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DISSOCIATION AND POSTTRAUMATIC STRESS DISORDER (PTSD)

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Clinical and research interest in dissociation has increased over the last two decades, with particular emphasis on assessing the relationship between dissociation and PTSD. This issue of the *PTSD Research Quarterly* addresses several topics relevant to evaluating the extant literature on dissociation and PTSD. First, we review recent perspectives on the definition of dissociation. Next, we discuss two complementary lines of research that inform questions about the relationship between dissociation and PTSD. The first line of inquiry evaluates the role of dissociation at the time (peritraumatic dissociation) or in the aftermath (persistent dissociation) of the trauma in predicting PTSD. The second line of research examines co-occurring dissociation and PTSD symptoms.

Defining Dissociation

Any evaluation of the dissociation-PTSD literature depends upon defining and measuring dissociation consistently; however, the extant literature reveals wide-ranging definitions for dissociation. As discussed by DePrince and Freyd (in press), definitions have varied along several dimensions, including whether dissociation is treated as (1) a continuum of experiences or taxon, (2) a state or trait, or (3) an outcome or mechanism. Thus, we highlight several papers that specifically address definitional issues before evaluating the larger literature linking dissociation and PTSD.

Holmes and colleagues (2005) proposed two qualitatively distinct forms of dissociation that differ in underlying neurobiological mechanisms: detachment and compartmentalization. Detachment includes experiences of disconnection from the self or environment, such as depersonalization, derealization, and out-of-body experiences. Compartmentalization includes dissociative amnesia and some unexplained neurological symptoms, such as conversion paralysis; these phenomena involve disintegration of information in the cognitive system. The authors propose that detachment and conceptualization are separable (but related) constructs.

Van der Hart and colleagues (2005) argued that dissociation definitions emerging over the last two decades have suffered from both over-inclusiveness (e.g., inclusion of phenomena such as absorption,

daydreaming) and under-inclusiveness (e.g., failure to include positive dissociation symptoms, such as intrusive flashbacks). The authors proposed that only phenomena involving "structural dividedness of personality" (p. 906) be considered dissociative, a view which was held by Janet in his now-classic writings on dissociation (see van der Hart et al., 2005). With emphasis on structural dissociation, van der Hart and colleagues challenged recent views that dissociation represents a dimensional phenomenon where experiences fall along a continuum. A dimensional view of dissociation would include alterations in consciousness that are either non-pathological (e.g., absorption) or observed in non-trauma-related psychiatric diagnoses (e.g., depersonalization and derealization) in the definition of dissociation.

Waller and colleagues (1996) echoed this movement away from dimensional views by testing a typological model of dissociation that distinguishes pathological dissociation from other alterations in consciousness. The authors presented dissociation data collected from 228 adults diagnosed with multiple personality disorder and 228 control participants. Drawing on taxometric methods, the authors reported results that were consistent with a typological view of pathological dissociation, rather than a dimensional view. In his landmark text, Putnam (1997) argued that pathological dissociation is "characterized by profound developmental differences in the integration of behavior and in the acquisition of developmental competencies and metacognitive functions" (p. 15).

Peritraumatic Dissociation and PTSD

Much of the literature on PTSD and dissociation has focused on the role of dissociation at the time of the trauma (peritraumatic dissociation) as a predictor of PTSD. A meta-analysis of 68 studies conducted by Ozer and colleagues (2003) revealed a medium effect size for the contribution of peritraumatic dissociation to later PTSD symptoms. In particular, this relationship was stronger among people seeking mental health services versus community or medical samples. Further, the relationship was strongest in studies examining PTSD symptoms 6 months to 3 years posttrauma, versus less than 6 months or more than 3 years. Notably, peritraumatic dissociative experiences often involve depersonalization or derealization. In the context of the definitional issues raised by van der Hart and colleagues (2005), it will be important for future work to evaluate whether such alterations in consciousness are in fact dissociative phenomena.

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Problems assessing peritraumatic dissociation retrospectively have cast confusion over how to interpret links between peritraumatic dissociation and PTSD. For example, Marshall and Schell (2002) assessed peritraumatic dissociation within days of exposure, at 3 months, and at 12 months in a sample of 413 young adults exposed to community violence. Reports of peritraumatic dissociation were highly correlated with PTSD symptom severity at each successive wave of data collection. Further, reports of peritraumatic dissociation within days of exposure differed from reports at 3 and 12 months. Thus, retrospective reports of peritraumatic dissociation appear to change over time as a function of current PTSD symptoms. In spite of the limits of retrospective reports, several studies demonstrate relationships between peritraumatic dissociation and later PTSD symptoms prospectively. For example, Shalev and colleagues (1996) assessed peritraumatic dissociation in 51 patients with trauma-related physical injuries one week after hospital admission. At 6 months follow-up, 26% of the sample met PTSD diagnostic criteria. Those who developed PTSD had higher levels of peritraumatic dissociation at the initial assessment than those without PTSD. In addition, peritraumatic dissociation explained 29% of the variance of PTSD symptom intensity. Peritraumatic dissociation also predicted the diagnosis of PTSD over and above other variables assessed at time of trauma (event severity, intrusion symptoms, avoidance, depression, and anxiety).

Links between peritraumatic dissociation and later PTSD symptom severity have called into question the proposition that dissociation serves a protective function, raising questions about both the motivation for and adaptive/maladaptive consequences of dissociation. DePrince and Freyd (in press) discussed various perspectives on the motivation for and adaptive/maladaptive consequences of dissociation, proposing that a dialectical approach to evaluating the adaptive functions of dissociation is necessary. Dissociation likely serves adaptive and maladaptive functions at the same time, depending on the context. For example, Holmes and colleagues (2005) proposed that detachment during an extremely threatening trauma may help the individual maintain behavioral control in a threatening situation by increasing vigilant alertness, widening attention, and decreasing emotion. However, that same detachment may disrupt encoding of traumatic information, thereby increasing later problems with intrusive images and flashbacks. In a related vein, van der Hart and colleagues (2005) argued that structural dissociation serves a defensive function only to the extent that the person lacks integrative capacity; as integrative capacity increases, the usefulness of structural dissociation as a defense decreases.

A growing body of research proposes alternative interpretations of the peritraumatic dissociation-PTSD relationship. For example, Panasetis and Bryant (2003) found that persistent dissociation (dissociation at the time of assessment), and not peritraumatic dissociation (dissociation at the time of the event) predicted acute stress disorder (ASD) severity and intrusion symptoms among participants who entered the hospital following motor vehicle accidents or nonsexual assaults. Similarly, Briere and colleagues (2005) found that

peritraumatic and persistent dissociation both related to subsequent PTSD when these relationships were tested using a univariate approach; however, peritraumatic dissociation ceased to contribute to the prediction of subsequent PTSD symptoms after accounting for persistent dissociation in a multivariate analysis.

Kaplow and colleagues (2005) examined the contribution of dissociation, avoidance, and anxiety (measured at the time of disclosure in a forensic interview) to later PTSD symptoms in 156 sexually abused children. Although avoidance, dissociation, and anxiety at disclosure all contributed directly to later PTSD symptoms, dissociation was the strongest predictor. In addition, dissociation indirectly predicted PTSD symptoms through anxiety symptoms. This research is consistent with the adult literature in demonstrating links between dissociation at the time of assessment and later PTSD symptoms. Taken together, these studies suggest a need for additional research evaluating the temporal relationship between dissociation and PTSD.

Recent studies point to variables that may actually mediate the relationship between peritraumatic dissociation and PTSD. For example, Gershuny et al. (2003) reported that the relationship between peritraumatic dissociation and later PTSD was mediated by fears of death and loss of control during the event, which are central cognitive components of panic. These findings with nontreatment-seeking university women raise the possibility that peritraumatic dissociation may be related to panic and not necessarily (or not primarily) pathological dissociation. In a follow-up study, Gershuny et al. (2004) found that dissociation (defined as a latent variable that included absorption, amnesia, depersonalization/derealization/numbing) mediated links between trauma and later psychopathology, including PTSD symptoms. Further, general fears about death and lack of control partially mediated links between trauma and psychopathology above and beyond the variance explained by dissociation.

Still other researchers have begun to distinguish dissociation from other related constructs in examining predictors of PTSD. For example, Feeny and colleagues (2000) distinguished between dissociation, emotional numbing, and depression in predicting PTSD scores among 160 women who were tested within one month of a sexual assault and followed for 12 weeks. These data provided evidence that emotional numbing and dissociation are separate constructs and that numbing (and not dissociation) is predictive of later PTSD.

Co-occurring Dissociation and PTSD Symptoms

Several explanations of co-occurring PTSD and dissociation have emerged. First, investigators such as van der Kolk and colleagues (1996) have argued that co-occurring PTSD, dissociation, somatization, and affect dysregulation reflect complex adaptations to trauma, particularly traumas that occur early in child development. In testing 395 treatment-seeking and 125 non-treatment-seeking individuals exposed to trauma, they found that PTSD, dissociation, somatization, and affect dysregulation were highly interrelated and, in part, a function of age of onset of the trauma and type of trauma. This study is an exemplar of a significant body of research proposing that

the co-occurrence of these phenomena is part of the complex human response to chronic and inescapable traumas. Second, some have argued that there is a subtype of PTSD that involves high levels of dissociation. Evidence for this proposition is drawn from studies such as the one conducted by Griffin, Resick, and Mechanic (1997) who found that rape survivors scoring high on measures of dissociation two weeks post-rape were more likely both to meet symptom criteria for PTSD and to show suppressed autonomic physiological responses in the lab. Suppressed physiological responses run counter to findings that PTSD is otherwise associated with generally higher physiological reactivity.

Putnam and colleagues (1996) reported on a study of dissociative tendencies in 1566 individuals who were either psychiatric or neurological patients or typical adolescents or adults. Half of the participants diagnosed with PTSD scored in the extreme on the DES and half in the normal range. Following up on this research, Putnam (1997) raised the question as to whether there may be two forms of PTSD, one of which includes pathological dissociation and one of which does not. Similarly, Briere and colleagues (2005) found that approximately 44% of participants diagnosed with PTSD did not have clinically elevated scores on a dissociation measure.

Third, others have argued that PTSD symptoms can be conceptualized as dissociative symptoms. For example, van der Hart, Nijenhuis, Steele, and Brown (2004) proposed that dissociation is a central feature of PTSD. They re-conceptualized PTSD symptoms into two categories of dissociative symptoms: positive (e.g., traumatic memories and nightmares) and negative (e.g., loss of affect, loss of memory). By this logic, high correlations between PTSD and dissociation should not be surprising, as they are part of the same underlying construct.

Conclusions

The studies reviewed here highlight several issues central to evaluating the relationship between dissociation and PTSD. First and foremost, changes in the definition of dissociation over time affect assessment and data interpretation. For example, recent writings call for increased clarity in defining dissociation. Reevaluation of how dissociation is defined will affect interpretation of several findings in the literature, such as links between depersonalization/derealization in peritraumatic dissociation and later PTSD. Second, this review identified temporal changes, methods of assessment, mediator variables, and predictor variables that are important in evaluating the relationship between dissociation and PTSD. Third, several advancements in assessing the fundamental relationship between dissociation and PTSD have raised important questions about the differences and similarities between these phenomena. Future progress depends upon careful consideration of the definition of dissociation and examination of relevant mediators and moderators of the dissociation-PTSD relationship.

SELECTED ABSTRACTS

BRIERE, J., SCOTT, C., & WEATHERS, F. (2005). **Peritraumatic** and persistent dissociation in the presumed etiology of PTSD. *American Journal of Psychiatry*, *162*, 2295-2301. Dissociative responses at the time of a trauma (peritraumatic dissociation) have been described as a major risk factor for subsequent PTSD. The current study evaluated peritraumatic dissociation and PTSD from a multivariate perspective, along with a less-investigated phenomenon: trauma-specific dissociation that begins during or after an event and continues until the time of assessment (persistent dissociation). In two studies, 52 local community participants and 386 participants from the general population with histories of exposure to at least one traumatic event were assessed for the presence of PTSD and were administered measures of dissociation and peritraumatic distress. In both studies, peritraumatic dissociation, persistent dissociation, peritraumatic distress, and generalized dissociative symptoms were associated with PTSD by univariate analyses. However, multivariate analyses in both studies indicated that PTSD status was no longer related to peritraumatic dissociation once other variables (especially persistent and generalized dissociation) were taken into account. In contrast, persistent dissociation was a strong predictor at univariate and multivariate levels. These findings suggest that it is less what happens at the time of a trauma (e.g., disrupted encoding) that predicts PTSD than what occurs thereafter (i.e., persistent avoidance).

DEPRINCE, A.P. & FREYD, J.J. (in press). **Trauma-induced** dissociation. In M.J. Friedman, T.M. Keane & P.A. Resick (Eds.), *PTSD: Science & Practice – A Comprehensive Handbook*. Dissociation has been a matter of clinical and research interest for more than a century. Over that time, the scope of what is considered dissociative has changed, as have approaches to testing and explaining the function of dissociation. The current chapter addresses some of the most interesting questions about dissociation, including approaches to definition, differing theories about the cause and development of dissociation, and new discoveries about information processing changes associated with dissociation. Methodological considerations in measuring dissociation and generalizability of findings are discussed. Finally, future directions for study are suggested.

FEENY, N.C., ZOELLNER, L.A., FITZGIBBONS, L.A., & FOA, E.B. (2000). Exploring the roles of emotional numbing, depression, and dissociation in PTSD. *Journal of Traumatic Stress*, *13*, 489-498. Some researchers consider emotional numbing a cardinal feature of PTSD. Others view numbing symptoms as representing an overlap between PTSD, depression, and dissociation. In this study, we examined the ability of early emotional numbing, depression, and dissociation symptoms to predict PTSD. 161 women who were recent victims of sexual or nonsexual assault were assessed prospectively for 12 weeks. Emotional numbing, depression, and dissociation were each associated with initial PTSD severity. Notably, regression analyses revealed that after depression and dissociation were accounted for, early numbing contributed to the prediction of later PTSD.

GERSHUNY, B.S., CLOITRE, M., & OTTO, M.W. (2003). **Peritraumatic** dissociation and PTSD severity: Do event-related fears about death and control mediate their relation? *Behaviour Research and Therapy*, *41*, 157-166. Relations among peritraumatic dissociation, PTSD severity, event-related fear (i.e. fear experienced during

traumatic event) about death, and event-related fear about losing control were examined in the current study. Particular emphasis was placed on testing whether or not fears about death and losing control mediate the relation between peritraumatic dissociation and PTSD severity in a sample of 146 nontreatment-seeking university women. Results indicated that event-related fears about death and losing control accounted for the relation between peritraumatic dissociation and PTSD severity; that is, the effect of peritraumatic dissociation on PTSD severity was eliminated after controlling for these fears. Speculations about findings are discussed.

GERSHUNY, B.S., NAJVITS, L.M., WOOD, P.K., & HEPNER, M. (2004). Relation between trauma and psychopathology: Mediating roles of dissociation and fears about death and control. *Journal of Trauma and Dissociation*, 5(3), 101-117. We investigated mediational relations among trauma, dissociation, psychopathology (e.g., PTSD, borderline personality disorder, bulimic behaviors), and fears about death and lacking control in a sample of 325 non-treatment-seeking women. With the use of structural equation modeling, findings indicated that: (1) dissociation accounted for 27 percent of variance in the trauma-psychopathology relation (significant partial mediation), and (2) general ongoing fears about death and control accounted for an additional 20 percent of variance in the trauma-psychopathology relation beyond what was already accounted for by dissociation (total of 47 percent of variance explained in the trauma-psychopathology relation; significant partial mediation). Findings are discussed, and postulations about relations are proposed.

GRIFFIN, M.G., RESICK, P.A., & MECHANIC, M.B. (1997). Objective assessment of peritraumatic dissociation: Psychophysiological indicators. *American Journal of Psychiatry*, 154, 1081-1088. The aims of this study were to investigate psychophysiological changes associated with peritraumatic dissociation in female victims of recent rape and to assess the relation between these changes and symptoms of PTSD. 85 rape victims were examined in a laboratory setting within 2 weeks after therapy, and measures of heart rate, skin conductance, and nonspecific movement were collected. Self-report indexes of reactions to the trauma and interviews to assess PTSD symptoms and peritraumatic dissociation were also completed. On the basis of their scores on the Peritraumatic Dissociation Index, the subjects were classified as having low or high levels of dissociation. Individuals in the high peritraumatic dissociation group showed a significantly different pattern of physiological responses from those of the low dissociation group. In general, there was a suppression of autonomic physiological responses in the high dissociation group. This group also contained a larger proportion of subjects (94%) identified as meeting PTSD symptom criteria. Also, among the high dissociation subjects there was a discrepancy between self-reports of distress and objective physiological indicators of distress in the laboratory setting. The results provide preliminary support for the idea that there is a dissociative subtype of persons with PTSD symptoms who exhibit diminished physiological reactivity. The results also underscore the importance of assessing dissociative symptoms in trauma survivors.

HOLMES, E.A., BROWN, R.J., MANSELL, W., FEARON, R.P., HUNTER, E.C.M., FRAQUILHO, 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. 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 differ-

ent 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 PTSD.

KAPLOW, J.B., DODGE, K.A., AMAYA-JACKSON, L., & SAXE, G.N. (2005). Pathways to PTSD, Part II: Sexually abused children. *American Journal of Psychiatry*, 162, 1305-1310. The goal of this research was to develop and test a prospective model of posttraumatic stress symptoms in sexually abused children that includes pretrauma, trauma, and disclosure-related pathways. At time 1, several measures were used to assess pretrauma variables, trauma variables, and stress reactions upon disclosure for 156 sexually abused children ages 8 to 13 years. At time 2 (7 to 36 months following the initial interview), the children were assessed for PTSD symptoms. A path analysis involving a series of hierarchically nested ordinary least squares multiple regression analyses indicated three direct paths to PTSD symptoms: avoidant coping, anxiety/arousal, and dissociation, all measured during or immediately after disclosure of sexual abuse. Additionally, age and gender predicted avoidant coping, while life stress and age at abuse onset predicted symptoms of anxiety/arousal. Taken together, these pathways accounted for approximately 57% of the variance in PTSD symptoms. Symptoms at the time of disclosure constituted direct, independent pathways by which sexually abused children are likely to develop later PTSD symptoms. These findings speak to the importance of assessing children during the disclosure of abuse in order to identify those at greatest risk for later PTSD symptoms.

MARSHALL, G.N. & SCHELL, T.L. (2002). Reappraising the link between peritraumatic dissociation and PTSD symptom severity: Evidence from a longitudinal study of community violence survivors. *Journal of Abnormal Psychology*, 111, 626-636. Cross-lagged panel analysis of longitudinal data collected from young adult survivors of community violence was used to examine the relationship between recall of peritraumatic dissociation and PTSD symptom severity. Recollections of peritraumatic dissociation assessed within days of exposure differed from recollections measured at 3- and 12-month follow-up interviews. Peritraumatic dissociation was highly correlated with PTSD symptoms within each wave of data collection. Baseline recollections of peritraumatic dissociation were not predictive of follow-up PTSD symptom severity after controlling for baseline PTSD symptom severity. This pattern of results replicates previous work demonstrating a correlation between peritraumatic dissociation and subsequent symptom severity. However, findings are not consistent with the prevailing view that peritraumatic dissociation leads to increased PTSD symptom severity.

OZER, E.J., BEST, S.R., LIPSEY, T.L., & WEISS, D.S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, 129, 52-73. A review of 2,647 studies of PTSD yielded 476 potential candidates for a meta-analysis of predictors of PTSD or of its symptoms. From these, 68 studies met criteria for inclusion in a meta-analysis of 7 predictors: (a) prior trauma, (b) prior psychological adjustment, (c) family history of psychopathology, (d) perceived life threat during the trauma, (e)

posttrauma social support, (f) peritraumatic emotional responses, and (g) peritraumatic dissociation. All yielded significant effect sizes, with family history, prior trauma, and prior adjustment the smallest (weighted $r = .17$) and peritraumatic dissociation the largest (weighted $r = .35$). The results suggest that peritraumatic psychological processes, not prior characteristics, are the strongest predictors of PTSD.

PANA SETIS, P., & BRYANT, R.A. (2003). **Peritraumatic versus persistent dissociation in acute stress disorder.** *Journal of Traumatic Stress, 16*, 563-566. The DSM-IV definition of acute stress disorder (ASD) regards dissociation that occurs during a trauma (peritraumatic dissociation) comparably to persistent dissociation. This study investigated the relative contributions of peritraumatic dissociation and persistent dissociation to acute posttraumatic stress reactions. Civilian trauma ($N = 53$) survivors with either acute stress disorder (ASD), subclinical ASD, or no ASD were administered modified versions of the Peritraumatic Dissociative Experiences Questionnaire that indexed both dissociation during the trauma and dissociation at the time of assessment. Persistent dissociation was more strongly associated with ASD severity and intrusive symptoms than peritraumatic dissociation. These results are consistent with the proposition that persistent, rather than peritraumatic, dissociation is associated with posttraumatic psychopathology.

PUTNAM, F.W. (1997). *Dissociation in Children and Adolescents: A Developmental Perspective.* New York: Guilford Press. This book examines child and adolescent pathological dissociation from a developmental-psychopathological perspective, which serves as the foundation for understanding the impact of maltreatment and trauma on young children. [Text, p. 20] TOPIC TREATED: The nature and effects of childhood trauma and maltreatment; Influential factors and common themes in maltreatment outcomes; Introduction to dissociation; Pathological dissociation; Trauma, dissociation, and memory; Toward a model of pathological dissociation; the "discrete behavioral states" model; The developmental basis of dissociation; Dissociative and altered states in everyday life; Dissociative presentations: clinical vignettes; Clinical phenomenology and diagnosis; Philosophy and principles of treatment; Individual therapy; Dissociative families and out-of-home placements; Psychopharmacology.

PUTNAM, F.W., CARLSON, E.B., ROSS, C.A., ANDERSON, G., CLARK, P., TOREM, M., et al. (1996). Patterns of dissociation in clinical and nondiagnostic samples. *Journal of Nervous and Mental Disease, 184*, 673-679. 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.

SHALEV, A. Y., PERI, T., CANETTI, L., & SCHREIBER, S. (1996). Predictors of PTSD in injured trauma survivors: A pro-

spective study. *American Journal of Psychiatry, 153*, 219-225. The aim of this study was to prospectively examine the relationship between immediate and short-term responses to a trauma and the subsequent development of PTSD. 51 patients consecutively admitted to a general hospital were screened for the presence of physical injury due to a traumatic event and were assessed 1 week and 6 months after the trauma. The initial assessment included measures of event severity, peritraumatic dissociation, and symptoms of intrusion, avoidance, depression, and anxiety. The follow-up assessments added the PTSD module of the Structured Clinical Interview for DSM-III-R - Non-Patient Version and the civilian trauma version of the Mississippi Scale for Combat-Related PTSD. 13 subjects (25.5 percent) met PTSD diagnostic criteria at follow-up. Subjects who developed PTSD had higher levels of peritraumatic dissociation and more severe depression, anxiety, and intrusive symptoms at the 1-week assessment. Peritraumatic dissociation predicted a diagnosis of PTSD after 6 months over and above the contribution of other variables and explained 29.4 percent of the variance of PTSD symptom intensity. Initial scores on the Impact of Event Scale predicted PTSD status with 92.3 percent sensitivity and 34.2 percent specificity. Symptoms of avoidance that were initially very mild intensified in the subjects who developed PTSD. **Conclusions:** Peritraumatic dissociation is strongly associated with the later development of PTSD. Early dissociation and PTSD symptoms can help the clinician identify subjects at higher risk for developing PTSD.

VAN DER HART, O., NIJENHUIS, E.R.S., & STEELE, K. (2005). Dissociation: An insufficiently recognized major feature of complex posttraumatic stress disorder. *Journal of Traumatic Stress, 18*, 413-423. The role of dissociation in (complex) PTSD has been insufficiently recognized for at least two reasons: the view that dissociation is a peripheral, not a central feature of PTSD, and existing confusion regarding the nature of dissociation. In this conceptual article, the authors address both issues by postulating that traumatization essentially involves some degree of division or dissociation of psychobiological systems that constitute personality. One or more dissociative parts of the personality avoid traumatic memories and perform functions in daily life, while one or more other parts remain fixated in traumatic experiences and defensive actions. Dissociative parts manifest in negative and positive dissociative symptoms that should be distinguished from alterations of consciousness. Complex PTSD involves a more complex structural dissociation than simple PTSD.

VAN DER HART, O., NIJENHUIS, E., STEELE, K., & BROWN, D. (2004). Trauma-related dissociation: Conceptual clarity lost and found. *Australian and New Zealand Journal of Psychiatry, 38*, 906-914. Imprecise conceptualizations of dissociation hinder understanding of trauma-related dissociation. An heuristic resolution for research and clinical practice is proposed. Current conceptualizations of dissociation are critically examined. They are compared with a new theory that incorporates classical views on dissociation with other contemporary theories related to traumatization, viewing dissociation as a lack of integration among psychobiological systems that constitute personality, that is, as a structural dissociation of the personality. Most current views of dissociation are overinclusive and underinclusive. They embrace non-dissociative phenomena -- rigid alterations in the level and field of consciousness -- prevalent in non-traumatized populations, and which do not require structural dissociation. These views also largely disregard somatoform and positive symptoms of dissociation and underestimate integrative deficiencies, while emphasizing the psychological defensive function of dissociation. They do not offer a common psychobiological

pathway for the spectrum of trauma-related disorders. Structural dissociation of the personality likely involves divisions among at least two psychobiological systems, each including a more or less distinct apperceptive centre, that is, a dissociative part of the personality. Three prototypical levels of structural dissociation are postulated to correlate with particular trauma-related disorders. Limitation of the concept of dissociation to structural dividedness of the personality sets it apart from related but non-dissociative phenomena and provides a taxonomy of dissociative symptoms. It postulates a common psychobiological pathway for all trauma-related disorders. Trauma-related dissociation is maintained by integrative deficits and phobic avoidance. This conceptualization advances diagnosis, classification, treatment, and research of trauma-related disorders.

VAN DER KOLK, O., PELCOVITZ, D.L., ROTH, S., MANDEL, F.S., McFARLANE, A., & HERMAN, J. (1996). Dissociation, somatization, and affect dysregulation: The complexity of trauma. *American Journal of Psychiatry*, *153* (7, Festschrift Supplement), 83-93. A century of clinical research has noted a range of trauma-related psychological problems that are not captured in the DSM-IV framework of PTSD. This study investigated the relationships between exposure to extreme stress, the emergence of PTSD, and symptoms traditionally associated with "hysteria," which can be understood as problems with stimulus discrimination, self-regulation, and cognitive integration of experience. The DSM-IV field trial for PTSD studied 395 traumatized treatment-seeking subjects and 125 non-treatment-seeking subjects who had also been exposed to traumatic experiences. Data on age at onset, the nature of the trauma, PTSD, dissociation, somatization, and affect dysregulation were collected. PTSD, dissociation, somatization, and affect dysregulation were highly interrelated. The subjects meeting the criteria for lifetime (but not current) PTSD scored significantly lower on these disorders than those with current PTSD, but significantly higher than those who never had PTSD. Subjects who developed PTSD after interpersonal trauma as adults had significantly fewer symptoms than those with childhood trauma, but significantly more than victims of disasters. PTSD, dissociation, somatization, and affect dysregulation represent a spectrum of adaptations to trauma. They often occur together, but traumatized individuals may suffer from various combinations of symptoms over time. In treating these patients, it is critical to attend to the relative contributions of loss of stimulus discrimination, self-regulation, and cognitive integration of experience to overall impairment and provide systematic treatment that addresses both unbidden intrusive recollections and these other symptoms associated with having been overwhelmed by exposure to traumatic experiences.

WALLER, N.G., PUTNAM, F.W., & CARLSON, E.B. (1996). Types of dissociation and dissociative types: A taxometric analysis of dissociative experiences. *Psychological Methods*, *1*, 300-321. 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 2 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 2 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.

CITATIONS

Annotated by the Editor

BREMNER, J. D., SOUTHWICK, S., BRETT, E., FONTANA, A., ROSENHECK, J., & CHARNEY, D.S. (1992). **Dissociation and posttraumatic stress disorder in Vietnam combat veterans.** *American Journal of Psychiatry*, *149*, 328-332.

Current dissociative symptoms and dissociation at the time of specific traumatic events were examined in Vietnam combat veterans, 53 with PTSD and 32 without PTSD, who sought treatment for medical problems. There was a significantly higher level of dissociative symptoms in patients with PTSD than in patients without PTSD. This difference persisted when the difference in level of combat exposure was controlled. PTSD patients also reported more dissociative symptoms at the time of combat trauma than non-PTSD patients. Dissociative symptoms are an important element of the long-term psychopathological response to trauma.

BRYANT, R.A. (2004). In the aftermath of trauma: Normative reactions and early interventions. In G.M. Rosen (Ed.) *Post-traumatic Stress Disorder: Issues and Controversies* (pp. 187-211). New York: Wiley.

This chapter discusses the role of dissociation, if any, in acute trauma responses by describing the normative course of posttraumatic adjustment, reviewing recent developments in early identification of people at high psychiatric risk after trauma, discussing the diagnosis of acute stress disorder, and evaluating evidence for dissociation occurring at the time of trauma as an important precursor of subsequent psychopathology.

CARLSON, E.B., & ROSSER-HOGAN, R. (1991). **Trauma experiences, posttraumatic stress, dissociation, and depression in Cambodian refugees.** *American Journal of Psychiatry*, *148*, 1548-1551.

Data on traumatic experiences, posttraumatic stress, dissociation, depression, and anxiety were collected on 50 randomly selected Cambodian refugees who had resettled in the United States. Participants experienced multiple and severe traumas and showed high levels of all symptoms measured, with 86% meeting DSM-III-R criteria for PTSD, 96% showing high dissociation scores, and 80% suffering from clinical depression. Correlations between trauma scores and symptom scores and among symptom scores were moderate to large.

EHLERS, A., MAYOU, R.A., & BRYANT, B. (1998). Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. *Journal of Abnormal Psychology*, *107*, 508-519.

A prospective longitudinal study assessed 967 consecutive patients who attended an emergency clinic shortly after a motor vehicle accident, again at 3 months, and at 1 year. The prevalence of PTSD was 23% at 3 months and 17% at 1 year. Chronic PTSD was related to dissociation during the accident, among other factors. Negative interpretation of intrusions, persistent medical problems, and rumination at 3 months were the most important predictors of PTSD symptoms at 1 year.

FEENY, N.C., ZOELLNER, L.A., & FOA, E.B. (2000). Anger, dissociation, and posttraumatic stress disorder among female assault victims. *Journal of Traumatic Stress, 13*, 89-100.

To explore the relationship between anger and dissociation and their relationship to symptoms of posttrauma pathology, 104 female assault victims were assessed 2, 4, and 12 weeks postassault. Measures of PTSD severity, social functioning, anger and dissociation were obtained at all assessments. Anger expression was predictive of later PTSD severity, whereas dissociation was predictive of poorer later functioning.

GERSHUNY, B.S., & THAYER, J.F. (1999). Relations among psychological trauma, dissociative phenomena, and trauma-related distress: A review and integration. *Clinical Psychology Review, 19*, 631-657.

Research has revealed that individuals who have experienced a traumatic event are more likely to dissociate than individuals who have not, and individuals who experience more dissociative phenomena are more likely to also experience higher levels of trauma-related distress. It is theorized here that dissociative phenomena and subsequent trauma-related distress may relate to fears about death or loss of control above and beyond the occurrence of the traumatic event itself. Possible functions of dissociation in response to trauma and in relation to forms of trauma-related distress are considered and discussed.

HALLIGAN, S.L., & YEHUDA, R. (2002). Assessing dissociation as a risk factor for posttraumatic stress disorder: A study of adult offspring of Holocaust survivors. *Journal of Nervous and Mental Disease, 190*, 429-436.

In a sample of 87 adult offspring of Holocaust survivors, dissociative symptoms were elevated in individuals with current PTSD, but not in those with past PTSD or with the risk factor of parental PTSD. Dissociative symptoms were also associated with forms of psychopathology other than PTSD. The results suggest that dissociative symptoms are related to current psychiatric symptomatology, including PTSD, rather than representing an enduring trait or preexisting risk factor for the development of PTSD.

KOOPMAN, C., CLASSEN, C., & SPIEGEL, D. (1994). Predictors of posttraumatic stress symptoms among survivors of the Oakland/Berkeley, California, firestorm. *American Journal of Psychiatry, 151*, 888-894.

This study examined factors predicting posttraumatic stress symptoms after the 1991 Oakland/Berkeley firestorm among 149 adults assessed immediately and 7-9 months postfire. Dissociative symptoms immediately after the fire more strongly predicted later posttraumatic symptoms than did anxiety and loss of personal autonomy symptoms.

SIMEON, D., GURALNIK, O., KNUTELSKA, M., HOLLANDER, E., & SCHMEIDLER, J. (2001). Hypothalamic-pituitary-adrenal axis dysregulation in depersonalization disorder. *Neuropsychopharmacology, 25*, 793-795.

The purpose of this preliminary study was to investigate HPA axis function in dissociation. Nine adults with DSM-IV depersonalization disorder (DPD), without lifetime PTSD or current major depression, were compared to 9 healthy comparison subjects of comparable age and gender. DPD subjects demonstrated significant hyposuppression to low-dose dexamethasone administration and significantly elevated morning plasma cortisol levels when covaried for depression scores, but no difference in 24-hour urinary cortisol excretion. Dissociation scores powerfully predicted suppression whereas depression scores did not contribute to the prediction. Primary dissociative conditions, such as depersonalization disorder, may be associated with a pattern of HPA axis dysregulation that differs from PTSD and merits further study.

SPIEGEL, D., & CARDEÑA, E. (1991). Disintegrated experience: The dissociative disorders revisited. *Journal of Abnormal Psychology, 100*, 366-378.

The authors proposed changes to the dissociative disorders section of DSM-IV including the creation of two new diagnostic entities, brief reactive dissociative disorder and transient dissociative disturbance, and the readoption of the criterion of amnesia for a multiple personality disorder diagnosis.

TAMPKKE, A.K., & IRWIN, H.J. (1999). Dissociative processes and symptoms of posttraumatic stress in Vietnam veterans. *Journal of Traumatic Stress, 12*, 725-738.

Commentators are divided as to whether PTSD should be classified as an anxiety or a dissociative disorder. This study examined the extent to which anxiety and dissociative processes differentially predicted the three symptoms clusters in PTSD in 74 Australian Vietnam War veterans. All three symptoms clusters were predicted by anxiety, but they differed in their relationship with dissociation. The findings are consistent with current classification of combat-related PTSD as an anxiety disorder.

TWAITE, J.A., & RODRIGUEZ-SREDNICKI, O. (2004). Childhood sexual and physical abuse and adult vulnerability to PTSD: The mediating effects of attachment and dissociation. *Journal of Child Sexual Abuse, 13*(1), 17-38.

284 adults from the metropolitan New York area reported on their history of childhood sexual abuse (CSA), childhood physical abuse (CPA), and on the nature of their exposure to the terrorist attack on the World Trade Center. Those reporting histories of CSA and/or CPA were found to endorse more serious symptoms of PTSD, as did those who witnessed the terrorist attack live. The presence of secure attachments and dissociative symptoms were related significantly to both CSA and CPA, and to posttraumatic stress. Adult attachment and dissociation were found to mediate the relationship between childhood abuse and severity of PTSD.

VAN DER KOLK, B.A., VAN DER HART, O., & MARMAR, C.R. (1996). Dissociation and information processing in posttraumatic stress disorder. In B.A. van der Kolk, A.C. McFarlane, & L. Weisaeth (Eds.), *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society* (pp. 303-327). New York: Guilford Press.

This chapter on information processing and dissociation examined both dissociative responses during traumatic experiences and the continuing role of dissociation in subsequent adaptation, including the organization of experience in dissociated fragments of the self, such as occurs in dissociative identity disorder.

YEHUDA, R., ELKIN, A., BINDER-BRYNES, K., KAHANA, B., et al. (1996). Dissociation in aging Holocaust survivors. *American Journal of Psychiatry, 153*, 935-940.

This study explored relationships among dissociation, trauma, and PTSD in elderly Holocaust survivors with PTSD (n = 35) and without PTSD (n = 25) and a comparison group (n = 16). The Holocaust survivors with PTSD showed significantly higher levels of current dissociative experiences than did the other 2 groups. However, the extent of dissociation was substantially less than that which has been observed in other trauma survivors with PTSD. Possible explanations for this finding include the age of the survivors, the length of time since the traumatic event, and possible unique features of the Holocaust survivor population. Nevertheless, the findings call into question the current notion that PTSD and dissociative experiences represent the same phenomenon. The findings suggest that the relationships among dissociation, trauma, and PTSD can be further clarified by longitudinal studies of trauma survivors.

PILOTS UPDATE

The National Federation of Abstracting and Information Services includes most of the major players in the field of scientific, technical, and medical information. The National Center for PTSD has been an NFAIS member for several years, and our membership has helped us to keep abreast of important trends and developments in the information industry. This year's NFAIS annual conference took as its theme "Content Unleashed: Discovering the New Information Experience." Three days of plenary sessions and coffee-break conversations gave us plenty to think about.

Several years ago a keynote speaker at the NFAIS conference summed up the attitude of the modern information user: "I want it all on my desktop, now." Those were the good old days. Today the attitude increasingly is "I want it all on my cellphone or my iPod Nano, now." The experience of computing and telecommunication has changed for many users, and this has changed their expectations of how they will find and use information. As we develop our programs and services, we must understand that the desktop or laptop computer will probably become a decreasingly common platform for using the information we provide. We shall need to rethink ways of presenting information designed for a twelve- or fifteen-inch screen, and rework them to suit users of miniature displays.

Fortunately there are many talented scientists studying how to make this possible. Research in information science and human-computer interaction is generating the data needed to understand the behavior of information users, making possible an evidence-based approach to designing search software and search output displays. The immense popularity of commercial search engines has demonstrated that information seekers value simplicity and convenience. Information professionals may deplore the fact that for many users of our services "good enough is good enough," but we shall need to come to terms with it — and find ways of presenting information that really *is* good enough for our users' purposes.

The traumatic stress literature continues its steady increase in size. Sometime this year we shall add the 30,000th record to the PILOTS Database. This year we shall also complete the revision of the PILOTS Thesaurus, enabling database users to

search more precisely for the information they need. But no matter how carefully we develop our indexing vocabulary and how well we apply it to the documents that we index, many searches of the PILOTS Database will produce inconveniently large results. Many database users will wish for some help in sorting through long lists of publications.

Several speakers at the NFAIS conference suggested that categorized overviews, information visualization techniques, or recommendations derived from social networking systems will come to be common features of bibliographic databases. While the development of these features is well beyond our resources, it is not beyond the resources of the leading players in the information industry. By allying ourselves with one of these leading players, we mean to ensure that we will not be left behind.

Even before our partners develop new techniques for sorting and displaying the results of database searches, we can help our users to find the publications that best suit their needs. Searching the PILOTS Database is obligatory when a comprehensive view of the literature on a particular topic is needed. But we have often advised people seeking an understanding of the most important research findings to consult a relevant issue of the *PTSD Research Quarterly* before undertaking a search of the database. Those who take this advice often find the information they need without the need for a database search. (That does not mean that they do not use the database. Our staff conducts extensive searches of the PILOTS Database as part of the preparation of each *RQ* survey. So every reader of the *PTSD Research Quarterly* is, at the least, a PILOTS Database user once removed.)

Our goal is to bring to traumatic stress researchers and clinicians the best of both worlds: a bibliographic resource crafted specifically to meet the needs of this unique interdisciplinary community, and a communication system based on the best knowledge available about the ways in which people find, select, and use information. With the help of our colleagues in the information industry, and the scientists and engineers who are working to improve their products, we hope to continue working toward that goal.

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