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The Relationship Between DSM-IV Cluster B Personality Disorders and Psychopathy According to Hare's Criteria: Clarification and Resolution of Previous Contradictions

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This study examines the relationship between DSM-cluster B personality disorders (PDs) and psychopaths according to Hare's criteria as detected by the Psychopathy Checklist (PCL:SV) in 299 violent offenders. To clarify some contradictions among several previous studies on this issue, individual cluster B PDs were looked at alone, excluding any cases of comorbidity with other PDs of this cluster. We found highly significant relationships between antisocial and borderline PD and Factor II of the PCL and a highly significant correlation between narcissistic PD and Factor I of the PCL. These results were to be expected from the theoretical basis of the development of the PCL and provide a contribution to the construct validity of the PCL, which until now has not been validated on such a large sample in Germany. Copyright © 2007 John Wiley & Sons, Ltd.

Personality disorders characterized by antisocial behavior are currently most commonly classified either in terms of DSM-IV or using the Hare Psychopathy Checklist (PCL). The aim in developing the PCL was to detect not only observable behavioral markers, which are sufficient for a DSM-IV diagnosis of antisocial personality disorder, but also traits more deeply embedded in the personality (Hare, 1980). Although the assessment of psychopathy according to Hare's criteria depends primarily on the total PCL score, an analysis of data from a large sample ($n = 1119$)

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revealed two stable factors. Factor 1 describes an egocentric—grandiose, unempathic, but at the same time manipulative, attitude in interpersonal contact, while Factor 2 represents a chronically unstable, dissocial lifestyle (Harpur, Hakstian, & Hare, 1988). In early studies of construct validity, Hare's research group was able to provide empirical evidence for the relationship that was assumed to exist between certain DSM personality disorders and psychopathy. Prototype rating (Hart, 1987, according to Harpur, Hare, & Hakstian, 1989) revealed high correlations between narcissistic personality and Factor 1, and between antisocial personality and Factor 2 (Harpur et al., 1989, Harpur, Hart, & Hare, 2002).

However, other findings relating to the relationship between DSM personality disorders and Hare psychopathy as detected by the PCL are more inconsistent and contradictory in nature.

Hart, Forth, and Hare (1991) investigated the concurrent validity of the PCL in comparison with the Millon Clinical Multiaxial Inventory (Millon, 1983), which includes scales for specific personality disorders. The subjects for their study were 119 male North American prisoners. The study found the antisocial personality disorder scale to have strong positive correlations with both the total PCL score and Factor 2 of the PCL. The scale for borderline personality disorder showed weak positive correlations both with the total PCL score and with Factor 2 of the PCL, but there was no correlation between the narcissistic personality disorder scale and Factor 1 of the PCL. In a Swedish sample of 61 forensic psychiatric patients, high PCL scores were strongly correlated with both antisocial and borderline personality disorders, without any further consideration of the relationships to Factors 1 and 2 (Stalenheim and von Knorring, 1996). In a German sample of 18 sexual offenders, antisocial personality disorder correlated highly with total PCL score, Factor 1 and Factor 2. Borderline personality disorder was found to correlate highly with the total PCL score and Factor 2. A weak correlation was also found between narcissistic personality disorder and Factor 1 (Kraus, Berner, & Nigbur, 1999). In a Swiss study, 36 out of 45 male juvenile delinquents fulfilled the criteria for antisocial personality disorder, 28 fulfilled the criteria for borderline personality disorder and 11 displayed the characteristics of narcissistic personality disorder. A high psychopathy score was only found in five participants, all of whom demonstrated comorbidity with antisocial and borderline personality disorder. Correlations between DSM personality disorder and the different PCL scores were not calculated in this study (Möller, Andreae, Meier, Urbaniok, & Hell, 2001). A small preliminary study of our own on adult violent offenders revealed correlations of antisocial personality disorder with total PCL score, Factor 1 and Factor 2 and of narcissistic personality disorder with Factor 1. Correlations were not found between borderline personality disorder and PCL scores (Huchzermeier, Godt, Köhler, Hinrichs, & Aldenhoff, 2003).

In the light of these somewhat contradictory results, an aim of the present study was for the first time to validate the relationships postulated by Hare et al. (1991) between psychopathy and the cluster B personality disorders for a large German sample. A further aim was to explain the inconsistent findings for the relationship between psychopathy and cluster B personality disorders. The approach to be tested was as follows: The studies cited appear to have investigated the connections between PCL score and the various cluster B personality disorders without excluding potential multiple diagnoses, which—in the light of the small sample sizes involved—would probably have been impossible in most cases anyway. This appears

problematic for the following reasons. Studies of participants with borderline personality disorder showed them to have higher PCL scores (see Stalenheim & von Knorring, 1996). This may in reality reflect the fact that these prisoners also had antisocial personality disorder. The high base rate of antisocial personality disorder means that comorbidity of this nature is by no means unlikely. For this reason, valid statements about the relationship between cluster B disorders and psychopathy can only be made if the PCL scores investigated come from participants with only one personality disorder each.

Consideration of the theoretical background of the Hare psychopathy construct leads us to expect certain relationships. The development of Hare's concept of psychopathy aimed on the one hand to reflect antisocial and delinquent behavior and on the other hand to detect central personality features that can be considered as typically psychopathic. The observable dissocial style of behavior depicted by Factor 2 of the PCL overlaps conceptually with the traditional description of DSM antisocial personality disorder: All the items in Factor 2 correspond to the DSM criteria for antisocial personality disorder. However, some of the Factor 1 items (glibness/superficial charm, grandiose sense of self-worth, conning/manipulative behavior, lack of empathy) are similar to the DSM characteristics of narcissistic personality. There are also similarities between the characteristics of borderline personality disorder and Factor 2. For example, the Factor 2 items "impulsivity" and "poor behavioral controls" cover the characteristics that are typical of borderline according to DSM.

In summary, a strong and consistent relationship can be assumed to exist between cluster B personality disorders and Hare psychopathy because the features of cluster B played an important role in the development of the PCL-based Hare psychopathy construct. The attributes "dramatic, emotional, erratic" form the sub-heading for cluster B. The cluster includes disturbances of personality that go hand in hand with emotional dysregulation phenomena, a tendency towards aggressive—impulsive loss of control, egoistic exploitation of interpersonal relationships, and a tendency to overestimate one's own importance. For the present study of a large German population of offenders, the hypotheses to be tested were therefore formulated as follows:

1. Offenders with cluster B personality disorders have more strongly marked psychopathic features than participants without such disorders.
2. Participants with antisocial personality disorder alone have a higher Factor 2 score than those with no cluster B personality disorder.
3. Prisoners with borderline personality disorder alone are characterized by a higher Factor 2 score than those with no cluster B personality disorder.
4. The Factor 1 values of offenders who have narcissistic personality disorder alone are significantly higher than those of individuals without narcissistic personality disorder.

SUBJECTS AND METHODS

In the study described here we analysed data from three different samples of incarcerated male violent offenders ($n = 299$). Sample 1 (141 participants) consisted of adult prison inmates who were investigated between the years 2000 and 2004 as part of a psychotherapy project (for a detailed description see Huchzermeier, Bruß,

& Aldenhoff, 2006). Sample 2 participants ($n = 111$) were in youth custody and participated in a study between the years 2001 and 2003 (for a detailed description see Köhler, Geiger, Hinrichs, & Huchzermeier, in preparation). Sample 3 participants ($n = 47$) were patients at a secure psychiatric hospital and were also recruited as part of a study (for a detailed description see Huchzermeier et al., 2005). Criteria for inclusion were knowledge of the German language, absence of psychotic disorder and a minimum age of 18 years. All participants in the various studies had agreed to an investigation using standardized instruments and had given their informed consent for a scientific evaluation of their data.

The instruments used were the German versions of the *Structured Clinical Interview for DSM-IV(SCID)*, to gather information on specific personality disorders, and the short form of the *Psychopathy Checklist (PCL)*. The instruments were administered by clinically experienced psychologists and psychiatrists who had received special training in both procedures.

SCID II

The *Structured Clinical Interview for DSM-IV*, SCID II (Spitzer, Williams, & Gibbon, 1987; German version, Fydrich, Renneberg, Schmitz, & Wittchen, 1997) is a multistage procedure for diagnosing personality disorders according to DSM-IV. It has high interrater reliability. A questionnaire is first presented in which the questions contain the criteria for DSM-IV personality disorders. In the subsequent interview, the questions that received a positive answer are targeted by the interviewer in further questioning to ascertain whether the individual criteria are fulfilled. If the required minimum number of criteria is reached, the relevant personality disorder is diagnosed. The SCID II has proved itself in the investigation of offenders as well as with other subject groups. It permits both categorical diagnosis (disorder present/not present) and, via the D-score, assessment of the level of severity of the disorder (Frädrich & Pfäfflin, 2000; McElroy, et al., 1999; Stalenheim & von Knorring, 1996). The frequencies of personality disorders in the different samples are shown in Table 1.

PCL: SV

The screening version (PCL: SV, Hart, Cox, & Hare, 1996; German version, Freese, 1999) of the Psychopathy Checklist—Revised (PCL-R, Hare, 2003) uses a total of 12 items to assess the feature ''psychopathy''. These items are scored on the basis of a semistructured interview and examination of information on file. The items are organized into two subscales of six items each. The first subscale deals with interpersonal and affective symptoms, while the second focuses on social deviance as reflected by chronically dissocial behavior. The individual items are evaluated on a three point scale (feature not present, moderate, or marked). Participants with a total score below 13 (low scorers) are considered ''non-psychopaths'' and those with scores between 13 and 17 (moderate scorers) are seen as having psychopathic tendencies. Values between 18 and 24 are seen as clear indicators of psychopathy. If psychopathy is diagnosed the proband is classed as difficult to treat and the criminal prognosis is felt to be poor.

Table 1. Frequency (percentage) of DSM-IV personality disorders

Personality disorder	Sample 1	Sample 2	Sample 3	All samples
Paranoid	11.3	8.1	4.3	9.0
Schizotypal	1.4	1.8	0	1.3
Schizoid	2.8	0	2.2	1.7
Cluster A	14.2	9.9	6.4	11.4
Histrionic	1.4	1.8	0	1.3
Narcissistic	11.3	11.7	12.2	11.6
Borderline	12.1	18.0	18.2	15.2
Antisocial	46.1	60.4	42.6	50.8
Cluster B	55.3	63.1	48.9	57.2
Avoidant	4.3	6.3	4.5	5.1
Dependent	0.7	3.6	2.1	2.0
Obsessive-compulsive	5.7	0.9	6.4	4.0
Cluster C	8.5	9.0	10.6	9.0
Negativistic	9.9	5.4	4.5	7.4
Depressive	4.3	2.7	4.4	3.7

The distributions of these three PCL score categories in the three samples and other descriptive statistics are shown in Table 2. Cronbach's α, an indicator of reliability, was $\alpha = 0.77$ for Factor I and $\alpha = 0.78$ for Factor II and $\alpha = 0.79$ for the complete PCL: SV. This is within a similar order of magnitude as the values mentioned in the PCL-R manual by Hare (PCL-R 2nd ed., Hare, 2003), which is comprised of twice as many items.

Statistical Evaluation Methods

The hypotheses being tested here focus on differences between the means of variables measured on approximately interval-scaled and normally distributed dependent variables. Because of the very varied, and for some personality disorders very small, group sizes, a conservative approach was taken, and differences were tested exclusively using non-parametric Mann–Whitney U tests.

Table 2. Psychopathy indices in the three samples

Psychopathy indices	Sample 1	Sample 2	Sample 3	Total sample
Low scorer	42.6%	37.8%	46.8%	41.5%
Moderate scorer	39.0%	37.8%	34.0%	37.8%
High scorer	18.4%	24.3%	19.1%	20.7%
Mean PCL:SV (SD)	12.91 (5.14)	13.98 (4.28)	12.62 (5.62)	13.26 (4.93)
Mean Factor 1 (SD)	5.94 (3.14)	5.46 (2.88)	5.81 (3.30)	5.74 (3.07)
Mean Factor 2 (SD)	6.97 (3.21)	8.52 (2.39)	6.81 (3.30)	7.52 (3.04)
N	141	111	47	299

RESULTS

One hundred and seventy-one participants were diagnosed as having a cluster B personality disorder, while 128 participants had none. Of those with a cluster B personality disorder most had an antisocial personality disorder ($n = 152$). When multiple diagnoses from the B cluster were excluded, 104 participants had only an antisocial personality disorder, nine only a borderline personality disorder, and nine a single diagnosis of narcissistic personality disorder. When the total PCL scores of participants with and without personality disorders were compared, the results in Table 3 were obtained.

Participants with DSM histrionic, narcissistic, borderline or antisocial personality disorder had significantly higher mean total PCL scores than prisoners without these disorders (hypothesis 1—$0.0001 < p < 0.0003$). Accordingly, prisoners with any cluster B personality disorder had very significantly higher PCL scores than those who had no such disorder ($p < 0.00001$). These differences in total scores are all due in equal measure to Factors 1 and 2 ($0.00001 < p < 0.006$).

When the effects of multiple diagnoses are excluded, the relationships shown in Table 4 are found with PCL Factors 1 and 2.

Table 3. PCL-SV scores in relation to the presence of cluster B personality disorders

Personality disorder	N	Mean PCL:SV score (SD)	Mean rank	p (one-tailed U-test)
Histrionic				
Yes	4	21.00 (2.94)	276.25	0.000 3
No	295	13.13 (4.87)	148.29	
Narcissistic				
Yes	34	18.21 (3.83)	234.69	0.000 01
No	265	12.66 (4.70)	139.13	
Borderline				
Yes	45	16.27 (3.92)	201.20	0.000 01
No	254	12.70 (4.90)	140.93	
Antisocial				
Yes	152	15.88 (3.82)	197.34	0.000 01
No	147	10.55 (4.48)	101.05	
Cluster B				
Yes	171	15.65 (3.88)	192.23	0.000 01
No	128	10.07 (4.37)	93.58	

Table 4. Mean values for the two PCL-SV factors in relation to the presence of a cluster B personality disorder. Multiple diagnoses from this cluster are excluded

Personality disorder	N	Mean Factor 1 score (SD)	p (one-tailed U-test)	Mean Factor 2 score (SD)	p (one-tailed U-test)
Only narcissistic					
Yes	8	8.88 (2.90)	0.002	4.38 (3.20)	0.003
No	291	5.65 (3.03)		7.61 (2.99)	
Only borderline					
Yes	9	6.78 (2.49)	0.151	5.89 (2.03)	0.023
No	290	5.71 (3.08)		7.57 (3.05)	
Only antisocial					
Yes	104	5.99 (2.70)	0.119	9.06 (2.19)	0.000 01
No	195	5.61 (3.25)		6.70 (3.11)	

Prisoners with antisocial personality disorder alone had, as expected, a significantly higher Factor 2 score than the remaining participants ($p < 0.00001$), while Factor 1 values did not differ greatly ($p = 0.119$) (Hypothesis 2).

Prisoners with borderline personality disorder alone also had significantly raised Factor 2 values ($p = 0.023$) in accordance with Hypothesis 3, whereas Factor 1 values differed little ($p = 0.151$).

In conformity with Hypothesis 4, the Factor 1 scores of participants with narcissistic personality disorder alone were significantly greater than those of the comparison group ($p = 0.002$). For Factor 2 the opposite was found ($p = 0.003$).

DISCUSSION

The results of our study confirm the suspected connection between DSM cluster B personality disorders and psychopathy according to Hare's criteria as detected by the PCL. When participants with any cluster B personality disorder are compared with individuals who have no such disorder, the total PCL score is significantly higher in each case. In addition we were able to show that, in conformity with our hypothesis, relationships exist between narcissistic personality disorder and PCL:SV Factor 1, and between borderline personality disorder and PCL:SV Factor 2. These relationships were to be expected from the development of the PCL, because Hare's research group had operationalized the personality construct ''psychopathy'' using distinct criteria for specific personality disorders (Harpur et al., 1989). Our results can thus be taken as a contribution to the construct validity of the ''psychopathy-checklist''. Up to now data on such a large sample have not been published in Germany. Our results provide empirical evidence that psychopathy constitutes a personality construct made up of different characteristics of DSM-IV antisocial, narcissistic and borderline personality disorders, and therefore that it constitutes a defined unit of disturbance with syndromal character.

Previous studies of the relationship between DSM personality disorders and PCL-based psychopathy had also provided clear evidence of the association between cluster B personality disorders and high psychopathy values but contradicted each other to some extent with regard to their relationship with the two PCL factors. These contradictions are likely to be due to the fact that the earlier studies did not correct for possible double or multiple diagnoses, so that participants with several cluster B personality disorders were included several times in comparative calculations, producing misleading conclusions.

Our results can so far only confirm the relationships between cluster B personality disorders and PCL-based psychopathy according to Hare. They cannot provide information on whether psychopathy constitutes a separate psychiatric entity or a subtype of antisocial personality disorder. The finding that psychopathy according to Hare's criteria is diagnosed less often than antisocial personality disorder has been replicated many times (Cunningham & Reidy, 1998) and was also true of our sample. This could suggest that antisocial personality disorders are a more general category while Hare psychopathy constitutes a specific subpopulation. However, contrary to the postulations of the research group of Herpertz and Saß (2000), it does not appear to constitute a part of a larger whole represented by antisocial personality disorder but rather to overlap only partially with it. A few prisoners in the sample
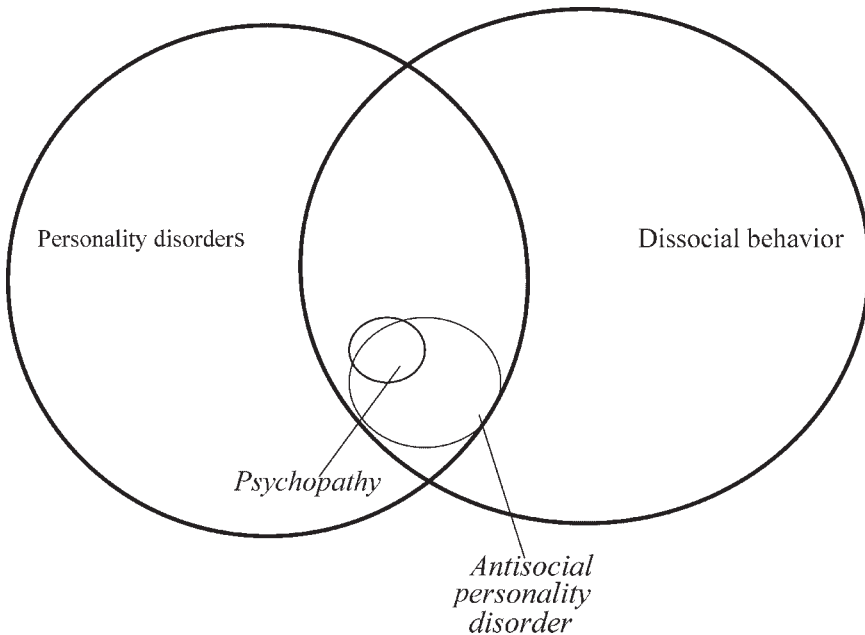
Figure 1. Distinctions and overlaps between the different types of deviant social behavior, modified according to Sass & Herpertz, 2000.

were high scorers for psychopathy but nevertheless received no diagnosis of antisocial personality disorder (see Figure 1).

In our study results from three separate sample populations were pooled. This may appear inappropriate from a theoretical point of view and potentially threatening to internal validity. However, as there are only minor differences in mean factor scores (see Table 2) we consider it appropriate to pool the samples. Results from a latent class analysis further supported this procedure: The latent classes did not match the subsamples at all. Aggregating the data thus leads to an augmentation of external validity rather than a decrease in internal validity.

One clinical implication of our results, nevertheless, is that in cases where a cluster B personality disorder is diagnosed a high psychopathy value is to be expected, especially where antisocial, borderline or narcissistic personality disorder is involved. The PCL score is a better predictor of subsequent events, such as problems during custody or a relapse into delinquency, than a diagnosis of a DSM-IV personality disorder (Hare, Clark, Grann, & Thornton, 2000; Hemphill, Templeman, Wong, & Hare, 1998), especially in forensic populations; therefore, an additional investigation with the PCL should be carried out, if a cluster B personality disorder has been diagnosed.

Screening for PCL-based psychopathy can also be important for general psychiatric patients with a DSM-IV personality disorder, so that potential difficulties in the course of their treatment can be anticipated and this comorbidity can be targeted in the planning of therapy. Patients with both a DSM-IV personality disorder and PCL-based psychopathy can exhibit behavior that is particularly dangerous to therapy (Stafford & Cornell, 2003). In Britain a new personality

concept has been introduced for which both a high PCL score and a diagnosis of a DSM-IV personality disorder (not including APD) are required. These ''dangerous and severe personality disorders'' (Home Office & Department of Health, 1999) are to be allocated special security measures. However, this procedure remains controversial (Kendell, 2002), in particular because it has not yet been possible to ascertain definitely to what extent individuals with psychopathy can be altered by therapeutic measures (Salekin, 2002) or whether they should rather be seen as resistant to therapy (Harris & Rice, 2006).

The fact that the diagnosis of PCL-based psychopathy can conceal narcissistic, antisocial, and borderline personality features expressed to different extents appears to be logically consistent, in light of the process by which this personality construct came into being, but somewhat trivial. Some (e.g. Murphy & Vess, 2003) have recommended that the extent to which such features are expressed should be determined in individual cases. Further studies need to be carried out on this matter to show empirically whether this is helpful either for the planning of treatment or for making a legal prognosis. The suggestion made by Hare and Neumann (2005), that PCL factors should be used not to make a yes/no diagnosis of psychiatric disorder in its usual sense but rather to characterize the quality and degree of disorder, presents an interesting alternative perspective. They recommend that the two original factors should each be separated into two highly correlated subfacets and should be understood as dimensional personality features and ways of behaving. Here, too, it remains to be seen whether such internal differentiation will prove to be useful in practice. The more so as, from the point of view of theory of method, a critical view of the applicability and economy of the model must be taken, considering that four highly correlated factors are being postulated using only 12 items (see Rost, 2004). The present study aimed primarily to explain previous contradictions in the two-factor construction of the PCL:SV as currently applied under routine conditions. The applicability of other proposed factor solutions (Cooke & Michie, 2001; Hare & Neumann, 2005) is being investigated in another study (Köhler, Hinrichs, Otto, & Huchzermeier, in preparation).

Finally, as a brief footnote, it should be pointed out that our studies have for the first time provided data on the prevalence of PCL/Hare psychopathy in German prisons. The frequency was about 18% in an adult prison and about 24% in youth custody. These values are within a similar order of magnitude of those for other European countries and for North American prisons (Andersen, Sestoft, Lillebaek, Mortensen, & Kramp, 1999; Rasmussen, Storsaeter, & Levander, 1999; Widiger et al., 1996).

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