DISSOCIATION, AFFECT DYSREGULATION AND SOMATIZATION:

the complex nature of adaptation to trauma.

Invited paper in honor of John Nemiah

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Supported by National Institutes of Mental Health grant #1 PO1 MH47200-01. The authors wish to acknowledge the contributions of Dean Kilpatrick, Ph.D. Heidi Resnick Ph.D., Patti Resick, Ph.D. and John Freedy, Ph.D. in the DSM IV PTSD Field Trial; and of Joji Suzuki, B.A , Rita Fisler, Ed.M.and Jennifer Burbridge M.A. for their assistance in the data analyses and preparation of this manuscript.

Abstract

Objective. This study investigates the relationship between the current diagnostic formulation of PTSD and the symptoms of dissociation, affect dysregulation and somatization. Over the past century, these symptoms consistently have been shown to be related, regardless of whether investigators have approached their subjects prospectively or retrospectively, or from the vantage point of 1) psychological trauma, 2) dissociation, 3) somatization, or 4) disorders of affect regulation.

Method. The DSM IV Field Trial for PTSD studied 395 patients who sought treatment for trauma-related problems, and compared them with 125 community subjects who had been exposed to high magnitude stressors. Data were collected about age of onset and nature of trauma, PTSD symptomatology, dissociation, somatization and affect dysregulation.

Results: Correlations between PTSD, dissociation, somatization and affect dysregulation were significant at the .001 level. The treatment seeking subjects with PTSD scored significantly higher on dissociation and affect dysregulation than did the community sample with PTSD. Subjects who met lifetime criteria for PTSD, but not current, scored significantly lower on dissociation, somatization and affect dysregulation than did the Current PTSD group, but significantly higher than the No PTSD group. Subjects who

suffered interpersonal trauma as adults had significantly less dissociation and affect dysregulation than those with childhood trauma, but significantly more than victims of disasters.

Conclusions: PTSD, dissociation, somatization and affect dysregulation can be different expressions of adaptation to trauma. While they often go together, traumatized individuals may suffer from different combinations of symptoms over time. When treating individuals with histories of psychic trauma, it is critical to attend to the dimensions of dissociation, somatization, and affect dysregulation, even when intrusive recollections of the trauma currently are not prominent symptoms.

> *DSM-III...in an attempt to be atheoretical, [has] almost entirely abandoned the psychodynamic understanding of psychiatric phenomena ..... the traditional concept of hysteria as a disorder with both sensorimotor and mental manifestations has been split apart by assigning the mental symptoms of hysteria..... to the "Dissociative disorders," and by allocating the sensorimotor symptoms to the different category of "Somatoform Disorder"*
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> *As a consequence, modern clinicians... are placed in the paradoxical position of having the affirm that individuals manifesting [these] symptoms are suffering from .. separate illnesses -- a diagnostic dissociation that the observations of our clinical predecessors demonstrate to be unwarranted. Indeed, what we have now put asunder, perhaps Mother Nature meant to be together" John Nemiah,1995 (1)*

The diagnostic criteria for Post Traumatic Stress Disorder (PTSD) in the American Psychiatric Assocation's Diagnostic and Statistical Manual (DSM) are focussed on intrusive memories and disordered arousal as the distinguishing characteristics. Within this framework, which is influenced by Lindemann's (2) and Horowitz's (3) descriptions of the fluctuating nature of acute grief reactions, the remaining symptoms of PTSD are understood as strategies to ward off emotions, somatic sensations and personal meaning schemes associated with the trauma. However, a century of clinical observations and systematic research has shown that there are a range of other symptoms associated with exposure to extreme stress that cannot be easily understood within this framework of alternating intrusion and numbing. The inclusion in the ICD-10 of the diagnosis of "enduring personality changes after catastrophic stress" reflects the growing understanding that the experience of prolonged and/or severe trauma, particularly trauma that occurs early in the life cycle, can lead to complex clinical pictures that include disturbances of regulation of affective arousal, an impaired capacity for cognitive integration of experience (as in dissociation), and in impairment in the capacity to differentiate relevant from irrelevant information, such as occurs in the misinterpretation of somatic sensations.

The symptoms of dissociation, somatization and affect dysregulation are all listed in the DSM IV (4), both under Associated Features of PTSD, and under separate diagnoses. This paper investigates the relationship between the current diagnostic formulation of PTSD and these features associated with PTSD. In this paper we will examine, but not definitively answer, the question whether these symptoms represent core features of psychic traumatization, or whether they are merely common co-morbid diagnoses in people who suffer from PTSD.

History and background

In the 1880s, when psychiatrists at the Salpètrière were among the first to attempt to create order out of the chaos of mental afflictions, they noted that certain patients, then known as hysterics, habitually reacted to life's stresses with "somnambulistic crises" (agitation and uncontrolled outbursts of violence against the self or others), "abulia" (psychosomatic complaints and chronic behavioral passivity), and dissociative problems. These patients reacted inappropriately to stress and behaved "automatically", with stereotyped images, ideas, emotions and movements. After interviewing numerous hysterics, Pierre Janet, who ran the psychological laboratory at that hospital, came to the conclusion that some of these behaviors represented derivations of emotional and behavioral responses to frightening past events: "I was led to recognize in many subjects the role of one or several events in their past life. These events, which had established a vehement emotion and a destruction of the psychological system, had left traces. The remembrance of these events, ... absorbed a great deal of energy and played a part in the persistent weakening" (5). Janet believed that failure to regulate emotional reactions to reminders of past trauma caused some hysterics to continue to dissociate and to react with automatic, excessive and irrelevant responses (6) .

Janet proposed that extreme emotions interfered with proper information processing. This resulted in a failure to transform the mental imprints of an experience into what we would today call declarative memory (7): the traumatized person is "unable to make the recital which we call narrative memory, and yet he remains confronted by (the) difficult situation"(8, p.660). The uncontrollable intrusions of the traumatic event resulted in "a phobia of the memory" (8, p.661) that prevented the mental integration ("synthesis") of experience and caused these memories to be split off (dissociated) from ordinary consciousness (9, p.145). He postulated that the memory traces of these traumas were stored as "unconscious fixed ideas" that could not be "liquidated" as long as they had not been translated into a personal narrative (10). Janet obseved that, as long as these memories remained dissociated, they were prone to continue to intrude as terrifying perceptions, obsessional preoccupations, and as somatic complaints (11). According to Nemiah (12) Janet's clinical research provided the first convincing evidence that trauma caused some individuals to develop two or more separate, dissociated streams of consciousness, each with a spectrum of mental contents such as memories, sensations, volitions and affects. This is contrary to the notion that human consciousness always is a single, unbroken, and unitary entity.

Janet was not alone in making these observations. For example, Freud, after visiting the Salpètrière, also proposed that dissociation was the key to understanding the pathogenic processes that underlie hysterical phenomena. In the introductory chapter of Studies on Hysteria , Breuer and Freud noted that: "The splitting of consciousness which is so present to a rudimentary degree in every hysteria....is the basic phenomenon of this neurosis." (13, p. 12). Early in their work, these two clinicians firmly adhered to Janet's notion that traumatic experiences, especially when they occurred early in life, were at the origin of psychological conflict and symptom-formation: in 1896 Freud published his observations of 18 consecutive hysterical patients, in all of whom he attributed the origins of their symptoms to a history of childhood sexual trauma (14).

William James also was aware of an intimate relation between traumatic events and a symptom constellation of dissociation, somatization and affect dysregulation: "in the wonderful explorations by Binet, Janet, Breuer, Freud, Mason, Prince and others of the subliminal consciousness of patients with hysteria, we have revealed to us whole systems

of underground life, in the shape of memories of a painful sort which lead a parasitic existence, buried outside the primary fields of consciousness, and making irruptions thereunto with hallucinations, pains, convulsions, paralyses of feeling and of motion, and the whole procession of symptoms of hysteric disease of body and of mind." (15, p.230, as quoted by Nemiah, 1995).

During the entire 20th century, psychiatry's attention to the effects of trauma on body and mind has generally paralleled the urgency of massive societal traumas: interest was paramount during both World Wars, and most recently following the Vietnam war (16). Abram Kardiner recorded his observations of First World War veterans in the "Traumatic Neuroses of War" (17). He noted that patients suffering from war neuroses often developed amnesia for the trauma, while continuing to behave as if they were still in the middle of it: "(t)he subject acts as if the original traumatic situation were still in existence and engages in protective devices which failed on the original occasion" (p. 82). Kardiner, whose work formed the foundation for the DSM III (and IV) diagnosis of PTSD, thought that these men had become fixated on a traumatic experience, which was re-enacted during dissociative fugue states. He noted that they developed an enduring vigilance for and sensitivity to environmental threat, and he stated that "the nucleus of the neurosis is a physioneurosis .... it outlives every intermediary accommodative device. The traumatic syndrome is ever present and unchanged" (p.95). "From a physiologic point of view there exists a lowering of the threshold of stimulation, and, from a psychological point of view, a state of readiness for fright reactions"(p. 95). He noted that their "interest in the world generally shrinks: [they] undergo a kind of deterioration that is not dissimilar to what happens in schizophrenia. This dimunition in interest in the world is generally the result of a long and unsuccesful battle to maintain meaningful contact with the world" (p.249).

At the end of the second World War, Grinker and Spiegel (18) described five separate, but interrelated categories of combat stress reactions: generalized anxiety states, phobic states, conversion states, psychosomatic reactions, and depressive states. During the subsequent thirty years of relative peace these issues were not further elaborated and became peripheral to psychiatry (16,19), though a small number of reports continued to be published on such traumas as burns and accidents (e.g., 20, 21, 22). With the notable exception of Anna Freud and Dorothy Burlingham's study of children's reactions to the London blitz (23), there barely was any mention of the impact of trauma on children until 1978. Only in recent years has the correspondence between men's reactions to the trauma of war, children's' responses to abuse, and women's responses to sexual and domestic violence been made explicit (24,25).

Modern trends

With the creation of the DSM III system of diagnostic classification, Post Traumatic Stress Disorder was introduced as a new diagnosis while, simultaneously, hysteria disappeared from psychiatric nomenclature, and was deliberately "split asunder" (26) into multiple different diagnoses: somatoform disorders, factitious disorders, dissociative disorders, histrionic and borderline personality disorders. Initially, there was no explicit recognition of a relationship between traumatic stress reactions, somatization, dissociation and affect dysregulation. However, these relationships gradually have made their way back into the DSM system of classifying mental disorders; for example, in the DSM IV, dissociative symptoms are included in the criterion sets for Acute Stress Disorder, Post Traumatic Stress Disorder, Somatization Disorder, and the Dissociative Disorders themselves.

With the renewed interest in the role of overwhelming experiences in the origins of psychopathology, modern psychiatry is rediscovering the intimate relationship between trauma, dissociation, somatization and a host of psychological problems that can most easily be categorized as disturbances of affect regulation: unmodulated anger and sexual involvement, self-destructive behaviors and chronic suicidality. Regardless of whether investigators have approached their subjects prospectively or retrospectively, whether the studies are conducted from the vantage point of 1) psychological trauma, 2) dissociation, 3) somatization, or 4) disorders of affect regulation, the remaining phenomena keep showing up whenever provisions are made to measure them. To complicate matters further, even without probing specifically for dissociation and somatization, every examination of the relationship between PTSD and other Axis I disorders finds very high rates of comorbidity both with affective and with other anxiety disorders (e.g. 27, 28, 29). For example, McFarlane et al (30) found that 72% of subjects who developed PTSD after a natural disaster also developed diagnostic criteria for other psychiatric diagnoses.

Dissociation. Numerous studies have demonstrated a strong relationship between trauma and dissociative problems (31). Several research studies in the past few years suggest that having dissociative experiences at the moment of the trauma is the most significant long term predictor for the ultimate development of PTSD (32, 33, 34, 35, 36). For example, a prospective study of 51 injured trauma survivors in Israel (37) found that peri-traumatic dissociation explained 29.4% of the variance in the six months follow-up PTSD symptoms, over and above any other factors studied. Peri-traumatic dissociation was the strongest predictor of PTSD status six months after the event.

Starting from the vantage point of dissociation, two studies (38, 39) looking for the psychological profiles of patients with high scores on the Dissociative Experiences Scale (DES, 40) found that the DES score correlated highly with reported childhood histories of trauma. Saxe et al. (39), after administering this instrument to 111 consecutive State Hospital admissions, found that all patients with DES scores over 25 reported significantly more histories of trauma than controls: 100% sexual abuse, 86% physical abuse, and 79% witnessing domestic violence. 100% of the high Dissociation group also met diagnostic criteria for PTSD, 100% for Dissociative Disorder, 71% for Borderline Personality Disorder, and 64% for Somatization Disorder. Another recent study of patients with high DES scores found that the main predictors of dissociation were familial loss in childhood, intrafamilial sexual abuse, and extrafamilial sexual abuse (41).

Somatization. Somatization is marked by an inability to identify the emotional valence of physiological states (42). Amnesia is one of the diagnostic criteria of Somatization Disorder (4, 43). Although dissociation and somatization were prominent features of what used to be called hysteria, on the surface they appear to describe very different phenomena: Dissociative Disorder is defined as "...a disturbance or alteration in the normally integrative functions of identity, memory, or consciousness " (4), while Somatization Disorder is characterized by somatic complaints in the absence of organic findings (4). Over the last fifteen years studies have repeatedly shown a close association between somatization and dissociation (e.g. 44, 45, 46, 47, 48, 49, 50, 51, 52), and between somatization and PTSD, (e.g. 51,52, 53). One study found that, after a disaster, physical complaints were the primary presenting complaint in 66% of cases (54). In one of the studies conducted in conjunction with the DSM IV Field Trial for Somatization Disorder (44), of 100 women with somatization disorder, over 90% reported some type of abuse, while 80% reported sexual abuse either as child or adult. Briquet's syndrome, dissociation, and abuse were

significantly associated: the statistical correlation between the total number of Briquet's syndrome symptoms and the DES score was highly significant. Further analyses revealed that the DES was associated with a history of abuse independent of Briquet's syndrome, ruling out the hypothesis that it is a direct measure of conversion or somatization. Given these data, it is reasonable to propose that the intervening variable of psychological trauma is the common etiological factor that ties somatization and dissociation together (55).

Affect dysregulation. Contemporary research has fine-tuned earlier observations that people who suffer from PTSD are prone suffer from problems with affect regulation. These include difficulty modulating anger, chronic self-destructive and suicidal behaviors, difficulty modulating sexual involvement, and impulsive and risk-taking behaviors (56). Barlow (57) justifies the inclusion of PTSD within the anxiety disorders on the basis of the consistent affect dysregulation, chronic overarousal, hypervigliance and attention-narrowing seen in these patients. Similar observations have emerged independently in the child development literature: as many as 80% of abused infants and children develop disorganized/disoriented attachment patterns. These are associated with an inability to utilize care givers for soothing and with the emergence of pathological self-regulatory behaviors (58, 59, 60). A substantial body of research has shown that early and prolonged trauma in childhood affects the capacity to regulate the intensity of affective responses (e.g. 51, 52, 61, 62, 63, 64, 65). This dysregulation is associated with a wide spectrum of problems, from learning disabilities to aggression against the self and others (51, 59, 66, 67, 68). Studies consistently find a high degree of dissociation in patients who suffer from pathological forms of affect regulation (e.g. 59, 67, 69).

The combination of chronic dissociation, physical problems for which no medical cause can be found and a lack of adequate self-regulatory processes is likely to have a profound impact on personality development as reflected by disturbances of the sense of self, such as a sense of separateness and disturbances of body image, a view of oneself as helpless, damaged and ineffective, and in difficulties with trust, intimacy, and self-assertion (24, 25, 56, 58, 61).

Current Study

The DSM IV Field Trial for PTSD collected a data base from which to investigate the relationship between the development of PTSD in response to a high magnitude stressor and the emergence of other psychological problems frequently reported in the research literature as being associated with trauma, but not included in the core PTSD diagnosis. The Field Trial attempted to define these other symptom constellations operationally, and to investigate their interrelationships, as well as their relationship to the diagnostic construct of PTSD itself. **This report focusses on the relationships between Dissociation, Somatization and Affect Dysregulation and their relationship to the diagnosis of PTSD in a clinical and a cummunity sample of traumatized individuals.**

METHODS

Subjects

The PTSD Field Trial assessed 395 treatment seeking adults and adolescents (age 15 or older), who were recruited from sequential admissions to outpatient psychiatric clinics at the five different sites. The clinical sample was obtained through five outpatient mental

health treatment sites specializing in the provision of mental health treatment for victims of psychological trauma. These were: the Medical University of South Carolina/V.A.Medical Center, Crime Victim Center, Charleston, South Carolina; the Trauma Clinic, Massachusetts General Hospital, Boston, MA: the Departments of Psychology and Psychiatry, Duke University and Duke University Medical Center, Durham, NC; North Shore University Hospital/ Cornell University Medical College Division of child and adolescent psychiatry, Manhasset, NY: and the Community Psychological Services, University of Missouri, St. Louis, MO.

To allow for an assessment of differences between traumatized individuals who do and do not seek psychiatric treatment, a community sample (n=125) was recruited from a pool of 308 subjects who were screened by random digit dial telephone interviews. The community subjects were selected on the basis of having been exposed to a high magnitude stressor. These subjects completed the same assessment protocol as did participants in the treatment seeking sample.

The demographic characteristics of the total sample have been described in detail elsewhere (70). To summarize: 83.3% of the participants were white; 13.3% were African-American and 3.4% Hispanic. The majority (66.9%) was female; average age was 37.11 (SD=15.0). Subjects were interviewed in person by research assistants who were trained in the administration of the interviews and attented periodic training meetings to ensure that they adhered to interviewing guidelines. Interviewers were blind to the hypothesized differences between trauma groups.

Instruments.

1) High Magnitude Stressor Events Structured Interview (Kilpatrick D, Resnick HS, Freedy J, unpublished, 1991). This interview comprehensively screened for lifetime history of high magnitude events: completed rape, other sexual assault, physical assault, other violent crimes, homicide of family members or close friends, serious accidents, natural or man-made disasters, and military combat. This interview summarized lifetime history for exposure to high magnitude stressor events.

2) A modified version of the Diagnostic Interview Schedule(DIS) PTSD module (71) provided one method for the assessment of PTSD. This interview did not require the individual to link symptoms with the traumatic event and gathered information about the content of intrusive and avoidance symptoms.

3) The PTSD module of the Structure Clinical Interview for DSM- III(SCID-PTSD)(72).

4) The prevalence of symptom items of Affect Dysregulation, Dissociation and Somatization was examined with the Structured Interview for Disorders of Extreme Stress (SIDES) , an instrument specifically designed for this purpose (van der Kolk, Pelcovitz, Roth, Herman & Spitzer, unpublished). Details about the history, construction, internal consistency and inter-rater reliability of this instrument are published elsewhere (70). The inter- rater reliability kappas for current and past Disorders of Extreme Stress in the Field Trial subjects ranged from .88 to 1.00, with three of the five sites having perfect inter-rater reliability. The Cronbach coefficient alphas of the overall SIDES measure was .96, and the internal consistencies for the individual categories were: Dissociation 0.76, Affect Dysregulation 0.90; and Somatization 0.88. This means that these symptoms had a high

degree of internal cohesion, and that they were likely to occur together in the same individuals.

Subjects were diagnosed as having PTSD if they met criteria both on the SCID and on the DIS PTSD Interview module. Subjects were diagnosed as "having" dissociation, somatization and various dimensions of affect dysregulation if they met criteria for these diagnoses on the SIDES (70).

Statistical Methods

A Phi analysis was performed to establish the correlations between PTSD, dissociation, somatization and affect dysregulation hence forth called "associated features"). To examine these relationship as they specifically relate to PTSD, the sample was divided into two mutually exclusive groups: Lifetime PTSD present or absent. These groups were compared for endorsment of the associated features, using chi-square tests for proportions (or Fisher's Exact Tests, as appropriate). These comparisons were repeated for the presence of absence of current PTSD. In order to compare differences in the clinical presentation in treatment seeking subjects with PTSD, versus the communirty sample, these groups were compared for the proportions of those endorsing the associated features, using chi-square tests for proportions (or Fisher's Exact Tests, as appropriate). To examine the relationships between current and lifetime PTSD, No PTSD, and the presence or absence of associated features, the sample was divided into three mutually exclusive groups: Current PTSD, Lifelong PTSD, but not currently meeting criteria, and no PTSD. These three groups were assessed for the presence of lifetime and current endorsement of the items of dissociation, somatization, and affect dysregulation. These groups were compared, using chi-square tests for proportions (or Fisher's Exact Tests, as appropriate). Pairwise comparisons were used to determine which of the groups were significantly different. To decrease the likelihood of spurious errors due to the large number of comparisons being made, a Bonferroni correction for level of significance of 0.008 was used, rather than the more typical 0.05. In order to test for the effects of the age of onset and the nature of the trauma, the sample was divided into three other mutually exclusive groups: early onset interpersonal trauma, late onset interpersonal trauma only and disaster only. These groups were also compared using the same statistical procedures as before.

RESULTS.

A. Relationships between PTSD, Dissociation, Affect Dysregulation and Somatization

Table 1 shows the Phi coefficients between PTSD, somatization, dissociation and affect regulation. All were signifcant at the $p<.0001$ level, with correlations ranging from 0.52 for affect dysregulation and somatization, to 0.60 for PTSD and somatization, and for dissociation and somatization.

Table 1

Phi Coefficients of relationships between PTSD, Dissociation,

Affect Dysregulation and Somatization

	PTSD	Dissociation	Somatization	Affect dysregulation
PTSD	--	0.51	0.51	0.52
Dissociation		--	0.60	0.55

Somatization	--	0.60
Affect dysregulation		--

All correlations significant at the p<.0001 level

B. Differences in complexity of clinical picture in Treatment seeking group vs. Community sample

Table 2 shows the difference in endorsement of lifetime PTSD in subjects in the community (N=28) , vs subjects in the clinical sample (N=253) of the items of lifetime endorsement of the associated features. This shows that the subjects in the clinical sample have significantly higher endorsement on all items, except for self-destructiveness, difficulty modulationg sexual involvement, and somatization. This suggests that people who suffer from PTSD seek treatment for such issues of modulation of anger, suicidal behavior, and dissociative symptoms, but tend not to seek treatment for their self-destructiveness, difficulty modulating sexual involvements or somatization, in mental health settings.

Table 2

PTSD-Lifetime Only

Percentage of endorsement of dissociation, somatization and affect dysregulation by sample

	Community (n=28)	**Clinical (n=253)**	**χ^2**	**P**
I. Affect Regulation				
Affect modulation	**68**	**86**	**A**	**.02**
Unmodulated anger	**68**	**82**	**3.35**	**.06**
Self-destructive	**43**	**58**	**n.s.**	
Suicidal behavior	**29**	**65**	**13.95**	**.001**
Unmodulated Sex	**50**	**78**	**10.87**	**.001**
II. Dissociation	**79**	**91**	**4.56**	**.03**
III. Somatization	**79**	**84**	**n.s.**	
All three	**50**	**74**	**7.37**	**.001**

A=Fisher's exact test

C. Relationships between Lifetime and Current PTSD and Dissociation, somatization and affect dysregulation

Table 3a shows the percentage of subjects endorsing lifetime presence of dissociation, somatization and affect dysregulation items in the Current PTSD, Lifetime, but not current PTSD, and the No PTSD groups. This shows that both the subjects who currently suffer from PTSD, and those who used to meet criteria in the past differ from those who never did on all of the associated features. Pair-wise comparisons show that the subjects who no longer meet diagnostic criteria for PTSD score significantly lower on all items of the associated features than does the current PTSD sample. This either means that people who have a lower endorsement of associated features are more likely to improve than those with higher scores, that those subjects who no longer suffer from PTSD tend to underreport their past associated features, or that those with current PTSD tend to overreport. The subjects who in the past met criteria for PTSD, but who no longer do so, report significantly higher levels of lifetime histories of associated features than the subjects who met criteria for PTSD.

Table 3b shows the percentage of subjects endorsing *current* presence of dissociation, somatization and affect dysregulation items the Current PTSD, Lifetime PTSD, but not current, and the No PTSD groups. Pair-wise comparisons show that subjects who currently suffer from PTSD score significantly higher than the No PTSD group on all items, while the Lifelong, not current group differs from the No PTSD group on all scales, except for self-destructive and modualtion of sexual involvement. Current PTSD differs from Lifetime on all scales. Thus, in the subjects who no longer meet criteria for PTSD, there also is a substantial overall reduction of symptoms of the associated features. However, the subjects who no longer met diagnostic criteria for PTSD continued to endorse dissociation, somatization and affect dysregulation at very high rates. In those subjects, PTSD symptoms had subsided, but the associated features has not.

Table 3a

Percent Endorsement of lifetime incidence of associated features in total sample

	PTSD Current	**Lifetime, not current**	**Never PTSD**	**χ^2**
Categories:	**(n=182)**	**(n=71)**	**(n=139)**	
I. Affect Dysregulation				
Affect modulation	**90**	**73**	**34**	**108.68**
Unmodulated anger	**87**	**69**	**37**	**79.51**
Self-destructive	**63**	**42**	**20**	**53.26**

Suicidal behavior	**70**	**51**	**25**	**56.69**
Unmodulated Sex	**84**	**63**	**37**	**63.74**
II. Dissociation	**95**	**83**	**44**	**102.83**
III. Somatization	**87**	**75**	**34**	**104.53**

Df=2; all p values < .001

Pairwise comparisons, using p<.008 as minimum level of significance:
Current PTSD vs Never PTSD: all scales significant
Lifetime (not current) vs Never PTSD: all scales significant
Lifetime (not current) vs Current PTSD: all scales significant

Table 3b

Percent Endorsement of current incidence of associated features in total sample

	PTSD Current	**Lifetime, not current**	**Never PTSD**	χ^2
Categories:	**(n=182)**	**(n=71)**	**(n=139)**	
I. Affect Dysregulation				
Affect modulation	**81**	**51**	**26**	**99.24**
Unmodulated anger	**76**	**49**	**32**	**61.75**
Self-destructive	**41**	**21**	**12**	**33.77**
Suicidal behavior	**70**	**51**	**25**	**63.02**
Unmodulated Sex	**74**	**45**	**32**	**58.50**
Total affective dysregulation	**78**	**42**	**24**	**94.47**
II. Dissociation	**82**	**66**	**32**	**84.3**

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III. Somatization	**84**	**52**	**27**	**107.60**

Df=2; all p values <.001

Pairwise comparisons (p<.008):
Current PTSD differs from Never PTSD on all scales
Current PTSD differs from Lifetime (not current) on all scales
Never PTSD differs from Lifetime (not current) on all scales except Self-destructive and sexual involvement

D. Age and nature of trauma and complexity of symptomatology.

Subjects were divided into the following groups: early onset (age less than or equal to 14 years) interpersonal abuse (physical and/or sexual abuse) (only) [n=148], late onset interpersonal abuse (only) [n=87], disaster only [n=59]. Table 4 shows that, using pair-wise comparisons, the early interpersonal trauma group had significantly higher percent endorsement on all the associated features compared with the disaster group, while the late interpersonal trauma group had significantly higher endorsement on the items of unmodulated anger, suicidal behavior, and somatization. The early and late interpersonal trauma groups affected significantly on the items of unmodulated anger, being self-destructive and suicidal, and on dissociative symptoms. These patterns of endorsement support the hypothesis that early interpersonal traumatization gives rise to more complex post-traumatic psychopathology than later interpersonal victimization. Exposure to natural disasters tends to be associated with PTSD, and to a lesser degree with the development of dissociative symptomatology, somatization and affect dysregulation problems.

Table 4

Percent endorsement of associated features by trauma category

CATEGORIES	**ABUSE (≤14 y.o.) (n=148)**	**ABUSE (>14 y.o.) (n=87)**	**Disaster (n=59)**	**χ^2**
I. Affect Dysregulation				
Affect modulation	**77**	**67**	**37**	**29.71 ^ ***
Unmodulated anger	**76**	**60**	**32**	**35.53 ^ + ***
Self-destructive	**62**	**37**	**22**	**32.08 ^ +**

Suicidal behavior	**67**	**39**	**12**	**54.82 ^ + ***
Unmodulated Sex	**81**	**67**	**29**	**51.60 ^**
II. Dissociation	**88**	**67**	**47**	**38.22 ^ +**
III. Somatization	**76**	**69**	**29**	**41.53 ^ ***
All three	**67**	**46**	**19**	**40.55 ^ + ***

All p values are <.0001 by Fisher's exact test. p value for pair-wise comparisons = .008.

Significant early vs. disaster comparisons are noted with a " ^ ", early vs. late onset comparisons by a " **+** ", and significant late onset abuse vs. disaster comparisons are noted by a " ***** ".

DISCUSSION

Guze (73) has pointed out that, in studies of etiology, prognosis or treatment, it is critical to define and control for comorbid conditions that can affect clinical outcome and research findings. Going one step further, Barlow argues for the importance of elucidating existing relationships among syndromes, rather than simply listing all of the diagnoses for which a patient is eligible (57). Recognizing the relevance of co-morbidity in psychiatric patients, Spitzer has argued how important it is to apply skilled clinical judgment to establish the functional relationships among various symptom clusters in any given patient (74). These admonitions may be particularly relevant in regards to psychiatric patients with histories of traumatic exposure, who have been shown to have poorer prognoses than patients without such histories (e.g. 38, 75, 76). Histories of prior trauma and co-morbid diagnoses of PTSD, dissociation and somatization currently are rarely considered in outcome studies of patients with affective and other anxiety disorders.

This study supports and amplifies the existing body of research that has demonstrated an intimate association between the diagnoses of PTSD, dissociation, somatization and a variety of problems with affect regulation, including difficulties modulating anger and sexual involvement, as well as aggression against self and others. This study shows that these associated features of PTSD tend not to occur in isolation, but are often, but not invariably, found together in the same individuals, and that this co-occurrence is, at least in part, a function of the age at which the trauma occurred, and the nature of the traumatic experience.

The data from this study suggest that in the vast majority of patients with PTSD this diagnosis does not adequately describe the full extent of their suffering. The occurrence of pure PTSD is the exception rather than the rule: the majority of people who respond to a trauma with persistent intrusive and avoidant symptoms also develop a complex set of other, interrelated problems (29,30, 77). Epidemiological studies of PTSD, even those that do not include the measurement of dissociative and somatization disorders, consistently

find a high degree of co-morbidity of PTSD with other Axis I disorders. Our data show that the subjects who currently suffer from PTSD have significantly higher rates of endorsement of symptoms of dissociation, somatization, and affect dysregulation than those who now no longer meet criteria. However, even the group that no longer had PTSD had a much higher symptom level than than those who never met criteria. This suggests either that people who report high levels of associated features are less likely to improve than those with lower scores, or that those subjects who no longer suffer from PTSD tend to underreport their past associated features. Our data show that a substantial proportion of subjects who no longer meet criteria for PTSD continue to suffer from high levels of dissociation, somatization and affect dysregulation. In those patients, clinicians are liable to miss the association between their patients' current symptomatology and their past histories of trauma. It obviously is very important to further study how improvement on one dimension of the complex PTSD-dissociation-somatization-affect dysregulation axis affects every other dimension. This study shows that the associated features often persist, even after full-blown PTSD symptoms subside.

Our study confirms earlier investigations that have shown a relationship between the age of onset of the trauma, the nature of the traumatic experience, and the complexity of the clinical outcome (56,58). Subjects who had suffered interpersonal abuse before age 14 developed significantly more dissociative problems, as well as difficulties modulating anger, self-destructive and suicidal behaviors, than either the older victims of interpersonal trauma, or the victims of disaster.

There were significant differences between the prevalence of associated features in the clinical sample, compared with the community sample in the areas of dissociation and affect dysregulation, but not in the dimension of somatization. This suggests that problems with dissociation and affect regulation may be painful issues that bring patients who suffer from PTSD to seek psychiatric treatment, while having physical complaints is not likely to cause a patient to seek help in mental health settings. This implies that people whose presenting problem consists of somatization are likely to be treated with medical interventions, which can be expected to be ineffective in alleviating their distress. In this regard, studies are needed to establish whether approaching patients who suffer from somatization disorder with psychological methods that specifically address their past trauma can lead to more favorable outcomes.

At present, no meaningful data are available for the prevalence of the associated features in non-traumatized populations. There is no evidence that any of the symptoms: dissociation, somatization or difficulties with affect regulation, taken by themselves, are pathognomonic of having endured a trauma, either as a child or as an adult. The significance of these symptoms can only be determined by a careful investigation of the total context of a patient's life, and the totality of the patient's functioning. However, we propose that, in patients with histories of trauma, the array of psychiatric symptoms captured in PTSD, dissociation, somatization and problems with regulation of affective states are likely to not constitute separate "double diagnoses", but represent the complex somatic, cognitive, affective, and behavioral effects of psychological trauma, particularly trauma that occurs early in the life cycle. The concept of co-morbidity does not capture the complexity of adaptations to traumatic life experiences: complex biological and well as psychodynamic relations cannot be captured in simple listings of symptoms.

Nemiah (1) has expressed concern that the DSM-III (and IV) diagnostic system of classification is not conducive to thoughtful explorations of relationships between clinical

syndromes: *"the DSM III, in an attempt to be atheoretical, [has] almost entirely abandoned the psychodynamic understanding of psychiatric phenomena that had dominated psychiatric thought for several decades. In the process they have ... discarded the empirical psychodynamic observations that had been accumulated over the course of a hundred years in favor of a purely descriptive, phenomenological sorting and classification of the symptoms of psychiatric illness"* (1, in press). He is concerned that the purely superficial, descriptive, characteristics that make up the DSM diagnostic system will obscure the dynamic relationships between clinical conditions that, judging by their location in the DSM, appear to be unrelated clinical conditions. As an example he gives the diagnoses of PTSD, conversion disorder and the dissociative disorders, which he believes to be related by virtue of the underlying process of dissociation, but which now are classified under entirely separate rubrics, even though both dynamic, and research considerations would warrant their being subsumed under a common umbrella (1). Nemiah believes that it is critically important to pay attention to the role of dissociation, since he views the study of dissociation as "critical for reviving an appreciation of the importance of unconscious mental processes and their role in the pathogenesis of psychiatric disorders at a time when such psychodynamic concepts have all but disappeared from psychiatric awareness" (1, in press). He views investigations into the dissociative disorders as the best opportunity to study "the mechanisms of symptom formation [which] permits the empirical observation of psychodynamic phenomena that complement and amplify the findings of descriptive psychiatry" (78, p 248).

He expects that the new brain-imaging techniques will permit the the establishment of the correlations of brain function with psychodynamic processes. The recent positron emission tomography (PET) studies (79) that have shown that, as people are exposed to reminders of their trauma, there is unilateral increased activity in the areas in the right hemisphere involved in emotional arousal, as well as in the right visual association cortex, while in the left hemisphere there is concommitant diminished activation of Broca's area in (suggesting a decreased capacity to put the experience into communicable language), are the first glimpses into how such brain studies can elucidate the relationships between trauma, dissociation, somatization and affective dysregulation, as discussed in this paper.

Treatment implications.

This study raises some important issues about the treatment of people who suffer from PTSD and associated disorders. If the fundamental deficit in people who suffer from the long-term sequelae of trauma consists of unbidden intrusions, against which the sufferer defends himself by avoiding stimuli reminiscent of the trauma, effective treatment needs to include desensentization of the traumatic memory, with the goal that the afflicted individual learns to habituate to the conditioned stimuli that precipitate traumatic re-experiences. Indeed, good treatment results have been reported using this approach (80, 81). These studies, however, have not addressed the effects of this treatment on dissociation, somatization and affect dysregulation. If dissociation, somatization and affect dysregulation represent core features of the post-traumatic response, and reflect problems with stimulus discrimination (82), desensitization is unlikely to be able to effectively address those issues .

Blake has noted that, despite the favorable treatment outcome studies using cognitive/behavioral treatments aimed at controllling traumatic intrusion, most clinicians treating traumatized patients continue to practice psychodynamic therapy (83). This raises the question whether those clinicians are misguided in their choice of interventions, or

whether patients who carry the diagnosis of PTSD may not primarily seek treatment for their intrusive symptoms, but for dealing with other problems associated with PTSD, such as affect dysregulation, dissociative problems, somatization and difficulties with trust and intimacy, which may respond best to dynamic therapies (84). No treatment studies of PTSD have as yet addressed those questions.

An impaired capacity to process information and to differentiate relevant from irrelevant information may be at the root of the disturbed memory and concentration in PTSD. This problem in defining the salience of information may contribute to the sufferer's focus on, and misinterpretation of somatic sensations (55). Problems of somatization and affect dysregulation might be most usefully addressed by helping patients acquire skills that help them label and evaluate the meaning of sensations and affective states, to discriminate present from past, and to interpret social cues in the context of current realities rather than past events. Krystal (85), Pennebaker (86) and Nemiah (78) have all discussed the critical importance of learning to identify and utilize emotions as signals, rather than as precipitants for fight/or flight reactions. In recent years Linehan (87) and van der Hart and colleagues (88), advocating the need to be "mindful" , have developed sophisticated programs that address these issues. This includes the identification and labeling of emotions, the identification and appropriate utilization of social supports, focusing on content, rather than affects; scheduling, planning and anticipating; judicious use of exercise and food; relaxation and stress inoculation exercises.

If, as Nemiah proposes, dissociation, i.e. "a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment" (4, p. 447) represents the core issue in PTSD, a critical treatment issue becomes the "searching out the dissociated fragments of the patient's personal identity, raising them into consciousness, and facilitating the emotional abreaction of the pathogenic memories of child abuse associated with them" (1, p. In press). Recently Ross (89) has demonstrated that patients on the extreme end of the dissociative spectrum, those with Dissociative Identity Disorder, who were treated with such an integrative approach came within one standard deviation of the mean of the general population on a wide range of standard psychometric scales, such as the Hamilton Depression Scale (90), the Dissociative Experiences Scale (40), and the SCID I and II (72). Following integration, Nemiah recommends the use of traditional psychodynamic psychotherapy in order to solidify the gains, mourn the losses, and address the resolution of conflict (1, 91, p.305).

Finally, since dissociation, somatization and affective dysregulation frequently occur together in people with histories of psychological trauma, fully effective treatment may require a strategically staged, multi-modal treatment approach, as first described by Janet (92), and subsequently rediscovered by contemporary clinicians (e.g. 25, 84, 88). On the one hand, a treatment that emphasizes cognitive re-orientation to the present, while disregarding past trauma, may be insufficient to address the dissociation, and the resulting re-living of the trauma in images, feelings, or behavior. On the other hand, a treatment approach that focusses prematurely on exploration of the past may exacerbate, rather than relieve intrusive affective and somatic symptoms. With appropriate timing, however, these two treatment modlities might well be employed in complementary fashion. Enhanced capacity to name and manage intense affective and somatic reactions often is a necessary prerequisite for the exploration of the traumatic past. Exploration of the past might, in turn, be a necessary prerequisite for the resolution of the trauma. Thus, recognition of the complex nature of adaptation to traumatic life experiences may lead to the future

development of a more comprehensive treatment approach to trauma-based psychiatric disorders.

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