



# Post-traumatic Stress Disorder

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## Abstract

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Unexpected extreme sudden traumatic stressor may cause post-traumatic stress disorder (PTSD). Important traumatic events include war, violent personal assault (e.g., sexual assault, and physical attack), being taken hostage or kidnapped, confinement as a prisoner of war, torture, terrorist attack, severe car accidents, and natural disasters. In childhood age sexual abuse or witnessing serious injuries or unexpected death of a beloved one are among important traumatic events.

PTSD can be categorized into two types of acute and chronic PTSD: if symptoms persist for less than three months, it is termed "acute PTSD," otherwise, it is called "chronic PTSD." 60.7% of men and 51.2% of women would experience at least one potentially traumatic event in their lifetime. The lifetime prevalence of PTSD is significantly higher in women than men. Lifetime prevalence of PTSD varies from 0.3% in China to 6.1% in New Zealand. The prevalence of PTSD in crime victims are between 19% and 75%; rates as high as 80% have been reported following rape. The prevalence of PTSD among direct victims of disasters was reported to be 30%–40%; the rate in rescue workers was 10%–20%. The prevalence of PTSD among police, fire, and emergency service workers ranged from 6%–32%. An overall prevalence rate of 4% for the general population, the rate in rescue/recovery occupations ranged from 5% to 32%, with the highest rate reported in search and rescue personnel (25%), firefighters (21%), and workers with no prior training for facing disaster. War is one of the most intense stressors known to man. Armed forces have a higher prevalence of depression, anxiety disorders, alcohol abuse and PTSD. High-risk children who have been abused or experienced natural disasters may have an even higher prevalence of PTSD than adults.

Female gender, previous psychiatric problem, intensity and nature of exposure to the traumatic event, and lack of social support are known risk factors for work-related PTSD. Working with severely ill patients, journalists and their families, and audiences who witness serious trauma and war at higher risk of PTSD.

The intensity of trauma, pre-trauma demographic variables, neuroticism and temperament traits are the best predictors of the severity of PTSD symptoms. About 84% of those suffering from PTSD may have comorbid conditions including alcohol or drug abuse; feeling shame, despair and hopeless; physical symptoms; employment problems; divorce; and violence which make life harder. PTSD may contribute to the development of many other disorders such as anxiety disorders, major depressive disorder, substance abuse/dependency disorders, alcohol abuse/dependence, conduct disorder, and mania. It causes serious problems, thus its early diagnosis and appropriate treatment are of paramount importance.

**Keywords:** Stress disorders, post-traumatic; Occupations; Depression; Anxiety; Diagnostic and statistical manual of mental disorders

## Introduction

In 1871, Dr. Jacob Mendez Da Costa, described certain symptoms in a group of soldiers. The symptoms in-

cluded tachycardia, anxiety, breathlessness, and hyper-arousal. These symptoms which were first referred to as "soldier's heart syndrome," later named after him, "Da Costa syndrome." During World War

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I, employment of newly advanced weapons in the combat were so rapid that it sounded as if they came from a supernatural source; the soldiers were very bitter to think they were surrounded by invisible enemies. Some of the soldiers presented with symptoms like staring eyes, severe tremors, blue cold extremities, unexplained deafness or blindness, and paralysis. The condition was then called “shell shock.”<sup>1,2</sup> Similar symptoms were reported in World War II veterans and survivors of atomic bombings against Hiroshima and Nagasaki. The condition then was termed “combat neurosis or operational fatigue.”<sup>3</sup> In the 1900s, psychoanalysts, particularly those in the US coined the term “traumatic neurosis” to describe the condition.<sup>4</sup> Constellation of these symptoms is now termed “post-traumatic stress disorder” (PTSD).

### Definition of PTSD

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM), PTSD is an anxiety disorder. In the International Classification of Diseases, Injuries, and Causes of Death (ICD-10, 1992), it is classified as a neurotic stress-related and somatoform disorder.

PTSD may develop if a person encounters an unexpected extreme traumatic stressor. Important traumatic events which usually cause PTSD include war, violent personal assault (*e.g.*, sexual assault, and physical attack), being taken hostage or kidnapped, confinement as a prisoner of war, torture, terrorist attack, or severe car accidents. In children, sexual abuse or witnessing serious injuries or unexpected death of a beloved one may cause PTSD.<sup>5</sup> The disorder can also occur after natural disasters like wildfire, tornado, hurricane, flood, and earthquake.<sup>6</sup> During such horrible events, everyone thinks that their own life is in great danger and they have

no control over what is happening. Anyone who has experienced a life-threatening condition can feel scared, confused, or angry. After a traumatic event, many people may develop some acute symptoms like severe anxiety, dissociative symptoms, dissociative amnesia, poor concentration, sleep disturbance, and derealization.<sup>7</sup> However, the symptoms may not only resolve but also get worse in some of the victims, and the condition progresses to PTSD. It is still not clear why some people develop PTSD while others do not. There are many known factors that would determine the likelihood a person may develop PTSD. Both the duration and intensity of the trauma are among important risk factors. The distance from and the extent of reaction to the event, feeling about how well the condition is under control, loss of or hurt to a beloved or close one, and the level of help and support the victims receive in the aftermath of the event are all variables affecting the likelihood one may develop PTSD.

PTSD symptoms may disrupt normal life, making it hard to continue with daily activities.<sup>7</sup> The symptoms are seriously dependent upon the causative traumatic event. For example, wildfires would significantly cause more symptoms of somatization, anxiety (especially phobic anxiety), depression, hostility, and paranoia while veterans returning back from the wars in Iraq and Afghanistan, had more problems with sleep disruption, and sleep-disordered breathing.<sup>8</sup> Patients with comorbid PTSD complained more frequently of distressing auditory hallucinations.<sup>9</sup>

Based on its duration, PTSD can be categorized into two types of acute and chronic PTSD: if symptoms persist for less than three months, it is termed “acute PTSD,” otherwise, it is called “chronic PTSD.” There is also a “delayed-onset PTSD,” which refers to a condition

**TAKE-HOME MESSAGE**

- PTSD is an anxiety disorder.
- Exposure to unexpected extreme traumatic stressor may cause PTSD.
- War, violent personal assault (e.g., sexual assault, and physical attack), being taken hostage or kidnapped, confinement as a prisoner of war, torture, terrorist attack, or severe car accidents, in children, sexual abuse or witnessing serious injuries or unexpected death of a beloved one may cause PTSD.
- The symptoms are seriously dependent upon the causative traumatic event.
- PTSD can appear at any age. It is more common in young adults, because they are more likely to be exposed to precipitating situations. Women are twice as likely to develop PTSD as men are.
- Work-related PTSD are common in health and social services, deployers in combat-specific occupations, journalists, police, fire, and emergency service workers.
- Trauma intensity, pre-trauma demographic variables, and temperament traits are responsible for development of PTSD.

where the disease onset occurs at least six months after the traumatic event.

In 2000, for the importance of PTSD, in the fourth edition of DSM (DSM-IV-TR), the American Psychiatric Association (APA) has revised the diagnostic criteria of PTSD.<sup>7</sup> The threshold for the diagnosis of PTSD was set to a lower level so that according to the new criteria, diagnosis of

PTSD could be made in those who would not have been diagnosed with the condition earlier.

**Epidemiology**

Exposure to traumatic events during one's lifetime is almost inevitable. It has been reported that 60.7% of men and 51.2% of women would experience at least one potentially-traumatic event in their lifetime.<sup>10,11</sup>

Although PTSD can appear at any age, it is more common in young adults, because they are more likely to be exposed to precipitating situations. Children can also develop PTSD. Men and women differ in the types of traumas to which they are exposed and their liability to develop PTSD.<sup>12</sup> The lifetime prevalence of PTSD is significantly higher in women than men,<sup>13</sup> so that women are twice as likely to develop PTSD as men are.<sup>14</sup>

The prevalence of PTSD varies enormously among different populations. Lifetime prevalence of PTSD varies from 0.3% in China to 6.1% in New Zealand.<sup>15</sup> In general US population, the prevalence of PTSD is around 6.8%.<sup>16</sup> Reported rates among crime victims are between 19% and 75%, and rates as high as 80% have been reported following rape.

Those residing Gaza Strip face serious problems resulting in loss of income, limited access to health care facilities, and decreased quantity and quality of food. One study conducted by the Gaza Community Mental Health Program (GCMHP) in 1996 showed that the prevalence of PTSD was 30% among ex-political prisoners in Gaza.<sup>17</sup>

Although comparable international data are limited, we know that large proportions of populations in many countries round the globe are exposed to terrorism, forced relocation, and violence, which suggests that the overall prevalence of

exposure to traumatic events worldwide may be high.<sup>18</sup>

PTSD does not only affect victims of disasters but also influences rescue workers; the prevalence of PTSD among direct victims of disasters was reported to be 30%–40%; the rate in rescue workers was 10%–20%.<sup>19–21</sup> In one study, the prevalence of PTSD among police, fire, and emergency service workers ranged from 6%–32%.<sup>22</sup> A recent study has shown that the highest risk of developing PTSD was reported in construction/engineering workers, sanitation workers, and unaffiliated volunteers.<sup>23</sup> Another study revealed that, compared to an overall prevalence rate of 4% for the general population,<sup>16</sup> the rate in rescue/recovery occupations ranged from 5% to 32%,<sup>24–28</sup> with the highest rate reported in search and rescue personnel (25%),<sup>26</sup> firefighters (21%),<sup>29</sup> and workers with no prior training for facing disaster.<sup>27,30,31</sup> One study showed that the prevalence rate of PTSD was significantly higher in those people who performed tasks not common for their occupation.<sup>23</sup>

Survivors who had been in impending danger of dying during the disaster and lost their colleagues and friends were more susceptible to develop PTSD compared to the general population. September 11, 2001 terrorist attacks in New York City is an example.<sup>32–35</sup>

War is one of the most intense stressors known to man. The main war-related mental health disorders reported in those experienced traumatic events in Iraq and Afghanistan were PTSD, anxiety, and depression. Armed forces have a higher prevalence of depression, anxiety disorders, alcohol abuse and PTSD. Fifteen years after the end of Vietnam war, 15% of male veterans still suffered from PTSD and almost one-third of them would suffer from PTSD in their lifetime.<sup>30</sup> The prevalence rate of PTSD in Gulf War veterans was 12.1%.<sup>36</sup>

Studies have examined the prevalence of PTSD among high-risk children who have been abused or experienced natural disasters. It was shown that these children may have an even higher prevalence of PTSD than adults.<sup>15</sup> Loss of a parent in childhood is another severe trauma. It possesses a stronger association with psychiatric sequelae compared to sudden natural parental death.<sup>37</sup>

### Work-Related PTSD

Several disasters like explosions, may occur in workplace. These disasters may result in physical and mental health comorbidity, depression, PTSD and panic disorder.<sup>38</sup> Several factors are known risk factors for work-related PTSD. Those include female gender, previous psychiatric problem, degree and nature of exposure to the traumatic event, and lack of social support.<sup>39–41</sup> For personal aspects mostly attributed to emotional and relational factors, at work, women are more subject to harassment compared to men. Women aged between 34 and 45 years showed a high prevalence (65%) of “mobbing syndrome” or other work-related stress disorders.<sup>42</sup> The most affected fields are health and social services (15.7%), followed by public administration, hotels, restaurants and transport. In all considered areas of work, women suffer greater discrimination (3.1%) than men (0.8%).

Among deployers in combat-specific occupations (*e.g.*, infantry, armor, artillery), larger percentages were diagnosed with PTSD and anxiety-related disorders after the second and third than the first deployments; for all other conditions, larger percentages were affected after the first than any repeat deployments.<sup>43</sup>

Working with severely or terminally ill patients may arouse feelings of grief, anger, and hopelessness which in some cases, may eventually lead to PTSD.<sup>7,44</sup>

Journalists who report on trauma, war and so on are more likely to develop PTSD.<sup>45</sup> This is not limited to the “front line” reporters but also is true for all who are involved in news gathering, their families, and audiences.

### Risk Factors

Early research studies on traumatic stress revealed that trauma intensity—and not personality traits of exposed person—was responsible for development of PTSD. The intensity of trauma, pre-trauma demographic variables, and temperament traits are the best predictors of the severity of PTSD symptoms.<sup>46,47</sup>

The mean PTSD score after burn increased with hospitalization period, male gender, younger age, and higher total body surface area burned.<sup>48</sup>

Neuroticism is a personality trait defined by the tendency to react to events with greater than average negative affect. In a sample of 7076 adults, neuroticism predicted the onset of both anxiety disorders and depression.<sup>49,50</sup> It is possible that high level of neuroticism, is also predictive for PTSD severity because persons with high neuroticism are more likely to choose less effective coping strategies.<sup>50</sup>

Studies from the cognitive perspective indicate that people who are able to maintain sense of control during the trauma are less likely to develop PTSD. After exposure to trauma, people who rely on dissociative coping strategies seem more likely to develop PTSD compared to people who rely on other strategies.

After the devastating earthquake in Bam, the prevalence of PTSD in survived students was 36.3% in those older than 15 years and 51.6% in students younger than 15. The presence of body injury, living far from parents, female gender, lower education, unemployment, and loss of family members had significant correlations

with the development of PTSD.<sup>51,52</sup>

### Comorbidity of PTSD

About 84% of those suffering from PTSD may have comorbid conditions including alcohol or drug abuse; feeling shame, despair and hopeless; physical symptoms; employment problems; divorce; and violence which make life harder. PTSD may contribute to the development of many other disorders such as anxiety disorders, *e.g.*, panic disorder (9.5%) and social phobia (28%), major depressive disorder (48%), substance abuse/dependency disorders (31%), alcohol abuse/dependence (40%), conduct disorder (29%), and mania (9%).<sup>10</sup>

### Conclusion

On account of many traumatic situations humans faced with, Albert Camus called the 20<sup>th</sup> century “the century of fear.” These situations—*e.g.*, threats of war, technological disasters, and city violence—are still at work in 21<sup>st</sup> century. The body of knowledge on psychological impact of extreme stress, in particular traumatic events, on human health is rapidly growing. We witness the growing interest in social significance of these events.<sup>53</sup> Considering the growing number of stressors, we should pay more attention to PTSD and its early treatment, as it would be associated with long-term sequelae (particularly in women and children) if left untreated.

**Conflicts of Interest:** None declared.

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Enamelled tiles mosaic on the roof of one of the entrances of Jāme Atigh Mosque, Shiraz, Iran (Photo courtesy of Marjan Bayat Maku, Shiraz). For an article on lead poisoning among traditional tile workers in Iran see *The International Journal of Occupational and Environmental Medicine* 2010;**1**:29-38 (Available from [www.theijoem.com/ijoem/index.php/ijoem/article/view/6](http://www.theijoem.com/ijoem/index.php/ijoem/article/view/6)).