J. Arturo Silva,[1] *M.D.; Dennis V. Derecho,*[2] *M.P.H.; Gregory B. Leong,*[3] *M.D.; Robert Weinstock,*[4] *M.D.; and Michelle M. Ferrari,*[5] *M.D.*

A Classification of Psychological Factors Leading to Violent Behavior in Posttraumatic Stress Disorder*

REFERENCE: Silva JA, Derecho DV, Leong GB, Weinstock R, Ferrari MM. A classification of psychological factors leading to violent behavior in posttraumatic stress disorder. J Forensic Sci 2001;46(2):309–316.

ABSTRACT: Posttraumatic stress disorder has long been linked to violent behavior. However, the exact nature of that association remains poorly characterized due to the limitations of knowledge in the area of phenomenology, contextual factors, the biology, and the nature of the aggression involved in the disorder. A clear understanding of the genesis of violence in posttraumatic stress disorder can be helpful to those involved in assessing psychiatric-legal issues relevant to the disorder and in its therapeutic management. In this article, we review the potential psychological links between posttraumatic stress disorder secondary to combat exposure and violent behavior and suggest a tentative classification of the main psychological causes of violence in that syndrome.

KEYWORDS: forensic science, forensic psychiatry, posttraumatic stress disorder, violence, misidentification of persons, combat addiction, sleep disturbance, dissociation, mens rea, diminished capacity

Posttraumatic stress disorder (PTSD) has long been recognized by American psychiatry as the prototypical, stress-induced mental illness (1). It has been studied from many perspectives including phenomenological (2,3), nosological (4), epidemiological (5), biological (6,7), psychosocial (8), and cultural viewpoints (9–11). An important aspect of PTSD is its well-known association with violence and other forms of aggression, some of which can have important psychiatric and legal ramifications (12–16). PTSD-related aggression remains an important area of study because PTSD is a relatively common mental disorder, particularly among those exposed to combat trauma (17) with cooccurring hostility appearing to be a frequent finding (3). Furthermore, the way in which PTSD generates aggression is a process involving a complex interplay of many factors (15). The study of biological, psychosocial, psychiatric, and forensic factors related to aggression among those suffering from PTSD remains in its early stages despite some recent advances in these areas (18,19).

In this article, we explore psychiatric factors that appear to be linked with PTSD-related aggression among Vietnam combat veterans. Using several case presentations, we propose a typology of psychopathological causes of PTSD-related aggression and discuss potential areas of future study. We also briefly explore the association between PTSD-related aggression and various psychiatric-legal issues.

Case 1

Mr. A is a 49-year-old male who served a one-year tour of duty in Vietnam during which he was involved in dozens of confrontations with the enemy. Because of his combat involvement he developed visual flashbacks lasting approximately five minutes in which he would visualize himself back in Vietnam. During some of these flashbacks he perceived the faces of others as changing into faces of his once Vietnamese foes. Mr. A would usually isolate himself during these frightening experiences and was generally aware that these flashbacks represented an abnormal visual phenomenon. However, sometimes he would lose contact with reality and believed that the people whose faces changed into Vietnamese faces were actually enemy soldiers. On one occasion, he had just won several games of pool and in frustration the losing party verbally attacked Mr. A. At that point, Mr. A noted that the man's face had transformed into the face of a Vietnamese foe who was wearing the traditional black clothes of the Viet Cong. Mr. A stated that for several minutes he was convinced that he was dealing with a dangerous Viet Cong soldier and therefore attacked the man perceived as the enemy with his hands. He had become convinced that "the Viet Cong had to die," so Mr. A hit the man with a large bottle. Several people had to intervene to prevent Mr. A from inflicting more extensive physical injury. The physical assault resulted in serious injury to the man's left arm. Only after the fight did Mr. A regain his ability to accurately identify the man he had attacked. Mr. A recalled that he had been drinking alcohol for several hours before the physical assault and remained intoxicated at the time of the attack.

[1] Staff psychiatrist, Palo Alto Veterans Health Care System, Palo Alto, CA.
[2] Research health science specialist, National Center for Posttraumatic Stress Disorder, Veterans Affairs Palo Alto Health Care System, Menlo Park Division, Palo Alto, CA.
[3] Staff psychiatrist, Western State Hospital, Tacoma, WA and Clinical faculty, Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, WA.
[4] Clinical professor of psychiatry, University of California, Los Angeles School of Medicine and Staff psychiatrist, Greater Los Angeles Veterans Healthcare System, Los Angeles, CA.
[5] Chief, Division of Child and Adolescent Psychiatry, Kaiser Permanente Medical Group, Santa Clara, CA.
* The views expressed in this article are those of the authors and do not necessarily reflect the position of the Department of Veterans Affairs, Washington State Department of Social and Health Services, University of Washington, University of California, and the Kaiser Permanente Medical Group.
Received 1 Feb. 2000; accepted 25 April 2000.

Mr. A reported having insomnia of the early, middle, and late types, traumatic war nightmares, chronic anger, impaired concentration, and hyperactivity during events that reminded him of his war experiences. His physical examination was within normal limits. He met DSM-IV diagnostic criteria for PTSD and alcohol abuse (20). He was treated with antidepressant medication with moderate success.

Case 2

Mr. B is a 49-year-old male treated in an outpatient clinic for his psychiatric problems. He had participated in several combat firefights while in Vietnam. After his return from Vietnam, he experienced chronic irritability with sudden shifts between hostile, anxious, and depressed moods. Consequently, he experienced interpersonal difficulties with co-workers and members of his family. He had no history of (nonmilitary) violence or crimes. He reported experiencing visual flashbacks in which he reexperienced his military life in Vietnam. He denied initiating episodes of violence during a flashback, but did experience bewilderment and depression because he thought of the experience as losing control of the situation.

Mr. B reported experiencing early, middle, and late insomnia. He also suffered from nightmares involving combat and would frequently wake up agitated and anxious. He often would have clear recollections of his traumatic nightmares after sudden awakening from the dream state. At times he would be confused and agitated upon sudden awakening. His nightmares, which led to awakening, were often the cause of his middle insomnia.

On one occasion at age 32, during a combat dream in which he was fighting the enemy, Mr. B believed that he was in great danger and began swinging his arms forcefully. This flailing resulted in fracturing his wife's rib. He had also hit her without causing any significant physical trauma during previous nightmares. As a result she became fearful of sleeping next to Mr. B. Eventually, they slept in separate beds. Mr. B's wife did not ever believe she had been deliberately hit by Mr. B. Although he had no recollection of hitting his wife during sleep, he recalled feeling agitated upon awakening by his wife's screams on several occasions. Mr. B reported having intrusive thoughts related to Vietnam and being anxious and hypervigilant during events reminding him of combat (such as sudden, loud sounds and landscapes similar to those found in Vietnam). He also experienced chronic feelings of depression, low self-esteem, and feelings of helplessness. He denied any history of substance abuse.

Mr. B's physical examination was within normal limits. His complete blood count, urinalysis, serum chemistries, and thyroid function tests were in the normal range. He met DSM-IV diagnostic criteria for PTSD and dysthymic disorder (20). He was treated with an antidepressant and sedative-hypnotic medications after which both his PTSD and depressive symptoms subsided considerably. His insomnia, nightmares, and agitation during sleep also diminished substantially under psychopharmacologic treatment.

Case 3

Mr. C is a 52-year-old man who served two year-long tours of duty in Vietnam. Although he participated in approximately 200 firefights, he escaped physical injury. However, he witnessed many of his military comrades physically injured and killed in combat. He returned from Vietnam feeling chronically hostile and irritable and suffered from mood swings, anxiety, and depression. Mr. C characterized himself as having little tolerance for situations that did not go his way. In general, he needed little provocation to react to events in his surroundings. This was usually worse with events reminding him of Vietnam, such as meeting hostile people, hearing gunshot-like sounds, or hearing the sound of helicopters. Frequently, when people disagreed even in minor matters, he would respond with verbal aggression. His verbal hostility often escalated into physically assaultive acts because he was unable to control his intense surges of anger. He experienced difficulties with anger control independent of his substance abuse. Mr. C had been jailed many times due to his numerous physical fights. However, he had no prior felony convictions. Mr. C had some awareness that his anger prevented him from living a stable life at home and at work. He did not seek professional help for several years. Instead, he smoked marijuana for its calming effect on his anger and irritability.

The patient suffered from chronic middle and late insomnia, but only occasionally experienced nightmares containing war content. He reported dreams involving violence in civilian situations for several years after his return from Vietnam. To sleep better Mr. C consumed alcohol, but noted that alcohol increased his hostility toward others. He experienced visual flashbacks in which he saw himself back in Vietnam. Although these visual flashbacks did not give rise to hostility during or shortly after these experiences, the flashbacks were associated with depression and feelings of fatigue. He denied misidentifying others during the flashback experiences.

To combat his chronic depression, Mr. C initially tried cocaine. Although providing temporary relief from his dysphoria, he generally experienced a more intense depression after the acute effects of cocaine had subsided. He did not perceive his cocaine use as increasing his hostility or irritability. Mr. C complained of low self-esteem and concentration impairment. He has continued to experience irritability and hostility seven years after discontinuing use of recreational drugs. Mr. C denied any family history of psychosis. His physical examination revealed no significant abnormalities. His cell blood count, blood chemistries, and urinalysis were within normal limits. He met DSM-IV diagnostic criteria for PTSD and dysthymic disorder (20). He had a history of, but no recent cannabis, alcohol, and cocaine abuse. He was treated with antidepressants that substantially diminished his PTSD and mood disorder symptoms, particularly his anger and irritability.

Case 4

Mr. D is a single, male, Vietnam veteran who was 32-years old at the time of the index evaluation. During his one-year tour of duty in Vietnam as an infantryman, he had been involved in numerous firefights. Upon returning from Vietnam, he began experiencing visual flashbacks, insomnia (early, middle, and late types), traumatic nightmares, diminished concentration, poor self-esteem, depressed affect, suicidal ideation, and feelings of helplessness. Mr. D tended to isolate himself and he felt alienated from American society. At the same time, he would frequent Chinatown and other areas of the city with significant Asian populations. There, he would engage in numerous physical fights with those reminding him of his former Vietnamese enemy. He sought these physical confrontations in order to "feel alive." His visits to urban enclaves of Asian ethnic groups reminded him of the times when he was stationed in Saigon where he made many superficial, but enjoyable, friendships with other Americans and Vietnamese women. The patient would feel a great sense of excitement and fullness in his life when he fought Asian people. However, after the fights, he would feel depressed, physically fatigued, and emotionally numb. H

would return to his socially isolative behavior until his next physical confrontations with an Asian man.

Mr. D's physical examination was within normal limits. His family psychiatric history was negative. He met DSM-IV diagnostic criteria for PTSD and major depressive disorder (20). Treatment with a tricyclic antidepressant improved his depression and PTSD symptoms and reduced his pattern of seeking physical fights.

Discussion

Flashback Associated Violence

Flashback phenomena can best be appreciated if two basic aspects intrinsic to them are considered, i.e., 1) their dissociative nature (21–24) and 2) the finding that dissociative pathology often originates from stressful events that threaten the physical and psychological integrity of the person (25). Flashback phenomena are often present with different degrees of amnesia, both in terms of reconstruction of objective traumatic events and in regards to recollection of the flashback experience. In addition to amnesia, the flashback experience can cause the person to experience intense depersonalization, derealization, and disturbances of self-concept, all of which are consistent with the nature of dissociation (25).

In this section, we view flashback phenomena as a classic dissociative symptom of PTSD. Flashbacks are considered dissociative experiences that commonly encompass cognitive abnormalities, intense emotional responses, and abnormal visual perceptions (26). The visual symptoms may also be accompanied by abnormal sensory experiences via the auditory, gustatory, olfactory, and somatic senses. Other dissociative experiences with strong emotional, but no significant sensory content are reported in PTSD. In Mr. A's case, commonly reported symptoms included visual flashbacks with cognitive and affective deficits, and intense dissociative experiences with strong emotional overtones but without visual components. His emotional dissociative experiences were usually accompanied by adequate reality testing. On rare occasions, however, he experienced flashbacks associated with abnormal visual perceptions during which he became convinced that he was in Vietnam facing enemy soldiers. Occasionally during these experiences, his visual abnormalities involved Vietnamese landscapes while at other times he only experienced facial transformations of others in which objective facial structures changed to enemy Vietnamese faces. Because the misidentification of another occurred in the context of a flashback experience, we term this phenomenon as flashback-induced misidentification of others. This term differentiates other types of psychopathological misidentifications of others, especially those based on a psychotic disorder such as schizophrenia. The latter are usually termed delusional misidentification syndromes and has been associated with resultant violence toward the misidentified figures (27–29). During the episode of misidentification described in Mr. A's case history, he not only experienced a man's face change to a Viet Cong soldier's face, but he also erroneously concluded that he was dealing with the enemy. Due in part to these experiences, Mr. A would become fearful and hostile, and reacted by physically attacking the imagined Vietnamese foes. This type of flashback-induced misidentification had been associated with Mr. A causing significant physical injury to a misidentified person.

The particular experience of Mr. A highlights the fact that flashback experiences can lead to serious loss of reality testing that in turn may lead to violence directed at others. The psychiatric literature considers PTSD-related dissociative phenomena as having potential relevance in the legal setting by reducing the severity of the criminal charge via a diminished capacity mechanism or by reducing the severity of the legal sanction (16, 30–32). This led Pitman and his colleagues to state that in the area of criminal defense for PTSD, "the dissociative state seems to have become the sine qua non for the PTSD criminal defense" (16). Therefore, an understanding of the evolution of a dissociative process leading to a classic visual flashback is important for evaluating the role of violence in the context of dissociative spectrum phenomena. During the early stages of the PTSD flashback, dissociative processes may present predominantly with sensory and affective components. A typical situation may incorporate a feeling of fear as if one were in the location where the original trauma had occurred. Both anger and anxiety might be attached at this stage. This experience may be accompanied by sensory phenomena such as reexperiencing sounds, odors, and visual experiences that remind the person of the original trauma. The flashback precursor may then incorporate more vivid perceptions in which the affected individual experiences a life-like, colorized movie-like phenomenon, recreating the geography where the trauma took place. For example, Vietnam veterans may report visualizing themselves in Vietnamese jungle landscapes during flashback episodes. The more intense the visual and broad sensory experience, the more likely is the degree of strength of the dissociation. In addition, the greater the intensity of the sensory abnormalities, the more likely the affected individual may also experience serious impairment in reality testing. In the more elaborate and complete flashbacks, there are intense sensory and cognitive experiences that in part contribute to the affected individual's conclusion that he or she is indeed reexperiencing the original trauma. This corresponds to situations in which misrecognitions secondary to abnormal visual phenomena become closely coupled with misidentification of the objective environment, including persons within the misidentified geographic zone. The case of Mr. A represents this type of flashback.

Because the fully developed flashback experience can best be conceptualized as a highly complex end product of a spectrum of dissociation composed of affective, mnemonic, and thought components, care should be taken to understand this spectrum from a psychiatric-legal context. In other words, the spectrum of dissociative pathology encompassing the flashback experience associated with violence can involve varying degrees of understanding regarding the perpetration of violence. In Mr. A's case, on other occasions he had a poor recollection of the violent episodes and also had experienced considerable confusion as expressed by disordered thinking. From a psychiatric-legal viewpoint, these types of situations often do not lead to a state of mental impairment sufficient to reach the threshold of legal insanity. However, they may represent compromised mental states with impaired cognition and abnormal affects that could serve as a basis for diminished capacity during the guilt phase of trial or mitigating factors submitted to reduce the severity of the penalty during the sentencing phase of trial.

Although the fully developed PTSD flashback with its accompanying impairment in reality testing has served as the most likely aspect of PTSD to lead to a successful insanity defense, we emphasize that PTSD is often accompanied by a spectrum of dissociative phenomena that can be forensically relevant. This is true because PTSD-related dissociation is frequently accompanied by abnormalities in affect involving fear and hostility, confusion between the individual's cognitions and the objective environmental infrastructure, and memory impairment. All of these factors may make it difficult for an individual to distinguish and realistically assess and appreciate objects in the environment that theoret-

ically and objectively can pose a threat to the affected individual and to distinguish and recognize subjective constructions that do not truly possess a real threat. Although many of the resulting dissociative mental states may not lead to gross loss of reality testing, they may nevertheless be severely disabling to the PTSD patient and therefore may still qualify as forensically relevant.

Sleep Disturbance Associated Violence

One of the principal hallmarks of PTSD is the sleep disturbance commonly associated with nightmares involving psychologically traumatic themes (33). Sleep disturbance in PTSD can include insomnia of the early, middle, and late stages of the sleep cycle. PTSD-associated insomnia may or may not be considered by the veteran to be linked with his or her traumatic dreams. However, when nightmares of violent trauma such as combat-related events are involved, the affected individual may display physical agitation, including nonpurposeful flailing in which a nearby person could be injured. Patients often report that during these dreams, they had been acting to defend themselves from danger. For example, a combat veteran, who dreams that he is engaged in a firefight, can aimlessly flail his hands and feet and appear to be striking and kicking his significant other who is sleeping adjacent to him. Although no serious harm to the partner usually occurs, this agitated behavior can result in serious physical injury as in the case of Mr. B. The patient reported a pattern of sleep disturbance with war trauma dreams accompanied by his hitting his wife in an unplanned, haphazard manner. In some instances, this resulted in his wife sustaining multiple bruises. In one of these incidents, Mr. B fractured his wife's ribs with his blows. Mr. B did not recall ever hitting his wife during these events and his wife agreed that he appeared to be have been unaware of his actions. Often, he was not readily arousable, unless he awoke on his own or when his wife yelled at him. Usually she would not try to awaken him by touching him for fear of being hit.

On rare occasions, a person may experience sleep-related violence in which purposeful, aggressive behaviors are evident in individuals who do not appear to suffer from PTSD (34). It is even possible on rare occasions for individuals to attack others misidentifying them for aggressive figures found only in the context of the dream (35). Such misidentifications may also be encountered in individuals who suffer from PTSD nightmares (31).

Howard and d'Orban classified violence in sleep into three groups: (1) cases associated with confusion during sudden awakening, (2) violence during sleepwalking, and (3) violence associated with dream content (36). Using a combination of phenomenologic and physiologic sleep categories, sleep-related violence was later classified into five categories by Mahowald and his colleagues as follows: (1) nocturnal seizures, (2) psychogenic dissociative states, (3) REM-sleep behavior disorder, (4) night terrors and sleepwalking, and (5) sleep drunkenness (37). Of these, sleep drunkenness (36, 37) appears to be relevant in the case of Mr. B. Sleep drunkenness has been defined as "a disturbance of consciousness occurring on sudden arousal from sleep, characterized by confusion, disorientation and a misinterpretation of reality" (36). In Mr. B's case, he experienced numerous episodes where he displayed disorientation before awakening since he did not respond to his name and he believed that he was in Vietnam during the time of his military service during these episodes occurring years after he had actually been there. Furthermore, at times he appeared confused to his wife and his psychomotor agitation during sleep was aimless and nongoal directed. During these episodes where he inflicted significant injury to his wife, he had no recollection of planning to harm her. Mr. B's violence also falls on Howard and d'Orban's category of sleep violence associated with dream content (36) as he had harmed his wife before awakening and reporting that he had dreamed that he was fighting enemy soldiers while in Vietnam. Mr. B's violent behaviors during sleep may also qualify for Mahowald et al.'s category of REM-sleep behavior disorder since his violence appeared to be occurring in association with dream imagery which is known to occur during the REM sleep phase (37). Alternatively, his violence may be subsumed under the category of night terrors if Mr. B's traumatic nightmares occurred during non-REM sleep.

Another possibility for some of the violence associated with PTSD, particularly those cases in which the violence appears to be well-organized in terms of spatial navigation and purposeful-appearing behavior, may be due to dissociative behavior arising out of sleep states rather than phenomena consistent with the sleep state itself. PTSD may result in complex violent behavior associated with dreaming where the affected person avoids solid obstacles as he ambulates directly toward intended objects to perpetrate acts of violence (31). These considerations suggest that sleep-associated violence in PTSD represents a complex problem. Unfortunately, available clinical and research information in this area remains limited in its applicability to forensic issues. Available studies indicate that PTSD nightmares have been preceded by REM sleep (38) as well as being associated with nonREM sleep (39,40). Given that Mr. B did not have any sleep studies, possible abnormalities in his physiologic sleep architecture cannot be elucidated.

Regarding psychiatric-legal issues with sleep disturbances and violence associated with PTSD, it is important to stress that the resulting violence usually is encapsulated and unplanned. Fortunately, episodes of sleep-associated physical harm caused by those with PTSD are infrequent. To the extent that serious violence secondary to PTSD dream disturbance exists, such persons are not likely to be conscious of their violence. When such violent acts enter the criminal justice forum, an unconsciousness defense (41) or insanity defense may be entertained since such approaches have been attempted in similar cases of violence arising from sleep disturbances secondary to mental disorders other than PTSD (35,36,42).

Mood Lability Associated Violence

PTSD frequently co-occurs with disturbances of mood and affect, including mood swings, hostility, and depression (3). Of special relevance to violence are the intense feelings of anger and mood lability commonly encountered among combat Vietnam veterans with PTSD (3,43). The violence manifested by individuals suffering from PTSD can be recurrent. PTSD-related violence can be conceptualized as a reaction to a perceived external threat. The anger experienced by individuals suffering from combat-related PTSD may be linked to an overall general increase of hostility as measured by psychometric instruments such as the Buss-Durkee Hostility Index (44,45) and the Cook-Medley scale (43). Specific aspects of hostility such as various measures of anger regulation may also be involved (45). PTSD-related violence is also likely to be a complex set of factors composed not only of angry affect but also of factors such as affective arousal, impulsivity, and coping styles in relating to other people (44,46). The frequent co-occurrence of other mental disorders with PTSD, such as depressive disorders (47), is an important consideration in evaluating affective

generated violence. Depression is known to be associated with hostility (48,49), which could increase the violence risk in individuals both with and without PTSD. Co-occurring cluster B personality traits or disorder with their characteristic affective dyscontrol and impulsivity are likely to raise the violence potential of those with or without PTSD. The experiences of Mr. C also highlight a scenario associated with significant levels of anger coupled with poor anger regulation. Mr. C developed mood lability in association with PTSD. His pattern of overreacting to moderate stressors often involved mood swings, accompanied by increased hostility that often resulted in violence towards others if he believed that he was threatened regardless of the objectivity of the situation. His violence in turn resulted in interpersonal difficulties at home, work, and in other social situations. He was jailed several times for acts of violence, although he had not been convicted of violent felonies.

Combat Addiction Violence

Combat addiction in people who suffer from PTSD can be defined as a behavioral pattern involving aggression where the affected individual seeks to reexperience thoughts, feelings, and actions related to previous combat experiences. Combat addiction, also known as "action-addiction" syndrome, has also been characterized as a state where a person "craves dangerous, thrilling situations that psychologically create a parallel state to the original trauma—living on edge, having the adrenalin flowing" (50,51). Furthermore, these reenactments are pursued to attain a sense of pleasure, excitement, calmness, or other mental state in a way that is partially perceived as positive by the combat addicted individual because it increases the sense of well-being however time limited this experience may be (52–54). Mr. D qualified as a case of combat addiction because he showed a repetitive pattern of violent behaviors that in some respects, were viewed by him as positive or led to other positively experienced events. Mr. D represents the case of an adolescent who arrived in Vietnam during several critical developmental transitions into adulthood. He found acceptance and comradeship among his peer group and also experienced his first sexual encounter, including the development of a first romantic relationship. He viewed these experiences positively. On the other hand, he experienced a decrease of anxiety and tension shortly after he engaged in violent confrontations with persons of Asian descent in places like Chinatown.

Mr. D sought to recreate his positive experiences in Vietnam by frequenting areas of the city where both the buildings and the people reminded him of Vietnam. He enjoyed interacting with women and some of the men of Asian ethnicity by becoming a frequent visitor of restaurants, shops, and even social events in those communities. By specifically interacting with young women in those communities, he sought to relive his previous relationships with former Vietnamese girlfriends. However, he became frustrated that he could never form any long-lasting contact due in large part to his irritability and fear of emotional closeness to others. The presence of young Asian men reminded him of those he viewed with great mistrust and anger. He would frequently think of them as people similar to the ones that had injured or had killed his friends in Vietnam. This would increase his sense of loneliness, anxiety, anger, and distrust that in turn led to numerous physical fights. After those fights, he would welcome the sense of calmness. As is the case for many Vietnam veterans with PTSD, he often had feelings of emptiness and numbness that contributed to a lack of meaning in his life. His engaging in frequent physical fights brought about a sense of excitement that he described as "being alive again." His repeated violent addictive behaviors resulted in decreases in anxiety, tension, and other negative emotions. Unfortunately, these experiences were short-lived and did not lead to stable solutions to his general alienation from others. This is consistent for a man who sought aggressive confrontations seeking to find an intense, but brief measure of relief to his otherwise chaotic lifestyle.

A psychiatric-legal analysis of this case would indicate that during his physical confrontations, Mr. D was aware that he was engaging in harming innocent people who reminded him of people who lived in Vietnam. There was no evidence that he lost contact with reality during those confrontations. Rather, the driving pathology underlying combat addiction is a clear and disturbing need to regain a sense of integration and authenticity within the self, which is attempted by engaging in exciting and violent behaviors. An important feature is that the individual is often aware of a need to engage in unacceptable behaviors to recapture feeling and meaning for the estranged self. Given that individuals with combat addiction are usually aware that they are engaging in antisocial behaviors, these behaviors are not likely to result in legal exculpation based on a mental state defense. However, combat addiction has also been conceptualized as a complex mental state in which the affected individual usually does not plan to harm specific individuals. Rather, the relevant planning behavior is a process in which the affected individual anticipates engaging in thrilling activities sometimes involving risky behaviors without a specific plan to harm others. However, even in these circumstances, a mens rea or diminished capacity type of defense is not likely to be successful since the individual has conscious awareness of the planning to immerse himself in a dangerous situation in which he should have known the potential risks by virtue of his previous knowledge and experience. Nonetheless, combat addiction may be suitable as a mitigating factor if the obsessive-compulsive-like pathology can be shown to be of significant intensity to account for poor impulse control. Even if combat addiction can be viewed as a defect in impulse control, such behaviors are not likely to be exculpating. This is due to the fact that these individuals retain reasonable awareness that they are prone to engage in violent behaviors in certain environmental settings, but proceed regularly to visit such settings. In conclusion, combat addiction alone is less likely than other PTSD states to work as a successful psychiatric-legal defense (51), especially since the affected individual does not suffer from serious impairment of his cognitive makeup.

General and Psychiatric-Legal Issues

As previously mentioned, in the area of criminal responsibility and PTSD, there has been significant discussion on the dissociative flashback and its potential for exculpation via the insanity defense (15,19). This emphasis is not surprising given that the insanity defense represents full exculpation of criminal responsibility. However, focusing on the PTSD flashback has also served to place great emphasis in exoneration of criminal responsibility through the insanity defense, a type of defense that is rarely successful. Unsuccessful insanity claims occur irrespective of the mental disorder at issue (19). Furthermore, most types of violence associated with PTSD do not reach the threshold for the insanity defense. Nevertheless, PTSD-related violence can result in serious injuries to others and can also represent various and significant degrees of mental impairment leading to gradations of criminal responsibility. Yet violence associated with PTSD has infrequently been the quest of in-depth scholarly research in spite of intense dialogue by ex-

perts in the area of PTSD violence and criminal responsibility (14–16,30).

The diagnosis of PTSD relies on objective information indicating a stressor criterion, but also the affected individual must provide a subjective report of the symptoms with which he is afflicted. This latter situation is impregnated with the potential for malingering PTSD (55–57) and has led some thoughtful critics to conceptualize some psychiatric-legal issues of PTSD as medicolegally problematic (30). Others have chastised the judicial system and forensic mental health specialists who consider PTSD as a psychiatric-legal defense as helping to perpetrate an expensive industry where scientific information, in their view, is limited (58).

In this article, we have proposed a preliminary classification of aggression in PTSD. We emphasize that aggression in PTSD is complex and that individuals suffering from PTSD may exhibit more than one of the four proposed types of PTSD associated aggression. Furthermore, if we adopt a life span perspective (59,60), we are more likely to recognize that PTSD-related aggression may mutate across time, particularly as new stressors emerge and interact with the individual's underlying mental template. Thus, for example, a man who may suffer from combined mood lability and combat addiction leading to violence during early adulthood may find that decades later, at the end of middle age, he has become less violent and that his violence risk at that juncture would be primarily related to the late onset experience of flashbacks. Given the myriad of factors that affect PTSD, our proposed schema should therefore be considered a preliminary endeavor that, as discussed in the concluding section below, should stimulate further inquiry.

Future Directions

A comprehensive classification of violent behaviors associated with PTSD resulting from combat exposure presently remains in the developmental phase despite the substantial volume of research activity on aggression and PTSD. There are several areas of inquiry that may facilitate the development of a more comprehensive cartography of violence in PTSD which should include the following.

Phenomenological and Nosological Studies—There is a great need to work on the fine structure of flashback phenomenology including longitudinal studies adopting a time course analysis that attempts to characterize factors that initiate and facilitate flashback formation and aggression. The period following flashbacks also needs greater phenomenological characterization, including its association with violence. The broad phenomenon of dissociation in PTSD has been extensively studied in recent years. However, its association with violence in the context of PTSD is in great need of systematic study. This is especially true if we consider the flashback phenomenon as embedded in a more broad spectrum of psychopathology of dissociation in PTSD. Other types of psychopathology intrinsic to PTSD such as anxiety symptoms and attentional deficits also need to be explored as a function of aggressive behavior. Finally, the type of PTSD stressors that may give rise to PTSD-related aggression need elucidation in order to delineate the type, magnitude, and degree of stressors that predispose those with PTSD to aggressive behaviors.

Sleep Research—Although sleep architecture in PTSD has been studied by several investigators (38,39,61), the relation between violence and agitation during sleep in PTSD remains uncharted. Studies in this area primarily address physiological correlates to violence during sleep and the temporally proximate time periods (such as the hypnopompic period following awakening where increasing confusion and irritability could predispose an individual with PTSD to act aggressively). To some extent, this area will probably progress in synchrony with advances in sleep research, especially as dream physiology in PTSD and the nature of sleep state violence are further elucidated. The study of PTSD dream phenomenology may also shed light on the type of traumatic dream content that would likely increase aggressive behaviors.

Violence Studies Among Individuals with PTSD—The study of violence in PTSD is also in need of progress with regards to characterizations of factors such as anger phenomenology, impulsivity, anger regulation, and personality traits. This is especially the case as these factors relate not only to the PTSD as a general process, but also to specific symptoms of PTSD, such as flashbacks, numbing, and guilt. Equally important, but not frequently systematically studied, are the potential environmental correlates of violence in PTSD. Factors such as availability of weapons, availability of family and other social support systems, stressful work settings, affiliation with paramilitary groups, and living in high crime neighborhoods are settings that may predispose PTSD sufferers to engage in acts of violence. Furthermore, the type of specific symptoms of PTSD that are likely to be activated by environmental factors is in great need of study.

PTSD Comorbidity with Other Mental Disorders—Co-occurring psychopathology in PTSD is also common, especially substance abuse (62,63), personality psychopathology (62,64), depressive illness (3,63), and psychoses (65,66). Independent of PTSD, these psychopathologies can raise an individual's risk for violence (67). Comorbid psychopathology needs to be taken into account in future forensic research with PTSD where several factors associated with violence can be important. The study of malingering, not only in relation to PTSD cases, but also in relation to PTSD in which violent behavior is a major issue (56,57) needs to be systematically addressed by clinicians, researchers, and the judiciary if our understanding of this disorder is to be given a comprehensive and fair consideration in psychiatric-legal settings.

Public Education—Finally, efforts aimed at educating the community at large regarding PTSD and its relation to violence may increase public awareness for those who suffer from this disorder. However, it may also raise the level of understanding when the illness can result in aggressive behaviors. Greater societal understanding of PTSD may have the added benefit of having juries who may be better prepared to comprehend this complex disorder in those who suffer from the legacy of traumatic psychological injury and its role in raising an affected individual's violence potential.

References

1. van der Kolk BA, Weisaeth L, van der Hart O. History of trauma in psychiatry. In: van de Kolk BA, McFarlane AC, Weisaeth L, editors. Traumatic stress: the effects of overwhelming experience on mind, body, and society. New York: The Guilford Press, 1996;47–74.
2. McFarlane AC. The phenomenology of posttraumatic stress disorder following a natural disaster. J Nerv Ment Dis 1998;176:22–9.
3. Sims A, Sims D. The phenomenology of post-traumatic stress disorder. Psychopathology 1998;31:96–112.
4. Bowman ML. Individual differences in posttraumatic distress: problems with the DSM-IV model. Can J Psychiatry 1999;44:21–33.
5. Kessler R, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the national comorbidity survey. Arch Gen Psychiatr 1995;52:1048–60.

6. van der Kolk BA. The body keeps the score, approaches to the psychobiology of posttraumatic stress disorder. In: van der Kolk BA, McFarlane AC, Weisaeth L, editors. Traumatic stress: the effects of overwhelming experience on mind, body and society. New York: Guilford Press, 1996;214–41.
7. Shalev AY, Sahar T, Freedman S, Peri T, Glick N, Brandes D, et al. A prospective study of heart rate response following trauma and the subsequent development of posttraumatic stress disorder. Arch Gen Psychiatry 1998;55:553–9.
8. McFarlane AC, van der Kolk BA. Trauma and its challenge to society. In: van de Kolk BA, McFarlane AC, Weisaeth L, editors. Traumatic stress: The effects of overwhelming experience on mind, body, and society. New York: The Guilford Press, 1996:24–46.
9. De Vries MW. Trauma in cultural perspective. In: van de Kolk BA, McFarlane AC, Weisaeth L, editors. Traumatic stress: the effects of overwhelming experience on mind, body, and society. New York: The Guilford Press, 1996;398–415.
10. Marsella AJ, Friedman MJ, Spain EH. Ethnocultural aspects of PTSD: an overview of issues and research directions. In: Marsella AJ, Friedman MJ, Gerrity ET, Scurfield RM, editors. Ethnocultural aspects of posttraumatic stress disorder: issues, research, and clinical applications. Washington, DC: American Psychological Association, 1996:105–29.
11. Jenkins JH. Culture, emotion and PTSD. In: Marsella AJ, Friedman MJ, Gerrity ET, Scurfield RM, editors. Ethnocultural aspects of posttraumatic stress disorder: issues, research, and clinical applications. Washington, DC: American Psychological Association, 1996;165–82.
12. Sparr LF, Reaves ME, Atkinson RM. Military combat, post-traumatic stress disorder, and criminal behavior in Vietnam veterans. Bull Am Acad Psychiatry Law 1987;15:141–62.
13. Slovenko R. Legal aspects of post-traumatic stress disorder. Psychiatr Clin No Amer 1994;17:439–46.
14. Sparr LF, Moffitt MC. Forensic issues associated with post-traumatic stress disorder. In: Schlessinger LB, editor. Explorations in criminal psychopathology: clinical syndromes with forensic implications. Springfield, IL: Charles C. Thomas, 1996;274–99.
15. Sparr L. Mental defenses and posttraumatic stress disorder: assessment of criminal intent. Journal of Traumatic Stress 1996;9:405–25.
16. Pitman RK, Sparr LF, Saunders LS, McFarlane AC. Legal issues in post-traumatic stress disorder. In: van de Kolk BA, McFarlane AC, Weisaeth L, editors. Traumatic stress: the effects of overwhelming experience on mind, body, and society. New York: The Guilford Press, 1996;378–97.
17. Davisdon JRT, Fairbank JA. The epidemiology of posttraumatic stress disorder. In: Davidson JRT, Fola EB, editors. Posttraumatic stress disorder: DSM IV and beyond. Washington, D.C.: American Psychiatric Press, 1993;147–69.
18. Pitman RK, Orr SP. Psychophysiologic testing for posttraumatic stress disorder: forensic psychiatric application. Bull Am Acad Psychiatry Law 1993;21:37–52.
19. Applebaum PS, Jick RZ, Grisso T, Givelber D, Silver E, Steadman HS. Use of posttraumatic stress disorder to support an insanity defense. Am J Psychiatry 1993;150:229–34.
20. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association, 1994.
21. van der Kolk, BA, van der Hart O, Marmar CR. Dissociation and information processing in posttraumatic stress disorder. In: van de Kolk BA, McFarlane AC, Weisaeth L, editors. Traumatic stress: the effects of overwhelming experience on mind, body, and society. New York: The Guilford Press, 1996:303–27.
22. Spiegel D, Hunt T, Dondershine HE. Dissociation and hypnotizability in post-traumatic stress disorder. Am J Psychiatry 1988;145:301–5.
23. Bremner JD, Southwick S, Brett E, Fontana A, Rosenheck R, Charney DS. Dissociation and posttraumatic stress disorder in Vietnam combat veterans. Am J Psychiatry 1992;149:328–32.
24. Carlson EB, Rosser-Hogan R. Trauma experiences, posttraumatic stress, dissociation, and depression in Cambodian refugees. Am J Psychiatry 1991;148:1548–51.
25. Steinberg M. Handbook for the assessment of dissociation: a clinical guide. Washington, DC: American Psychiatric Press, 1995.
26. Rainey JM, Aleen A, Ortiz A, Yeragani V, Pohl R, Berchou R. A laboratory procedure for the induction of flashbacks. Am J Psychiatry 1987;144:1317–9.
27. dePauw KW, Szulecka TK. Dangerous delusions, violence and the misidentification syndromes. Br J Psychiatry 1988;152:91–6.
28. Silva JA, Leong GB, Shaner AL, Chang CY. Syndrome of intermetamorphosis: a new perspective. Compr Psychiatry 1989;30:209–13.
29. Silva JA, Leong GB, Weinstock R. The dangerousness of persons with misidentifications syndromes. Bull Am Acad Psychiatry Law 1992;20:77–86.
30. Sparr LF, Atkinson RM. Posttraumatic stress disorder as an insanity defense: medicolegal quicksand. Am J Psychiatry 1986;143:608–13.
31. Silva JA, Leong GB, Gonzales C, Ronan J. Dangerous misidentification of people associated with post-traumatic stress disorder. Am J Forensic Psychiatry 1988;19:17–32.
32. Silva JA, Leong GB, Harry BE, Ronan J, Weinstock R. Dangerous misidentification of people due to flashback phenomena in post-traumatic stress disorder. Am J Forensic Sci 1998;26:607–23.
33. Neylan TC, Marmar CR, Metzler TV, Weiss DS, Zatzick DF, Delucchi KL, Wu RM, Schoenfeld FB. Sleep disturbances in the Vietnam generation: findings from a nationally representative sample of male Vietnam veterans. Am J Psychiatry 1998;155:929–33.
34. Scherick CN, Bundlie SR, Ettinger MG, Mahowald MW. Chronic behavioral disorders in human REM sleep: a new category of parasomnia. Sleep 1986;9:293–308.
35. Oswald I, Evans J. On serious violence during sleepwalking. Br J Psychiatry 1985;147:688–91.
36. Howard C, d'Orban PT. Violence in sleep: medico-legal issues and two case reports. Psychol Med 1987;17:915–25.
37. Mahowald MW, Bundlie SR, Horwitz TD, Schenck CH. Sleep violence—forensic science implications: polygraphic and video documentation. J Forensic Sci 1990;35:413–32.
38. Mellman TA. Psychobiology of sleep disturbances in posttraumatic stress disorder. Ann NY Acad Sci 1997;82:142–9.
39. Kramer M, Schie L, Kinney L. The dream experienced in dreams in disturbed Vietnam veterans. In: van de Kolk BA, editor. Posttraumatic stress disorder: psychological and biological sequelae. Washington, DC: American Psychiatric Press, 1984;92–5.
40. Ross RD, Bell WA, Sullivan KA, Caroff SN. Sleep disturbance as the hallmark of posttraumatic stress disorder. Am J Psychiatry 1989;146:697–707.
41. Apostle DT. The unconsciousness defense as applied to posttraumatic stress disorder in a Vietnam veteran. Bull Am Acad Psychiatry Law 1980;8:426–30.
42. Thomas TN. Sleepwalking disorder and mens rea: a review and case report. J Forensic Sci 1997;42:17–24.
43. Beckham JC, Feldman ME, Kirby AC, Hertzberg MA, Moore SD. Interpersonal violence and its correlates in Vietnam veterans with chronic posttraumatic stress disorder. J Clin Psychol 1997;53:859–69.
44. Chemtob CM, Hamada RS, Roitblat HL, Muraoka M. Anger, impulsivity, and anger control in combat-related posttraumatic stress disorder. J Consult Clin Psychol 1994;62:827–32.
45. Lasko NB, Guruits TV, Kuhne AA, Orr SP, Pitman RK. Aggression and its correlates in Vietnam veterans with and without chronic post-traumatic stress disorder. Compr Psychiatry 1994;35:373–81.
46. Byrne CA, Riggs DS. The cycle of trauma: relationship of aggression in male Vietnam veterans with symptoms of posttraumatic stress disorder. Violence and Victims 1996;11:213–25.
47. Karam EG. Comorbidity of posttraumatic stress disorder and depression. In: Fullerton CS, Ursano RJ, editors. Posttraumatic stress disorder: Acute and long-term response to trauma and disaster. Washington, DC: American Psychiatric Press, 1997:77–90.
48. Fava GA, Kellner R, Munari F, Pavan L, Pesarin F. Losses, hostility and depression. J Nerv Ment Dis 1982;170:474–8.
49. Fava M, Rosenbaum JF, Pava JA, McCarthy MK, Steingard RJ, Bouffides E. Anger attacks in unipolar depression, part 1: clinical correlates and response to fluoxetine treatment. Am J Psychiatry 1993;150:1158–63.
50. *U.S.* v. *Krutschewski*, 509 F. Supp. 1186 (D. Mass 1981).
51. Stone AA. Posttraumatic stress disorder and the law: critical review of the new frontier. Bull Am Acad Psychiatry Law 1993;21:23–36.
52. van der Kolk B, Greenberg M, Krystal J. Inescapable shock, neurotransmitters, and addiction to trauma: toward a psychobiology of posttraumatic stress. Biol Psychiatry 1985;20:314–25.
53. Solurish L. Combat addiction, post-traumatic stress disorder re-explored. Psychiatr J Univ Ottawa 1988;13:17–20.
54. Solurish L, Meyer CA, Nolan WP. Addiction to violence in the United States Vietnam combat veteran. Med Law 1991;10:375–9.
55. Strauss SA. Psychiatric testimony, with special reference to cases of posttraumatic neurosis. J Forensic Sci 1972;1:77–90.

56. Resnick PJ. Guidelines for the evaluation of malingering in posttraumatic stress disorder. In: Simon RI, editor. Posttraumatic Stress Disorder Litigation: Guidelines for Forensic Assessment. Washington, DC: American Psychiatric Press, 1995:117–134.
57. Resnick PJ. Malingering of posttraumatic stress disorders. In: Rogers R, editor. Clinical assessment of malingering and deception, Second Edition. New York: Guilford Press, 1997;130–52.
58. Hagen MA. Whores of the court: the fraud of psychiatric testimony and the rape of American justice. New York: Regan Books, 1997.
59. Featherman DL. Life-span perspectives in social science research. In: Baltes PB, Brim OG Jr, editors. Life span development and behavior, Volume 5. New York: Academic Press, 1983;1–57.
60. Silva JA, Leiderman PH. The life-span approach to individual therapy: an overview with case presentation. In: Baltes PB, Featherman DL, Lerner RM, editors. Life-span development and behavior, Volume 7. Hillsdale, NJ: Lawrence Erlbaum Associates, 1986;113–34.
61. Woodward SH, Friedman MJ, Bliwise DL. Sleep and depression in combat-related PTSD inpatients. Biol Psychiatry 1996;39:182–92.
62. Shaw DM, Churchill CM, Noyes R, Loeffelholz PL. Criminal behavior and post-traumatic stress disorder in Vietnam veterans. Compr Psychiatry 1987;28:403–11.
63. Brett EA. Classifications of posttraumatic stress disorder in DSM-IV: Anxiety disorder, dissociative disorder, or stress disorder. In: Davidson JRT, Foa EB, editors. Posttraumatic stress disorder: DSM-IV and beyond. Washington, DC: American Psychiatric Association Press, 1993:191–203.
64. Southwick SM, Yehuda R, Giller EL. Personality disorders in treatment-seeking combat veterans with posttraumatic stress disorder. Am J Psychiatry 1993;150:1020–3.
65. David D, Kutcher GS, Jackson EI, Mellman TA. Psychotic symptoms in combat-related posttraumatic stress disorder. J Clin Psychiatry 1999;60:29–32.
66. Sautter FJ, Brailey K, Uddo MM, Hamilton MF, Beard MG, Borges AH. PTSD and comorbid psychotic disorder: comparison with veterans diagnosed with PTSD or psychotic disorder. J Traumatic Stress 1999;12:73–88.
67. Swanson JW. Mental disorder, substance abuse, and community violence: an epidemiological approach. In: Monahan J, Steadman HJ, editors. Violence and mental disorder: developments in risk assessment. Chicago: University of Chicago Press, 1994;101–36.

Additional information and reprint requests:
J. Arturo Silva, M.D.
Palo Alto Veterans Health Care System
P.O. Box 20928
San Jose, CA 95160
Tel: 408-927-5941