in the person's subconscious from past events such as childhood abuse.

### **Signs and symptoms of trauma**

Psychologically traumatic experiences often involve physical trauma that threatens survival and the sense of security. Typical causes and dangers of psychological trauma include harassment, shame, abandonment, abusive relationships, rejection, codependency, physical assault, and sexual abuse. Memories related to trauma, particularly in cases of long-term trauma, are typically explicit, coherent, and difficult to forget. A person's response to the distressing aspects of a traumatic event involves intense fear, helplessness, or horror.

The effects of trauma can have a profound impact on a person's relationships, work, health, and overall outlook on life

Among all forms of trauma, child abuse has the most complex and long-term effects, as it occurs during the most sensitive and critical stages of psychological development. Children who experience abuse often suffer from poor health and emotional problems, including anxiety, anger, poor concentration, memory difficulties, trust issues, and challenges in forming relationships.

### **Types of traumatic events that lead to PTSD**

The most common events that can lead to the development of Post-Traumatic Stress Disorder (PTSD) include exposure to military actions, childhood physical abuse, sexual violence, physical assaults, and accidents.

Additionally, many other traumatic events can also potentially lead to PTSD, such as natural disasters, theft, robbery, plane crashes, torture, kidnappings, life-threatening medical diagnoses, terrorist attacks, and other extreme or life-threatening events.

### **How is trauma related to PTSD?**

People with PTSD have intense, disturbing thoughts and feelings related to their experience that persist long after the traumatic event has ended. They may relive the event through flashbacks or nightmares, they may feel sadness, fear or anger, and they may feel detached or alienated from other people.

### **Post Traumatic Stress Disorder (PTSD)**

*What is Post Traumatic Stress Disorder (PTSD)?*

Post-traumatic stress disorder (PTSD) is a mental disorder that can occur in individuals who have experienced or witnessed a traumatic event, a series of events, or a specific set of circumstances. This can involve direct personal experience of a distressing event, witnessing a traumatic event happening to others, or learning about a traumatic event that has affected a close family member or friend.

The individual may perceive the event as emotionally or physically harmful, life-threatening, or significantly distressing, which can impact their mental, physical, and social/spiritual well-being. Examples of traumatic events include natural disasters, serious accidents, terrorist events, war, sexual assault, rape, intimate partner violence, and bullying. It is important to note that not everyone who experiences trauma will develop PTSD. According to the National Center for PTSD, approximately 7-8% of individuals who have experienced trauma will develop PTSD in their lifetime, which is a lower percentage compared to the overall number of people who experience trauma. The specific factors that contribute to why some people develop PTSD while others do not are not yet fully understood.

Individuals with PTSD often experience intense and disturbing thoughts and feelings related to their traumatic experience, which persist long after the event has ended. They may undergo flashbacks or nightmares, feel sadness, fear, or anger, and may also experience a sense of detachment or alienation from others.

### **Symptoms of PTSD**

Symptoms of post-traumatic stress disorder (PTSD) can emerge within a month of experiencing a traumatic event, although in some cases, symptoms may appear years later. These symptoms can significantly impact social interactions, work situations, and relationships. They can also interfere with the ability to carry out normal daily responsibilities and tasks.

PTSD symptoms are typically classified into four categories: intrusive memories, avoidance, negative changes in thinking and mood, and alterations in physical and emotional reactions. It is important to note that symptoms may vary over time and can vary from person to person.

**Intrusive memories**

Symptoms of intrusive memories include: Recurrent unwanted disturbing memories of the traumatic event, reliving the traumatic event as if it were happening again (flashbacks) disturbing dreams or nightmares about the traumatic event, severe emotional distress, or physical reactions to anything reminiscent of the traumatic event. Flashbacks can be so vivid that people feel they are reliving the traumatic experience or seeing it before their eyes.

**Avoiding**

Avoidance symptoms of post-traumatic stress disorder (PTSD) involve efforts to avoid thoughts or discussions related to the traumatic event. Individuals may also avoid specific places, events, activities, objects, situations, or people that serve as reminders of the traumatic event, triggering distressing memories.

**Negative changes in thinking and mood**

Symptoms of negative changes in thinking and mood associated with post-traumatic stress disorder (PTSD) include: having negative thoughts about oneself, others, or the world; feeling hopeless about the future; experiencing memory problems, including difficulty recalling important aspects of the traumatic event; struggling to maintain close relationships; feeling detached from family and friends; losing interest in activities once enjoyed; having difficulty experiencing positive emotions; and feeling emotionally numb.

**Changes in physical and emotional reactions**

Symptoms of changes in physical and emotional responses associated with post-traumatic stress disorder (PTSD) include: heightened excitability or fearfulness, persistent vigilance for potential danger, engaging in self-destructive behaviors such as excessive drinking, experiencing difficulties with sleep, concentration, or irritability, exhibiting outbursts or aggressive behavior, and experiencing excessive guilt or shame.

**Intensity of symptoms**

PTSD symptoms can vary in intensity over time.

Many people who are exposed to a traumatic event experience symptoms similar to those described above in the days following the event. However, to be diagnosed with PTSD the symptoms must last for more than a month and must cause significant distress or problems in the individual's daily functioning. Many individuals develop symptoms within three months of the trauma, but symptoms may appear later and often last for months and sometimes years. PTSD often occurs with other related conditions such as depression, substance use, memory problems, and a number of physical and mental health problems including:

### **Dissociative disorders**

Dissociation is a common response to trauma. According to the American Psychiatric Association, 90% of dissociative disorders can be related to trauma. Dissociative disorders include: dissociative identity disorder, dissociative amnesia, depersonalization/derealization disorder, and borderline personality disorder.

According to a 2021 study, in 30% to 90% of cases, borderline personality disorder is related to childhood abuse and neglect.

### **Depression**

Characterized by a lack of energy and feelings of worthlessness, among other symptoms, depression is a common response to trauma.

### **Anxiety disorders**

Anxiety symptoms, such as feelings of dread and panic, often overlap with PTSD symptoms. Anxiety can occur when you are faced with something that reminds you of a trauma. Some people may develop anxiety disorders related to trauma.

### **Causes of PTSD**

Post-traumatic stress disorder (PTSD) can develop when an individual experiences, witnesses, or learns about an event that involves actual or threatened death, serious injury, or sexual abuse.

The exact reasons why some people develop PTSD are not fully understood. Like many other mental health conditions, PTSD is believed to result from a complex interplay of various factors, including:

- Stressful experiences, including the frequency and severity of traumatic events the person has encountered in their life.
- Inherited mental health risks, such as a family history of anxiety and depression.
- Inherited personality traits.
- The way the brain regulates the release of hormones in response to stress.

### **Risk factors for developing PTSD**

People of all ages can have PTSD. However, certain factors can increase the likelihood of developing PTSD after experiencing a traumatic event. These factors include: experiencing intense or prolonged trauma, previous exposure to other traumas, such as childhood abuse, working in a job that carries a higher risk of encountering traumatic events, having coexisting mental health conditions like anxiety or depression, struggling with substance abuse, such

as excessive alcohol or drug use, lacking a strong support system from family and friends, and having blood relatives with mental health problems, including anxiety or depression.

### **Protective factors**

A review of the literature on resilience and recovery after traumatic events identifies the following protective factors for preventing the development of PTSD: maintaining continuous contact and support from significant individuals in life, utilizing positive emotions, engaging in humor and laughter, deriving positive meaning from trauma, assisting others in the healing process, and fostering a belief in our ability to manage our own emotions and cope.

### **Consequences of PTSD**

Post-traumatic stress disorder (PTSD) can significantly disrupt a person's entire life, affecting their work, relationships within the family or work environment, overall health, and enjoyment of daily activities. It can also increase the risk of other mental health problems, including depression, anxiety, substance abuse issues, eating disorders, and suicidal thoughts or actions. While it is impossible to prevent the pain and suffering associated with a traumatic experience or PTSD, it is possible to alleviate the extent of suffering.

### **An integrative approach in the functioning of physiological and psychological mechanisms for dealing with stress, trauma and post-traumatic stress disorder**

Each of our complex physiological systems has a rhythm of activity that regulates key functions. When blood sugar drops below a certain level, a set of compensatory physiological actions is activated. Similarly, when oxygen levels decrease due to exertion, dehydration, fatigue, or threat, other regulatory activities come into play to meet specific needs. Each of these systems operates within homeostatic patterns of activity, which are mechanisms the body employs to cope with the negative effects of stress.

However, highly stressful events that disrupt homeostasis, particularly if they are severe, unpredictable, prolonged, or chronic, can lead to overactivation or fatigue of compensatory mechanisms. Consequently, the body struggles to restore its previous state of balance or homeostasis. The physiological system undergoes reorganization, establishing a new, less functionally flexible state of balance. If the event overwhelms the organism and severely disrupts homeostasis, it is considered "traumatic."

In reality, trauma disrupts the body's equilibrium and triggers a constant set of compensatory responses that establish a new, less adaptive state of balance. Under the influence of trauma, homeostasis expends more energy, resulting in maladaptive reactions that differ from those in the previous state. During persistent trauma and particularly in the emergence of PTSD, the

protective reactions of homeostasis prove insufficient in shielding the organism from the consequences.

Neurological studies have shed light on how the brain works to heal emotional wounds. The brain is inherently wired for survival and is constantly scanning for new threats and information. Consequently, old experiences gradually shift as the brain directs its attention toward what is new and potentially dangerous. The brain's primary function is to sense, process, store, perceive, and act upon information from the external and internal worlds to ensure our survival. This complex process involves hundreds of interconnected nervous systems that continuously modulate, regulate, and compensate—increasing or decreasing activity to control the body's physiology.

When the body is “overwhelmed” by trauma, the recovery process involves specially designed methods and techniques to address the negative consequences of the trauma. Among the most commonly used are:

**Trauma-focused psychotherapy** is considered one of the most effective therapies for trauma recovery.

The American Psychological Association recommends several trauma therapies, including Cognitive Behavioral Therapy (CBT), Cognitive Processing Therapy (CPT), Prolonged Exposure Therapy, and, in certain cases, desensitization therapy.

In addition to traditional psychotherapy, alternative approaches such as expressive arts and creative writing are also recommended for trauma treatment. A 2019 study revealed that expressive writing can enhance resilience to trauma.

**Psychoeducation** is another helpful component, as it allows individuals to better understand their symptoms, which is a significant step toward the healing process. Reading stories of trauma healing from leading experts can be powerful and inspiring.

### **Prevention of stress trauma and PTSD**

Preventing stress is simply impossible because stress is a part of life. Stress is actually an internal reaction to external stressors. Unfortunately, the number of stressors affecting individuals' functioning is increasing daily due to factors such as job loss, financial problems, poverty, family issues, domestic violence, and more. Social changes also contribute to the occurrence of stress. Accumulated stress, fear, anxiety, anger, and unpredictable events form the basis of trauma. Dealing with trauma, which can lead to post-traumatic stress disorder (PTSD) through long-term persistence, makes prevention even more challenging and seemingly impossible. There is no one-size-fits-all approach to trauma. Each individual reacts differently and has their own readiness to face pain and suffering.

Since primary prevention of stress, especially trauma and PTSD, is almost impossible, secondary prevention becomes crucial. This involves managing stress and reducing the possibility of trauma. Stress management and relaxation strategies are recommended to reduce stress and prevent trauma. There are various relaxation techniques available, including breathing exercises, progressive muscle relaxation, yoga, meditation, and visualization.

If secondary prevention measures fail and trauma and/or PTSD occur, appropriate tertiary prevention activities are implemented. These activities aim to reduce the occurrence of severe consequences associated with trauma and PTSD. Therapeutic techniques and psychotherapy are utilized to minimize the impact of these conditions and facilitate healing.

Throughout these processes, it is essential to seek help and support in a timely manner. Doing so can prevent normal stress reactions from worsening and developing into PTSD. This support may come from family, friends, support groups, or self-help resources. If difficulties with PTSD persist, it is important to seek professional assistance from psychologists and/or psychotherapists who specialize in mental health and psychotherapy.

Utilizing stress management strategies offers numerous benefits, such as reducing worry, increasing resilience in stressful situations, breaking the negative cycle of stress, transforming worry into action, using stressful situations to build positive interpersonal relationships, and connecting with oneself while strengthening self-esteem.

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