

Level of functioning in patients with borderline personality disorder. The Risskov-I study

CARSTEN RENÉ JØRGENSEN
MORTEN KJØLBYE
CHARLOTTE FREUND
RIKKE BØYE
HENNING JORDET
DIANE ANDERSEN

Demographic and clinical variables in a cohort of patients with borderline personality disorder (n=108) from an ongoing randomized outcome study – ‘The Risskov-I-Study’ – at The Clinic for Personality Disorders, Aarhus University Hospital, Risskov, Denmark are presented and compared with those from patients included in eleven previously published randomized outcome studies focusing exclusively on borderline patients. In these eleven studies the average drop-out rate among patients with intention to treat is 38%, which to some extent compromises the validity of the outcome data presented and calls for measures to reduce drop-out from borderline treatments. The level of disturbance in the Risskov-I population is comparable with that found in most of the existing outcome studies and confirms the general impression that borderline patients as a group tend to have low levels of functioning in several areas, including social functioning and underachievement in terms of education, employment etc. Problems relating to the group of patients included in existing studies and to difficulties in comparing patient characteristics and treatment outcome across studies are discussed.

Keywords: Borderline personality disorder, Drop-out, Level of functioning, Demographics, Cohort study

Correspondence concerning this article should be sent to Assoc.Prof. Carsten René Jørgensen, PhD, Department of Psychology, University of Aarhus, Nobelparken, Jens Chr.Skovs Vej 4, DK-8000 Aarhus C. E-mail: carsten@psy.au.dk

Borderline personality disorder (BPD) is a major health problem, particularly among women. Although research findings on the prevalence of BPD in men and women are inconsistent (Johnson et al. 2003), it is generally estimated that two thirds of those diagnosed with BPD are women. Consequently, most of the literature and a majority of the empirical studies focus on BPD in women. BPD is marked by more or less chronic instability, recurring crises, and low level of functioning in a broad range of areas, including dysfunctional relationships, unemployment, ongoing dependency on welfare systems and general underachievement in terms of education, work etc. As a consequence of their personal and emotional problems they ‘under-achieve’ in many areas. The prevalence for BPD is estimated at approximately 1-1.5% among the general population

(Lenzenweger 2008) and 20% or more among psychiatric inpatients (DSM-IV-TR). Co-morbidity with other personality disorders (dependent, histrionic personality disorder etc.), severe symptom disorders (depression, bipolar disorder, PTSD and anxiety disorders), alcohol/drug abuse, and behavioural disorders (eating disorders, self-destructive behaviour) is substantial, and the suicide risk is estimated to be up to 10%.

Borderline personality disorder is a highly heterogeneous illness. Some individuals with BPD are fairly high functioning in several areas, while others are socially isolated, live in successive chaotic relationships, are chronically suicidal, and frequently engage in self-mutilating behaviour. Authorized diagnostic criteria require only that the patient meet five out of nine criteria. None of the nine criteria are mandatory. Thus in theory one can meet the diagnostic criteria for borderline personality disorder in 256 different ways. One possible implication is that existing studies of borderline personality disorder may be based on patient populations that differ on important variables.

It is generally agreed that intensive, focused, highly structured and integrated long-term psychotherapy is the treatment of choice for most BPD patients (APA recommendations, Oldham et al. 2001). Over the last decade four models of treatment have been presented, and to some extent empirically supported: Transference-focused psychotherapy (Clarkin et al. 2006), Schema-focused therapy (Young et al. 2003), Mentalization-based treatment (Bateman & Fonagy 2004), and Dialectical behaviour therapy (Linehan 1993). Treatment is frequently compromised by non-compliance and high drop-out rates. Borderline personality disorder is also considered to have a significant negative prognostic effect on the treatment and course of most Axis I disorders.

Transference-focused psychotherapy (TFP) is a specialized version of psychoanalytic psychotherapy rooted in the object relations model. Emphasis of treatment is on the patient's transference as the key to understanding and eliciting change in BPD-patients, more specifically integration the patient's representations of the self and others. Schema-focused therapy (SFT) is a variant of cognitive therapy which integrates elements from psychodynamic therapy. In SFT focus is on the modification of maladaptive schemata deriving from adverse experiences in childhood and adolescence. Mentalization-Based treatment is based on attachment theory and elements from modern psychodynamic psychotherapy. The overall aim of treatment is to develop and enhance the patient's ability to understand how the behaviour of the self and others is related to emotions, impulses, subjective experiences and other mental states. Finally, dialectical behaviour therapy, is best characterized as an eclectic treatment model integrating behaviour therapy with elements from dialectical philosophy, cognitive therapy, the practice of Zen etc. Emphasis of treatment is on validating aspects of the patient's subjective experi-

ence while at the same time developing the patient's problem-solving skills.

As of now there are still relatively few randomized outcome studies focusing exclusively on psychotherapy with borderline patients (Linehan et al. 1991, 1994, 1999, 2002, 2006; Bateman & Fonagy 1999, 2001, 2008; Koons et al. 2001; Verheul et al. 2003; Bohus et al. 2004; Giesen-Bloo et al. 2006; Clarkin et al. 2007, Davidson et al. 2006a, 2006b). Most of these studies are characterized by relatively small sample sizes and significant attrition rates. So far, no randomized outcome studies of mentalization-based treatment have been conducted outside the site of its development (Sct,Ann's Hospital in London). Dialectical behaviour therapy is the only treatment model to have been subjected to several randomized studies not conducted by its developers.

In some outcome studies (Linehan et al. 1991, 1993, 1994, 2002, Bateman & Fonagy 1999, 2001, 2008, Koons 2001, Verheul et al. 2003, Van den Bosch et al. 2005) a highly structured, intensive and to some extent manualized (experimental) treatment is compared with a highly heterogeneous, less intensive, and to some extent unstructured course of 'treatment-as-usual'. One could argue that these TAU-treatment conditions are ecologically valid in the sense that they represent what borderline patients are typically offered in clinical practice. On the other hand, one might hypothesize that these highly different and unspecified treatments would result in significant differences in outcome across individual patients, differences related to the ('black box') treatments offered. The specific content and strategies of the therapies delivered is, thus, not disclosed.

Linehan and colleagues compared Dialectical Behaviour Therapy (DBT) with unspecified Treatment-as-usual (TAU) for chronically suicidal women ($n=22+22$) who met criteria for borderline personality disorder in a randomized clinical Trial (Linehan et al. 1991, 1993, 1994). More recently Linehan and colleagues have compared modified DBT with comprehensive validation therapy plus 12-step therapy for the treatment of opioid-dependent women ($n=11+12$) who met the criteria for borderline disorder in a randomized controlled trial (Linehan et al. 2002), and she has compared DBT with community therapy conducted by experts on women ($n=52+49$) with suicidal behaviours and BPD (Linehan et al. 2006). Finally, Linehan and colleagues (1999) have compared modified DBT with TAU in the community for women ($n=11+11$) who met the diagnostic criteria for both borderline personality disorder and drug-dependence in a randomized design. In a randomized and (partly) controlled trial Davidson and colleagues (2006a, 2006b) compared cognitive therapy (Davidson 2007) plus treatment-as-usual with treatment-as-usual alone for patients with borderline personality disorder who had engaged in deliberate self-harm during the previous twelve months ($n=54+52$). Bateman and Fonagy compared mentalization-based treatment with standard psychiatric care for partially hospitalized borderline patients

(n=19+19) in a randomized controlled trial (Bateman & Fonagy 1999, 2001, 2008). Verheul and colleagues have compared DBT with unspecified TAU for borderline women (n=31+33) in a randomized controlled study (Verheul et al. 2003, Van den Bosch et al. 2005). Giesen-Bloo and colleagues have compared Schema-Focused Therapy with Transference Focused Therapy (TFP) for borderline personality disorder (n=44+42) in a randomized trial (Giesen-Bloo et al. 2006). Bohus and colleagues compared modified DBT with waiting-list control for female borderline patients (n=31+19) in a non-randomized design (Bohus et al. 2004). Koons and colleagues have compared DBT with unspecified TAU for borderline women (n=10+10) in a randomized study (Koons et al. 2001). Finally, Clarkin and colleagues have compared TFP, DBT, and supportive treatment for borderline personality disorder (n=23+17+22) in a randomized design (Clarkin et al. 2007).

Drop-out rates and the definition of 'drop-out' used vary considerably across studies. In some cases drop-out rates are explicitly reported. In others it is difficult to make a valid estimate of the level of attrition from the group of (randomized) patients included with intention to treat. The number of patients included in randomization procedures with intention to start treatment- and the drop-out rates (number of patients not completing the treatment offered) from eleven different studies are listed in Table 1.

Table 1: Attrition from existing randomized outcome studies of borderline patients in psychotherapy (based on number of patients with intention-to-treat)

Study	Drop-out rate (intention to treat)	Presented analyses based upon
Linehan et al. 1991	36/63 = 57%	Patients started in treatment
Linehan et al. 1994	5/26 = 19%	Primarily treatment completers
Linehan et al. 1999	18/28 = 64%	Varies across analyses
Linehan et al. 2002	4/23 = 17%	Not reported
Linehan et al. 2006	31/111 = 28%	Some drop-out patients included
Bateman & Fonagy 1999	12/50 = 24%	Patients started in treatment
Koons et al. 2001	8/28 = 29%	Treatment completers only
Verheul et al. 2003	40/64 = 63%	Treatment completers only
Bohus et al. 2004	30/80 = 38%	Treatment completers only
GieBen-Bloo et al. 2006	34/88 = 39%	Treatment completers only
Clarkin et al. 2007	28/90 = 38% (?)	Primarily treatment completers
Total drop-out rate from 11 studies	246/651 = 38%	

As can be seen from Table 1 the average attrition rate from existing outcome studies is relatively high (38%). A not-yet-published multi-centre study – that

compares transference-focused treatment with 'treatment-as-usual' in a randomized design ($n=107$) – has a drop-out rate of approximately 50% (Doering et al. 2008). Drop-out from the Davidson et al. (2006a, 2006b) study is not reported and is therefore not included in our analyses. Patients in this study were offered an average of 27 sessions over twelve months and attended an average of only 16 sessions. Although no patients were considered drop-outs since "determining drop-out from active treatment can be problematic as it depends on the definition of drop-out" (Davidson et al. 2006a, p.463), one could argue that a substantial proportion of the randomized patients never were in active treatment.

In some studies (Linehan et al. 1991, 1999, Verheul 2003) drop-out from the group of patients with intention to treat is so high that it inevitably compromises the validity of the data presented, especially in cases where the drop-out rate is not included in discussions of the data. In any case, the attrition rate should be taken into account when reporting and evaluating the response and recovery rates of borderline patients in psychotherapy. Moreover, we need more studies based on relatively large ($n=100+$) patient populations. This was one of the intentions with the present study.

At this time there is no agreed outcome battery for the study of personality disorders. Existing outcome studies use somewhat different measures of outcome and are based on patients groups that differ to some extent in terms of level of disturbance, co-morbidity etc. In some studies all the participating patients have a significant co-morbidity such as opioid dependency (Linehan et al. 1999, 2002) or pronounced suicidal behaviour (Linehan et al. 1991, 1993, 2006). As a consequence of these differences among patient populations studied it is a highly complex matter to make qualified comparisons across studies.

If one looks at the eleven outcome studies listed above it is notable that an overwhelming majority of the participating patients are women in their mid/late twenties or thirties (a total of 513 out of 542, or 95% of the participating borderline patients are women and the average age is 31.5 years, $SD=7.4$ years). Only one study, the study by Bateman & Fonagy (1999), has an even distribution of women (58%) and men. In total, fewer than thirty men have been included in the eleven outcome studies. This highly significant predominance of women, and of those in early adulthood (aged 25-40 years) in the populations studied means that it is unclear to what extent the results from existing studies can be generalized to males, adolescents (25 years and younger), and older people (aged 45+). Thus questions such as: How does the treatment under investigation work with borderline men, with adolescents and young adults (aged 25 years or below), and with older adults are basically unanswered. Moreover, most studies were conducted in association with the people who developed the treatment models (Linehan, Bateman etc.) and it is not sufficiently clear how the results can be gene-

ralized to more 'ordinary' clinical settings that are not affiliated with high-profile clinicians and researchers. Does a treatment that works well in the 'laboratory' lead to equally good outcomes in clinical practice? Finally, a substantial proportion of the borderline patients who have participated in outcome studies are not receiving psychotherapeutic treatment alone, but are also receiving some form of medical treatment. The possible interactions between psychotherapy and medical treatment have not so far been sufficiently studied.

Design

The aim of this study is to describe a cohort of borderline patients (n=108) referred to the Clinic for Personality Disorders at Aarhus University Hospital, Risskov, Denmark. The clinic specializes in assessment and psychotherapeutic treatment of borderline personality disorder based on psychoanalytic principles. The present investigation is part of an ongoing study at The Clinic for Personality Disorders – the Risskov-I Study – in which the outcome of intensive, combined mentalization-based psychotherapy supplemented with elements from object-relations theory is compared with less intensive, supportive group therapy in a randomized and partly controlled design.

Patients are randomly assigned to either combined mentalization-based psychotherapy or to supportive psychotherapy in an outpatient setting. Two thirds of the referred borderline patients are offered the combined treatment while the remaining third are offered supportive therapy. The combined treatment consists of weekly individual psychotherapy for 18 months, supplemented after three months with weekly group psychotherapy for 18-20 months, group-based psycho-education once a month for six months, and medical treatment in accordance with the recommendations of the American Psychiatric Association, APA (Oldham et al. 2001). The supportive treatment consists of two hours of supportive group therapy every two weeks, group-based psycho-education once a month for six months, and medical treatment in accordance with the APA recommendations. Both treatment programmes are of two years duration and all patients are allowed to participate in the psycho-educational groups more than once if they wish to.

Both treatment modalities are based on psychodynamic principles. The combined treatment is mentalization-based supplemented with elements from object-relations theory (Bateman & Fonagy 2004; Jørgensen et al. 2009b) and emphasizes the relational aspects of borderline disorder. The supportive treatment (Jørgensen et al. 2008) provides support and advice on daily problems facing the patient, including interpersonal problems. The transference is followed and parts of the ongoing interaction between the group members are verbalized but not interpreted.

Patients in both modalities are offered two years of treatment. Treatment outcome is continuously monitored. All patients are asked to answer a battery of outcome questionnaires every three months. Outcome is monitored more thoroughly at the time of assessment, and 12, 24, 30, and 42 months after admission. The intention is to follow the group of patients over a period of three and a half years. Initially, we also intended to follow the patients who dropped out prematurely but this has not proved feasible. For patients in individual psychotherapy the development of the therapeutic alliance is monitored by using the Working Alliance Inventory (WAI). Patients and therapists answers the WAI questionnaire every three months.

Reported data are based on all patients included with intention to treat. Preliminary data from our ongoing outcome study indicates a drop-out rate of approximately 35% (Jørgensen et al. 2009a). A substantial proportion of these patients (7 of 21) dropped out while on the waiting-list. Others were excluded because they were re-diagnosed as non-borderline. Some of the existing outcome studies in the field (c.f. Bohus et al. 2004) report demographic data only for treatment completers, which makes it difficult to get a clear picture of the initial population with intention-to-treat. We expect to report elsewhere on identity style (Berzonsky 1989, Jørgensen 2008) in a selected group of our patients and preliminary outcome data (Jørgensen 2009, Jørgensen et al. 2009a).

Patients

The participating patients were referred to the Clinic for Personality Disorders from psychiatric wards, outpatient clinics, community psychiatric units, and general psychiatrists in private practice in The Central Jutland Region, Denmark. Potential subjects were screened through a series of clinical interviews and semi-structured SCID-II interviews (First et al. 1996). All interviews were conducted by two experienced psychiatrists, one experienced psychologist, and one less experienced psychologist under close supervision. All assessment and SCID-interviews were video-recorded. Most of the interviews used in this study were conducted by the two experienced psychiatrists, whose inter-rater reliability was therefore tested. The interviews were rated 'live' by both assessors. The Kappa measure of agreement for 'borderline personality disorder' was 0.73 ($p < .01$), which is satisfactory. Axis I (current and lifetime) co-morbidity was examined through PSE-interviews and systematic examination of medical records. All patients received written and oral information about the study and written informed consent to participation was obtained after all study procedures had been explained. The study was approved by the Regional Research Ethics Committee

of the Central Jutland Region. Initially all the borderline patients referred to the clinic agreed to participate in the study. After the randomization procedure three patients refused to participate in the study but continued treatment.

108 patients participated in the study. They all met the DSM-IV criteria for borderline personality disorder as assessed by the SCID-II questionnaire and semi-structured interviews. Patients who also met the diagnostic criteria for schizophrenia, bipolar disorder, attention deficit hyperactivity disorder (ADHD), organic disorder, schizotypal, schizoid, paranoid or dissocial personality disorder at the time of assessment were not included. Only patients between 21 and 50 years of age and with a global assessment of functioning score above 34 were included. Finally, patients with active and substantial substance dependence were excluded. Four of the patients included were later diagnosed with schizophrenia, and three were diagnosed with ADHD. These patients had not been diagnosed with schizophrenia or ADHD at the time of assessment and are therefore included in this study.

Table 2: Demographic and clinical characteristics at intake of patients (n=108) with borderline personality disorder

	N/Mean (%/SD)
Age	29.2 (6.2)
Female	103 (95%)
BPD-criteria (SCID)	6.7 (1.2)
At least one other (non-BPD) PD	56 (52%)
Civil status: Single	50 (46%)
Successive partners	26 (24%)
Married/partner	32 (30%)
Graduated education (years): <10	46 (43%)
10-12	31 (29%)
13-15	29 (27%)
>15	2 (2%)
Work: Pension	5 (5%)
Social security	76 (71%)
Student	18 (17%)
Employed	8 (7%)
Reported history of sexual abuse/rape	25 (23%)
Reported history of self-mutilation	87 (81%)
Self-mutilation in last 3 months	29 (27%)
Anti-psychotic drug treatment	15 (14%)
Benzodiazepine drug treatment	11 (10%)
Anti-depressive drug treatment	69 (64%)
No drug treatment	33 (31%)

Demographic and clinical characteristics of the patient cohort are shown in Table 2. In accordance with existing studies (with the exception of Bateman & Fonagy's), an overwhelming majority (95%) of the patients were female. Mean age was 29.2 years (SD=6.2 yrs.). One-way Anova analysis of variance showed that mean age at intake was significantly higher ($p < 0.05$) in the group of patients studied by Bateman & Fonagy (1999), Linehan et al. (2002), Koons (2001), and Verheul et al. (2003). Most of the patients in our study were either living alone (46%) or alternating between several successive partners (24%), moving constantly from one partner to another. Three of the existing studies in the field have reported significantly higher proportions of patients living alone (87% in the Bateman & Fonagy study, 63% in the Linehan et al. 1999 study, and 87% in the Linehan et al. 2006 study). Verheul et al. (2003) Clarkin et al. (2006), and Davidson et al. (2006b) reported comparable proportions of patients living alone (36%, 44%, and 36% respectively). One might speculate that the patients categorized as 'alternating between successive partners' in our study would be classified as living alone in other studies. In that case the marital status (social functioning) of our patient sample is comparable with that found in the Bateman & Fonagy (1999), and the Linehan et al. (1999, 2006) studies. Less than a third (30%) of our patient sample were living in a stable relationship.

On average, patients in our study met 6.7 of the nine diagnostic criteria for borderline personality disorder (SD=1.2), which corresponds with findings in other existing studies. As a group, patients met diagnostic criteria for an average of 2.2 co-morbid Axis I disorders. The most common Axis I diagnoses were (past or current) depression ($n=80$, 74%), (past or current) anxiety disorder ($n=37$, 34%), and eating disorder ($n=51$, 47%). At the time of assessment, 18 patients (17%) were diagnosed with alcohol abuse, and 14 (13%) were diagnosed as substance abusers. On Axis II, the most common co-morbid conditions were depressive PD ($n=35$, 32%) and avoidant personality disorder ($n=14$, 13%).

The average level of education was low compared with the norm in Denmark. Almost half the patients (43%) had completed only primary and secondary school or the equivalent (fewer than ten years education). Only two out of one hundred and eight patients had an academic degree. Some of the existing studies have reported average educational level but the categories used are different from ours and differs significantly across studies. The general impression from these studies is that-, in comparison with the general population borderline patients are in general substantially 'under-educated'.

A remarkable proportion of the patients (75%) in our study were either unemployed and on social security (70%) or on permanent pensions (5%). 17% were students. Only 7% were employed. These figures accord with those in the study by Verheul et al. (2003), which reported 80% on either social security or

pensions, in the Davidson et al. (2006b) study, in which 68% were unemployed and 84% were receiving some form of social benefits, and the Bateman & Fonagy (1999) study, in which all participating patients were on social security. Giesen-Bloo et al. (2006) reported a significantly lower (Fichers exact test, $p < 0.03$) level of patients on social security (55%). The studies by Linehan et al. (2002), Clarkin et al. (2007), and Giesen-Bloo et al. (2006) have reported a substantially lower proportion of unemployed patients (52%, 59%, and 20% respectively). These differences in levels of employment are statistically significant (Fischer's exact test, all p 's < 0.005) and could indicate a higher average level of functioning in the patients who participated in these studies. Alternatively, the fact that many of our patients, like those in the studies by Bateman & Fonagy and Verheul et al., were unemployed and on social security/pensions could be interpreted as a result of the conditions of life in the northern European welfare states compared with those in the United States with its less generous welfare systems.

Approximately one quarter of our patient sample reported sexual abuse in childhood and/or having been raped in adolescence or adulthood. More than three quarters (81%) reported self-destructive behaviour, over a quarter (27%) within the last three months, and more than two thirds (68%) reported having made at least one suicide attempt at some point in their lives. Some of the existing outcome studies focus on suicidal borderline patients (Linehan et al. 1991, 1994) or borderline patients with severe self-mutilating behaviour (Linehan et al. 2006, Davidson et al. 2006b). In these studies, all the participating patients reported suicide attempts and/or self-mutilating behaviour. In one case (Linehan et al. 2006) suicide attempts and non-suicidal self-injury are not reported separately, in another (Linehan et al. 1994) the methods used to differentiate para-suicidal behaviour from suicide attempts are not revealed. Some studies have reported lower levels of suicide attempts and self-mutilating behaviour, comparable with those found in our sample. Verheul et al. (2003) reported that 71% of the patients included their study had a history of suicide attempts, while in the study by Clarkin et al. (2007) 57% reported prior suicide attempts.

Almost two thirds of the patients in our study (64%) were in anti-depressive drug treatment at the time of assessment and less than one third (31%) were not in any kind of medical treatment. Less than half of the existing outcome studies have reported the medical treatment of participating patients. In the Bateman & Fonagy (1999) study only 3% of the patients were not in any kind of drug-treatment at the time of assessment (which is significantly lower than in our study, Fischer's exact test, $p = 0.004$). Bohus et al. (2004) reported that 48% of their patients were in anti-depressive drug-treatment, and that 24% were not in any kind of drug treatment. The demographic data reported by Bohus et al. (2004) are based only on treatment completers and therefore not fully comparable with those in the other

existing studies. In the Giesen-Bloo et al. (2006) study 26 % of the participating patients were in no drug treatment at the time of assessment. Compared with our study, significantly more patients in the Clarkin et al. (2007) study was in no form of drug treatment at the time of assessment (Fischer's exact test, $p=0.03$).

Measures

Patients' level of functioning at intake was tested by using a range of self-report measures. Except in the case of the SUSS-questionnaire, the reliability and validity of all the measures used is well established.

Subjective experience of symptoms was measured by using the Revised Symptom Check List 90 (SLC-90-R, Derogatis 1983). This questionnaire assesses current level of mental symptoms divided into nine subscales. The SCL-90-R, Global Severity Index (GSI) represents the mean of all 90 items and is an overall measure of pathology level. Cut off for pathology is a score above 0.60. SCL-90-R, Personality Severity Index (PSI) is the mean of three subscales – interpersonal sensitivity, hostility/anger, and paranoid ideation – and reflects the presence and severity of relatively enduring characteristics. Cut-off for pathology is a score above 1.0 (Karterud et al. 1995).

Depression and anxiety symptoms were measured using the Beck Depression Inventory (BDI-II, Beck et al. 1961), the State-Trait Anxiety Inventory (STAI, Spielberger et al. 1970, Spielberger 1985), and the Beck Anxiety Inventory (BAI, Beck & Steer 1990). Cut off for moderate depression is a BDI-score above 17, severe depression above 29. Cut off for moderate anxiety is a BAI-score above 16, severe anxiety above 25. There is no standardized cut off score for the STAI inventory.

Social adjustment and interpersonal function were measured using the Social Adjustment Scale, Self Report version (SAS-SR, Weissman & Bothwell 1976) and the Inventory of Interpersonal Problems (IIP, Horowitz et al. 1988). In general, an IIP-score above 1.96 is considered to indicate pathological functioning. No normative data exists for the SAS-SR questionnaire.

The Global Assessment of Functioning (GAF, Endicott et al. 1976) was used to evaluate the overall severity of disturbance. We used a split version with separate ratings of symptoms and social function. The GAF scale ranges from 1 (most ill) to 100 (healthiest) and cut off for minimal impairment is around 70. The global assessment of functioning was administered separately for symptomatology and general level of functioning. In some cases the evaluations were done retrospectively on the basis of patient's medical records. All the GAF scores included are based on team consensus.

Suicide attempts and self-destructive behaviour were continuously monitored using a specially designed questionnaire (SUSS – 'Spørgeskema til Undersøgelse af Selvmordsforsøg & Selvskade'). In the questionnaire the patients are asked to report the number of times they have made suicide attempts or engaged in self-destructive behaviours within the last six months.

Personality traits were measured by the use of the Revised Neo Personality Inventory (NEO-PI-R, Costa & McCrae 2004). NEO-PI-R is a self-report measure of the five-factor model (FFM) (Costa & McGrae 1992) and is generally accepted as a valid measure of relevant dimensions of normal personality. Most studies of the interrelationship between NEO-Pi-R dimensions and DSM criteria for personality disorders are based on non-clinical samples (mostly among students). Where clinical samples have been used, it has been found that the NEO-PI-R is able to differentiate between PD and non-PD (Morey et al.2002) whereas its ability to differentiate between specific PD's must be considered questionable (Zweig-Frank & Paris 1995). We used the short version with 60 questions aimed at primarily capturing the five main dimensions of the FFM: Neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness. Scores between 56 and 65 are average, scores below 35 are 'very low' and potentially pathological, whereas scores above 65 are 'very high' and likewise potentially pathological.

Finally, the tendency to use mature, neurotic or immature defences in daily life was evaluated using the defence style questionnaire (DSQ-40, Bond et al. 1989). Scores above 1.0 indicate that defences at a given level of maturity are used 'more than normal', whereas a score below minus one indicates less than normal use of defences at a given level of maturity.

All reported data are based on aggregation of all available data from the assessment period, including the time patients spent on the waiting list. At the time of analysis 14 patients were still waiting to start treatment. Average time on the waiting list is 7.1 months (range 0-23 months, SD= 5.6 months). Some patients refused to answer particular questionnaires. Three patients refused to participate in the study after randomization (i.e. refused to answer all questionnaires) and were excluded from this part of the study because of missing data.

Results

Self-reported mean average level of function at intake is presented in Table 3. As can be seen from the table, baseline mean score on the SCL-90-R, global severity index was 1.77 (SD=0.60). Mean level of disturbance was particularly high on the SCL-90-subscale obsessive-compulsive symptoms (mean=2.09, SD=0.70), interpersonal sensitivity (mean=1.94, SD=0.83), somatization (mean=1.56, SD=0.78), and paranoid ideation (mean=1.52, SD=0.93). One-way Anova ana-

lysis of variance showed that the mean GSI-score was significantly ($p < 0.00005$) higher (mean score = 2.40, $SD = 0.64$) in the group of patients studied by Bateman & Fonagy (1999), indicating a more severe level of psychopathology among their patients. Mean GSI-score at intake in the Bohus et al.-study (mean = 1.83, $SD = 0.56$) did not differ significantly from that in our study ($p > 0.56$).

Table 3: Clinical characteristics at intake of patients (n=105) with borderline personality disorder. The data are aggregated from the assessment period, including the time patients spent on the waiting list.

	Mean (SD)
SCL-90-R (n=101): GSI	1.77 (0.60)
PSI	1.64 (0.78)
BDI-II (n=101)	32.7 (11.2)
BAI (n=99)	19.7 (9.9)
STAI (n=98): State	58.3 (11.7)
Trait	61.5 (8.6)
IIP (n=100)	1.75 (0.58)
SAS-SR (n=98)	2.61 (0.52)
DSQ-40 (n= 100): Mature defences	- 1.45 (1.10)
Neurotic defences	0.36 (1.00)
Immature defences	1.15 (1.09)

At intake, mean BDI-II-score was 32.7 ($SD = 11.2$), indicating severe depressive symptoms (BDI-score above 29) among a substantial proportion of patients. This does not differ significantly ($p > 0.16$) from baseline level in the Bateman & Fonagy (1999) study (mean = 35.5, $SD = 7.50$), the Bohus et al. (2004) study (mean = 31.3, $SD = 9.40$), or the study presented by Koons et al. (2001) (mean = 28.8, $SD = 13.0$). Average level of self-reported depression at intake was significantly higher (mean = 42.5, $SD = 11.2$) in the group of patients studied by Davidson et al. (2006b). Level of anxiety measured by BAI was 19.7 ($SD = 9.9$) at intake. The State-anxiety score in our study was 58.3 ($SD = 11.7$), which is significantly lower ($p = 0.0003$) than in the Bateman & Fonagy's (1999) (mean = 65.8, $SD = 6.9$). We found no significant differences ($p = 0.07$) between the two studies in Trait-anxiety at intake (mean = 61.5, $SD = 8.6$ in our study, and mean = 64.3, $SD = 8.2$ in the Bateman & Fonagy study). State anxiety was significantly lower (mean = 52.5, $SD = 12.1$, $p = 0.0006$) in the Davidson et al. study (2006b) whereas trait anxiety in their study was significantly higher than in ours (mean = 64.9, $SD = 8.2$, $p = 0.004$). Bohus et al. (2004) has reported a mean STAI-score (mean = 73.8, SD is not reported) but it is unclear whether this refers to state or trait anxiety, or an average of the two.

Baseline level of social functioning measured with SAS-SR was 2.61 ($SD = 0.52$).

This does not differ significantly ($p>0.36$) from the reported baseline in the Linehan et al. (1994) study (mean=2.72, SD=0.42). Bateman & Fonagy (1999) have reported significant changes in SAS-SR-score over the course of treatment. Unfortunately, their baseline level is not reported.

Bateman & Fonagy (1999) have reported a total IIP-score of 2.35 (SD=0.33) at baseline. This is significantly higher ($p<0.0005$) than the baseline level of interpersonal disturbance in our study (mean IIP-total score=1.75, SD=0.58). In our study, borderline patients reported greatest interpersonal distress in the areas of: social inhibition (mean=1.90, SD=0.86), over-accommodating behaviour (mean=2.04, SD=0.87), self-sacrificing behaviour (mean=2.04, SD=0.84), and non-assertiveness (mean=2.23, SD=0.87). Similar concentrations in borderline patients' interpersonal problems have recently been reported by Hilsenroth and colleagues (2007).

Table 4: NeoPi-R-score in our group of borderline patients compared with the patients studied by Clarkin et al. (1993) and by Morey et al. (2002)

	Borderline patients (n=88) Mean (SD)	Morey et al. 2002 (n=175) Mean (SD)	Clarkin et al. 1993 (n=62) Mean (SD)
Neuroticism (a)	72.9 (5.9)	74.9 (10.0)	70.6 (8.3)
Extroversion (b)	36.7 (9.3)	41.9 (12.8)	46.3 (11.7)
Openness to experience (c)	54.6 (9.2)	55.1 (12.4)	51.9 (12.7)
Agreeableness (d)	38.6 (11.1)	41.8 (13.0)	38.8 (11.1)
Conscientiousness (e)	30.9 (8.3)	33.6 (14.2)	42.4 (12.0)

(a): One-way Anova analysis of variance showed that the patients in our group scored significantly higher than the patients studied by Clarkin et al. ($p<0.05$). The difference between our group and the group studied by Morey et al. is not significant ($p=0.08$); (b): One-way Anova analysis of variance showed that the patients in our group scored significantly lower than the patients studied by Clarkin et al. and Morey et al. ($P<0.0005$ and $p=0.0008$ respectively); (c): One-way Anova analysis of variance showed no significant differences between our group and the group studied by Clarkin et al. and Morey et al. ($p=0.13$ and $p=0.74$ respectively); (d): One-way Anova analysis of variance showed no significant differences between our group and the group studied by Clarkin et al. ($p=0.91$). Patients in our group scores significantly lower than the group studied by Morey et al. ($P<0.05$); (e): One-way Anova analysis of variance showed that the patients in our group scored significantly lower than the patients studied by Clarkin et al. ($P<0.0005$). The difference between our group and the group studied by Morey et al. is not significant ($p=0.10$)

As can be seen in Table 4, the borderline patients in our study were characterized by very high neuroticism (mean=72.9, SD=5.9), very low conscientiousness (mean=30.9, SD=8.3), low agreeableness (mean=38.6, SD=11.1), and low extroversion (mean=36.7, SD=9.3). Compared with the patients studied by

Clarkin et al. (1993) and Morey et al. (2002), our patients were significantly more disturbed on certain dimensions (especially extroversion) and comparable with their patients on others.

Discussion

In accordance with prevailing conceptions of borderline personality disorder we found that the borderline patients included in the Risskov-I Study are characterized by relatively severe disturbances in general level of functioning, particularly disturbances in interpersonal or social functioning, and by high levels of depressive symptoms. Our findings support the general impression that many people with borderline personality disorder are relatively severely disturbed and in great need of treatment. We also found high standard deviations on most or all symptom measures, indicating that the group of patients is highly heterogeneous, both in terms of general level of functioning and specific pathology profiles (psychological defenses are severely compromised in some patients, not in others; specific aspects of interpersonal functioning are severely disturbed in some patients, not in others, etc.). Thus, future research should address “the interaction between treatment and patient characteristics in order to determine what treatment, by whom, is most effective with this individual, with that specific problem, under which set of circumstances” (Levy 2008, p.557).

General level of functioning, self-reported depressive symptoms, anxiety, social impairment, sex-ratio, age and other demographic variables in our study are comparable with those in most existing outcome studies in the field. However, the group of patients included in our study is larger than in most existing studies.

Self-reported symptom scores indicate that, compared with our study and most other randomized outcome studies, the level of functioning was generally lower at intake in the group of patients studied by Bateman & Fonagy. One could argue that this is partly a reflection of the fact that the concentration of people with severe psychopathology is higher in greater metropolitan areas, and that the patients in the Bateman & Fonagy study were recruited from an inner city area of London whereas most of the other existing outcome studies were conducted in smaller, semi-urban areas. Moreover, the Bateman & Fonagy study was conducted in a partial hospitalization (day hospital) setting and the (high intensity) treatment offered took place five days a week. Most of the other existing outcome studies, including our ongoing study, are based on (less intensive) treatments spread over two-three days a week or less in more loosely structured outpatient settings, which makes it more difficult to contain and, as a result, more difficult to retain and help more severely disturbed patients.

One of the problems that we will not be able to address in our study is to what extent the treatment models developed can be used with male borderline patients. It is reasonable to assume that co-morbid alcohol/drug dependency/abuse conditions, externalizing defense mechanisms etc. are more prevalent among male borderline patients. If this is indeed the case, what are the implications for psychotherapeutic process and outcome? Do we need different or substantially modified treatment models for males with borderline personality disorders?

In addition to borderline patients' substantial problems in several areas, borderline personality disorder imposes significant burden on primary and secondary health care services (Rendu et al. 2002, Zanarini et al.2004) and has substantial societal costs in terms not only of individual suffering, suicide, somatic diseases etc. but also lost productivity (van Asselt et al. 2007). Although compromised by a number of methodological problems, cost benefit studies (Stevensen & Mearns 1999, Bateman & Fonagy 2003, Gabbard et al.1997) suggest that intensive and long-term psychotherapeutic treatment for patients with borderline personality disorder has substantial cost benefits. For this reason, psychotherapeutic treatment should be offered on a larger scale than it is at present.

Limitations of the study

Assessment of level of functioning is primarily based on self-report measures and could have been improved substantially by more extensive use of observer-rated measures and structured tests. In addition, GAF-assessments conducted after randomization (including assessments during treatment and at termination) were not blind to treatment conditions. Although all GAF-assessments were based on team consensus they could be compromised by the fact that all assessors had access to information about treatment conditions and that the therapists were involved in the assessment process. Finally, a small number of the GAF-assessments were done retrospectively, on the basis of (extensive) medical records.

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