

*Ministry of Defence*

## **Synopsis of Causation**

# **Post-Traumatic Stress Disorder**

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## **Disclaimer**

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This synopsis has been completed by medical practitioners. It is based on a literature search at the standard of a textbook of medicine and generalist review articles. It is not intended to be a meta-analysis of the literature on the condition specified.

Every effort has been taken to ensure that the information contained in the synopsis is accurate and consistent with current knowledge and practice and to do this the synopsis has been subject to an external validation process by consultants in a relevant specialty nominated by the Royal Society of Medicine.

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# 1. Definition

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- 1.1. The World Health Organisation's International Classification of Diseases system (ICD-10) definition<sup>1</sup> of Post-Traumatic Stress Disorder (PTSD) states that this disorder arises as a delayed or protracted response to a stressful event of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone (for example, natural or man-made disaster, combat, serious accident, witnessing the violent death of others, or being the victim of torture, terrorism, rape, or other crime).
- 1.2. Predisposing factors such as personality traits are neither necessary nor sufficient to explain its occurrence.
- 1.3. Symptoms include episodes of repeated reliving of the trauma in intrusive memories ("flashbacks") or dreams, occurring against the persisting background of a sense of "numbness" and emotional blunting, and avoidance of activities and situations reminiscent of the trauma. There is usually a state of autonomic hyper-arousal with hyper-vigilance, an enhanced startle reaction and insomnia.
- 1.4. The onset follows the trauma with a latency period that may range from a few weeks to months, but rarely exceeds 6 months. The course is fluctuating but recovery can be expected in the majority of cases. In a small proportion of patients the condition may show a chronic course over many years and a transition to an enduring personality change.
- 1.5. The American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV)<sup>2</sup> definition includes the above criteria but adds that the person's response at the time of the event should have involved intense "fear, helplessness, or horror"; that the disorder must have been present for at least a month; and that there is distress and social dysfunction as well as the symptoms of reliving, avoidance, and hyper-arousal.
- 1.6. The disorder should arise within 6 months of a traumatic event of exceptional severity. A "probable" diagnosis is possible if the delay between the event and the onset of the disorder exceeds 6 months, according to ICD-10. DSM-IV has a specific sub-category for PTSD arising more than 6 months after the occurrence of the trauma.
- 1.7. As seen above, the criteria in ICD-10 and DSM-IV are slightly different. The same individual may or may not be diagnosed with PTSD, depending upon which classification system is used.

## 2. Clinical Features

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- 2.1. Post-traumatic stress disorder is a psychiatric syndrome that arises after an exceptionally stressful event, or trauma.
- 2.2. The stressful event is of an exceptionally severe magnitude. It involves death, serious injury or disruption of physical integrity, either actual or threatened, to the person or others.
- 2.3. The person does not have to be threatened, or be harmed themselves, to develop the disorder; witnessing such circumstances is enough.
- 2.4. Examples of exceptionally stressful events include: combat, torture, rape, domestic violence, violent assault, major fires, motor vehicle accidents and natural disasters.
- 2.5. The clinical features consist of 3 sets of related symptoms:
  - 2.5.1. **Re-experiencing the event.** The patient may have difficulty in recalling the event voluntarily, but despite this, may involuntarily experience intense images from the trauma (often described as “flashbacks” or “like a video”) or have recurring painful dreams about aspects of the trauma.
  - 2.5.2. **Avoidance of cues and emotional numbing.** The second group of symptoms includes avoidance of reminders of the event coupled with a decreased ability to feel emotion, a sense of detachment, and feeling of having a lack of interest in one’s surroundings.
  - 2.5.3. **Hyper-arousal.** These symptoms include insomnia, poor concentration, anxiety and irritability. There may be autonomic disturbances. The patient may be hyper-vigilant and easily startled.
- 2.6. Additionally, social and occupational difficulties may accompany the disorder.
- 2.7. There is some evidence that the symptom profile of PTSD varies according to the type of trauma suffered. In one Croatian study,<sup>3</sup> symptoms of hyper-arousal were more common in combat related PTSD, whereas victims of rape with PTSD suffered more avoidance symptoms and fewer hyper-arousal symptoms.
- 2.8. The onset of the condition is generally a few weeks to months after the trauma, but generally not more than 6 months after the event.
- 2.9. **Co-morbid disorders.**
  - 2.9.1. PTSD is not the only psychiatric condition that can occur in response to trauma. Other conditions associated with trauma include anxiety, depression, substance abuse disorders, adjustment disorders, somatisation disorders and antisocial behaviour.<sup>4,5</sup> Anxiety disorders, for example, are more likely to occur after traffic accidents than PTSD.<sup>4</sup> Additionally, these conditions can occur at the same time as PTSD and they may complicate the treatment, and worsen the prognosis (see section 4.9.) for the person with PTSD.

- 2.9.2. The relationship between these conditions may not be straightforward. For instance, if an individual with PTSD is abusing alcohol, the alcohol abuse could have been the cause of the individual undergoing trauma (for example, drunk-driving causing a traffic accident); it could have arisen from the individual trying to ameliorate symptoms of PTSD by using alcohol; the trauma could have caused both the alcohol abuse and PTSD as co-existing but separate effects; or the alcohol abuse could be coincidental and completely unrelated to the trauma.
- 2.10. **Associated diagnoses.** PTSD is a specific type of psychiatric syndrome that arises after exposure to trauma, but it is not the only one. As well as the diagnoses discussed in 2.9., the following diagnostic entities and issues should be borne in mind:
- 2.10.1. **Acute stress disorder.** This is a transient syndrome of emotional disturbance arising in response to stress. Individuals show anxiety or other emotional distress, hyper-arousal and dissociative symptoms. ICD-10<sup>1</sup> states that the disorder begins to diminish after 8 hours but that it can last for more than 48 hours if the stress continues. DSM-IV<sup>2</sup> states that the disorder lasts at least 48 hours but less than 4 weeks. Both systems advise that if the condition continues then it is re-classified, either as adjustment disorder or PTSD. There is not always a link between acute stress disorder and PTSD. Not all individuals with acute stress disorder go on to develop PTSD, nor have all those with PTSD gone through a stage of acute stress disorder.<sup>6</sup>
- 2.10.2. **Delayed-onset PTSD.** The existence of this condition is controversial. Delayed-onset PTSD can be defined as PTSD occurring more than 6 months after trauma. One US study showed that rates of PTSD among soldiers increased from 3% immediately on their return from the Gulf War, to 8% at 18-24 months after their return.<sup>7</sup> This is not unequivocal evidence of the existence of the condition, but it does suggest that some veterans can develop delayed-onset PTSD.
- 2.10.3. **Delayed presentation of PTSD.** Some individuals may be mistakenly described as having “delayed-onset PTSD” when, in fact, they have PTSD that arose within 6 months of trauma but they did not present to medical services during this time. In an Israeli retrospective survey of delayed-onset PTSD, only 10% of cases were found to be of true “delayed-onset”; the majority had developed PTSD within 6 months of trauma, but had not sought help until long after the onset of the condition.<sup>8</sup> Considered alongside the study above<sup>7</sup>, we can conclude that it appears there are a minority of veterans with PTSD who suffer from a delayed-onset condition. However, the existence of this condition has not been unequivocally demonstrated. New research may emerge following the recent conflicts in Afghanistan and Iraq.

- 2.10.4. **Complex PTSD, or Disorders of Extreme Stress Not Otherwise Specified (DESNOS).** This concept has been postulated to explain a pattern of symptoms seen in individuals who experience repeated trauma, usually from an early age. Symptoms include mood instability, poor impulse control, dissociation, somatisation and altered belief systems (relating to one's self and relationships with others).<sup>9</sup> This concept is currently being researched and clinically it is similar to certain types of personality disorders.
- 2.10.5. **Partial PTSD.** Individuals with partial PTSD have some, but not all, of the symptoms of the condition. Although suffering some difficulties, their social and occupational function is better and their symptoms last for a shorter period.<sup>10</sup>
- 2.10.6. **Enduring personality change after catastrophic experience.** This is a syndrome of hostility, distrust and social withdrawal, with feelings of emptiness or hopelessness, and a continuing sensation of being "on edge." This syndrome lasts for years and occurs after trauma of such an exceptionally extreme nature that no vulnerability factors are necessary for its development; for example, concentration camp experiences, torture and captivity (or exposure to terrorism), where for a prolonged period the individual faces the possibility of imminent death. It can follow on from PTSD and the symptoms may overlap.<sup>1</sup>
- 2.11. **History of the concept of PTSD.** A number of different psychiatric problems arose following exposure to trauma in soldiers in World War One and these heterogeneous conditions were lumped together as "shell shock" or "war neurosis".<sup>4</sup> The illnesses included syndromes similar to what is now recognised as PTSD, but also depressive, anxiety and dissociative disorders. After US involvement in Vietnam, some soldiers were noted to have a particular combination of symptoms involving re-experiencing, avoidance, numbing, and hyper-arousal, and the PTSD concept gained currency as a diagnosis. Full accounts of the history of the condition are given in Shephard's "War of Nerves"<sup>11</sup> and Jones and Wessely's "Shellshock to PTSD".<sup>12</sup>
- 2.12. **Modern warfare.** As modern armies have become smaller and more professional, there are fewer acute psychiatric casualties immediately after warfare. However, there has been no corresponding reduction in the rate of long term psychiatric illness. Wessely<sup>13</sup> put this in the context of society's attitude to risk and postulated three reasons for this;
- 2.12.1. Theories about the relationship between trauma and long-term outcome have changed.
- 2.12.2. The concept of PTSD became wider as it began to be diagnosed among civilians.
- 2.12.3. Unexplained illnesses such as Gulf War Syndrome have arisen.

### 3. Aetiology

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- 3.1. A diagnosis of PTSD requires that the individual has experienced a traumatic event.
- 3.2. A large study in the US showed that roughly a quarter of those who experience any type of trauma develop PTSD and that 10.4% of women and 5% of men, have PTSD during their life.<sup>14</sup> It should be noted that psychiatric disorders are influenced by social and cultural factors and that these factors may vary between even ostensibly similar cultures; the rate of PTSD for UK military personnel is likely to be different than that of US civilians.
- 3.3. The risk of developing PTSD depends upon the type of trauma. For example, in one study 65% of male rape victims developed PTSD, whereas only 6% of males involved in an accident developed it.<sup>15</sup>
- 3.4. A victim's response to a trauma is dependent on their perception of that trauma. The emotional impact and meaning of a particular event will vary for each individual. An example might be of a paramedic breaking down when confronted with the remains of a child the same age as his own, despite having previously dealt with many similar traumas of the same magnitude in the past.
- 3.5. There does not appear to be an absolute level of trauma necessary for the development of PTSD. The threshold appears to vary between individuals. People subjected to identical traumas will differ as to whether or not they develop PTSD.
- 3.6. It should be emphasised that not all military personnel having a mental health problem that arises after trauma necessarily have PTSD. As discussed in paragraph 2.9 other conditions can include anxiety, depression, substance abuse disorders, adjustment disorders, somatisation disorders and antisocial behaviour.<sup>4,5</sup> Of the UK armed forces personnel evacuated from Iraq during 2003 for psychiatric reasons, 85% of the cases were related to low mood or adjustment difficulties, and 67% were non-combatants.<sup>16</sup>
- 3.7. **Combat trauma.**
  - 3.7.1. The risk of developing PTSD after combat varies in different studies. For example, in one study 39% of males developed PTSD after combat.<sup>14</sup> However, in a study of 76 Sri Lankan Air Force personnel attending a psychiatric clinic at a time of civil conflict, none had PTSD.<sup>17</sup> Estimates of PTSD thus vary markedly between different studies.
  - 3.7.2. Five percent of US army personnel had PTSD before deployment to Iraq in 2003, whereas the rate rose to 13% had PTSD after deployment.<sup>18</sup> However, there may be differing vulnerability to PTSD between US and UK populations, troops may have had different training prior to deployment and different levels of traumatic experience during deployment, and the US army arguably has a relative lack of peace-keeping experience.
  - 3.7.3. Increased exposure to combat increases the likelihood of PTSD.<sup>19-23</sup>

3.7.4. It has been suggested that combat trauma may be more likely to result in both long-lasting PTSD and delayed onset PTSD.<sup>24</sup>

### 3.8. Other trauma.

3.8.1. Military personnel may experience a range of trauma other than combat trauma. In the study discussed previously 5% US military personnel already had PTSD *before* reaching a combat zone.<sup>18</sup> Other traumas may include rape, assault, torture, motor accidents and fire. Military personnel may witness extreme suffering as a result of natural disaster, atrocities and multiple deaths. Depending on their deployment, they may be more likely to experience these events in military settings than in civilian life. In addition, when PTSD arises in military personnel it will not necessarily be directly related to their military service in every case.

### 3.9. Predisposing factors

3.9.1. Not all individuals exposed to trauma will go on to develop PTSD, even if they are exposed to events of similar magnitude. There are predisposing factors and, as mentioned in 3.2., social and cultural factors will have a part to play. However, the following *predisposing risk factors* have been shown to increase an individual's risk of developing PTSD after a traumatic event. Many of the factors are from a particular meta-analysis<sup>25</sup> which analysed information from 77 other studies. These findings are likely to be more accurate than those of a single study.

3.9.2. **Female gender** is a risk factor for developing PTSD in civilian life,<sup>14</sup> and one study found women had a higher rate of PTSD than men after war experience.<sup>7</sup> However, as well as combat threats they may be exposed to sexual harassment and violence, and this may increase the rate of the disorder in female soldiers.

3.9.3. **Lower intelligence, lower social class and lower education.**<sup>21</sup> It should be noted that these factors are likely to be related to each other and might be better considered as a group rather than 3 individual factors.

3.9.4. **The experience of childhood abuse.**<sup>25</sup>

3.9.5. **The experience of other adversity during childhood.**<sup>25</sup>

3.9.6. **A personal history of psychiatric disorder.**<sup>25</sup>

3.9.7. **A family history of psychiatric disorder.**<sup>25</sup>

3.9.8. **Experience of previous trauma.**<sup>25</sup>

3.9.9. **Genetic susceptibility** There is a genetic susceptibility to PTSD but the exact nature of this is unknown.<sup>26</sup>

3.9.10. **Other risk factors** In one study an individual abusing alcohol or having a personality disorder increased the risk of the development of PTSD.<sup>27</sup>

- 3.10. **Factors relating to the trauma** Certain factors during, and subsequent to, the trauma also increase the risk of an individual developing PTSD.
- 3.10.1. The trauma is of a relatively high severity.<sup>25</sup>
  - 3.10.2. Physical injury accompanying the trauma.<sup>4</sup>
  - 3.10.3. Lack of social support for the person.<sup>25</sup>
  - 3.10.4. The person undergoing subsequent life stress.<sup>25</sup>
- 3.11. In summary, the existence of any of these factors increases the likelihood that an individual will develop PTSD after undergoing a traumatic event.
- 3.12. Employers generally have a “duty of care” to their employees, and in relation to PTSD this would demand that they provide a safe working environment for their employees, be alert to the possibility of them developing the condition, and treat them appropriately should the condition occur. Lady Justice Hale<sup>28</sup> set out 16 propositions relating to an employer’s duty of care in her 2002 judgement on 4 cases of stress-related psychiatric injury.
- 3.13. **Female susceptibility to PTSD.** Statistically, women are more likely to develop PTSD than men.<sup>14</sup> It has been suggested that this is because of the nature of assaults which women are subjected to,<sup>15</sup> but this has been debated.<sup>31</sup> If women are indeed more susceptible to PTSD when exposed to the same traumas as men, then this has significance when considering whether to place them in arenas where exposure to trauma is more likely, for example in combat. New research into this subject may emerge as women become increasingly involved in active service in the military.

## 4. Prognosis

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- 4.1. Prospective studies of PTSD related to accidents show that around two-thirds of cases resolve within a year.<sup>27,32,33</sup> It is not explored whether treatment affected the condition in these studies. However some patients may still have the condition years after the trauma.<sup>14</sup>
- 4.2. One study suggests that combat PTSD is more likely to continue indefinitely than other forms of PTSD.<sup>24</sup> It was not explored whether treatments affected the condition in this study.
- 4.3. The prognosis for an individual is worse if there is physical injury from the trauma, or the trauma was particularly severe,<sup>4</sup> or the individual experiences subsequent traumas, even if less severe,<sup>34</sup> or there is associated alcohol abuse.<sup>35,36</sup> Therefore, the condition is less likely to resolve if these factors are present.
- 4.4. The prognosis in terms of returning to work varies widely between individuals. An Australian study compared two groups of road traffic accident survivors, with and without PTSD. Those with PTSD had less work potential because of depression, reduced-time management ability, and anxiety about physical injury.<sup>37</sup>
- 4.5. The capability of a person with PTSD to work may not be in keeping with the severity of their day-to-day symptoms. Symptoms may fluctuate and become worse around the times of anniversaries and if there are reminders of the trauma. In the latter case these may be dealt with by structuring their job so that exposure to reminders is minimised (Martin Deahl, personal communication). This may be fairly simple, for instance if a person developed PTSD following a train accident then they can be accommodated by arranging alternative forms of transport.
- 4.6. As seen in section 2.10.1., combat veterans have high rates of co-existing disorders for example, depression, somatisation disorder, and drug and alcohol abuse.<sup>5</sup> These may make PTSD harder to treat and affect the prognosis.
- 4.7. Treatment of PTSD is by psychological therapies which focus on the trauma, such as cognitive-behavioural therapy (CBT) or eye movement desensitisation and reprocessing (EMDR). Medications such as serotonin specific reuptake inhibitors may also be used.
- 4.8. The National Institute for Clinical Excellence is a UK Government body which reviews data on the efficacy and effectiveness of currently available treatments and publishes advice about best clinical practice for a variety of medical conditions. Regarding PTSD, its guidance is that:<sup>38</sup>
  - 4.8.1. Everyone with the condition should be offered a course of psychological treatment that focuses on the trauma, for example CBT or EMDR.
  - 4.8.2. Medications should not be used in preference to psychological treatment (unless the patient is unwilling to engage in psychological treatment which focuses on the trauma).

- 4.8.3. Single “**de-briefing**” sessions after a traumatic event should not be routine management for everyone exposed to trauma.
- 4.9. **De-briefing.** The value of psychological de-briefing has been debated.<sup>39</sup> De-briefing immediately after trauma cannot necessarily prevent PTSD. In some cases, having immediate counselling can make a victim of trauma more likely to develop PTSD.<sup>40</sup>
- 4.10. **Differing prognoses for untreated and treated PTSD.** The level of evidence in the medical literature is not sufficient to compare the general natural history for untreated and treated PTSD. However, a review of a number of trials of CBT showed that sufferers of PTSD who received treatment showed improvement in PTSD symptoms, depression and social adjustment at time periods of up to 9 months after treatment, compared to those who received no treatment.<sup>41</sup>

## 5. Summary

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- 5.1. PTSD results from experiencing an exceptionally severe traumatic event, but the exact severity necessary to produce the disorder will vary between individuals.
- 5.2. Clinical features are: intrusive re-experiencing of aspects of the traumatic event, avoidance of reminders of the event, emotional numbing and hyper-arousal.
- 5.3. PTSD usually occurs within 6 months of the trauma, but a minority of those with PTSD appear to have a delayed onset type.
- 5.4. Not all persons exposed to such events will develop PTSD; certain factors predispose to the development of the condition.
- 5.5. PTSD usually resolves within a year but occasionally becomes enduring.
- 5.6. De-briefing immediately after trauma may be of limited value.

## **6. Related Synopses**

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Generalised Anxiety Disorder

Depressive Disorder

Adjustment Disorder

Personality Disorder

Alcohol Dependence

## 7. Glossary

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acute	Of sudden onset, and usually short-lived.
adjustment disorder	A psychiatric symptom which develops in the course of adjusting to new circumstances.
autonomic disturbances	Disturbances of the autonomic nervous system causing physical symptoms. Examples are rapid pulse, hyperventilation and diarrhoea.
chronic	Long-lasting.
cognitive-behavioural therapy	A psychological treatment where the patient looks at the links between thoughts, feelings, and behaviour.
de-briefing	An attempt to reduce psychological distress after a traumatic event by immediate counselling. This differs from the military meaning of the term.
dissociation	A rare mental phenomenon where one part of the mind appears to act independently of the conscious mind, probably in response to dealing with stressful experiences. Examples of symptoms include de-realisation (a feeling that one's surroundings are unreal), depersonalisation (a feeling that one's own self is unreal), or dissociative amnesia (the loss of memory on a psychological basis), and conversion (physical symptoms such as blindness or paralysis, developed on a psychological basis).
dissociative disorders	Psychiatric conditions which are thought to have dissociation as their underlying mechanism.
eye movement desensitisation and reprocessing	A psychological treatment where the patient re-experiences memories of the trauma while making repetitive eye-movements; it is thought this allows the patient to process memories of the trauma more appropriately.
hyper-arousal	A state of heightened emotion and increased activity.
hyper-vigilance	Heightened awareness of surroundings.

latency period	A period prior to the onset of PTSD, during which no symptoms are experienced, or only a few.
meta-analysis	A type of study which analyses the conclusions of many others, grouping their results so that they have more statistical power.
neurotic illness	One of the broad group of psychiatric disorders which includes anxiety disorders, obsessive-compulsive disorder and post-traumatic stress disorder, among others. These conditions may or may not share common origins.
serotonin specific reuptake inhibitor	Type of anti-depressant medication, used also in a number of other conditions.
somatisation disorder	A disorder where a patient is troubled with numerous physical symptoms which have a psychological cause.
trauma	An exceptionally stressful event that involves danger to the person or others.

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