

Inpatient Treatment of Early Sexually Abused Adults:
Dissociation and Outcome

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“To dissociate is terrible.
It is like being put in a wheelchair,
totally helpless.” - *Patient*

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1. Overview

1.1 Summary

This study was conducted within a naturalistic setting at the Department for Trauma Treatment at Modum Bad Psychiatric Center, Norway. Several follow-up studies have shown that adults with polysymptomatology related to child sexual abuse (CSA) may develop chronic symptoms and disorders that seriously impair their daily life. There are few studies on the course of illness in early traumatized adults following residential (first phase) trauma treatment. The present work provides knowledge of the course of chronic and mixed trauma-related symptoms in adult inpatients who reported CSA, and course of symptoms in patient subgroups with and without complex dissociative disorders, in addition to preliminary outcome data on patients with and without a co-morbid somatization disorder.

The thesis consists of four papers on adult patients admitted to a three-month specialized inpatient treatment program at Modum Bad psychiatric hospital. The patients were assessed at pre-care evaluation, admission, discharge, and at one-year follow-up. Two different samples were studied. The first sample consisted of a consecutive series of 34 patients (Sample 1) and the second consisted of a consecutive series of 56 patients (Sample 2), who attended the treatment program during the period 2001-2003 and 2003-2007, respectively. All patients had mixed trauma-related disorders, such as post-traumatic stress disorders or dissociative disorders.

The first paper reports preliminary outcome data on Sample 1. The key findings were that the patients improved during the treatment period in measures of post-traumatic and general psychiatric symptoms as well as interpersonal problems, and the gains were maintained at follow-up period. However, patients with co-morbid

somatization disorders ($n = 17$) tended to have less favorable treatment response with regard to general psychiatric symptoms.

The second paper reports treatment outcome data on Sample 2, and reports and compares symptom changes in patients with and without a complex dissociative disorder. The key findings were that the patients showed symptom reduction in dimensional measures of posttraumatic and general psychiatric symptoms, depression, and dissociative symptoms, as well as interpersonal problems during the treatment stay, and the gains were maintained at follow-up. Patients with complex dissociative disorders ($n = 23$) consistently had higher symptom scores (all measures) than the patients without this disorder ($n = 33$). Both patient groups showed parallel improvement from admission to follow-up, although those high in dissociation needed more time to show improvement and were still clinically worse at the end of treatment and at follow-up. The findings were matched by clinically significant changes.

In paper 3 the impact of pathological dissociation and deterioration in interpersonal problems prior to admittance on outcome of general distress and interpersonal problems were examined. The study included 48 of the 56 patients of Sample 2. The key findings were that pathological dissociation alone predicted negative outcome during treatment, and the combination of pathological dissociation and a deterioration in interpersonal problems prior to admittance predicted negative outcome in the period following treatment.

In paper 4 we examined whether it is clinically relevant to consider differences in type (psychoform, somatoform) and severity of baseline dissociative symptoms in early traumatized inpatients with poly-symptomatology related to childhood sexual abuse. The study included 55 of the 56 patients of Sample 2. The key finding was the patients high in both psychoform and somatoform dissociation had more complex

symptoms compared to the other patients. Furthermore, these patients responded less well to the treatment compared to patients with the combination of high somatoform dissociation and low psychoform dissociation. The results highlight the clinical significance of using both baseline scores of psychoform dissociation and somatoform dissociation for identifying a subgroup of patients with severe complex symptoms and less well treatment response.

The results support the importance of identifying patients with severe dissociative problems before start of treatment, to improve indications for treatment. Future research should investigate if building interpersonal skills in parallel with stabilization and specific address of pathological dissociation in the treatment of highly dissociative patients leads to better outcome, including long-term maintenance of gains after the end of treatment. Finally, future studies should include control groups in order to draw conclusions about the effectiveness of inpatient treatment for these patients.

1.2 List of papers

- I. Jepsen, E. K. K., Svagaard, T., Thelle, M. I., McCullough, L., Martinsen, E. W. (2009). Inpatient treatment for adult survivors of childhood sexual abuse: A preliminary outcome study. *Journal of Trauma & Dissociation*, 10, 315-333.
- II. Jepsen, E. K. K., Langeland, W., Sexton, H., Heir, T. Inpatient treatment for early sexually abused adults: A naturalistic 12-month follow-up study. *Psychological Trauma: Theory, Research, Practice, and Policy*, in press.
- III. Jepsen, E. K. K., Langeland, W., Heir, T. Impact of dissociation and interpersonal functioning on inpatient treatment for early sexually abused adults. *Journal of Trauma & Dissociation*, submitted.
- IV. Jepsen, E. K. K., Langeland, W., Heir, T. Early traumatized inpatients high in psychoform and somatoform dissociation: Characteristics and treatment response. *Psychopathology*, submitted.

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1.4 Abbreviations

ANOVA - Analysis of variance

APA - American Psychiatric Association

BDI-II - Beck Depression Inventory-II

CDD - Complex dissociative disorder

CSA - Childhood sexual abuse

CSC - Clinically significant change

DD - Dissociative disorders

DES-II - Dissociative Experiences Scale-II

DES-ABS - Absorption/imaginative involvement subscale of the DES

DES-AMN - Amnesia subscale of the DES

DES-DD - Depersonalization/derealization subscale of the DES

DES-T - Dissociative Experiences Scale Taxon

DDNOS - Dissociative disorder, not otherwise specified

DDNOS-1 - Dissociative disorder, not otherwise specified, subtype 1

DID - Dissociative identity disorder

DSM-IV-TR - Diagnostic and Statistical Manual of Mental Disorders, 4th ed.,
Text Revision

DSM-5 - Diagnostic and Statistical Manual of Mental Disorders, 5th ed.

ES - Effect size

GSI - Global severity index

HBoth - Participants high in both somatoform and psychoform dissociation

HSDQ - Participants high in somatoform dissociation but low in psychoform
dissociation

ICD-10 International Classification of Diseases, 10th Revision.

IES - Impact of Events Scale

IIP-C - Inventory of Interpersonal Problems

Δ IIP - Change from pre-care to admission in IIP-C scores

LBoth - Participants low in both somatoform and psychoform dissociation

MANOVA - Multivariate analysis of variance

MB – Modum Bad

MINI - Mini International Neuropsychiatric Interview

non-CDD - Participants without a CDD

PD - Personality disorder

PSS - Statistical Package of the Social Sciences

PTSD - Posttraumatic stress disorder

RCI - Reliable change index

SCID-II - Structured Clinical Interview for DSM-IV Axis II disorders

SCID-D-R - Structured Clinical Interview for DSM-IV dissociative disorders

SCL-90-R - Symptom Check List, 90 items, Revised

SD - Standard deviation

SDQ-20 - Somatoform Dissociation Questionnaire-20

2. Introduction

2.1 Definition and prevalence of childhood sexual abuse (CSA)

CSA is defined by the World Health Organization (WHO) as “the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared and cannot give consent, or that violate the laws or social taboos of society. Children can be sexually abused by both adults and other children who are – by virtue of their age or stage of development – in a position of responsibility, trust or power over the victim” (Butchart, Harvey, Mian, & Fürniss, 2006).

WHO estimates (Pinheiro, 2006) that worldwide about 150 million girls and 73 million boys below 18 years of age have been exposed to sexual abuse and maltreatment involving physical contact. The real number may be higher, as much abuse is not reported. An international meta-analysis (Stoltenborgh, van IJzendoorn, Euser, & Bakermans-Kranenburg, 2011) found that the global prevalence of CSA was 11.8%. The prevalence for girls was higher than for boys, respectively 18.0% and 7.6%. In Europe, 10-20% of all women and 3-10% of all men have experienced sexual abuse before 18 years of age (Svedin, Back, & Söderberg, 2002). Differences in methods and definitions probably account for the variations in frequencies (Mossige, 2000). National studies reported that 22% of the girls and 8% of the boys had been exposed to less invasive forms of sexual abuse (e.g., fondling and masturbation) during childhood, and 15% of the girls and 7% of the boys had experienced more serious forms of sexual abuse (e.g., rape and rape attempts; Mossige & Stefansen, 2007). Children who experience one type of abuse are likely to experience other types of abuse and childhood adversities, e.g., neglect, physical and emotional abuse (Felitti et al. 1998; Peleikis, Mykletun, & Dahl, 2004).

2.2 CSA and trauma-related symptoms in adulthood

Sexual abuse of children and youth is a major social problem and constitutes a health risk worldwide (e.g., Andrews, Corry, Slade, ISSAkidis, & Swanston, 2002; Butchart et al. 2006). Although not every sexually abused child experiences clinically significant symptomatology in adulthood (Rind & Tromovitch, 1997), CSA can have profoundly negative effects on the mental and physical health of the victim. Adult survivors of CSA are frequently seen in samples of psychiatric and somatic patients (Finestone et al., 2000; Lundqvist, Hansson, & Svedin, 2004a; Newman et al., 2000). Adult survivors of CSA are likely to present with long-term problems such as posttraumatic stress, depression, dissociation, anxiety, suicidality, sexual dysfunction, sleep disturbances, anger/hostility, substance abuse, revictimization, dissociation, interpersonal difficulties, self-mutilation, low self-esteem, somatization and medical problems (Browne & Finkelhor, 1986; Neumann, Houskamp, Pollock, & Briere, 1996; van der Kolk, McFarlane, & Weisaeth, 1996).

2.3 Previous studies on inpatient treatment of CSA survivors

Treatment of adults suffering from long term psychological symptoms of childhood sexual abuse typically occurs on an outpatient basis. However, inpatient psychotherapy may be helpful to educate patients about various trauma-related disorders and to provide intensive skills training (i.e., symptom management, coping strategies, and social skills). In several countries these kinds of services are offered to patients who did not tolerate or have not previously responded to outpatient treatment (e.g., Sachsse, Vogel, & Leichsenring, 2006). Empirical studies evaluating the benefits following specialized inpatient treatment for poly-symptomatic patients with

a history of chronic CSA are scant. Eight published studies have been reviewed by Ali & Smart (2009). More recent studies among early chronically traumatized inpatients include the studies by Lampe & Gast (2012), Lampe, Mitmansgruber, Gast, Schüssler, & Reddeman (2008), Rosenkrantz & Muller (2011), and Steil, Dyer, Priebe, Kleindienst, & Bohus (2011). All patients in these studies were severely abused in childhood, e.g. sexual or physical abuse or neglect, but not all experienced CSA. The existing outcome studies of specialized inpatient programs for early sexually traumatized adults demonstrate significant reduction in a broad range of symptoms with moderate to large effect sizes. In outcome studies with follow-up data, improvements at post-treatment were maintained at follow-up. However, most studies also indicated that a considerable number of patients did not improve following the inpatient treatment. Methodological weaknesses, such as lack of randomization or comparison groups and effect of patient characteristics, limit the conclusions that can be drawn from most results. A very recent study (Bohus et al. 2013) is, to my knowledge, the first randomized controlled trial (RCT) on early sexually abused adult inpatients, and most likely indicates that more studies with stronger designs will come up in the near future.

As described, traumatized adults with a history of CSA present a wide spectrum of symptoms, disorders and clinical course (see also Nelson et al. 2002). Matching treatment with the needs of this heterogeneous patient group is challenging. It is crucial to identify factors that may impact the clinical course of symptoms of distress in order to improve treatment planning and outcome, as for example individual patient factors (e.g., Taylor & Harvey, 2010).

2.4 Dissociation

For centuries it has been known that exposure to trauma may cause psychological distress. In the 1870s the French philosopher, psychiatrist and psychologist Pierre Janet (1849-1947) used the word “dissociation” to describe the connection between various psychological traumas and the physical symptoms of “hysteria”, e.g., convulsions, “paralysis”, etc. He also claimed that dissociative symptoms could be the result of un-integrated memories of childhood abuse, and as such always “pathological.” Furthermore, he indicated that dissociation referred to a “division of the personality or consciousness,” (Dorahy & van der Hart, 2006).

According to the Diagnostic and Statistical Manual of Mental Disorders, 4th ed., Text Revision (DSM-IV-TR; American Psychiatric Association (APA), 2004) “dissociation” is defined as a disruption in the usually integrated functions of consciousness, memory, identity, or perceptions of one’s environment. The current standard for assessment of dissociative disorders is the Structured Clinical Interview for DSM-IV dissociative disorders (SCID-D-R; Steinberg, Hall, Lareau, & Cicchetti, 2000). It includes amnesia, depersonalization, derealization, and identity confusion and alteration. Thus, these symptoms mainly manifest themselves mentally. The most extensively used self-report instrument developed to measure psychoform dissociation is the Dissociative Experiences Scale-II (DES-II; Bernstein & Putnam, 1986; Carlson & Putnam, 1993). In addition to these psychological aspects of dissociation, more recent literature (e.g., Cardeña & Spiegel, 1996; Nijenhuis, 2004) has indicated that somatoform functions and reactions could also be subject to dissociation. However, authors, in particular Nijenhuis (2000), have described somatoform dissociative symptoms as major symptoms of dissociative disorders. They involve lack of integration of somatic experiences, functions and responses, and

are symptoms that phenomenologically manifest themselves in the body. Examples include are re-experiencing bodily components of trauma, bodily analgesia or anesthesia. These symptoms cannot be explained by medical conditions. The Somatoform Dissociation Questionnaire (SDQ-20) was developed to measure somatoform dissociation (Nijenhuis, Spinhoven, van Dyck, van der Hart, & Vanderlinden, 1996). Generally, it has been found that psychoform dissociation as measured with the DES is significantly correlated with somatoform dissociation as measured with the SDQ-20 in both clinical samples (see Nijenhuis, 2009) and non-clinical samples (e.g., Maaranen et al., 2005). They are considered to be manifestations of a common process (Nijenhuis, 2009).

The term dissociation is used in many different ways and the concept still needs clarification among professionals concerned with trauma (Nijenhuis & van der Hart, 2011; van der Hart, Nijenhuis, Steele, & Brown, 2004). Dissociation as defined in the DSM-IV-TR encompasses manifestations of low levels of consciousness (e.g., general inattention as in daydreaming) and retractions of the field of consciousness (e.g., selective attention like absorption). As such this definition is broad and may include phenomena that are within the normal spectrum of psychological manifestations and as such non-pathological. A contemporary narrow definition of the concept of pathological dissociation (in line with Janet's definition) is: "a lack of integration among psychobiological systems of ideas and functions involving self-awareness that constitute personality" (van der Hart, Nijenhuis, & Steele, 2006). It involves a lack of integration among psychological systems of sensations, affects, thoughts, actions, and functions that constitute personality and a different sense of self. The lack of integration of the personality manifests itself in the alternation between re-experiencing trauma and being detached from trauma and avoidant of

reminders of trauma with a focus on functioning in daily life. This biphasic pattern is descriptive of post-traumatic stress disorder (PTSD) and also is seen in patients with other trauma-related disorders. According to this definition, dissociation is always pathological. The DES-II captures pathological as well as non-pathological aspects of psychoform dissociation. A Dissociative Experiences Scale Taxon (DES-T) was developed to more clearly distinguish the pathological component of dissociation (Waller, Putnam, & Carlson, 1996; Waller & Ross, 1997).

2.5 Dissociation, psychopathology and treatment response

For decades Janet's knowledge about dissociation was neglected or forgotten among professionals. Leading experts in the trauma field today claim that dissociation is the key concept in understanding traumatization (Dell & O'Neil, 2009; van der Hart, Nijenhuis, & Steele, 2006). Many researchers have found a link between the development of pathological dissociation and childhood trauma of sexual and physical abuse, neglect, attachment disruptions, as well as medical traumatization (Briere, 1988; Chu & Dill, 1990; Diseth, 2006; Draijer & Langeland, 1999; Liotti, 2009; Ogawa, Sroufe, Weinfeld, Carlson, & Egeland, 1997). In the last few years increasing attention has been paid to the relevance of dissociation for the severity of psychopathology among traumatized populations (e.g., Waelde, Silvern, Carlson, Fairbank, & Kletter, 2005) as well as for treatment outcome among early traumatized patients with childhood sexual abuse histories and post-traumatic stress disorder (PTSD) (e.g., Cloitre, Petkova, Wang, & Lassell, 2012b; Resick, Suvak, Johnides, Mitchell, & Iverson, 2012). To date, clinical data indicate that dissociation and dissociative disorders may be associated with a more difficult, chronic course of symptoms in standard trauma treatment as well as high levels of attrition from

treatment (see Brand, Lanius, Vermetten, & Loewenstein, 2012; Draijer & Boon, 1993). Furthermore, treatment outcome among highly dissociative patients indicates that dissociation tends to decrease in later stages of the treatment and/or when the dissociative problems are specifically targeted (e.g., Brand et al. 2009a; Brand & Stadnik, 2013).

So far, the focus in these studies has been on psychoform dissociation. Information about the possible role of somatoform dissociation or additional somatoform or somatization disorder for the severity of psychopathology and treatment response among early traumatized patients was not available in these studies. We do know from a non-clinical study, though, that compared to individuals with low psychoform and/or somatoform dissociation scores, individuals with high psychoform and somatoform dissociation more often demonstrated a reduced working ability, a poor financial situation, inadequate social support, poor general health, depressive symptoms and suicidal ideation (Maaranen et al., 2005).

2.6 Dissociative disorders as relational disorders

A child is at risk for the development of disorganized attachment and dissociation, involving relational problems, when primary caregivers or other trusted people act both as the source of safety and attachment and as the source of threat (Alexander, 1992; Lyons-Ruth, Dutra, Schuder, & Bianchi, 2006). Barach (1991) was the first to categorize dissociative disorders as “relational disorders.” Interpersonal difficulties such as mistrust, emotional lability, and relational instability in chronically traumatized individuals may lead to increased reluctance to engage in treatment and decreased effectiveness of treatment (Davis & Petretic-Jackson, 2000; Herman, 1992). The presence of insecure attachment has been associated with poor treatment

outcome, and the presence of social support by friends has been associated with positive treatment outcome following an inpatient trauma-based program (Stalker, Gebotys, & Harper, 2005a). Because daily life stressors (e.g., family problems, problems at work) as well as crisis situations (e.g., revictimization, financial crisis) can exacerbate symptoms for complex trauma patients and lead to poor prognosis for treatment outcome (Baars et al., 2011; Myrick, Brand, & Putnam, 2013), we specifically investigated the predictive role of a pre-treatment deterioration in interpersonal functioning.

2.7 Dissociation and inpatient outcome studies

A high proportion of the dissociative disorder patients have been exposed to childhood sexual trauma (e.g., Draijer & Boon, 1993), and patients with a dissociative disorder (in particular dissociative disorder not otherwise specified (DDNOS)), are common among psychiatric inpatients (e.g., Knudsen, Draijer, Haslerud, Boe, & Boon, 1995; Ross, Duffy, & Ellason, 2002). Nevertheless, most of the inpatient studies of early traumatized individuals lack data on dissociative disorders. Furthermore, severely dissociative patients, in particular patients with complex dissociative disorders (CDDs; Dell, 2009) such as dissociative identity disorder (DID) and dissociative disorders with clinical features of DID (DDNOS-1), have frequently been excluded from studies for several reasons, with major treatment challenges being one of them (see Bradley, Greene, Russ, Dutra, & Westen, 2005). In addition, the scarce existing longitudinal inpatient treatment outcome studies concerning the psychotherapy of dissociative disorders deal only with DID (e.g., Ellason & Ross, 1997). Therefore, more outcome research on early traumatized adults that includes

subgroup analyses is needed to evaluate whether severely dissociative patients can improve following specialized inpatient treatment.

2.8 Aims of the present thesis

The aim of the thesis was to study the course of illness in adults with CSA histories and mixed trauma-related disorders. We wanted to study the influence of a specialized three-month inpatient treatment program on their symptoms, and to look for factors that may be associated with outcome. In particular, we wanted to examine whether or not pathological dissociation had an impact on outcome.

2.8.1 Research objectives

The thesis consists of four papers with separate objectives as follows:

Paper 1:

1. The main objectives of this pilot study were to investigate changes in relational functioning, symptom distress and work status in a consecutive sample of 34 patients (Sample 1) who during the period 2001-2003 attended a three-month specialized inpatient treatment program for adults with a history of childhood sexual abuse (CSA) and mixed trauma-related disorders. The changes were examined before treatment, at admission, discharge and at one-year follow-up after inpatient treatment.
2. To compare outcomes in patients with and without a comorbid somatization disorder.

Paper 2:

1. The main objectives of this study were to investigate symptomatic change in a consecutive sample of 56 patients (Sample 2) who during the period 2003-

2007 attended a three-month specialized inpatient treatment program for adults with a history of childhood sexual abuse (CSA) and mixed trauma-related disorders. The patients (including 23 patients with a complex dissociative disorder I + II, CDD) completed the treatment program and a test battery at pre-care evaluation, admission, discharge, and at one-year follow-up.

2. To examine both statistically and clinically significant symptom changes.
3. To compare outcome in those with and without a CDD.
4. To examine whether or not the improvements observed after discharge persisted over a follow-up period of 12 months.

Paper 3:

1. The objectives were to examine if pathological dissociation and/or a prior to treatment increase in relational distress had impact on course of general distress and interpersonal problems at discharge and at one-year follow-up.

Paper 4:

1. The main objective was to examine whether it is clinically relevant to consider differences in type (psychoform, somatoform) and severity of baseline dissociative symptoms in early traumatized inpatients with poly-symptomatology related to CSA.
2. To investigate the association between psychoform dissociation (total scale and subscales separately) and somatoform dissociation.
3. To examine whether the demographic, abuse, and clinical characteristics at admission as well as response status of patient groups with high psychoform dissociation, high somatoform dissociation, or both forms of dissociation and those without high levels on both dissociation measures differed.

3. Material and methods

3.1 Participants

Participants were early sexually abused adult patients in inpatient treatment at Modum Bad Psychiatric Center, which is located in a rural district of Norway.

Modum Bad (MB) was originally designed to treat patients with longstanding and treatment-resistant character neurosis, anxiety and depression. Since 1998 this clinic has offered a specialized inpatient treatment program for CSA survivors. Patients were referred to treatment from all over Norway. Criteria for admission to the program were: 1) reported CSA and 2) meeting the criteria for post-traumatic stress disorder (PTSD) and/or other trauma-related disorders according to the International Classification of Diseases, 10th Revision (ICD-10; WHO, 1992). CSA was defined as conscious memory by the patient of at least one incident in which another person exposed her/him to unwanted sexual experiences before age 16. The perpetrator had to be at least five years older, or the balance of power between the abuser and the victim had to be clearly uneven. All participants presented with chronic CSA histories including physical contact, fulfilling the PTSD criteria of exposure to a traumatic stressor of the ICD-10 (criterion A) and the DSM-IV-TR (APA, 2004) (criteria A1 and A2).

Paper 1: Forty participants were admitted in five consecutive groups of eight, from October 2001 to June 2003. Six were excluded: Two declined participation, one discharged herself after a few days, one was sexually abused only in adulthood, and two did not complete the assessment instruments. The remaining 34 (three men and 31 women), including 17 patients (50.0%) with a co-morbid somatization disorder, constituted the study sample (Sample 1). The mean age (*SD*, range) was 41.7 years

(9.3, 24-58) and 50% were married or lived with a partner. Their psychological suffering had on average lasted for 18.7 years ($SD = 13.0$).

Paper 2: Eighty-one patients were admitted in 11 consecutive groups of 7-8 individuals, from June 2003 to January 2007. Nineteen patients were excluded for the following reasons: 1) change in the hospital's packet of self-report questionnaires ($n = 5$), 2) an organic condition that interfered with the dissociative symptoms ($n = 3$), 3) missing data ($n = 5$), 4) treatment drop-out ($n = 3$), one each from drug abuse, somatic illness, and early treatment withdrawal, 5) patients who had their treatment period shortened by more than four weeks, because they replaced two other patients who had dropped out of treatment ($n = 2$), 6) reporting only sexual abuse in adulthood ($n = 1$). Six individuals had been admitted twice during the study period. Only data from their first stay were included in the study. Thus, 56 patients (52 women and 4 men), including 23 patients (41.1%) with a CDD, constituted the study sample (Sample 2). Their mean age was 39.5 years ($SD = 8.29$, range 25-58). Symptoms of psychiatric distress had an early onset with a mean age of 13.8 years ($SD = 9.0$) and the mean duration of psychopathology reported was 21.0 years ($SD = 12.8$).

Paper 3: Included study Sample 2 ($n = 56$). For the analyses 8 patients were excluded due to missing data.

Paper 4: Included study Sample 2 ($n = 56$). For the analyses, one subgroup consisting of one patient ($n = 1$) was omitted.

3.2 Treatment during the study

3.2.1 Treatment at the Department for Trauma Treatment at MB

The program is based on the assumption that a trauma-based approach, working toward integration of traumatic memories and their consequences, is needed for resolving problems.

Group and individual therapy were combined in a three-month inpatient treatment program, based on the principles from Herman's trauma phase-approach model (Herman, 1992). The three phases of treatment were 1) symptom reduction and stabilization, 2) treatment of traumatic memories, and 3) integration of personality and social rehabilitation. The main focus in our program was on the first phase (symptom reduction and development of stabilization skills), but also included sharing of stressful life events and trauma processing. The relational context was emphasized throughout the program, i.e. patients were encouraged to use the context of the inpatient setting to exercise change in maladaptive behaviour in the present that were linked with past traumatic experiences, into more adaptive behaviour, including relational work such as sound self-assertiveness and limit-setting. Important relatives were admitted to the hospital for a four-day weekend stay for education and to strengthen supportive relationships.

A multidisciplinary team, consisting of psychiatrists, psychologists, nurses, occupational and art therapists, social workers, and a pastoral staff provided two daily group sessions (75-90 minutes), and 1-2 individual sessions (60 minutes) per week. The program involved: psycho-education about psychological and relational consequences of CSA, group therapy, movement therapy, expressive art and occupational therapy, and physical training. Within these sessions, therapy included:

- 1) psychodynamic issues (e.g., examine patterns of transference and counter-transference to understand how and why the patient may re-enact his/her story, and

help the patient to develop new object relationships that are not abusive; as well as building of alliance);

2) cognitive and behavioral approaches (e.g., recognition of distorted cognitions, substitution of more accurate beliefs, social skills training such as problem solving and assertiveness training, physical skills training, relaxation, affect regulation, symptom management);

3) group work as an arena to change previous maladaptive patterns, through the reduction of isolation and feelings of shame, development of new coping skills, building of self-esteem;

4) individual supportive approaches (e.g., building of self-esteem, self-care, and support).

The patients identified individual treatment goals during the initial two weeks, shared these with each other and the team during treatment, and evaluated the degree of achievement of those goals with group and team members toward the end of treatment.

All patients followed the same treatment program in attending the various group and individual sessions.

3.2.2 Treatment in the follow-up period

After discharge from MB, the patients continued treatment in their local communities without contact with the hospital. Local treatment offered varied greatly, and we have no data about treatment in the follow-up period. The treatment patients initiated on their own following their inpatient stay may have influenced our follow-up assessments.

3.3 Outcome measures and other assessments

The Impact of Event Scale (IES) has 15 items scored on a 0-5 scale measuring post-traumatic stress-related symptoms (Horowitz, Wilner, & Alvarez, 1979). Psychometric properties are good (Joseph, 2000). A cutoff score of 35 indicates symptom severity at a level that is consistent with a diagnosis of PTSD (Neal et al., 1994).

The Beck Depression Inventory-II (BDI-II) is a 20-item inventory assessing the severity of depressive symptomatology (Beck, Steer, & Brown, 1996). It has excellent psychometric properties (Smarr, 2003). A cutoff of 13 has been used to differentiate between depressed and not depressed individuals (Dozois, Dobson, & Ahnberg, 1998).

The Symptom Check List 90 Revised (SCL-90-R) is a psychometrically well-validated 90-item scale assessing level of general psychiatric symptoms (Derogatis, Lipman, & Covi, 1973). The Global Severity Index (GSI) is the mean score of all 90 items. A cutoff of 0.85 on the GSI has been used to differentiate between normal and clinical levels of symptoms (Pedersen & Karterud, 2004).

The psychometrically well-validated Inventory of Interpersonal Problems 64-item Norwegian version (IIP-C; Pedersen, 2002) was used to measure interpersonal problems. Higher values indicate greater problems, with a mean value above 1 indicating significant interpersonal problems.

The Dissociative Experiences Scale-II (DES-II) has 28 items measuring the frequency of psychoform dissociative experiences rated on a 0-100 scale (Bernstein & Putnam, 1986). Psychometric properties are adequate (Carlson & Putnam, 1993). A cutoff of 25 or more was found to differentiate between patients with and without a dissociative disorder (Boon & Draijer, 1993). The DES-II measures three different

facets of psychoform dissociation, including absorption (DES-ABS), amnesia (DES-AMN) and depersonalization/derealization, (DES-DD). The 8-item taxonomic version of the Dissociative Experiences Scale (DES-T) was used to measure pathological dissociative symptoms (Waller, Putnam, & Carlson, 1996). We used the cut-off score of 20+ on the DES-T (Waller & Ross, 1997) as a categorical index for identifying individuals with severe levels of pathological dissociation.

The psychometrically sound Somatoform Dissociation Questionnaire-20 (SDQ-20) measures somatoform dissociative experiences using 20 items that are scored on a 5-point scale (Nijenhuis et al. 1996). The total score of SDQ-20 varies from 20 to 100. A cutoff of 30 or more was found to differentiate patients with DSM-IV dissociative disorders from psychiatric patients with other disorders (Şar, Kundakçı, Kızıltan, Bakim, & Bozkurt, 2000).

DSM-IV-TR dissociative disorders were assessed (in Sample 2) using the Structured Clinical Interview for DSM-IV Dissociative Disorders-Revised (SCID-D-R; Steinberg, Hall, Lareau, & Cicchetti, 2000) at beginning of treatment by an experienced psychiatrist, who was trained in the administration and interpretation of the instrument. It has good to excellent reliability and discriminant validity. In the current study 20 SCID-D-R interview tapes were randomly selected for blind rating by an experienced clinician. Inter-rater reliability (based on the presence or absence of any complex dissociative disorder) was good ($\kappa = 0.74, p < .001$).

The presence of the co-occurrence of other DSM-IV-TR Axis I (i.e., excluding dissociative) and Axis II disorders were assessed at pre-treatment by the individual therapists, using respectively the semi-structured Mini International Neuropsychiatric Interview (M.I.N.I.; Sheehan et al., 1998) and the Structured Clinical Interview for DSM-IV Axis II disorders (SCID-II; First, Spitzer, Gibbon, & Williams, 1995).

Medication usage was assessed at admission, discharge, and at follow-up, while employment status was assessed at admission and at follow-up by the therapist.

3.4 Design

This is a naturalistic follow-up study. The mean duration of time from pre-care assessment to admission was 8 and 11 months, respectively for Sample 1 and Sample 2, due to unavoidable variation in applications for treatment and hospital capacity. By including pre-care assessment in the study design, we were able to examine change when treatment was applied (admission to discharge) and terminated (follow-up). All assessments were part of the standard clinical practice at the hospital. The project was approved by the Regional Committee on Medical Ethics. All patients verbally provided informed consent to take part in the study.

3.5 Statistical analyses

3.5.1 Paper 1

Repeated measures of MANOVA were used to determine statistical difference scores across pre-care evaluation, admission, discharge and one-year follow-up. Next, the individual measures were analyzed with repeated measures of ANOVA. In case of missing data, last observations were carried forward. Effect sizes within groups were reported as the standardized difference of means at each time point, according to Cohen (1988).

3.5.2 Paper 2

Kurtotic DES-II variables were log transformed. MANOVA with repeated measures was performed to investigate overall differences among dependent variables

and subgroups. CDD (no/yes) was entered as independent variable, whereas the outcome measures (IES, BDI-II, SCL-90-R, IIP-C, and DES-II) were dependent. We first examined pre-care evaluation to admission period (about 11 months) to determine if participants were relatively stable during that time (i.e. not showing significant change on symptom measures) and to ensure that any subsequent change would likely be a result of treatment. We then determined the degree of change during treatment and follow-up period using the same measures recorded during the pre-treatment phase. MANOVA repeated measures (two groups - those with and without CDD, labeled CDD and non-CDD) with difference contrasts were followed by the univariate contrasts for each of the five dependent variables from admission to discharge and from discharge to one-year follow-up. Effect sizes within groups were reported as the standardized difference of means at each time point, according to Cohen (1988) for total sample as well as for CDD and non-CDD subgroups.

Clinical significant change can be demonstrated when a) “once troubled and disordered clients are now, after treatment, not distinguishable from a meaningful and representative non-disturbed reference group” (Kendall & Grove, 1988, p.148), and b) when the change due to treatment is reliable (Jacobson & Truax, 1991).

Examination of clinical significance of change was based on the methods recommended by Jacobson & Truax (1991), and reviewed by Evans, Margison and Barkham (1998). First, reliable change was assessed using the formula $SE_{diff} = SD_0 \times \sqrt{2 \times (1 - r)}$, where SD_0 is the standard deviation of the baseline (admission) observation and r is the Cronbach’s alpha coefficient. A change exceeding 1.96 times this SE_{diff} can be considered to indicate reliable change with 95 % confidence. Reliable change index (RCI) scores were computed by dividing the difference

between pre-treatment and post-treatment means by this SE_{diff} . Secondly, clinically significant change was assessed using the cutoff scores from published reports.

In calculation of the RCI, the Cronbach's alpha (α) from large norming studies were used as this coefficient is the most stable estimate of the true estimate of the true reliability coefficient and provides an RCI that is more consistent from one study to another. The used α 's were: IES total: $\alpha = 0.95$ (Briere & Elliott, 1998); BDI: $\alpha = .92$ (Beck et al. 1996); SCL-90 GSI: $\alpha = .97$ (Øyesvold, Bakkejord, & Sexton, 2011); IIP-C: $\alpha = .91$ (Pedersen, 2002); DES: $\alpha = .93$ (van IJzendoorn & Schuengel, 1996). Statistically reliable improvement required a decrease in points of at least: 6.47 on the IES total, 6.55 on the BDI, 0.27 on the SCL-90-R GSI, 0.33 on the IIP-C, and 0.73 on the log-transformed DES.

The used cutoffs to determine clinically significant change (CSC cut point) were: IES: 35 (Neal, et al., 1994); BDI: 13 (Dozois et al. 1998); SCL-90-R GSI: 0.85 (Pedersen & Karterud, 2004); DES: 25 (Boon & Draijer, 1993). As we did not find a cut-off for the IIP-C-64 (c_{iip}) in the literature, c_{iip} was calculated based on the formula: $c = s_0M_1 + s_1M_0 / s_0 + s_1$, as the study sample was overlapping to a normative sample (Jacobson & Truax, 1991; Pedersen, 2002). M_1 (s_1) is mean and standard deviation of the study sample; and mean and standard-deviation of a normative sample, M_0 (s_0), used in the calculations were .53 and .31, respectively (Pedersen, 2002); the cutoff point of IIP c_{iip} was 1.11.

No patients had BDI admission scores below the CSC cut point, whereas this was the case for one patient on the GSI, and for two patients on the IES and IIP-C. The DES scores were spread across the cut point of 25: 18 non-CDD and 5 CDD patients had DES admission scores below the CSC cut point. For exploration of possible reliable improvement in non-pathological as well as pathological dissociation

the carrying out of RCI calculations for the DES scores were maintained. These findings will be described separately.

Individuals were classified into one of four categories on the basis of their pre- and post-treatment scores (admission and follow-up; Table VI): 1) *recovered* (improvement from admission to follow-up is statistically reliable and post-treatment score < CSC cutpoint); 2) *improved* but not recovered (improvement from admission to follow-up is statistically reliable but post-treatment score \geq CSC cutpoint); 3) *unchanged* (improvement or deterioration from admission to follow-up is not statistically reliable); and 4) *deteriorated* (deterioration is statistically reliable).

3.5.3 Paper 3

Hierarchical regression was used to assess if pathological dissociation (DES-T membership), the change from pre-care to admission in interpersonal problems (Δ IIP), as well as their interaction (DES-T x Δ IIP) were predictive of treatment response, controlling for initial score on the outcome measure. Four separate hierarchical regression analyses were performed, one for the treatment period and one for the follow-up period for each of the outcome variables, the SCL-90-R GSI and IIP-C. In these analyses, the three predictor variables were entered in the first step, and the initial levels of the outcome measure in the second step. To evaluate the clinical utility of DES-T membership, four additional analyses were performed with presence of a CDD (yes/no) substituting the DES-T membership in the predictive models.

3.5.4 Paper 4

Pearson's correlations test was used to examine associations between somatoform dissociative symptoms and psychoform dissociative symptoms. To test differences in background and clinical variables between subgroups of patients we used Chi-square (χ^2) test or Fisher's exact test for categorical variables and one-way between-groups analysis of variance (ANOVA) with post-hoc test (Tukey's Honestly Significant Different test). In addition, effect sizes (phi coefficient and eta squared (η^2), respectively) were calculated.

Response status was analyzed in terms of reliable improvement on at least one of the measures (SDQ-20, DES-II, IES, BDI-II, SCL-90-R GSI, IIP-C) as per Jacobson & Truax (1991) at post-treatment and at one-year follow-up. Statistically reliable improvement on the SDQ-20 required a decrease in scores of at least 8.4. For the other measures, see paper 2.

3.5.5 In general

Following the recommendations of Cohen (1988), effect sizes < 0.20 indicated no effect, $0.20-0.49$ a small effect, $0.50-0.79$ a moderate effect, and values ≥ 0.80 indicated a large effect. The significance level was set at $p < .05$ (two-tailed). Data were analyzed using the Statistical Package for Social Science (SPSS), versions 15.0 and 19.0 Windows.

4. Results

4.1 Paper 1

Inpatient treatment for adult survivors of childhood sexual abuse: A preliminary out-come study:

A significant main effect of time on the BDI-II, SCL-90-R GSI, and IIP-C from pre-care evaluation to one-year follow-up was found for 34 adult patients with a history of CSA. Scores on the IIP-C and SCL-90-R GSI remained unchanged while depressive symptoms improved during the pre-treatment waiting time. Significant improvements were found on all the measures, also including IES, during the inpatient treatment period. Scores of IIP-C continued to improve during the follow-up period, while gains on the other measures were maintained without further change.

At follow-up five patients, compared to two at admission, were able to work. Sixteen were on sick leave or rehabilitation, compared to 25 at admission. The number of patients receiving longer-term disability pensions had increased from seven at admission to 13 at follow-up.

Subgroups: The sample of 34 patients was divided into two groups, those with a co-morbid somatization disorder ($n = 17$) and the remaining patients without a somatization disorder ($n = 34$). Patients without somatization disorders did not change significantly during the pre-treatment period on the GSI, but there was significant change from admission to follow-up. Patients with somatization disorders showed significant improvement on the GSI in the waiting period, but there was no significant change during or following treatment. Both subgroups had significant improvements regarding interpersonal problems from admission to follow-up. On the BDI-II, both subgroups improved significantly during the waiting list period, but not thereafter. There was no overall change from admission to follow-up on the IES for any of the subgroups. Effect-sizes were moderate: generally around 0.5.

4.2 Paper 2

Inpatient treatment for early sexually abused adults: A naturalistic 12-month follow-up study:

A significant main effect of time was found for the DES-II, IES, SCL-90-R GSI, BDI-II, and IIP-C from admission to one-year follow-up for 56 early sexually abused adults with mixed trauma-related disorders. During the treatment period (admission to discharge) there were significant improvements on all symptom measures. These gains were maintained with no further significant improvements in the follow-up period. There was no significant change on any of the measures during the pre-treatment waiting period (mean 11 months).

Subgroups: The sample of 56 patients was divided into two groups, those with a CDD ($n = 23$) and the remaining patients without a CDD ($n = 33$). The CDD subgroup reported significantly higher symptom levels compared to the non-CDD patients at all four time-points (pre-care evaluation, admission, discharge, and one-year follow-up). Regarding symptom trajectories, no statistical difference was found between the subgroups. Both subgroups had an overall significant decrease in symptoms from admission to follow-up and improved to the same degree. Mean effect-size of the symptom measures from admission to discharge was 0.42, and to follow-up 0.53. Mean effect-sizes of the CDD and non-CDD subgroups at discharge were 0.26 and 0.63, respectively. At follow-up they were 0.43 and 0.68, respectively. This indicates a somewhat slower process of improvement for the CDD patients than the other patients. The effect sizes on the dissociation scale indicated “no” effect at discharge and “small” effect at follow-up for the CDD group, whereas they were “moderate” at discharge and follow-up for the non-CDD group.

Categorical changes: The percentages of patients who showed reliable improvement at discharge and follow-up were, respectively, 55.4% and 51.8% on the IES, 51.8% and 50.0% on the SCL-90-R GSI, 39.3% and 42.9% on the BDI-II, and 30.3% and 35.8% on the IIP-C. At discharge 16.1% showed reliable improvement on the DES-II, increasing to 26.8% at follow-up. These included one (4.3%) CDD patient and eight (21.7%) non-CDD patients at discharge, increasing to five (21.7%) CDD patients and 10 (30.3%) non-CDD patients at follow-up. Forty patients (71.4%) at discharge increasing to 43 patients (76.8%) at follow-up reliably improved in symptom severity level on at least one of the included measures. Among 40 patients reliably improved at discharge on at least one measure, 34 (85.0%) were still reliably improved at follow-up. A small subgroup of patients (28.6% at discharge and 23.2% at follow-up) showed no reliable improvements on any of the five measures. Among these latter were 10 (43.5%) and nine (39.1%) CDD patients at discharge and at follow-up, respectively, and six (18.2%) and four (12.1%) non-CDD patients, at discharge and follow-up, respectively. None of the patients deteriorated on all measures.

The number of patients who were employed increased from nine (16.1%) at hospital admission to 12 (21.4%) at the one-year follow-up, whereas the number of patients who received long-term disability pensions increased from 19 (33.9%) at hospital admission to 28 (50.0%) at follow-up. There were no differences between the CDD and non-CDD subgroups in their employment or disability status.

4.3 Paper 3

Impact of interpersonal problems and pathological dissociation on inpatient treatment for early sexually abused adults:

Changes in interpersonal problems and general psychiatric symptoms correlated significantly in the pre-treatment period, during the inpatient period, as well as in the follow-up period.

DES-T membership was a significant predictor of greater general distress symptoms at discharge, even after controlling for the admission score. A parallel model computed over the one-year follow-up period yielded a significant effect of the interaction term (DES-T x Δ IIP) on general distress symptoms, even after controlling for the discharge SCL-90-R GSI score. A similar pattern of findings was found for the two models computed over the social/interpersonal outcome at discharge, even after controlling for the admission score of IIP-C. And, the interaction term (DES-T x Δ IIP) was a significant predictor of greater interpersonal problems at follow-up, even after controlling for the initial discharge IIP-C score.

When substituting DES-T membership with CDD as predictor variable in the regression model we obtained similar results.

4.4 Paper 4

Early traumatized inpatients high in psychoform and somatoform dissociation:

Baseline somatoform dissociation scores were strongly correlated with psychoform dissociation (subscale) scores (r 's ranging from 0.63 to 0.76, $ps < 0.01$). Based upon cutoff scores on both dissociation measures, four groups of patients were obtained: 18 patients (32.1%) with high somatoform and psychoform dissociation (HBoth), 22 patients (39.3%) with high somatoform and low psychoform dissociation (HSDQ), and 15 patients (26.8%) with low somatoform and psychoform dissociation scores (LBoth). One patient (1.8%) with a combination of low somatoform and high

psychoform dissociation scores was excluded from the analyses, leaving 55 patients in three groups (HBoth, HSDQ, and LBoth).

There was a significant difference in age at admission for the three subgroups, but in terms of effect size, this difference was small ($\eta^2 = 0.13$). Post-hoc comparisons indicated that the HBoth group was significantly younger than the HSDQ group ($p = 0.027$). Compared to the HBoth patients, the HSDQ patients more often were married or co-habiting, and HSDQ and LBoth patients more often had children, however the effect sizes were small (all phi's < 0.37).

The subgroups did not significantly differ in reported abuse severity or adult sexual victimization.

The subgroups significantly differed in symptom levels of post-traumatic stress and general distress (effect sizes < 0.25), and on dissociation levels (effect sizes ranging from 0.50 to 0.78). Post hoc comparisons showed that HBoth patients reported higher levels of post-traumatic stress and general distress compared to HSDQ patients ($p = 0.031$ and $p = 0.019$, respectively) and LBoth patients ($p = 0.000$, and $p = 0.001$, respectively). Also, the HBoth group reported significantly higher dissociation scores ($ps < 0.001$), and more often severe pathological dissociation (HSDQ phi's = -0.95; LBoth phi = -1.00) and a CDD diagnosis (HSDQ phi = -0.76; LBoth phi = -0.81). Furthermore, with moderate effect sizes, the HBoth patients more often than the other patients reported self-mutilation (HBoth phi = -0.50; LBoth phi = -0.56) and ongoing eating problems (HSDQ phi = -0.43; LBoth phi = -0.70). Compared to HSDQ patients, HBoth patients more often reported suicidal ideation (phi = -0.37). Furthermore, the HSDQ patients more often met criteria for a somatoform disorder than the LBoth patients (phi = -0.37). Finally, there were no

significant differences between the groups in the average number of Axis I and Axis II diagnoses.

Compared to the HBoth patients, the HSDQ patients more often had reliably improved on at least one outcome measure at discharge ($\phi = 0.40$). At follow-up there was no difference between the groups in improvement rate. The groups did not differ in deterioration rates on at least one of the six outcome measures at discharge and follow-up.

5. Discussion

5.1 Main findings

This naturalistic follow-up study of early sexually abused adults with mixed trauma-related disorders found that there were substantial and significant reductions in general psychiatric, post-traumatic stress and dissociative symptoms as well as interpersonal problems at one-year follow-up. The patients of both study samples had stable symptoms during the pre-treatment waiting period, except for the study sample in paper 1, having improvement of depressive symptoms in this period. For the most part, benefits with regard to reduction of symptoms and relational functioning were gained during the inpatient treatment period. During the one-year follow-up period symptom gains were maintained. However, there was no comparison group, and the design does not allow for making causal attributions concerning the impact of treatment process on improvement. Patients improved moderately with effect-sizes around 0.50, which is in line with other outcome studies on inpatient populations suffering from chronic traumatization (e.g., Allen, Coyne, & Console, 2000; Ellason & Ross, 1997; Lampe et al., 2008; Rosenkranz & Muller, 2011; Sachsse et al., 2006; Stalker, Palmer, Wright, & Gebotys, 2005b; Wright, Woo, Muller, Fernandes, &

Kraftcheck, 2003). The overall symptom reduction in dimensional measures was matched by clinically significant changes.

Our patients demonstrated moderate to severe levels of symptoms and interpersonal distress at a higher level than general psychiatric samples. Previous studies that have shown that in clinical samples CSA survivors tend to experience higher levels of psychiatric distress and poorer interpersonal functioning compared to non-abused controls (Callahan, Price, & Hilsenroth, 2003; Figueroa, Silk, Huth, & Lohr, 1997). Although the patients in the present study improved during treatment, the majority of patients indicated a moderate level of suffering on average at follow-up. A minor group had deteriorated on at least one measure at follow-up.

Furthermore, patients with severe levels of pathological dissociation had more severe symptom profiles than patients without this condition, and their post-treatment response was poorer compared to the other patients, indicating the importance of identifying these individuals before start of treatment and tailoring treatment to this subpopulation. In addition, least improvements were seen on the dissociation scale, indicating the need to specifically address and monitor pathological dissociation in therapy. Moreover, highly dissociative individuals who deteriorated in interpersonal problems in the pre-treatment waiting period had poorer outcome in the follow-up period in measures of general distress and interpersonal problems, indicating the need to pay attention to the patients' pre-treatment functioning in treatment.

This is the first inpatient study reporting and comparing outcome data on CDD vs. non-CDD patients attending the same treatment program. It is also the first to examine the role of interpersonal functioning prior to inpatient trauma treatment on outcome of highly dissociative individuals, as well as to examine characteristics of patient subgroups based on levels of somatoform and psychoform dissociation scores.

5.1.1 Outcome

The current clinical standard of care for early chronically traumatized individuals is phase-oriented treatment, usually with three phases involving (a) stabilization and symptom reduction, (b) integration of traumatic memories, and (c) (re-)integration of the personality and rehabilitation (e.g., Herman, 1992; van der Hart, Nijenhuis, & Steele, 2006). This model is broadly accepted in clinical settings. However, little empirical evidence supports the validity of the model (e.g., Brand, Classen, Zaveri, & McNary, 2009b; Cloitre et al. 2011), and outcome studies on inpatient chronically traumatized populations are few. Furthermore, there is no common definition of outcome criteria in terms of specific outcome measures for early abused adults. Most outcome studies present outcome in terms of statistically and clinically significant symptom changes and level of functioning, using a broad variety of measures (e.g., Ali, 2009; Brand et al., 2009a; Taylor & Harvey, 2010).

PTSD symptoms: The admission levels of posttraumatic stress symptoms (Sample 1: 54.8 ($SD = 10.7$) and Sample 2: 56.54 ($SD = 10.44$)) were higher compared to adult outpatients with stress reactions related to serious life events, such as bereavement, loss, accidents, violence and illness (mean 43.7 ($SD = 17.2$)) (e.g., Horowitz et al., 1974), but similar to the levels reported on a sample of combat veterans with PTSD (mean 56.97 ($SD = 10.46$)) (e.g., Amdur & Liberzon, 2001) and to other early abused adult inpatient (e.g., Lampe et al., 2008). The scores significantly decreased during treatment, with the largest changes seen in avoidance. Our clinical impression was that patients' avoidance of trauma-related mental content was reduced, because reduction of avoidance is an important goal of the first phase of treatment (van der Hart et al., 2006). Presumably, learning about symptoms and their relationship to trauma were useful. By sharing their problems in groups, patients also

experienced a normalization of their reactions, and this may have led to reduction of fear and shame. Many patients continued to have flashbacks at follow-up, and this disrupted daily functioning. It is likely that some patients were too exposed to trauma-related material during treatment, without being sufficiently stabilized with coping skills or integrative capacity. In the future our program should include interventions that address this problem more specifically for each individual, as stabilization is the overall goal in the first phase of treatment (van der Hart et al., 2006).

General psychiatric symptoms: Our CSA survivors had higher GSI admission scores (mean = 1.8 ($SD = 0.5$) and 1.87 ($SD = 0.57$) in Sample 1 and 2, respectively) than typically reported in general clinical samples and samples without CSA. For example, inpatients and outpatients with mixed diagnoses demonstrated a GSI mean of 1.21 ($SD = 0.73$) (Lundqvist, Svedin, & Hansson, 2004b), and outpatients without CSA demonstrated a GSI mean of 1.0 ($SD = 0.60$) (Callahan et al. 2003). Our patients also had higher GSI scores than outpatient samples of CSA survivors in the Callahan et al. study (2003) (mean = 1.51, $SD=0.54$), and in the Lundqvist et al. study (2004b) (mean = 1.58, $SD = 0.73$), but our patients had similar levels to the Stalker et al. (2005b) inpatient CSA sample (mean 1.87, $SD = 0.68$). Also, our study demonstrated similar change on GSI as reported by Stalker et al. ($ES = 0.41$ at one-year follow-up). Much research has demonstrated that various sexual abuse variables influence the level of psychiatric symptoms measured by SCL-90-R, as summed up by Lundqvist et al. (2004a). Abuse characteristics, such as early age of onset of sexual abuse, close relationships to perpetrator, more than one perpetrator, and involvement of penetration, in addition to physical abuse, may explain the higher levels of general psychopathology of our sample compared to other samples.

Depression symptoms: Patients in our study had moderate to severe levels of depressive symptoms at pre-care evaluation (mean = 27.9 ($SD = 7.8$) and 28.57 ($SD = 8.52$) in Sample 1 and 2, respectively), which the majority reported being present since childhood. These levels are higher compared to general psychiatric inpatient samples, as for example reported in the study by Cole et al. (2003) (mean 17.53 ($SD = 12.31$)). Our findings are in line with other inpatient studies on early abused adults (e.g., Lampe et al., 2008; Sachsse, Vogel, & Leichsenring, 2006). Those symptoms confirm the high prevalence of co-morbid depression in patients suffering from chronic traumatization, also reported by other researchers (e.g., Ferguson & Mullen, 1999). The depression levels of Sample 1 and Sample 2 were similar at pre-care evaluation and following treatment, indicating that the two samples had similar overall improvements during the study period. However, patients in Sample 1 improved during the waiting period, but not during the inpatient stay, whereas patients in Sample 2 had the most improvement during the inpatient stay. As we have not asked patients for underlying causes for the improvements we do not know what might have contributed to the change. We suspect that the lessening of depressive symptoms in the waiting period was related to an increase in hope, and during the treatment it additionally was related to a reduction in feelings of shame (Herman & Schatzow, 1984) and an increase in mastering of daily tasks following skill building for stabilization (e.g., van der Hart et al., 2006). Furthermore, the fact that the BDI depression levels were maintained at follow-up suggests that treatment impacted depression in a way that did not leave the patient vulnerable to relapse.

Interpersonal problems: Our patients had somewhat higher levels of interpersonal distress (mean = 2.0 ($SD = 0.4$) and 1.85 ($SD = 0.4$) in Sample 1 and 2, respectively) compared to for instance a Norwegian outpatient population with mixed

diagnoses (including 84% with a personality disorder) (mean 1.68 ($SD = 0.55$; Pedersen, 2002). Sample 1 had the largest improvements in interpersonal problems ($ES = 0.9$ at follow-up). Both samples improved from severe levels at admission, to levels that were in line with a typical Norwegian outpatient population (Pedersen, 2002) at follow-up. The strong emphasis on relational skills training in the program, as recommended in the literature (e.g., Herman, 1992; Courtois, 2004), may have contributed to this improvement. Many patients reported that belonging to a group where all had experienced CSA was a new and important experience, which contributed to new learning and feeling understood by others with similar problems. Herman and Schatzow (1984) evaluated group work with this patient category, and reported that the most consistent change for participants was seen as increased self-esteem and self-protective skills, reduction in feelings of isolation, guilt and shame. The finding that our patients improved during the follow-up period may suggest that the program may have provided better coping skills for daily life and functioning. This is in line with other studies, suggesting that inpatients may “gain some insight into their interpersonal difficulties during therapy but these only diminish when the patients return home and can apply what they have learned in the group, a hypothesis confirmed in a large-scale research project on inpatient group psychotherapy” (Keller & Schneider, 1993; Strauss & Burgmeister-Lohse, 1994). However, the improvements in interpersonal problems were more modest in Sample 2 ($ES = 0.5$ at follow-up). We have not investigated possible explanations for this difference, such as differences between the study samples, client and therapist variables, including change in treatment approaches.

Dissociation: Least improvement was found in the DES-II dissociation scores ($ES = 0.28-0.39$; paper 2). Other inpatient studies of the same population report stable

dissociation scores and improvement in general psychiatric symptoms (Lampe, et al., 2008; Lampe & Gast, 2012) or improvement of both dissociative symptoms (absorption subscale) and post-traumatic stress-related symptoms (avoidance subscale) as well as general psychiatric symptoms (Sachsse et al., 2006). The little improvement in dissociation scores could be explained by the fact that dissociative problems were not specifically addressed in the current treatment program.

Dimensional changes on the SDQ-20 were not included in the study.

Ability to work: Only very few patients had a job before and after the inpatient stay, demonstrating the severe impact of their illnesses on daily functioning. In the follow-up period, the number receiving disability pensions increased. Formal registration of disability is not necessarily negative. It can also be a step forward in therapy, a sign of recognition and acceptance by both patient and therapist of the severity of the disability, and of a longer time needed to stabilize or recover.

5.1.2 Predictors

The patients varied regarding symptoms, morbidity and response to treatment.

Pathological dissociation (papers 2-4): In the three papers, the association between dissociation and levels of posttraumatic and general distress and interpersonal problems was examined, and the association between dissociation and treatment outcome. Three different, although related, measures of dissociation were used for the predictor analyses: one was the diagnosis of a complex dissociative disorder (yes or no) (paper 2); another was DES-T membership (yes or no) (paper 3), and finally the type (psychoform, somatoform) and severity of dissociation based patient groups with high psychoform dissociation, high somatoform dissociation, or

both forms of dissociation and those without high levels on both dissociation measures (paper 4).

Complex dissociative disorder (CDD): The admission mean scores of DES-II (35.61 ($SD = 17.52$) and 11.97 ($SD = 7.21$) for the CDD and non-CDD group, respectively) were in line with other studies of psychiatric patients with and without dissociative disorders (see e.g., Carlson & Putnam, 1993; Draijer & Boon, 1993). Consistent with findings of others (e.g., Boon & Draijer, 1993), the CDD patients were a more severely symptomatic group than the non-CDD patients. This difference persisted during the whole study period. Despite the persistent differences in symptom levels, the subgroups improved in parallel from admission to follow-up. Findings of generally lower effect-sizes of the CDD subgroup relative to the other subgroup might suggest that CDD patients require more time to show improvement. A support for this suggestion is the tendency of the effect-sizes of the CDD subgroup to ‘catch up’ in the follow-up period with the effect-sizes of the non-CDD subgroup on some measures. Least effect was observed on the dissociative symptom scale. In particular, the CDD patients had scarcely any effect on their severe dissociation levels during the treatment period. It might well be that pathological levels of dissociation are related to unsatisfactory treatment response. Other studies have indicated that pathological dissociation may change in the later stages of treatment when the patients have been in treatment for several years for their dissociative disorder (e.g., Brand et al., 2009a; Ellason & Ross, 1997). Pathological aspects of dissociation in CDD patients may have remained unresolved following the three-month treatment stay, whereas non-pathological aspects of dissociation – associated with more general psychiatric symptoms – improved along with improvement on other measures. Further work is needed to confirm this suggestion. The uncertain time-frame for the

DES ('ever') might also play a role in the tendency of less responsiveness regarding dissociative symptoms.

DES-T membership: More detailed investigations (paper 3) showed that pathological dissociation significantly predicted general psychiatric symptoms and interpersonal functioning at discharge. These findings differ from the findings reported in the outpatient study by Lynch et al. (2008). A possible explanation might be differences in study designs (e.g., inpatients vs. outpatients, pathological dissociation vs. dissociation) or differences in study populations (e.g., in psychopathology, number of times in prior treatment, remaining in treatment). Nine percent of the sample of Lynch et al. (2008) was diagnosed with a dissociative disorder compared to 45.8% in the current study.

High somatoform and psychoform dissociation: The results (paper 4) suggest that clinically relevant subgroups of early traumatized patients based on type and severity of dissociation may be identified. The analyses revealed that patients high in somatoform as well as psychoform dissociation scales were clinically more distressed (higher levels of PTSD and general distress, and more often self-mutilation and eating problems), compared to the other patients. These findings are in line with earlier studies (e.g., Boon and Draijer, 1993; Nijenhuis, 2009; Steinberg, Barry, Sholomskas, & Hall, 2005). Contrary to what we had expected, the highly dissociative patients did not report more severe abuse histories, nor higher levels of depression or interpersonal problems or higher Axis I and II comorbidity rates.

Furthermore, the patients high on both dissociation scales responded less well to the treatment program when assessed at discharge, compared to patients with only high somatoform dissociation. There were no differences at follow-up, though, and they did not deteriorate more frequently than the other patients.

Dissociation and outcome – summary: Our findings (paper 2-4) indicate that the stabilizing inpatient treatment program for adults with histories of CSA and different trauma-related disorders was more beneficial for patients without severe levels of pathological dissociation than for patients with this condition. The program did not specifically target pathological dissociation involving memory and identity, which may have contributed to the persistence of greater distress in patients with these problems. However, our findings also support suggestions of earlier studies that patients high in dissociation may benefit from (inpatient) trauma treatment as well as the other patients, but may need a longer time for symptom improvement (Brand et al., 2009a).

Somatoform disorders: Patients with PTSD plus somatization disorders (paper 1) had poorer outcome regarding general psychiatric symptoms, and poorer evidence of work capacity, suggesting that those with comorbid somatization may be associated with the outcome and clinical course of CSA survivors with complex PTSD. However, the small sample size prevents the generalization of this finding and suggests the need for studies with larger samples.

Interestingly, the largest subgroup among our patients studied in paper 4 were the patients with high levels of somatoform dissociation that was not accompanied by high levels of psychoform dissociation. This subgroup had severe levels of somatoform dissociation and somatoform symptoms matching the levels of these symptoms of the subgroup high on both dissociation scales, while the levels on other symptoms were more in line with the patients low on both dissociation scales. In the present study, we did not do any further studying of the overlap between somatization and somatoform dissociation, and we did not examine more in detail the course of

somatoform symptoms or somatoform dissociative symptoms. This is indicated in future clinical and research practice.

Interpersonal problems: Severe dissociation combined with a pre-treatment deterioration in interpersonal functioning in the home setting prior to the inpatient stay contributed to greater general psychiatric and relational distress after they had returned to their home settings (paper 3), suggesting that contextual factors influence these forms of distress. Because these findings were based on retrospective self-reports, the underlying causes for exacerbation of relational distress prior to hospital admittance and following treatment could not be identified. Some possible factors that may be relevant include the patient's relational environment (family, partner, social network, work) (e.g., Benjamin & Benjamin, 1994; Sachs, Frischholz, & Wood, 1988) and life-stressors (traumatic or non-traumatic) in the patient's home setting, as for example, revictimization, marital problems, housing changes, lack of social support, lack of resources (Myrick et al. 2012).

5.1.3 Inpatient treatment

Most of the improvements in the period from pre-care evaluation to follow-up – a period of almost two years on average - occurred during the three-month inpatient treatment period. Due to the naturalistic conditions of this study, we were unable to establish a control group, leaving open the possibility that the improvements during the inpatient period were due to other factors than treatment. However, the patients generally had been ill for decades. They had also received treatment prior to the start of inpatient treatment which was not sufficient to alleviate their difficulties. Furthermore, they received treatment in the follow-up period. The generally stable symptom scores in the pre-treatment waiting period (average 8-11 months) and one-

year follow-up period suggest that the accelerated improvements during the inpatient stay was not solely due to the natural course of chronic trauma-related symptoms or regression to the mean phenomena. Both the inpatient treatment and the treatment in the follow-up period may have contributed to maintain the gains in the follow-up period. The inpatient stay may have enhanced patients' preparation to utilize local treatment facilities that would contribute to maintenance of gains (and further improvements for some).

There are several unresolved questions about the role of inpatient treatment for chronically traumatized individuals (Courtois & Bloom, 2000). Increasing economic constraints limit the extent of inpatient treatment, however in several countries these kinds of services are offered to patients who did not tolerate or had not previously responded to outpatient treatment (e.g., Sachsse et al. 2006).

However, the present naturalistic study indicated that the specialized inpatient treatment had a positive influence on the course of the symptoms relative to treatment provided before and after the inpatient treatment. The results suggest that inpatient treatment for chronic CSA related disorders is a relevant treatment option, even though its effectiveness relative to other treatment modalities is unknown.

5.2 Methodological considerations

The present study represents an improvement compared to previous studies, by using a well diagnosed sample, by including a broader spectrum and range of outcome measures, and comparison of outcome between subgroups of CSA survivors.

The instruments used in this study are considered to have satisfactory psychometric properties, acceptable for research purposes. This strengthens the validity of the study.

Our study included adult patients with CSA histories in need of an inpatient treatment program. Therefore, the findings cannot be generalized to other patient populations. Furthermore, as most of the patients had undergone several treatments and suffered from various comorbid conditions, caution is needed in any attempt to generalize the findings to early traumatized populations in general. However, generous inclusion criteria, diagnostic heterogeneity, low attrition rate, long duration and severity of illness, make it more natural to compare our patients with other severely distressed individuals seeking inpatient trauma treatment for chronic and mixed disorders related to early (sexual) abuse. A selection effect is minimized as the drop-out rate from the pre-treatment waiting was very low. In addition, the drop-out rate following admission was low (5.4%), representing good acceptance of the program by the patients with mixed CSA related disorders. However, the residential format makes it difficult to evaluate whether the findings could fully be generalized to non-residential contexts.

The statistical power to detect significant differences between groups was low, especially given the low number of participants in the subgroups. Therefore, it is not possible to evaluate whether the inability to generally find significant differences among subgroups is likely influenced by the subgroup analyses being underpowered. Thus, caution is needed in interpreting the significance levels for change at discharge and follow-up for the subsamples versus the total samples, because of the differences in sample sizes. In addition, the sample size did not allow to control for factors that appeared to differ among subgroups that are not explicit features of dissociation (e.g., age, children, self-mutilation, certain abuse characteristics, use of psychotropic medication). The possible effects of attachment and Axis II disorders as well as medication on outcome were not examined; all of these might have affected treatment

response. It should also be noted that we were not able to control for factors that may have contributed to outcome at one-year follow-up.

Another limitation was the use of some data based on retrospective recall (e.g., data on abuse history; clinical variables such as self-mutilation and suicidal behavior; DES-II scores with uncertain time-frame) that may be vulnerable to recall or response bias. The possible effect of inconsistent responses on the same measures over time was not addressed.

This is a naturalistic study. Our findings that changes in post-traumatic and general psychiatric distress and interpersonal problems were more obvious than changes in dissociation may be at least partially a result of the kind of treatment the patients had received and not only the natural course of the interaction. If the treatment had focused on pathological dissociation, the results might have been different.

5.3 Implications

Despite the limitations described above, several significant findings emerged that lead to suggestions for future practice.

5.3.1 Clinical

The main result of this study is that a majority of early sexually abused patients with chronic trauma-related disorders may experience improvement, but the outcome diversity reflects the challenge of providing every patient with a treatment program designed to fit the individual.

Individuals who presented with dissociative symptoms were often misunderstood and tended to be misdiagnosed several times before receiving

appropriate treatment (Coons, 1994; Kluft, 1985; Steinberg, 1996). The patients in our study had been ill and in treatment for many years. However, none of them had previously been assessed for or diagnosed with a dissociative disorder. Accurate and early diagnosis is important because individuals with dissociative disorders typically respond positively to specialized psychological treatments (e.g., Bowman & Coons, 2001; Brand et al., 2009a). Our results suggest the clinical utility of identifying patients with pathological dissociation or complex dissociative disorders. Thus, pre-treatment assessment for dissociative disorders is warranted for determining appropriate treatment. In situations where a full diagnostic interview for dissociative disorders is not yet feasible, the DES-T may be useful as a first step for identifying patients with pathological dissociation. The results also highlight the clinical significance of using both the DES and SDQ scores at admission for identifying a subgroup of patients with a severe clinical profile, implicating more complex cases.

Patients with severe pathological dissociation (CDD, DES-T membership, high in somatoform as well as psychoform dissociation) may need a treatment that in part is different from treatment of early chronically traumatized individuals without CDD, addressing the pathological levels and aspects of dissociation more vigorously (cf. ISSTD, 2011). They may also need longer treatment. Therefore separating the CDD and non-CDD patients in differentiated group programs is suggested, as this allows the core problem of pathological dissociation (with dissociative identity parts) to be addressed directly and specifically in group as well as individual settings.

Besides profiling based on the type and severity of dissociative symptoms, it also seems important to consider interpersonal functioning, especially any exacerbation of social/interpersonal distress, in determining treatment components. The underlying causes for pre-treatment deterioration (e.g., non-traumatic as well as

traumatic life-stressors in their local environment) should be identified. Strengthening of contextual approaches might be considered in severely dissociated patients who deteriorated in their home setting prior to treatment (e.g., Gold & Seibel, 2009).

The optimal treatment strategy for these highly dissociative patients might be phase-based treatment that specifically addresses the dissociative problems (ISSTD, 2011), in addition to the general sequenced approach recommended for treatment of chronic traumatization (Courtois & Ford, 2013; Herman, 1992). For the highly dissociative sub-population, a first phase for stabilization and establishing safety should include identification and fostering of inner communication with and collaboration between dissociated self-states, in addition to skill-building in the areas of affect regulation, interpersonal competence (including a safe working alliance with the therapist), containment and grounding (Brand et al., 2012).

Manualized stabilizing group treatment, including building interpersonal and affect regulation skills and specific address of dissociative problems, might be added to the program (e.g., Boon, Steele, & van der Hart, 2011; Cloitre, Cohen, & Koenen, 2006) along with inpatient or outpatient individual treatment.

Continuous education of all staff members in assessment, theory and treatment of complex dissociative disorders (e.g., the theory and treatment of structural dissociation of the personality; van der Hart et al. 2006) should be carried out to create a common basis for the treatment.

The results can also be used to target treatment to patients who are likely to respond positively and achieve meaningful improvements in their symptoms and functioning.

Future clinical practice should monitor severe somatoform and psychoform dissociative symptoms, as well as when high somatoform dissociation is not accompanied by high psychoform dissociation.

The results support the need to develop multicomponent therapy with different treatment modules for diverse complex trauma populations (Cloitre et al. 2011), tailoring treatment to the needs of the individual. See for example, Bohus et al. (2013).

5.3.2 Research

Future studies should address the recommendations for methodological soundness in trauma patient studies as described in Spinnazola et al. (2005). One such recommendation is to include comprehensive information on the participants' demographics and clinical profile. Thorough assessment of *all* patients should include trauma and neglect history, DSM-5 trauma-related Axis I + II disorders (including dissociative disorders), and Complex PTSD, using validated instruments recommended in international guidelines (Cloitre et al. 2012a; ISSTD, 2011). Future research should also include outcome data not based on patients' self-report, such as pre-treatment and post-treatment and/or follow-up data on reliable diagnostics, use of medical services, frequencies of self-mutilation, daily tasks and activities.

More research is needed in the more complex patient populations in order to improve treatment indications. For instance, future research should investigate if building interpersonal skills in parallel with stabilization of pathological dissociation in the treatment of highly dissociative patients leads to better outcome, including long-term maintenance of gains after the end of treatment.

The development of multi-component therapies with different treatment modules for diverse complex trauma populations should be accompanied by studies on their effects. Future studies should include control groups in order to draw conclusions about the effectiveness of inpatient treatment for these patients, as has been done in a very recent study (Bohus et al. 2013).

In future outcome research the inclusion of a specific timeframe for the DES should be considered to obtain better monitoring of dissociative symptoms. Furthermore, a shorter timeframe for the SDQ-20 should be considered for outcome research.

Comorbidity on both Axis I and II was high in all subgroups of patients and may predict worse treatment outcome in patients with more complex trauma-related disorders, such as Complex PTSD and Dissociative Identity Disorder (Baars et al., 2011). Therefore, comparisons of treatment outcome in patients with comorbid clinical syndromes and PDs are warranted.

Further studies are needed to examine the overlap between somatization and somatoform dissociation, and to study change in severe levels of somatoform dissociative symptoms in trauma treatment. Assessment of somatoform dissociative disorders are warranted. Would these patients need more treatment specific to dissociation, or a more general trauma treatment to reduce somatoform dissociative symptoms?

It will also be important to compare utilization of specialized treatment programs for outpatient versus inpatient conditions. No studies on this issue with respect to early abused adult patients are yet available. Even if costly, it may well be, that intensive trauma treatment of chronically traumatized patients overall is more economical than treatment on an outpatient basis - when treatment is tailored to the

need of the individual. Only evidence based clinical practice and further study will provide the answer.

6. General conclusions

The present study of a selected group of early sexually abused adults with mixed trauma-related disorders showed that there were statistically significant reductions on several symptom measures following a specialized inpatient treatment program focusing on stabilization and symptom reduction, and interpersonal functioning. Although the patients improved during treatment, they were still, on average, suffering at moderate level at follow-up, and a minor subgroup did not improve on any of the measures.

A considerable number of the patients reported high levels of dissociation and were diagnosed with a complex dissociative disorder. These highly dissociative patients were a more severely symptomatic group than the patients without this condition, but they improved during and following the inpatient treatment, as did the other patients. However, they tended to improve at a slower rate. Furthermore, least improvement was seen on dissociation for the highly dissociative subgroup.

Patients who reported deterioration in interpersonal problems in the pre-treatment waiting period in addition to severe dissociative problems had poorer outcome of general psychiatric distress and interpersonal problems in the follow-up period after they had left the hospital.

The results indicate that chronically sexually traumatized adults with severe levels of pathological dissociation (i.e., a complex dissociative disorder) may need treatment that is *in part* different from the more general treatment of the long-term consequences of CSA, addressing the pathological aspects of dissociation more

vigorously. Our findings also support the philosophy of building interpersonal skills in parallel with stabilization of pathological dissociation.

Conclusively, the results of the present research project indicate that dissociation is a clinical issue, not to be overlooked or denied.

7. Reference list

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8. Appendix, Papers I - IV

**Impact of interpersonal problems and pathological dissociation on
inpatient treatment for early sexually abused adults**

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Abstract

This naturalistic study investigated what impact initial levels of dissociation and interpersonal problems had on treatment response in a sample of 48 inpatients with childhood sexual abuse histories and trauma-related disorders. Outcome variables were general psychiatric distress and interpersonal problems as measured with the Symptom Check List Revised and the Inventory of Interpersonal Problems Circumplex. The central findings were that pathological dissociation and deterioration in interpersonal problems prior to admittance predicted symptom course of general distress and interpersonal problems during and following treatment. Pathological dissociation, involving memory and identity, alone predicted negative outcome during treatment. The combination of pathological dissociation and a deterioration in relational distress prior to admittance predicted negative outcome in the follow-up to treatment. These findings indicate the need of addressing such problems in treatment planning for complex trauma patients. Future research should investigate whether and how this leads to better outcome, including long-term maintenance of gains after the end of treatment.

Keywords: early interpersonal trauma, inpatients, complex dissociative disorders, general distress, interpersonal outcome

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Adult survivors of childhood sexual abuse (CSA) are likely to present with problems such as posttraumatic stress, depression, anxiety, somatization, suicidality, sexual dysfunction, sleep disturbances, anger/hostility, substance abuse, revictimization, self-mutilation, and low self-esteem (Herman, 1992; Neumann, Houskamp, Pollock, & Briere, 1996). Furthermore, when primary caregivers or other trusted people were both the source of safety and attachment, and the source of threat and violence it may cause disorganized attachment and dissociation, involving relational problems (Barach, 1991; Alexander, 1992; Lyons-Ruth, Dutra, Schuder, & Bianchi, 2006).

Overall, for a sizable proportion of inpatient adults with child abuse-related disorders, no clinically significant change in response to treatment has been found (Allen, Coyne, & Console, 2000; Jepsen, Langeland, Sexton, & Heir, in press; Lampe & Gast, 2012; Rosenkrantz & Muller, 2011; Stalker, Palmer, Wright, & Gebotys, 2005). For clinical practice, it is important to identify those patients with polysymptomatology related to child abuse who may need alternate treatment approaches to improve outcome. To increase our understanding of factors that may predict who will improve in treatment and maintain their gains after treatment, the current study will focus on two possible predictors of psychotherapy outcome in early chronically sexually abused adults: interpersonal problems and dissociation (see Baars et al., 2011).

Interpersonal difficulties such as mistrust, emotional lability, and relational instability in chronically traumatized individuals may lead to increased reluctance to engage in treatment and decreased effectiveness of treatment (Davis & Petretic-Jackson, 2000; Herman, 1992). The presence of insecure attachment has been associated with poor treatment outcome, and the presence of social support by friends has been associated with positive treatment outcome following an inpatient trauma-

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based program (Stalker, Gebotys, & Harper, 2005). Because daily life stressors (e.g., family problems, problems at work) as well as crisis situations (e.g., revictimization, financial crisis) can exacerbate symptoms for complex trauma patients and lead to poor prognosis for treatment outcome (Baars et al., 2011; Myrick, Brand, & Putnam, in press), we specifically investigated the predictive role of a pre-treatment deterioration in interpersonal functioning.

Findings have been inconsistent in determining whether dissociation interferes with the effectiveness of treatment for (complex) PTSD. Some studies found that patients with severe levels of dissociation may need specific treatments (Cloitre, Petkova, Wang, & Lassell, 2012; Resick, Suvak, Johnides, Mitchell, & Iverson, 2012), whereas others report no association between severity of dissociation and treatment effectiveness (Hagenaars, van Minnen, & Hoogduin, 2010; Dorrepaal et al., 2012). Drawing from a sample of individuals with complex PTSD, Lynch, Forman, Mendelsohn, & Herman (2008) found that the initial level of dissociation was not significantly associated with change in general psychiatric symptoms such as depression or self-harming behavior, during or after outpatient treatment. Jepsen et al. (in press) reported that at the end of inpatient treatment, patients diagnosed with a complex dissociative disorder (CDD; Dell, 2009), remained clinically worse off than patients without these diagnoses.

Such varied results point to the need for further research to clarify the relationship of severity of dissociation to treatment outcome among complex trauma inpatients populations, in order to better inform clinical practice in tailoring treatments to patient profiles. Information about the impact of initial pathological dissociation or the presence of a complex dissociative disorder diagnosis on treatment outcome is lacking, as well as information about the impact of initial levels of

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relational distress. The present study attempts to fill that gap in the literature by examining whether severe levels of pathological dissociation and a pre-treatment increase in interpersonal problems are associated with the outcome of treatment. The study was based on a specialized three-month inpatient treatment program for adults with CSA histories and mixed trauma-related disorders.

We expected that a pre-treatment exacerbation in relational distress would be associated with poor outcome. More specifically, we hypothesized that a combination of severe levels of pathological dissociation and increased interpersonal problems during a pre-treatment waiting period would predict negative treatment outcome.

Methods

Procedure and Participants

The study is a naturalistic follow-up study with four assessment points: pre-care evaluation, admission, discharge, and one-year follow-up. The mean duration time from pre-care assessment to admission was 11.2 months ($SD = 6.25$; range 1.9-28.7) due to unavoidable variation in applications for treatment and hospital capacity. The drop-out rate from the pre-treatment waiting list was very low ($n = 4, 3\%$).

The selection criteria for admission to the program were: at least 18 years old at admission, having a CSA history by a caretaker or a person in authority over them before the age of 16 years, and having an ICD-10 PTSD and/or other trauma-related disorders. Exclusion criteria included current psychosis, acute psychiatric and medical conditions requiring emergency hospitalization, and organic conditions interfering with dissociative symptoms.

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The current study used data gathered in the Jepsen et al. (in press) study, which included a total of 56 patients (52 women and 4 men). Eight of these patients were omitted from the analysis because of missing data.

The remaining patients (45 women and 3 men) constituted the current study sample. Their mean age was 38.9 years ($SD = 8.16$; range 25-58). Thirty-one patients (64.6%) were married or living with a partner. Patients' CSA histories included accumulated childhood interpersonal trauma and adult re-victimization. Forty-three patients (89.6%) had a PTSD diagnosis. Twenty-two patients (45.8%) had a DSM-IV-TR (American Psychiatric Association [APA], 2000) dissociative identity disorder (DID; $n = 4$, 8.3%) or dissociative disorder not otherwise specified, subtype 1 (DDNOS-1; $n = 18$, 37.5%), hereafter referred to as complex dissociative disorders (CDD). The remaining 26 patients (54.2%) without a CDD had other mixed trauma-related disorders: affective (depressive) disorders ($n = 25$), anxiety (excl. PTSD), somatoform ($n = 17$), eating disorders ($n = 3$), alcohol/drug dependency ($n = 1$).

The study was approved by the Regional Ethical Committee. All participants were informed about the study and agreed to participate.

Treatment

The study was conducted at the Unit for Trauma Treatment at Modum Bad, a national psychiatric clinic in Norway. The unit offered a three-month specialized inpatient trauma treatment program for adults with a history of CSA and mixed trauma-related disorders.

The program followed guidelines of first phase trauma-treatment, i.e. symptom reduction and development of stabilization skills (e.g., Herman, 1992). It included individual and group therapy, and involved psychodynamic, cognitive-

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behavioral, and supportive interventions. The relational context was emphasized: patients were encouraged to use the context of the inpatient setting to elicit change in maladaptive behavior in the present linked with past traumatic experiences, into more adaptive behavior, including relational work such as sound self-assertiveness and limit-setting. Important relatives were admitted to the hospital for a four-day weekend stay for education and to strengthen supportive relationships. For a more detailed description of the treatment program, see Jepsen, Svagaard, Thelle, McCullough, & Martinsen (2009).

Instruments

As the treatment involved stabilization and symptom reduction with emphasis on the relational context, global measures of psychiatric symptoms and interpersonal problems were given priority as outcome criteria.

General psychiatric symptoms were measured with the Symptom Check List 90 Revised (SCL-90-R), a psychometrically well-validated scale (Derogatis, Lipman, & Covi, 1973). We used the global severity index (GSI) to measure general distress. Higher values indicate greater distress. A cutoff of 0.85 on the GSI has been used to differentiate between normal and clinical levels of symptoms (Pedersen & Karterud, 2004). Cronbach's α ranged from 0.96 to 0.98 across three measure points (admission, discharge, follow-up).

The psychometrically sound Inventory of Interpersonal Problems (IIP-C, Norwegian version; Pedersen, 2002) was used to measure interpersonal problems. Higher values indicate greater problems, with a mean value above 1 indicating significant interpersonal problems. Cronbach's α ranged from 0.89 to 0.96 across the four measure points (pre-care evaluation, admission, discharge, follow-up). The

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change from pre-care evaluation to admission, defined as the difference (Δ IIP), was calculated for each patient and used as a predictor in the analysis. In two of the prediction models IIP-C was also used as an outcome measure.

The 8-item taxonomic version of the Dissociative Experiences Scale (DES-T) was used to measure dissociative symptoms (Waller, Putnam, & Carlson, 1996). We used the cut-off score of 20+ on the DES-T (Waller & Ross, 1997) as a categorical index for identifying individuals with severe levels of pathological dissociation. Cronbach's α for the DES-T was 0.89 at admission and 0.93 at discharge.

The current study sample included 18 patients (37.5%) identified as DES-T members (i.e., with severe pathological dissociation) at admission and discharge ($r = .91, p < .01$). DES-T membership was significantly correlated with a CDD diagnosis as assessed by the Structured Clinical Interview for Dissociative Disorders-Revised (SCID-D-R; Steinberg, Hall, Lareau, & Cicchetti, 2000) at admission ($r = .76, p < .01$) and at discharge ($r = .84, p < .01$). At admission, 17 (94.4%) of 18 DES-T members had a CDD diagnosis (DDNOS-1: $n = 13, 72.2\%$; DID: $n = 4, 22.2\%$). At discharge, all patients with a DES-T membership had a CDD diagnosis (DDNOS-1: $n = 14, 77.8\%$; DID: $n = 4, 22.2\%$). For more details on the assessment of the dissociative disorders, see Jepsen et al. (in press).

Analyses

The data were tested and found to satisfy the assumptions for parametric tests. Associations were determined using Pearson's correlation. Hierarchical regression was used to determine if pathological dissociation (DES-T membership), the change from pre-care to admission in interpersonal problems (Δ IIP), as well as their interaction (DES-T x Δ IIP) were predictive of treatment response, controlling for

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initial score on the outcome measure. Four separate hierarchical regression analyses were performed, one for the treatment period and one for the follow-up period for each of the outcome variables, the SCL-90-R GSI and IIP-C. In these analyses, the three predictor variables were entered in the first step, and the initial level of the outcome measure in the second step.

To evaluate the clinical utility of DES-T membership, four additional analyses were performed with presence of a CDD (yes/no) substituting the DES-T membership in the predictive models. This approach provided us with the opportunity to assess also whether it is relevant to consider a complex dissociative disorder in the context of inpatient treatment for polysymptomatology related to child abuse.

The significance level was set at $p < .05$ (two-tailed). Data were analyzed using SPSS version for 19.0 Windows.

Results

Table 1 shows the means and standard deviations for the SCL-90-R GSI and the IIP-C at the four measure points, as well as Pearson correlations between the dependent and independent variables. Because correlations among some of the predictor variables were high, we checked whether the assumption of multicollinearity was violated, which was not the case.

Changes in interpersonal problems and general psychiatric symptoms correlated significantly in the pre-treatment period ($r = .50, p < .01$), during the inpatient period ($r = .69, p < .01$), as well as in the follow-up period ($r = .70, p < .01$).

The results of the regression analyses are shown in Tables 2 and 3. DES-T membership was a significant predictor of greater general distress symptoms at discharge, even after controlling for the admission score of SCL-90-R GSI ($F(4,43) =$

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18.97, $p < .001$ (Table 2). A parallel model computed over the one-year follow-up yielded a significant effect of the interaction term (DES-T x Δ IIP) on general distress symptoms, even after controlling for the discharge SCL-90-R GSI score ($F(4,43) = 13.93, p < .001$ (Table 3).

A similar pattern of findings was found for the two models computed over the social/interpersonal outcomes: DES-T membership significantly predicted interpersonal outcome at discharge, even after controlling for the admission score of IIP-C ($F(4,43) = 10.33, p < .001$ (Table 2). And, the interaction term (DES-T x Δ IIP) was a significant predictor of greater interpersonal problems at follow-up after controlling for the discharge IIP-C score ($F(4,43) = 11.03, p < .001$ (Table 3).

When substituting DES-T membership with CDD as the predictor variable in the regression model we obtained similar results (data not shown).

Discussion

Our hypothesis that pathological dissociation and increased interpersonal problems during a pre-treatment waiting period would predict negative outcome following a specialized three-month inpatient program for complex trauma patients with different trauma-related disorders was supported by the findings. More specifically, pathological dissociation significantly predicted general psychiatric distress and interpersonal functioning at discharge, whereas the interaction term of pathological dissociation and pre-treatment increase in interpersonal problems significantly predicted these outcome variables at one-year follow-up.

Our findings that pathological dissociation was related to negative outcome differ from the findings reported in the outpatient study by Lynch et al. (2008). A possible explanation might be differences in study designs (e.g., inpatients vs.

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outpatients, pathological dissociation vs. dissociation) or differences in study populations (e.g., in psychopathology, number of times in prior treatment, remaining in treatment). Nine percent of the sample of Lynch et al. (2008) was diagnosed with a dissociative disorder compared to 45.8% in the current study.

Our results indicate that the stabilizing inpatient treatment program for adults with histories of CSA and different trauma-related disorders was more beneficial for patients without severe levels of pathological dissociation than for patients with this condition. The program did not specifically target pathological dissociation involving memory and identity, which may have contributed to the persistence of greater distress in patients with these problems. Overall, our findings confirm the clinical utility of identifying traumatized patients with severe levels of dissociation, and tailoring treatment to this patient group (Cloitre et al., 2012; Lanius et al., 2010; Resick et al., 2012). Although the use of DES-T for identification of patients with severe dissociative disorders has been questioned (e.g., Modestin & Erni, 2004), our data support the utility of the DES-T for a preliminary identification of patients with severe dissociative problems in a polysymptomatic complex trauma inpatient population. Being a clinician-friendly instrument, this could facilitate the identification of patients with severe dissociative problems when a full diagnostic assessment for dissociative disorders is not feasible.

Furthermore our results, indicating that severe dissociation combined with deterioration in interpersonal functioning in the home setting prior to the inpatient stay contributed to greater general psychiatric and relational distress after they had returned to their home settings, suggest that contextual factors influence these forms of distress. Because these findings were based on retrospective self-reports, the

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underlying causes for exacerbation of relational distress prior to hospital admittance and following treatment could not be identified.

Some possible factors that may be relevant include the patient's relational environment (family, partner, social network, work) (e.g., Benjamin & Benjamin, 1994; Sachs, Frischholz, & Wood, 1988) and life-stressors (traumatic or non-traumatic) in the patient's home setting, as for example, revictimization, marital problems, housing changes, lack of social support, lack of resources (Myrick et al., in press). In a qualitative study of thirty patients' feedback on a trauma-based inpatient program for adults with childhood abuse histories, many patients reported they 'returned to an unchanged world,' with the only difference being that they now recognized the difficulties at home, including dysfunctional relationships (Palmer, Stalker, Gadbois, & Harper, 2004).

Therefore, ongoing life-stressors in the patient's home setting, combined with increased realization of relational difficulties and lack of sufficient skills to deal with the situation, may have contributed to increased self-report distress scores at follow-up in the most troubled patients in our sample. Although our treatment program involved individual and group therapy as well as a four-day weekend stay for important relatives, this may not have been sufficient to achieve lasting gains in severely dissociative patients.

Limitations

Although our study improves on prior research in several ways, it has a number of limitations, so the findings should be viewed with caution. First, our sample was small, reducing power to find significant differences. Secondly, the study sample consisted of adult patients with CSA histories in need of an inpatient treatment

program, so the findings cannot be extended to general populations or other patient groups. A third limitation was the use of retrospective self-report data that may have been vulnerable to recall or response bias. The possible effect of inconsistent responses on the same measures over time was not addressed. Future research should also include outcome data not based on patients' self-report. Finally, attachment and Axis II disorders as well as medication were not examined; all of these might have affected treatment response.

Clinical implications

Our results suggest the clinical utility of identifying patients with pathological dissociation or complex dissociative disorders. The DES-T may be useful for this purpose as a first step in the process of determining appropriate treatment. Besides profiling based on the severity of dissociative symptoms, it also seems important to consider interpersonal functioning, especially any exacerbation of social/interpersonal distress, in determining treatment components. The underlying causes for a pre-treatment deterioration (e.g., non-traumatic as well as traumatic life-stressors in their local environment) should be identified.

The optimal treatment strategy for these highly dissociative patients might be phase-based treatment that specifically addresses the dissociative problems (International Society for the Study of Trauma and Dissociation [ISSTD], 2011) in addition to the general sequenced approach recommended for treatment of chronic traumatization (Courtois & Ford, 2013; Herman, 1992). As suggested by treatment guidelines (ISSTD, 2011) severely dissociative patients in first-phase treatment should identify and modify disordered attachment patterns learned in childhood, and work on competence in social interactions in parallel with development of affect

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regulation and grounding skills. Manualized stabilizing group treatment, including building interpersonal and affect regulation skills and specific address of dissociative problems, might be added to the program (e.g., Boon, Steele, & van der Hart, 2011; Cloitre, Cohen, & Koenen, 2006; Dorrepaal et al., 2012). Strengthening of contextual approaches might be considered in severely dissociated patients who deteriorated in their home setting prior to treatment (e.g., Gold & Seibel, 2009).

Conclusion

Our findings that severe forms of dissociation involving memory and identity were associated with poorer outcome following an inpatient treatment program, support the importance of addressing these problems in treatment planning for complex trauma populations. Furthermore, our findings indicate the importance of paying attention to patients' pre-treatment functioning and possible underlying causes for any deterioration in interpersonal functioning, in particular for patients with severe dissociative problems. Overall, our findings support the philosophy of building interpersonal skills in parallel with stabilization of pathological dissociation in the treatment of highly dissociative patients. Future research should investigate if this leads to better outcome, including long-term maintenance of gains after the end of treatment.

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Table 1

Descriptive Statistics and Bivariate Correlations for the Main Variables

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. IIP ¹	1.83 (0.40)	-											
2. IIP ²	1.83 (0.38)	.65**	-										
3. IIP ³	1.65 (0.45)	.50**	.57**	-									
4. IIP ⁴	1.55 (0.59)	.44**	.51**	.65**	-								
5. SCL-GSI ²	1.86 (0.59)	.52**	.63**	.53**	.43**	-							
6. SCL-GSI ³	1.58 (0.74)	.44**	.40**	.73**	.55**	.76**	-						
7. SCL-GSI ⁴	1.46 (0.77)	.33**	.42**	.45**	.74**	.60**	.71**	-					
8. ΔIIP	0.01 (0.33)	-.46**	.38**	.05	.06	.11	-.06	.10	-				
9. DES-T ²		.23	.28	.50**	.27	.53**	.57**	.34**	.06	-			
10. DES-T ³		.27	.32*	.55**	.32*	.53**	.59**	.39**	.05	.91**	-		
11. DES-T ² x ΔIIP		-.24	.29*	-.04	.19	.14	.04	.26	.63**	.07	.01	-	
12. DES-T ³ x ΔIIP		-.22	.31*	-.01	.22	.14	.05	.29*	.63**	.02	.07	.97**	-

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Note. (N = 48). IIP = Inventory of Interpersonal Problems Circumplex; SCL-GSI = Symptom Check List Revised Global Severity Index; Δ IIP = difference between IIP at pre-care and admission. DES-T = DES-Tax on membership. DES-T x Δ IIP = interaction between DES-T and Δ IIP. ¹ = pre-care; ² = admission; ³ = discharge; ⁴ = 1-year follow-up. *. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

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Table 2

Associations between Predictor Variables (DES-T Membership and Pre-treatment Increase in Interpersonal Problems) and Treatment Outcome (General Psychiatric Distress and Interpersonal Problems) at Discharge, Adjusted for the Initial Level of the Outcome Variable

	SCL-GSI at discharge (1)		IIP at discharge (2)	
	β -value (95% CI)		β -values (95% CI)	
Predictor Variable	Model 1 ^a	Model 2 ^b	Model 1 ^a	Model 2 ^b
¹ DES-T	0.57*** (0.49-1.23)	0.23* (0.01-0.67)	0.50*** (0.22-0.71)	0.37** (0.13-0.55)
Δ IIP	-0.15 (-1.06-0.38)	-0.16 (-0.91-0.17)	0.12 (-0.31-0.62)	-0.06 (-0.49-0.33)
¹ DES-T x Δ IIP	0.09 (-0.81-1.47)	0.03 (-0.74-0.97)	-0.15 (-1.05-0.42)	-0.18 (-1.02-0.22)
¹ SCL-GSI/ ¹ IIP ♦		0.65*** (0.55-1.10)		0.54*** (0.34-0.93)

Notes: (N = 48). Results are given as regression coefficients (β -value) and 95% confidence intervals (95% CI). SCL-GSI = Symptom Check List Revised Global Severity Index. IIP = Inventory of Interpersonal Problems Circumplex. DES-T = DES-T membership. Δ IIP = difference between IIP at pre-care and admission. ¹ at admission. ♦ SCL-GSI used in (1) and IIP used in (2), respectively. ^a R² = 0.34***, ^b R² = 0.64***, ^c R² = 0.26**, ^d R² = 0.49***. *p < .05. ***p < .001.

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Table 3

Associations between Predictor Variables (DES-T Membership and Pre-treatment Increase in Interpersonal Problems) and Treatment Outcome (General Psychiatric Distress and Interpersonal Problems) at 1-year Follow-up, Adjusted for the Initial Level of the Outcome Variable

	SCL-GSI at follow-up (1)		IIP at follow-up (2)	
	β -value (95% CI)		β -values (95% CI)	
Predictor Variable	Model 1 ^a	Model 2 ^b	Model 1 ^a	Model 2 ^b
² DES-T	0.38** (0.17-1.02)	-0.04 (-0.47-0.33)	0.31* (0.04-0.71)	-0.08 (-0.41-0.22)
Δ IIP	-0.15 (-1.16-0.46)	-0.04 (-0.72-0.54)	-0.14 (-0.90-0.40)	-0.20 (-0.87-0.14)
² DES-T x Δ IIP	0.36* (0.05-2.62)	0.28* (0.07-2.04)	0.29 (-0.21-1.84)	0.36* (0.23-1.83)
² SCL-GSI/ ² IIP \blacklozenge		0.72*** (0.48-1.02)		0.71*** (0.59-1.26)

Notes: (N = 48). Results are given as regression coefficients (β -values) and 95% confidence intervals (95% CI). SCL-GSI = Symptom Check List Revised Global Severity Index. IIP = Inventory of Interpersonal Problems Circumplex. Δ IIP = difference between IIP at pre-care and admission. DES-T = DES-T membership. ² at discharge. \blacklozenge SCL-GSI used in (1) and IIP used in (2), respectively. ^aR² = 0.24**; ^bR² = 0.56***; ^cR² = 0.16; ^dR² = 0.51***. *p < .05. **p < .01. ***p < .001.

**Early Traumatized Inpatients High in Psychoform and Somatoform
Dissociation: Characteristics and Treatment Response**

Original Paper

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Key Words

Early trauma, dissociation, comorbidity, personality disorders, treatment response.

Abstract

Aims: This study aimed to examine whether it is clinically relevant to consider differences in type (psychoform, somatoform) and severity of baseline dissociative symptoms in early traumatized inpatients with mixed trauma-related disorders. **Methods:** Dissociative symptoms were assessed by the Dissociative Experiences Scale (DES-II) and the Somatoform Dissociation Questionnaire (SDQ-20). Patients with high psychoform and somatoform dissociation (n = 18), high somatoform but low psychoform dissociation (n = 22), and low dissociation scores (n = 15) were compared with regard to demographics, abuse severity, clinical characteristics and treatment response status. **Results:** Patients with high psychoform and somatoform dissociation had higher levels of posttraumatic and general distress, compared to the other patients, and they were also younger at admission, less frequently married or co-habiting, and more frequently suicidal – compared to the patients with only high somatoform dissociation. The highly dissociative patients did not report more severe abuse histories, nor higher levels of depression, nor more interpersonal problems than the other patients, and they did not show higher Axis I or II-comorbidity rates. Furthermore, the patients with high dissociation on both scales responded less well to the treatment program at discharge, but not at follow-up, compared to patients with only high somatoform dissociation, and they did not deteriorate more often than the other patients. **Conclusions:** The results highlight the clinical significance of using both baseline DES and SDQ scores for identifying a subgroup of patients with severe complex symptoms. These complex trauma patients may require different treatment modules that are specific to their condition. To further research in this area, future studies should include thorough assessment of trauma and also history of

neglect, and all DSM-5 trauma-related and personality disorders as well as Complex PTSD, in concordance with international recommendations.

Introduction

Dissociation is defined as a disruption in the usually integrated functions of consciousness, memory, identity, or perceptions of one's environment [1]. In the literature, two types of dissociation are described: psychoform dissociation and somatoform dissociation. Psychoform dissociative symptoms, such as amnesia and depersonalization, manifest themselves mentally. Somatoform dissociative symptoms manifest themselves in the body, such as re-experiencing bodily components of trauma, bodily analgesia or anesthesia. Psychoform dissociation and somatoform dissociation are highly correlated in both clinical samples [2] and non-clinical samples [3, 4], suggesting that these types of dissociation are overlapping but not identical, manifestations of a common process.

Recently, increasing attention has been paid to the relevance of psychoform dissociation for the severity of psychopathology and treatment outcome among early traumatized patients with trauma-related disorders [5, 6]. Previous studies showed that highly dissociative patients present with higher salience of PTSD symptoms and other psychopathology [7] and that dissociation may decrease in later treatment stages or when specifically targeted [8, 9].

Information about the possible role of somatoform dissociation for the severity of comorbid symptoms among early traumatized patients is lacking. We do know, from a non-clinical study, though, that compared to individuals with low dissociation scores, individuals with either high somatoform or high psychoform dissociation scores more often report a reduced working ability, a poor financial situation, inadequate social support, poor general health, depressive symptoms, and suicidal ideation [3].

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We previously examined whether dissociation and somatization influenced the clinical course of patients in our specialized treatment program for adults with childhood sexual abuse (CSA) histories and mixed trauma-related disorders [10, 11]. Findings indicated that patients with an additional diagnosis of a somatization disorder, i.e. a specific type of a somatoform disorder [10] or a complex dissociative disorder (CDD), i.e. a dissociative disorder involving memory and identity problems [11], – alone or in addition to a PTSD diagnosis, may report higher levels of distress and show poorer treatment outcome than the other patients. We did not, however, include data on somatoform dissociation.

Overall, previous findings suggest that studying early traumatized inpatients with mixed trauma-related disorders might be problematic, because there could be subgroups of patients that are characterized by different baseline symptomatology and clinical diagnoses that may also play important roles in how a patient responds to treatment. Examining such variations in the severity of patients' clinical profiles is important to be able to determine which patients are included in specialized treatment for early traumatized patients and to improve treatment design. With this in mind, we presently describe our patient population based upon a combination of their baseline somatoform and psychoform scores. The present study expands our earlier work [11] and adds to previous research on trauma-related disorders in early traumatized patients by including also data on comorbid Axis II diagnoses.

The aims of the current study were twofold. First, we investigated the association between psychoform dissociation and somatoform dissociation in a sample of early traumatized inpatients with polysymptomatology related to CSA. Secondly, we wanted to know whether the demographic and clinical characteristics at admission as well as response status of patient groups with high psychoform dissociation, high somatoform dissociation, or both forms of dissociation and those without high levels on both dissociation measures differed.

Methods

Procedure and Participants

The current study used data gathered at admission, discharge, and one year after discharge in the naturalistic follow-up study of Jepsen et al. [11]. The original study included 56 adult patients (52 women and 4 men) with mixed trauma-related disorders who reported chronic CSA histories including physical contact by a caretaker or a person in authority over them before the age of 16 years. Excluded were patients meeting criteria for current psychotic episode, acute psychiatric and medical conditions requiring emergency hospitalization, and organic conditions interfering with dissociative symptoms. The patients provided informed consent for the study. The study was approved by the Regional Committee on Medical Ethics.

Treatment

The study was conducted at the Unit for Trauma Treatment at Modum Bad Psychiatric Clinic in Norway. The unit offered a national 3-month specialized inpatient trauma treatment program with a phase approach for early sexually abused adults with mixed trauma-related disorders. Dissociative-like phenomena, such as absorption, depersonalization and derealization were addressed in the program, but severe memory and identity problems and somatoform dissociation were not. The program is described in more detail elsewhere [10].

Measures

Child abuse history was assessed using a standardized intake format. A sexual abuse severity index (range: 0-6) was utilized, based on the items referring to age of onset (before six years of age or not), number of perpetrators (one or more), type of sexual act (penetration or not), father-figure as perpetrator (yes or no), duration (one year or more), and presence of

EARLY TRAUMATIZED INPATIENTS HIGH IN DISSOCIATION

childhood physical abuse in addition to CSA (yes or no). Higher scores reflected more severe abuse reports.

Furthermore, patients completed six self-report measures on which higher scores indicate greater levels of symptoms or distress. All measures, except the SDQ-20, are described in more detail elsewhere [11]. High and low dissociative symptoms were defined by validated cutoff scores for identifying cases of dissociative disorders and those with other mental disorders [7, 12].

The Somatoform Dissociation Questionnaire-20 (SDQ-20) measures somatoform dissociative experiences using 20 items that are scored on a 5-point scale (anchors: 1 = not at all; 5 = extremely) [13]. To obtain an index of symptom levels, scores were summed across the twenty items (range: 20-100). A score of 30 or more indicates a possible dissociative disorder [12]. Cronbach's α for the SDQ-20 ranged from 0.89 to 0.94 across the three measure points.

The 28-item Dissociative Experiences Scale-II (DES-II) measures the frequency of psychoform dissociative experiences on a 0-100 scale [14, 15]. A score of 25 or more represents a reasonable cutpoint for identifying potential cases of a dissociative disorder [7]. The DES-II measures the severity of three different facets of psychoform dissociation (amnesia, absorption/imaginative involvement, depersonalization/derealization). Cronbach's alpha's were satisfactory (all α 's > 0.88). We used the validated cutoff score (≥ 20) on the 8-item taxonomic version of the DES-II (DES-T) [16] to identify individuals with severe levels of pathological dissociation.

The Impact of Event Scale (IES) consists of 15 items scored on a 5 point scale measuring posttraumatic stress-related symptoms of intrusion and avoidance [17]. A cutoff score of 35 indicates a symptom severity level that is consistent with a PTSD diagnosis [18]. Cronbach's α was 0.74 at admission.

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General psychiatric symptoms were measured with the Symptom Check List 90 Revised (SCL-90-R), a 90-item scale [19]. We used the global severity index (GSI) of the SCL-90-R to measure general distress. Cronbach's α was 0.96 at admission.

The 21-item Beck Depression Inventory-II (BDI-II) measured the severity of depressive symptomatology [20]. We used a cutoff of 13 to differentiate between depressed and not depressed individuals [21]. Cronbach's α was 0.81 at admission.

The Inventory of Interpersonal Problems (IIP-C; Norwegian version) [22] was used to measure interpersonal problems. Mean values above 1 indicate significant interpersonal problems. Cronbach's α was 0.89 at admission.

The Structured Clinical Interview for Dissociative Disorders-Revised (SCID-D-R) [23] and the semi-structured Mini International Neuropsychiatric Interview (M.I.N.I.) [24] were used to assess Axis I disorders.

The Structured Clinical Interview for DSM-IV Axis II disorders (SCID-II) [25] was used to assess personality disorders (PDs).

Statistical Analyses

Pearson's correlations test was used to examine associations between somatoform and psychoform dissociative symptoms. To test differences in background and clinical variables between subgroups of patients we used Chi-square (χ^2) test or Fisher's exact test for categorical variables and one-way between-groups analysis of variance (ANOVA) with post-hoc test (Tukey's Honestly Significant Different test). In addition, effect sizes were calculated (phi coefficient and eta squared (η^2), respectively), with values < 0.20 indicating no effect, 0.20-0.49 a small effect, 0.50-0.79 a moderate effect, and values ≥ 0.80 indicating a large effect [26].

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Response status, in terms of reliable improvement and deterioration on at least one of the six self-report measures as per Jacobson and Truax [27] at discharge and one-year follow-up, was analyzed. Statistically reliable improvement on the SDQ-20 required a decrease in scores of at least 8.4. The following decreases in scores on the other instruments were required to indicate reliable improvement: IES: 6.47; SCL-90-R GSI: 0.27; BDI-II: 6.55; IIP-C: 0.33, and for the log-transformed DES-II: 0.73. For further details, see Jepsen et al. [11].

The significance level was set at $p < 0.05$ (two-tailed). Data were analyzed using SPSS version for 19.0 Windows.

Results

Types of Dissociation and Forming of Subgroups

Baseline somatoform dissociation scores were strongly correlated with psychoform dissociation (subscale) scores (r 's ranging from 0.63 to 0.76, $ps < 0.01$). Based upon cutoff scores on both dissociation measures, four groups of patients were obtained: 18 patients (32.1%) with high somatoform and psychoform dissociation (HBoth), 22 patients (39.3%) with high somatoform and low psychoform dissociation (HSDQ), and 15 patients (26.8%) with low somatoform and psychoform dissociation scores (LBoth). One patient (1.8%) with a combination of low somatoform and high psychoform dissociation scores was excluded from the analyses, leaving 55 patients in three groups (HBoth, HSDQ, and LBoth).

Demographic and Abuse Characteristics

Table 1 shows the demographic and abuse characteristics for the study sample ($n = 55$) as well as within subgroup. There was a significant difference in age at admission for the three subgroups, but in terms of effect size, this difference was small ($\eta^2 = 0.13$). Post-hoc comparisons indicated that the HBoth group was significantly younger than the HSDQ group

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($p = 0.027$). Compared to the HBoth patients, the HSDQ patients more often were married or co-habiting, and HSDQ and LBoth patients more often had own children, but the effect sizes were small (all phi's < 0.37).

The subgroups did not significantly differ in reported abuse severity or adult sexual victimization.

Clinical Characteristics

Tables 2 and 3 show the clinical characteristics for the study sample ($n = 55$) as well as for subgroups.

As shown in Table 2, the most prevalent Axis I diagnoses were depressive disorders, PTSD and other anxiety disorders, and somatoform disorders. All patients had two or more Axis I diagnoses, and 94.5% had three or more (including dissociative disorders). Complete data on Axis II diagnoses were available for 47 (85.5%) of the 55 patients. The most prevalent Axis II diagnoses were avoidant, paranoid, obsessive-compulsive, and schizoid PDs. No patients had a narcissistic, schizotypic, histrionic, or antisocial PD. More than half (53.2%) of the patients had at least one PD (27.7% one, 25.5% two or more).

As shown in Table 3, the subgroups significantly differed in symptom levels of posttraumatic stress and general distress (effect sizes < 0.25), and on dissociation levels (effect sizes ranging from 0.50 to 0.78). Post hoc comparisons showed that HBoth patients reported higher levels of posttraumatic stress and general distress compared to HSDQ patients ($p = 0.031$ and $p = 0.019$, respectively) and LBoth patients ($p = 0.000$, and $p = 0.001$, respectively). Also, the HBoth group reported significantly higher dissociation scores ($ps < 0.001$) and more often severe pathological dissociation (HSDQ phi's = -0.95; LBoth phi = -1.00) and a CDD diagnosis (HSDQ phi = -0.76; LBoth phi = -0.81). Furthermore, with moderate effect sizes, the HBoth patients more often than the other patients reported

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selfmutilation (HBoth $\phi = -0.50$; LBoth $\phi = -0.56$) and ongoing eating problems (HSDQ $\phi = -0.43$; LBoth $\phi = -0.70$). Compared to HSDQ patients, HBoth patients more often reported suicidal ideation ($\phi = -0.37$). Furthermore, the HSDQ patients more often met criteria for a somatoform disorder than the LBoth patients ($\phi = -0.37$).

Response status

The numbers and percentages of patients showing reliable improvement at discharge and follow-up, respectively were: 30 (54.5%) and 29 (51.8%) on the IES 30; 28 (50.9%) and 27 (49.1%) on the SCL-90-R GSI; 21 (38.2%) and 23 (41.8%) on the BDI-II; 16 (29.1%) and 20 (36.4%) on the IIP-C; seven (14.9%) and 12 patients (21.8%) on the SDQ-20; eight (14.5%) and 14 (25.5%) at follow-up on the DES-II.

The numbers and percentages of patients showing reliable deterioration at discharge and follow-up were: four (7.3%) and six (10.9%) on the IES; eight (14.5%) and nine (16.4%) on the SCL-90-R GSI; five (9.1%) and seven (12.7%) on the IIP-C; 13 (23.6%) at both timepoints on the SDQ-20; and two (3.6%) at discharge and three (5.5%) at follow-up on the DES-II.

As shown in Table 3, the HSDQ patients more often had reliably improved on at least one outcome measure at discharge, compared to the HBoth patients ($\phi = 0.40$). The groups did not significantly differ in deterioration rates on at least one of the six outcome measures at discharge and follow-up.

Discussion

Our results suggest that clinically relevant subgroups of early traumatized patients based on type and severity of dissociation may be identified. Post-hoc analyses revealed that patients high in somatoform as well as psychoform dissociation scales were clinically more

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distressed (higher levels of PTSD and general distress, and more self-mutilation and eating problems), compared to the other patients. Additionally, the patients high on both dissociation scales were younger at admission, less frequently married or co-habiting, and more frequently suicidal – compared to the patients with high somatoform dissociation but low psychoform dissociation. These findings are in line with earlier studies [7, 2, 28]. Contrary to what we had expected, the highly dissociative patients neither reported more severe abuse histories, nor higher levels of depression or interpersonal problems or higher Axis I and II comorbidity rates.

Furthermore, the patients high on both dissociation scales responded less well to the treatment program when assessed at discharge, compared to patients with only high somatoform dissociation. There were no differences at follow-up, though, and they did not deteriorate more frequently than the other patients. These findings support suggestions of earlier studies that patients high in dissociation may benefit from (inpatient) trauma treatment, but may need a longer time for symptom improvement [8, 11]. Note that the cutoff points used to indicate response status are arbitrary and must be interpreted with some caution.

With respect to rates of Axis I diagnoses, the rate of affective disorders was somewhat higher in our study than reported by Wright et al. [29] (94.5% vs. 87%). Compared to the Lampe et al. study [30] our patients more often had dissociative disorders (11.3% vs. 45.5%), and also the average number of diagnoses was higher in our study than reported by Lampe et al. [30], 94.5% vs. 87.8% had three or more diagnoses, respectively. The rate of Axis II diagnoses in our sample (53.3%) was lower than the rate reported by Wright et al. [29] (89%), and more in line with that reported by Stalker et al. [31] (62%). Note that comparisons across studies among early traumatized patients are impeded by inconsistency in reports of sample characteristics and sample selection [32]. Lampe et al. [30] did not report Axis II diagnoses, whereas Stalker et al. [31] did not report on Axis I diagnostic comorbidity.

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In addition, compared to DID patients admitted to a specialized inpatient treatment program for their dissociative disorder [33], our highly dissociative patients had a similar average number of Axis I diagnoses (7.3 vs. 6.7, respectively), but a much lower average number of Axis II diagnoses (3.6 vs. 1.1, respectively), possibly reflecting a referral or selection bias. Perhaps early traumatized patients with severe PDs are not typically referred or admitted to our specialized inpatient treatment program, although we employed very few exclusion criteria. If these findings reflect a more general selection process in referrals of early traumatized patients to specialized treatment programs focusing on trauma-related disorders (Axis I perspective), excluding patients with clear-cut PDs (Axis II perspective) is not clear. As dissociative disorders are common in individuals with PDs [34], this raises the question whether or not early traumatized patients with severe and dominant PDs receive therapy addressing dissociation.

Furthermore, patients reporting only high somatoform dissociation, often with a somatoform disorder, were the largest subgroup in the current sample of inpatients referred to a specialized first phase treatment. Assuming that somatoform is a stable characteristic of somatoform dissociative disorders, whereas psychoform dissociation is not [2], the HSDQ group (as well as the HBoth group) might include a non-trivial number of patients with unrecognized somatoform dissociative disorders (e.g., conversion disorder or dissociative disorders of movement and sensation). In addition, findings indicating that some patients with low scores on DES and / or SDQ had a complex dissociative disorder point to the risk of missing CDD when solely relying upon the cutoff scores of the screening instruments.

Although our study improves on prior research in several ways, it has a number of limitations, so the findings should be viewed with caution. Our sample was small, reducing power to find significant differences; inter-rater reliability for the clinical interviews (except

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for SCID-D-R) is absent; there was no control group, and we used retrospective self-report data that may have been vulnerable to recall or bias.

The results support the need to develop multicomponent therapy with different treatment modules for diverse complex trauma populations [35], tailoring treatment to the needs of the individual. For the highly dissociative subpopulation, a first phase for stabilization and establishing safety should include identification of and fostering of inner communication with and collaboration between dissociated self-states, in addition to skill-building in the areas of affect regulation, interpersonal competence (including a safe working alliance with the therapist), containment and grounding [36]. More research is needed in the more complex patient populations in order to improve treatment indications. Comorbidity on both Axis I and II was high in all subgroups of patients and may predict worse treatment outcome in patients with more complex trauma-related disorders, such as Complex PTSD and Dissociative Identity Disorder [37]. Therefore, comparisons of treatment outcome in patients with comorbid clinical syndromes and PDs are warranted.

Finally, future clinical practice and research should include thorough assessment of trauma and neglect history and all DSM-5 trauma-related disorders, Complex PTSD and Axis II disorders, using validated instruments recommended in international guidelines [38, 39].

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Table 1. Means (SD) or frequencies (%) of demographic and abuse characteristics among early sexually abused inpatients, total sample and subgroups of patient at admission

Measure	Total (n = 55)	HBoth (1) (n = 18)	HSDQ (2) (n = 22)	LBoth (3) (n = 15)	^{a,b,c} Chi or ^d F	Pairwise Contrast
<i>Demographic characteristics</i>						
Age, mean (SD)	39.45 (8.28)	35.17 (7.44)	41.82 (7.74)	41.13 (8.48)	^a 4.02*	1 < 2
Married/co-habitant, n (%)	33 (60.0)	7 (38.9)	16 (72.7)	10 (66.7)	^a 4.64*; ^b 2.53; ^c n.s.	1 < 2
Has own children, n (%)	37 (67.3)	8 (44.4)	17 (77.3)	12 (80.0)	^a 4.55*; ^b 4.33*; ^c n.s.	1 < 2,3
<i>Abuse characteristics</i>						
Abuse severity (range 1-6), mean (SD)	4.42 (1.21)	4.89 (0.96)	4.05 (1.33)	4.40 (1.18)	^a 2.53	
Sexually abused in adulthood, n (%)	25 (45.5)	9 (50.0)	12 (54.5)	4 (26.7)	^a 0.08; ^b 1.87; ^c 2.82	

HBoth (1): Patients high in both somatoform and psychoform dissociation; HSDQ (2): Patients high in somatoform dissociation and low in psychoform dissociation; and LBoth (3): patients low in both somatoform and psychoform dissociation. ^aChi-square: HBoth vs. HSDQ, 40 df; ^bChi-square: HBoth vs. LBoth, 33 df; ^cChi-square: HSDQ vs. LBoth, 37 df. n.s. = non-significant Fisher's exact test. ^done-way ANOVA, F(2,52). * p < 0.05; ** p < 0.01; *** p < 0.001.

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Table 2. Frequencies (%) or means (SD) of Axis I + II diagnoses among early sexually abused inpatients, total sample and subgroups of patients at admission

Measure	Total (n = 55)	HBoth (1) (n = 18)	HSDQ (2) (n = 22)	LBoth (3) (n = 15)	^{a,b,c} Chi or ^d F	Pairwise Contrast
<i>Axis I diagnoses</i>						
DSM-IV PTSD, n (%)	50 (90.9)	18 (100.0)	20 (90.0)	12 (80.0)	^{a,b,c} n.s.	
DSM-IV Depressive disorder, n (%)	52 (94.5)	17 (94.4)	20 (90.9)	15 (100.0)	^{a,b,c} n.s.	
DSM-IV Anxiety disorder (excl. PTSD), n (%)	46 (83.6)	16 (88.9)	17 (77.3)	13 (86.7)	^{a,b,c} n.s.	
DSM-IV Somatoform disorder, n (%)	37 (67.3)	13 (72.2)	18 (81.8)	6 (40.0)	^a n.s.; ^b 3.48; ^c 6.84**	2 > 3
DSM-IV Somatization Disorder, n (%)	28 (50.9)	9 (50.0)	13 (59.1)	6 (40.0)	^a 0.33; ^b 0.33; ^c 1.30	
DSM-IV Eating disorder, n (%)	8 (14.5)	3 (16.7)	4 (18.2)	1 (6.7)	^{a,b,c} n.s.	
DSM-IV Substance abuse /dependence, n (%)	3 (5.5)	1 (5.6)	0 (0.0)	2 (13.3)	^{a,b,c} n.s.	
Number of Axis I diagnoses	4.96 (1.90)	6.67 (2.00)	4.95 (1.70)	4.60 (1.96)	^d 2.31	

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(excl. DD), mean (SD)									
CDD, n (%)	23 (41.8)	17 (94.4)	4 (18.2)	2 (13.3)				^a 23.09***; ^b 22.04***; ^c n.s.	1 > 2,3
<i>Axis II diagnoses</i>									
^a Avoidant PD, n (%)	21 (44.7)	8 (50.0)	7 (38.9)	6 (46.2)				^a 0.42; ^b 0.04; ^c 0.16	
^a Dependent PD, n (%)	4 (8.5)	2 (12.5)	1 (5.6)	1 (7.7)				^{a,b,c} n.s.	
^a Obsessive/Compulsive PD, n (%)	5 (10.6)	2 (12.5)	2 (11.1)	1 (7.7)				^{a,b,c} n.s.	
^a Paranoid PD, n (%)	7 (14.9)	3 (18.8)	2 (11.1)	2 (15.4)				^{a,b,c} n.s.	
^a Schizoid PD, n (%)	5 (10.6)	2 (12.5)	2 (11.1)	1 (7.7)				^{a,b,c} n.s.	
^a Borderline PD, n (%)	1 (2.1)	1 (6.3)	0 (0.0)	0 (0.0)				^{a,b,c} n.s.	
Number of Axis II diagnoses, mean (SD), (n = 47)	1.08 (0.91)	1.13 (1.20)	0.78 (1.06)	0.85 (0.99)				0.46	

HBoth (1): Patients high in both somatoform and psychoform dissociation; HSDQ (2): Patients high in somatoform dissociation and low in psychoform dissociation; and LBoth (3): patients low in both somatoform and psychoform dissociation. CDD: complex dissociative disorder; PD: personality disorder. ^aChi-square: HBoth vs. HSDQ, 40 df; ^bChi-square: HBoth vs. LBoth, 33 df; ^cChi-square: HSDQ vs. LBoth, 37 df. n.s. = non-significant Fisher's exact test. ^done-way ANOVA, F(2,52). * p < 0.05; ** p < 0.01; *** p < 0.001. ^eHBoth: n = 16; HSDQ: n = 18; LBoth: n = 13.

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Table 3. Means (SD) or frequencies (%) of clinical characteristics among early sexually abused inpatients, total sample and subgroups of patients at admission

Measure	Total (n = 55)	HBoth (1) (n = 18)	HSDQ (2) (n = 22)	LBoth (3) (n = 15)	^{a,b,c} Chi or ^d F	Pairwise Contrast
<i>Symptom measures (self-report)</i>						
IES, mean (SD)	57.49 (10.53)	64.22 (8.15)	56.50 (8.80)	50.87 (11.13)	^d 8.66**	1 > 2,3
SCL-90-R GSI, mean (SD)	1.86 (0.57)	2.23 (0.45)	1.78 (0.56)	1.53 (0.49)	^d 8.41**	1 > 2,3
BDI-II, mean (SD)	26.89 (8.11)	30.56 (10.47)	25.18 (6.67)	25.00 (5.32)	^d 2.93	
IIP-C, mean (SD)	1.83 (0.38)	1.94 (0.32)	1.78 (0.44)	1.78 (0.34)	^d 1.14	
SDQ-20, mean (SD)	39.11 (13.58)	51.83 (13.67)	38.00 (6.65)	25.47 (2.97)	^d 35.27***	1 > 2,3 & 2 > 3
DES total, mean (SD)	21.45 (17.04)	42.77 (12.04)	12.52 (5.26)	8.95 (4.97)	^d 94.21***	1 > 2,3
DES-AMN, mean (SD)	9.72 (13.74)	23.51 (16.52)	3.75 (4.14)	1.92 (2.31)	^d 26.24***	1 > 2,3
DES-ABS, mean (SD)	26.71 (18.45)	48.71 (13.41)	17.78 (7.44)	13.41 (8.63)	^d 64.81***	1 > 2,3
DES-DD, mean (SD)	21.88 (22.16)	49.35 (14.65)	10.98 (9.17)	4.89 (6.40)	^d 89.09***	1 > 2,3

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DES-T membership, n (%)	19 (34.5)	18 (100.0)	1 (4.5)	0 (0.0)	^a 36.17***; ^b 33.00***; ^c n.s.	1 > 2,3
<i>Other clinical characteristics</i>						
Use of psychotropic medication, n (%)	39 (70.9)	14 (77.8)	15 (68.2)	10 (66.7)	^{a,c} n.s.; ^b 1.87	
Suicidality, n (%)	41 (74.5)	17 (94.4)	14 (63.6)	10 (66.7)	^a 5.39**; ^b n.s.; ^c 0.04	1 > 2
Selfmitilation, ongoing, n (%)	15 (27.3)	11 (61.1)	3 (13.6)	1 (6.7)	^a 9.81***; ² 10.48***; ³ n.s.	1 > 2,3
Eating problems, ongoing, n (%)	26 (47.3)	15 (83.3)	9 (40.9)	2 (13.3)	¹ 7.42**; ^b 16.05***; ^c n.s.	1 > 2,3
Age at first contact with health service, mean (SD)	27.53 (9.72)	23.89 (7.39)	29.09 (9.67)	29.60 (11.51)	^d 1.95	1 > 2,3
<i>Response Status</i>						
Reliably improved on at least one self-report measure, n (%):						
at discharge	40 (72.7)	9 (50.0)	19 (86.4)	12 (80.0)	^a 6.23*; ^b 3.18; ^c n.s.	1 < 2
at follow-up	42 (76.4)	11 (61.1)	19 (86.4)	12 (80.0)	^{a,b,c} n.s.	
Reliably deteriorated on at least one self-report measure, n (%):						

EARLY TRAUMATIZED INPATIENTS HIGH IN DISSOCIATION

at discharge	20 (36.4)	10 (55.6)	6 (27.3)	4 (26.7)	^a 3.30; ^b 2.80; ^c n.s.
at follow-up	20 (36.4)	8 (44.4)	6 (27.3)	6 (40.0)	^a 0.07; ^b 0.66; ^c n.s.

HBoth (1): Patients high in both somatoform and psychoform dissociation; HSDQ (2): Patients high in somatoform dissociation and low in psychoform dissociation; and LBoth (3): patients low in both somatoform and psychoform dissociation. SDQ-20: Somatoform Dissociation Questionnaire-20; DES: Dissociation Experiences Scale-II; DES-AMN: amnesia subscale; DES-ABS: absorption/imaginative involvement subscale; DES-DD: depersonalization/derealization subscale; DES-T: DES taxon membership; ^aChi-square: HBoth vs. HSDQ, 40 df; ^bChi-square: HBoth vs. LBoth, 33 df; ^cChi-square: HSDQ vs. LBoth, 37 df; n.s. = non-significant Fisher's exact test. ^done-way ANOVA, F(2,52), * p < 0.05, ** p < 0.01; *** p < 0.001.