Psychiatric Disorders and Traumatic Life Events

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Abstract

Objective: This study investigates if participants diagnosed with psychiatric disorders report more traumatic life events and score higher on dissociative symptoms than participants without psychiatric disorders.
Method: A structured interview regarding traumatic life events and the German version of the Dissociative Experience Scale was administered to 105 psychiatric patients, subdivided into three clinical groups (patients with borderline personality, anxiety, and somatoform disorders), and 72 healthy persons (control group).
Results: Participants from all three clinical groups reported significantly more traumatic life events than participants of the non-clinical control group, and showed statistically significant higher scores for dissociative symptoms. Physical abuse such as repeated beatings by caregivers as a method of child rearing had markedly elevated levels for all three clinical groups as compared with the control group. The borderline personality disorder group reported the highest incidence of sexual abuse, and showed the highest scores on dissociative symptoms, exceeding both of the other patient groups.
Conclusions Repeated physical and sexual abuse in childhood are severe traumatic life events and play an important role for mental health. To allow us to make conclusions about the impact of traumatic experiences on psychiatric disorders further prospective and controlled studies are planned and are expected to complement and confirm these results (German J Psychiatry 2004; 7 (3): 28-34).

Keywords: dissociative symptoms, physical abuse, sexual abuse, psychotraumatology, traumatic stress

Introduction

In the aetiology of various psychiatric disorders, the impact of psychological trauma – as well as biological considerations – is mentioned throughout the history of psychiatry.

Traumatic events as defined by the American Psychiatric Association (1994) are events outside the range of usual human experience, and are experienced with intense fear, terror, and helplessness. The psychiatric diagnostic nomenclature (DSM-IV) also emphasizes the life-threatening nature of traumatic events with consequences on emotional, behavioural, and physiological levels.

Dissociation is a common response during traumatic events, and clinical research points to the association between traumatic life events and dissociative symptoms (Saxe et al., 1993; Spitzer et al., 1997). Dissociative symptoms are defined as a "disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment" (American Psychiatric Association, 1994). According to ICD-10 (1994) pseudo-neurological conversion disorders are included as dissociative movement disorders, convulsion and sensory loss. The organism reacts to overwhelming experiences and show that traumatic memories may be expressed in sensory perceptions, affect states, and behavioural re-enactments (Van der Kolk et al., 1989).

In recent years, several studies document cases involving patients with personality disorders who experience a large number of traumatic events during childhood, particularly patients in the borderline category (Herman et al., 1989; Ogata et al., 1990; Goldman et al., 1992; Zweig-Frank et al., 1994; Sabo, 1997; Zanarini et al., 1997; Trull, 2001; Yen et

al., 2002). Research also indicates that traumatic events can cause other types of personality disorders (Carlier et al., 2000; Johnson et al., 2000; Bandelow et al; 2002), and that developing a wide spectrum of mental diseases is the patient's way of coping with a traumatic event (Van der Kolk et al., 1996). Some researcher mention genetic influences (Torgersen et al., 2000; Stein et al., 2004), as well as neuropsychological deficits (Zelkowitz et al., 2001; Bandelow et al., 2002; Fossati et al., 2002) as possible factors for developing mental disorders.

Prolonged childhood abuse appears to be one major factor for developing psychiatric or personality disorders (Stein et al., 1996; Young et al., 1997; Mulder et al., 1998; Grilo et al., 1999; Johnson et al., 1999; Chartier et al., 2001; Safren et al., 2002). Particularly, chronic abuse of children from early age by their caregivers is related to the development of high levels of dissociative symptoms including amnesia for memories of abuse (Van der Kolk, 1996; Bremner and Brett, 1997; Chu et al., 1999; Draijer and Langeland, 1999; Spitzer et al., 2000; Zanarini et al., 2000; Timmerman et al., 2001).

It is assumed that different types of traumas have different consequences. Acute, circumscribed traumas may create a particular risk of uncomplicated PTSD, whereas cumulative stressors may lead to the recruitment of other psychiatric disorders such as depression and panic disorders (van der Kolk, 1996). The nature of the stressors can also be considered as a central issue. Chronic child abuse by caregivers is different from other chronic traumas in adulthood because the child has to cope with being in a dependent relation. Childhood abuse and related traumas therefore have a much greater potential to disrupt stable relationship, and the development of appropriate ways of expressing affection and tolerating intense emotion, than a circumscribed traumatic event (McFarlane and de Girolamo, 1996).

The present study was designed to investigate whether patients diagnosed with psychiatric disorders report more traumatic life events and score higher on dissociative symptoms than healthy individuals.

Furthermore, we wanted to find out if the psychiatric groups differ by the type of traumatic life events they report.

Methods

Participants

For this study, 105 psychiatric patients and a non-psychiatric group of 72 healthy persons were chosen. Participants in the patient group were recruited from different psychiatric hospitals and divided into three subgroups according to the disorders they suffer. 41 participants diagnosed with borderline personality disorder, 42 patients with anxiety disorder (this subgroup consist of 32 persons with panic disorders and 10 persons with generalized anxiety disorders due to the small sample size), and 22 patients with somatoform disorder. All these patients were outdoor patients who contacted doctors for their psychological problems. They did not par-

ticularly seek professional help for experienced traumatic events. For none of these patients PTSD was diagnosed.

Psychiatrists and psychotherapists selected participants in the control group. This group consists of 72 non-clinical adults who reported themselves as emotional healthy and for whom no psychiatric diagnoses could be found.

All participants in this study were diagnosed by an experienced psychiatrist in accordance with ICD-10, German version. Diagnoses were assessed by SCID.

The participants' gender was balanced in the control group (36 men, 36 women), but varied across the three clinical groups: 7 men (2 general anxiety disorder, 5 panic disorder) and 35 women (8 general anxiety disorder, 27 panic disorder) in the anxiety disorder group, 7 men and 34 women in the borderline personality disorder group, and 8 men and 14 women in the somatoform disorder group. Thus, the participants' gender-ratio differed significantly across these four groups ($\chi^2 = 19.36$; df = 3; p < 0.001).

Instruments

Each person who agreed to take part in this study was interviewed about the prevalence of traumatic life events. The questions in this interview were designed for the purpose of this study. According to McFarlane and Girolamo (1996), we chose two types of trauma: (a) time-limited events experienced either in childhood or later in life such as accidents and catastrophe, or surprise attacks by perpetrators; (b) long-lasting exposure to danger in childhood, such as repeated intra-familial physical abuse and/or sexual abuse.

Physical abuse was defined as severe aggression carried out by an adult against a child. Sexual abuse was seen as any sexual contact forced upon a child by an adult. Accidents were defined as events like motor vehicle accidents or other misadventures with injuries, and catastrophic events were seen as situations where a person is at the mercy of an uncontrollable situation like an attack, war experience, or environmental disaster.

Beside the structured interview regarding traumatic life events, the German version (FDS) of the Dissociative Experience Scale (DES) (Freyberger et al., 1998), which was developed to quantify dissociative phenomena, was administered to all participants. The FDS is a valuable screening instrument for dissociative psychopathology in German-speaking countries (Spitzer et al., 1998). While the original DES scale has 28 items, the German version consists of 44 items to screen for dissociation within an ICD-10 framework. This is because the original DES covers three different dissociative dimensions: amnestic dissociation, absorption, and depersonalization. Additionally the German adaptation includes another dimension, pseudo-neurological conversion symptoms. FDS scores range from 0 to 100, with 0 representing the complete absence of dissociative experiences and 100 representing constant dissociative experiences (Carlson and Putnam, 1993).

Procedure

The 105 clinical and 72 non-clinical participants who met the participation criteria for this research where informed about the procedure of the study. Participation in this study was of free will and written informed consent was obtained from all participants.

The structured interview was conducted along with the Dissociative Symptoms Scale (FDS). Research data were kept strictly confidential and cannot be linked to the patient's name.

Data Analysis

Group differences for the FDS score were analyzed with Kruskal-Wallis rank analysis of variance and post-hoc U-tests with Bonferroni-correction because of the heterogeneity of variances. Taking into account the different proportions of gender in the clinical compared to the non-clinical sample, the additional influence of the gender was only analysed according to the clinical population. Because of the heterogeneity of the variances the total FDS score was ranked and then a 2 (gender) x 3 (clinical groups) between subjects analysis of variance model was performed on the ranked FDS score. In trying to evaluate the predictive power of the traumatic life events for each group, binary logistic regression was applied and classification results as well as odd-ratios were given. Differences in the proportions of traumatic life events (physical abuse, sexual abuse, accidents, and physical assaults) between persons with and without disorders were analysed using 2 x 2 contingency tables, whereas the intra-difference of proportions according to the three clinical samples were analysed using separate contingency tables. In case of more than 20% of the cells having expected frequencies less than 5, the correction by Gart was applied. Significant over- or under-representations were assessed by standardized residuals. In all analyses $p < 0.05$ was considered statistically significant.

Results

The following traumatic events were reported in the interview: (1) *Time limited events:* Motor vehicle accidents with injuries, and physical assault in adulthood by an unknown perpetrator, and (2) *Long lasting traumatic events experienced in childhood:* Physical abuse in childhood such as violent parental rearing style, and sexual abuse.

Across all types of the aversive life events assessed in this study, there were highly significant differences in their incidences between the clinical and non-clinical sample. Motor vehicle accidents with injuries were reported by 21 (20.0%) of the patients in contrast to only one (1.4%) person in the control group, which clearly states a difference between persons with and without disorders ($\chi^2 = 13.59$; df = 1; p <0.001). In differentiating between the three types of disorders only a tendency of patients with anxiety disorders having more motor vehicle accidents could be found ($\chi2 = 5.52$, df = 2; p =0.063)

Physical assaults were reported by 12 (11.4%) of the patients in contrast to none of the persons in the control group (Gart's 2I = 6.19, df = 1; p =0.013), but did not differ between the three types of patients (Gart's 2I = 2.86, df = 2; p =0.240).

Physical abuse by caregivers was reported by 81 (77.1%) of the patients in contrast to 17 (23.6%) of the persons in the control group, which is highly significant ($\chi^2 = 49.53$; df = 1; p <0.001); nevertheless the three types of patients did not differ in their percentages of physical abuse ($\chi^2 = 0.525$, df = 2; p =0.769), see also Table 1 and Figure 1.

Sexual abuse was reported by 21 (20.0%) of the patients but by none of the persons of the control group ($\chi^2 = 16.34$, df = 1; p <0.001). Analysing the types of disorders, separately, showed that patients with borderline personality significantly

Table 1. Report on Disorder Groups Against Gender and Traumatic Life Events: Significant Differences Between Disorder Groups and the Control Group (n=177)

Group	Psychiatric disorder group	Anxiety disorder	Borderline Personality disorder	Somatoform disorder	Control group
	n (%)	n (%)	n (%)	n (%)	n (%)
Gender					
Men	22 (21)	7 (17)	7 (17)	8 (36)	36 (50)
Women	83 (79)	35 (83)	34 (83)	14 (64)	36 (50)
Total	105	42	41	22	72
Traumatic life events					
Accident	21 (20)	13 (31)[+]	6 (15)	2 (9)	1 (1)[*]
Assault	12 (11)	4 (10)	3 (7)	5 (23)	0 (0)[*]
Physical abuse	81 (77)	32 (76)	33 (81)[**]	16 (73)	17 (24)[*]
Sexual abuse	21 (20)	2 (5)	17 (42)[**]	2 (9)	0 (0)[*]
FDS (Mean ± SD)	13.0 ± 11.3	8.5 ± 7.0	19.2 ±12.1[**]	10.3 ±11.4	3.4 ± 2.9[*]
Men	8.5 ± 6.8	8.4 ± 8.7	13.2 ± 7.5	8.0 ± 5.8	3.5 ± 2.9
Women	13.8 ± 11.9	8.5 ± 6.8	20.3 ± 12.6	11.7 ± 13.7	3.3 ± 2.9

[*] significant differences between clinical and non-clinical sample
[**] significant more cases/higher scores than expected regarding only the clinical sample

Figure 1: Percentages of Reported Traumatic Life Events
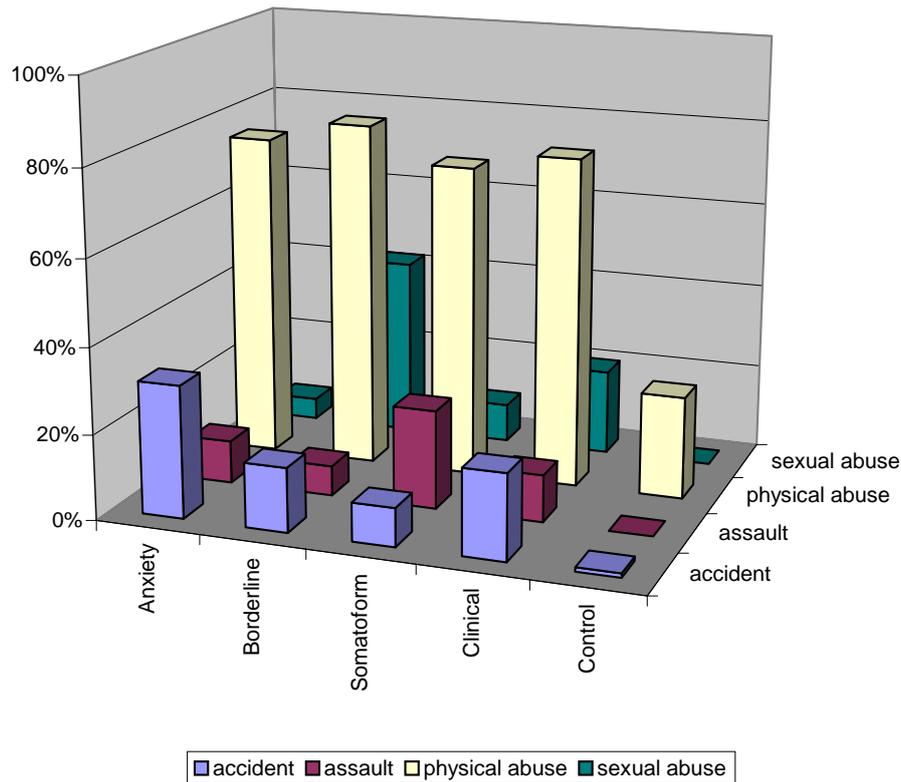
suffered of more sexual abuse (stand. res.=3.1) than patients with anxiety and somatoform disorders ($\chi^2 = 19.54$, df = 2; p <0.001), see also Table 1 and Figure 1.

Table 2 shows the significance of traumatic life events as predictors for the various disorders and the control group, the percentage of correct classification and the percentage of variance explained using Nagelkerkes' R Square algorithm (R^2). Using the traumatic life events for classification of anxiety disorders leads to 21% correct classification, whereby motor vehicle accidents, physical abuse and the missing of sexual abuse serve as significant predictors.

The reported traumatic life events result in 42% positive physical abuse concerning borderline disorders, with sexual abuse and physical abuse as significant predictors. Concerning somatoform disorders, only 9% physical abuse could be made out, with assault as the only significant predictor. The best classification resulted for the control group (75% correct classification), with the missing of motor vehicle accidents and physical abuse being significant predictors.

Dissociative symptoms

The total FDS score varied significantly between the four groups (Kruskal-Wallis-$\chi^2 = 80.74$, df = 3; p <0.001 see also Table 1); post-hoc U-tests with Bonferroni-correction showed that the control group scored significantly lower than all clinical groups, while patients with borderline disorders had significantly higher scores than all other groups; the FDS total scores of patients with anxiety and somatic disorders did not differ significantly.

In investigating the additional influence of participants' gender, with respect to the clinical population again resulted in a significant group factor, F (2.198) = 7.11, p =0.001, η^2 = 0.13, but neither showed a significant effect of the gender (F(1.98) = 0.805, p = 0.372, p =0.01 nor a group × gender interaction, (F(2.98) =0.04, p =0.958, η^2 =0.001). Only from a descriptive point of view it can be seen that women in the borderline personality disorder and the anxiety disorder groups had higher total FDS scores than men; whereas in the somatoform disorder group also in the control group, women and men did not differ in their mean FDS score levels. Since the three sub-scale scores (amnestic dissociation, absorption, depersonalization), that comprise the FDS total score were highly intercorrelated (Pearson's r = 0.68 to 0.93), no further analysis as regards these sub-scales was conducted.

Discussion

The results revealed that participants from all three clinical groups reported significantly more traumatic life events than participants of the non-clinical control group and showed significantly higher scores for dissociative symptoms.

Table 2. Traumatic Life Events as Predictors for Psychiatric Disorders

	B	Odds Ratio	Percent of Correct Classification (No/Yes)
Anxiety disorder			96%/21%
Accident	1.9[**]	6.3	Nagelkerkes R^2=0.245
Assault	0.8	1.7	
Physical abuse	1.5[**]	3.3	
Sexual abuse	-1,8[*]	0.3	
Borderline Personality disorder			97%/42%
Accident	0.7	1.3	Nagelkerkes R^2=0.346
Assault	-1.4	1.1	
Physical abuse	1.1[*]	4.5	
Sexual abuse	3.2[***]	23.4	
Somatoform disorder			99%/9%
Accident	-0.5	0.7	Nagelkerkes R^2=0.131
Assault	2.1[**]	6.2	
Physical abuse	1.0	2.3	
Sexual abuse	-1.3	0.7	
Control group			90%/75%
Accident	-3.8[**]	0.1	Nagelkerkes R^2=0.584
Assault	-10.1	0.0	
Physical abuse	-2.6[***]	0.1	
Sexual abuse	-9.6	0.0	

[*] $p<0.05$, [**] $p<0.01$, [***] $p<0.001$

Differences between the psychiatric groups by the type of traumatic events could also be found. The borderline personality disorder group reported a high incidence of sexual abuse in childhood, which is certainly a more severe form of maltreatment by significant others. This result is consistent with other studies in the research of borderline personality disorders (Van der Kolk, 1996; Sabo, 1997; Zanarini et al., 1997; Draijer and Langeland, 1999; Sansone et al., 2002; Yen et al., 2002). Patients in this group were exposed to physical abuse within the family in addition to sexual abuse. The borderline personality disorder group also showed the highest scores on dissociative symptoms, exceeding both of the other patient groups.

The hypothesis that more long-lasting exposure to traumatic events in childhood would be found in the psychiatric disorder group was confirmed. Physical abuse by caretakers as a method of child rearing was found at markedly elevated levels for all three clinical groups when compared with the control group.

Limitation of this study should be noted, for this study is based on a retrospective design, and the reports of traumatic events are not validated by another source. The best way to determine the role of traumatic life events as risk factors in psychiatric disorders would be to use a prospective research design. However, practical difficulties make studies using this design rather rare. Most research on the psychological risk factors for personality disorders has therefore depended instead on retrospective designs in cross-sectional samples (Paris, 1997).

Furthermore, we do not have enough accurate information about the kind of sexual abuse that participants suffered in childhood. Not all of them were specific enough about it. Those who could not provide details of their experience either became emotionally disturbed by the question or did not have enough confidence to speak in detail about their trauma in the interview situation. The given statements about sexual abuse report therefore on all sorts of events such as incest, abuse by family members, friends or neighbours, and unwanted sexual penetrations as well as absence of actual penetration.

A shortcoming of the methodology that had to be used in this study also is that we could ascertain answers from participants about what they recall happened, but not about the emotional impact of the traumatic event. To ascertain these details would require a well-established psychotherapeutic relationship between the participant and the questioner. However, even without this empirical information, it can be assumed there is some degree of emotional neglect by the primary caregiver, usually a parent, when a child is assaulted repeatedly through beatings and/or sexual abuse.

The outcome of this study suggests that repeated physical and sexual abuse in childhood, as reported significantly more often in the psychiatric disorder group, are severe traumatic life events and play an important role for mental health. Beating as a parental rearing style is a form of violence that is often hidden from the social environment. It appears to be a much more intense traumatic event than is generally recognized or expected, and plays an important role over the long term in shaping an individual's health. Such repeated experiences in childhood incite fear, terror and helplessness, and to bear these overwhelming events it is assumed that individuals must shift into another stage of consciousness as it is described in explanations of dissociative states and symptoms. Although the response data presented in this study are based on completely retrospective self-reports, it can be assumed that the more severe and longer lasting the stress is an individual is exposed to, the more severe the trauma will be. To allow us to make even stronger conclusions about the impact of traumatic events on psychiatric disorders, further prospective and controlled studies are expected to complement and confirm these results.

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References

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM), 4th edn. Washington, DC: American Psychiatric Press 1994

Bandelow B, Späth C, Álvarez Tichauer G, Broocks A, Hajak G, Rüther E. Early traumatic life events, parental attitudes, family history, and birth risk factors in patients with panic disorder. Compr Psychiatry 2002; 43: 269-278

Bremner JD, Brett E. Trauma-related dissociative states and long-term psychopathology in posttraumatic stress disorder. J Trauma Stress 1997; 10: 37-49

Carlier IVE, Voerman BE, Gersons BPR. Intrusive traumatic recollections and comorbid posttraumatic stress disorder in depressed patients. Psychosom Med 2000; 62: 26-32

Carlson EB, Putnam FW. An update on the Dissociation Experience Scale. Dissociation 1993; 6: 16-27

Chartier MJ, Walker JR, Stein MB. Social phobia and potential childhood risk factors in a community sample. Psychol Med 2001; 31: 307-315

Chu JA, Frey LM, Ganzel BL, Matthews JA. Memories of childhood abuse: dissociation, amnesia, and corroboration. Am J Psychiatry 1999; 156: 749-755

Draijer N, Langeland MA. Childhood trauma and perceived parental dysfunction in the etiology of dissociative symptoms in psychiatric inpatients. Am J Psychiatry 1999; 156: 379-385

Freyberger HJ, Spitzer C, Stieglitz RD, Kuhn G, Magdeburg N, Bernstein-Carlson E. Fragebogen zu dissoziativen Symptomen (FDS). Psychoth Psychosom Med Psychol 1998; 48: 223-229

Fossati A, Novella L, Donati D, Donini M, Maffei C. History of childhood attention deficit/hyperactivity disorder symptoms and borderline personality disorder: A controlled study. Compr Psychiatry 2002; 43: 369-377

Goldman SJ, D'Angelo EJ, DeMaso DR, Mezzacappa E. Physical and sexual abuse histories among children with borderline personality disorder. Am J Psychiatry 1992; 149: 1723-1726

Grilo CM, Sanislow C, Fehon DC, Martina S, McGlashan TH. Psychological and behavoioral functioning in adolescent psychiatric inpatients who report histories of childhood abuse. Am J Psychiatry 1999; 156: 538-543

Herman JL, Perry JC, van der Kolk BA. Childhood trauma in borderline personality disorder. Am J Psychiatry 1989; 146: 490-495

ICD-10 Internationale Klassifikation psychischer Störungen. Weltgesundheitsorganisation Kapitel V. In: Dilling H, Mombour W, Schmidt MH, Schulte-Markwort E (eds) Bern: Huber 1994

Johnson JG, Cohen P, Brown J, Smailes EM, Bernstein DP. Childhood maltreatment increases risk for personality disorders during early adulthood. Arch Gen Psychiatry 1999; 56: 600-606

Johnson JG, Smailes EM, Cohen P, Brown J, Bernstein DP. Associations between four types of childhood neglect and personality disorder symptoms during adolescence and early adulthood: findings of a community-based longitudinal study. J Personal Disord 2000; 14: 171-187

McFarlane AC, de Girolamo G. The nature of Traumatic Stressors and the Epidemiology of Posttraumatic Reactions. In: van der Kolk BA, McFarlane AC, Weisaeth L (eds) Traumatic stress. The effects of overwhelming experience on mind, body, and society. New York: Guilford Press; 1996: 129-154

Mulder RT, Beautrais AL, Joyce PR, Fergusson DM. Relationship between dissociation, childhood sexual abuse, childhood physical abuse, and mental illness in a general population sample. Am J Psychiatry 1998; 155: 806-811

Paris J. Childhood trauma as an etiological factor in the personality disorders. J Personal Disord 1997; 11: 34-49

Ogata SN, Silk KR, Goodrich S, Lohr NE, Westen D, Hill EM. Childhood sexual and physical abuse in adult patients with borderline personality disorder. Am J Psychiatry 1990; 147: 1008-1013

Sabo AN. Etiological significance of associations between childhood trauma and borderline personality disorder: conceptual and clinical implications. J Personal Disord 1997; 11: 50-70

Safren SA, Gershuny BS, Marzol P, Otto MW, Pollack MH. History of childhood abuse in panic disorder, social phobia, and generalized anxiety disorder. J Nerv Ment Dis 2002; 190: 453-456

Sansone RA, Gaither GA, Songer DA. The relationship among childhood abuse, borderline personality, and self-harm behavior in psychiatric inpatients. Violence Vit 2002; 17: 49-55

Saxe GN, van der Kolk BA, Berkowitz R, Chinman G, Hall K, Lieberg G, Schwartz J. Dissociative disorders in psychiatric inpatients. Am J Psychiatry 1993; 150: 1037-1042

Spitzer C, Haug HJ, Freyberger HJ. Dissociative symptoms in schizophrenic patients with positive and negative symptoms. Psychopathology 1997; 30: 67-75

Spitzer C, Freyberger HJ, Stieglitz RD, Carlson EB, Kuhn G, Magdeburg N, Kessler C. Adaptation and psychometric properties of the German version of the Dissociative Experience Scale. J Trauma Stress 1998; 11: 799-809

Spitzer C, Effler K, Freyberger HJ. [Posttraumatic stress disorder, dissociation and self-destructive behavior in borderline patients]. Z Psychosom Med Psychother 2000; 46: 273-285

Stein MB, Walker JR, Anderson G. Childhood physical and sexual abuse in patients with anxiety disorders and in a community sample. Am J Psychiatry 1996; 153: 275-277

Stein MB, J.G, Smoller JW. Genetics of Social Anxiety Disorder and Related Traits. In: Bandelow B, Stein DJ (eds) Social Anxiety Disorder. New York: Marcel Dekker; 2004: 197-214

Timmerman IG, Emmelkamp PM. The relationship between traumatic experiences, dissociation, and borderline personality pathology among male forensic patients and prisoners. J Personal Disord 2001; 15: 136-149

Torgersen S, Lygren S, Oien PA, Skre I, Onstad S, Edvardsen J, Tambs K, Kringlen E. A twin study of personality disorders. Compr Psychiatry 2000; 41: 416-425

Trull TJ. Structural relations between borderline personality disorder features and putative etiological correlates. J Abnorm Psychol 2001; 110: 471-481

Van der Kolk BA, van der Hart O. Pierre Janet and the breakdown of adaptation in psychological trauma. Am J Psychiatry 1989; 146: 1530-1540

Van der Kolk BA, Pelcovitz D, Roth S, Mandel FS, McFarlane AC, Herman JL. Dissociation, somatization, and affect dysregulation: the complexity of adaptation of trauma. Am J Psychiatry 1996; 153: 83-93

Van der Kolk BA. The complexity of adaptation to trauma: self-regulation, stimulus discrimination, and characterological development. In: van der Kolk BA, McFarlane AC, Weisaeth L (eds) Traumatic stress. The effects of overwhelming experience on mind, body, and society. New York: Guilford Press 1996: 182-213

Yen S, Shea MT, Battle CL, Johnson DM, Zlotnick C, Dolan-Sewell R, Skodol AE, Grilo CM, Gunderson JG, Sanislow CA, Zanarini MC, Bender DS, Rettew JB, McGlashan TH. Traumatic exposure and posttraumatic stress disorder in borderline, schizotypal, avoidant, and obsessive-compulsive personality disorders: findings from the collaborative longitudinal personality disorders study. J Nerv Ment Dis 2002; 190: 510-518

Young EA, Abelson JL, Curtis GC, Nesse RM. Childhood adversity and vulnerability to mood and anxiety disorders. Depress Anxiety 1997; 5: 66-72

Zanarini MC, Williams AA, Lewis Re, Reich RB, Vera SC, Marino MF, Levin A, Yong L, Frankenburg FR. Reported pathological childhood experiences associated with the development of borderline personality disorder. Am J Psychiatry 1997; 154: 1101-1106

Zanarini MC, Ruser TF, Frankenburg FR, Hennen J, Gunderson JG. Risk factors associated with the dissociative experiences of borderline patients. J Nerv Ment Dis 2000; 188: 26-30

Zelkowitz P, Paris J, Guzder J, Feldman R. Diatheses and stressors in borderline pathology of childhood: the role of neuropsychological risk and trauma. J Am Acad Child Adolesc Psychiatry 2001; 40:100-105

Zweig-Frank H, Paris J, Guzder J. Psychological risk factors for dissociation and self-mutilation in female patients with borderline personality disorder. Can J Psychiatry 1994; 39: 259-264