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PSYCHIC STRUCTURE: EXPLORING AN EMPIRICALLY STILL UNKNOWN TERRITORY

The Scales of Psychological Capacities (SPC) were developed to gauge structural change, the mode-specific effect of psychoanalysis and psycho-analytic psychotherapies. In this study, as a first step, basic psychometric properties that assess psychic structure were examined. Construct valid-ity was investigated as predictive validity in a known-groups approach. Two predictions were formulated: (1) there are differences in psychic structure between borderline patients, depressive patients, and healthy controls that are verified by the SPC, and (2) borderline patients show inconsistent and divergent self- and object representations most fre-quently, followed by depressive patients and, finally, by healthy controls, a fact reflected by the SPC. These scales were applied to a sample of 33 borderline patients, 36 depressed women, and 36 healthy controls. Both predictions were confirmed. Thus, empirical evidence is provided of the SPC being a valid measure for assessing psychic structure.

"The measurement of outcome is in a state of chaos, with little agreement among researchers about the specific measures to be used. We are convinced that most of the necessary measures to be included in such (minimal core outcome) batteries already exist." So Hill and Lambert (2004, p. 124) stated in their summary of state-of-the-art outcome measurement in psychotherapy research. They wondered whether a new measure should really be added to the already existing chaos. It is a well-known problem in comparative psychotherapy research that one of the

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difficulties in proving differences between therapeutic modalities may be the absence of such measures, leading to a notorious "uniformity myth" (Kiesler 1966). Luborsky referred to unsuitable outcome measures as one of the reasons for not finding differences between dynamic psychotherapies and other treatments. "The usual outcome measures . . . do not make an adequate distinction between . . . the parallel related changes referred to as non-structural and structural change" (Luborsky et al. 1993, p. 510).

Psychoanalysis, and to some degree psychodynamic psychotherapy, claims to achieve structural change. In psychoanalytic theory structural change is conceived as a complex change in the intrapsychic matrix that underlies symptoms and maladaptive behavior. Therefore the first step is to define the term *structure*. The most influential and widespread definition was made by Rapaport (1960): "in contrast to the drive processes, whose rate of change is fast and whose course is paroxysmal, the factors which conflict with them and co-determine behavior appeared to be invariant or at least of a slower rate of change. The observation of these relatively abiding determiners of behavior and symptom seems to have been the foundation on which the concept of structure was built" (p. 53). This definition has an extremely wide extension that allows the term to encompass heterogeneous phenomena such as "cognitive structures, affect structures, defenses, identifications, introjects, self- and object representations, the whole internalized picture of the world, superego standards, effector structures, and the wishes which are the representatives of the drives" (Applegarth 1989, p. 1100). In their effort to grasp the term *structure* more precisely, Sandler and Joffe (1969) distinguished between the "realm of experience" that comprises wishes, impulses, memories, fantasies, etc., and the "non-experiential realm" of forces and energies, mechanisms and apparatuses as the network of explanatory constructs and principles, the latter being equivalent to structures. Schwartz (1981) criticized the use of the term as metaphorical when it includes specific contents. To avoid semantic confusion Pulver (1991) introduced a crucial distinction between static and dynamic structures. Dynamic structures are defined as "an organized body or combination of mutually connected and dependent parts or elements which carry out a specific function," thus linking structure closely to function. Static structures, by contrast, are "enduring sequences of mental events" like ideas, representations, fantasies, etc.

Based on the concept of psychic structure, the notion of structural change was developed as a type of change that goes beyond symptom alleviation and behavioral change. The concept was meant to capture the

changes in the major psychic structures—id, ego, and superego—brought about by psychoanalytic treatment. In terms of structural theory, Freud formulated the outcome of psychoanalysis in the apothegm "where id was there ego shall be" (Freud 1933, p. 80). This simple formula was then elaborated until the term *structural change* had been created. Moore and Fine (1990) define structural changes as "modifications within each of the major agencies of the psychic apparatus that reduce the conflicts among those agencies" (p. 185). The more fine-grained analysis of the mechanisms creating these changes owes much to the work of Bibring (1937), Dewald (1972), and Kernberg (1991), to mention only a few authors. "Rethinking" structural change from a cognitive neuroscience perspective, Gabbard and Westen (2003) described it as "a *relative* deactivation of problematic links in activated networks and increased activation of new, more adaptive connections, so that the patient will tend to find new, more adaptive compromise solutions" (p. 829).

METHODS AND PROCEDURE

A Measure of Structural Change

To assess structural change, the Scales of Psychological Capacities (SPC; Wallerstein 1991; Wallerstein et al. 1986; Huber, Klug, and Wallerstein 2006) were used in the Munich Psychotherapy Study (MPS; Huber, Klug, and von Rad 2002; Huber and Klug 2002), a prospective comparative process-outcome study investigating the treatment effects of psychoanalysis and psychoanalytic psychotherapies for depressive disorders in a randomized controlled design. The SPC measure was constructed on a general psychoanalytic theoretical basis for use by expert raters evaluating psychic structure. Based on the research methodology of the Psychotherapy Research Project (PRP) of the Menninger Foundation (Wallerstein 1986), these scales are an attempt to operationalize the concept of "psychic structure" and "structural change" independently of any particular theoretical perspective within psychoanalysis. Thus, they can be used to obtain reliable assessments of specific changes after psychoanalytic psychotherapy, irrespective of the therapist's theoretical adherence. In a content validity study (DeWitt et al. 1991), expert judges of different psychoanalytic schools rated the scales as satisfactorily providing comprehensive coverage of manifestations of structural change. Another content validity study (Huber and Klug 2002) was performed by prospectively assessing the subdimensions on which depressive patients were expected to score the highest. This "prototypic" profile of depressed patients

was compared with the empirical profile. Apart from one exception, the empirical profile was identical to the prototypic profile of the clinical experts. The central idea of the SPC measure is the construct of capacities "describing the psychological resources that are necessary to achieve adaptive functioning and life satisfaction" (Wallerstein et al. 1986, p. 1) that form the basis of the acquisition of adaptive skills and abilities. It is a measure for evaluating psychic structures and their changes on a broad psychoanalytic basis. Based on an empirical research strategy, the psychological capacities are constructs designed to be theoretically as low-level and experience-near as possible and to be readily inferable from observable behavior and conscious states of mind. Thus, the underlying intrapsychic structures and changes after treatment can be reliably identified.

As shown in Table 1, the psychological capacities consist of 17 dimensions; 14 are divided into 2 subdimensions and 2 into 3 subdimensions; 1 dimension is not divided. The assessment of all 35 dimensions/subdimensions (in the German version) is based on a one-hour clinical interview tape-recorded together with a one- to two-hour semistructured SPC interview with probe questions. The interview was developed by the test author (Wallerstein) and his research group. This thorough procedure is necessary to avoid the assessment of symptoms instead of structure.

This points to a well-known problem in personality assessment, the "trait-state artifact." Patients who are in a dysphoric state, especially in depression, may have a distorted self-perception and a selective recall of their past. Although there is some research evidence that clinical interviews are less prone to trait-state artifacts, there is no guarantee for unbiased independent assessment of personality (Loranger et al. 1991; Mulder 2002).

We tried to control for scoring symptoms/states by thoroughly training our raters. Throughout the interview, patients were informed that the characteristic level of functioning is of interest rather than their depressive episodes. Especially for subdimensions that resemble depressive symptoms—e.g., pessimism, self-depreciation—the interviewers were trained not to score depressive symptoms. They were encouraged to question the patient carefully, to cross-examine the answers, and to exercise clinical judgment. A supervisor trained by two of the test authors (Wallerstein and DeWitt) was available to assist interviewers in case of any doubt. Regular supervision and recalibration meetings were also provided.

The material was rated for each subdimension on a 7-point scale ranging from 0 for normal or fully adaptive functioning to 3 for seriously and obviously disturbed functioning, with half-points in between (0–0.5–1–1.5–2–2.5–3). One subdimension covers various degrees of inhibited

Table 1. The Scales of Psychological Capacities (SPC)

1.	Hope	a. Excessive Optimism b. Excessive Pessimism
2.	Zest for Life	a. Overexcitement b. Apathy
3.	Attribution of Responsibility	a. Overexternalizing b. Overinternalizing
4.	Flexibility	a. Closed-Mindedness b. Confusion and Self-Doubt
5.	Persistence	a. Drivenness b. Giving Up
6.	Commitment to Standards and Values	a. Moralism b. Absence of Principles
7.	Commitment in Relationships	a. Compulsive Overinvolvement b. Limited, Tenuous Commitment
8.	Reciprocity	a. Exploitation of Others b. Surrender of Self
9.	Trust	a. Extreme Suspiciousness b. Extreme Gullibility
10.	Empathy	a. Emotional Absorption b. Emotional Blunting c. Egocentricity
11.	Affect Regulation	a. Out-of-Control "Affect Storms" b. Hypercontrol
12.	Impulse Regulation	a. Overindulgence b. Overinhibition
13.	Regulation of Sexual Experience	a. Impulsive or Driven Expression b. Inhibition
14.	Self-Assertion	a. Bullying b. Timidity
15.	Reliance on Self and Others	a. Rarely Able to Rely on Others b. Rarely Able to Rely on Self c. Rarely Able to Be Person Relied Upon
16.	Self-Esteem	a. Grandiosity b. Self-Depreciation
17.	Self-Coherence	a. Inconsistency

functioning, and the other various degrees of exaggerated functioning. The two subdimensions must be assessed simultaneously. An extensive manual containing a detailed description of each subdimension, together with one or more clinical vignettes to underline each scale point, is available for use in the rating procedure.

When introducing a new measure like the SPC, researchers need to provide evidence for its reliability and validity as basic psychometric properties. DeWitt, Milbrath, and Wallerstein (1999) have reported that the intraclass correlation coefficients (ICCs) of all subdimensions reached Cohen's cutoff of .50; 28 of the the 35 dimensions/subdimensions had interrater reliabilities at or above .70 (Hill and Lambert 2004). Sundin, Armelius, and Nilsson (1994) obtained satisfactory results in an interrater reliability study with a Swedish version of the SPC with a mean ICC of .64. We calculated interrater reliabilities with the intraclass correlation coefficient showing a mean ICC of .82 for all subdimensions, with a range from .54 to .89 (Klug and Huber 2003; Huber and Klug 2004). To summarize, there is considerable support for the test's reliability.

In general, as Hill and Lambert (2004) put it, validity means that the measures "assess what we want them to assess"; face validity ("on the surface the items seem to measure the underlying construct"), content validity ("the items measure the content inherent in the construct"), and construct validity ("evidence that the scores reflect the desired construct") can be distinguished only indirectly (p. 89). Construct validity, which we will concentrate on in this paper, is established as convergent (high correlations with construct-near measures), as discriminant (low correlations with construct-distant measures), and as predictive (measure yields results in the theoretically expected direction) validity. It is this last form of validity—predictive construct validity—on which we will concentrate.

Based on the psychoanalytic theory of borderline personality disorder, depressive disorder, and normality, we hypothesized that the SPC should be able to confirm (1) that there are distinct differences in psychic structure between borderline patients, depressive patients, and healthy controls, and that the SPC measure is able to verify them (known-groups approach I), and (2) that borderline patients show inconsistent and divergent self- and object representations most frequently, followed by depressive patients and, finally, by healthy controls (known-groups approach II).

Known-Groups Approach I: Impulse/Affect Control, Self-Coherence, and Mood Regulation

The comparison of different diagnostic groups with different scores is a well-established and approved method—the known-groups approach— for proving predictive construct validity (Hill and Lambert 2004; Lienert and Raatz 1998). But the co-occurrence of borderline personality disorder and major depressive disorder suggests that the two disorders are not

independent diagnostic entities. According to Akiskal, Hirschfeld, and Yerevanian (1983), personality and affective disorder are linked in four different ways: first, characterological propensities are etiological antecedents of affective illness; second, personality has an impact on the clinical picture, treatment, and outcome of affective episodes (the pathoplasty hypothesis); third, personality traits are the sequelae of affective illness (the opposite of the first hypothesis); fourth, personality in people with an affective illness represents milder or alternative expressions of the basic illness (the trait-state continuum). Especially the third hypothesis, of state-dependent changes, contradicts the assumption that borderline personality disorder and major depressive disorder are distinct entities that are stable over time.

Hirschfeld et al. (1983) reported that in their study characteristics such as emotional lability, hypersensitivity, passivity, resilience, extraversion, and interpersonal dependency were sensitive to clinical states, but their research used only self-reporting personality inventories. But Loranger et al. (1991), using interviews conducted by experienced clinicians, found no evidence that mood states affected the diagnosis of personality disorder. They concluded that the trait-state artifact has been based on self-report measures, not clinical interviews. Widinger and Shea (1991), reviewing the literature, found the distinction between Axis I and Axis II useful and generally valid, but emphasized in particular that borderline personality disorder is literally on the border between personality and mood disorder. Widiger (1989) and Klein and Shih (1998) argued that borderline personality disorder and affective disorders cannot be neatly distinguished; four of eight DSM-IV criteria for borderline personality disorder indirectly involve affective symptomatology (affective instability, inappropriate or intense anger, physically self-damaging acts, and chronic feelings of emptiness and boredom), a fact that indicates an overlapping of the constructs. From a psychobiological perspective, Siever and Davis (1991) suggest a dimensional and "spectrum" approach that transcends the Axis I / Axis II distinction; they support this suggestion with findings from a longitudinal follow-up study of personality disorders and Axis I disorders—the Collaborative Longitudinal Personality Disorders Study (Shea et al. 2004)—that suggest a crosscutting dimensional model. However, using data from the same study, Skodol et al. (2005) have proposed a distinction within borderline personality disorder between dimensional personality traits, which have great temporal stability and are proximal to genetic and biological mechanisms, and categorical symptomatic behaviors

(e.g., self-cutting) measured by DSM-IV criteria, which are more state-dependent and are linked to life situations and stress (Clarkin 2006). As to the depressive personality, there are supporters of state-dependent changes in personality traits (e.g., Akiskal 1997; Cassano and Savino 1997) and supporters of a stable depressive personality not influenced by changing mood states (e.g., Klein and Miller 1997).

We postulate, following general psychoanalytic theory (e.g., Rapaport 1960; Pulver 1991) and lacking empirical data, that both borderline patients and depressive patients have a stable structure that yields clear-cut and stable differences between the two diagnostic groups, and that they can therefore be used in a known-groups approach. More specifically, serious difficulties in affect control and self-coherence prevail in borderline patients, whereas disturbances in self-esteem, hope, and attribution of responsibility are expected to predominate in depressive patients. To grasp both structures empirically, we applied the Operationalized Psychodynamic Diagnostics (OPD Task Force 2001), the psychodynamic supplement of ICD-10's Axis IV, a construct that describes structure in terms of self-perception, self-regulation, flexible and mature defenses, object perception, communication, and attachment (see Table 2), an approach quite different from the categorical criteria of DSM-IV. We assume that there are significant differences in the SPC dimensions (impulse and affect control, self-coherence, self-esteem, hope, and attribution of responsibility) between borderline patients, depressive patients, and healthy controls.

Sample. The sample comprises three diagnostic groups comparable in age and gender. All groups consisted of women only, because they predominated in the depressive and borderline groups. Thirty-six depressed women were taken from the Munich Psychotherapy Study (MPS) sample. Two psychiatrists/psychotherapists diagnosed all patients based on an ICD-10 and DSM-IV checklist (Hiller, Zaudig, and Mombour 1995). All patients met the ICD-10 criteria for a moderate or severe depressive episode (F 32.10 or F 32.20), or for a recurrent moderate or severe depressive disorder (F 33.10 or F 33.20). Examinations for comorbidity indicated that no patient in the depressive group met the criteria for emotionally unstable personality disorder, borderline type (F 60.31). Severity of depressive symptomatology was assessed by the Depression scale of the Symptom Checklist-R (SCL-90-R; Derogatis, Lipman, and Covi 1973). The mean value was 1.8 and standard deviation .9. The level of intrapsychic structure was evaluated by the OPD, Axis IV (structure).

Table 2. Sociodemographic variables and psychic structure of the three groups (women only)

	Borderline n = 33		Depressive n = 36		Controls n = 36		Test Statistic χ2	Signif. p
	n	%	n	%	n	%		
Romantic relationship	12	36	26	72	22	65	9.973	.007
Marital status							2.548	.636
single	26	79	31	86	32	89		
married	4	12	3	8	1	3		
divorced	3	9	2	6	3	8		
One or more children	6	18	4	11	1	3	4.234	.120
Education							39.591	.001
Short course secondary	13	48	0	0	0	0		
Intermediate course secondary	3	11	8	26	4	11		
College preparatory and higher	11	41	23	74	31	89		
OPD Axis IV: Structure								
good integration	0	0	19	53				
moderate integration	6	16	16	43				
low integration	25	84	1	4				
disintegration	0	0	0	0				
	M	SD	M	SD	M	SD	$F_{1,102}$	p
Age	28.7	6.6	28.6	3.7	26.8	5.1	1.547	.218

The subjects (see Table 2) showed a degree of integration ranging from good (53%) to moderate (43%), both figures corresponding to neurotic structure.

Thirty-three borderline patients were recruited who met the ICD-10 criteria for emotionally unstable personality, borderline type (F 60.31). Investigations of comorbidity revealed that six of these patients also met the ICD-10 criteria for a moderate or severe depressive episode (F 32.10 or F 32.20), or for a recurrent moderate or severe depressive disorder (F 33.10 or F 33.20), yielding a comorbidity rate of 19%. Seven patients (comorbidity rate of 23%) met the ICD-10 criteria for eating disorders (F 50), and another seven patients (comorbidity rate of 23%) met the ICD-10 criteria for anxiety, stress-related, and somatoform disorders (F 40–F 48).

Severity of depressive symptomatology was assessed by the SCL-90-R and indicated a mean value of 2.2 and a standard deviation of 1.0. Thus, borderline patients did not differ significantly from depressive

patients in their depressive symptomatology. The level of intrapsychic structure again was evaluated by the OPD, Axis IV (structure). The subjects (see Table 2) showed a degree of integration ranging from moderate (16%) to low (84%), the latter figure corresponding to borderline personality organization.

Thirty-six healthy controls were recruited from medical students and employees of the civil service and the banking system. All controls were selected by a screening interview developed by our research group. Participants were questioned about symptoms of psychic or organic disorders and were asked whether they had ever been in psychotherapy. Additionally, participants filled out the SCL-90-R and the Inventory of Interpersonal Problems (IIP-D, German version; Horowitz, Strauss, and Kordy 2000) to exclude people with mental disorders. According to both tests, healthy controls did not differ from the norm values of the test manuals.

Demographic data of the three diagnostic groups are shown in Table 2. Compared with borderline patients, both depressive patients and healthy controls were approximately twice as likely to be living with a partner. The significant difference in educational level between the groups was caused by the high number of students in the control group and, in contrast, the high number (nearly half) of borderline patients with only extended elementary school level. All patients were tested using a semistructured clinical interview and a semistructured SPC interview. The clinical interview is used routinely in the Outpatient Department of Psychosomatic Medicine and Psychotherapy of the Technical University of Munich. It includes questions about symptoms and complaints, course of the illness and its antecedents, and biography. The semistructured SPC interview was developed by the American test authors (Wallerstein et al. 1986). Every dimension and subdimension is subjected to inquiry in a recommended order; some questions must be asked, while others are optional. For each subdimension the interviewer asks about the frequency of disturbed functioning, its pervasiveness or intensity, any accompanying dysphoric affect, and the subject's response to external support. To control for interviewer effect, the groups were rated by the same interviewers. New raters were recruited for this study and trained according to a formal method (Mercer and Loesch 1979) to ensure high rates of agreement with standard judgments of expert judges. In this study all raters were female.

Interrater reliability was calculated with the intraclass correlation coefficient (ICC; Shrout and Fleiss 1979). The mean ICC was .85, ranging

from .62 to .87. These are satisfactory values, as an ICC of .70 is generally considered the standard cutoff point for high reliability. The ICC did not differ significantly across the three groups (mean ICC for depressed patients, .72; for borderline patients, .81; for healthy controls, .82).

Statistical analyses. Comparisons of mean values across the three groups for the 35 SPC dimensions/subdimensions and the SPC total score were calculated with univariate one-way analyses of variance (ANOVA). ANOVAs allow significant mean differences to be determined and control for variability due to chance factors or experimental errors. Because of multiple testing, the overall risk for Type I error (the probability of rejecting the null hypothesis when the hypothesis is true) is increased. The alpha-level was therefore adjusted with the Bonferroni correction, which requires a nominal significance level of .0014 to reach the conventional .05 significance level.

Since univariate analysis of variance does not take possible correlations between SPC subdimensions into account, a discriminant analysis was conducted to discriminate the three clinical groups. The discriminant analysis identifies which SPC subdimensions contribute most to discriminating the groups. The analysis yields two equations (discriminant functions) that are weighted combinations of the SPC subdimensions that maximize the difference between the three groups. A canonical discriminant function is a linear combination of discriminating variables. An automatic selection of the subdimensions ("stepwise" discriminant analysis) was performed by adding or deleting one or more of the SPC subdimensions at each step to determine the combination of subdimensions that yield the best discrimination between the groups.

Known-Groups Approach II: Inconsistent and Divergent Self- and Object Representations

As we have mentioned, the construction of the SPC allows the scoring of more than two subdimensions at the same time. For example, both subdimensions of the psychological capacity *self-esteem* are scored when a patient feels inadequate *grandiosity* as well as intense *self-depreciation*. We understand the coexistence of divergent self- and object representations as an indication of an impairment of the synthetic ego functions, which is typical for more severe disorders. It was therefore assumed that borderline patients would show this phenomenon most frequently, followed by depressive patients and, finally, healthy controls.

To approach this topic empirically, we operationalized an index as follows: All the subdimensions of a psychological capacity must be dysfunctional (1.5 as a cutoff point). Further, the difference between the subdimensions of a capacity must be small (i.e., must not exceed one scale point). Take, for example, the subdimension *self-esteem:* if the subdimension *grandiosity* is scored 2.5, and if the subdimension *self-depreciation* is scored 2, the criteria for dysfunction are met. A conservative cutoff point was chosen because > 1.5 indicates that overall functioning is compromised in some definite way. The small difference, at the same time, between the contradictory feelings and behavior indicates that there is high intrapsychic tension. In this way we tried to avoid measuring mere ambivalence. A total score for this index was calculated for each of the diagnostic groups.

RESULTS

Known-Groups Approach I: Impulse/Affect Control, Self-Coherence, and Mood Regulation

Table 3 shows the results of the univariate one-way ANOVAs. Borderline patients showed the highest scores on all subdimensions. The following five subdimensions scored the highest: *self-depreciation, indulgence, affect out of control, inconsistency,* and *hypercontrol of affect* (in descending order). Depressed patients scored highest on the following five subdimensions: *self-depreciation, overinvolvement in commitments, pessimism, self-doubt,* and *overinternalizing* (in descending order). There are significant differences between the groups for 32 SPC subdimensions, and the SPC total score ($p < .001$). Participants from the control group scored lowest on every SPC subdimension and had the lowest SPC total score. According to the post hoc tests, they differed significantly from borderline patients on all SPC subdimensions and on the SPC total score. On 12 subdimensions and the total score there were significant differences between all three groups. On 13 subdimensions the control group differed significantly from the two clinical groups, and on 6 subdimensions the control group and the depressives differed from borderline patients. On 2 subdimensions there was a difference only between healthy controls and borderline patients, and on another 2 no significant difference could be observed.

The stepwise discriminant analysis extracted 7 subdiensions that classify the groups by two discriminant functions with 94.3% accuracy, and

Table 3. Comparisons of means of the 35 SPC subdimensions and the SPC total score for the three groups (one-way ANOVAs)

		Borderline (B) ($n = 33$)		Depressive (D) ($n = 36$)		Control (C) ($n = 36$)		Test statistic $F_{2,102}$	Significance p	Multiple comparisons [a]
		M	SD	M	SD	M	SD			
1. Hope	a. Optimism	0.81	0.66	0.31	0.40	0.28	0.39	12.53	<.001	C,D<B
	b. Pessimism	1.77	0.70	1.54	0.63	0.26	0.39	67.84	<.001	C<D,B
2. Zest for life	a. Overexcitement	1.55	0.87	0.99	0.70	0.51	0.53	18.20	<.001	C<D<B
	b. Apathy	1.65	0.61	0.98	0.65	0.10	0.23	74.72	<.001	C<D<B
3. Responsibility	a. Externalizing	0.80	0.81	0.32	0.43	0.14	0.28	13.56	<.001	C<B
	b. Internalizing	1.58	0.96	1.47	0.79	0.58	0.60	16.94	<.001	C<D,B
4. Flexibility	a. Closed-Mindedness	1.41	0.60	0.88	0.67	0.38	0.55	24.97	<.001	C<D<B
	b. Self-Doubt	1.73	0.59	1.51	0.87	0.44	0.51	36.80	<.001	C<D,B
5. Persistence	a. Drivenness	1.70	0.67	1.12	0.72	0.68	0.61	20.01	<.001	C<D<B
	b. Giving Up	1.44	0.88	1.08	0.87	0.10	0.27	31.46	<.001	C<D,B
6. Standards	a. Moralism	0.96	0.70	0.43	0.65	0.35	0.42	10.21	.001	C,D<B
	b. Unprincipled	1.28	0.66	0.17	0.42	0.14	0.29	63.41	<.001	C,D<B
7. Committment	a. Involvement	1.82	0.70	1.56	0.78	0.53	0.62	33.30	<.001	C<D,B
	b. Tenuousness	1.69	0.76	0.65	0.75	0.22	0.45	44.09	<.001	C<D<B
8. Reciprocity	a. Exploitation	0.56	0.59	0.23	0.46	0.17	0.36	6.74	.002	C<B
	b. Surrender	1.67	0.77	1.25	0.80	0.51	0.61	22.92	<.001	C<D,B
9. Trust	a. Suspiciousness	1.65	0.81	1.13	0.71	0.31	0.45	35.57	<.001	C<D,B
	b. Gullibility	1.31	0.65	0.71	0.66	0.50	0.50	16.56	<.001	C,D<B
10. Empathy	a. Absorption	1.51	0.93	1.09	0.90	0.47	0.60	14.14	<.001	C<D,B
	b. Blunting	0.91	0.71	0.56	0.60	0.13	0.26	17.13	<.001	C<D,B
	c. Egocentricity	0.89	0.83	0.36	0.57	0.31	0.38	9.05	<.001	C,D<B

(*continued*)

Table 3. (continued)

	Borderline (B) (n = 33)		Depressive (D) (n = 36)		Control (C) (n = 36)		Test statistic $F_{2,102}$	Significance p	Multiple comparisons [a]
	M	SD	M	SD	M	SD			
11. Affect a. Out of Control	2.17	0.60	1.15	0.75	0.29	0.47	80.36	< .001	C<D<B
b. Hypercontrol	1.89	0.81	1.22	0.81	0.46	0.54	33.07	< .001	C<D<B
12. Impulse a. Indulgence	2.18	0.70	0.74	0.61	0.20	0.44	102.39	< .001	C<D<B
b. Inhibition	1.09	0.78	0.90	0.63	0.27	0.39	17.11	< .001	C<D,B
13. Sexual a. Impulsive	0.22	0.50	0.06	0.21	0.01	0.04	4.36	.015	
b. Inhibition	1.80	0.95	1.19	0.78	0.49	0.67	22.72	< .001	C<D<B
14. Assertion a. Bullying	1.19	0.66	0.63	0.68	0.33	0.57	15.98	< .001	C,D<B
b. Timidity	1.42	0.84	1.25	0.67	0.49	0.54	18.53	< .001	C<D,B
15. Reliance a. Not on Others	1.78	0.82	1.23	0.76	0.63	0.57	22.30	< .001	C<D<B
b. Not on Self	1.23	0.88	0.96	0.83	0.24	0.38	17.56	< .001	C<D,B
c. Not Relied Upon	0.95	0.78	0.65	0.68	0.22	0.37	11.86	< .001	C<D,B
16. Self- Esteem a. Grandiosity	0.23	0.39	0.20	0.35	0.06	0.22	2.61	.079	
b. Self-Depreciation	2.25	0.56	1.74	0.60	0.40	0.48	105.28	< .001	C<D<B
17. Coherence Inconsistency	1.92	0.65	0.83	0.55	0.06	0.15	123.74	< .001	C<D<B
SPC Total Score	1.40	0.25	0.89	0.22	0.32	0.19	207.54	< .001	C<D<B

[a] Multiple comparisons are significant on a 5 % level; blank means no significance (post hoc test: Games-Howell); adjusted alpha-level = 0.0014

Table 4. Classification results of stepwise discriminant analysis (7 SPC subdimensions selected)

|	Predicted Groups		
Groups ($N = 105$)	Borderline	Depressive	Controls
Borderline ($n = 33$)	94% (31)	6% (2)	0%
Depressive ($n = 36$)	3% (1)	89% (32)	8% (3)
Controls ($n = 36$)	0%	0%	100% (36)

by cross-validation with 92.4% accuracy. Thus, 100% of the control group, 89% of the depressive patients, and 94% of the borderline patients were identified correctly (Table 4). Both canonical discriminant functions explain a substantial part of the variance, the first function 85.7%, and the second function 14.3%. Both functions are highly significant and are therefore necessary for distinguishing the groups (first function: $\chi^2 = 257.7$, $df = 14$, $p < .0001$; second function: $\chi^2 = 67.5$, $df = 6$, $p < .0001$).

Figure 1 shows the canonical discriminant functions. The first discriminant function significantly differentiates borderline patients from healthy controls with depressive patients in between (multiple-comparison test, $p < .001$). It is therefore likely that the first discriminant function grasps a general structural impairment affecting healthy controls, depressive patients, and borderline patients in different degrees. The 7 SPC subdimensions that were extracted by the stepwise discriminant analysis were then correlated with both standardized canonical discriminant functions, as shown in the structural matrix presented in Table 5, where the subdimensions *inconsistency* and *indulgence* are most significantly correlated with the first discriminant function. The second discriminant function distinguishes depressive patients from healthy controls and from borderline patients (multiple-comparison test, $p < .001$; see Figure 1). It was therefore concluded that the second discriminant function indicates a specific *depressive* structural impairment that distinguishes depressive patients from borderline patients and healthy controls. The subdimensions that correlate most significantly with the second function are *unprincipled behavior* of the dimension *commitment to standards and values* (negatively correlated) and *pessimism* of the dimension *hope* (see Table 5).

Known-Groups Approach II: Inconsistent and Divergent Self- and Object Representations

All diagnostic groups differed significantly (multiple-comparison test, $p < .001$) in inconsistent and divergent self- and object representations.

Figure 1. Canonical discriminant functions: position of the individual scores and of the centroids of the three investigated groups
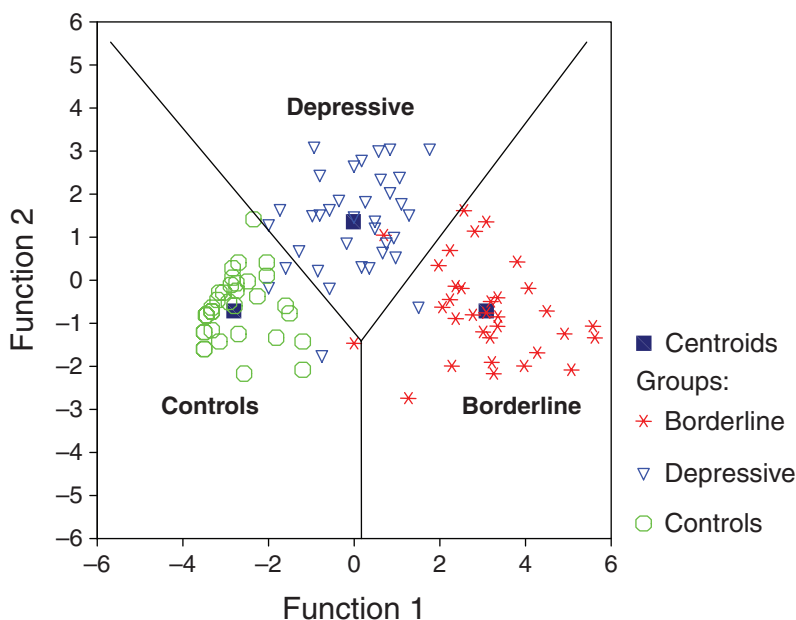
Borderline patients had a mean value of 4.4 dimensions per patient, with a standard deviation of 2.8; depressive patients had a mean value of 1.0 dimension per patient, with a standard deviation of 1.4; and the control group had a mean value of 0 dimensions per person.

DISCUSSION

We would like first to emphasize some methodological limitations of the design that should be taken into account when interpreting the results. It is certainly a drawback that neither interviewers nor raters were totally blinded for the group assignment of patients and healthy controls. Although the raters were blinded for the diagnoses (because they did not perform the clinical intake interviews), it is likely that they were experienced enough to infer the diagnoses from the extensive material they had for their ratings. Thus they may have been able to differentiate the clinical groups from the control group. However, they were not members of the research group and did not know the research questions or specific

Table 5. Structure matrix: pooled within-groups correlations between SPC subdimensions and canonical discriminant functions (variables ordered by size of correlation with function 1)

	Discriminant Function	
SPC Subdimensions	I	II
17. Inconsistency	.64	−.11
12a. Indulgence	.57	−.32
16b. Self-Depreciation	.57	.41
1b. Pessimism	.44	.47
6b. Unprincipled	.41	−.52
6a. Moralism	.17	−.16
16a. Grandiosity	.09	.09

hypotheses. Moreover, the raters had psychoanalytic qualification only to some degree and were not adherents of any particular psychodynamic school. They were therefore considered to be eclectic psychotherapists. Nevertheless, working for our institute, they were affiliated with the psychoanalytic research community and may have had a preconscious tendency toward confirming our hypotheses. This could have an effect on the internal validity of the current study.

Furthermore, although interviewers were instructed to examine participants from the control group as thoroughly as the patients, the former did not suffer from any substantial symptomatology and so may have been less motivated to report problematic experiences or behavior. However, the findings seem overall to answer this objection, as healthy controls reported clear-cut deviations from the normal state, indicating that they did not deny deviations from the norm.

Known-Groups Approach I: Impulse/Affect Control, Self-Coherence, and Mood Regulation

The first hypothesis, that the SPC measure is able to differentiate the psychic structures of borderline patients, depressive patients, and healthy controls, was confirmed. These clear-cut and significant differences could be demonstrated on a descriptive level, with univariate analyses of variance, and with multivariate discriminant analyses. These findings emphasize the predictive validity of the SPC.

The more subtle prediction that disturbances in impulse and affect control and in self-coherence would predominate in borderline patients, whereas depressive patients would show disturbances in self-esteem, hope, and attribution of responsibility, was only partly confirmed. The subdimensions *inconsistency* of the dimension *self-coherence,* and *indulgence* of the dimension *impulse regulation* contributed essentially to the first standardized canonical discriminant function, which explains the difference between borderline and depressive patients. This finding supports the prediction that borderline patients reveal disturbances in impulse and affect control, and in self-coherence.

But borderline patients also showed disturbances in the dimension *self-esteem* and *hope*. Borderline patients scored highest on the subdimension *self-depreciation* of the dimension *self-esteem,* and scored significantly higher than depressive patients on the subdimension *pessimism* of the dimension *hope.* The subdimensions *self-depreciation* of the dimension *self-esteem* and the subdimension *pessimism* of the dimension *hope* significantly correlated with the first standardized canonical discriminant function. This points to the well-known overlap of borderline personality disorder and primary affective disorder, a vexing problem that has been described by many researchers (e.g., Gunderson and Elliot 1985). But there are differences, too, as Westen et al. (1992) and Leichsenring (2004) emphasized, and the first discriminant function may grasp some of the difference in psychodynamic mechanisms that underlie the different groups. For instance, the subdimension *inconsistency* of the dimension *self-coherence* corresponds to Kernberg's *identity diffusion* (1975), the inability to maintain a stable integrated concept of self and others, with rapidly oscillating projections of self- and object representations; further, the subdimension *indulgence* of the dimension *impulse regulation,* corresponding to lack of impulse control, which, following Kernberg's structural analysis of borderline personality disorder, is one of the nonspecific signs of borderline patients' ego weakness.

An examination of the second standardized canonical discriminant function may provide a more specific understanding of depressive patients. It differentiates them from borderline patients and from healthy controls but does not distinguish between borderline patients and healthy controls. Therefore, this function is not a mere continuum of psychopathology. The subdimension *unprincipled behavior* of the dimension *commitment to standards and values* and the subdimension *indulgence* of the dimension *impulse regulation* correlate negatively (significantly so) with the second

standardized canonical discriminant function. Thus, these subdimensions are negative building blocks of this function and could reflect the severe and rigid superego of depressive patients often described in the psycho-analytic literature. The vexing problem that emerges again is that the subdimensions indicating difficulties in the regulation of mood and self-esteem—the subdimension *pessimism* of the dimension *hope* and the subdimension *self-depreciation* of the dimension *self-esteem*—are significantly correlated with *both* discriminant functions. This could be interpreted as the result of a missing selectivity in the measure as constructed or of the raters' inadequate training and experience in psycho-analytic theory and practice.

Known-Groups Approach II: Inconsistent and Divergent Self- and Object Representations

The results of the known-groups approach II confirm our second hypothesis, that the SPC measure shows borderline patients to have inconsistent and divergent self- and object representations significantly more often than do depressive patients, whereas healthy controls have not. We understand the coexistence of inconsistent and divergent self- and object representations from the perspective of object relations theory (Klein 1952; Fairbairn 1940) as *splitting* (Moore and Fine 1990). The index applied will therefore be termed the *splitting index*. Although the concept is rather ambiguous, showing a remarkable lack of clarity (see, e.g., Pruyser 1975; Stern 1985; Reich 1995), we conceive splitting as a defense mechanism needed to separate contradictory self- and object representations in order to protect "all good" from "all bad" representations, thereby avoiding overwhelming anxiety. Each representation is conscious but separated from its contradictory counterpart by means of a "bland denial" of the other representation (Kernberg 1975). Thus, there is neither a conflict nor a consciousness of inconsistency, indicating an intolerance of ambiguity. On this understanding, splitting may be viewed as a defense mechanism that typically predominates in the more severe character pathologies. Following Kernberg (1975, 1984), we regard it as the central defense mechanism of borderline patients.

Akiskal et al. (1985) proposed that borderline personality disorder be validated in terms of specific ego functions or defense mechanisms like splitting. Perry and Cooper (1986) performed a canonical discriminant function analysis with five summary defense variables (including a borderline summary defense scale: splitting of self-images, splitting of others' images, and

projective identification) to determine whether the variables discriminate three diagnostic groups (borderline personality disorder, antisocial personality disorder, bipolar type II). Only nonsignificant trends emerged. The authors interpreted this finding as a methodological limit of their study rather than as a rejection of their hypothesis of the specificity of defenses. Cooper, Perry and Arnow (1988) used the borderline defense indicators of the Rorschach Defense Scales as another measure with which to conduct a canonical discriminant function analysis. However, no distinctions among the above-mentioined diagnostic groups were indicated. Lerner and Lerner (1980) found that borderline patients used significantly more Rorschach indicators of splitting and other primitive defenses than did patients with neurotic disorders. Leichsenring (1999) compared four groups (acute schizophrenics, chronic schizophrenics, borderline patients, and healthy controls) using the Lerner Defense Scale (LDS), a Rorschach scoring system for primitive defense mechanisms (Lerner and Lerner 1980; Lerner, Sugarman, and Gaughran 1981). He replicated Lerner and Lerner's finding and in part confirmed our study, as borderline patients showed significantly more indicators of splitting than did patients with neurotic disorders. However, contrary to theoretical expectations and current results, in their study splitting was found in 60% of healthy controls.

It is possible that the three diagnostic groups in our study could be differentiated because the SPC measure allows the investigator to grasp splitting. In the SPC manual, the authors state that patients sometimes deviate in a psychological capacity in *both* directions simultaneously. This deviation indicates underlying contradictory self- and object representations that are conscious and therefore do not need to be made conscious by the interviewer (Kernberg 1976; Moore and Fine 1990) unless there is horizontal splitting (Kohut 1971) with additional repression.

SUMMARY

Testing the predictive construct validity of the SPC, both psychoanalytic assumptions could be confirmed. First, there are distinct differences in psychic structure between borderline patients, depressive patients, and healthy controls. Second, splitting is a typical defense mechanism in borderline patients that is less dominant in depressive patients and hardly present at all in healthy controls. Thus, the SPC confirmed the test of predictive validity.

However, dealing with the subtleties of a psychoanalytically oriented diagnosis, the raters may not have been adequately trained, and that is essential, "because judges, rather than measures, are the actual measuring instrument," to yield valid findings (Mercer and Loesch 1979, p. 79). A replication study with raters more psychoanalytically experienced will therefore further the empirical investigation of our research question. Psychoanalysis needs measures that gauge therapeutic effects beyond symptomatic changes, effects well worth the time-consuming efforts of patients and therapists engaged in long-term psychoanalytic psychotherapy (Galatzer-Levy et al. 2000).

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