Somatoform Dissociation: Major Symptoms of Dissociative Disorders

Ellert R. S. Nijenhuis, PhD

ABSTRACT. In most of the recent scientific and clinical literature, dissociation has been equated with dissociative amnesia, depersonalization, derealization, and fragmentation of identity. However, according to Pierre Janet and several World War I psychiatrists, dissociation also pertains to a lack of integration of somatoform components of experience, reactions, and functions. Some clinical observations and contemporary studies have supported this view. Somatoform dissociation, which can be measured with the Somatoform Dissociation Questionnaire (SDQ-20), is highly characteristic of dissociative disorder patients, and a core feature in many patients with somatoform disorders and in a subgroup of patients with eating disorders. It is strongly associated with reported trauma among psychiatric patients and patients with chronic pelvic pain presenting in medical healthcare settings. Motor inhibitions and anesthesia/analgesia are somatoform dissociative symptoms that are similar to animal defensive reactions to major threat and injury. Among a wider range of somatoform dissociative symptoms, these particular symptoms are highly characteristic of patients with dissociative disorders. The empirical findings reviewed in this article should have implications for the contemporary conceptualization and definition of dissociation, as well as the categorization of somatoform disorders in a future version of the DSM. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: <getinfo@haworthpressinc.com> Website: <http://www.HaworthPress.com>* *© 2000 by The Haworth Press, Inc. All rights reserved.]*

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What are the major symptoms of the dissociative disorders? According to the *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994), the essential feature of dissociation is a disruption of the normal integrative functions of consciousness, memory, identity, and perception of the environment. Thus, the current standard for the assessment of dissociative disorders, the *Structural Clinical Interview for DSM-IV Dissociative Disorders* (SCID-D; Steinberg, 1994), includes four symptom clusters: dissociative amnesia, depersonalization, derealization, and identity confusion/identity fragmentation. Well-known self-report questionnaires that evaluate the severity of dissociation, such as the *Dissociative Experiences Scale* (DES; Bernstein & Putnam, 1986) and the *Dissociation Questionnaire* (DIS-Q; Vanderlinden, 1993), predominantly encompass largely similar, empirically derived factors. As these clusters and factors involve manifestations of dissociation of psychological variables (dissociative amensia, depersonalization, derealization, identity confusion, identity fragmentation), we have proposed to name these phenomena *psychological dissociation* (Nijenhuis, Spinhoven, Van Dyck, Van der Hart & Vanderlinden, 1996).

Do these symptom clusters encompass all major symptoms of dissociative disorders? Does dissociation indeed only manifest in psychological variables, leaving the body unaffected? In the aforementioned descriptive definitions and instruments that evaluate dissociation and dissociative disorders, that would seem to be the case. This impression is amplified when one studies the DSM-IV criteria for the dissociative disorders. The only diagnostic criteria that refer to the body can be found under depersonalization disorder, which states that the person can feel detached from, and as if one is an outside observer of, one's body, or parts of the body. It is also stated that dissociative disorders may involve a disruption of the usually integrated function of perception of the environment and the diagnostic features of depersonalization disorder include various types of sensory anesthesia. Yet, patients with dissociative disorders report many somatoform symptoms, and many meet the DSM-IV criteria of somatization disorder or conversion disorder (Pribor, Yutzy, Dean & Wetzel, 1993; Ross, Heber, Norton & Anderson, 1989; Saxe et al., 1994). On the other hand, patients with somatization disorder often have amnesia (Othmer & De Souza, 1985). Although somatoform disorders are not conceptualized as dissociative disorders in the DSM-IV, the strong correlation between dissociative and somatoform disorders (see also Darves-Bornoz, 1997) indicates that dissociation and so-called conversion symptoms, and particular somatization symptoms, may be manifestations of a single underlying principle.

The major symptoms of hysteria, which involve both mind and body–a cluster of disorders that prominently included the current dissociative disor-

ders–are another indication of the existence of *somatoform* dissociation, a concept with origins in 19th century French psychiatry. During that time many authors focused, exclusively or primarily, on the somatoform manifestations of hysteria (e.g., Briquet, 1859). As Van der Hart and colleagues (Van der Hart, Van Dijke, Van Son, & Steele, 2000, this issue) have clearly demonstrated, somatoform dissociation characterized many traumatized World War I soldiers as well. Recent clinical observations also indicate that dissociation can manifest in somatoform ways (Cardeña, 1994; Kihlstrom, 1994; Nemiah, 1991; Van der Hart & Op den Velde, 1995). Furthermore, the *International Classification of Diseases, Tenth Edition* (ICD-10; World Health Organization, 1992) includes somatoform dissociation within dissociative disorders of movement and sensation: a category listed as ''conversion disorder'' in the DSM-IV. Confusion exists within both classificatory systems as well. For example, whereas the ICD-10 includes the diagnostic category of dissociative anesthesia, the ICD-10 and the DSM-IV both include symptoms of anesthesia–among many other symptoms–under somatization disorder. Pain symptoms and sexual dysfunctions are not described as conversion symptoms or dissociative symptoms, yet according to clinical observation they can represent definitive dissociative phenomena. For instance, localized pain may be dependent on the reactivation of a traumatic memory that was previously dissociated and manifests as physical pain in a particular body part. In fact, traumatic memories primarily include a range of sensorimotor reactions (Nijenhuis, Van Engen, Kusters & Van der Hart, in press; Van der Hart et al., 2000, this issue; Van der Kolk & Fisler, 1995).

In order to avoid confusion, it is important to stress that the labels ''psychological dissociation'' and ''somatoform dissociation'' should not be taken to mean that only psychological dissociation is a mental phenomenon. Both descriptors refer to the ways in which dissociative symptoms may manifest, not to their presumed cause. Somatoform dissociation designates dissociative symptoms that phenomenologically involve the body, and psychological dissociative symptoms are those that phenomenologically involve psychological variables. The descriptor ''somatoform'' indicates that the physical symptoms resemble, but cannot be explained by, a medical symptom or the direct effects of a substance. In the term ''somatoform dissociation,'' ''dissociation'' describes the existence of a disruption of the normal integrative mental functions. Thus ''somatoform dissociation'' denotes phenomena that are manifestations of a lack of integration of somatoform experiences, reactions, and functions.

This article will review recent empirical studies of somatoform dissociation. These studies investigated the extent to which somatoform dissociation: (1) can be measured, (2) correlates with psychological dissociation, (3) belongs to the major symptoms of dissociative disorders, (4) discrimi-

nates among various diagnostic categories, (5) depends on culture, (6) reflects general psychopathology, (7) depends on suggestion, (8) is characteristic of dissociative disorders, and can be used in the screening for these disorders, (9) is associated with (reported) trauma among psychiatric patients and patients presenting in medical health care settings, and (10) relates to animal defense-like reactions. The review of these studies is preceded by brief descriptions of Janet's view on hysteria and Myers' (1940) view on ''shell shock,'' or war-related traumatization.

JANET'S CLASSIFICATION OF DISSOCIATIVE SYMPTOMS

Janet's clinical observations suggested that hysteria involves psychological and somatoform functions and reactions (Janet, 1889, 1893, 1901/1977). In his view, mind and body were inseparable, thus his classification of the symptoms of hysteria does not follow a mind-body distinction. He maintained that apart from the permanent symptoms, termed ''mental stigmata,'' that mark all cases of hysteria, there are incidental symptoms, that is, symptoms that depend on each case. Janet referred to these intermittent and variable symptoms as ''mental accidents'' (Van der Hart & Friedman, 1989).

Janet observed that *mental stigmata* include functional losses including partial or complete loss of knowledge (amnesia), loss of sensations such as loss of tactile sensations, kinesthesia, smell, taste, hearing, vision, and pain sensitivity (analgesia), and loss of motor control (inability to move or speak). We have referred to mental stigmata as negative symptoms (Nijenhuis & Van der Hart, 1999).

Janet defined *mental accidents* as incidental symptoms, i.e., symptoms that vary by case and are often more transitory in nature. In our view, mental accidents represent positive symptoms because they involve additions, i.e., mental phenomena that should have been integrated in the personality, but because of integrative failure become dissociated material that intrudes into consciousness at times. Examples include reexperiencing more or less complete traumatic memories and manifestations of dissociative personalities.

According to Janet, the simplest form of mental accidents are ''idées fixes'' (fixed ideas), that are related to intrusions of some dissociated emotion, thought, sensory perception, or movement. This intrusion into or interruption of the personality may also pertain to ''hysterical attacks,'' to the extent to which they are reactivations of traumatic memories. Janet observed that some disssociative patients are subject to ''somnambulisms,'' which today may be recognized as the activities of dissociative identities (APA, 1994). (Since these mental structures involve far more than merely a different sense of self, we feel they are better referred to as dissociative personalities

(Nijenhuis, Van der Hart, & Steele, in press).) When patients lose all touch with reality during dissociative episodes, they experience a ''delirium,'' i.e., a reactive dissociative psychosis (Van der Hart, Witztum, & Friedman, 1993).

Janet (1889, 1893, 1901/1977, 1907) gave many clinical examples showing that dissociative mental structures can involve dissociated sensory, motor, and other bodily reactions and functions in addition to dissociated emotions and knowledge. The symptoms can vary within each dissociative mental structure. For example, in one dissociative personality the patient may be insensitive to pain (analgesic) or touch (tactile anesthesia), but in another, these mental stigmata can be absent, or exchanged for mental accidents, such as localized pain. Whatever has not been integrated into one dissociative personality (not-knowing; not-sensing; not-perceiving) is often prominent in another: a memory; a thought; a bodily feeling, or a complexity of sensations, motor reactions, and other experiential components that could manifest in ''hysterical attacks.''

Janet's dissociation theory postulates that both somatoform and psychological components of experience, reactions, and functions can be encoded into mental systems that can escape integration into the personality (Janet, 1889, 1893, 1901/1977, 1911). He used the construct ''personality'' to denote the extremely complex, but largely integrated, mental system that encompasses consciousness, memory, and identity. Janet observed that dissociative mental systems are also characterized by a retracted field of consciousness, that is, a reduced number of psychological phenomena that can be simultaneously integrated into one and the same mental system.

In Janet's conceptualization, mental accidents represent reactivations of what has been encoded and stored in dissociative ''systems of ideas and functions.'' Due to recurrent dissociation and imagery, these systems can become emancipated. That is, dissociative systems may synthesize and assimilate more sensations, feelings, emotions, thoughts, and behaviors in the context of recurrent traumatization or reactivation by trauma-related conditioned stimuli. As a result, these systems may become associated with a range of experiences, a name, age, and other personality-like characteristics. Today, these emancipated systems are described as more or less complex dissociative personalities whose personality-like features may result from secondary elaborations (Nijenhuis, Spinhoven, Vanderlinden, Van Dyck, & Van der Hart, 1998). These elaborations are probably promoted by hypnotic-like imagination, restricted fields of consciousness, and needs that are associated with these dissociative mental systems. To a yet unknown extent, secondary shaping of dissociative mental systems by sociocultural influences may also be involved (Gleaves, 1996; Janet, 1929; Laria & Lewis-Fernández, in press).

THE "APPARENTLY NORMAL" PERSONALITY AND THE "EMOTIONAL" PERSONALITY

Many cases of dissociative disorder predominantly remain in a condition that has been described as an ''apparently normal'' personality (Myers, 1940; Nijenhuis & Van der Hart, 1999; Van der Hart, Van der Kolk, & Boon, 1998; Van der Hart et al., 2000, this issue). As ''apparently normal'' personality, the patient on the surface appears as more or less mentally normal. However, on closer scrunity he or she is characterized by a range of negative symptoms (Nijenhuis & Van der Hart, 1999). Examples of these negative symptoms are partial or complete amnesia and anesthesia. The ''apparently normal'' personality, which in dissociative identity disorder (DID) can be fragmented into two or more personalities, is structurally dissociated from one or more ''emotional'' personalities (Nijenhuis, Van der Hart et al., in press; Van der Hart, 2000; Van der Hart et al., 2000, this issue). In our view, dissociative mental systems that involve ''emotional'' personalities–ranging from Janetian idées fixes to somnambulisms–often encompass traumatic memories, or aspects thereof, and defensive reactions to major threat (Nijenhuis, Vanderlinden, & Spinhoven, 1998; Nijenhuis, Spinhoven, Vanderlinden et al., 1998). Thus, the ''emotional'' personality–whatever its degree of complexity and emancipation–constitutes a positive symptom. However, as to *content*, ''emotional'' personalities can contain negative or positive symptoms, or both. Negative symptoms of ''emotional'' personalities include analgesia and motor inhibitions that are expressions of defensive freezing. Examples of positive symptoms include particular trauma-related movements and pain. Because dissociative barriers are not absolute, ''emotional'' personalities may influence the ''apparently'' normal personality and, when applicable, vice versa. Alternation between both types of personalities occurs in mental disorders ranging from posttraumatic stress disorder to DID (Nijenhuis & Van der Hart, 1999).

Table 1 summarizes the clinically observed dissociative symptoms along two dichotomous types of phenomena. One type of phenomena are mental stigmata/negative symptoms and mental accidents/positive symptoms, and the other phenomena are psychological and somatoform manifestations of a common dissociative process.

THE SOMATOFORM DISSOCIATION QUESTIONNAIRE

The severity of somatoform dissociation can be measured with the *Somatoform Dissociation Questionnaire* (SDQ-20, see Appendix), a 20 item self-report instrument with excellent psychometric characteristics (Nijenhuis et al. 1996, 1998a, Nijenhuis, Van Dyck, Spinhoven et al., 1999). The items of the

TABLE 1. A Phenomenological Categorization of Dissociative Symptoms

	Psychological dissociation	Somatoform dissociation
Mental stigmata, or negative dissociative symptoms	Amnesia Abulia Modifications of character (loss of character traits, predominantly affects) Suggestibility	Anesthesia (all sensory modalities) Analgesia Loss of motor control (movements, voice, swallowing, etc.)
Mental accidents, or positive dissociative symptoms	Subconscious acts, hysterical accidents, and fixed ideas	Subconscious acts, hysterical accidents, and fixed ideas: singular intrusive somatoform symptoms which influence the habitual state
	Hysterical attacks	Hysterical attacks: complexes of somatoform symptoms which influence the habitual state
	Somnambulism	Somnambulism: alterations of state, which involve complex somatoform alterations
	Deliriums (dissociative psychosis)	Deliriums: alterations of state, which involve grotesque somatoform alterations and enduring failure to test reality

SDQ-20 include negative and positive symptoms, and converge with the major symptoms of hysteria formulated by Janet a century ago. Examples of sensory losses are analgesia (‘‘Sometimes my body, or a part of it, is insensitive to pain’’), kinesthetic anesthesia (‘‘Sometimes it is as if my body, or a part of it, has disappeared’’), and motor inhibitions (‘‘Sometimes I am paralysed for a while’’; ‘‘Sometimes I cannot speak, or only whisper’’). Anesthesia also pertains to visual (‘‘Sometimes I cannot see for a while’’), and auditory perception (‘‘Sometimes I hear sounds from nearby as if they were coming from far away’’). Positive symptoms include ‘‘Sometimes I have pain while urinating,’’ and ‘‘Sometimes I feel pain in my genitals’’ (at times other than sexual intercourse).

In seven studies performed to date, age and gender did not have a significant effect on somatoform dissociation as measured by the SDQ-20. However, in a sample of psychiatric outpatients (N = 153), women had slightly higher scores than men (Nijenhuis, Van der Hart, & Kruger, submitted), and

in Turkey, a weak but statistically significant correlation with age was found (Sar, Kundakci, Kiziltan, Bakim, & Bozkurt, 2000, this issue).

SOMATOFORM DISSOCIATION AND PSYCHOLOGICAL DISSOCIATION

In all but one study performed to date, somatoform dissociation was strongly associated with psychological dissociation as measured by the DES and DIS-Q, ranging from r = 0.62 (Nijenhuis et al., submitted) to r = 0.85 (Nijenhuis, Van Dyck, Spinhoven et al., 1999). Waller et al. (2000, this issue) found a lower correlation among psychiatric outpatients in the United Kingdom (r = 0.51). These results suggest that while somatoform and psychological dissociation are manifestations of a common process, they are not completely overlapping. Somatoform and psychological dissociation during or immediately after the occurrence of a traumatic event, i.e., *peritraumatic* dissociation, were also significantly correlated (Nijenhuis, Van Engen et al., in press).

SOMATOFORM DISSOCIATION IN VARIOUS DIAGNOSTIC GROUPS IN THE NETHERLANDS AND BELGIUM

A range of contemporary studies have revealed that somatoform dissociation is a unique construct and a major feature of dissociative disorders (Nijenhuis et al., 1996, 1998a; Nijenhuis, Van Dyck, Spinhoven et al., 1999). Patients with DSM-IV dissociative disorders had significantly higher SDQ-20 scores than psychiatric outpatients with other DSM-IV diagnoses, and patients with dissociative identity disorder (DID) had higher scores than patients with dissociative disorder, not otherwise specified (DDNOS) or depersonalization disorder (Nijenhuis et al., 1996, 1998a).

In Dutch samples, the SDQ-20 discriminated among various diagnostic categories (Nijenhuis, Van Dyck, Spinhoven et al., 1999). Compared to patients with DDNOS or depersonalization disorder, patients with DID had significantly higher scores. Patients with DDNOS had statistically significantly higher scores than patients with somatoform disorders or eating disorders, and the latter two diagnostic categories were associated with significantly higher scores than patients who had anxiety disorder, depression, adjustment disorders and bipolar mood disorders (see Table 2). In particular, bipolar mood disorder was associated with extremely low somatoform dissociation (see also Nijenhuis, Spinhoven, Van Dyck, Van der Hart, De Graaf et al., 1997).

TABLE 2. Somatoform Dissociation as Measured by the SDQ-20 in Various Diagnostic Groups

	Dutch samples			Turkish samples			North American samples		
	N	mean	SD	N	mean	SD	N	mean	SD
DID	27 15 23	51.8 57.3 55.1	12.6 14.9 13.5	25	58.7	17.9	11	50.7 Dell: DID > DDNOS, eating disorder, pain disorder	10.7
DDNOS and Depersonalization disorder	23 16 21	43.8 44.6 43.0	7.1 11.9 12.0	25	46.3	16.2			
Somatoform disorders, including conversion disorder (n = 32), pain disorder (n = 7), conversion and pain disorder (n = 5), somatization disorder (n = 4)	47	31.9	9.4						
Pseudo-epilepsy	27	29.8	7.5						
Epilepsy	74	24.8	6.9						
Temporal lobe epilepsy	49	24.3	6.8						
Eating disorders	50	27.7	8.8						
Anxiety disorder, major depressive episode, adjustment disorder	45	22.9	3.9						
Anxiety disorder				26	26.8	6.4			
Major depressive episode				23	28.7	8.3			
Bipolar mood disorder	51	22.9	3.7	22	22.7	3.5			
Chronic pelvic pain	52	25.6	9.3						

In contrast with the SDQ-20, the DES did not discriminate between bipolar mood disorder and somatoform disorders. In a sample that primarily included cases of DSM-IV conversion and pain disorder and no cases of hypochondriases, the results suggest that patients with these particular somatoform disorders have significant somatoform dissociation, but less psychological dissociation (Nijenhuis, Van Dyck, Spinhoven et al., 1999).

IS SOMATOFORM DISSOCIATION A CULTURALLY-DEPENDENT PHENOMENON?

Our consistent finding that somatoform dissociation is extremely characteristic of DSM-IV dissociative disorders, in particular DID, has been corrob-

orated by findings in some other countries and cultures (see Table 2). In the USA, Chapperon (personal communication, September 1996) found high somatoform dissociation among DID patients, and Dell (1997a) reported that DID patients had significantly higher scores than patients with DDNOS, eating disorders, or pain disorder. Studying various diagnostic categories in Turkey, Sar and colleagues (Sar, Kundakci, Kiziltan, Bahadir, and Aydiner, 1998; Sar et al., 2000, this issue) obtained results that are remarkably similar to ours: somatoform dissociation was extreme in DSM-IV dissociative disorders, quite modest in anxiety disorders, major depression, and schizophrenia, and low in bipolar mood disorder. Also consistent with our data, both Dell (1997a) and Sar et al. (1998, 2000, this issue) found strong intercorrelations of SDQ-20 and DES scores. Van Duyl's (personal communication, March 2000) data on somatoform dissociation among dissociative disorder patients in Uganda converge with our Dutch/Flemish results as well. Conjointly, these international findings suggest that somatoform dissociation is highly characteristic of dissociative disorders, that somatoform and psychological dissociation are closely related constructs, and that the severity of somatoform dissociation among dissociative disorder patients from these cultures is largely comparable. Moreover, somatoform dissociative symptoms and disorders also manifested among tortured Bhutanese refugees, in particular those with PTSD (Van Ommeren et al., in press).

IS SOMATOFORM DISSOCIATION A UNIQUE CONSTRUCT?

Considering the moderate to high correlation between general psychopathology and psychological dissociation (Nash, Hulsey, Sexton, Harralson, & Lambert, 1993; Norton, Ross, & Novotny, 1990), some have expressed concern that dissociation scales may assess the former concept rather than the latter (Tillman, Nash, & Lerner, 1994). These authors could be correct, but this correlation could also reflect the broad comorbidity that characterizes complex dissociative disorders.

To study whether somatoform dissociation could possibly reflect general psychopathology, Nijenhuis, Van Dyck, Spinhoven et al. (1999) statistically adjusted the somatoform dissociation scores of different diagnostic categories for the influence of general psychopathology as assessed by the *Symptom Checklist* (SCL-90-R; Derogatis, 1977). The adjusted scores discriminated among DID, DDNOS, somatoform disorders, bipolar mood disorder, and eating disorders, and mixed psychiatric disorders (Nijenhuis, Van Dyck, Spinhoven et al., 1999). Therefore, it was concluded that somatoform dissociation is a unique construct, unrelated to general levels of psychopathology.

DOES SOMATOFORM DISSOCIATION RESULT FROM SUGGESTION?

Another concern is whether suggestion affects somatoform dissociation scores. For example, Merskey (1992, 1997) maintained that dissociative disorder patients are extremely suggestible, and therefore vulnerable to indoctrination by therapists who mistake the symptoms of bipolar mood disorder for ''dissociative'' symptoms.

In a single case study with positron emission tomography (PET) functional imaging, hypnotic paralysis activated brain areas similar to those in patients with conversion disorder, which could indicate that hypnosis and somatoform dissociation share common neurophysiological mechanisms (Halligan, Athwal, Oakley, & Frackowiak, 2000). This case study obviously requires replication among a group of patients with somatoform dissociative disorders, and the observed correlation does not document a causal relationship.

There are noteworthy reasons to believe that suggestion and indoctrination do not explain somatoform dissociation. Patients who completed the SDQ-20 in the assessment phase, and prior to the SCID-D interview, had higher scores than dissociative patients who completed the instrument in the course of their therapy (Nijenhuis, Van Dyck, Van der Hart, & Spinhoven, 1998; Nijenhuis, Van Dyck, Spinhoven et al., 1999). Moreover, prior to our research, the symptoms described by SDQ-20 were not known as major symptoms of dissociative disorders among diagnosticians and therapist, let alone patients. It was also found that the dissociative patients who were in treatment with the present author did not exceed the SDQ-20 scores of dissociative patients who were treated by other therapists. Given this author's theoretical orientation and expectations, he was the most likely person to suggest somatoform dissociative symptoms (Nijenhuis, Spinhoven, Vanderlinden et al., 1998). Hence, the available empirical data run contrary to the hypothesis that somatoform dissociation results from suggestion.

SOMATOFORM DISSOCIATION IN THE SCREENING FOR DSM-IV DISSOCIATIVE DISORDERS

The data discussed so far reveal that somatoform dissociation is very characteristic of patients with DDNOS and DID. The question remains whether somatoform dissociation is as characteristic of these disorders as psychological dissociation. This issue required examination of the relative ability of somatoform and psychological dissociation screening instruments to discern between those cases with DSM-IV dissociative disorders, and those without.

The SDQ-5, comprised of 5 items from the SDQ-20, was developed as a screening instrument for DSM-IV dissociative disorders (Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1997; Nijenhuis et al., 1998a). The sensitivity (the proportion of true positives selected by the test) of the SDQ-5 among SCID-D assessed patients with dissociative disorders in various Dutch/Flemish samples (N = 50, N = 33, N = 31, respectively) ranged from 82% to 94%. The specificity (the proportion of the comparison patients that is correctly identified by the test) of the SDQ-5 ranged from 93% to 98% (N = 50, N = 42, N = 45, respectively). The positive predictive value (the proportion of cases with scores above the chosen cut-off value of the test that are true positives) among these samples ranged from 90% to 98%, and the negative predictive value (the proportion of cases with scores below this cut-off value that are true negatives) from 87% to 96%. The corresponding values of the SDQ-20 were slightly lower (Nijenhuis et al., 1997).

High sensitivity and specificity of a test do not implicate a high predictive value when the prevalence of the disorder in the population of concern is low (Rey, Morris-Yates, & Stanislaw, 1992). The prevalence of dissociative disorders among psychiatric patients has been estimated at approximately 8%-15% (Friedl & Draijer, 2000; Horen, Leichner, & Lawson, 1995; Sar et al., 1999; Saxe et al., 1993). Corrected for a prevalence rate of 10%, the positive predictive values among the indicated samples ranged from 57% to 84%, and the negative predictive values from 98% to 99%. Averaged over three samples, the positive predictive value of the SDQ-5 was 66%. Hence, it can be predicted that among Dutch/Flemish samples, two of three patients with scores at or above the cut-off will have a DSM-IV dissociative disorder.

Among Dutch dissociative disorder patients and psychiatric comparison patients, Boon and Draijer (1993) found that the sensitivity of the DES was 93%, the specificity 86%, the corrected positive predictive value 42%, and the corrected negative predicted value 99%. It thus seems that somatoform dissociation is at least as characteristic of complex dissociative disorders as is psychological dissociation in Dutch samples.

IS SOMATOFORM DISSOCIATION CORRELATED WITH REPORTED TRAUMA?

In our study comparing dissociative disorder patients (N = 45) with control patients (N = 43) (Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1998b), the dissociative disorder patients reported severe and multifaceted traumatization on the *Traumatic Experiences Checklist* (TEC; Nijenhuis, Van der Hart, & Vanderlinden; see Nijenhuis, 1999). Among various types of trauma, physical abuse, with an independent contribution of sexual trauma, best predicted somatoform dissociation. Sexual trauma best

predicted psychological dissociation. According to the reports of the dissociative disorder patients, this abuse usually occurred in an emotionally neglectful and abusive social context. Both somatoform and psychological dissociation were best predicted by early onset of reported intense, chronic and multiple traumatization.

Reanalysing the data of this study, it was found that the total TEC score explained 48% of the variance of somatoform dissociation, a value that exceeded the variance explained by reported physical and sexual abuse (Nijenhuis, 1999). This additional finding suggests that somatoform dissociation is strongly associated with reported multiple types of trauma: a finding that converges with the results of research in the incidence of verified multiple and chronic traumatization in DID patients (Coons, 1994; Hornstein & Putnam, 1992; Kluft, 1995; Lewis, Yeager, Swica, Pincus, & Lewis, 1997).

Studying psychiatric outpatients, both Waller and his colleagues (2000, this issue) and Nijenhuis et al. (submitted) also found that among various types of trauma, somatoform dissociation was best predicted statistically by physical abuse and threat to life by another person. Preliminary North American findings (Dell, 1997b) have indicated moderate to strong statistically significant correlations among somatoform dissociation and reported sexual abuse ($r = .51$), sexual harassment ($r = .49$), physical abuse ($r = .49$), and lower correlations with reported emotional neglect ($r = .25$) and emotional abuse ($r = .31$). Reported early onset of traumatization was somewhat more strongly associated with somatoform dissociation than was trauma reported in later developmental periods, and among all variables tested the total trauma score was associated with somatoform dissociation most strongly ($r = .63$). These various results are highly consistent with our findings. It can be concluded that somatoform dissociation is particularly associated with physical abuse and sexual trauma, thus with threat to the integrity of the body. Consistent with this conclusion, Van Ommeren et al. (in press) found that tortured Bhutanese refugees ($N = 526$), compared with nontortured Bhutanese refugees, had significantly more lifetime ICD-10 (WHO, 1992) persistent somatoform pain disorder (56.2% vs. 28.8%), dissociative motor disorder (11.2% vs. 1.3%), and dissociative anesthesia and sensory loss (14.4% vs. 2.8%).

A link between somatoform dissociation and reported trauma is also suggested by studies that have found associations between somatization symptoms, somatoform disorders and reported trauma. For example, undifferentiated somatoform disorder belonged to the three DSM-IV Axis I diagnoses that marked Gulf War veterans referred for medical and psychiatric syndromes (Labbate, Cardeña, Dimitreva, Roy, & Engel, 1998). More specifically, reports of traumatic events were correlated with both PTSD and somatoform diagnoses, and veterans who handled dead bodies had a three-fold risk

of receiving a somatoform diagnosis. In addition, a range of studies found associations among (reported) trauma, psychological dissociation, and somatization symptoms or somatoform disorders (e.g., Atlas, Wolfson, & Lipschitz, 1995; Darves-Bornoz, 1997; Van der Kolk et al., 1996).

SOMATOFORM DISSOCIATION AND ANIMAL DEFENSIVE REACTIONS

Patients with DID or related types of DDNOS remain in alternating dissociative personalities (in varying degrees of complexity) that are relatively discrete, discontinuous, and resistant to integration. In our view, basically they represent ''apparently normal'' and ''emotional'' personalities (Nijenhuis & Van der Hart, 1999), and are associated with particular somatoform dissociative symptoms. Exploring the roots of these dissociative mental systems and symptoms, Nijenhuis, Vanderlinden, and Spinhoven (1998) drew a parallel between animal defensive and recuperative states evoked in the face of variable predatory imminence and injury, and characteristic somatoform dissociative responses of patients with dissociative disorders who report trauma. Their review of empirical data of research with animals and humans, as well as clinical observations, suggested that there are similarities between disturbances of normal eating-patterns and other normal behavioral patterns in the face of diffuse threat. Freezing and stilling occur when serious threat materializes; analgesia and anesthesia when strike is about to occur; and acute pain when threat has subsided and actions that promote recuperation follow. According to our structural dissociation model (Nijenhuis, Van der Hart, & Steele, in press), ''emotional'' personalities would involve animal defense-like systems, and ''apparently normal'' personalities would exhibit a range of behavioral and mental reactions to avoid or escape from traumatic memories and the associated ''emotional'' personality. In our view, the mental avoidance and escape reactions, among others, find expression in negative psychological and somatoform dissociative symptoms, such as amnesia and emotional as well as sensory anesthesia.

Consistent with this model, several studies have suggested that threat to life, whether due to natural or human causes, may induce analgesia and numbness (Cardeña et al., 1998; Cardeña & Spiegel, 1993; Pitman, Van der Kolk, Orr, & Greenberg, 1990; Van der Kolk, Greenberg, Orr, & Pitman, 1989). Nijenhuis, Spinhoven and Vanderlinden et al. (1998) performed the first test of the hypothesized similarity between animal defensive reactions and certain somatoform dissociative symptoms of dissociative disorder patients who reported trauma. Twelve somatoform symptom clusters consisting of clinically observed somatoform dissociative phenomena were constructed. All clusters discriminated between patients with dissociative disorders and

patients with other psychiatric diagnoses. Those expressive of the hypothesized similarity–freezing, anesthesia-analgesia, and disturbed eating–belonged to the five most characteristic symptoms of dissociative disorder patients. Anesthesia-analgesia, urogenital pain and freezing symptom clusters independently contributed to predicted caseness of dissociative disorder. Using an independent sample, it appeared that anesthesia-analgesia best predicted caseness after controlling for symptom severity. The indicated symptom clusters correctly classified 94% of cases that constituted the original sample, and 96% of the independent second sample. These results were largely consistent with the hypothesized similarity.

The anesthesia symptoms characterize ''emotional'' personalities, but may also be part and parcel of ''apparently normal'' personalities. In our view, ''apparently normal'' personalities are phobic of traumatic memories and phobic of the associated ''emotional'' personalities (Nijenhuis & Van der Hart, 1999; Nijenhuis, Van der Hart et al., in press). This phobia manifests in two major negative dissociative symptoms: amnesia and sensory, as well as emotional anesthesia. Recent data from psychobiological experimental research with both types of dissociative personalities support this interpretation (Nijenhuis, Quak et al., 1999; Van Honk, Nijenhuis, Hermans, Jongen, & Van der Hart, 1999).

IS SOMATOFORM DISSOCIATION ALSO ASSOCIATED WITH DISSOCIATIVE DISORDER AND TRAUMA IN A NONPSYCHIATRIC POPULATION?

In order to test the generalizability of the powerful associations between somatoform dissociation, dissociative disorder, and reported trauma among psychiatric patients, we investigated whether these relationships would also hold among a nonpsychiatric population (Nijenhuis, Van Dyck, Ter Kuile et al., 1999). According to the literature, chronic pelvic pain (CPP) is one of the somatic symptoms that, at least among a subgroup of gynecology patients, relates to reported trauma (e.g., Walling et al., 1994; Walker et al., 1995) and dissociation (Walker et al., 1992). In this population (N = 52), psychological dissociation and somatoform dissociation were significantly associated with (features of) DSM-IV dissociative disorders, as measured by the SCID-D. Anxiety, depression, and psychological dissociation best predicted the SCID-D total score, whereas amnesia was best predicted by somatoform dissociation. Identity confusion was best predicted by anxiety/depression and somatoform dissociation. These findings ran partly contrary to our hypothesis that somatoform dissociation among CPP patients would be more predictive of dissociative disorder than psychological dissociation.

In this study, the sensitivity of somatoform and psychological dissociation

screening instruments for dissociative disorders was 100%. The specificity was 90.2% (SDQ-5) and 94.1% (DES) respectively. Somatoform dissociation was strongly associated with, and best predicted, reported trauma. Physical abuse, life threat posed by a person, sexual trauma, and intense pain best predicted somatoform dissociation among the various types of trauma. Physical abuse/life threat posed by a person remained the best predictor of somatoform dissociation after statistically controlling for the influence of anxiety, depression, and intense pain (Nijenhuis, Van Dyck, Ter Kuile et al., 1999).

This study demonstrated a strong association between somatoform dissociation and reported trauma in a nonpsychiatric population, as well as a considerable association between somatoform dissociation and features of dissociative disorders. The results are consistent with our findings among psychiatric patients, and, therefore, strengthen our thesis that somatoform dissociation, features of dissociative disorders, and reported trauma are strongly intercorrelated phenomena.

DISCUSSION

The items of the SDQ comprise many of the symptoms that mark hysteria as described by Janet (1893, 1907). The reviewed empirical data show that the 19th century symptoms of hysteria are very characteristic of the 20th century dissociative disorders. They confirm that these symptoms involve a combination of mental stigmata (the negative symptoms of anesthesia, analgesia, and motor inhibitions) and mental accidents (the positive symptoms of localized pain, and alternation of taste and smell preferences/aversions). Although I subscribe to the Janetian position that body and mind are inseparable, I insist that making a phenomenological distinction among psychological and somatoform manifestations of dissociation can be clarifying, in that it highlights the largely forgotten or ignored clinical–and now empirically substantiated–observation that dissociation also pertains to the body.

No indications were found suggesting that these symptoms were manifestations of general psychopathology, or were a consequence of suggestion. Obviously, this is far from saying that dissociative disorder patients are immune to suggestion, or denying that there are factituous dissociative disorder cases (Draijer & Boon, 1999). However, it seems warranted to state that suggestion does not explain the findings of our studies on somatoform dissociation.

Somatoform dissociation belongs to the major symptoms of DSM-IV dissociative disorders, but it also characterizes many cases of DSM-IV somatoform disorders, as well as a subgroup of patients with eating disorders. Like dissociative disorders, somatization disorder (Briquet's syndrome) has roots in hysteria: Briquet's pioneering research revealed that many patients with

hysteria had amnesia, in addition to many somatoform symptoms. Contemporary research also shows that psychological dissociation and somatization are related phenomena. For example, Saxe et al. (1994) found that about two-thirds of the patients with dissociative disorders met the DSM-IV criteria of somatization disorder. Yet somatization probably is neither a distinct clinical entity, nor the result of a single pathological process (Kellner, 1995). It seems likely that somatoform dissociation pertains to a subgroup of somatoform symptoms that remain medically unexplained, or difficult to explain.

The findings of our studies are more consistent with the ICD-10 (WHO, 1992), that includes dissociative disorders of movement and sensation, than to the DSM-IV, that restricts dissociation to psychological manifestations and regards somatoform manifestations of dissociation as ''conversion symptoms.'' However, the SDQ-5 in the Netherlands, and the SDQ-20 in Turkey, were at least as effective as the DES in the screening for DSM-IV dissociative disorders, and our finding that psychological and somatoform dissociation are strongly associated suggests that both phenomena are manifestations of a common (pathological) process. Moreover, somatoform dissociation has been demonstrated to be characteristic of DSM-IV conversion disorder (Kuyk, Spinhoven, Van Emde Boas, & Van Dyck, 1999; for a review, see Bowman & Kuyk, in press), and somatoform dissociation, rather than psychological dissociation, was characteristic of patients with pseudo-epileptic seizures (Kuyk et al., 1999). Psychological dissociation was also very common among patients with conversion disorders (Spitzer, Spelsberg, Grabe, Mundt, & Freiberger, 1999).

In conclusion, relabeling conversion (a concept that has links to controversial Freudian theory) as somatoform dissociation, and categorizing the DSM-IV conversion disorders as dissociative disorders is indicated. The same applies to somatization disorder when it is predominantly characterized by somatoform dissociation. Such findings would promote a reinstitution of the 19th century category of hysteria under the general label of dissociative disorders, and would include the current dissociative disorders, DSM-IV conversion disorder/ICD-10 dissociative disorders of movement and sensation, and somatization disorder. On the other hand, analysis of somatoform dissociation in DSM-IV somatization disorder may also reveal the existence of various subgroups. It could be that a subgroup of patients with somatization disorder has severe somatoform dissociation, whereas another subgroup obtains low or modest somatoform dissociation scores. It also seems doubtful that, for example, conversion disorder and hypochondriasis relate to similar pathology. Hence, further study of somatoform dissociation in the various DSM-IV somatoform disorders is needed.

The hypothesized dissociative personality-dependent nature of somatoform dissociation cannot be studied with the regular use of the SDQ-20 and

SDQ-5, but must be analysed using other methods. These include repeated administration of these instruments to DID patients while they remain in ''apparently normal'' and ''emotional'' personalities, and to controls while they maintain simulated ''apparently normal'' and ''emotional'' personalities. More important approaches, however, include the study of somatoform dissociative symptoms and concurrent psychophysiological and endocrinological reactions while DID patients and controls remain in these respectively authentic and enacted personalities as they are experimentally exposed to memories of trauma (Nijenhuis, Quak et al., 1999) or masked threat cues (Van Honk et al., 1999).

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APPENDIX

SDQ-20

This questionnaire asks about different physical symptoms or body experiences, which you may have had either briefly or for a longer time.
Please indicate to what extent these experiences apply to you ***in the past year***.

For each statement, please circle the number in the first column that best applies to YOU. The possibilities are:

1 = this applies to me NOT AT ALL
2 = this applies to me A LITTLE
3 = this applies to me MODERATELY
4 = this applies to me QUITE A BIT
5 = this applies to me EXTREMELY

If a symptom or experience applies to you, please indicate whether a ***physician*** has connected it with a ***physical disease***.
Indicate this by circling the word YES or NO in the column "Is the physical cause known?"
If you wrote YES, please write the physical cause (if you know it) on the line.

Example:

	Extent to which the symptom or experience applies to you	Is the physical cause known?	
Sometimes:			
My teeth chatter	1 2 3 4 5	NO	YES, namely _____
I have cramps in my calves	1 2 3 4 5	NO	YES, namely _____

If you have circled a 1 in the first column (i.e., This applies to me NOT AT ALL), you do NOT have to respond to the question about whether the physical cause is known.

On the other hand, if you circle 2, 3, 4, or 5, you MUST circle NO or YES in the "Is the physical cause known?" column.

Please do not skip any of the 20 questions.
Thank you for your cooperation.

Here are the questions:

1 = this applies to me NOT AT ALL
2 = this applies to me A LITTLE
3 = this applies to me MODERATELY
4 = this applies to me QUITE A BIT
5 = this applies to me EXTREMELY

	Extent to which the symptom or experience applies to you	Is the physical cause known?	
Sometimes:			
1. I have trouble urinating	1 2 3 4 5	NO	YES, namely _____
2. I dislike tastes that I usually like (women: at times OTHER THAN pregnancy or monthly periods)	1 2 3 4 5	NO	YES, namely _____
3. I hear sounds from nearby as if they were coming from far away	1 2 3 4 5	NO	YES, namely _____
4. I have pain while urinating	1 2 3 4 5	NO	YES, namely _____
5. My body, or a part of it, feels numb	1 2 3 4 5	NO	YES, namely _____
6. People and things look bigger than usual	1 2 3 4 5	NO	YES, namely _____
7. I have an attack that resembles an epileptic seizure	1 2 3 4 5	NO	YES, namely _____
8. My body, or a part of it, is insensitive to pain	1 2 3 4 5	NO	YES, namely _____
9. I dislike smells that I usually like	1 2 3 4 5	NO	YES, namely _____
10. I feel pain in my genitals (at times OTHER THAN sexual intercourse)	1 2 3 4 5	NO	YES, namely _____
11. I cannot hear for a while (as if I am deaf)	1 2 3 4 5	NO	YES, namely _____
12. I cannot see for a while (as if I am blind)	1 2 3 4 5	NO	YES, namely _____
13. I see things around me differently than usual (for example, as if looking through a tunnel, or seeing merely a part of an object)	1 2 3 4 5	NO	YES, namely _____
14. I am able to smell much BETTER or WORSE than I usually do (even though I do *not* have a cold)	1 2 3 4 5	NO	YES, namely _____

APPENDIX (continued)

15. It is as if my body, or a part of it, has disappeared	1 2 3 4 5	NO	YES, namely _____
16. I cannot swallow, or can swallow only with great effort	1 2 3 4 5	NO	YES, namely _____
17. I cannot sleep for nights on end, but remain very active during daytime	1 2 3 4 5	NO	YES, namely _____
18. I cannot speak (or only with great effort) or I can only whisper	1 2 3 4 5	NO	YES, namely _____
19. I am paralysed for a while	1 2 3 4 5	NO	YES, namely _____
20. I grow stiff for a while	1 2 3 4 5	NO	YES, namely _____

Before continuing, will you please check whether you have responded to all 20 statements?

You are asked to fill in and place an X beside what applies to you.

21. Age: _____ years

22. Sex: _____ female
_____ male

23. Marital status: _____ single
_____ married
_____ living together
_____ divorced
_____ widower/widow

24. Education: _____ number of years

25. Date: _____

26. Name: _____