Dissociation, Dissociative Disorder, and Their Treatment

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Abstract

Dissociation is the label for a complex set of symptoms related to trauma, but likely to have other nontraumatic causes. DSM-5 diagnoses with a dominant symptom of trauma include the dissociative disorders and the dissociative subtype of post-traumatic stress disorder (PTSD-D). This chapter reviews the key definitions and models of dissociation, the symptoms that are typically included under the broader rubric of dissociation, measures of the dissociative symptom and the dissociative disorders, challenges in the diagnosis of the dissociation-related diagnoses, and methods of treatment that have thus far received empirical support.

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Introduction

The completion of a review of research on dissociation and the dissociative disorders is a challenging task. For many psychological and medical disorders, a succinct definition of the major symptom can be given, and a set of typical causes is easily generated and studied. This is not the case with the study of the dissociative disorders. It is difficult to find an area of psychology that is associated with a more fascinating set of phenomena and a more contentious and passionate group of experts, although a clear core of agreed-upon clinical phenomena exist. With this caveat in mind, the reader of this chapter will be led through a description of a complex symptom (dissociation) that is the central feature of a set of even more complicated disorders. The primary symptom of dissociation and the most common dissociative disorders will be described, followed by a brief discussion of the assessment, causal factors, and empirically supported treatments.

The Key Definitions and Models of Dissociation

Dissociation is a term used to describe the disconnection between mental processes that are ordinarily integrated, including disconnection of the conscious self to physical sensations, emotional reactions, or behaviors. Thus, an individual may show dissociative symptoms by displaying no reaction to the death of a valued loved one, by noting that life feels unreal, by disowning all or part of the body, or by claiming amnesia for an important event or an aspect of life. Less severe forms of dissociation also are part of the dissociative continuum, as seen in the experience of driving or walking a complex path while not being consciously aware of one's actions and decision-making. Thus, many seemingly disparate symptoms fall under the umbrella term of dissociation.

The path to dissociation also is causally complex, although the most researched causes of severe dissociation are psychological trauma, exposure to frightening parental behavior, and childhood neglect. Dissociation is therefore commonly seen as a listed symptom in those DSM diagnoses that have a prominent trauma etiology, such as PTSD, borderline personality disorder, and, of course, the dissociative disorders. Making strong use of the trauma model, dissociation is generally conceptualized in two ways. The first model is dissociation as primarily physiological, part of the fight-flight-freeze response (Bracha et al. 2004), and the second views dissociation more cognitively, as a form of nonrealization.

The fight-flight-freeze response has generated literally thousands of research reports describing an animal's response to threat. Briefly, if the animal (you) sees

the threat as something that you can defeat, the fight mode is enabled, and the body prepares itself for battle by flooding the system with adrenaline. Alternatively, if the threat is too great, but escape is possible, anxiety gives you the energy to bolt. There are times, however, when the threat is great, but escape is impossible. Perhaps, the animal has you pinned to the floor, or perhaps you are an infant or small child and the frightening figure is an adult. Here, numbing responses and even feigning death are thought to be psychologically useful. Numbing the body may prevent the experience of severe pain and distracting the mind can hold off a reality that is overwhelming (both of which can be dissociative symptoms). In the practical sense, feigned or dissociation-induced paralysis will lead some predators to leave the prey alone. It is therefore thought that the repeated experience of events that are highly frightening but largely inescapable are the most fruitful foundation for dissociation.

The second model of dissociation better captures the continuum of dissociative experiences. Here, dissociation is seen as nonrealization (Steele et al. 2017) or unformulation (Stern 1997). Using this model, when dissociative individuals face an intolerable reality, they turn away from it, refusing to "formulate" it (give it form, substance, and detail, connecting it to other facts and feelings), or fully "realize" it (grasp its essential aspects and connection to the past and present). Dissociation is associated with a mix of common nonrealizations (I have no idea how I got that bruise. That's not the way I remember it.) and severe nonrealizations typically attributed to traumatic etiologies or severe psychopathology (I don't recall that traumatic incident. This body is not mine. That person in the mirror is not me.)

Much is known about dissociation in normal populations, thanks in part to the development of the Dissociative Experiences Scale (DES) in 1986 by Bernstein and Putnam. In this chapter, we will first discuss the dissociative symptoms generally, review the major dissociative diagnoses specifically, and then review the assessments and treatment techniques that have been empirically validated.

Dissociative Symptoms

Given that dissociation involves failure to connect facets of the mind that are normally connected, many types of disconnections and nonrealizations have been given the term dissociation, most measured at least partially through the DES. These include physical and emotional numbing, depersonalization (sense of unreality in one's sense of self), derealization (sense of unreality of the world), fragmentation of the self (as in dissociative identity disorder – DID), detachment (e.g., "spacing out"), and many other phenomena. Although there is some controversy about the factor structure of the DES, most researchers refer to three factors that potentially define three groups of symptoms – depersonalization/derealization, amnesia, and absorption.

Absorption symptoms have at times been called "normal" dissociation. It is quite clear that these symptoms are more commonplace than are dissociative amnesia (DA) and depersonalization, for example, and in that sense the descriptor "normal" is somewhat justified. However, high scores on absorption factors of dissociation

scales are associated with many negative outcomes. Absorption is generally understood to be the ability to allocate one's full attention to a stimulus, either external or internal, and largely prevent the intrusion of other stimuli, a skill that one can imagine would have negative and positive implications. The individual who is highly skilled in dissociation may be able to study in the noisy room, for instance, or enjoy a book despite the chaos of a busy home. However, the capabilities involved in absorption also include the capacity to become so immersed in an internal percept that it feels real and overcomes reality, and thus may be related to a general tendency to blur the reality/fantasy boundaries. Further, virtually all researchers have noted the correlation between absorption (allegedly normal dissociation) and the two pathological dissociation factors, leading many to argue that the narrowing of attention in absorption might facilitate the loss of memory in amnesia (e.g., Stern 1997).

Holmes et al. (2005) grouped the remaining symptoms other than absorption into two categories: compartmentalization and detachment. Detachment may refer to detachment from one's body (depersonalization), detachment from a sense of connection to the world (derealization), or detachment from one's emotions or senses (numbing). This type of dissociation is common after trauma and is thought to be related to a hardwired biological mechanism that serves to minimize harm and maximize the ability to act in the face of threat. Normal versions of detachment strategies thus exist, such as a temporary dampening of pain in the face of threat that requires action.

In the category of compartmentalization, Holmes et al. (2005) place those types of dissociation that involve an inability to directly control processes and action through acts of will, despite normal operation of these processes, and "made" actions (when one feels as if one's actions are controlled by someone or something else). Thus, inability to recall the trauma that occurred to you yesterday would be an example of compartmentalization, unless the trauma injured you in a way that damaged your memory. This would also include the symptoms of dissociative identity disorder. As an example of compartmentalization outside of the DID field, Kuyk et al. (1999) argued that the amnestic symptoms after nonepileptic seizures (NES) were examples of compartmentalization because the memories of events during the seizure could be retrieved through hypnosis, while this is not true for those with generalized epileptic seizures (ES). Kuyk et al. were able to recover memories from 85% of those in the NES group and 0% of the ES group, supporting the view that the memories were compartmentalized rather than lost or forgotten. Again, however, normal versions of compartmentalization are not difficult to find, as in one's loss of control of attention during moments of extreme fear or actions taken as part of a crowd that may later be disavowed.

The vast array of studies on dissociation across myriad disorders and in normal and pathological populations underline the conclusion that dissociative symptoms exist on a continuum. At the extreme or pathological end of the continuum, the range of symptoms is typically wide, with the individual suffering from DID also commonly reporting high amnesia, absorption, depersonalization, and derealization symptoms (Dalenberg and Paulson 2009). At the low and mid-ranges, absorption symptoms are most common, but high absorption will facilitate weak versions of the

other symptoms, such as poor memory for unpleasant material and psychological distress experienced as physical symptoms. Psychological trauma almost invariably produces short-term dissociation, but in some cases will facilitate the development of chronic dissociative symptoms.

The Dissociative Disorders

If chronic dissociation is the primary symptom displayed in an assessment setting, the individual is likely to be diagnosed with one of the dissociative disorders, the most prominent of which are described below.

Dissociative Amnesia (DA)

Dissociative amnesia as a diagnosis should be distinguished from dissociative amnesia as a symptom. The dissociative amnesia diagnosis is given when an individual shows loss of memory for important autobiographical information (often related to trauma). Importantly, the diagnostician must rule out ordinary forgetting (typically because the information is too extensive or too important to be consistent with this possibility), amnesia due to substance use, injury (e.g., head trauma), and neurological disorders (such as dementia). Additionally, in the DA diagnosis, the memory loss symptom is the central focus or central cause of distress, rather than being a feature in a complex disorder such as DID or post-traumatic stress disorder. As is true in general for diagnoses in the DSM-5, the symptoms must cause "clinically significant distress" or must be associated with impairment in an important sphere of functioning. The amnesia may be associated with unexpected travel, in which the individual often leaves work and home and travels for days or weeks. In this subcategory, DA with Dissociative Fugue, the person might engage in a purposeful traveling to a known destination or may engage in "bewildered wandering" (DSM 5; 300.13); in either event, amnesia for identity and extensive loss of autobiographical memory is common. DA with or without fugue typically resolves in a week or less.

A review of the criteria above by the thoughtful reader will reveal the clear problems in developing a method of accurate diagnosis of DA. As is described in both the DSM-5 and the ICD-11, the DA symptom is often related to a trauma or severe stressor, with amnesia functioning as a defensive protection against the experience of overwhelming grief, fear, and betrayal. It thus is the *return* of the memories, rather than the *loss* of the memories, that is related to obvious signs of distress. Chronic dissociative amnesia as a symptom rather than a diagnosis therefore may not cause obvious distress or impaired functioning, and thus would fail to meet DSM-5 criteria.

Ruling out organic causes for DA can be tricky, particularly if the patient does not have the funds to easily access expensive testing such as a head CT and MRI. There are a number of signs that might suggest the need for testing in a given case. First,

dissociative amnesia tends to be retrograde only, limited to the period immediately following the trauma, while organic amnesia may be both retrograde and anterograde. Organic amnesia also typically presents with impaired cognitive functioning and difficulty encoding new memories, while neither tend to be present in dissociative amnesia. Loss of autobiographic memory without loss of other types of memory is rare in organic amnesia, but more common in dissociative amnesia. Finally, the client's attitude toward the amnesia may help determine the diagnosis. Those with dissociative amnesia tend to be either unaware or unconcerned with the memory loss, while those with organic disorder are often quite concerned.

The criteria for PTSD also include symptoms of unusual memory loss. If an individual did experience a trauma, and responded with DA in the context of PTSD, the DA criteria dictate that the symptom should be attributed to the diagnosis of PTSD, no matter how extreme the dissociative symptom. In DSM-5, the addition of the dissociative subtype partially addresses this problem. Nonetheless, the hierarchy imposed by the present diagnostic criteria dictate that DA, a diagnosis commonly thought to be associated with trauma, may not be diagnosed if the trauma also led to post-traumatic disorder symptoms. Thus, the significant distress or impaired function must be of a type at least partially inconsistent with post-traumatic symptoms. A diagnosis of DA after trauma, rather than PTSD dissociative subtype, would be given if the individual showed impairment after the onset of DA, but did not meet the criteria for the full PTSD syndrome. A further obvious diagnostic problem stems from the fact that almost all DA patients are unaware of their memory loss, unless they are told by another and believe this individual (an individual who may be carrying a very negative and unwanted message). Again, if the memory loss serves a self-protective function, belief would be resisted, and the number of people believing that the trauma occurred while continuing to experience amnesia in regard to this trauma should be small.

It should not be surprising that these issues have led to the existence of two rather distinct literatures, one on DA as diagnosis and one on DA as a symptom independent of diagnosis, as well as wide disparities in prevalence. The smaller literature is on DA as diagnosis and provides a consensus that the disorder is rarely diagnosed but may be quite prevalent. Johnson et al. (2006) report an estimate of 1.8% for the 12-month prevalence of the disorder (based on a community sample). The larger literature is on dissociative amnesia as symptom. Here the focus is almost entirely on dissociative amnesia of traumatic content, although most sources claim that not all amnesia relates to trauma. In the typical methodology of this literature, those who have experienced trauma are followed over time to determine prevalence and/or predictors of memory loss for trauma and memory recovery, or groups of trauma-exposed individuals are asked if they have had the experience of losing and regaining access to a memory of trauma. The group who self-identified with this symptom have come to be known as recovered memory survivors rather than survivors with dissociative amnesia, both to underline that the criteria for the *diagnosis* has not necessarily been met and to acknowledge multiple routes (other than dissociation) to the end point of a statement of recovered memory for trauma.

Dalenberg (2006) and Brewin (2012) provide overviews of the history and evidence for recovered memory.

The passage of the Child Abuse Prevention Act, the rise of mandated reporting, and the subsequent logarithmic increase in the number of abuse victims who were entering the courtroom brought the recovered memory survivor into the spotlight beginning in the mid-1970s. Because the DA blocked the ability of the survivor to become aware of the criminal misdeeds against him or her and file a timely claim, some states allowed those recovering memories of abuse from many years in the past to sue their perpetrators, provided that they could prove that the memory was indeed recovered rather than continuous. This situation forced individuals making such claims to attempt to prove that they did indeed lose access to memory and recover it, and that they had not instead refused to admit due to embarrassment, fear, or misplaced allegiance to their abusers. Defense attorneys for the alleged perpetrators perfected a defense of "false memory," noting (and some say exaggerating) the malleability of memory in very young childhood or blaming well-intentioned but poorly trained therapists for "implanting" memories. A small but persuasive group of theorists remain committed to the theory that true DA, as symptom or diagnosis, virtually never occurs (see Loftus and Ketcham's (1994) well-known book, *The Myth of Repressed Memory*). A review of the current status of the false memory literature is provided in Brewin and Andrews (2017).

Depersonalization or Derealization Disorder (DDD)

Throughout the literature depersonalization and derealization have been used to define multiple psychological, behavioral, and physiological characteristics. This varied application has caused some confusion about what these terms actually mean. The earliest known case of depersonalization/derealization was documented by M. Krishaber, a French otolaryngologist, in 1873 (Bezzubova 2014). In this case, the patient had the sense that both the world and the patient himself were unreal. This link between depersonalization and derealization continued through the nineteenth century and twentieth century, as the phenomenon were more frequently recognized and discussed among medical professionals.

In the present day, depersonalization and derealization are considered by most to be highly related. As a result of this assumption, prior versions of the DSM did not separate the two phenomena at all, instead using the diagnosis "depersonalization disorder" as the diagnostic term (with derealization subsumed under this diagnosis). Although these two symptoms are associated, the differences between the two were identifiable enough that derealization eventually was recognized in the title of the disorder. However, these two phenomena had been seen as distinct characteristics in the international literature (i.e., versions of the ICD) for a much longer time, so this revision to the American criteria simply moves the disorder into familiar international territory.

Depersonalization is often described as an experience wherein individuals perceive themselves as if they are strangers. There is a feeling of unreality and

detachment, and an experience of living life as if in a dream. Depersonalization can be a response to many different things including substance use, extreme affective states (i.e., depression, anxiety, panic, etc.), trauma, mental health diagnoses, or physiological factors. While depersonalization is described as an internal experience and the feeling of being unfamiliar with the self, derealization is reflective of the external experiences of an individual and feeling cut off or detached from external experiences.

Like DA, depersonalization and derealization by themselves can be both a symptom and a diagnosis. When depersonalization/derealization is so disruptive that it has an impact on their daily functioning, individuals may be presenting with symptoms of Depersonalization/Derealization Disorder. In order for DSM-5 criteria to be met, feelings of depersonalization or derealization must be chronic. The diagnostician also must note that the depersonalization/derealization symptoms are not the direct result of substance use or medical conditions and that symptoms are not better explained by another diagnosis such as schizophrenia, PTSD, etc. (APA 2013). Finally, diagnosis of DDD requires that the episodes of depersonalization/derealization occur in the context of intact reality testing. Definitions of DDD in the International Classification of Diseases are quite similar, requiring persistent depersonalization/derealization experiences that cause significant impairment across several integral domains.

Additional common characteristics appear throughout the literature on DDD. These characteristics include references to somatic feelings, differences in spatial awareness, numbing and/or absence of some physical and affective states. There is also frequent mention of phenomena which seem more descriptive of dissociation in general, such as troubles with attention and focus, changes in body experience, and a feeling of cognitive emptiness.

Dissociative Identity Disorder (DID)

DID as defined by the DSM-5 is a disorder in which an individual presents with two or more distinctive personality states or identities (APA 2013). As previously discussed, DID is often associated with severe abuse or a traumatic event during childhood. The central symptoms of DID are unexpected disruptions or alterations of the normal integration of consciousness, sense of self, sense of agency, memories, experiences of perception, cognition, sensory-motor functioning, and/or identity. The overtness or covertness of these distinct personalities as well as their oscillations vary, which can make identification or diagnosis of the disorder quite difficult.

Individuals with DID present with dissociative amnesia, that is, gaps in memory recall that are inconsistent with normal forgetting. The dissociative amnesia may occur with everyday events in addition to trauma-related memories. Additionally, some individuals experience dissociative fugue and dissociative flashbacks (blank spells in which they undergo a sensory living of a previous memory with complete loss of contact or disorientation to reality). Some individuals report hearing voices or feeling a lack of self-agency. They may report feelings, emotions, or impulses that

seem not to be their own. The hallmark symptom of DID, of course, is identity alteration.

Identity alteration is the most controversial and confusing aspect of the DID experience. Here, patients experience two or more differing "alters," or distinct personality states which can take control of the individual's behavior and cognition. In trauma identities, the alter will admit to awareness of the individual's traumatic past, although angry or defensive behavior might be present. In the avoidant identities, the alter will claim lack of awareness of the trauma. Theoretically, the latter identity or set of identities allows the individual to function in daily life without interference of trauma knowledge and trauma symptoms. Alters may be described by the patient as different in age, gender, and personality than the "host."

One form of DID occurs more commonly in cultures that validate the experience of possession. In the possession form of DID, the individual exhibits behaviors in which it appears that an outside being or spirit has taken control of the individual's actions. This control is unwanted, involuntary, and causes significant impairment or distress (APA 2013). However, the DSM emphasizes that most spiritual, cultural, and religious practices of possession are normal, in that they are experienced as voluntary, and do not cause distress.

The evolution of the definition of DID and the several revisions of the diagnostic criteria within the DSM have served to improve diagnosis of this disorder; however, ongoing issues may still lead to underdiagnosis. Many clinicians are unfamiliar with the presentation of DID or are misled by the exaggerated and flagrant examples of DID presented in fiction or by dissociation critics. Experts agree that clear manifestation of symptoms of DID is present during a very small percentage of time in the true patient; such times are sometimes referred to as windows of diagnosability (Kluft 2005, 2009). Even for those more familiar with the disorder, concerns about possible litigation are raised by patients who not only present with the symptoms of dissociative amnesia, self-harm, and pathological levels of anger, but also frequently struggle with frightened or vengeful feelings toward authority. The most extreme critics of the disorder argue that DID is always iatrogenic, and all who treat it otherwise are causing harm (Piper and Merskey 2004).

Additional problems in diagnosis are created by the polysymptomatic presentation of DID, producing overlap with multiple other disorders. DID is often misdiagnosed as a psychotic disorder because of the auditory hallucinations reported; however, the auditory hallucinations in DID are usually coherent and refer to a traumatic event and/or a conversation between the alter identities. In addition, the loose association and incoherence associated with psychotic disorders is not present in DID. Confusion with PTSD or affective disorder also may occur due to the comorbid anxiety/depression and the prominent role of trauma-related cognitions and symptoms. The absence of a dissociative symptom module in the most prominent clinical interviews such as the Structured Clinical Interview for DSM-5 (SCID-5: First et al. 2015) Dissociative Disorders (SCID-D-R; Steinberg 1994) and the Composite International Diagnostic Interview (CIDI: World health Organization 1992) is also a source of misdiagnosis (see Assessment of Dissociation).

The diagnostic considerations explain the wide range of prevalence figures appearing in the literature, ranging in the clinical literature from under 1% to 14%, and in community studies from approximately 1–4% (ISSTD 2011). A 12-month prevalence study in New York state (Johnson et al. 2006), for instance, yielded an estimate of 1.5%. A second primary source for differences in study results is the role of culture, since there is a general trend for lower prevalence rates in Europe than in North America (Sar 2011).

Patients who show complex dissociative symptoms but who fail to meet the full set of DID criteria are diagnosed in the DSM-5 under the rubric of Other Specified Dissociative Disorders (OSDD). The category also includes dissociative trance, acute dissociative reactions to stressful events, and identity disturbance due to prolonged and intense coercive persuasion. Patients whose symptoms do not fall under any of these specific subcategories, but who manifest prominent dissociative symptoms, are diagnosed with unspecified dissociative disorder (UDD).

Dissociative Subtype of PTSD

In the meetings regarding the dissociative disorders in the DSM-5, there was some discussion as to whether many of the disorders deserved a place in the Trauma and Stressor-related Disorders section of the manual. Most theorists believe, for instance, that DID cannot occur in the absence of traumatic stimuli (ISSTD 2011; Vissia et al. 2016). Nonetheless, proving a traumatic precipitant is not a requirement for the diagnosis of the dissociative disorders, and rare instances of nontraumatic precipitators have been reported. Dissociative symptoms are also part of the diagnosis for borderline personality disorder and acute stress disorder, but here dissociation is one of a variety of symptoms that may or may not be present. The dissociative subtype of PTSD, however, does require an identifiable trauma, and further requires dissociation in the form of depersonalization and/or derealization. The inability to remember aspects of the trauma, another dissociative symptom, is a symptom of PTSD but is not required to be present.

In diagnosing the dissociative subtype of PTSD, the evaluator must be satisfied that the requirements for four clusters of PTSD symptoms as outlined by the DSM-5 have been met, as well as determine: (a) that the symptoms lasted more than a month, (b) that they are not due to substance abuse or medical disorder, and (c) that they cause severe distress or impair functioning. The PTSD patient must report at least one intrusion symptom (e.g., nightmares, flashbacks, or persistent distress upon exposure to cues), at least one avoidance symptom (e.g., avoidance of internal or external reminders), at least two symptoms of negative thoughts/feelings (e.g., exaggerated self-blame or feelings of detachment from others), and at least two symptoms of hyperarousal (e.g., difficulty concentrating, exaggerated startle).

In making the case that those high in dissociation among PTSD patients should be identified as belonging to a "subtype," Dalenberg et al. (2012) noted that three criteria should be met. First, the definition of the subtypes should be agreed upon and clear. Here, DSM-5 states that in addition to meeting the requirements for

symptoms of PTSD, the dissociative subtype requires elevation on measures of depersonalization/derealization. These specific symptoms were chosen because the depersonalization/derealization subscale on varying dissociation measures best differentiates those who do and do not have PTSD. Second, the two types should differ on either the structure of PTSD or the types should be differentiable on biological, physiological, or neuropsychological criteria. The latter has been argued by Lanius et al. (2003), who make a case for emotional overmodulation in the dissociative subtype of PTSD, perhaps mediated by the prefrontal inhibition of limbic regions. Finally, the subtype should be clinically meaningful, showing, for example, differing risk factors, treatment prognosis, comorbidities, or course of the disorder. Here, multiple studies have shown greater comorbidity in the dissociative compared to the nondissociative subtype of PTSD (e.g., with substance abuse, depression, and personality disorder), and several have shown poorer treatment outcome within empirically-based therapies for the dissociative group (Murphy and Busuttil 2015; Tsai et al. 2015).

Assessment of Dissociation

Valid research and accurate diagnoses rest on a foundation of accurate measurement of the foundational symptoms. The most researched tool for the study of dissociation, the DES, has its critics but has generally stood the test of time. Developed by Bernstein (Carlson) and Putnam in 1986, and updated by Carlson and Putnam in 1993, the DES now has been translated into dozens of languages and used in thousands of studies. The scale consists of 28 Likert style items, and is skewed in normal populations, reflecting a relatively large number of rare items that occur only in more symptomatic groups. The three factors that have been referenced earlier – amnesia, depersonalization/derealization, and absorption – are generally stable, but may in part represent base rates differences (rare, moderately rare, and common symptoms), and are highly correlated. Nonetheless, the DES captures the range of dissociative experiences fairly well, and relates to biological, cognitive, and emotional differences across many cultural groups. Those attempting to capture dissociative symptoms in PTSD generally use the DES or a similar scale, or measure dissociation more superficially through the two dissociation items on the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al. 2013).

Several reformulations and revisions have been made to the DES over the years, most notably the addition of a "taxon," a set of items that are thought to identify more pathological patients. Means for the eight items of the dissociation taxon are close to zero on diagnostic groups that do not feature dissociation as a prominent symptom, higher for those with PTSD, and highest for a subgroup with dissociative identity disorder. The percentage of a community sample who were positive on the dissociative taxon (more than 50% probability of being in the taxon group) was 3–4% (Waller and Ross 1997). In contrast, more than two thirds of those in dissociative disorder groups such as Depersonalization Disorder, DID, and DDNOS are taxon positive. The taxon remains controversial, however, and is less often used than is the

full scale. The weak reliability of taxon membership, strong intercorrelations between the taxon and the full DES, and nonsignificant differences between taxon and nontaxon high dissociation groups on other measures have led to questions about the meaningfulness of the measure.

The DES was not intended as a diagnostic instrument, and other than general cutoffs that appear to discriminate DID and other dissociative patients, no official norms are available. For this reason, some researchers advocate the Multiscale Dissociation Inventory (MDI; Briere 2002) for use in clinical or forensic situations. The MDI is a 30 question self-report measure that assesses the frequency of disengagement, derealization, depersonalization, memory disturbance, emotional constriction, and identity dissociation over the past month (Briere 2002). The measure is easy to understand, is normed on clinical, community, and college samples, and can be completed in 15 min, and scored (against established clinical cutoffs) in 5 min. The purposeful multiscale structure rests on an acceptance of the value of differentiating the types of dissociation and looking for patterns of elevations. The DES, in contrast, has been used for this purpose, but was not developed with the factor structure in mind.

More specific instruments have been developed to capture the symptoms central to DID and Depersonalization Disorder. The Cambridge Depersonalization Scale (CDS; Sierra and Berrios 2000) is a self-report measure which was created as a more specific measure of depersonalization than had existed historically. The measure is used to assess instances of depersonalization over a six-month period. The scale consists of 29 questions that request an individual to rate their depersonalization on two characteristics: frequency and duration. These scores are used to create four distinct higher-order scores: total number of questions endorsed, frequency average, duration average, and a total score (Sierra and Berrios 2000). The measure offers the higher-order scores of several diagnoses for comparison: depersonalization disorder, anxiety disorders, and temporal lobe epilepsy. Sierra and Berrios showed that the measure correlated highly with the DES depersonalization subscale ($r = .80$) and showed good levels of internal consistency.

Although the CDS is one of the most cited measures of depersonalization, there is still a relatively small base of research using this measure. A competing measure is the six-item Depersonalization Severity Scale developed by Simeon et al. (2001) as a clinician-administered assessment. This assessment was specifically created to evaluate DDD and other trauma-related disorders. A clinician reads the questions to the subject, and the subject responds on a zero to three scale (zero being "none" and three being "severe"). Below the six questions, the assessment measure gives a definition of "mild," "moderate," and "severe" to better assist the clinician in their judgment of the severity/frequency/duration of the symptoms. The DSS may actually serve more effectively as a way of tracking depersonalization throughout the treatment rather than as a diagnostic tool.

The instruments designed to assess DID fall in two general categories: structured clinical interviews and self-report measures. The most commonly used interview, generally viewed as the gold standard, is the Structured Clinical Interview for DSM-IV Dissociative Disorders – Revised (SCID-D-R; Steinberg 1994), which

also measures DDD. The most researched self-report assessment of DID is the Multidimensional Inventory of Dissociation (MID: Dell 2006). An advantage of the latter instrument is that it is downloadable on the author's website in seven languages, with adult and adolescent versions available in English.

The MID is a self-report, diagnostic instrument that comprehensively assesses dissociation (Dell 2006). This 218-item test can take up to 90 min to administer, a distinct disadvantage. It has 50 validity items and the free scoring program generates scaled scores and diagnoses. One hundred and sixty-eight questions of the test are dissociation items assessing first order and second order factors of dissociation. The number and complexity of the scales on the MID, 6 validity scales, 6 general dissociation scales, 11 partial dissociation scales (largely relevant to DID), and 6 amnesia scales, can be both a strength and a limitation. An interpretive manual (English-only), provided at no cost by the MID developer, is necessary to make diagnostic inferences from the MID with accuracy.

The SCID-D-R is semi-structured interview and diagnostic tool in which the clinician asks standard questions and follow-up questions depending on symptoms endorsed (Steinberg 1994). The SCID-D-R does not directly assess history of abuse or trauma, although follow-up questions usually lead to this information. The SCID-D-R does include questions on depersonalization, amnesia, derealization, identity alterations, and identity confusion and is also relevant to individuals with PTSD and dissociative symptoms. It is useful for assessing differential diagnosis, evaluating malingering, treatment planning, and forensic and psychological evaluations. The SCID-D has excellent test–retest reliability, and Sternberg has confirmed excellent interrater reliability for the presence of a dissociative disorder in general (Sternberg 2000). Agreement on the presence of specific dissociative disorders using the SCID-D-R is very good, with the highest agreement noted for DID and the lowest for Depersonalization Disorder.

Research on the Development of Dissociative Symptoms and Dissociative Disorder

Research on dissociation has revealed both trauma-related and nontrauma-related factors. Interestingly, Waller and Ross (1997) argue that there is no genetic heritability in DES taxon scores, which are explained by shared and unique environmental experiences. Waller and Ross contrast this with research on absorption, which has a strong genetic component as measured by the Tellegen Absorption Scale, arguing that "normal dissociation" is heritable while "pathological dissociation" is not.

As suggested by both dissociation models listed earlier, trauma is the most consistent predictor of dissociation severity and dissociative disorder diagnosis. This has been confirmed using a variety of designs, including establishment of the dose-dependent relationship between number of childhood traumas and dissociation (Steele et al. 2017). Two types of longitudinal studies are also very important here. If dissociation were causally related to trauma, then one would expect an increase in dissociation after a traumatic event, followed by a slow reduction to baseline for

most individuals. This is seen in several studies (see Carlson et al. 2012 for a review). The connection between trauma history and heightened dissociation appears to cross many categories of trauma (e.g., sexual and physical abuse, disasters and mass violence, bullying), and also applies to physical and emotional neglect, although fewer studies have been done in this area. A meta-analysis by Rafiq et al. (2018) reviews these results.

Another well-researched predictor of dissociation in adulthood is disorganized or avoidant attachment in childhood. Disorganized children display a diverse array of disoriented and/or conflicting behavioral responses in the presence of their primary attachment figure (e.g., walking toward and then backing away from the caregiver). Liotti (1992) first suggested that disorganized children may be vulnerable to dissociation. Disorganized attachment is associated with hostile-aggressive behavior in preschool years and is causally related to earlier maltreatment and intrusive caregiving. Avoidant attachment, illustrated behaviorally by the child who ignores a returning mother despite evidence of the child's distress (e.g., a high heart rate), is similarly conceptually and empirically related to dissociation. Large prospective studies have shown that child disorganization and/or avoidant classification does predict dissociative symptoms in adolescence and/or adulthood.

In the cognitive literature, a fairly extensive body of research supports a connection between dissociation and willingness or ability to experience emotions, separately investigated by theorists studying emotional acceptance or experiential avoidance and those studying alexithymia (Hetzel-Riggins and Meads 2016; da Silva et al. 2018). Alexithymia, a disorder characterized by the inability to define and express emotions (and a strong correlate of dissociation), is associated with poor response to psychotherapy across many disorders, as is true for dissociation (Zorzella et al. 2020). Some theorists suggest that unwillingness to accept emotions also may be a learned response to overwhelming stress that might be associated with chronic trauma, one reason that it may co-occur with dissociation. The concepts of alexithymia and dissociation are highly related and appear to facilitate each other.

An interesting recent development in the study of precursors of dissociation is the study of the complex relationship between dissociation and sleep disorders. Given the relationship between dissociation and trauma, the commonly cited finding of an increased prevalence of nightmares and insomnia in dissociative individuals is not surprising. However, both trauma and dissociation also are related to sleep disorders that are less well known and less strongly tied to acute stress, such as narcolepsy and sleep paralysis (Denis and Poerlo 2017; Mellman et al. 2008). Importantly, sleep problems appear to relate to dissociation over and above control variables such as degree of trauma and distress in parents. The complexity of the relationship is shown by the research produced by van Heugten–van der Kloet et al. (2015), and additional work by the same authors, that supports the hypothesis that acute sleep loss would increase the dissociative symptoms and undermine the memory for emotional material, but that this finding is particularly true for those already high in dissociation.

Nontrauma-related precursors of dissociation certainly exist, but the area is understudied. Some evidence for dissociation as a sign of minimal brain dysfunction does exist, but most specific findings have not been replicated.

The Biology of Dissociation

The arguments regarding the biology of dissociation vary depending on the specific dissociative type or dissociative disorder being discussed. A number of the dissociative disorders (e.g., DA, Fugue, DID) share a dissociative amnesia subcomponent. By definition, the amnesia is not a function of an organic disorder; however, there is considerable debate at present over the validity of making sharp organic–psychogenic distinctions in amnesia. Several studies have shown that changes in brain metabolism can be documented at one point in time but normalize after therapy. An array of theories have been proffered for permanent and temporary changes in memory processing after trauma, with the somewhat related models of Markowitsch (2002) and Kopelman (2002) gaining the most followers. Reviews by Kopelman (2002) and Stanilou and Markowitsch (2012) detail the support for these models.

In the model proposed by Markowitsch (2002), the amnesia is thought to be the result of a disruption in the synchronization between the limbic system (regions of the brain largely responsible for emotion processing) and the temporo-frontal regions (involved in planning and cognitive processing, as well as autonoetic consciousness). Markowitsch's argument is that the influx of glucocorticoids that occurs with stress can impair neural structures over time, in particular, the amygdala and hippocampus, which have a high density of glucocorticoid receptors. Through the effect of kindling, traumatic experiences can also affect the threshold of activation of various neurotransmitters. Problems in executive functioning are a common outcome of this impairment. In partial support of this view, several research groups have found that dissociative individuals show deficits in the executive control system (which is used to hold distress-inducing memories out of self-awareness), although this is not a strong relationship (DePrince et al. 2009; McKinnon et al. 2016). Further, Brand et al. (2009) have found significantly decreased glucose utilization in the right inferolateral prefrontal cortex in dissociative amnesia patients. The right prefrontal cortex is known to be strongly involved in synchronization of factual and emotional facets of self-relevant memories.

Kopelman's (2002) model also posits a disjunction between brain regions, arguing that dissociative amnesia occurs due to an increase in inhibitory regions of the prefrontal cortex and a decrease in activity of the hippocampus. These changes in activities of the prefrontal cortex and hippocampus appear to occur during laboratory studies of suppression or motivated forgetting.

Hippocampal dysfunction or damage has been implicated in the study of dissociation. For instance, several studies have found negative correlations between hippocampal volume and dissociative disorder status (Dorahy et al. 2014). Further, electrical stimulation of the hippocampus in studies of epilepsy has long been shown

to create dissociation-like symptoms, such as déjà vu, depersonalization, and memory changes. Finally, administration of ketamine and cannabis, both known NDMA antagonists, reliably produces dissociative symptoms in nonclinical research participants. NDMA receptors are highly concentrated in the hippocampus. Chronic depersonalization has been associated at times with cannabis ingestion (Dadi et al. 2016).

Related models have been offered by depersonalization theorists. Most such researchers argue that acute depersonalization is adaptive in life-threatening circumstances, allowing detached reasoning or reducing experience of pain. However, chronic depersonalization is nonadaptive, and may reflect structural brain differences and/or differential operating of the autonomic nervous system. Spiegel and associates (2011) found abnormal activation in the posterior cortical sensory areas, prefrontal cortex, and inhibition of the limbic system. The review by Spiegel goes on to distinguish these responses from mood disorders and likens them more to "out-of-body experiences" similar to those with the dissociative subtype of PTSD.

Multiple research groups have taken on the task of determining the psychobiology of DID, including the underpinnings of switching (shifting control of behavior and thought from one alter to another). In a careful study by Reinders et al. (2016), researchers compared DID individuals in two alter states (aware and unaware of prior trauma) to high- and low-fantasy-prone subjects enacting the same states. Differences in cerebral blood flow patterns, heart rate variability (HRV), and blood pressure were found, with simulators unable to replicate the results. Importantly, more similarity was noted between the low-fantasy-prone simulators and the DID group than between the high-fantasy-prone simulators and the DID group, the opposite of the prediction made by those doubting the reality of the disorder. When in the trauma identity state, DID adults showed stark increases in blood pressure and drops in heart rate variability when exposed to trauma material, as well as changes in cerebral blood flow supportive of a cortico-limbic theory of DID. This result fits with other findings of smaller hippocampi and amygdalae in samples with DID compared to controls, and significant correlations between dissociation and parahippocampal volume (Dorahy et al. 2014).

In contrast, other researchers champion an orbitofrontal hypothesis of DID, showing that DID patients show orbitofrontal hypoperfusion in comparison to healthy controls in SPECT studies (Dorahy et al. 2014; Sar et al. 2007). Difficulties in interpreting the different results of these studies are enhanced by the differing methodologies, comparing host to control or host-alter differences between DID groups and control and differing instruments of measurement (e.g., fMRI versus SPECT). Information gained from the fMRI, SPECT, PET, and EEG/QEEG studies has yet to be integrated.

Treatment of Dissociation

Treatment approaches for dissociative symptoms can be divided into two loose classes: nonspecific treatments and dissociation-specific. The nonspecific treatments briefly covered here are those developed for the posttraumatic disorders in general. The advantage of these treatment approaches is their more mainstream character; that is, they are evidence-based, heavily researched, and generally manualized. As such, they may be first-line treatments, particularly for dissociative symptoms within borderline personality disorder, the dissociative subtype of PTSD, and Depersonalization disorder, all of which have been examined in careful research. Dissociative identity disorder is less clearly treatable by the nonspecific treatments alone, but patients may benefit from these treatments as adjunctive to their primary therapy.

Nonspecific Therapies for Dissociative Symptoms

The concept of exposing someone to their fear constructs in order to help them conquer the said fear is not a new one. It is thus understandable why exposure therapy (Foa et al. 2007) is frequently used and so successful across multiple diagnoses. Early sessions of prolonged exposure typically focus on psychoeducation, discussion of treatment rationale, and introduction of breathing retraining. Once the client is deemed ready to confront trauma memories, the treatment shifts to revisiting the avoided trauma scenarios in memory (imaginal exposure) and encouraging reentry into situations that might remind the patient of the original trauma (in vivo exposure). Homework ideally involves increasing self-controlled exposure to reminders outside of sessions until levels of distress begin to reduce. The exposure protocol is thought to be particularly relevant to dissociative individuals given their propensity to avoid trauma-relevant thoughts and situations.

Mechanisms of change for Exposure Therapy vary in emphasis across theoreticians, but generally are thought to include within-session and between-session habituation, inhibitory learning, reorganization of the trauma narrative, and the processing of trauma-related beliefs and evidence. Connection to the therapist, seen by many as a common factor for treatments in general, also may be seen as a mechanism or even a prerequisite for change (given that it is like a source of the sense of safety that would allow participation in further therapeutic work). The basic theoretical model of exposure theory hypothesizes that symptom reduction occurs after repeated activity of the "fear network" that has developed in reaction to the traumatic event, allowing corrective information (this is a safe place) to enter the system and extinction to occur.

Cognitive Behavior Therapy (CBT: Beck 2011) and Cognitive Processing Therapy (CPT: Resick et al. 2016) both shift attention from the trauma narrative, and center instead on directly addressing the client's maladaptive beliefs and thoughts related to the trauma. Resick et al. (2016) believe that such approaches are more efficient than Exposure Therapy, although all three sets of theorists recognize that all approaches will cause symptom reduction. In Resick et al.'s (2012) study comparing

CPT with and without the inclusion of a detailed trauma narrative, highly dissociative clients had better outcomes if they did spend time on the trauma narrative, while this was not true for those showing lower levels of dissociation. Drops in dissociation in CPT itself appear to occur without direct targeting of the dissociative symptom. CPT can be understood as a form of CBT, and the two therapeutic traditions share much in common. However, CBT traditionally involves more direct challenges of maladaptive or irrational thoughts, while CPT therapists rely more centrally on Socratic questioning, and helping clients to develop their own conclusions about the trauma and its meaning.

CBT and CPT are more likely to be used with clients with the dissociative subtype of PTSD and depersonalization disorder than those with DID. Clients are encouraged to identify the triggers of their dissociative symptoms, and the thoughts and emotions that are associated with these trauma reminders. The thoughts and emotions are then examined and related to interpretations deriving from (typically traumatic) experience. Psychoeducation is an important feature of both therapy approaches. In addition to the studies addressing symptoms of the dissociative subtype of PTSD, CBT has been used in conjunction with Acceptance Commitment Therapy (ACT: Hayes et al. 2012) to address DA.

EMDR is a manualized treatment that combines repetitive, bilateral eye movements or tapping with exposure to a traumatic event (Shapiro and Forrest 2004). The goal of the treatment is to process negative memories in a way that will allow them to be appropriately stored in the memory network. This is thought to provide traumatized individuals with the ability to develop a more adaptive perspective, enabling them to respond in a healthier way to situations which previously triggered the trauma memory network. The treatment also includes an emphasis on "resource installation," which is designed to increase the strength of the positive cognitions to the point that the negative thoughts are replaced. This treatment has been specifically modified by Shapiro and others to more cautiously accommodate dissociative features of trauma survivors. Zoet et al. (2018) report that dissociation does not moderate the treatment outcome of clients with PTSD.

Dialectical Behavior Therapy (DBT) was created by Dr. Marsha Linehan (1993) as a treatment for individuals who had been diagnosed with Borderline Personality Disorder. This treatment focuses on providing participants with tools they can use when distressed to move them toward a life that they feel is worth living. DBT includes four modules: emotion regulation, distress tolerance, interpersonal effectiveness, and mindfulness. The practice of mindfulness is especially important when treating dissociation, as the two cognitive mechanisms appear to be reciprocally related. DBT is a very involved treatment and requires a team of individuals who provide support at all times.

Acceptance Commitment Therapy (ACT: Hayes et al. 2012), a relatively recent addition to the cognitive psychologies, has more limited research support as a treatment for dissociation. However, as Neziroglu and Donnelly (2013) point out, a number of the foci of ACT appear to be natural fits for the needs of dissociative patients. ACT therapists, for instance, teach clients that the human has an inborn tendency to avoid the unpleasant (experiential avoidance), and that this avoidance

exacerbates emotional problems. The psychological flexibility at the heart of mental health that is championed by ACT theorists includes the willingness to experience sensations and feelings (arguably the opposite of a highly dissociative state). ACT also includes sets of strategies to combat "cognitive fusion," the tendency to "buy into" a thought to the extent that it becomes a felt reality. This concept is useful in understanding the process of "unhooking" the client from the idea of the self as containing many "people" with distinctive lives, thoughts, and histories.

Although the more commonly used trauma treatments have had success with the cognitive and emotional consequences of trauma, little focus has been given to physiological elements, despite widespread agreement that trauma affects the body and despite the prominence of the fight-flight-freeze model of dissociation. A variety of somatic therapies (e.g., Levine 1997; Ogden et al. 2006) have been offered both as a general approach to trauma and a specific treatment of the dissociative symptom in order to address this deficit in the literature. These therapies treat the body as a resource for the client's goal of integration. Clients are urged to notice the bodily signs of emotional states, including sensation, posture, and movement. Alternative actions might be suggested, sometimes executed in extreme slow motion, to mitigate initial sensations. For instance, the client might complete the action of pushing away the attacker, often referred to in somatic literature as a "thwarted action."

The somatic therapies have more centrally incorporated an understanding of the fight/flight/freeze response in their theoretical foundation, making use of Porges's (2011) polyvagal theory. Porges argues that defensive behaviors can be classified into two broad domains: mobilization, which includes the fight or flight response, and immobilization, which is associated in animals with feigning death (and perhaps dissociation). In this theoretical foundation, the freeze response (freezing in place so that the predator cannot detect movement) is categorized within the mobilization system. Polyvagal theory has been widely researched and supported, although most of the other somatic therapies lack strong foundation.

In order to directly intervene on bodily reactivity and to regulate the autonomic nervous system, a strong literature has developed in the area of HRV biofeedback, a therapeutic direction now becoming incorporated more commonly in therapy for trauma (Lewis et al. 2015; Reyes 2014). In HRV biofeedback, the client is given feedback on the impact of breathing rate and timing on heart rate and heart rate variability. The poor access to body signals that is so often reported among dissociative clients is thus directly addressed, adding to the client's sense of control over psychiatric symptoms. HRV training has been consistently related to sleep quality (one possible maintaining cause of dissociative symptoms), anxiety, depression, and other post-traumatic symptoms. HRV training is not offered by its advocates as a stand-alone "cure" for dissociative symptoms or other trauma-related diagnoses but may be a useful supplement to other therapies.

Specific Therapies for Dissociative Disorders

Specific therapies for dissociative disorders do not have adequate empirical support individually but are well supported generally. That is, strong consensus exists that while depersonalization disorder and dissociative subtype clients can be treated with the more generic trauma-centered treatments described above, the standard of care for any complex trauma disorder (such as DID) that includes dissociative symptoms should be "phasic" (Brand et al. 2012; ISSTD 2011). The number of phases may vary across specific authors, but generally include: (a) a stabilization phase, (b) a phase centering on enhanced toleration and meaning evaluation of the trauma, and (c) a phase focused on strengthening and integration of the personality (often called unification). The phases are not strictly sequential, and it is not unusual for the stabilization and trauma phases of the work to alternate. Researchers and expert clinicians also appear to agree that some patients cannot tolerate the renewed confrontation with the trauma that takes place in Phase 2. Those researchers favoring the iatrogenic model of dissociative disorders express concern that use of the phasic model might increase dissociative symptoms, but the only test of this proposition did not find support for the iatrogenic model predictions (Brand and Loewenstein 2014).

Information about treatment response (largely to phasic treatments) and treatment recommendations for the dissociative disorders has been collected systematically in the Treatment of Patients with Dissociative Disorders (TOP DD) study, which tracked treatment response from 230 DID patients and their therapists from 19 countries across 30 months (Brand et al. 2012, 2013), and again at 6 years. Over the course of the study, patients did show significant reductions in dissociation, PTSD, self-harm, hospitalizations, and other symptoms.

Boon (1997) developed a checklist for identification of those likely to be able to make the Phase 1 to Phase 2 transition, but it has not been specifically tested. Among the more commonly cited negative prognostic indicators are personality disorder, substance abuse, self-harm, and complex negative relationships with the therapist. Tamar-Gurol et al. (2008), for example, found that approximately 55% of those diagnosed with a dissociative disorder dropped out of treatment due to substance abuse. High comorbidity with personality disorder and high risk for suicide and other self-destructive behaviors also are noted by almost all commentators on the dissociative disorders, underlining the need for the stabilization phase. In this initial stage, almost all expert therapists recommend substantial psychoeducation for the dissociative patient, with a focus on teaching and practicing containment and grounding. DBT skills are useful here, as are skills in HRV biofeedback to directly address arousal. Therapists generally concentrate in early months on ensuring safety, building a network of healthy relationships for support, and addressing impulse control.

The middle stage or stages of treatment center on abreaction and exposure, which most therapists believe is critical to a full resolution of dissociation symptoms or resolution (Brand et al. 2012, 2013). The safety and grounding skills are continually practiced in therapy during the imaginal and in vivo exposure sessions.

Destabilization during this period is not uncommon, and a strong alliance with the therapist appears to be critical.

Methods for resolution or reunification show the most variation across theorists. In the TOP DD study, for instance, none of the therapeutic techniques studied were consistently used across therapists to achieve the final stage (Brand et al. 2012, 2013). In addition, although the experts had been treating DD patients for an average of 22 years and had treated an average of 43 DID patients for more than 1 year (with a range from 3 to 400), the average number of patients treated from diagnosis to unification was only 7.76 (with a range of 1 to 30), suggesting that the final stage of integration was challenging. Nonetheless, theoretical writings focus almost universally on working directly with "parts" or "alters" during this stage, helping the patient to understand the function of the fragmentation.

Direct work with alters during later stages of treatment raises the most extreme concern from those committed to the iatrogenic model of DID. Critics express worry that attempts to elicit contacts with "other personalities," particularly under hypnosis, will be experienced as a type of therapist demand to produce such experiences (Lillienfeld et al. 1999). The argument that those most sympathetic to the DID diagnosis will be most likely to find such individuals among their patients is likely to be true, but it is also true for those who would sympathize with (and thus would recognize) virtually any other rare disorder. Nonetheless, the authors do have the impression that critics have introduced a degree of caution in the DID field that has been beneficial. Treatment of child alters as real children by playing with them in therapy or expecting child-relevant levels of development is now universally discouraged by experts, as is naming and soliciting details about alters that have not been previously described with names and biographical details (Brand et al. 2012; ISSTD 2011) Other controversial methods include those that require physical touch and those which "play favorites" among the patient's identities, denying the patient access to specific facets of their personalities.

In contrast, modern dissociation theorists build on the understanding that all individuals have multiple "selves," or facets of their personality that are situation-dependent or role-dependent (Putnam 2016; Steele et al. 2017). Most of us are aware of differences in the self we bring to work, to our interactions with our partners, and to our interactions with our parents. In a healthy individual, these selves have continuity, and are part of a "me" that is a cohesive whole. These selves are not separate beings. Thus, the DID patient, who has a false sense of separateness, can be more accurately described as having less than one personality (as argued by Spiegel in various publications) rather than having more than one personality. Final stages of DID treatment serve to enhance this sense of cohesion and oneness.

Key Points

- Dissociation is a broad term used to describe the disconnection between mental processes that are ordinarily integrated.

- Models of dissociation have been informed by physiological research (e.g., on the fight-fight-freeze response) and cognitive research (e.g., defensive compartmentalization or nonrealization)
- Types of dissociation have been labeled as "normal" (e.g., absorption) and "pathological" (e.g., depersonalization), but severity of subtypes of dissociation correlate strongly.
- The dissociative disorders may be more prevalent than is currently estimated, given the complex criteria and inadequacies in current measurements.
- Dissociation and the dissociative disorders are related to trauma and to disorganized and avoidant attachment histories and may be related to sleep disorder.
- The majority of data suggest that the most commonly used empirical treatments for trauma should be supplemented in order to address dissociative symptoms.
- Supplemental treatments with promise include adjunctive modules to the existing empirical therapies (e.g., within CPT or EMDR) as well as therapies directly targeting physiological symptoms such as HRV biofeedback.

Conclusion and Summary

Dissociation and the dissociative disorders are well-researched sets of symptoms that will be encountered by most experts in trauma-related disciplines. The recent developments in the neurobiology of the disorder, as well as the first well-controlled studies of treatment, are rapidly advancing this field of study. Much remains to be known in the area, but recent results support initial impressions that dissociation is complex in both etiology and phenomenology. Iatrogenic models and research have served a useful purpose in curbing over-involvement with a rare and fascinating set of disorders. However, direct comparisons of iatrogenic fantasy-based models of dissociation versus trauma-based models of dissociation clearly favor the latter (see Dalenberg et al. 2012a; Staniloiu et al. 2018). Much clarifying research remains to be done.

References

American Psychiatric Association. (2013). *DSM-V. Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: APA Publishing.

Beck, J. S. (2011). Cognitive behavior therapy: Basics and beyond, 2nd ed. Guilford Press.

Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174*, 727–735. https://doi.org/10.1097/00005053-198612000-00004.

Bezzubova, E. (2014). Depersonalization in the DSM-5: Does the name change help to diagnose and treat depersonalization? *Psychology Today*. Retrieved from https://www.psychologytoday.com/us/blog/the-search-self/201406/depersonalization-in-the-dsm-5

Boon, S. (1997). The treatment of traumatic memories in DID: Indications and contra-indications. *Dissociation, 10*, 65–79.

Bracha, H. S., Ralston, T. C., Matsukawa, J. M., Williams, A. E., & Bracha, A. S. (2004). Does "fight or flight" need updating? *Psychosomatics: Journal of Consultation and Liaison Psychiatry, 45*, 448–449. https://doi.org/10.1176/appi.psy.45.5.448.

Brand, B. L., & Loewenstein, R. J. (2014). Does phasic treatment make patients with dissociative identity disorder treatment more dissociative? *Journal of Trauma & Dissociation, 15*, 52–65. https://doi.org/10.1080/15299732.2013.828150.

Brand, M., Eggers, C., Reinhold, N., Fujiwara, E., Kessler, J., Heiss, W.-D., & Markowitsch, H. J. (2009). Functional brain imaging in 14 patients with dissociative amnesia reveals right inferolateral prefrontal hypometabolism. *Psychiatry Research: Neuroimaging, 174*, 32–39. https://doi.org/10.1016/j.pscychresns.2009.03.008.

Brand, B. L., Myrick, A. C., Loewenstein, R. J., Classen, C. C., Lanius, R., McNary, S. W., … Putnam, F. W. (2012). A survey of practices and recommended treatment interventions among expert therapists treating patients with dissociative identity disorder and dissociative disorder not otherwise specified. *Psychological Trauma Theory Research Practice and Policy*, *4*, 490–500. https://doi.org/10.1037/a0026487

Brand, B. L., McNary, S. W., Myrick, A. C., Classen, C. C., Lanius, R., Loewenstein, R. J., … Putnam, F. W. (2013). A longitudinal naturalistic study of patients with dissociative disorders treated by community clinicians. *Psychological Trauma Theory Research Practice and Policy*, *5*, 301–330. https://doi.org/10.1037/a0027654

Brewin, C. R. (2012). A theoretical framework for understanding recovered memory experiences. In R. F. Belli (Ed.), *True and false recovered memories: Toward a reconciliation of the debate* (Vol. 58, pp. 149–173). New York, NY: Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-1195-6_5.

Brewin, C. R., & Andrews, B. (2017). Creating memories for false autobiographical events in childhood: A systematic review. *Applied Cognitive Psychology, 31*, 2–23. https://doi.org/10.1002/acp.3220.

Briere, J. (2002). *Multiscale dissociation inventory*. Odessa, FL: Psychological Assessment Resources.

Carlson, E. B., & Putnam, F. W. (1993). An update on the Dissociative Experiences Scale. *Dissociation, 6*, 16–27.

Carlson, E. B., Dalenberg, C., & McDade-Montez, E. (2012). Dissociation in posttraumatic stress disorder part I: Definitions and review of research. *Psychological Trauma Theory Research Practice and Policy, 4*, 479–489. https://doi.org/10.1037/a0027748.supp. (Supplemental).

da Silva, A. C. N., Vasco, A. B., & Watson, J. C. (2018). Alexithymia and therapeutic alliance: A multiple case study comparing good and poor outcome cases. *Research in Psychotherapy: Psychopathology, Process and Outcome, 21*(2), 83–97.

Dadi, G., Dervaux, A., Krebs, M.-O., Gaillard, R., Laqueille, X., & Plaze, M. (2016). Persistent depersonalization/derealization disorder induced by synthetic cannabinoids. *The American Journal of Psychiatry, 173*, 839–840. https://doi.org/10.1176/appi.ajp.2016.16010029.

Dalenberg, C. (2006). Recovered memory and the Daubert criteria: Recovered memory as professionally tested, peer reviewed, and accepted in the relevant scientific community. *Trauma, Violence & Abuse, 7*, 274–310. https://doi.org/10.1177/1524838006294572.

Dalenberg, C. J., & Paulson, K. (2009). The case for the study of "normal" dissociation processes. In P. F. Dell & J. A. O'Neil (Eds.), *Dissociation and the dissociative disorders: DSM–V and beyond* (pp. 145–154). New York, NY: Routledge.

Dalenberg, C. J., Brand, B. L., Gleaves, D. H., Dorahy, M. J., Loewenstein, R. J., Cardeña, E., … Spiegel, D. (2012a). Evaluation of the evidence for the trauma and fantasy models of dissociation. *Psychological Bulletin*, *138*, 550–588. https://doi.org/10.1037/a0027447

Dalenberg, C. J., Glaser, D., & Alhassoon, O. M. (2012b). Statistical support for subtypes in posttraumatic stress disorder: The how and why of subtype analysis. *Depression and Anxiety, 29*, 671–678. https://doi.org/10.1002/da.21926.

Dell, P. F. (2006). The Multidimensional Inventory of Dissociation (MID): A comprehensive measure of pathological dissociation. *Journal of Trauma & Dissociation, 7*, 77–106.

Denis, D., & Poerio, G. L. (2017). Terror and bliss? Commonalities and distinctions between sleep paralysis, lucid dreaming, and their associations with waking life experiences. *Journal of Sleep Research, 26*, 38–47. https://doi.org/10.1111/jsr.12441.

DePrince, A. P., Weinzierl, K. M., & Combs, M. D. (2009). Executive function performance and trauma exposure in a community sample of children. *Child Abuse & Neglect, 33*, 353–361. https://doi.org/10.1016/j.chiabu.2008.08.002.

Dorahy, M. J., Brand, B. L., Şar, V., Krüger, C., Stavropoulos, P., Martínez-Taboas, A., Lewis-Fernández, R., & Middleton, W. (2014). Dissociative identity disorder: An empirical overview. *Australian and New Zealand Journal of Psychiatry, 48*, 402–417. https://doi.org/10.1177/0004867414527523.

First, M. B., Williams J., Karg R., & Spitzer R. (2015). Structured Clinical Interview for DSM-5–Research Version (SCID-5 for DSM-5, Research Version; SCID-5-RV). Arlington: American Psychiatric Association.

Foa, E. B., Hembree, E. A., & Rothbaum, B. O. (2007). *Prolonged exposure therapy for PTSD: Emotional processing of traumatic experiences: Therapist guide*. New York, NY: Oxford University Press.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). Acceptance and commitment therapy: The process and practice of mindful change, 2nd ed. Guilford Press.

Hetzel-Riggin, M. D., & Meads, C. L. (2016). Interrelationships among three avoidant coping styles and their relationship to trauma, peritraumatic distress, and posttraumatic stress disorder. *Journal of Nervous and Mental Disease, 204*, 123–131. https://doi.org/10.1097/NMD.0000000000000434.

van -van der Kloet, D., Giesbrecht, T., & Merckelbach, H. (2015). Sleep loss increases dissociation and affects memory for emotional stimuli. *Journal of Behavior Therapy and Experimental Psychiatry, 47*, 9–17. https://doi.org/10.1016/j.jbtep.2014.11.002.

Holmes, E. A., Brown, R. J., Mansell, W., Fearon, R. P., Hunter, E. C. M., Frasquilho, F., & Oakley, D. A. (2005). Are there two qualitatively distinct forms of dissociation? A review and some clinical implications. *Clinical Psychology Review, 25*, 1–23. https://doi.org/10.1016/j.cpr.2004.08.006.

International Society for the Study of Trauma and Dissociation (ISSTD). (2011). Guidelines for treating dissociative identity disorder in adults, third revision. *Journal of Trauma & Dissociation, 12*, 115–187.

Johnson, J. G., Cohen, P., Kasen, S., & Brook, J. S. (2006). Dissociative disorders among adults in the community, impaired functioning, and axis I and II comorbidity. *Journal of Psychiatric Research, 40*, 131–140. https://doi.org/10.1016/j.jpsychires.2005.03.003.

Kluft, R. P. (2005). Diagnosing dissociative identity disorder. *Psychiatric Annals, 35*, 633–643.

Kluft, R. P. (2009). A clinician's understanding of dissociation: Fragments of an acquaintance. In P. F. Dell & J. A. O'Neil (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 599–624). New York, NY: Routledge.

Kopelman, M. D. (2002). Disorders of memory. *Brain, 125*, 2152–2190.

Kuyk, J., Spinhoven, P., & Van Dyck, R. (1999). Hypnotic recall: A positive criterion in the differential diagnosis between epileptic and pseudoepileptic seizures. *Epilepsia, 40*, 485–491.

Lanius, R., Hopper, J., & Menon, R. (2003). Individual differences in a husband and wife who developed PTSD after a motor vehicle accident: A functional MRI case study. *American Journal of Psychiatry, 160*, 667–669.

Levine, P. A. (1997). *Waking the tiger*. Berkeley, CA: North Atlantic Books.

Lewis, G. F., Hourani, L., Tueller, S., Kizakevich, P., Bryant, S., Weimer, B., & Strange, L. (2015). Relaxation training assisted by heart rate variability biofeedback: Implication for a military predeployment stress inoculation protocol. *Psychophysiology, 52*, 1167–1174. https://doi.org/10.1111/psyp.12455.

Lilienfeld, S. O., Kirsch, I., Sarbin, T. R., Lynn, S. J., Chaves, J. F., Ganaway, G. K., & Powell, R. A. (1999). Dissociative identity disorder and the sociocognitive model: Recalling the lessons

of the past. *Psychological Bulletin, 125*, 507–523. https://doi.org/10.1037/0033-2909.125.5.507.

Linehan, M. (1993). Cognitive-behavioral treatment of borderline personality disorder. New York: Guilford.

Liotti, G. (1992). Disorganized/disoriented attachment in the etiology of the dissociative disorders. *Dissociation: Progress in the Dissociative Disorders, 5*, 196–204.

Loftus, E., & Ketcham, K. (1994). *The myth of repressed memory: False memories and allegations of sexual abuse*. New York, NY: St. Martin's Press.

Markowitsch, H. J. (2002). Functional retrograde amnesia – Mnestic block syndrome. *Cortex, 38*, 651–654. https://doi.org/10.1016/s0010-9452(08)70030-3.

McKinnon, M. C., Boyd, J. E., Frewen, P. A., Lanius, U. F., Jetly, R., Richardson, J. D., & Lanius, R. A. (2016). A review of the relation between dissociation, memory, executive functioning and social cognition in military members and civilians with neuropsychiatric conditions. *Neuropsychologia, 90*, 210–234. https://doi.org/10.1016/j.neuropsychologia.2016.07.017.

Mellman, T. A., Aigbogun, N., Graves, R. E., Lawson, W. B., & Alim, T. N. (2008). Sleep paralysis and trauma, psychiatric symptoms and disorders in an adult African American population attending primary medical care. *Depression and Anxiety, 25*, 435–440. https://doi.org/10.1002/da.20311.

Murphy, D., & Busuttil, W. (2015). Exploring outcome predictors in UK veterans treated for PTSD. *Psychology Research, 8*, 441–451.

Neziroglu, F., & Donnelly, K. (2013). Dissociation from an acceptance-oriented standpoint). In F. Kennedy, H. Kennerley, & D. Pearson (Eds.), *Cognitive behavioral approaches to the understanding and treatment of dissociation*. New York, NY: Routledge.

Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy*. New York, NY: Norton.

Piper, A., & Merskey, H. (2004). The persistence of folly: A critical examination of dissociative identity disorder Part I. The excesses of an improbable concept. *Canadian Journal of Psychiatry, 49*, 592–600.

Porges, S. (2011). *The polyvagal theory: Neurophysiological foundations of emotions, attachment, communication and self-regulation*. New York, NY: Norton.

Putnam, F. (2016). *The way we are: How states of mind incluence our identities, personality and potential for change*. New York, NY: Ipbooks.

Rafiq, S., Campodonico, C., & Varese, F. (2018). The relationship between childhood adversities and dissociation in severe mental illness: A meta-analytic review. *Acta Psychiatrica Scandinavica, 138*, 509–525. https://doi.org/10.1111/acps.12969.

Reinders, A. A., Willemsen, A. T., Vissia, E. M., Vos, H. P., den Boer, J. A., & Nijenhuis, E. R. (2016). The psychobiology of authentic and simulated dissociative personality states. *Journal of Nervous and Mental Disease, 204*, 445–457. https://doi.org/10.1097/NMD.0000000000000522.

Resick, P. A., Suvak, M. K., Johnides, B. D., Mitchell, K. S., & Iverson, K. M. (2012). The impact of dissociation on PTSD treatment with cognitive processing therapy. *Depression and Anxiety, 29*, 718–730. https://doi.org/10.1002/da.21938.

Resick, P. A., Monson, C. M., & Chard, K. M. (2016). *Cognitive processing therapy for PTSD: A comprehensive manual*. New York, NY: Guilford Press.

Reyes, F. J. (2014). Implementing heart rate variability biofeedback groups for veterans with posttraumatic stress disorder. *Biofeedback, 42*, 137–142. https://doi.org/10.5298/1081-5937-42.4.02.

Sar, V. (2011). Epidemiology of dissociative disorders: An overview. *Epidemiology Research International, 2011*, 1–8. https://doi.org/10.1155/2011/404538.

Sar, V., Unal, S. N., & Ozturk, E. (2007). Frontal and occipital perfusion changes in dissociative identity disorder. *Psychiatry Research: Neuroimaging, 156*, 217–223. https://doi.org/10.1016/j.pscychresns.2006.12.017.

Shapiro, F., & Forrest, M. S. (2004). *EMDR: The breakthrough therapy for anxiety, stress and trauma*. New York: Basic Books.

Sierra, M., & Berrios, G. (2000). The Cambridge Depersonalisation Scale: A new instrument for the measurement of depersonalization. *Psychiatry Research, 93*, 153–164.

Simeon, D., Guralnik, O., & Schmeidler, J. (2001). Development of a depersonalization severity scale. *Journal of Traumatic Stress, 14*, 341–349. https://doi.org/10.1023/A:1011169019614.

Spiegel, D., Loewenstein, R. J., Lewis-Fernández, R., Sar, V., Simeon, D., Vermetten, E., . . . Dell, P. F. (2011). Dissociative disorders in DSM-5. *Depression and Anxiety*, *28*(12), E17–E45. https://doi.org/10.1002/da.20923

Staniloiu, A., Markowitsch, H., & Kordon, A. (2018). Psychological causes of autobiographical amnesia: A study of 28 cases. *Neuropsychologia, 110*, 134–147. https://doi.org/10.1016/j.neuropsychologia.2017.10.017.

Stanilou, A., & Markowitsch, H. J. (2012). Towards solving the riddle of forgetting in functional amnesia: Recent advances and current opinions. *Frontiers in Psychology, 3*, 1–23.

Steele, K., Boon, S., & van der Hart, O. (2017). *Treating trauma-related dissociation: A practical integrative approach*. New York: WW Norton.

Steinberg, M. (1994). *The Structured Clinical Interview for DSM-IV Dissociative Disorders—Revised (SCID-D-R)*. Washington, DC: American Psychiatric Press.

Steinberg, M. (2000). Advances in the clinical assessment of dissociation: The SCID-D-R. *Bulletin of the Menninger Clinic, 64*, 146–163.

Stern, D. B. (1997). *Unformulated experience: From dissociation to imagination in psychoanalysis*. New York, NY: Routledge.

Tamar-Gurol, D., Sar, V., Karadag, F., Evren, C., & Karagoz, M. (2008). Childhood emotional abuse, dissociation, and suicidality among patients with drug dependency in Turkey. *Psychiatry and Clinical Neurosciences, 62*, 540–547. https://doi.org/10.1111/j.1440-1819-2008.01847.x.

Tsai, J., Armour, C., Southwick, S. M., & Pietrzak, R. H. (2015). Dissociative subtype of DSM-5 posttraumatic stress disorder in US veterans. *Journal of Psychiatric Research, 66–67*, 67–74. https://doi.org/10.1016/j.jpsychires.2015.04.017.

Vissia, E. M., Giesen, M. E., Chalavi, S., Nijenhuis, E. R. S., Draijer, N., Brand, B. L., & Reinders, A. A. T. S. (2016). Is it trauma- or fantasy-based? Comparing dissociative identity disorder, post-traumatic stress disorder, simulators, and controls. *Acta Psychiatrica Scandinavica, 134*, 111–128. https://doi.org/10.1111/acps.12590.

Waller, N. G., & Ross, C. A. (1997). The prevalence and biometric structure of pathological dissociation in the general population: Taxometric and behavior genetic findings. *Journal of Abnormal Psychology, 106*, 499–510. https://doi.org/10.1037/0021-843X.106.4.499.

Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. M. (2013). *The clinician-administered PTSD scale for DSM-5 (CAPS-5)*. Interview available from the National Center for PTSD at www.ptsd.va.gov.

World health Organization. (1992). *Composite international diagnostic interview*. Geneva, Switzerland: Author.

Zoet, H. A., Wagenmans, A., van Minnen, A., & de Jongh, A. (2018). Presence of the dissociative subtype of PTSD does not moderate the outcome of intensive trauma-focused treatment for PTSD. *European Journal of Psychotraumatology, 9*(1), 1468707. https://doi.org/10.1080/20008198.2018.1468707.

Zorzella, K. P. M., Muller, R. T., Cribbie, R. A., Bambrah, V., & Classen, C. C. (2020). The role of alexithymia in trauma therapy outcomes: Examining improvements in PTSD, dissociation, and interpersonal problems. *Psychological Trauma Theory Research Practice and Policy, 12*, 20–28. https://doi.org/10.1037/tra0000433.supp. (Supplemental).