

Dissociation: Defining the Concept in Criminal Forensic Psychiatry

Dominique Bourget, MD, Pierre Gagné, MD, and Stephen Floyd Wood, MD

Claims of amnesia and dissociative experiences in association with a violent crime are not uncommon. Research has shown that dissociation is a risk factor for violence and is seen most often in crimes of extreme violence. The subject matter is most relevant to forensic psychiatry. Peritraumatic dissociation for instance, with or without a history of dissociative disorder, is quite frequently reported by offenders presenting for a forensic psychiatric examination. Dissociation or dissociative amnesia for serious offenses can have legal repercussions stemming from their relevance to the legal constructs of fitness to stand trial, criminal responsibility, and diminished capacity. The complexity in forensic psychiatric assessments often lies in the difficulty of connecting clinical symptomatology reported by violent offenders to a specific condition included in the Diagnostic and Statistical Manual of Mental Disorders (DSM). This article provides a review of diagnostic considerations with regard to dissociation across the DSM nomenclature, with a focus on the main clinical constructs related to dissociation. Forensic implications are discussed, along with some guides for the forensic evaluator of offenders presenting with dissociation.

J Am Acad Psychiatry Law 45:147–60, 2017

The concept of dissociation is relevant to forensic psychiatry, as illustrated by the fact that amnesia and dissociation have frequently been associated with violent crimes.^{1–9} In a review of the literature, Moskowitz⁴ found that higher levels of dissociation were associated with increased violence in a diverse range of populations, including college students, military veterans, psychiatric patients, and perpetrators of sexual/domestic violence and homicide. Amnesia for the violent crime was reported in nearly one-third (30%) of homicides. Several studies found an association between amnesia, dissociation and crimes characterized by lack of planning and lack of premeditation, heightened emotional states, emotional ties to the victim, and alcohol use.^{4,6,7,10} Evans *et al.*¹⁰ conducted a systematic and descriptive investigation of amnesia in a group of 105 young offenders convicted of violent crimes (lethal and nonlethal bodily harm). Twenty percent reported either partial or complete amnesia for at least the most violent part of the as-

sault. All recalled the events preceding the violence and most could identify a precise cutoff by which they could not recall subsequent events. Only one subject had complete amnesia, leading the authors to conclude that complete amnesia is rare.

These considerations and findings merit the attention of the forensic psychiatrist. Little has been said about the specific implications of dissociation in the forensic arena. The scope of this article is three-fold: provide a synthesized review of the definition of dissociation and dissociative disorders from a diagnostic and neurobiological perspective; define the concept of dissociation in greater detail from a forensic psychiatric perspective while outlining the legal implications; and offer guidance to forensic experts in their evaluations of offenders who claim amnesia and dissociative experiences in connection with an offense.

The Concept of Dissociation

Dissociation is defined as the disruption of normally integrated functions of consciousness, memory, identity, perception, body representation, motor control, and behavior.¹¹ Dissociative symptoms are perceived as intrusive and disruptive and may be classified as positive or negative. Spiegel *et al.*¹² defined positive dissociative symptoms (e.g., flashbacks) as intruding into awareness and accompanied by loss of

Drs. Bourget and Wood are forensic psychiatrists, Integrated Forensic Psychiatric Program, Royal Mental Health Centre, and Dr. Bourget is Associate Professor of Psychiatry, and Dr. Wood is a lecturer in psychiatry, University of Ottawa, Ottawa, Ontario, Canada. Dr. Gagné is Associate Professor of Psychiatry, University of Sherbrooke, Sherbrooke, Québec, Canada. Address correspondence to: Dominique Bourget, MD, Royal Ottawa Mental Health Centre, 1145 Carling Avenue, Ottawa, Ontario, K1Z 7K4. E-mail: dominiquebourget@gmail.com.

Disclosures of financial or other potential conflicts of interest: None.

continuity in subjective experience, whereas negative dissociative symptoms (e.g., amnesia) result in an inability to access information or to control normally readily accessible mental functions.

Historical Roots

At the end of the 19th century, Janet¹³ conceptualized dissociation as a lack of integration of various mental functions when stress or exposure to traumatizing events induced a hysterical reaction, a phenomenon seen only in people with impaired mental or cognitive functioning. Freud's psychodynamic explanation further posited that dissociation was a psychological defense mechanism against negative feelings, conflicts, or experiences.¹⁴ William James¹⁵ and later investigators viewed dissociation as a dimensional construct ranging from daydreaming to severe dissociative disorders.^{16–18}

In response to criticism of the extensive nature of the dissociation concept, Holmes *et al.*¹⁹ and Brown²⁰ proposed a model of dissociation that includes two distinct categories of dissociative phenomena: detachment and compartmentalization.

“Detachment” is defined as an altered state of consciousness characterized by a sense of separation from aspects of everyday experience.¹⁹ There is often an absence or flattening of emotional experiences during these altered states.²¹ Detachment is thought to arise from intense fear or trauma and includes depersonalization (an altered state of consciousness involving a sense of disconnection from one's mental process or body), derealization (experiencing the external world as strange or unreal), or both.^{19,20} In some individuals, dissociative amnesia could arise during detachment related to an encoding and storage deficit.²¹

“Compartmentalization” is defined as a phenomenon that meets the following four criteria: a deficit in the ability to maintain deliberate control of processes or actions that would normally be amenable to such control (including the inability to bring normally accessible information into conscious awareness); the deficit cannot be overcome by an act of will; the deficit is reversible, at least in principle; and it can be shown that the apparently disrupted functions are operating normally and continue to influence cognition, emotion, and action.¹⁹ It includes dissociative experiences such as amnesia. In contrast to detachment, dissociative amnesia representing

compartmentalization would thus be due to a memory retrieval deficit.²¹

Dissociation and Trauma

Pathological dissociation has been linked to psychological trauma or overwhelming stress.^{12,22–28} It may occur more often in people who did not develop effective coping strategies after stressful experiences in childhood.^{29–31} Individual characteristics, such as cognitive flexibility and emotional processing ability, may affect the likelihood of responding to stress with dissociative symptoms.^{32,33}

Although dissociation is a core feature of the dissociative disorders, such experiences are also among the criteria for DSM-5 diagnoses of acute stress disorder, posttraumatic stress disorder (PTSD), and borderline personality disorder.¹¹ In the DSM-5, the dissociative disorders are placed next to, but are not part of, the trauma- and stressor-related disorders, indicating the close relationship between these diagnostic classes.¹¹ The symptoms of PTSD reflecting this relationship include dissociative flashbacks, amnesia for some aspects of the trauma, and emotional numbing. The specifier “with dissociative symptoms” can be applied to the PTSD diagnosis if the individual experiences persistent or recurrent symptoms of depersonalization or derealization.

Dissociation is related to a difficult, long-term treatment course. In a recent review, Brand *et al.*³⁴ noted that symptoms of dissociative disorders are frequently severe and that dissociative disorders are associated with a higher rate of mental health treatment and a substantial economic burden, compared with other psychiatric disorders (e.g., panic disorders, bipolar disorder, and major depressive disorder). Dissociation may also be an important predictor of poor treatment response and high relapse rates, even in patients whose primary diagnosis is not necessarily dissociative disorder.^{35–37} Patients with dissociative disorders have higher rates of suicidal ideation, suicide attempts, and self-injurious behavior than do people with other disorders.³⁸

Dissociative Disorders in the DSM and Essential Features

The DSM-5 describes the following categories of the dissociative disorders: dissociative identity disorder (DID); dissociative amnesia; depersonalization/derealization disorder; other specified dissociative disorder; and unspecified dissociative disorder.¹¹

Dissociative Identity Disorder

Dissociative identity disorder (DID; formerly termed multiple-personality disorder) is characterized by the presence of at least two distinct identities that, in turn, take control of the person's behavior. Memory dysfunction is a key diagnostic criterion of DID and usually presents in three primary ways: gaps in remote memory of personal life events (e.g., periods of childhood or adolescence); lapses in dependable memory (e.g., of what happened today); or discovery of evidence of daily actions and tasks that they do not recollect doing (e.g., finding unexplained purchases or discovering injuries).¹¹ This amnesia is not restricted to traumatic and stressful events; it can extend to regular everyday events as well, which can cause great distress in the individual and functional impairment.

The posttraumatic model of DID proposes that the disorder arises from a natural defensive reaction to extreme sexual, physical, or psychological trauma in childhood that results in dissociative states (viewed as separate alternate identities, or "alters") in which memories of traumatic events are stored.^{8,39-41} Because the onset is typically before the age of 5 or 6, the child does not develop a unified sense of self and instead develops multiple identities containing different memories.¹² In stressful situations, dissociation becomes a coping mechanism.⁴² Dissociated memories of experiences may be partially or totally inaccessible for voluntary retrieval by some dissociative identities (interidentity amnesia).^{13,43,44}

Dissociative Amnesia

Dissociative amnesia (formerly termed psychogenic or functional amnesia) is a disorder characterized by an inability to recall important personal experiences and events (usually of a traumatic or stressful nature) that is inconsistent with ordinary forgetting. It causes significant distress or impairment and occurs in the absence of structural brain damage or a known neurobiological cause and is not related to substance use or better explained by another mental disorder.¹¹ Although there are reports of dissociative amnesia that occurred after an apparently minor stressor,^{32,45,46} there is evidence of a series of traumatic or stressful events over time in most of these instances.⁴⁷ Dissociative amnesia typically occurs as a single episode and affects men and women in equal numbers, occurring most often in those in their 30s and 40s.⁴⁷

Spiegel *et al.*¹² noted several types of dissociative amnesia, including "localized amnesia," the inability to recall a specific event or period of time; "selective amnesia," the inability to remember some, but not all, of the events during a specific period; "systematized amnesia," the inability to remember a particular person or certain categories of memory (e.g., remembering being at school but having no recall of home life during a particular grade); "continuous amnesia," the inability to remember successive events as they occur (e.g., ongoing anterograde dissociative amnesia); "generalized (global) amnesia," forgetting one's entire life; and "thematic dissociative amnesia," in which different identity states in DID remember the same period, but not the events recalled by other self states.

Dissociative amnesia may be coded "with dissociative fugue" or "without dissociative fugue."¹¹ Dissociative fugue (also called a fugue state) is characterized by retrograde dissociative amnesia for personal identity, accompanied by suddenly leaving one's home or usual place of daily activities.⁴⁸ The loss of memory is often precipitated by a stressful experience (e.g., combat or sexual assault), usually centered on the traumatic event, and is commonly partial and selective.

Dissociative amnesia usually results in significant distress or impairment. However, individuals are often unaware, or partially aware, of their memory problems, minimize the importance of their memory loss, and are reluctant to discuss it.¹¹ It may include confusion about personal identity and the assumption of a new identity.¹¹ It typically lasts hours to days, but prolonged episodes have been noted.⁴⁹ After recovery, pre-fugue memories usually return intact.

Depersonalization/Derealization Disorder

A person with depersonalization/derealization disorder has longstanding or recurrent feelings of depersonalization or derealization. The disorder is characterized by a subjective experience of unreality, such as feeling as though one is in a movie or a dream, which results in significant distress or dysfunction. An alteration in the perception of object size or shape (macropsia and micropsia) may occur, as might a sense that other people seem unfamiliar or mechanical. Reality testing is unimpaired during depersonalization and derealization.¹¹

Depersonalization/derealization disorder can occur in response to severe traumatic lifetime events, including childhood trauma (particularly emotional abuse), accidents, war, and torture.^{50–52} Sexual abuse is a much less common antecedent but can be encountered.¹¹ It is often found as a comorbidity with anxiety and panic disorders, major depressive disorder, and bipolar disorder. Neuropsychological testing of people with depersonalization/derealization disorder has identified deficits in attention, short-term memory, and spatial–temporal reasoning, as well as cognitive impairments in early perceptual and attention processes.^{53,54} Men and women are diagnosed in equal numbers with this disorder, with onset usually in the teens or early 20s; only five percent have onset after age 25.^{11,55}

Other Specified Dissociative Disorder

The DSM-5 lists six examples of conditions that fall under the other specified dissociative disorder category: chronic and recurrent syndromes of mixed dissociative symptoms; identity disturbance caused by prolonged and intense coercive persuasion (e.g., brainwashing or thought reform); two types of acute dissociative reactions to stressful events, one of which contains psychotic features; dissociative trance; dissociative stupor or coma; and Ganser's syndrome.¹¹

Chronic and Recurrent Syndromes of Mixed Dissociative Symptoms. This category includes identity disturbances that are less than marked discontinuities in sense of self or in which there is no reported dissociative amnesia, which results in the individual not meeting the full criteria for one of the main dissociative disorders.¹¹

Identity Disturbance Caused by Prolonged and Intense Coercive Persuasion. This disorder is applied to individuals who have been subjected to intense coercive persuasion (e.g., brainwashing, torture, and recruitment by sects or cults) that results in prolonged changes or conscious questioning of their identity.¹¹ Streatfield⁵⁶ described examples of attempts by government officials of various countries to engage in coercive persuasion, orchestrating situations (e.g., solitary confinement, sensory deprivation, hypnosis, sodium pentothal, LSD, mescaline, cannabinoids, or electroconvulsive therapy), in which the defenses of individuals are substantially eroded. Similar techniques have been used by cults, causing impairments

in the potential adherent's capacity to think clearly and the will to critically evaluate ideas, which makes them more susceptible to influence and dependency.⁵⁷ It has been compared with the dynamics involved in battered-woman syndrome, where the aggressor uses his influence to control, manipulate, abuse, and exploit the other into a state of "learned helplessness" using techniques such as isolation, provocation of fear, alternating kindness and threat to produce disequilibrium, guilt, self-blame, and dependency.⁵⁸

Acute Dissociative Reactions to Stressful Events.

These reactions include two acute transient conditions that typically last from a few hours to less than one month.¹¹ The first is an acute reaction to a stressful experience with symptoms including depersonalization, derealization, amnesia, and disruptions of consciousness and stupor, such as *ataque de nervios* in Caribbean Latinos.¹² The second is an acute state characterized by psychotic and dissociative symptoms. Dissociative symptoms may include amnesia, flashbacks, and disruptions of consciousness. Psychotic symptoms can include catatonia, hallucinations, delusions, and grossly disturbed behavior. It may also include perceptual disturbances (e.g., time slowing, macropsia), microamnesias, transient stupor, or alterations in sensory-motor functioning (e.g., analgesia, paralysis).¹¹ The disorder stops suddenly with no symptoms remaining. This condition has been called "reactive dissociative psychosis" or "hysterical psychosis."^{59,60}

Dissociative Trance. This phenomenon is described as an acute narrowing or complete loss of awareness of immediate surroundings that manifests as profound unresponsiveness or insensitivity to environmental stimuli.¹¹ Stereotyped behaviors (e.g., finger tapping) may occur, as well as transient paralysis or loss of consciousness. These alterations are distressing, and they are not accepted as a normal part of a cultural or religious practice.

Dissociative Stupor and Coma. This may be used when the loss of consciousness, stupor, or coma are not attributable to a general medical condition. Although the DSM-5 still refers to it, one has to go back to the previous edition to find a definition by exclusion of an organic causation.⁶¹

Ganser's Syndrome. This form of dissociative disorder is an uncommon one that is currently defined in the DSM-5 as giving approximate and vague answers to questions.¹¹ Ganser⁶² originally described the syndrome as being hysterical in origin and including a semitrance state characterized by a tendency to give approximate answers, with features of impairment of consciousness, amnesia, and hallucinations. Onset of Ganser's syndrome is acute, and symptoms have been reported to appear for brief durations or persist for months.^{63–65} The condition has been viewed as a reaction to extreme stress.^{33,66} Ganser's syndrome may occur with other psychiatric symptoms.

Unspecified Dissociative Disorder

This category applies to situations when the symptoms characteristic of a dissociative disorder that causes significant distress or impairment do not meet the full criteria for any of the dissociative disorders.¹¹ The clinician can also use it when he chooses not to specify the reason that the criteria are not met and in presentations where there is insufficient information to make a specific diagnosis (e.g., in emergency room settings).

Peritraumatic Dissociation and Violence

Peritraumatic dissociation (PTD) refers to dissociative symptoms (e.g., usually depersonalization or derealization) experienced by people during traumatic events. PTD is strongly linked to the development of PTSD over time.^{67–71} It is related to the severity of PTSD and may predict subsequent amnesia.^{38,72–74} It is thought that PTD results in insufficient encoding of the traumatic experience, thereby disrupting memory storage and retrieval.⁷⁵

The lack of elaboration of the memory is proposed to be related to high emotion and dissociation during the traumatic experience.⁷⁶ Longstanding dissociation after the experience prevents memory elaboration, resulting in fragmentation of the trauma memory and PTSD. The memory disturbance that can accompany high levels of dissociation may serve to protect the individual from becoming overwhelmed by aspects of the trauma before being able to deal with it.⁷⁷

Some have advanced the notion that peritraumatic dissociation may represent a normative reaction. In a retrospective study, Rivard *et al.*⁷⁸ examined the prevalence of acute traumatic dissociation in a small convenient sample of 115 law enforcement officers involved in critical shooting incidents. It was found

that 90 percent had experienced an acute traumatic dissociation. Close to one-fifth described some form of memory impairment.⁷⁸

Moskowitz and Evans⁷⁷ reported that a notable proportion of violent offenders experience PTD and amnesia and that dissociative experiences are more likely to occur when the violence is more extreme.^{77,79} They explored three theoretical possibilities as to the significance of PTD and amnesia in violent offenders, in that PTD may reflect:

Traumatic reaction to one's violent actions (in the absence of a preexisting dissociative disorder). Some violent offenders develop symptoms of PTSD in response to their own violence (with no prior evidence of a dissociative disorder).^{80,81} This suggests that the source of the trauma is the individual's own violent behavior.

A preexisting dissociative disorder. Some violent individuals who report PTSD or amnesia have a preexisting dissociative disorder (often DID). Moskowitz and Evans⁷⁷ suggested that the violent crime may be an expression of a violent or homicidal alter. A recent review of medicolegal challenges associated with DID noted that this area is an important consideration in many legal cases, as defendants claiming that their alter committed the crime have pleaded not guilty by reason of insanity.⁸² A few studies have assessed the frequency of violent and homicidal behavior in individuals diagnosed with DID. Putnam *et al.*⁸ found violent alters in 70 percent of patients with DID, most of whom were female. In contrast, Loewenstein and Putnam⁸³ reported that male DID patients had a greater percentage of violent but not homicidal alters compared with a sample of female DID patients from the study by Putnam *et al.* (90% compared with 74%). Homicidal alters were present in about one-third of both sexes. In other research, more than one-third of alters in adolescents with DID had been violent or threatened violence.⁸⁴ Homicide remained a rare event, however.

The emergence of a dissociative disorder through the act of violence, with limited to no evidence afterward. Moskowitz and Evans⁷⁷ suggested that some individuals may not have a dissociative disorder before an act of violence but would have met criteria for a dissociative disorder at the time of violence. This pattern is similar to that seen in

studies of homicide and first-episode psychosis that found that 30 to 61 percent of homicides committed during psychotic illness took place during first-episode psychosis.^{85–90}

Dissociative symptoms have also been linked to violence in individuals diagnosed with other disorders. Although the concept of dissociation was first introduced in the context of hysteria, it was eventually applied to symptoms seen in schizophrenia, as they relate to the disruption of thinking and emotions.⁹¹ In psychotic patients, delusions of control and of thought insertion have been identified as predictive of violence.^{92,93} These types of delusions are also reported often in people with DID, and are interpreted as arising from alters influencing the “host” personality.^{94,95} The distinction between DID and schizophrenia may pose a challenge as these conditions share several psychopathological symptoms and impairment. Using the dissociative experience scale, a controlled-group study concluded that patients with schizophrenia have significantly more dissociative symptoms than do nonclinical controls. In particular, dissociative symptoms correlated with the so-called positive or productive symptoms, such as delusions and hallucinatory behavior.⁹¹ Such findings have challenged the notion that dissociative symptoms belong to the neurotic sphere rather than the psychotic sphere.

Persistent Dissociation and PTSD

Dissociation that occurs in response to trauma usually dissipates over time. However, some individuals have recurring trauma-related dissociative symptoms, including depersonalization and derealization, for months or years after the event. Persistent dissociation, dissociative symptoms that occur after a traumatic experience and continue over time, may contribute to the development and maintenance of PTSD symptoms.^{96–99} Clinical and neurobiological evidence of dissociative symptoms lend support to a dissociative subtype of PTSD, which is now included in the DSM-5.^{11,100–103}

Using epidemiologic data from 16 countries in the World Health Organization World Mental Health Survey, Stein *et al.*¹⁰⁴ reported that 14.4 percent of respondents diagnosed with PTSD met criteria for the dissociative subtype, a proportion within the range noted in prior studies. Dissociation was associated with heightened PTSD symptom counts, severe impairment in role functioning, and suicidality.

PTSD has been strongly associated with violent behavior.^{105,106} This violence may be driven by dissociative flashbacks from traumatic experiences, among the most common of PTSD symptoms.^{80,106,107}

Neurobiological Basis

Chronic psychosocial stresses could lead to dissociative disorders via dysregulation of hormonal stress responses. Neurobiological findings and imaging techniques have provided evidence that changes in brain structure or metabolism underlie several psychiatric disorders, including DID and dissociative amnesia.^{47,108}

Repeated exposure to stress may result in widespread alterations in neurotransmission with direct effects on brain function.^{109–111} The model for dissociative amnesia described by Staniloiu and Markowitsch⁴⁷ suggests that traumatic experiences may change how specific neurotransmitters are activated and result in altered processing of incoming information. The nature and extent of these changes are affected by how the traumatic experiences (particularly those with early onset) interact with an individual’s genetic disposition, environmental factors, and the developmental window. Subsequent stress may lead to dissociation of the usual synchronization between emotion-processing areas of new information (e.g., amygdala and septal region and basal forebrain) and cognitive-processing areas, leading to the block of autobiographical information processing. Such a model is consistent with evidence indicating that early life experiences can lead to changes in stress responses and neuroanatomical changes affecting brain connectivity, structures, and volume, including changes in the right hemispheric uncinate fascicle, a fiber bundle essential in the retrieval of episodic-autobiographical memory (e.g., personal context-based events).^{11,47,113–115}

The release of glucocorticoids and other stress hormones negatively impacts the function of brain structures necessary for the encoding or retrieval of information. Elevated glucocorticoid levels reduce traumatic memory retrieval by inhibiting activity in the medial temporal lobe.^{116–120} In patients with dissociative amnesia after stressful or traumatic experiences, Brand *et al.*¹²¹ found significantly decreased glucose utilization in the right inferolateral prefrontal cortex, known to play an important role in the retrieval of autobiographical memories. The right prefrontal cortex is strongly involved in synchroniz-

ing emotional and factual elements related to the self.^{122–125} Brand *et al.*¹²¹ posited that such hypometabolism in the inferolateral prefrontal cortex in patients with dissociative amnesia could indirectly compromise executive functioning associated with retrieval deficits.

In a review of research investigating a neurobiological basis for dissociation, Brand *et al.*³⁴ suggested that different aspects of emotion dysregulation contribute to the subtypes of PTSD. They hypothesized that hyperarousal symptoms and experiencing flashbacks after traumatic events could represent emotional undermodulation that is mediated by failure of prefrontal inhibition of activity in limbic regions. In contrast, the dissociative subtype involving symptoms of depersonalization and derealization could be seen as emotional overmodulation, accompanied by increased activation of medial prefrontal structures and hyperinhibition of limbic regions. Long-term childhood abuse and military combat trauma are associated with the overmodulation characterizing the dissociative subtype.^{72,102,126,127}

Forensic Implications

The forensic psychiatrist may be called on to perform an examination of an offender who presents a clinical picture suggestive of dissociation and must form an opinion after the fact. This can be a difficult task, given that many elements need to be analyzed and weighed in that final opinion.

In the face of numerous reports of peritraumatic dissociation claimed by offenders who have no secondary gains in doing so, malingering cannot be assumed but must be ruled out.^{1,77} The assessment should take into careful account the credibility of the accused and claims of dissociation and amnesia. Some offenders fabricate memory loss for their actions to escape criminal liability and potential incarceration. Research indicates that between 20 and 30 percent of offenders who committed a violent crime, claim amnesia for their offense, while one-quarter to two-thirds of homicide offenders claim amnesia.^{7,10,128–131} Merckelbach and Christianson¹³² reported that offenders with more emotionally driven homicides are more likely to claim amnesia (56%) than offenders whose homicides involved planning (30%). In the first study to examine neuropsychological test performance in a group of convicted amnesic offenders, Pyszora *et al.*¹³³ found that crimes of passion and history of blackouts, alcoholic or other-

wise, were associated with amnesia, and that dissociative symptoms at the time of the offense were related to the occurrence and duration of amnesia.

Vignette 1

A man's marriage had recently broken up and he suspected his wife of having a lover. He reported vague depressive symptoms and a history of domestic violence. One evening, he went out with friends and used alcohol and cocaine and returned home, becoming increasingly paranoid. He confronted his wife and a verbal fight ensued. His wife pushed him and he became furious. He regained consciousness in a nearby swamp with his wife unconscious beside him. He was charged with first-degree murder and found guilty. This description exemplifies peritraumatic dissociation triggered by anger, in the context of cocaine and alcohol-induced paranoid state.

Guide for Evaluation

This section offers some practical tips and guidance with regard to critical elements that should be considered in the forensic evaluation of the offender who reports symptoms suggestive of dissociation around the time of commission of a violent crime.

Type of Amnesia. It is nearly impossible to isolate dissociation from amnesia, because the main dissociative disorders entail the presence of amnesia as an important feature. The quality and type of amnesia have great relevance in the evaluation. Claims of partial or "patchy" amnesia are more likely than full amnesia for the whole event, which can signal an attempt to feign an excuse for the criminal behavior. In true claims of dissociative amnesia, the offender will recall some aspect of the crime and report a loss of control. Depersonalization and/or derealization phenomena will also be reported. According to the diagnosis that explains the dissociative event, other criteria will have to be met.

The Offender's Background. The psychiatric and personal history of the offender should be closely scrutinized, including previous experiences of psychiatric decompensating and inefficient stress-coping mechanisms. Previous experiences of dissociation need not be present but if so, they may assist in validating the claims, such as in individuals with severe PTSD. Identifiable stressful events and heightened emotional states in an individual with personal vulnerabilities preceding the crime are more likely to

trigger a dissociative state and amnesia. A careful clinical evaluation will allow the expert to rule out any organic condition or other explanations for the amnesia and dissociation. The presence of a prior criminal history or previous incarceration experience and potential “learning effect” will lead the examiner to be cautious in assessing claims of amnesia and dissociation.

The Problem of Malingering. Although the purpose of this article is primarily to discuss the concept of dissociation in a forensic psychiatric context, assuming at the basis they are validated, the expert must remain vigilant, as claims of amnesia or dissociation are not always substantiated and the accused may be suspected of malingering. In these cases, the examiner should be alert to inconsistencies and improbabilities in the narrative of the accused. Consistencies in the accused’s report over time are paramount. The accused who feigns amnesia or dissociation may provide an implausible description of the amnesia itself. As mentioned earlier, *en bloc* amnesia is a rare occurrence. This being said, the expert is expected to evaluate the mental state of the accused at the time of the crime and must be mindful of contaminations of memory based on knowledge acquired later on, through information that becomes available through police sources or other evidence, for example.

In the legal context, symptom validity tests may be administered to individuals who present with unusual conditions to help determine whether they exhibit negative-response bias or uncooperativeness.¹³⁴ A negative-response bias may cast doubt on the genuineness of the claimed symptomatology and reduce the degree of medical certainty ascribed to the diagnosis in question. It must be kept in mind that both malingering and genuine mental disorder can co-exist but the presence of a negative response bias would have the effect of raising the level of suspicion with regards to the individual’s motivations. Lie-deception tests and other available deception validity scales have seldom found their way to the court, however.

The presence of psychopathy would call for prudence in considering the credibility of the offender’s narrative. A study of 50 convicted offenders revealed that psychopathic offenders were more likely than nonpsychopaths to have committed instrumental homicides; however, they were more likely to minimize the degree of planning and premeditation and

to amplify the reactivity of their violence and the role of the victim.¹³⁵ Previous statements and threats made against the victim also need to be factored in and considered carefully.

Legal Perspectives on Dissociative Amnesia

Dissociation and dissociative amnesia for serious offenses can have legal repercussions, because of their relevance to the legal constructs of fitness to stand trial and criminal responsibility. Regarding fitness or competency to stand trial, as per the competency standard set by *Dusky v. United States* (1960),¹³⁶ dissociative amnesia could render a defendant incompetent to stand trial because memory loss for the events would prevent him from having a reasonable degree of rational understanding and restrict his ability to assist counsel in the preparation of his defense. Fitness to stand trial was addressed in *Wilson v. United States* (1968).¹³⁷ The U.S. Court of Appeals D.C. Circuit ruled that lack of memory for an alleged offense is not a sufficient factor alone to negate competency. The Court concluded that the following factors must be addressed in an evaluation of the impact of amnesia on a defendant’s ability to stand trial: the defendant’s ability to consult with and assist counsel; the extent to which the memory loss affected the defendant’s ability to testify and to reconstruct evidence extrinsically; the extent to which the government assisted in that reconstruction; the strength of the prosecution’s case; and any other general factors pertinent to the case.

Although no convincing case law could be found regarding dissociative amnesia and fitness to stand trial, Smith and Resnick¹³⁸ provided a summary of *United States v. Andrews*,¹³⁹ which involved an individual with a drug-induced amnesia surrounding a count of bank robbery. In essence, Mr. Andrews was found guilty of robbing the bank in a bench trial, which he appealed, based on his claim that his amnesia for the relevant period of the robbery had rendered him unable to assist in his own defense at trial. The Court affirmed Mr. Andrews’ conviction and found that the district court did not err in its finding that Mr. Andrews was fit to stand trial. Smith and Resnick provided the reasoning for this determination, which relied heavily on the precedent set in *United States v. Stevens*,¹⁴⁰ stating that “amnesia is not a bar to prosecution of an otherwise competent defendant.” The appeals court also cited the standard laid out in *Dusky v. United States*¹³⁶ and identified

the factors listed above when applying this standard to an amnesic defendant. However, the court also acknowledged the importance of not trying individuals who are unfit to stand trial, and that it is possible that amnesia could impair fitness.¹³⁸ An example of this could be a person with an ongoing dissociative disorder with significant periods of amnesia and dysfunctional mental states keeping him from productively conferring with a lawyer (i.e., not able to discuss a traumatic index offense due to ongoing dissociations, or dissociations during the trial or when taking the stand).

Dissociative states are legally relevant because of the equating of memory loss with lack of intent and involuntariness of behavior, when appropriate. Careful consideration is needed, because these situations call for different possible legal outcomes. Possible verdicts include automatism, not criminally responsible, and diminished responsibility.

Verdict of Automatism

In the context of criminal responsibility, amnesia for serious offenses has particular relevance, because it may indicate automatism: criminal behavior that is not voluntarily controlled and is executed without intent. In Canada in 1971 the automatism defense was extended from physical trauma to include psychological trauma, a state of dissociation also referred to as “psychological blow” automatism.¹⁴¹ In Canada, dissociative states fall within the defense of mental disorder; the automatism defense is either noninsane (nonmental disorder) or insane (mental disorder) automatism. Noninsane automatism is rare. The crime is attributed to involuntary action caused by a temporary impairment of mental functioning that does not stem from a disease of the mind (leading to full acquittal, if the defense is successful). A classic example is sleepwalking.¹⁴² Insane automatism applies to a crime arising from organic brain dysfunction, that is, involuntary action resulting from a “disease of the mind” (falling under the defense of mental disorder leading to a verdict of not criminally responsible by reason of mental disorder).

In the landmark Supreme Court of Canada case of *R. v. Stone*,¹⁴³ a man accused of murdering his wife raised the defenses of provocation and noninsane automatism, claiming a dissociative state triggered by a psychological blow. The jury ruled that the accused did not have a disease of the mind and rejected the defense of automatism. The accused was convicted of

manslaughter, based on the provocation defense. Yeo¹⁴⁴ pointed out that in *Stone*, the Court clarified that unconsciousness need not be present in a state of automatism and that the important element in automatism is whether criminal behavior is involuntary or not.

Insane and noninsane automatisms are distinguished by a test of internal versus external cause. The defendant’s automatistic reaction to the psychological trauma is evaluated from the perspective of a normal individual who experiences the same stressful circumstances. If it is determined that a normal individual would have reacted in a similar manner by experiencing an automatistic state, a defense of noninsane automatism would be supported, as the cause of the automatism would be considered to be an external event and not due to the psychological or emotional character of the defendant.

Verdict of Not Criminally Responsible

In Canada, criminal responsibility is related to the ability of the accused to know that the act was wrong. To establish criminal responsibility, it is necessary to show an element of criminal intent (*mens rea*) and that the actions of the accused were conscious and voluntary.¹⁴⁵ In Canada, dissociative states are viewed generally as giving rise to insane automatism, akin to not criminally responsible (NCR).¹⁴⁶ For the purpose of the defense of NCR, the accused is determined to have been in a dissociative state at the time of the criminal act.

Vignette 2

A married female with a teenage daughter entertained an ambivalent relationship with the victim, a man with high influence in their community. They engaged in sexual intimacy without intercourse. They met in an isolated place to have sex. He became violent and abusive, raped her, and threatened to do the same to her daughter. The woman remembered removing a weapon from the glove compartment of the car. She was charged with murdering her assailant. She had anterograde amnesia with only partial and blurred visual memories. She had no prior history of psychiatric illness or dissociative experience. Clinical evaluation revealed nothing out of the ordinary except for a high level of anxiety, although it was also understandable in the context of her legal case. This illustrates an acute dissociation triggered by sexual abuse and direct threat to integrity of her daughter.

ter. A jury found her not criminally responsible by reason of a mental disorder.

Berger *et al.*¹⁴⁷ provided an excellent review of case law for PTSD-related dissociative symptoms, as a criminal defense in the United States. Some examples of successful insanity defenses included *State of New Jersey v. Cocuzza* (1981), *State v. Heads* (1980), *State v. Wood* (1982), and *Commonwealth v. Tracy* (1989). In his first trial, Heads was found guilty of murder, but in a second trial, he was found not guilty by reason of insanity after an expert testified about PTSD.¹⁴⁸ All of these cases seemingly involved Vietnam veterans committing an offense while in a dissociative state. Dissociative flashbacks have been suggested by some to be the only legitimate basis for insanity and other exculpatory defenses, although criminal defenses of hyperarousal symptoms and sensation-seeking behaviors have also been presented.¹⁴⁷ Berger *et al.*¹⁴⁷ indicated that PTSD has received mixed treatment when offered as a basis for insanity, being met with skepticism in several jurisdictions. However, it appears that the main reason for the rejection of PTSD as an insanity defense often stemmed from a lack of demonstrating how PTSD (and dissociative phenomena) could lead to insanity due to the difficult-to-verify nature of DSM's PTSD and dissociative disorder criteria.^{147,148} Although there is a perception that individuals could abuse PTSD as a defense, Appelbaum *et al.*¹⁵⁰ found that defendants in the United States had no more success with PTSD than with other mental disorders and that insanity pleas based on PTSD made up a small proportion of all insanity pleas. PTSD has been determined to meet both the *Frye* standard and the *Daubert* standard, governing the admissibility of expert witness testimony in courts.¹⁴⁷

Farrell¹⁵¹ provided a review of medicolegal challenges with DID and determined that most DID defenses did not hold up after *State v. Milligan*,¹⁵² in response to which public outrage occurred after a serial rapist was not held culpable for his actions. It was opined that defendants who claim DID are usually viewed as having limited credibility because of the perception of malingering.

Diminished-Capacity Defense

Certain jurisdictions have allowed the defense of diminished capacity or diminished responsibility. The criteria for a verdict of diminished capacity require that the defendant has an underlying condi-

tion, an abnormality of mental functioning (e.g., a major mood disorder or psychotic illness), that substantially impairs his or her ability for rational judgment, understanding of his or her actions, and self control. A mental disorder short of insanity may interfere with an individual's capacity to form a specific intent to carry out actions, such as killing. If diminished capacity is proven on a charge of murder, the accused is convicted instead of manslaughter, a crime of general intent.

In *State v. Warden*,¹⁵³ a woman charged with first-degree murder, raised the diminished capacity defense. At trial, an expert testified that she had PTSD with dissociation and that she lacked the capacity to form a specific intent at the time of the crime. The trial judge did not instruct the jury on manslaughter. On appeal, the Washington Supreme Court overturned the conviction and found guilt on the lesser charge of manslaughter. A similar situation arose in *State v. Bottrell*,¹⁵⁴ where the same court of appeal reversed a prior ruling.

Conclusion

Dissociation and amnesia are two intimately linked concepts. We have seen their relevance in a forensic context, as exemplified in the case law and the vignettes. PTSD with dissociation is a condition that has been recognized by the courts as meeting the usual standard of admissibility for psychiatric expert testimony. The complexity in forensic psychiatric assessments often lies in the difficulty of correlating clinical situations with the current diagnostic framework of dissociation, including the DSM diagnostic system. Diagnostic categories and definition imperfectly fit what can be observed clinically or descriptions made by offenders when there is no evidence of deception. The use of the DSM classification system is sometimes of little help, which does not mean that a dissociative episode is not clinically relevant. The courts expect the experts to provide coherent assessment based on scientific knowledge. The limitations brought about by the current state of demonstrable knowledge of brain functioning make it difficult for the experts to convey clear clinical impressions when it comes to phenomena as complex as memory and dissociation.

This being said, dissociation is not an uncommon feature in crimes of violence, although the relative contribution of dissociation to overall violence is limited. Dissociation signals a disruption in the nor-

mally integrated functions of memory and consciousness. To what extent this has an impact on criminal responsibility in the context of the accused facing justice is the real task for determination by the experts and the court. Thorough and thoughtful forensic psychiatric assessments require clinical assessment skills above all. Assessments should always involve a critical analysis of available information, including the characteristics of the offender; collateral information from family members, friends, or other source; and circumstances surrounding the offense. Particular attention should be paid to personal and psychiatric characteristics of the offender, such as pre-existing psychiatric conditions, personality factors, substance use, and prior history of dissociative events. In many cases, it will be possible to reconstitute the mental state of the accused before and near the time of the crime to such an extent that the expert will be able to formulate a sustainable psychiatric opinion.

The task of the expert would benefit greatly from more in-depth knowledge surrounding complex topics such as dissociation and amnesia. The current state of knowledge is limited by the nature of the condition and the fact that the diagnosis is largely based on self-report and subjective experiences, not unlike other psychiatric diagnoses. The need for future studies, using sophisticated and scientific methods to assess dissociation in relation to violent behavior, would be of invaluable support to the domain of forensic psychiatry.

References

- Bourget D, Whitehurst L: Amnesia and crime. *J Am Acad Psychiatry Law* 35:469–80, 2007
- Evans C, Ehlers A, Mezey G, *et al*: Intrusive memories and ruminations related to violent crime among young offenders: phenomenological characteristics. *J Trauma Stress* 20:183–96, 2007
- Evans C, Ehlers A, Mezey G, *et al*: Intrusive memories in memories of violent crime: emotions and cognitions. *J Consult Clin Psychol* 75:134–44, 2007
- Moskowitz A: Dissociation and violence: a review of the literature. *Trauma Violence Abuse* 5:21–46, 2004
- Moskowitz A: Dissociative pathways to homicide: clinical and forensic implications. *J Trauma Dissoc* 5:5–32, 2004
- Bradford JW, Smith SM: Amnesia and homicide: the Padola case and a study of thirty cases. *Bull Am Acad Psychiatry Law* 7:219–31, 1979
- Taylor PJ, Kopelman MD: Amnesia for criminal offenses. *Psychol Med* 14:581–8, 1984
- Putnam FW, Guroff JJ, Silberman EK, *et al*: The clinical phenomenology of multiple personality disorder: a review of 100 recent cases. *J Clin Psychiatry* 47:285–93, 1986
- Loewenstein RJ: Psychogenic amnesia and psychogenic fugue: a comprehensive review. *Am Psychiatr Press Rev Psychiatry* 10: 189–222, 1991
- Evans C, Mezey G, Ehlers A: Amnesia for violent crime among young offenders. *J Forensic Psychiatry Psychol* 20:85–106, 2009
- American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. Washington, DC: American Psychiatric Association, 2013
- Spiegel D, Loewenstein RJ, Lewis-Fernández R, *et al*: Dissociative disorders in DSM-5. *Depress Anxiety* 28:E17–E45, 2011
- Janet P: *The Major Symptoms of Hysteria*. London: Macmillan, 1907
- Mayer-Gross W: On depersonalization. *Br J Med Psychology* 15:103–6, 1935
- James W: *The Principles of Psychology*. Cambridge, MA: Harvard University Press, 1890/1983
- Prince M: *The Dissociation of a Personality*. New York: Oxford University Press, 1905/1978
- Putnam FW: Dissociative phenomena, in *Dissociative Disorders: A Clinical Review*. Edited by Spiegel D. Lutherville, MD: Sidran, 1993, pp 1–16
- Ross CA: History, phenomenology, and epidemiology of dissociative disorders, in *Handbook of Dissociation*. Edited by Michelson LK, Ray WJ. New York: Plenum, 1996, pp 3–24
- Holmes EA, Brown RJ, Mansel W, *et al*: Are there two qualitatively distinct forms of dissociation? A review and some clinical implications. *Clin Psychol Rev* 25:1–23, 2005
- Brown RJ: Different types of “dissociation” have different psychological mechanisms. *J Trauma Dissoc* 7:7–28, 2006
- Spitzer C, Barnow S, Freyberger HJ, *et al*: Recent developments in the theory of dissociation. *World Psychiatry* 5:82–6, 2006
- Bremner JD, Marmar CR: *Trauma, Memory, and Dissociation*. Washington, DC: American Psychiatric Press, 1998
- Gershuny BS, Thayer JF: Relations among psychological trauma, dissociative phenomena, and trauma-related distress: a review and integration. *Clin Psychol Rev* 19:631–57, 1999
- Steiner H, Carrion V, Plattner B, *et al*: Dissociative symptoms in posttraumatic stress disorder: diagnosis and treatment. *Child Adolesc Psychiatr Clin N Am* 12:231–49, 2003
- Seligman R, Kirmayer LJ: Dissociative experience and cultural neuroscience: narrative, metaphor and mechanism. *Cult Med Psychiatry* 32:31–64, 2008
- Jones E, Fear NT, Wessely S: Shell shock and mild traumatic brain injury: a historical review. *Am J Psychiatry* 164:1641–5, 2007
- Xiao Z, Yan H, Wang Z, *et al*: Trauma and dissociation in China. *Am J Psychiatry* 163:1388–91, 2006
- Nijenhuis E, van der Hart O: Dissociation in trauma: a new definition and comparison with previous formulations. *J Trauma Dissoc* 12:416–45, 2011
- Del Piccolo L, Saltini A, Zimmermann C: Which patients talk about stressful life events and social problems to the general practitioner? *Psychol Med* 28:1289–99, 1998
- Michal M, Beutel M, Jordan J, *et al*: Depersonalization, mindfulness, and childhood trauma. *J Nerv Ment Dis* 195:693–6, 2007
- Sotiropoulos J, Cerqueira JJ, Catania C, *et al*: Stress and glucocorticoid footprints in the brain: the path from depression to Alzheimer’s disease. *Neurosci Biobehav Rev* 32:1161–73, 2008
- Reinhold N, Markowitsch HJ: Emotion and consciousness in adolescent psychogenic amnesia. *J Neuropsychol* 1:53–64, 2007
- Staniloiu A, Bender A, Smolewska K, *et al*: Ganser syndrome with work-related onset in a patient with a background of immigration. *Cogn Neuropsychiatry* 14:180–98, 2009

Defining Dissociation

34. Brand B, Lanius R, Vermetten E, *et al*: Where are we going? An update on assessment, treatment, and neurobiological research in dissociative disorders as we move toward the DSM-5. *J Trauma Dissoc* 13:9–31, 2012
35. Kleindienst N, Limberger MF, Ebner-Piemer UW, *et al*: Dissociation predicts poor response to dialectical behavior therapy in female patients with borderline personality disorder. *J Pers Disord* 25:432–47, 2011
36. Spitzer C, Barnow S, Freyberger HJ, *et al*: Dissociation predicts symptom-related treatment outcome in short-term inpatient psychotherapy. *Aust NZ J Psychiatry* 41:682–7, 2007
37. Michelson L, June K, Vives A, *et al*: The role of trauma and dissociation in cognitive-behavioral psychotherapy outcome and maintenance for panic disorder with agoraphobia. *Behav Res Ther* 36:1011–50, 1998
38. Foote B, Smolin Y, Neft D, *et al*: Dissociative disorders and suicidality in psychiatric outpatients. *J Nerv Ment Dis* 196:29–36, 2008
39. Kluff RP: Clinical presentations of multiple personality disorder. *Psychiatr Clin N Am* 14:605–29, 1991
40. Coons PM, Milstein V: Psychosexual disturbances in multiple personality: characteristics, etiology, and treatment. *J Clin Psychiatry* 47:106–11, 1986
41. Gleaves DH: The sociocognitive model of dissociative identity disorder: a re-examination of the evidence. *Psychol Bull* 120:42–59, 1996
42. Bowman E, Spiegel D: Recovered memories, hypnosis and dissociation. *J Curr Psychiatry* 4:2–3, 2005
43. Ellenberger HF: *The Discovery of the Unconscious: The History and Evolution of Dynamic Psychiatry*. New York: Basic Books, 1970
44. Ludwig AM, Brandsma JM, Wilbur CB, *et al*: The objective study of a multiple personality. *Arch Gen Psychiatry* 26:298–310, 1972
45. Markowitsch HJ, Kessler J, Van der Ven C, *et al*: Psychic trauma causing grossly reduced brain metabolism and cognitive deterioration. *Neuropsychologia* 36:77–82, 1998
46. Reinhold N, Markowitsch HJ: Retrograde episodic memory and emotion: a perspective from patients with dissociative amnesia. *Neuropsychologia* 47:2197–206, 2009
47. Staniloiu A, Markowitsch HJ: Searching for the anatomy of dissociative amnesia. *J Psychol* 218:96–108, 2010
48. Markowitsch HJ, Fink GR, Thöne AIM, *et al*: Persistent psychogenic amnesia with a PET-proven organic basis. *Cogn Neuropsychiatry* 2:135–58, 1997
49. Hennig-Fast K, Meister F, Frodl T, *et al*: A case of persistent retrograde amnesia following a dissociative fugue: neuropsychological and neurofunctional underpinnings of loss of autobiographical memory and self-awareness. *Neuropsychologia* 46:2993–3005, 2008
50. Noyes R, Hoenk PR, Kuperman S, *et al*: Depersonalization in accident victims and psychiatric patients. *J Nerv Ment Dis* 164:401–7, 1977
51. Noyes R, Kletti R: Depersonalization in response to life threatening danger. *Compr Psychiatry* 8:375–84, 1977
52. Simeon D, Guralnik O, Schmeidler J, *et al*: The role of childhood interpersonal trauma in depersonalization disorder. *Am J Psychiatry* 158:1027–33, 2001
53. Guralnik O, Schmeidler J, Simeon D: Feeling unreal: cognitive processes in depersonalization. *Am J Psychiatry* 157:103–9, 2003
54. Guralnik O, Giesbrecht T, Knutelska M, *et al*: Cognitive functioning in depersonalization disorder. *J Nerv Ment Dis* 195:983–8, 2007
55. Baker D, Hunter E, Lawrence E, *et al*: Depersonalization disorder: clinical features of 204 cases. *Br J Psychiatry* 182:428–33, 2003
56. Streatfield D: *Brainwash: the Secret History of Mind Control*. New York: Thomas Dunne Books, 2007
57. Tedeschi JT, Felson RB: *Violence, aggression, and coercive actions*. Washington DC: American Psychological Association, 1994, p 179
58. Freckelton I: “Cults”, calamities and psychological consequences. *Psychiatry Psychol Law* 5:1–46, 1998
59. van der Hart O, Witztum E, Friedman B: From hysterical psychosis to reactive dissociative psychosis. *J Trauma Stress* 6:43–64, 1993
60. Spiegel D, Fink R: Hysterical psychosis and hypnotisability. *Am J Psychiatry* 136:777–81, 1979
61. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*. Washington, DC: American Psychiatric Association, 2000
62. Ganser SJ: Zur Lehre vom hysterischen Dämmerzustande [On the theory of the hysterical state of somnolence]. *Archiv für Psychiatrie und Nervenkrankheiten [Arch Psychiatry Clin Neurosci]* 38:34–46, 1904
63. Cocores JA, Santa WG, Patel MD: The Ganser syndrome: evidence suggesting its classification as a dissociative disorder. *Int J Psychiatry Med* 14:47–56, 1984
64. Dabholkar PD: Ganser syndrome: a case report and discussion. *Br J Psychiatry* 151:256–8, 1987
65. Miller P, Bramble D, Buxton N: Case study: Ganser syndrome in children and adolescents. *J Am Acad Child Adolesc Psychiatry* 36:112–5, 1997
66. Steinberg M: Dissociative disorders, in *Comprehensive Textbook of Psychiatry* (ed 7, vol 1). Edited by Sadock BJ, Sadock VA. Philadelphia: Lippincott, Williams & Wilkins, 2000, pp 1544–76
67. Ozer EJ, Best SR, Lipsey TL, *et al*: Predictors of posttraumatic stress disorder and symptoms in adults: a meta-analysis. *Psychol Bull* 129:52–73, 2003
68. Birmes P, Carreras D, Charlet JP, *et al*: Peritraumatic dissociation and posttraumatic stress disorder in victims of violent assault. *J Nerv Ment Dis* 189:796–8, 2001
69. Marmar CR, Weiss DS, Schlenger WE, *et al*: Peritraumatic dissociation and posttraumatic stress in male Vietnam theater veterans. *Am J Psychiatry* 151:902–7, 1994
70. Shalev AY, Peri T, Canetti L, *et al*: Predictors of PTSD in injured trauma survivors: a prospective study. *Am J Psychiatry* 153:219–25, 1996
71. van der Kolk B: The body keeps score: memory and the evolving psychobiology of post-traumatic stress. *Harvard Rev Psychiatry* 1:253–65, 1994
72. Wolf EJ, Lunney CA, Miller MW, *et al*: The dissociative subtype of PTSD: a replication and extension. *Depress Anxiety* 29:679–88, 2012
73. Lanius R, Brand B, Vermetten E, *et al*: The dissociative subtype of posttraumatic stress disorder: rationale, clinical and neurobiological evidence, and implications. *Depress Anxiety* 29:701–8, 2012
74. Yates JL, Nasby W: Dissociation, affect and network models of memory: an integrative proposal. *J Trauma Stress* 8:649–73, 1995
75. Bedard-Gilligan M, Zoellner L: Dissociation and memory fragmentation in post-traumatic stress disorder: an evaluation of the dissociative encoding hypothesis. *Memory* 20:277–99, 2012
76. van der Kolk BA: *Psychological Trauma*. Washington, DC: American Psychiatric Press, 1987

77. Moskowitz A, Evans C: Peritraumatic dissociation and amnesia in violent offenders, in *Dissociation and the Dissociative Disorders: DSM-V and Beyond*. Edited by Dell PF, O'Neil JA. New York: Routledge, 2009 pp 197–207
78. Rivard MJ, Dietz P, Martell D, *et al*: Acute dissociative responses in law enforcement officers involved in critical shooting incidents: the clinical and forensic implications. *J Forensic Sci* 47: 1–8, 2002
79. Simoneti S, Scott EC, Murphy CM: Dissociative experiences in partner-assaultive men. *J Interpers Violence* 15:1262–83, 2000
80. Steiner H, Garcia I, Matthews Z: Post-traumatic stress disorder in incarcerated juvenile delinquents. *J Am Acad Child Adolesc Psychiatry* 36:357–65, 1997
81. Spitzer C, Dudeck M, Liss H, *et al*: Post-traumatic stress disorder in forensic patients. *J Forensic Psychiatry* 12:63–77, 2001
82. Farrell HM: Dissociative identity disorder: medicolegal challenges. *J Am Acad Psychiatry Law* 39:402–6, 2011
83. Loewenstein R, Putnam F: The clinical phenomenology of males with MPD: a report of 21 cases. *Dissociation* 3:135–43, 1990
84. Dell P, Eisenhower J: Adolescent multiple personality disorder. *J Am Acad Child Adolesc Psychiatry* 29:359–66, 1990
85. Shaw J, Appleby L, Amos T, *et al*: Mental disorder and clinical care in people convicted of homicide: national clinical survey. *BMJ* 318:1240–44, 1999
86. Simpson A, McKenna B, Moskowitz A, *et al*: Homicide and mental illness in New Zealand: 1970–2000. *Br J Psychiatry* 185:394–8, 2004
87. Meehan J, Flynn S, Hunt IM, *et al*: Perpetrators of homicide with schizophrenia: a national clinical survey in England and Wales. *Psychiatr Serv* 57:1648–51, 2006
88. Nielssen OB, Westmore BD, Large MM, *et al*: Homicide during psychotic illness in New South Wales between 1993 and 2002. *Med J Aust* 186:301–4, 2007
89. Bourget D, Labelle A, Gagné P, *et al*: First-episode psychosis and homicide. *Bull Can Psychiatr Assoc* 36:6–9, 2004
90. Nielssen O, Large M: Rates of homicide during the first episode of psychosis and after treatment: a systematic review and meta-analysis. *Schizophr Bull* 36:702–12, 2010
91. Spitzer C, Haug H-J, Freyberger HJ: Dissociative symptoms in schizophrenic patients with positive and negative symptoms. *Psychopathology* 30:67–75, 1997
92. Link BG, Stueve A, Phelan J: Psychotic symptoms and violent behaviors: probing the components of “threat/control-override” symptoms. *Soc Psychiatry Psychiatr Epidemiol* 33(Suppl 1): S55–60, 1998
93. Swanson JW, Borum R, Swartz MS, *et al*: Psychotic symptoms and disorders and the risk of violent behaviour in the community. *Crim Behav Mental Health* 6:309–29, 1996
94. Kluff RP: First-rank symptoms as a diagnostic clue to multiple personality disorder. *Am J Psychiatry* 144:293–8, 1987
95. Ross CA, Miller SD, Reagor P, *et al*: Schneiderian symptoms in multiple personality disorder and schizophrenia. *Comp Psychiatry* 31:111–18, 1990
96. Werner KB, Griffin MG: Peritraumatic and persistent dissociation as predictors of PTSD symptoms in a female cohort. *J Trauma Stress* 25:401–7, 2012
97. Halligan S, Michael T, Clark D, *et al*: Posttraumatic stress disorder following assault: the role of cognitive processing, trauma memory, and appraisals. *J Consult Clin Psychol* 71:419–31, 2003
98. Murray J, Ehlers A, Mayou R: Dissociation and post-traumatic stress disorder: two prospective studies of road traffic accident survivors. *Br J Psychiatry* 180:363–8, 2002
99. Briere J, Scott C, Weathers F: Peritraumatic and persistent dissociation in the presumed etiology of PTSD. *Am J Psychiatry* 162:2295–301, 2005
100. Lanius R, Vermetten E, Loewenstein RJ, *et al*: Emotion modulation in PTSD: clinical and neurobiological evidence for a dissociative subtype. *Am J Psychiatry* 167:640–7, 2010
101. Ginzburg K, Koopman C, Butler LD, *et al*: Evidence for a dissociative subtype of post-traumatic stress disorder among help-seeking childhood sexual abuse survivors. *J Trauma Dissoc* 7:7–27, 2006
102. Wolf EJ, Miller MW, Reardon AF, *et al*: A latent class analysis of dissociation and posttraumatic stress disorder. *Arch Gen Psychiatry* 69:698–705, 2012
103. Steuwe C, Lanius RA, Frewen PA: Evidence for a dissociative subtype of PTSD by latent profile and confirmatory factor analyses in a civilian sample. *Depress Anxiety* 29:689–700, 2012
104. Stein DJ, Koenen KC, Friedman MJ, *et al*: Dissociation in post-traumatic stress disorder: evidence from the World Mental Health Surveys. *Biol Psychiatry* 73:302–12, 2013
105. Lasko N, Gurvits T, Kuhne A, *et al*: Aggression and its correlates in Vietnam veterans with and without chronic posttraumatic stress disorder. *Comp Psychiatry* 35:373–81, 1994
106. Collins JJ, Bailey SL: Traumatic stress disorder and violent behavior. *J Trauma Stress* 3:203–20, 1990
107. Silva JA, Derecho DV, Leong GB, *et al*: A classification of psychological factors leading to violent behavior in posttraumatic stress disorder. *J Forensic Sci* 46:309–16, 2001
108. Vermetten E, Schmahl C, Lindner S, *et al*: Hippocampal and amygdalar volumes in dissociative identity disorder. *Am J Psychiatry* 163:630–6, 2006
109. McEwen BS: The neurobiology of stress: from serendipity to clinical relevance. *Brain Res* 886:172–89, 2000
110. Joseph R: The neurology of traumatic “dissociative” amnesia: commentary and literature review. *Child Abuse Negl* 23:15–27, 1999
111. Sapolsky RM: Why stress is bad for your brain. *Science* 273: 749–50, 1996
112. Bluhm RL, Williamson PC, Osuch EA, *et al*: Alterations in default network connectivity in posttraumatic stress disorder related to early-life trauma. *J Psychiatry Neurosci* 34:187–94, 2009
113. Govindan RM, Behen ME, Helder E, *et al*: Altered water diffusivity in cortical association tracts in children with early deprivation identified with tract-based spatial statistics. *Cereb Cortex* 20:561–9, 2010
114. Lupien SJ, McEwen BS, Gunnar MR, *et al*: Effects of stress throughout the lifespan on the brain, behavior, and cognition. *Nat Rev Neurosci* 10:434–45, 2009
115. Mehta MA, Golembo NI, Nosarti C, *et al*: Amygdala, hippocampal and corpus collosum size following severe early institutional deprivation: The English and Romanian adoptees study pilot. *J Child Psychol Psychiatry* 50:943–51, 2009
116. de Quervain DJ, Roozendaal B, Nitsch RM, *et al*: Acute cortisone administration impairs retrieval of long-term declarative memory in humans. *Nat Neurosci* 3:313–4, 2000
117. de Quervain DJ, Henke K, Aerni A, *et al*: Glucocorticoid-induced impairment of declarative memory retrieval is associated with reduced blood flow in the medial temporal lobe. *Eur J Neurosci* 17:1296–1302, 2003
118. Buss C, Wolf OT, Witt J, *et al*: Autobiographic memory impairment following acute cortisol administration. *Psychoneuroendocrinology* 29:1093–6, 2004
119. Kuhlmann S, Kirschbaum C, Wolf OT: Effects of oral cortisol treatment in healthy young women on memory retrieval of neg-

Defining Dissociation

- ative and neutral words. *Neurobiol Learn Mem* 83:158–62, 2005
120. Schelling G, Roozendaal B, de Quervain DJ: Can posttraumatic stress disorder be prevented with glucocorticoids? *Ann NY Acad Sci* 1032:158–66, 2004
 121. Brand M, Eggers C, Reinhold N, *et al*: Functional brain imaging in 14 patients with dissociative amnesia reveals right inferolateral prefrontal hypometabolism. *Psychiatry Res* 174:32–9, 2009
 122. Tulving E: Episodic memory: from mind to brain. *Ann Rev Psychol* 53:1–25, 2002
 123. Wheeler MA, Stuss DT: Remembering and knowing in patients with frontal lobe injuries. *Cortex* 39:827–46, 2003
 124. Johnson SC, Baxter LC, Wilder LS, *et al*: Neural correlates of self-reflection. *Brain* 125:1808–14, 2002
 125. Northoff G, Heinzel A, de Greck M, *et al*: Self-referential processing in our brain: a meta-analysis of imaging studies on the self. *Neuroimage* 31:440–57, 2006
 126. Stovall-McClough KC, Cloitre M: Unresolved attachment, PTSD, and dissociation in women with childhood abuse histories. *J Consult Clin Psychol* 74:219–28, 2006
 127. Bremner JD, Southwick S, Brett E, *et al*: Dissociation and post-traumatic stress disorder in Vietnam combat veterans. *Am J Psychiatry* 149:328–32, 1992
 128. Jelicic M, Merckelbach H: Evaluating the authenticity of crime-related amnesia, in *Offenders' Memories of Violent Crimes*. Edited by Christianson SA. Chichester, UK: John Wiley & Sons, 2007, pp 215–33
 129. Evans C: What violent offenders remember of their crime: empirical explorations. *Aust NZ J Psychiatry* 40:508–18, 2006
 130. Pyszora NM, Barker AF, Kopelman MD: Amnesia for criminal offences: a study of life sentence prisoners. *J Forensic Psychiatry Psychol* 14:286–95, 2003
 131. van Ooursouw K, Merckelbach H, Ravelli D, *et al*: Alcohol blackout for criminally relevant behavior. *J Am Acad Psychiatry Law* 32:364–70, 2004
 132. Merckelbach H, Christianson SA: Amnesia for homicide as a form of malingering, in *Offenders' Memories of Violent Crimes*. Edited by Christianson SA. Chichester (England): John Wiley and Sons, 2007, pp 165–90
 133. Pyszora NM, Fahy, T, Kopelman, M: Amnesia for violent offenses: factors underlying memory loss and recovery. *J Am Acad Psychiatry Law* 42:202–13, 2014
 134. Merten, T, Merckelbach, H. Symptom validity testing in somatoform and dissociative disorders: a critical review. *Psychol Inj & Law* 6:122–37, 2013
 135. Porter S, Woodworth M, Doucette NL: Memory for murder: the qualities and credibility of homicide narratives by perpetrators, in *Offenders' Memories of Violent Crimes*. Edited by Christianson SA. Chichester, UK: John Wiley & Sons, 2007, pp 115–34
 136. *Dusky v. United States*, 362 U.S. 402 (1960)
 137. *Wilson v. United States*, 391 F.2d 460 (D.C. Cir. 1968)
 138. Smith D, Resnick P: Amnesia and competence to stand trial: amnesia for the time of the alleged crime is not a bar to competence to stand trial and does not require a separate finding of fact of competence at the termination of the trial. *J Am Acad Psychiatry Law* 35:541–3, 2007
 139. *United States v. Andrews*, (7th Circuit, 2006)
 140. *United States v. Stevens*, (7th Circuit, 1972)
 141. *R. v. K.*, [1971] 2 O.R. 401 (Can. Ont. High Ct.)
 142. *R. v. Parks*, [1992] 2 S.C.R. 871 (Can.)
 143. *R. v. Stone*, [1999] 134 C.C.C. 3d 353 (Can.)
 144. Yeo S: Clarifying automatism. *Int J Law Psychiatry* 25:445–58, 2002
 145. *R v. King* [1962] S.C.R. 746 (Can.)
 146. McSherry B: Getting away with murder? Dissociative states and criminal responsibility. *Int'l J Law & Psychiatry* 21:163–76, 1998
 147. Berger O, Dale MD, McNiel DE, *et al*: PTSD as a criminal defense: a review of case law. *J Am Acad Psychiatry Law* 40:509–21, 2012
 148. Forsythe S, Miller MK: Novel defenses in the courtroom. *The Jury Expert*, August 20, 2014, pp 1–15
 149. Cohen ZE, Appelbaum PS: Experience and opinions of forensic psychiatrists regarding PTSD in criminal cases. *J Am Acad Psychiatry Law* 44:41–52, 2016
 150. Appelbaum PS, Jick RZ, Grisso T, *et al*: Use of posttraumatic stress disorder to support an insanity defense. *Am J Psychiatry* 150:229–34, 1993
 151. Farrell HM: Dissociative identity disorder: medicolegal challenges. *J Am Acad Psychiatry Law* 39:402–6, 2011
 152. *State v. Milligan*, No. 77-CR-11-2908 (Franklin County, Ohio, December 4, 1978)
 153. *State v. Warden*, 947 P.2d 708 (Wash. 1997)
 154. *State v. Bottrell*, 14 P.3d 164 (Wash. Ct. App. 2000)