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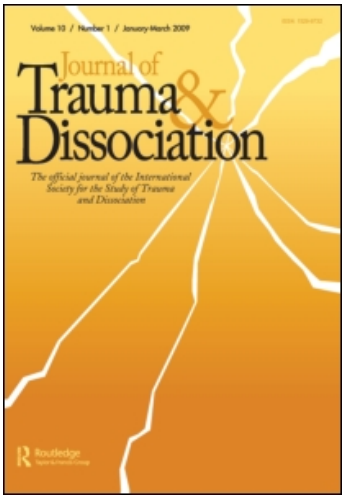

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Somatoform Dissociation, Psychological Dissociation, and Specific Forms of Trauma

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ABSTRACT. *Background:* Childhood trauma is clearly associated with psychological dissociation–a failure to integrate cognitive, behavioural and emotional aspects of experience. However, there is also evidence that trauma results in somatoform dissociation, where the individual fails to process somatic experiences adequately. Somatoform dissociation is linked to a number of psychiatric disorders that are relatively resistant to treatment. The present study addresses the hypothesis that somatoform dissociation will be associated specifically with childhood trauma that involves physical contact, rather than with non-contact forms of trauma.

Methods: An unselected clinical group of 72 psychiatric patients completed standardized measures of childhood trauma, psychological dissociation, and somatoform dissociation.

Results: The findings supported the hypothesis, with a specific link between somatoform dissociation and the severity of reported childhood trauma involving physical contact or injury. In contrast, psychological dissociation was associated with a wider range of non-contact trauma.

Conclusions: Somatoform dissociation can be understood as a set of adaptive psychophysiologic responses to trauma where there is a threat of inescapable physical injury. Those responses are related to a range of psychiatric disorders, and are likely to interfere with treatment of those disorders. Clinicians may need to assess the nature and severity of childhood trauma and somatoform dissociation when there are high levels of somatic symptoms within psychiatric disorders that cannot be explained medically. Further research is needed to determine methods of treating somatoform dissociation, especially in the context of a history of trauma involving physical contact or injury. *[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.Haworth Press.com>* *© 2000 by The Haworth Press, Inc. All rights reserved.]*

KEYWORDS. Dissociation, somatoform disorders, childhood trauma

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Dissociation has received much attention over the past decade, particularly due to its potential role in explaining the impact of trauma upon psychiatric and psychological distress (e.g., Lipschitz, Kaplan, Sorkenn, Chorney, & Asnis, 1996; Spiegel & Cardeña, 1991). Functionally, its pathological form can be seen as both defensive and adaptive in some circumstances, allowing the individual to avoid processing or integrating information that is intolerable and inescapable. However, dissociation is not always adaptive (Cardeña, 1994). For example, it is increasingly clear that peritraumatic dissociation is best understood as a risk factor for the development of further pathology and for the experience of re-victimization (e.g., Spiegel, Koopman, Cardeña, & Classen, 1996).

Van der Hart, Van der Kolk, and Boon (1996) suggest that pathological dissociation can be divided into three forms. In primary dissociation, a traumatic experience is processed in parts, rather than as an integrated whole. Secondary dissociation ("peritraumatic"; Griffin, Resick, & Mechanic, 1997) involves the individual perceiving an event without experiencing the full emotional impact at the time. Finally, tertiary dissociation involves the development of separate identities, each of which contains emotional and cognitive material that is unavailable (or only partially available) to the others. This distinction has recently been refined (Nijenhuis & Van der Hart, 1999), to focus on the psychological dysfunctions involved in each form. Thus, in this formulation, primary dissociation involves traumatic experiences being seen as isolated from the individual (e.g., experienced only as flashbacks), rather than as isolated from each other (as suggested by Van der Hart et al., 1996). Secondary dissociation is seen where there is a division of the components of an experience (e.g., remembering a trauma without the affective component). Finally, tertiary dissociation involves the formation of distinct ego states. In terms of Beck's (1996) cognitive model of personality, these ego states can be defined as distinct schema modes.

Dissociative processes have been demonstrated to be a critical element of several complex psychiatric disorders that are difficult to treat effectively, such as dissociative identity disorder, post-traumatic stress disorder and borderline personality disorder (e.g., Carlson & Putnam, 1993; Putnam, Carlson, Ross et al., 1996). Dissociation also appears to underpin many cases of extreme and intractable impulsive behaviours, such as self-harm, substance misuse and bulimia (e.g., Vanderlinden & Vandereycken, 1997). This lack of therapeutic efficacy stresses the importance both of understanding dissociation more fully and of developing appropriate treatment methods.

Psychological dissociation[1] has a range of cognitive, affective and behavioural manifestations, including amnesia, depersonalization, derealization, identity confusion, loss of control over behaviour, and identity alteration (e.g., Steinberg, 1995; Vanderlinden, 1993). However, recent work has proposed that it is also necessary to understand the somatic manifestations of dissociation (Nijenhuis, Spinhoven, Vanderlinden, Van Dyck, & Van der Hart, 1998), particularly given that psychological dissociative phenomena are strongly associated with somatization (e.g., Farley & Keaney, 1997; Nemiah, 1991; Van der Kolk et al., 1996). This is not an entirely new suggestion, since the somatic element had been inherent in some earlier models of dissociation (e.g., Braun, 1988; Janet, 1893, 1901/1977; Van der Hart, Van Dyke, Van Son, & Steele, 2000, this issue), but the construct of somatoform dissociation has only recently been the subject of more specific research inquiry.

Within a cognitive model of personality (e.g., Beck, 1996), somatoform dissociation can be defined as the failure to fully integrate the somatic com-

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ponents of experience (Nijenhuis, Spinhoven, Vanderlinden, Van Dyck, & Van der Hart, 1998). Where no such dissociation takes place, it is normal for the individual to integrate somatic experiences with each other and with the relevant cognitive, behavioural and emotional experiences. Such integration normally takes place both within and between personality modes (Beck, 1996). However, there are some circumstances where there is functional value in failing to integrate somatic information with other experiences (e.g., in the case of trauma–Nijenhuis, Spinhoven, Vanderlinden, Van Dyck, & Van der Hart, 1998). In these cases, somatoform dissociation can manifest as negative somatic experiences (the absence of somatic experience, such as analgesia, disturbance of perceptual skills, and anaesthesia) and/or positive somatic experiences (heightened somatic experiences, such as pain or motor activity).

This pattern of somatic response is very similar to the responses seen in two related contexts where there is an inability to escape physical injury (and hence where there is functional utility in an internalized escape mechanism). The first comparable situation is the survival value of responses such as freezing and avoidance where there is a predatory risk in naturalistic situations (e.g., Nijenhuis et al., 1998). The second situation is the responses shown by animals in learned helplessness paradigms, where the uncontrollability and unpredictability of an aversive stimulus (e.g., a shock) leads to similar patterns of analgesia and avoidance (e.g., Foa, Zinbarg, & Rothbaum, 1992). In both cases, it has been suggested that understanding these responses may be critical in explaining the somatic component of post-traumatic stress reactions (e.g., Van der Kolk, Greenberg, Boyd, & Krystal, 1985). These findings are compatible with research that demonstrates lowered physiologic responsivity in individuals with a history of trauma (e.g., Carrey, Butter, Persinger, & Bialek, 1995; Griffin et al., 1997).

It has already been suggested that dissociation is strongly related to a reported history of trauma, since it may have the functional utility of avoiding processing the cognitive and emotional consequences of an event that was itself perceived as unavoidable. Indeed, Putnam (1989) has suggested that the inability to protect oneself through fight or flight is one of three key precursors to dissociation. There is now considerable empirical evidence to support the trauma-dissociation link, among both psychiatric and non-psychiatric populations (e.g., Irwin, 1994; Shearer, 1994; Waldinger, Swett, Frank, & Miller, 1994). While the majority of the research conducted to date has examined whether there is a role for childhood sexual abuse (e.g., Anderson, Yasenik, & Ross, 1993; Winfield, George, Swartz, & Blazer, 1990), there is also evidence that psychological dissociation is elevated in individuals who have experienced other forms of abuse (e.g., Chu & Dill, 1990; Lipschitz et al., 1996). However, there is little specificity in this literature. In particular,

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there is little to suggest whether different forms of trauma are related to different aspects of dissociation. While different forms of trauma are often impossible to disentangle fully, they can be distinguished at some levels (e.g., Maxfield & Widom, 1996; Widom, 1999). Of particular relevance to the issue of types of dissociative avoidance is the presence or absence of physical contact and unavoidable physical injury.

Given the models of dissociation outlined above, it can be hypothesized that somatoform dissociation is more likely when it may serve the defensive function of preparing the individual for inescapable physical injury or the threat of such injury. This leads to the prediction that somatoform dissociation will be linked specifically with forms of trauma that involve physical injury or the threat of such injury (physical and sexual abuse), whereas psychological dissociation will be related to a broader set of forms of trauma (including neglect and emotional abuse). Nijenhuis, Spinhoven, Van Dyck, Van der Hart, and Vanderlinden (1998a) have offered some preliminary support for this hypothesis among patients with dissociative disorders, and Nijenhuis (1999) has confirmed that physical abuse and threat are associated with somatoform rather than psychological dissociation in a group of women reporting chronic physical pain (see also the paper by Nijenhuis, 2000, this issue). However, it is important to determine whether these findings hold true for the broad range of psychiatric patients, whether neglect plays a role (as opposed to more active forms of abuse), and whether the severity of any trauma is a relevant factor.

The aim of this study of a general clinical sample of psychiatric patients was to determine whether different forms of reported childhood trauma are related to different forms of dissociation (psychological and somatoform) in adulthood. The literature allows for the prediction that dissociation in general will be greater among patients who have experienced more severe trauma. More specifically, in keeping with the different functional utilities of these two forms of dissociative (avoidant) coping, it was hypothesised that abuse involving physical contact or injury is specifically related to somatoform dissociation more than to psychological dissociation.

METHOD

Participants

The hypotheses are not specific to particular clinical groups, but relate to a broader psychobiological model. Therefore, an unselected clinical sample was used, in order to examine the role of different forms of dissociation among a range of patients with mental health problems. There was no prelim-

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inary screening for suitability on the basis of a history of trauma, since this would limit the range of patients to whom the findings are applicable. The only groups who were excluded were those with a psychotic disorder or with learning disabilities (cognitive mental handicap). The participants were an unselected group of 72 adult patients (mean age = 34.2 years; *SD* = 10.3; range = 18-56), who were attending one of a number of local Clinical Psychology services in the United Kingdom for patients with mental health problems. The sample included 15 men and 57 women. All were assessed clinically, and received at least one DSM-IV diagnosis (American Psychiatric Association, 1994), including Axis I and/or II disorders. Those diagnoses included: anxiety, phobias, depression, posttraumatic stress disorder, anorexia nervosa, bulimia nervosa, alcohol abuse, and borderline personality disorder. None were referred for treatment of dissociative disorders. All patients completed a consent form, and the project received ethical approval from both the relevant multi-site research ethics committee and the individual ethics committees in the localities where the data were collected.

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Measures and Procedure

Each patient was approached by his or her clinician during assessment, and was asked to participate in the study. Those who agreed to take part completed three standardized questionnaires, in the order given below. These measures assessed: psychological dissociation, somatoform dissociation, and the presence and severity of reported childhood trauma.

Dissociative Experiences Scale-Revised version (DES-II; Carlson & Putnam, 1993). This 28-item self-report scale reflects severity of psychological dissociation, addressing frequency of experiences of amnesia (e.g., gaps in memory), absorption (level of focus on internal or external cues), and depersonalization/derealization (impairments in sensing that the self or the world is real). Each item is rated on a 0%-100% scale, and the individual's score (range = 0-100) is the mean score of the 28 items. Higher scores indicate greater levels of psychological dissociation. In their review of the DES, Carlson and Putnam (1993) have concluded that it has good overall psychometric properties but that it lacks a consistent sub-scale structure. In particular, there is some debate as to whether absorption is a pathological construct, or simply a variant of normal experience (e.g., Putnam et al., 1996). Therefore, psychological dissociation (at least as measured by the DES-II) is probably best understood as a relatively global construct.

Somatoform Dissociation Questionnaire (SDQ-20; Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1996). The SDQ-20 is a measure of somatoform dissociation. The 20 items reflect the presence and severity of somatic features (e.g., analgesia, pain) that have been hypothesized to be biologically-driven responses to imminent and inescapable physical threat

(Nijenhuis et al., 1998). Each item is rated on a five-point Likert scale. Higher total scores indicate greater levels of somatoform dissociation. Nijenhuis and colleagues have shown that the scale has acceptable psychometric characteristics, including good internal consistency, concurrent validity, and convergent validity (Nijenhuis, Spinhoven, Van Dyck et al., 1998b; Nijenhuis, Van Dyck, Spinhoven et al., 1999).

Child Abuse and Trauma Scale (CATS; Sanders & Becker-Lausen, 1995). The CATS is a 38-item questionnaire that measures subjective reports of childhood emotional abuse, neglect, physical abuse and sexual abuse. Participants are required to indicate on a 0-4 scale (0 = never; 4 = always) how frequently each of a range of traumatic experiences happened to them during their childhood and adolescence. The presence of any such history is indicated by a response above zero on any item. Given the nature of such a scoring system, the CATS tends to return very high prevalence rates for the simple presence of most forms of trauma (e.g., Hartt & Waller, in press), with the exception of sexual abuse (although this rate is still comparatively high). Therefore, the scale has greater utility in its original conception as a dimensional measure of trauma. Higher scores reflect more frequent abusive experiences, acting as an index of *severity* of trauma. The validity and reliability of the CATS has been documented (Sanders & Becker-Lausen, 1995). The original version of this scale (Sanders & Becker-Lausen, 1995) yields a total score and individual scores on three sub-scales: negative home atmosphere/neglect (*Neglect*: 14 items); physical abuse/punishment (*Physical abuse*: six items); and sexual abuse (*Sexual abuse*: six items). On each sub-scale, the participant's score is the mean of the items in that scale. Subsequently, Kent and Waller (1998) have created a further emotional abuse sub-scale (*Emotional abuse*: seven items), made up of six CATS items not used in other sub-scales and one item that is also included in the Neglect sub-scale. The items in this sub-scale have high face validity for the construct of childhood emotional abuse, and acceptable levels of internal consistency and concurrent validity (Kent & Waller, 1998).

All four CATS sub-scales were used in the present study, in order to allow assessment of the four types of reported child trauma discussed in the hypotheses. Two further scores were calculated, dividing forms of trauma that do or do not involve actual or threatened physical injury. The first was the total score from the CATS Physical and Sexual abuse sub-scales, and the second was the total of the scores on the Neglect and Emotional abuse sub-scales. The regression analyses involving this second concatenated scale were run twice, with and without the double-counted item (see above), but there was no difference in the outcomes. Therefore, the existing versions of the scales were used in the analyses that are reported here, to aid replicability.

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Data Analysis

Homogeneity of variance tests showed that the data were well enough distributed to allow for the use of parametric analyses throughout. Initially, the internal consistency of the items in the DES-II and SDQ-20 were analysed (using Cronbach's *alpha*), to determine whether these measures were reflecting sufficiently cohesive constructs in this mixed clinical group. Then, male and female patients' scores were compared on the DES-II, SDQ-20 and CATS (using two-tailed t-tests), in order to determine whether the genders needed to be considered separately in addressing the hypothesis. Finally, in order to test the hypotheses, Pearson's r correlations were carried out between the patients' dissociation levels (DES-II and SDQ-20) and their reported severity of trauma. Thereafter, multiple regressions were used to determine whether somatoform dissociation was more strongly related to forms of trauma involving physical contact than to forms not involving physical contact. Finally, t-tests and Pearson's correlations were used to elucidate the links between sexual abuse and dissociation. All of these final analyses were one-tailed, in keeping with the hypothesized positive relationship between trauma and dissociation.

RESULTS

Characteristics of the Measures

The internal consistencies of the two measures of dissociation were established using Cronbach's *alpha*. The DES-II had high levels of reliability among men (*alpha* = .94), women (*alpha* = .95) and the group as a whole (*alpha* = .95). The SDQ-20 had slightly lower but equally satisfactory levels of consistency for men (*alpha* = .87), women (*alpha* = .91) and the whole group (*alpha* = .90). Therefore, consistent with previous literature (e.g., Carlson & Putnam, 1993; Nijenhuis et al., 1996), it appears that these measures assess relatively unitary, consistent constructs. While the DES-II and SDQ-20 were significantly intercorrelated, the moderate strength of that association (one-tailed Pearson's $r = .51$, $p < .001$) demonstrates that they measure constructs that are far from completely overlapping.

Characteristics of the Clinical Sample

Table 1 shows the patients' characteristics, including their mean ages, mean scores on the dissociation measures (DES-II and SDQ-20) and mean scores on the measure of reported childhood trauma (CATS). The scores are given

TABLE 1. Levels of Dissociation (DES-II and SDQ-20) and Reported Trauma (CATS) for Male and Female Patients

	Gender					
	Males		Females		*t*-test	
	Mean	*(SD)*	*Mean*	*(SD)*	*t*	*p*
N Subjects	15		57			
Age (years)	36.3	(9.49)	34.2	(10.6)	0.66	*NS*
DES-II scores	23.9	(16.5)	19.6	(16.6)	0.89	*NS*
SDQ-20 scores	31.1	(13.5)	26.9	(12.9)	1.12	*NS*
CATS scores						
Total	1.59	(0.78)	1.87	(0.75)	1.26	*NS*
Sexual abuse	0.63	(0.71)	0.94	(0.96)	1.18	*NS*
Physical abuse	1.94	(0.94)	2.14	(0.79)	0.83	*NS*
Neglect	1.88	(0.91)	2.14	(0.81)	1.09	*NS*
Emotional abuse	1.78	(1.05)	2.24	(0.98)	1.60	*NS*

separately for males and females, in order to determine whether gender needs to be considered as a factor in subsequent analyses. The Table also shows the results of t-tests (two-tailed), used to compare the men and women. The scores for the two groups were broadly comparable. The DES-II scores were in line with existing normative data (e.g., Carlson & Putnam, 1993). The SDQ-20 scores fell between those reported by psychiatric patients with a dissociative disorder and those with a non-dissociative disorder (Nijenhuis et al., 1996), as would be expected given that this group was not selected for dissociative disorders. Although the men tended to score higher on measures of dissociation and the women tended to score higher on the trauma scales, none of these differences even approached significance. Therefore, the correlational and regression analyses (below) were carried out for the group as a whole.

Association of Reported Childhood Trauma with Different Forms of Dissociation

Table 2 shows the bivariate correlations (one-tailed Pearson's *r*) between the measure of childhood trauma (CATS) and the measures of psychological dissociation (DES-II) and somatoform dissociation (SDQ-20). Given that age was significantly positively correlated with one of the CATS measures (Physi-

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TABLE 2. Association of Childhood Trauma (CATS) with Levels of Dissociation (DES-II and SDQ-20)

Variable	Age	DES-II scores		SDQ-20 scores	
Type of correlation	Bivariate	Bivariate	Partial	Bivariate	Partial
Age	–	□.04	–	.13	–
CATS scores					
Total	.11	.27*	.28**	.32**	.30**
Sexual abuse	.17	.25*	.24*	.29**	.28**
Physical abuse	.23*	.13	.15	.26*	.24*
Neglect	.02	.27*	.28**	.29**	.28**
Emotional abuse	□.01	.31**	.31**	.24*	.24*

* $p < .05$; ** $p < .01$

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cal abuse), the analyses were repeated, partialling out the effect of age. This correction made no difference to the outcome (Table 2), so the results will be discussed with reference to the general pattern of correlations. Overall, there was a positive relationship between reported levels of childhood trauma and dissociation. However, the findings partly support the hypothesis of a more specific association between somatoform dissociation and physical abuse, as suggested by Nijenhuis and his colleagues (Nijenhuis et al., 1998a). Reported severity of childhood neglect, sexual abuse or emotional abuse were each significantly associated with both psychological and somatoform dissociation, while a history of physical abuse was significantly associated only with somatoform dissociation.

The Specific Role of Abuse Involving No-Physical vs. Physical Contact

Multiple regression analyses (simultaneous entry method) were used to test the hypothesis that contact-based forms of childhood trauma have a greater impact on somatoform dissociation than non-contact trauma. Severity of "contact trauma" was defined as the mean score on the CATS items that clearly require physical contact in order to be endorsed (e.g., "Did your parents ever hit or beat you when you did not expect it?"). This scale consisted of items 12, 17, 21, 34 and 37, and the group had a mean item score of 1.26 (SD = 1.16). Severity of "non-contact trauma" was defined as the mean score on CATS items that clearly do not involve physical contact (e.g., "As a child did you feel unwanted or emotionally neglected?"). This scale (items 1, 2, 3, 4, 5, 7, 8, 10, 11, 14, 16, 18, 19, 22, 24, 25, 27, 28, 30, 31, 32, 33, 36 & 38) yielded a mean item score of 2.10 (SD = 0.63). Finally, an "ambiguous"

scale (items 6, 9, 13, 15, 20, 26, 29 & 35; mean item score = 1.27; *SD* = 0.81) was created from those items where it was not possible to be clear about whether physical contact was likely to be involved in the trauma. This scale included only items where the definition clearly excluded physical contact (e.g., watching sexual activity) or where the activity need not have involved physical contact (e.g., "Before you were 14, did you engage in any sexual activity with an adult?," which could equally have involved being made to watch pornography).

Three multiple regressions were carried out, each using the two forms of dissociation (DES and SDQ-20 scores) as independent variables to determine their association with the specific form of trauma. For links between dissociation and contact trauma, there was a significant overall effect ($F = 4.20$, $p < .05$, beta = 0.238, explained variance = 4.3%) due to a specific association with SDQ-20 scores ($t = 2.05$, $p < .05$) but no significant effect with DES-II scores ($t = 1.04$, *NS*). In contrast, there were significant links between dissociation and both non-contact trauma ($F = 4.79$, $p < .02$, beta = 0.227, explained variance = 9.7%) and ambiguous trauma ($F = 5.16$, $p < .01$, beta = 0.255, explained variance = 10.5%), but those links were due to specific associations with DES-II scores ($t > 2.00$, $p < .05$ in both cases) rather than SDQ-20 scores ($t < 1.40$, *NS* in both cases). To summarise, these findings support the hypothesis of relatively specific links between forms of trauma and forms of dissociation. Somatoform dissociation (SDQ-20 scores) was the stronger correlate of trauma that involved physical contact, whereas psychological dissociation (DES-II scores) was the stronger correlate of non-contact trauma.

Elucidating the Impact of the Reported Presence and Severity of Sexual Abuse

Most of the participants reported at least some form of physical abuse, emotional abuse and neglect. Only the Sexual abuse scale yielded a substantial number of patients who reported no history of trauma (i.e., scored 0 on the scale). Therefore, the picture regarding the link with a reported history of sexual abuse can be elaborated, in order to determine whether the findings are generalizable across those who did and did not report such trauma. Initially, DES-II and SDQ-20 scores were compared across those who reported no childhood sexual abuse ($N = 23$) and those who reported such abuse ($N = 49$). As shown by previous research using the CATS (Becker-Lausen, Sanders, & Chinsky, 1995), the patients who reported sexual abuse had substantially higher levels of psychological dissociation (mean DES-II score = 23.6; *SD* = 16.7) than the patients reporting no abuse (mean score = 14.0; *SD* = 14.6), and that difference was statistically significant (one-tailed $t = 2.36$; $p < .02$). In contrast, there was only a small, non-significant difference (one-tailed t =

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0.69; *NS*) between levels of somatoform dissociation of those who reported sexual abuse and those who did not (mean SDQ-20 scores = 28.5 [*SD* = 14.4] and 26.2 [*SD* = 9.36], respectively).

Since three items on the SDQ-20 (numbers 5, 7, 12) refer directly to dissociative symptoms involving the genito-urinary tract (e.g., pain while urinating), it can be hypothesised that scores on these items ARE positively associated with sexual abuse. Scores on these three SDQ-20 items were compared between those women with no history of sexual abuse (mean = 1.27; *SD* = 0.43) and those who reported such a history (mean = 1.35; *SD* = 0.75). Although the difference was in the predicted direction, it did not approach significance ($t = 0.48$; $p > .1$). This level of genito-urinary symptoms was also correlated (two-tailed Pearson's r) with the four CATS scales, and was shown to be significantly associated with the physical abuse scale ($r = .28$, $p < .03$) and the neglect scale ($r = .25$, $p < .05$), but not with the sexual abuse scale ($r = .18$, *NS*) or the emotional abuse scale ($r = .17$, *NS*). Therefore, these data do not support the hypothesis of a specific link between reported sexual abuse and genito-urinary somatoform dissociative features.

From these findings, it appears that the link between the presence of sexual abuse and psychological dissociation is more powerful than the link with somatoform dissociation. However, when considering only the 49 patients who reported any sexual abuse, an alternative conclusion is suggested by the associations between the severity of sexual abuse and the measures of dissociation. While SDQ-20 scores were positively and significantly correlated with CATS sexual abuse scores (Pearson's $r = .34$; $p < .01$), there was no such association of CATS sexual abuse and DES-II scores (Pearson's $r = .11$; *NS*). These findings were unaffected when the impact of age was partialled out of the correlations (SDQ-20–$r = .30$, $p < .025$; DES-II–$r = .13$, *NS*). When the two forms of dissociation were used as independent variables in a multiple regression, they were significantly associated with severity of sexual abuse ($F = 6.29$, $p < .02$, beta = 0.380, explained variance = 9.9%). However, this overall association was due to a specific link with SDQ-20 scores ($t = 2.51$, $p < .02$) but not with DES-II scores ($t = 0.47$, *NS*). There was no significant correlation of scores on the CATS sexual abuse scale and on the three SDQ-20 genito-urinary items ($r = .20$, *NS*).

Therefore, it appears that the correlations between dissociation and reported childhood sexual abuse that emerged from the group as a whole require different explanations, according to the form of dissociation involved. For psychological dissociation (as reflected by the DES-II), the most consistent model is one where a greater level of dissociation is a categorical response to the presence or absence of childhood sexual abuse, but is not additionally influenced by the degree of the trauma. In contrast, somatoform

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dissociation (SDQ-20) appears to be a response that varies with the severity of sexually abusive experiences.

DISCUSSION

It has previously been established that there is a link between reported childhood trauma and psychological dissociation in adulthood (e.g., Spiegel & Cardeña, 1991). This study of a general group of psychiatric patients has investigated whether this association can be understood more clearly by considering proposed functional links between different types of childhood trauma (recalled in adulthood) and different forms of dissociation. These findings offer substantial support for the hypothesis that contact-based abuse has a more specific link with somatoform dissociation than other forms of trauma, repeating and extending the findings of Nijenhuis et al. (1998a). Measured dimensionally, severity of physical abuse was associated with somatoform dissociation but not with psychological dissociation. In contrast, severity of neglect, sexual abuse and emotional abuse was linked more broadly with each form of dissociation. Multiple regression analyses showed that the link between different forms of trauma (contact vs. non-contact) was reflected in the pattern of dissociation (somatoform vs. psychological) that the individual reported.

These findings confirm the importance of distinguishing somatoform dissociation when considering how traumatised individuals process (or fail to process) information. While psychological dissociation has proven to be a valuable construct in understanding responses to trauma (e.g, Carlson & Putnam, 1993; Chu & Dill, 1990; Griffin et al., 1997; Irwin, 1994), it has not adequately explained the somatic correlates of trauma (Nemiah, 1991; Van der Kolk et al., 1996). With its focus on the importance of mechanisms of adaptation to inescapable physical threat, somatoform dissociation has clear links to the constructs of freezing, anaesthesia/analgesia, avoidance and learned helplessness (Foa et al., 1992; Nijenhuis et al., 1996, 1998). The present research clearly indicates that such responses are more strongly linked to forms of childhood trauma involving physical contact or the threat of such contact. Therefore, in psychiatric cases where the individual reports a high level of somatic symptoms that cannot be explained medically or as an effect of substance use, it will be important to ask about a range of childhood traumatic experiences and to determine whether the individual's level of somatoform dissociation might serve as an explanatory link between the two phenomena. In the case of reported childhood sexual abuse, it will be important to evaluate the severity of that abuse as well as its simple presence, since it appears that severity is the better predictor of somatoform dissociation.

Lipschitz et al. (1996) suggest that trauma in childhood and adulthood

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have similar impacts upon psychological dissociation in adulthood, while persistent trauma across both childhood and adulthood results in greater levels of such dissociation. It remains to be determined whether the effect of trauma in adulthood has the same impact upon somatoform dissociation as childhood trauma, and whether there is a comparable impact of persistent trauma across the lifespan. This may depend upon whether any impact of early trauma upon neurological structures has a greater relevance to somatoform or psychological dissociation.

The present findings support the utility of the SDQ-20 (Nijenhuis et al., 1996) as a research measure of somatoform dissociation. It would be particularly valuable to compare the levels and psychopathological correlates of different forms of dissociation across a larger sample of males and females, given that the men in the present study had slightly higher levels of both forms of dissociation. In addition, the use of prospective designs and more clearly differentiated clinical groups would make it easier to reach causal conclusions about the trauma-dissociation links shown here. Longer-term, it would be valuable to determine whether different forms of dissociation have links to specific patterns of neurological development, given the suggestion that early trauma has a particular impact on the architecture and function of the developing brain (e.g., Perry & Marcellus, 1997; Van der Kolk, 1994).

Clinically, these findings may be particularly applicable to individuals with disorders (e.g., somatoform disorders, chronic posttraumatic stress responses, borderline personality disorder) that are relatively resistant to treatment due to their link with dissociation. Therefore, it is important to consider how much of an impact trauma-based somatoform dissociation may have on treatment response. That impact might best be understood by considering the evidence of a link between trauma, dissociation and levels of psychobiological reactivity. For example, Carrey et al. (1995) and Griffin et al. (1997) have shown that dissociation is associated with a subsequent suppression of autonomic physiological responses (e.g., skin conductance, heart rate), particularly when recalling the trauma. Nijenhuis and Van der Hart (1999) have suggested that primary dissociation is a product of a failure to integrate the "apparently normal" personality (which serves the function of allowing the individual to operate without awareness of the affective consequences of trauma) with the "emotional" personality (which is aware of those consequences). Using this concept, Nijenhuis, Quak, and colleagues (1999) have shown that following exposure to traumatic memory scripts and when manifesting an "emotional" personality, patients with dissociative identity disorder had increases of blood pressure and heart rate frequency, and decreases of heart rate variability. However, these physiological effects were absent when they remained as an "apparently normal" personality, or when they were

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exposed to neutral autobiographical memories in either dissociative personality.

This failure to evoke normal physiological responses in cases of dissociated personality means that exposure-based treatments may be less effective in dissociative individuals than in non-dissociative patients, since any habituation or extinction component will not have its normal impact upon the physiological component of the disorders. The same conclusion may hold true for any physical treatment that depends upon a reduction in physiological responsivity (e.g., beta-blocking agents). Somatoform dissociation may also impair the impact of cognitive treatments in anxiety-based disorders, since these treatments depend upon the individual's capacity to identify somatic processes and events appropriately. Therefore, as with the psychological form of dissociation (Kennerley, 1996), relief of somatoform dissociation may be a critical precursor to the successful treatment of a number of trauma-related psychiatric disorders that are relatively intractable.

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NOTE

1. In keeping with existing definitions (Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1998a), the term "psychological dissociation" will be used to describe cognitive, behavioural and emotional manifestations reflected in the existing literature on dissociation. "Somatoform dissociation" will be used to define somatic dissociative manifestations.

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