

# Reliving Trauma

## Post-Traumatic Stress Disorder

Post-traumatic stress disorder (PTSD) is an anxiety disorder that can develop after exposure to a terrifying event or ordeal in which grave physical harm occurred or was threatened. Traumatic events that may trigger PTSD include violent personal assaults, natural or human-caused disasters, accidents, or military combat.

Among those who may experience PTSD are military troops who served in the

Vietnam and Gulf Wars; rescue workers involved in the aftermath of disasters like the terrorist attacks on New York City and Washington, DC; survivors of the Oklahoma City bombing; survivors of accidents, rape, physical and sexual abuse, and other crimes; immigrants fleeing violence in their countries; survivors of the 1994 California earthquake, the 1997 North and South Dakota floods, and hurricanes Hugo and Andrew; and people who witness traumatic events. Family members of victims also can develop the disorder. PTSD can occur in people of any age, including children and adolescents.

Many people with PTSD repeatedly re-experience the ordeal in the form of flashback episodes, memories, nightmares, or frightening thoughts, especially when they are exposed to events or objects reminiscent of the trauma. Anniversaries of the event can also trigger symptoms. People with PTSD also experience emotional numbness and sleep disturbances, depression, anxiety, and irritability or outbursts of anger. Feelings of intense guilt are also common. Most people with PTSD try to avoid any reminders or thoughts of the ordeal. PTSD is diagnosed when symptoms last more than 1 month.

Physical symptoms such as headaches, gastrointestinal distress, immune system problems, dizziness, chest pain, or discomfort in other parts of the body are common in people with PTSD. Often, doctors treat these symptoms without being aware that they stem from an anxiety disorder.

### Facts About PTSD

- An estimated 5.2 million American adults ages 18 to 54, or approximately 3.6 percent of people in this age group in a given year, have PTSD.<sup>1</sup>
- About 30 percent of Vietnam veterans developed PTSD at some point after the war.<sup>2</sup> The disorder also has been detected among veterans of the Persian Gulf War, with some estimates running as high as 8 percent.<sup>3</sup>
- More than twice as many women as men experience PTSD following exposure to trauma.<sup>4</sup>
- Depression, alcohol or other substance abuse, or other anxiety disorders frequently co-occur with PTSD.<sup>5</sup> The likelihood of treatment success is increased when these other conditions are appropriately diagnosed and treated as well.

### Treatments for PTSD

PTSD can be extremely debilitating. Fortunately, research—including studies supported by NIMH and the



Department of Veterans Affairs (VA)—has led to the development of treatments to help people with PTSD.

Studies have demonstrated the efficacy of cognitive-behavioral therapy, group therapy, and exposure therapy, in which the person gradually and repeatedly re-lives the frightening experience under controlled conditions to help him or her work through the trauma.<sup>6,7</sup> Studies also have found that several types of medication, particularly the selective serotonin reuptake inhibitors and other antidepressants, can help relieve the symptoms of PTSD.<sup>8</sup>

Other research shows that giving people an opportunity to talk about their experiences very soon after a catastrophic event may reduce some of the symptoms of PTSD. A study of 12,000 schoolchildren who lived through a hurricane in Hawaii found that those who got counseling early on were doing much better 2 years later than those who did not.<sup>9</sup>

## Research Findings

Research is continuing to reveal factors that may lead to PTSD. People who have been abused as children or who have had other previous traumatic experiences are more likely to develop the disorder.<sup>10</sup> In addition, it used to be believed that people who tend to be emotionally numb after a trauma were showing a healthy response, but now some researchers suspect that people who experience this emotional distancing may be more prone to PTSD.<sup>11</sup>

Studies in animals and humans have focused on pinpointing the specific brain areas and circuits involved in anxiety and fear, which are important for understanding anxiety disorders such as PTSD.<sup>12</sup> Fear, an emotion that evolved to deal with danger, causes an automatic, rapid protective response in many systems of the body. It has been found that the fear response is coordinated by a small structure deep inside the brain, called the amygdala. The amygdala, although relatively small, is a very complicated structure, and recent research suggests that different anxiety disorders may be associated with abnormal activation of the amygdala.

People with PTSD tend to have abnormal levels of key hormones involved in response to stress.<sup>13</sup> When people are in danger, they produce high levels of natural opiates, which can temporarily mask pain. Scientists have found that people with PTSD continue to produce those higher levels even after the danger has passed; this may lead to the blunted emotions associated with the condition.

Some studies have shown that cortisol levels are lower than normal and epinephrine and norepinephrine are higher than normal. Norepinephrine is a neurotransmitter released during stress, and one of its functions is to activate the hippocampus, the brain structure involved with organizing and storing information for long-term memory.

This action of norepinephrine is thought to be one reason why people generally can remember emotionally arousing events better than other situations. Under the extreme stress of trauma, norepinephrine may act longer or more intensely on the hippocampus, leading to the formation of abnormally strong memories that are then experienced as flashbacks or intrusions. Since cortisol normally limits norepinephrine activation, low cortisol levels may represent a significant risk factor for developing PTSD.

Research to understand these neurotransmitter systems involved in memories of emotionally charged events may lead to discovery of medications or psychosocial interventions that, if given early, could block the development of PTSD symptoms.

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