



# PTSD *Research Quarterly*

ADVANCING SCIENCE AND PROMOTING UNDERSTANDING OF TRAUMATIC STRESS

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## The Dissociative Subtype of PTSD: Rationale, Evidence, and Future Directions

The diagnosis of PTSD has undergone numerous changes in the recently released *Diagnostic and Statistical Manual-5 (DSM-5; APA, 2013)*. One is the addition of the dissociative subtype (see Friedman, Resick, Bryant, and Brewin, 2011). This subtype applies to individuals who meet full criteria for PTSD and also exhibit marked symptoms of derealization (i.e., perceiving one's world or environment as not real) and/or depersonalization (i.e., perceiving one's self as not whole, connected, or real). This review examines the evidence for the dissociative subtype of PTSD, discusses issues related to its operational definition and assessment, and considers its broader relevance for clinical and research applications.

To begin, it is important to define the term "subtype" and clarify how it is used in DSM-5. In general, the term implies a subordinate variant of a more general kind such that one might expect differences in the core symptoms of a disorder as a function of subtype. However, in this case, the dissociative subtype is not a subset of the core PTSD symptoms, but instead, reflects a form of PTSD marked by additional *comorbid* symptoms of derealization and/or depersonalization. Most broadly, the term reflects the finding that only a distinct minority of individuals with PTSD experience symptoms of derealization and depersonalization and this is relatively unrelated to the severity of their PTSD symptoms.

Empirical support for the subtype comes from converging lines of research, including psychometric and neurobiological studies. A series of articles have used structural analytic models to examine the distribution of dissociation symptoms within trauma-exposed and PTSD samples. Structural analyses, such as taxometric procedures and latent profile analyses, are ideally suited for testing subtype hypotheses because these analyses take a multivariate approach to examine if there are unobserved, or latent, constructs that distinguish

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groups of individuals based on their scores on a series of items submitted to the analysis. In the case of latent profile analysis, competing models can be tested and compared against each other using multiple indicators of model fit and substantive interpretability. Waelde, Silvern, and Fairbank (2005) used taxometric procedures to examine the structure of dissociation (as defined by amnesia, depersonalization, and absorption) among trauma-exposed Vietnam Veterans and found that 32% of those with PTSD could be classified as belonging to a dissociative taxon or group. Wolf, Miller et al. (2012) subsequently used latent profile analysis of items indexing PTSD and dissociative symptom severity (as defined by depersonalization, derealization, and reduction in awareness), and demonstrated that about 12% of Veterans with PTSD scored uniquely high on symptoms of derealization and depersonalization. These individuals formed a dissociative class who were distinct from those with high PTSD severity and no dissociation and from those with low PTSD severity and no dissociation. The dissociative group was also associated with higher severity of clinician-rated flashbacks and self-reported a higher level of exposure to childhood and adult sexual assault compared to the other groups. This basic pattern of latent profile results was subsequently replicated in all male and all female veteran and military PTSD samples (Wolf, Lunney et al., 2012). Approximately 15% of the male sample and 30% of the female sample were assigned to the dissociative class, which was again defined by symptoms of depersonalization and derealization. The female dissociative class was associated with higher prevalence of borderline and avoidant personality disorder diagnoses. Steuwe, Lanius, and Frewen (2012) extended this work into a civilian sample of individuals with PTSD and a high prevalence of sexual trauma and found remarkably similar results

*Continued on page 2*

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that latent profile analyses revealed that approximately 25% of the sample could be classified as belonging to a dissociative subgroup, as defined by high scores on derealization and depersonalization. Finally, Stein et al. (2013) contributed an important study of the dissociative subtype in a sample of over 25,000 individuals from 16 different countries. The large sample size and cross-cultural representation permitted evaluation of the correlates and generalizability of the subtype. The authors examined the distribution of symptoms of derealization and depersonalization in the sample (but did not use structural models for this purpose) and found that approximately 14% of the sample could be assigned to a dissociative group and that this group also showed elevations on two core PTSD symptoms: flashbacks and psychogenic amnesia. The dissociative class was associated with male sex, childhood-onset PTSD, greater levels of trauma exposure, and higher levels of functional impairment and suicidality as well as comorbid anxiety disorders. Moreover, the study demonstrated that the basic pattern of results replicated across countries that differed in income, providing strong support for the cross-cultural relevance and generalizability of the subtype.

Lanius et al. (2010), followed by Lanius and colleagues (2012), compiled the neurobiological evidence for a dissociative subtype of PTSD. Their review of functional magnetic resonance imaging (fMRI) research suggested that while the majority of individuals with PTSD responded to hearing their personal trauma-scripts with high levels of psychological distress, physiological arousal, emotionality, and reexperiencing, and hyperarousal symptoms, a separate group of individuals responded to hearing their own trauma scripts with a notable absence of such symptoms and instead, showed symptoms of dissociation. The former group was characterized by heightened activity in limbic brain regions (e.g., the amygdala) and reduced activity in areas of the brain associated with emotional control and regulation (largely in pre-frontal regions). In contrast, across studies, Lanius et al. (2010, 2012) noted that the latter group showed evidence of emotional over-modulation, as suggested by heightened activation in pre-frontal brain regions and relatively less activity in the emotional/limbic areas of the brain in response to trauma cues. This provides initial evidence of potential differences in neurobiological functioning in individuals with versus without the subtype, though more research in this area is needed to evaluate the replicability of these patterns of brain activation and their specificity to the dissociative subtype.

Dissociation is a broad term and it is important to highlight that the dissociative subtype of PTSD is formulated based on symptoms of derealization and depersonalization specifically. The focus on these symptoms is consistent with evidence that these types of dissociation reflect more pathological forms of dissociative phenomena that are distinct from other types of dissociation, such as the tendency to “zone out” or have reduced awareness of one’s surroundings. For example, Waller, Putnam, and Carlson (1996) performed taxometric analyses on the Dissociative Experiences Scale (DES; Bernstein and Putnam, 1986), the most widely used measure of dissociative phenomena. Waller et al. showed that some DES items, such as those related to absorption (a trait associated with hypnotizability and cognitive control), reflected dimensional constructs or traits that were relatively nonpathological and normative. In contrast, other items, including those assessing depersonalization and derealization, fit the model for a pathological class or taxon. Others have suggested that symptoms of derealization and depersonalization are facets of a broader form of dissociation termed detachment that is distinct from

a form of dissociation termed compartmentalization (which captures phenomena such as dissociative amnesia and symptoms of conversion disorder; see Holmes et al., 2005). The definition of dissociation, its relationship to other constructs, and the key assumptions about the construct are artfully discussed in a critical review by Giesbrech and colleagues (2008) that is required reading for those interested in studying dissociation.

The operational definition of dissociation is important to consider when selecting a measure to assess the dissociative subtype of PTSD. There are many self-report and interview-based measures of dissociation and they vary widely in their approach to the assessment of the construct and in their psychometric properties. The use of dimensional or nonpathological measures of dissociation will be sensitive to normative traits such as absorption, fantasy proneness, and suggestibility that are likely to correlate with PTSD simply as a function of overall severity; their use would be expected to artificially inflate the prevalence of the subtype and fail to identify a unique subgroup. Our group has focused on the use of the associated features items in the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995), the gold standard structured PTSD diagnostic interview, to assess the dissociative subtype. To date, there is no stand-alone instrument that is specific to the dissociative subtype.

The inclusion of the dissociative subtype of PTSD in the *DSM-5* has both clinical and research applications. Symptoms of dissociation are important clinical phenomena that may become a target of treatment or may interfere with PTSD treatment. Individuals who are highly dissociative may have difficulty benefitting from trauma-focused therapies if dissociation interferes with the processing of trauma memories and related emotions and cognitions. To date, no study had specifically evaluated if the subtype, as defined in the *DSM-5*, affects PTSD treatment response or the course of the disorder; most studies evaluating dissociation as a moderator of PTSD treatment response have been under-powered to fully examine this question (as they were not originally designed to address this issue). Two recent studies have provided evidence for subtle differences in PTSD treatment response among individuals with dissociation, though both failed to support an overall dissociation by time interaction on PTSD treatment response. Specifically, Cloitre and colleagues (2012) found that baseline dissociation (broadly defined) did not moderate overall PTSD treatment response, however, dissociation assessed at post-treatment time points did interact with treatment type to yield differential effects on PTSD severity at follow-up. Those with higher levels of post-treatment dissociation fared better with respect to PTSD symptoms if they had been assigned to one of the two treatment arms that involved skills training. Resick et al. (2012) also found no overall dissociation by time effect in predicting response to PTSD treatment but observed that individuals with high levels of dissociation, including symptoms of depersonalization specifically, evidenced a faster decline in PTSD symptoms if they had been assigned to the Cognitive Processing Therapy (CPT) arm of the treatment trial as opposed to the straight cognitive therapy arm (without the written trauma accounts; CPT-C). In other words, although the overall degree of change in PTSD symptoms did not differ as a function of dissociation, the pace, or rate of change in PTSD symptoms, was dependent on dissociative symptoms in combination with treatment type. More work is needed to determine the influence of the dissociative subtype on PTSD treatment response and the best practices for delivering effective PTSD treatment for individuals with salient dissociative symptoms.

The dissociative subtype holds many potential benefits for research purposes. PTSD is a heterogeneous disorder such that any two individuals with the diagnosis may present with different (even nonoverlapping) combinations of PTSD symptoms and patterns of comorbidity. It is important to measure and account for these differences. Otherwise variability in the presentation of PTSD may make it difficult, if not impossible, to identify correlates of the disorder. The dissociative subtype of PTSD may be associated with a distinct etiology, biology, course, and treatment response. For example, individuals with the dissociative subtype may have different genetic vulnerabilities than individuals with PTSD who do not dissociate and failure to account for this phenotypic difference may contribute to statistical “noise” and problems in replicating results across samples. Providing a clear definition of the subtype should allow for research examining the specific genetic, neurobiological, cognitive, and psychosocial mechanisms of dissociation in PTSD.

The association between dissociation and trauma and PTSD has long been a topic of curiosity, speculation, and controversy, and those interested in a historical view may want to read the writings of Pierre Janet dating back to 1889 (and republished in 1973). Controversy about the nature of dissociation in PTSD persists and additional refinement of the definition of the subtype as well as research on its biological and psychosocial correlates and function is still needed. The addition of the subtype in *DSM-5* formalizes the PTSD-dissociation relationship and provides a reliable definition of the subtype. This should help to advance the science and understanding of PTSD.

## References

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Blake, D.D., Weathers, F.W., Nagy, L.M., Kaloupek, D.G., Gusman, F.D., Charney, D.S., and Keane, T.M. (1995). **The development of a Clinician-Administered PTSD Scale**. *Journal of Traumatic Stress, 8*, 75-90.

## FEATURED ARTICLES

Bernstein, E.M., and Putnam, F.W. (1986). **Development, reliability, and validity of a dissociation scale**. *Journal of Nervous and Mental Disease, 174*, 727-735. doi:10.1097/00005053-198612000-00004  
Dissociation is a lack of the normal integration of thoughts, feelings, and experiences into the stream of consciousness and memory. Dissociation occurs to some degree in normal individuals and is thought to be more prevalent in persons with major mental illnesses. The Dissociative Experiences Scale (DES) has been developed to offer a means of reliably measuring dissociation in normal and clinical populations. Scale items were developed using clinical data and interviews, scales involving memory loss, and consultations with experts in dissociation. Pilot testing was performed to refine the wording and format of the scale. The scale is a 28-item self-report questionnaire. Subjects were asked to make slashes on 100-mm lines to indicate where they fall on a continuum for each question. In addition, demographic information (age, sex, occupation, and level of education) was collected so that the connection between these

variables and scale scores could be examined. The mean of all item scores ranges from 0 to 100 and is called the DES score. The scale was administered to between 10 and 39 subjects in each of the following populations: normal adults, late adolescent college students, and persons suffering from alcoholism, agoraphobia, phobic-anxious disorders, PTSD, schizophrenia, and multiple personality disorder. Reliability testing of the scale showed that the scale had a good test-retest and good split-half reliability. Item-scale score correlations were all significant, indicating good internal consistency and construct validity. A Kruskal-Wallis test and post hoc comparisons of the scores of the eight populations provided evidence of the scale’s criterion-referenced validity. The scale was able to distinguish between subjects with a dissociative disorder (multiple personality) and all other subjects.

Cloitre, M., Petkova, E., Wang, J., and Lu (Lassell), F. (2012). **An examination of the influence of a sequential treatment on the course and impact of dissociation among women with PTSD related to childhood abuse**. *Depression and Anxiety, 29*, 709-717. doi:10.1002/da.21920  
*Background:* It has been proposed that PTSD patients who experience significant dissociation upon exposure to traumatic reminders may do less well in trauma-focused therapies. We explored whether a sequenced two-component treatment in which an emotion regulation skills training module preceding exposure would improve outcomes for those with significant dissociation. *Methods:* Analyses were conducted on data from an RCT in which 104 women with PTSD related to childhood abuse were assigned to one of three treatment conditions: Skills Training in Affective and Interpersonal Regulation (STAIR) followed by Narrative Story Telling (NST; STAIR/NST), STAIR followed by supportive counseling (SC; STAIR/SC), or SC followed by NST (SC/NST). *Results:* Baseline dissociation was associated with differential outcome such that at low levels of dissociation the three treatments were equally effective but at higher levels STAIR/NST resulted in greater reductions in dissociative symptoms. Level of baseline dissociation did not moderate the effect of the treatments on PTSD outcome. At all levels of baseline dissociation, STAIR/NST produced better PTSD outcome. At posttreatment, however, participants with high dissociation treated with STAIR/NST continued to improve during follow-up, those treated with STAIR/SC maintained gains, and those treated with SC/NST experienced loss of posttreatment PTSD symptom gains. *Conclusions:* The differential results observed among the treatments depending on severity of dissociation at baseline and at posttreatment suggest the potential clinical utility of identifying a dissociative subtype of PTSD and of the benefits of sequenced, phase-oriented treatment approaches.

Friedman, M.J., Resick, P.A., Bryant, R.A., and Brewin, C.R. (2011). **Considering PTSD for DSM-5**. *Depression and Anxiety, 28*, 750-769. doi:10.1002/da.20767  
This is a review of the relevant empirical literature concerning the *DSM-IV-TR* diagnostic criteria for PTSD. Most of this work has focused on Criteria A1 and A2, the two components of the A (Stressor) Criterion. With regard to A1, the review considers: (a) whether A1 is etiologically or temporally related to the PTSD symptoms; (b) whether it is possible to distinguish “traumatic” from “nontraumatic” stressors; and (c) whether A1 should be eliminated from *DSM-5*. Empirical literature regarding the utility of the A2 criterion indicates that there is little support for keeping the A2 criterion in *DSM-5*. The B (reexperiencing), C (avoidance/numbing),

and D (hyperarousal) criteria are also reviewed. Confirmatory factor analyses suggest that the latent structure of PTSD appears to consist of 4 distinct symptom clusters rather than the 3-cluster structure found in *DSM-IV*. It has also been shown that in addition to the fear-based symptoms emphasized in *DSM-IV*, traumatic exposure is also followed by dysphoric, anhedonic symptoms, aggressive/externalizing symptoms, guilt/shame symptoms, dissociative symptoms, and negative appraisals about oneself and the world. A new set of diagnostic criteria is proposed for *DSM-5* that: (a) attempts to sharpen the A1 criterion; (b) eliminates the A2 criterion; (c) proposes 4 rather than 3 symptom clusters; and (d) expands the scope of the B-E criteria beyond a fear-based context. The final sections of this review consider: (a) partial/subsyndromal PTSD; (b) disorders of extreme stress not otherwise specified (DESNOS)/complex PTSD; (c) cross-cultural factors; (d) developmental factors; and (e) subtypes of PTSD.

Giesbrecht, T., Lynn, S.J., Lilienfeld, S.O., and Merckelbach, H. (2008). **Cognitive processes in dissociation: An analysis of core theoretical assumptions.** *Psychological Bulletin*, 134, 617-647. doi:10.1037/0033-2909.134.5.617 Dissociation is typically defined as the lack of normal integration of thoughts, feelings, and experiences into consciousness and memory. The present article critically evaluates the research literature on cognitive processes in dissociation. The authors' review indicates that dissociation is characterized by subtle deficits in neuropsychological performance (e.g., heightened distractibility). Some of the cognitive phenomena (e.g., weakened cognitive inhibition) associated with dissociation appear to be dependent on the emotional or attentional context. Contrary to a widespread assumption in the clinical literature, dissociation does not appear to be related to avoidant information processing. Rather, it is associated with an enhanced propensity toward pseudo-memories, possibly mediated by heightened levels of interrogative suggestibility, fantasy proneness, and cognitive failures. Evidence for a link between dissociation and either memory fragmentation or early trauma based on objective measures is conspicuously lacking. The authors identify a variety of methodological issues and discrepancies that make it difficult to articulate a comprehensive framework for cognitive mechanisms in dissociation. The authors conclude with a discussion of research domains (e.g., sleep-related experiences, drug-related dissociation) that promise to advance our understanding of cognition and dissociation.

Holmes, E.A., Brown, R.J., Mansell, W., Fearon, R.P., Hunter, E.C., Frasquillo, F., and Oakley, D.A. (2005). **Are there two qualitatively distinct forms of dissociation? A review and some clinical implications.** *Clinical Psychology Review*, 25, 1-23. doi:10.1016/j.cpr.2004.08.006 This review aims to clarify the use of the term 'dissociation' in theory, research and clinical practice. Current psychiatric definitions of dissociation are contrasted with recent conceptualizations that have converged on a dichotomy between two qualitatively different phenomena: 'detachment' and 'compartmentalization'. We review some evidence for this distinction within the domains of phenomenology, factor analysis of self-report scales and experimental research. Available evidence supports the distinction but more controlled evaluations are needed. We conclude with recommendations for future research and clinical practice, proposing that using this dichotomy can lead to clearer case formulation and an improved choice of treatment strategy. Examples are provided within Depersonalization Disorder, Conversion Disorder and Posttraumatic Stress Disorder (PTSD).

Janet, P. (1973). *L'automatisme psychologique, Fourth Edition.* Paris: Société Pierre Janet and pathological psychology laboratory at the Sorbonne with the CNRS. (Original work published 1889).

The work of Pierre Janet (1859-1947) reproduced in facsimile is his philosophy thesis defended on June 21, 1889 at the Sorbonne. It was noted in the report that the thesis defense on psychological automatism "is one of the most remarkable thesis that the Faculty has ever received, and one could say that it is epoch-making for the psychology of our time. It a highly original work in terms of its method, its facts and its ideas." Janet, who has placed himself firmly on within a psychological framework, pitted two fundamental activities of the mind: the synthesis activity (consciousness) and the conservative activity (automatism). Both activities usually remain together as the being is alive, their good agreement and their balance dictate the health of the body and the harmony of the mind. When the mind is normal, it only cedes minor behavior to automatism. When conditions stay the same, these behaviors can be repeated without difficulty, but it is still available to engage in those behaviors, which are constantly required to maintain balance with the changing environment. This union of the two activities is then the condition of freedom and progress. But when the creative activity of the mind, having worked early in life and accumulated these automatic tendencies, suddenly ceases to act, the mind is completely unbalanced and given over without counterweight to the action of a single force. Phenomena that arise are no longer newly synthesized; they are not gathered up to form at every moment of life the personal consciousness of the individual. They then return to their former groups naturally and automatically bring the combinations that formerly made sense. It is all these disturbances—small or large—resulting from the dominance of the old systems of control in the individual over a very weak current synthetic activity or consciousness, that Janet studied.

Lanius, R.A., Brand, B., Vermetten, E., Frewen, P.A., and Spiegel, D. (2012). **The dissociative subtype of posttraumatic stress disorder: Rationale, clinical and neurobiological evidence, and implications.** *Depression and Anxiety*, 29, 701-708. doi:10.1002/da.21889

*Background:* Clinical and neurobiological evidence for a dissociative subtype of posttraumatic stress disorder (PTSD) has recently been documented. A dissociative subtype of PTSD is being considered for inclusion in the forthcoming *Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5)* to address the symptoms of depersonalization and derealization found among a subset of patients with PTSD. This article reviews research related to the dissociative subtype including antecedent, concurrent, and predictive validators as well as the rationale for recommending the dissociative subtype. *Methods:* The relevant literature pertaining to the dissociative subtype of PTSD was reviewed. *Results:* Latent class analyses point toward a specific subtype of PTSD consisting of symptoms of depersonalization and derealization in both veteran and civilian samples of PTSD. Compared to individuals with PTSD, those with the dissociative subtype of PTSD also exhibit a different pattern of neurobiological response to symptom provocation as well as a differential response to current cognitive behavioral treatment designed for PTSD. *Conclusions:* We recommend that consideration be given to adding a dissociative subtype of PTSD in the revision of the *DSM*. This facilitates more accurate analysis of different phenotypes of PTSD, assist in treatment planning that is informed by considering the degree of patients' dissociativity, will improve treatment outcome, and will lead to much-needed research about the prevalence, symptomatology, neurobiology, and treatment of individuals with the dissociative subtype of PTSD.

Lanius, R.A., Vermetten, E., Loewenstein, R.J., Brand, B., Schmahl, C., Bremner, J.D., and Spiegel, D. (2010). **Emotion modulation in PTSD: Clinical and neurobiological evidence for a dissociative subtype.** *American Journal of Psychiatry*, 167, 640-647. doi:10.1176/appi.ajp.2009.09081168 In this article, the authors present evidence regarding a dissociative subtype of PTSD, with clinical and neurobiological features that can be distinguished from nondissociative PTSD. The dissociative subtype is characterized by overmodulation of affect, while the more common undermodulated type involves the predominance of reexperiencing and hyperarousal symptoms. This article focuses on the neural manifestations of the dissociative subtype in PTSD and compares it to those underlying the reexperiencing/hyperaroused subtype. A model that includes these 2 types of emotion dysregulation in PTSD is described. In this model, reexperiencing/hyperarousal reactivity is viewed as a form of emotion dysregulation that involves emotional undermodulation, mediated by failure of prefrontal inhibition of limbic regions. In contrast, the dissociative subtype of PTSD is described as a form of emotion dysregulation that involves emotional overmodulation mediated by midline prefrontal inhibition of the same limbic regions. Both types of modulation are involved in a dynamic interplay and lead to alternating symptom profiles in PTSD. These findings have important implications for treatment of PTSD, including the need to assess patients with PTSD for dissociative symptoms and to incorporate the treatment of dissociative symptoms into stage-oriented trauma treatment.

Resick, P.A., Suvak, M.K., Johnides, B.D., Mitchell, K.S., and Iverson, K.M. (2012). **The impact of dissociation on PTSD treatment with cognitive processing therapy.** *Depression and Anxiety*, 29, 718-730. doi:10.1002/da.21938 *Background:* This secondary analysis of data from a randomized controlled trial of cognitive processing therapy (CPT) and its constituent components investigated whether dissociation decreased over the course of treatment primarily targeting symptoms of PTSD and explored whether levels of dissociation predicted treatment outcome differentially by treatment condition. *Methods:* An intention to treat sample of 150 women were randomized to CPT, cognitive therapy only (CPT-C), or written trauma accounts only (WA). Dissociation was measured by the dissociation subscale of the Traumatic Stress Inventory and the Multiscale Dissociation Inventory. *Results:* Multilevel regression analyses revealed significant decreases in dissociation that did not vary as a function of treatment condition. Growth curve modeling revealed significant treatment condition by dissociation interactions such that the impact of pretreatment levels of dissociation impacted the treatment conditions differently. *Conclusions:* Women who endorsed low pretreatment levels of dissociation responded most efficiently to CPT-C, whereas women with the highest levels of dissociation, in particular high levels of depersonalization, responded better to CPT.

Stein, D.J., Koenen, K.C., Friedman, M.J., Hill, E., McLaughlin, K.A., Petukhova, M., et al. (2013). **Dissociation in posttraumatic stress disorder: Evidence from the World Mental Health Surveys.** *Biological Psychiatry*, 73, 302-312. doi:10.1016/j.biopsych.2012.08.022 *Background:* Although the proposal for a dissociative subtype of PTSD in *DSM-5* is supported by considerable clinical and neurobiological evidence, this evidence comes mostly from referred samples in Western countries. Cross-national population epidemiologic surveys

were analyzed to evaluate generalizability of the subtype in more diverse samples. *Methods:* Interviews were administered to 25,018 respondents in 16 countries in the World Health Organization World Mental Health Surveys. The Composite International Diagnostic Interview was used to assess 12-month *DSM-IV* PTSD and other common *DSM-IV* disorders. Items from a checklist of past-month nonspecific psychological distress were used to assess dissociative symptoms of depersonalization and derealization. Differences between PTSD with and without these dissociative symptoms were examined across a variety of domains, including index trauma characteristics, prior trauma history, childhood adversity, sociodemographic characteristics, psychiatric comorbidity, functional impairment, and treatment seeking. *Results:* Dissociative symptoms were present in 14.4% of respondents with 12-month *DSM-IV*/Composite International Diagnostic Interview PTSD and did not differ between high and low/middle income countries. Symptoms of dissociation in PTSD were associated with high counts of re-experiencing symptoms and net of these symptom counts with male sex, childhood onset of PTSD, high exposure to prior (to the onset of PTSD) traumatic events and childhood adversities, prior histories of separation anxiety disorder and specific phobia, severe role impairment, and suicidality. *Conclusion:* These results provide community epidemiologic data documenting the value of the dissociative subtype in distinguishing a meaningful proportion of severe and impairing cases of PTSD that have distinct correlates across a diverse set of countries.

Steuwe, C., Lanius, R.A., and Frewen, P.A. (2012). **Evidence for a dissociative subtype of PTSD by latent profile and confirmatory factor analyses in a civilian sample.** *Depression and Anxiety*, 29, 689-700. doi:10.1002/da.21944 *Background:* Dissociative symptoms are increasingly recognized in individuals with PTSD. The aim of this study was to investigate the prevalence of derealization and depersonalization symptoms via latent profile analyses (LPAs) in a civilian PTSD sample and examine the relationship between PTSD and dissociative symptoms via factor analytic methods. *Methods:* A civilian sample of individuals with PTSD predominantly related to childhood abuse ( $n = 134$ ) completed a diagnostic interview for PTSD and comorbid psychiatric disorders. LPAs and confirmatory factor analyses (CFAs) were performed on the severity scores for PTSD, derealization, and depersonalization symptoms. *Results:* LPAs extracted three groups, one of which was uniquely characterized by high derealization and depersonalization symptoms, and accounted for 25% of the sample. Individuals in the dissociative subgroup also showed a higher number of comorbid Axis I disorders and a more significant history of childhood abuse and neglect. CFAs suggested the acceptance of a five factor solution in which dissociative symptoms are distinct from but correlate significantly with the core PTSD symptom clusters. *Conclusions:* The results from LPAs and CFAs are concordant with the concept of a dissociative subtype in patients with PTSD and suggest that symptoms of derealization-depersonalization and the core symptoms of PTSD are positively correlated. Thought should be given to including a dissociative subtype of PTSD in the *DSM-5*.

Waelde, L.C., Silvern, L., and Fairbank, J.A. (2005). **A taxometric investigation of dissociation in Vietnam veterans.** *Journal of Traumatic Stress*, 18, 359-369. doi:10.1002/jts.20034 There is long-standing debate about whether elevated dissociative symptoms

are common in PTSD or whether there is a distinct subtype of cases with elevated dissociation. The current investigation examined the latent structure of dissociative symptoms in a sample of 316 male, trauma-exposed Vietnam Veterans, 76 of whom were diagnosed with current PTSD. Three taxometric procedures (MAMBAC, MAXEIG, and MAXCOV) were performed on three indicator sets drawn from the Dissociative Experiences Scale. Taxometric analyses consistently revealed a taxon (subtype) of highly dissociative individuals. The taxon members had significantly more severe posttraumatic symptoms and were more often diagnosed with current PTSD than were nontaxon members. Among participants with a current PTSD diagnoses, only 32% belonged to the dissociative taxon, suggesting that there is a subtype of severe PTSD with elevated dissociation.

Waller, N.G., Putnam, F.W., and Carlson, E.B. (1996). **Types of dissociation and dissociative types: A taxometric analysis of dissociative experiences.** *Psychological Methods, 1*, 300-321. doi:10.1037//1082-989X.1.3.300 This article examined evidence for dimensional and typological models of dissociation. The authors reviewed previous research with the Dissociative Experiences Scale (DES) and note that this scale, like other dissociation questionnaires, was developed to measure that so-called dissociative continuum. Next, recently developed taxometric methods for distinguishing typological from dimensional constructs are described and applied to DES item-response data from 228 adults with diagnosed multiple personality disorder and 228 normal controls. The taxometric findings empirically justify the distinction between two types of dissociative experiences. Nonpathological dissociative experiences are manifestations of a dissociative trait, whereas pathological dissociative experiences are manifestations of a latent class variable. The taxometric findings also indicate that there are two types of dissociators. Individuals in the pathological dissociative class (taxon) can be identified with a brief, 8-item questionnaire called the DES-T. Scores on the DES-T and DES are compared in 11 clinical and nonclinical samples [including a group of 116 subjects diagnosed with PTSD]. It is concluded that the DES-T is a sensitive measure of pathological dissociation, and the implications of these taxometric results for the identification, treatment, and understanding of multiple personality disorder and allied pathological dissociative states are discussed.

Wolf, E.J., Lunney, C.A., Miller, M.W., Resick, P.A., Friedman, M.J., and Schnurr, P.P. (2012). **The dissociative subtype of PTSD: A replication and extension.** *Depression and Anxiety, 29*, 679-688. doi:10.1002/da.21946 *Background:* The nature of the relationship between dissociation and PTSD has clinical and nosological importance. The aim of this study was to evaluate the evidence for a dissociative subtype of PTSD in two independent samples and to examine the pattern of personality disorder (PD) comorbidity associated with the dissociative subtype of PTSD. *Methods:* Latent profile analyses were conducted on PTSD and dissociation items reflecting derealization and depersonalization in two samples of archived data: Study 1 included 360 male Vietnam War Veterans with combat-related PTSD; Study 2 included 284 female Veterans and active duty service personnel with PTSD and a high base rate of exposure to sexual trauma. *Results:* The latent profile analysis yielded evidence for a three-class solution in both samples: the model was defined by moderate and high PTSD classes and a class marked by high PTSD severity coupled with high levels of

dissociation. Approximately 15% of the male sample and 30% of the female sample were classified into the dissociative class. Women (but not men) in the dissociative group exhibited higher levels of comorbid avoidant and borderline PD diagnoses. *Conclusions:* Results provide support for a dissociative subtype of PTSD and also suggest that dissociation may play a role in the frequent co-occurrence of PTSD and borderline PD among women. These results are pertinent to the on-going revisions to the DSM and suggest that consideration should be given to incorporating a dissociative subtype into the revised PTSD criteria.

Wolf, E.J., Miller, M.W., Reardon, A.F., Ryabchenko, K.A., Castillo, D., and Freund, R. (2012). **A latent class analysis of dissociation and posttraumatic stress disorder: Evidence for a dissociative subtype.** *Archives of General Psychiatry, 69*, 698-705. doi:10.1001/archgenpsychiatry.2011.1574 *Context:* The nature of the relationship of dissociation to PTSD is controversial and of considerable clinical and nosologic importance. *Objectives:* To examine evidence for a dissociative subtype of PTSD and to examine its association with different types of trauma. *DESIGN:* A latent profile analysis of cross-sectional data from structured clinical interviews indexing *DSM-IV* symptoms of current PTSD and dissociation. *Settings:* The VA Boston Healthcare System and the New Mexico VA Health Care System. *Participants:* A total of 492 Veterans and their intimate partners, all of whom had a history of trauma. Participants reported exposure to a variety of traumatic events, including combat, childhood physical and sexual abuse, partner abuse, motor vehicle accidents, and natural disasters, with most participants reporting exposure to multiple types of traumatic events. 42% of the sample met the criteria for a current diagnosis of PTSD. *Main Outcome Measures:* Item-level scores on the Clinician-Administered PTSD Scale. *Results:* A latent profile analysis suggested a 3-class solution: a low PTSD severity subgroup, a high PTSD severity subgroup characterized by elevations across the 17 core symptoms of the disorder, and a small but distinctly dissociative subgroup that composed 12% of individuals with a current diagnosis of PTSD. The latter group was characterized by severe PTSD symptoms combined with marked elevations on items assessing flashbacks, derealization, and depersonalization. Individuals in this subgroup also endorsed greater exposure to childhood and adult sexual trauma compared with the other 2 groups, suggesting a possible etiologic link with the experience of repeated sexual trauma. *Conclusions:* These results support the subtype hypothesis of the association between PTSD and dissociation and suggest that dissociation is a highly salient facet of posttraumatic psychopathology in a subset of individuals with the disorder.

## ADDITIONAL CITATIONS

Giesbrecht, T., Merckelbach, H., and Geraerts, E. (2007). **The dissociative experiences taxon is related to fantasy proneness.** *Journal of Nervous and Mental Disease, 195*, 769-772. doi:10.1097/NMD.0b013e318142ce55 Some authors have argued that nonpathological dissociation should be distinguished from a taxon form of pathological dissociation, which is indexed by the Dissociative Experiences Scale Taxon (DES-T). We tested to what extent DES-T scores are independent from fantasy immersion and whether DES-T scores are uniquely related to trauma self-reports.

To this end, subsamples of undergraduate students ( $n = 930$ ), healthy adults ( $n = 20$ ), schizophrenic patients ( $n = 22$ ), borderline personality disordered patients ( $n = 20$ ), patients with mood disorder without psychosis ( $n = 19$ ), and women with a history of childhood sexual abuse ( $n = 55$ ) completed the Dissociative Experiences Scale and a measure of fantasy immersion. DES-T scores were related to absorption and fantasy immersion to a lesser extent than the original DES. However, the fact that nontrivial percentages within all groups, except for the healthy adults, were classified as taxon members casts doubts on the assumption that DES-T is a reliable index of pathological dissociation. Also, we found that the DES-T was not exclusively related to reports of childhood sexual abuse.

Ginzburg, K., Koopman, C., Butler, L.D., Palesh, O., Kraemer, H.C., Classen, C.C., and Spiegel, D. (2006). **Evidence for a dissociative subtype of post-traumatic stress disorder among help-seeking childhood sexual abuse survivors.** *Journal of Trauma and Dissociation*, 7(2), 7-27. doi:10.1300/J229v07n02\_02 This study examined evidence for a dissociative subtype of PTSD among women seeking psychotherapy for childhood sexual abuse (CSA). One hundred twenty-two women seeking treatment for CSA completed a battery of questionnaires assessing PTSD, dissociative symptoms, and child maltreatment. Using signal detection analysis, we identified high and low dissociation PTSD subgroups. A constellation of three PTSD symptoms — hypervigilance, sense of foreshortened future, and sleep difficulties — discriminated between these two subgroups ( $OR = 8.15$ ). Further evidence was provided by the finding of a nonlinear relationship between severity of childhood maltreatment and dissociation in the women with PTSD. These results provide support for a dissociative subtype of PTSD that may stem from more severe childhood experiences of neglect and abuse.

Hagenaars, M.A., Van Minnen, A., and Hoogduin, K.A.L. (2010). **The impact of dissociation and depression on the efficacy of prolonged exposure treatment for PTSD.** *Behaviour Research and Therapy*, 48, 19-27. doi:10.1016/j.brat.2009.09.001 This study investigates the impact of dissociative phenomena and depression on the efficacy of prolonged exposure treatment in 71 patients with PTSD. Diagnoses, comorbidity, pretreatment depressive symptoms, PTSD symptom severity, and dissociative phenomena (trait dissociation, numbing, and depersonalization) were assessed at pretreatment using semi-structured interviews and questionnaires. In a pretreatment behavioral exposure test, patients were imaginatively exposed to (part of) their trauma memory for 9 minutes, during which subjective fear was assessed. At posttreatment and 6 months follow-up, PTSD, depressive and dissociative symptoms were again assessed in the completers ( $n = 60$ ). Pretreatment levels of dissociative and depressive symptoms were similar in dropouts and completers and none of the dissociative phenomena nor depression predicted improvement. Against expectations, dissociative phenomena and depression were associated with enhanced rather than impeded fear activation during the behavioral exposure test. However, these effects disappeared after controlling for initial PTSD severity. Hence, rather than supporting contraindication, the current results imply that patients presenting with even severe dissociative or depressive symptoms may profit similarly from exposure treatment as do patients with minimal dissociative or depressive symptoms.

Jaycox, L.H., Foa, E.B., and Morral, A.R. (1998). **Influence of emotional engagement and habituation on exposure therapy for PTSD.** *Journal of Consulting and Clinical Psychology*, 66, 185-192. doi:10.1037//0022-006X.66.1.185 This study examined two process variables, emotional engagement and habituation, and outcome of exposure therapy for PTSD. Thirty-seven female assault victims received treatment that involved repeated imaginal reliving of their trauma, and rated their distress at 10-minute intervals. The average distress levels during each of 6 exposure sessions were submitted to a cluster analysis. Three distinct groups of clients with different patterns of distress were found: high initial engagement and gradual habituation between sessions, high initial engagement without habituation, and moderate initial engagement without habituation. Clients with the first distress pattern improved more in treatment than the other clients. The results are discussed within the framework of emotional processing theory, emphasizing the crucial role of emotional engagement and habituation in exposure therapy.

Lanius, R.A., Williamson, P.C., Bluhm, R.L., Densmore, M., Boksman, K., Neufeld, R.W., et al. (2005). **Functional connectivity of dissociative responses in posttraumatic stress disorder: A functional magnetic resonance imaging investigation.** *Biological Psychiatry*, 57, 873-884. doi:10.1016/j.biopsych.2005.01.011 *Background:* The purpose of this study was to assess interregional brain activity covariations during traumatic script-driven imagery in subjects with PTSD. *Methods:* Functional magnetic resonance imaging and functional connectivity analyses were used to assess interregional brain activity covariations during script-driven imagery in PTSD subjects with a dissociative response, PTSD subjects with a flashback response, and healthy control subjects. *Results:* Significant between-group differences in functional connectivity were found. Comparing dissociated PTSD patients and control subjects' connectivity maps in the left ventrolateral thalamus (VLT) [-14, -16, 4] revealed that control subjects had higher covariations between activations in VLT and in the left superior frontal gyrus (Brodmann's area [BA] 10), right parahippocampal gyrus (BA 30), and right superior occipital gyrus (BA 19, 39), whereas greater covariation with VLT in dissociated PTSD subjects occurred in the right insula (BA 13, 34), left parietal lobe (BA 7), right middle frontal gyrus (BA 8), superior temporal gyrus (BA 38, 34), and right cuneus (BA 19). Comparing dissociated PTSD and flashback PTSD connectivity maps in the right cingulate gyrus [3, 16, 30] revealed that dissociated PTSD subjects had higher covariations between activations in this region and the left inferior frontal gyrus (BA 47). *Conclusions:* Greater activation of neural networks involved in representing bodily states was seen in dissociated PTSD subjects than in non-PTSD control subjects. These findings might illuminate the mechanisms underlying distorted body perceptions often observed clinically during dissociative episodes.

Lanius, R.A., Williamson, P.C., Boksman, K., Densmore, M., Gupta, M., Neufeld, R.W. J., et al. (2002). **Brain activation during script-driven imagery induced dissociative responses in PTSD: A functional magnetic resonance imaging investigation.** *Biological Psychiatry*, 52, 305-311. doi:10.1016/S0006-3223(02)01367-7 *Background:* The goal of this study was to examine the neuronal circuitry underlying dissociative responses to traumatic script-driven imagery in sexual-abuse-related PTSD. Pilot studies in our laboratory have shown that PTSD patients had very different responses to traumatic script-driven imagery. Approximately 70% of patients relived their

traumatic experience and showed an increase in heart rate while recalling the traumatic memory. The other 30% of patients had a dissociative response with no concomitant increase in heart rate. This article focuses on the latter group. *Methods:* The neuronal circuitry underlying dissociative responses in PTSD was studied using the traumatic script-driven provocation paradigm adapted to functional magnetic resonance imaging (fMRI) at 4 Tesla field strength in 7 subjects with sexual-abuse-related PTSD and 10 control subjects. *Results:* Compared with control subjects, PTSD patients in a dissociative state showed more activation in the superior and middle temporal gyri (BA 38), the inferior frontal gyrus (BA 47), the occipital lobe (BA 19), the parietal lobe (BA 7), the medial frontal gyrus (BA 10), the medial cortex (BA 9), and the anterior cingulate gyrus (BA 24 and 32). *Conclusions:* These findings suggest that prefrontal and limbic structures underlie dissociative responses in PTSD. Differences observed clinically, psychophysiological, and neurobiologically between patients who respond to traumatic script-driven imagery with dissociative versus nondissociative responses may suggest different neuronal mechanisms underlying these two distinct reactions.

Putnam, F.W., Carlson, E.B., Ross, C.A., Anderson, G., Clark, P., Torem, M., et al. (1996). **Patterns of dissociation in clinical and nonclinical samples.** *Journal of Nervous and Mental Disease, 184*, 673-679. doi:10.1097/00005053-199611000-00004 Research has consistently found elevated mean dissociation scores in particular diagnostic groups. In this study, we explored whether mean dissociation scores for different diagnostic groups resulted from uniform distributions of scores within the group or were a function of the proportion of highly dissociative patients that the diagnostic group contained. A total of 1,566 subjects who were psychiatric patients, neurological patients, normal adolescents, or normal adult subjects completed the Dissociative Experiences Scale (DES). An analysis of the percentage of subjects with high DES scores in each diagnostic group indicated that the diagnostic group's mean DES scores were a function of the proportion of subjects within the group who were high dissociators. The results contradict a continuum model of dissociation but are consistent with the existence of distinct dissociative types.