

# Commentary: The Zone of Danger, Physical Impact, and PTSD

Emily A. Keram, MD

The Federal Employer's Liability Act (FELA) exempts employers from providing mental health coverage to railway drivers who suffer work-related psychological trauma as the result of an incident that does include a threat of imminent direct physical impact. Tension exists between this legislation and the Posttraumatic Stress Disorder (PTSD) literature. Neurobiological research demonstrates that PTSD is associated with changes in brain imaging studies and neuroendocrinology, supporting the stance that PTSD is, in part, a physical illness. The FELA should be amended to cover this class of workers. Doing so would not place undue liability on employers.

**J Am Acad Psychiatry Law 34:200–3, 2006**

In their thoughtful article,<sup>1</sup> Weiss and Farrell have brought to light a class of workers who “fall through the cracks” of the Federal Employer's Liability Act (FELA),<sup>2</sup> as it is currently interpreted. The United States Supreme Court, in *Consolidated Rail Corp. v. Gottshall*,<sup>3</sup> found that railway drivers who experience work-related psychological trauma in the absence of threat of imminent direct physical impact are not entitled to relief from their employers.

Nineteenth century robber barons would no doubt be pleased by this 1994 Supreme Court decision that limits employer liability. The Court created this limitation by formulating a concept of mental illness that could easily belong to the 19th century as well. It is artificial and arbitrary to distinguish patients with Post-traumatic Stress Disorder (PTSD) caused by exposure to the serious injury or death of another person (witnessed trauma) from those with PTSD caused by the imminent threat of, or actual, direct physical impact to the self. To paraphrase Sandra Day O'Connor, writing in *Harris v. Forklift Systems, Inc.*<sup>4</sup> regarding Title IX protection of sexual harassment victims, FELA should come into play before threatened physical impact to the self subsequently leads to a nervous breakdown.

## Zone of Danger, Physical Impact, and PTSD

Weiss and Farrell<sup>1</sup> summarize the elements of the zone-of-danger test as currently applied to the FELA as of 1994: (1) employer negligence, in any part; (2) employee presence within the zone of danger of physical impact; and (3) a cognizable injury—physical or emotional.<sup>1</sup> As evidenced by the second and third prongs of the test, the Supreme Court clearly recognized that compensable psychiatric symptoms could result from near-miss situations—that is, events in which physical harm to the self does not occur. Justice Thomas, writing for the majority in *Gottshall*,<sup>3</sup> noted, “Railroad employees thus will be able to recover for injuries—physical and emotional—caused by the negligent conduct of their employers that threatens them imminently with physical impact” (Ref. 3, p 556). Thus, the Court did not require that a person actually sustain a direct physical impact from the traumatic event in order for the resultant emotional injury to be covered by the FELA. However, the Court failed to extend the concept of “near-miss” to include injury “nearly missing” the worker, but occurring to a victim within the sensory perception of the worker, presumably someone nearby.

Psychiatrists, of course, make no such distinction in the diagnosis of PTSD. The Diagnostic and Statistical Manual-IV-Text Revision (DSM-IV-TR)<sup>5</sup> “A” criterion for PTSD requires exposure to a traumatic event in which the person “experienced, witnessed, or was confronted with an event or events

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Dr. Keram is Assistant Clinical Professor of Psychiatry, Psychiatry and the Law Program, Department of Psychiatry, University of California San Francisco School of Medicine, San Francisco, CA. Address correspondence to: Emily A. Keram, MD, Santa Rosa VA Mental Health Clinic, 3315 Chanate Road, Santa Rosa, CA 95404. E-mail: emilykeram@hotmail.com

that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others” (Ref. 5, p 467).

In addition to railway drivers, other populations of patients who develop PTSD as a result of witnessing serious injury or death of another are described in the psychiatric literature. A subgroup of military nurses who served in Vietnam and who witnessed the injuries or death of soldiers have been diagnosed with PTSD and exhibit classic psychophysiological symptoms of the disorder.<sup>6</sup> A study of police officers found that the traumatic events most associated with increased risk of PTSD symptoms were the homicide of another police officer in the line of duty and dealing with victims of serious crimes.<sup>7</sup> PTSD has been diagnosed in emergency ambulance workers in the England,<sup>8</sup> Sweden,<sup>9</sup> and South Africa.<sup>10</sup> Symptoms of PTSD have been described in emergency physicians as a result of caring for survivors of trauma.<sup>11,12</sup> Finally, Good Samaritans and recovery workers may also experience PTSD as a result of responding to traumatic incidents in which they were not at risk themselves.<sup>13,14</sup>

### PTSD and Impact on the Brain

As Weiss and Farrell<sup>1</sup> describe, the United States Supreme Court in *Metro-North Commuter Railroad Co. v. Buckley*<sup>15</sup> and *Norfolk & Western Railway Co. v. Ayers*<sup>16</sup> found that “exposure-only” plaintiffs—that is, those whose exposure to potentially harmful work-related factors had not led to physical illness—are not entitled to compensation for psychiatric symptoms related to the potential for harm unless and until disease occurred. Plaintiffs who suffer from a physical illness based on work-related exposure to harmful factors were entitled to damages for mental illness resulting from that exposure and subsequent illness. Both Buckley and Ayers were exposed to asbestos. Buckley had anxiety that cancer would develop as a result of his exposure, but he remained free of pulmonary symptoms. In the absence of physical illness, Buckley lacked the “impact” from his exposure to asbestos on which to base a claim. Ayers developed asbestosis and received relief for the mental anguish he suffered as a result.

Weiss and Farrell<sup>1</sup> suggest that, with respect to psychiatric injury, the concept of impact be given “a connotation of perceptible emotional trauma caused by the intrusion of sensory information.” They encourage future expert witnesses to discuss the neuro-

physiology of PTSD and to make the argument that the “impact” affects the brain.

Given that the FELA allows for compensation of emotional injuries caused by near-miss situations and following the logic of *Buckley* and *Ayers*, it seems that, to be eligible for relief under FELA, the element of “impact” must be present in two forms. With respect to the zone-of-danger element of eligibility, the employee must be present within the zone of danger of physical impact, with impact connoting contact. With respect to the consequences of being within the zone of danger, the employee must sustain a physical impact (connoting consequence) as a result of that exposure that is evidenced by an abnormality of human anatomy or physiology, causing illness. As Weiss and Farrell<sup>1</sup> note, research supports that exposure to trauma indeed causes changes in human anatomy and physiology associated with symptoms of the illness PTSD.

### Neuroimaging and Neuroendocrinology of PTSD

Limbic system structures, including the hippocampus and amygdala and the anterior cingulate cortex (ACC) are part of the fear system. Neuroimaging studies have demonstrated substantially reduced bilateral or unilateral ACC volumes in patients with combat-related<sup>17</sup> or abuse-related<sup>18</sup> PTSD. A study of patients with Acute Stress Disorder (ASD), who were referred from an emergency room, revealed no change in ACC volume but significant differences in ACC shape.<sup>19</sup> A functional magnetic resonance imaging (f-MRI) study of patients with non-sexual assault or motor vehicle accident-related PTSD demonstrated bilateral reduction in right ACC activity and abnormalities in left amygdala activity in response to fearful facial stimuli that was consistent with a distinctly abnormal pattern of ACC and amygdala connections. This finding suggests that trauma may alter the normal pattern of ACC and amygdala regulation.<sup>20</sup> Neuroimaging studies of the hippocampus in PTSD patients also demonstrate abnormalities. Structural brain imaging studies of PTSD patients have demonstrated smaller hippocampal volumes in combat veterans<sup>21</sup> and adults with child abuse-related PTSD.<sup>22,23</sup> Smaller hippocampal volumes in combat-related PTSD patients were found to be associated with functional deficits in verbal memory.<sup>21</sup>

A growing number of studies demonstrate insufficient glucocorticoid signaling in patients with PTSD. Urinary and plasma cortisol levels are significantly lower in PTSD patients, and their circadian pattern of adrenal cortisol release has a greater amplitude. Reduction in cortisol levels has been shown to result from enhanced negative feedback by cortisol due to increased sensitivity of glucocorticoid receptors. This increased sensitivity of the hypothalamic-pituitary-adrenal (HPA) axis is consistent with the hyperreactivity symptoms of PTSD.<sup>24</sup> In addition, catecholamine systems may be affected. Patients with combat trauma-related PTSD have been found to have significantly higher cerebral spinal fluid (CSF) norepinephrine concentrations than have healthy control subjects. CSF norepinephrine levels strongly and positively correlate with the severity of some PTSD symptoms.<sup>25</sup>

Some of these studies may include subjects, such as police officers, with PTSD that resulted from witnessing serious injury or death of another person. Results for this potential subpopulation of witnessed-trauma patients obviously were not reported separately. However, the fact that abnormalities in neuroimaging and neuroendocrinology are present in PTSD patients who experienced very different types of trauma suggests that these changes may be present in witnessed-trauma PTSD patients as well. Further studies are needed to determine whether this is the case.

## Conclusion

What accounts for the difference between the psychiatrically long-accepted traumatic etiology of PTSD and the judicially determined traumatic etiology required for compensation? It seems unlikely that clinical experience is the sole basis of the “A” criterion for PTSD. Surely common sense and the personal experience of compassion and empathy contributed to the inclusion in the diagnostic criteria of witnessed harm, or threat of harm, to a fellow human. Just as surely, the Justices are sensible, compassionate, and empathic people who accept that traumatic symptoms can develop in such an instance. The exclusion of witnessed-trauma plaintiffs from recovery appears to have been an effort to establish a fulcrum on which to balance workers’ rights with employers’ financial interests.

In the *Gottshall* decision, the Court signaled its desire to avoid the creation of “nearly infinite and

unpredictable liability for defendants.” A footnote to the decision observes:

It would be an entirely unreasonable burden on all human activity if the defendant who has endangered one person were to be compelled to pay for the lacerated feelings of every other person disturbed by reason of it, including every bystander shocked at an accident, and every distant relative of the person injured, as well as all his friends [Ref. 26, p 366].

However, an examination of the legal reasoning supporting the exclusion of witnessed-trauma plaintiffs, illuminated by both clinical experience and scientific evidence, reveals it to be both arbitrary and artificial. It is well recognized that PTSD may develop from witnessing trauma to a fellow human. It has become increasingly evident that patients with PTSD have anatomic and physiologic abnormalities resulting from exposure to trauma. Employers’ concerns of limitless liability may be addressed by a statutory exception to the FELA for witnessed-trauma plaintiffs, or a “reasonable railway driver” test of acceptability of “A” criteria. It is time for courts to recognize that mental injury deserves parity with physical injury.

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