PCL-R Psychopathy Predicts Disruptive Behavior Among Male Offenders in a Dutch Forensic Psychiatric Hospital

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In this study, the relationship between psychopathy, according to the Dutch language version of Hare's Psychopathy Checklist-Revised (PCL-R), and various types of disruptive behavior during inpatient forensic psychiatric treatment is investigated. Ninety-two male participants were administered the PCL-R following admission to an inpatient forensic hospital. From daily hospital information bulletins, incidents of verbal abuse, verbal threat, physical violence, and violation of hospital rules were derived. Also, the number of seclusion episodes was recorded. As expected, significant correlations were found between PCL-R scores and verbal abuse, verbal threat, violation of rules, total number of incidents, and frequency of seclusion. Psychopaths (PCL-R ≥ 30) were significantly more often involved in incidents than nonpsychopaths. Multiple regression analyses revealed that the PCL-R Factor 2 score in particular contributed uniquely to the prediction of the total number of incidents. The findings are discussed in terms of their clinical implications.

Keywords: *aggression; disruptive behavior; PCL-R; psychopathy; forensic psychiatry; forensic psychology; forensic psychiatric patients*

Inpatient aggression threatens the safety and well-being of staff members and patients, in both general psychiatric institutions (Ekblom, 1970; Lion &

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Reid, 1983; Nijman, Allertz, Merckelbach, à Campo, & Ravelli, 1997) and forensic hospitals (Litwack & Schlesinger, 1987). Studies indicate that about 15% to 30% of psychiatric patients engage in assaultive behavior during hospitalization (e.g., Karson & Bigelow, 1987; Nijman et al., 1997). Nursing staff in particular is at risk of being victimized (e.g., Nijman et al., 1997; Shah, Fineberg, & James, 1991). Apart from its physical and psychological consequences, inpatient aggression has considerable financial implications. Hunter and Carmel (1992), for example, reported an annual total of 134 serious injuries in a 973-bed forensic psychiatric hospital. The average cost per injury was conservatively estimated to be $5,719, resulting in a total annual loss of $766,290. Given its far-reaching consequences, aggression prevention in (forensic) psychiatric inpatient facilities should have high priority. For effective prevention, however, it is important that clinicians can predict violent behavior in forensic psychiatric patients with sufficient accuracy (Harris & Rice, 1997). Insight into the factors associated with aggressive behavior in forensic psychiatric patients is likely to increase the possibilities for staff to manage and prevent this behavior effectively.

Studies have revealed numerous risk factors associated with inpatient violence in (forensic) psychiatric patients (e.g., Ball, Young, Dotson, Brothers, & Robbins, 1994; Hare & McPherson, 1984; Monahan, 1981; Tardiff, 1997), including individual (e.g., age, number of total prior convictions, drug/alcohol abuse, personality disorder) and situational (e.g., overcrowding, staff inexperience, management tolerance of violence) factors. However, the most important generalization that can be made from existing research on the relationship between patient characteristics and disruptive behavior within (forensic) psychiatric hospitals is that no strong relationships are known, except for a history of prior violence, which is regarded as the best predictor of aggression (e.g., Harris & Rice, 1997; Shah et al., 1991).

In the past two decades, the relationship between psychopathy, as defined by the Psychopathy Checklist-Revised (PCL-R) (Hare, 1991) or its derivatives, and various forms of inpatient disruptive behavior (e.g., verbal aggression, physical violence, escape attempts) has been studied in a variety of (mainly North American) samples of adult male prisoners and forensic psychiatric patients (e.g., Buffington-Vollum, Edens, Johnson, & Johnson, 2002; Cooke, 1995, 1997; Edens, Buffington-Vollum, Colwell, Johnson, &

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Johnson, 2002; Gacono, Meloy, Sheppard, Speth, & Roske, 1995; Heilbrun et al., 1998; Hill, Rogers, & Bickford, 1996; Kroner & Mills, 2001; Rice, Harris, & Cormier, 1992), female inmates (Salekin, Rogers, & Sewell, 1997), general psychiatric patients (Rasmussen & Levander, 1996), and adolescent offenders (Brandt, Kennedy, Patrick, & Curtin, 1997; Edens, Poythress, & Lilienfeld, 1999; Forth, Hart, & Hare, 1990; Hicks, Rogers, & Cashel, 2000).

Overall, these studies indicate that high PCL-R scores are significantly (albeit sometimes modestly) associated with (more) disruptive behavior during hospitalization or imprisonment. With regard to acts of physical violence, however, remarkably divergent results have been found. Most recent studies report nonsignificant or below .20 correlations between psychopathy and physical violence in adult samples (e.g., Edens et al., 1999; Heilbrun et al., 1998; see Edens, Petrila, & Buffington-Vollum, 2001, for a review of the literature).

Whereas the literature that addresses the association between psychopathy and inpatient disruptive behavior is rapidly expanding, to the best of our knowledge, only a handful of studies have examined the relationship in forensic psychiatric patients. For example, Rice et al. (1992; see also Harris, Rice, & Cormier, 1991) evaluated a therapeutic community treatment program in a forensic hospital in Ontario, Canada. Patients and controls were assessed with the PCL-R on the basis of file information only and subsequently divided into a high (PCL-R > 25) and a low (PCL-R ≤ 25) psychopathy group. Comparisons between the groups indicated that patients with high scores displayed more behavior problems during treatment, including more episodes of seclusion during the first and last year of treatment.

Gacono et al. (1995) examined the association between PCL-R scores and behavior problems in hospitalized insanity acquittees. All insanity acquittees who malingered their psychiatric disorders successfully ($n = 18$) scored ≥ 30 on the PCL-R. They also created significantly more institutional management problems (verbal or physical aggression, higher escape risk, and dealing drugs), as compared to 18 insanity nonmalingering comparison participants.

Hill et al. (1996) studied the validity of the screening version of the PCL-R (PCL:SV) (Hart, Cox, & Hare, 1995) as a predictor of institutional management problems in a sample of 55 adult offenders admitted to a maximum-security forensic psychiatric institution in Texas. A 6-month follow-up review of participants' files was conducted, in which data on self-harm (frequency of suicide attempts and self-mutilation), aggression (verbal abuse, verbal threats, irritability, belligerence, fighting), escape potential (escape attempts and threats to escape), and treatment noncompliance (e.g., refusal

of medication) were collected. Results indicated that the PCL:SV was predictive of aggression and treatment noncompliance. It was found that more than 35% of the physical aggression exhibited by nonpsychopaths was self-directed, whereas none of the psychopaths engaged in self-harming behavior.

Finally, Heilbrun et al. (1998) examined the relationship between PCL psychopathy and aggression in 218 mentally disordered offenders admitted to the Forensic Service, Florida State Hospital. Patients' hospital charts were reviewed for the first and last 2 months of hospitalization. Although significant correlations were found between total number of aggressive incidents and PCL total ($r = .30$), Factor 1 ($r = .24$), and Factor 2 ($r = .25$) scores during the first 2 months of hospitalization, this association was no longer significant during the last 2 months of hospitalization (no *r*s reported), which may be an indication that the institutional behavior of patients with high PCL-R scores can change by altering environmental and situational factors (in a similar vein, Cooke, 1997; Hare, Clark, Grann, & Thornton, 2000).

THIS STUDY

Although past findings have been promising, further research is needed to study the predictive validity of the PCL-R with regard to inpatient disruptive behavior, especially among forensic psychiatric patients. In this prospective study, the strength of the association was examined in a sample of Dutch forensic psychiatric inpatients. It is one of the first studies with a European (non-English) edition of the PCL-R. On the basis of the previous research discussed above, we hypothesized that

1. High PCL-R scores are associated with higher frequencies of verbal aggression;
2. High psychopathy participants are more likely to violate hospital rules than low psychopathy participants;
3. As a result of their disruptive behavior, participants with high PCL-R scores will be more likely to be secluded. Seclusion is a procedure to prevent patients from harming themselves or their environment, when all other measures have failed. Seclusion may also be used at the patient's request to prevent overstimulation.

We also considered a number of demographic and clinical variables as potentially related to inpatient aggression to compare the PCL-R with other predictors of inpatient aggression. These variables included age, ethnic origin, number of prior convictions, the presence or absence of a lifetime DSM-

IV Axis I diagnosis of psychotic disorder, alcohol abuse/dependence, substance use disorder, and presence/absence of Axis II diagnoses of antisocial and borderline personality disorder (PD). The selection of the variables was based on both empirical (suggested by previous research, e.g., Ball et al., 1994; Tardiff, 1997) and practical (availability) considerations.

METHOD

Setting

The study was conducted at the Dr. Henri van der Hoeven Kliniek, a forensic psychiatric hospital for residential treatment of mentally disordered criminal offenders in the Netherlands. According to Dutch criminal law, a criminal offender can be sentenced to a maatregel van terbeschikkingstelling (TBS-order) when (a) the offense committed can result in a sentence of 4 or more years of imprisonment, with an estimated high risk of recurrence, and (b) as a consequence of his or her mental condition, the offender is judged to carry diminished responsibility for the offense. Every 1 or 2 years, the court reviews the risk of reoffending to determine whether the TBS-order needs to be prolonged.

Sample Characteristics

The sample was made up of 92 male forensic psychiatric patients admitted to the Dr. Henri van der Hoeven Kliniek between January 1996 and July 2001. The mean age at admission for the sample was 31 years (SD = 7.4; range = 19-50). Half of the sample was convicted for (attempted) murder or manslaughter, 26% for sexual offenses (e.g., assault, child molest, rape), and 17% for (aggravated) assault. In terms of ethnic origin, 77% of the patients were White.

The Dutch language version (van den Brink & de Jong, 1992) of the Structured Interview for Disorders of Personality (SIDP-R) (Pfohl, Blum, Zimmerman, & Stangl, 1989) or its modified version (SIDP-IV) (Pfohl, Blum, & Zimmerman, 1995; Dutch translation: de Jong, Derks, van Oel, & Rinne, 1996) was used for the assessment of PDs. Our initial use of DSM-III-R Axis II criteria (American Psychiatric Association, 1987) is a consequence of the duration of the data collection phase, which started before the Dutch version of the SIDP-IV was available. Eleven patients were diagnosed using DSM-III-R criteria; the rest were diagnosed using DSM-IV criteria (American Psychiatric Association, 1994). Seventy-five patients (i.e., 83.3%; two

missing SIDP-R assessments) met the criteria for one or more PDs. In particular, Cluster B (dramatic-erratic-emotional) PDs were frequently diagnosed: 45 patients (50.0%) received a diagnosis of antisocial PD, 25 narcissistic PD (27.8%), and 23 patients (25.6%) were diagnosed with a borderline PD. Paranoid PD (Cluster A) was also highly prevalent in this sample (i.e., 17 patients or 18.9%).

Lifetime DSM-IV Axis I diagnoses for psychotic disorder and alcohol/psychoactive substance use disorder diagnoses (present vs. absent) were coded by the primary author (MH) on the basis of all available data (e.g., earlier psychological and psychiatric reports, current psychiatric and psychological assessments). A senior diagnostician and a senior clinical psychologist (CdR) reviewed all diagnoses and final diagnoses were reached in a consensus meeting. Fourteen patients (15.6%) met criteria for a (lifetime) DSM-IV Axis I psychotic disorder. Twenty-three patients (25.0%) met criteria for at least one (lifetime) Axis I alcohol use disorder (abuse/dependence), and 35 patients (38.0%) received a diagnosis of Axis I psychoactive substance abuse/dependence.

Procedure

Assessment of Psychopathy

Within the first 6 weeks of admission, patients were administered a standard battery of psychological tests that included the PCL-R to assess psychopathy. The PCL-R is a reliable, well-validated (e.g., Hare et al., 2000; Hart, Hare, & Harpur, 1992) 20-item checklist based on traditional concepts of psychopathy (Cleckley, 1976). Total scores can range from 0 to 40 and represent the degree to which a participant resembles the prototypical psychopath (Hare, 1991). Factor analyses fairly consistently revealed a stable, oblique two-factor structure (e.g., Cooke & Michie, 1997; Hare, 1991; Hobson & Shine, 1998). Factor 1 has been described as "callous and remorseless disregard for the rights and feelings of others"; Factor 2 has been labeled "chronically unstable and antisocial lifestyle" (Hare, 1991).

PCL-R assessments were made on the basis of the semistructured PCL-R interview and extensive file review, in accordance with recommendations in the PCL-R manual (Hare, 1991). Collateral information included extensive psychiatric and psychological evaluations, police records, criminal history, and family background data. PCL-R items were scored on a 3-point scale (0 = *item does not apply*, 1 = *uncertain, item applies to a certain extent*, 2 = *item*

definitively applies) on the basis of the authorized Dutch language version of the Hare PCL-R manual (Vertommen, Verheul, de Ruiter, & Hildebrand, 2002). In a previous study (Hildebrand, de Ruiter, de Vogel, & van der Wolf, 2002), high interrater reliability was demonstrated for the Dutch language version of the PCL-R. The intraclass correlation coefficient of the PCL-R total score was .88 for a single rater (Factor 1 = .76; Factor 2 = .83). Ratings were also internally consistent (Cronbach's alpha for the PCL-R total score = .87). Factor scores used in subsequent analyses were computed by summing the ratings for the items making up Hare's (1991) two-factor solution.

Ten interviewers/raters conducted the PCL-R ratings: seven women and three men. Seven raters were (clinical) psychologists, one an experienced Ph.D. clinical and forensic psychologist (CdR), one a mental health scientist, and one rater had a degree in both mental health science and law (MH). All raters had been extensively trained in the PCL-R.

For 86 patients, we had the disposal of at least two independent PCL-R ratings. We decided to obtain a final consensus rating for these 86 patients. These consensus scores are used in all subsequent statistical analyses. For the remaining six patients, PCL-R scores were based on the rating of a single rater (MH or CdR). The mean PCL-R total score (adjusted sum) for the 92 male patients in this sample was 21.5 (SD = 8.5), with a range from 3 to 38. The mean Factor 1 score was 9.4 (SD = 3.9), and for Factor 2, it was 9.7 (SD = 4.8). Twenty patients (21.7%) had PCL-R scores ≥ 30.

Incidents

Every day, the hospital's general coordinator on duty prepares a so-called information bulletin to inform staff members and patients about unusual events (e.g., visitors from outside the hospital) and disruptive incidents (e.g., aggressive behavior, violations of hospital rules) during the past 24 hours in the hospital. Two raters (MH and HN) independently reviewed 35 randomly selected information bulletins to examine the degree of interrater agreement on whether the events reported (n = 153) were indeed incidents. It appeared that there was excellent agreement between the raters as to whether or not the reported events were incidents (Cohen's κ = .86; observed agreement = 93.5%).

Subsequently, we designed a classification scheme for assigning any incident to one of four categories: (a) verbal abuse (VA; e.g., cursing); (b) verbal threat (VT; e.g., threatening to stab someone with a knife); (c) physical violence (PV; e.g., hitting someone, smashing objects, self-harm); and (d) viola-

tion of hospital rules (VHR; e.g., use of drugs, possession of pornographic material, unauthorized absence). Three independent raters, including the first author, classified 100 randomly selected incidents described in the daily bulletins to examine interrater agreement, before all other information bulletins were coded. There was excellent agreement among the three raters with regard to type of incident (mean Cohen's $\kappa = .92$; observed agreement = 92%). Following the interrater reliability check, daily information bulletins from January 22, 1996 (admission date of the first patient from this sample), until November 1, 2001 (end date study period), were coded by a research assistant, who also had participated in the interrater reliability check. Incidents were rated as discrete events, and the total number of incidents in each category was obtained for each patient.

Seclusion

Computerized hospital case files were reviewed by MH for frequencies of seclusion (either in the patient's own room or in a room especially designated for isolating patients to control aggression and/or psychosis). Again, episodes of seclusion during the study period were coded as discrete events, and the total number of instances was recorded for each patient. Because length of hospital stay was not equal for patients (range from 3 to 64 months; mode = 7 months), all outcome variables were corrected for length of stay.

Statistical Analyses

Spearman ρ correlations were calculated between PCL-R scores and all outcome variables. Student's *t* test was used to test mean group differences between PCL-R psychopaths (adjusted PCL-R total score ≥ 30) and nonpsychopaths (total score < 30) on the criterion variables. Given the a priori hypotheses being tested with regard to the relationship between PCL-R scores and inpatient aggression and seclusion, one-tailed tests were employed in this study, except for the association between PCL-R score and PV (two-tailed test).

Finally, multiple regression analyses were conducted to determine how the PCL-R compared with other established (demographic and clinical) predictor variables. In addition to standard multiple regression analyses, hierarchical regression analyses were performed to determine if adding PCL-R psychopathy improved prediction of incidents above and beyond that of selected demographic and clinical variables.

TABLE 1: Spearman ρ Correlations Between PCL-R Scores and Incidents and Seclusion

Type of Incident	*PCL-R Total*	*Factor 1*	*Factor 2*
Total incidents	.44**	.22**	.47**
VA	.33**	.16	.36**
VT	.45**	.35**	.37**
PV	.03	–.04	.08
VHR	.39**	.13	.45**
Seclusion	.42**	.21*	.35**

NOTE: PCL-R = Psychopathy Checklist-Revised; VA = verbal abuse; VT = verbal threat; PV = physical violence; VHR = violation of hospital rules.
*$p < .05$. **$p < .01$ (all one-tailed, except for correlations between PCL-R scores and physical violence).

RESULTS

Frequency of Disruptive Behavior

On average, the 92 patients stayed in the hospital for 34 months, excluding days of (un)authorized absence. During the study period (i.e., January 22, 1996 - November 1, 2001), a total of 825 incidents were identified. The average number of incidents per patient was 9.0 ($SD = 11.6$, range = 0-85). Only nine patients (9.8%) never displayed any type of incident as reported on the information bulletin. Mean frequency of incidents per patient per year was 3.2.

With regard to type of disruptive behavior, 259 of the 825 incidents (31.4%) concerned VA, 125 (15.2%) were VT, and 74 (9.0%) involved PV. The remaining 367 incidents (44.4%) were VHR, including episodes of unauthorized absence (14 patients [15.2%] had escaped from the hospital on one or more occasions during the study period). Seventy-three patients (79.3%) had been secluded—either in their own room or in a special seclusion chamber—on a total of 587 occasions. The frequency of seclusion episodes was strongly related to the total number of incidents (Spearman $\rho = .62$, $p < .01$). The association with seclusion was significant for all types of disruptive behavior (Spearman ρ correlations between .38 and .53, all ps $< .01$).

PCL-R Psychopathy in Relation to Disruptive Behavior

Table 1 presents Spearman ρ correlations between PCL-R scores and disruptive behavior and frequency of seclusion episodes. With regard to total

TABLE 2: Mean Number of Incidents Per Year

	PCL-R Score		
Type of Incident	*PCL-R ≥ 30* (n = *20*)	*PCL-R < 30* (n = *72*)	p *Value*
Total incidents	6.9 (7.5)	2.8 (3.2)	< .05
VA	2.4 (4.1)	.8 (1.2)	< .05
VT	1.3 (2.3)	.3 (.5)	< .05
PV	.6 (1.2)	.3 (.9)	NS
VHR	2.6 (2.2)	1.3 (1.5)	< .05
Seclusion	5.2 (5.7)	2.5 (4.3)	< .05

NOTE: Standard deviations are in parentheses. PCL-R = Psychopathy Checklist-Revised; VA = verbal abuse; VT = verbal threat; PV = physical violence; VHR = violation of hospital rules.

incidents (VA plus VT plus PV plus VHR), significant correlations were found for the PCL-R total ($r = .44$, $p < .01$), Factor 1 ($r = .22$, $p < .01$), and Factor 2 ($r = .47$, $p < .01$) scores. As to type of incident, only PV was in no way related to PCL-R scores. In general, Factor 2 correlations with disruptive behavior were higher than Factor 1 correlations.

Next, exploratory Kendall's tau correlational analyses were conducted to examine which individual PCL-R items were related to the total number of incidents. Fifteen of the 20 items were significantly correlated with the total number of incidents. The highest correlations were found for item 3 (need for stimulation/proneness to boredom; $r = .37$, $p < .01$), item 14 (impulsivity; $r = .36$, $p < .01$), item 4 (pathological lying; $r = .34$, $p < .01$), and item 10 (poor behavioral controls; $r = .32$, $p < .01$).

PCL-R Psychopaths Versus Nonpsychopaths

PCL-R psychopaths ($n = 20$) were involved in 296 incidents (35.9%), with an average of 6.9 incidents per year, compared to 2.8 incidents per year for nonpsychopaths (see Table 2). Again, no significant differences were found with regard to PV. When a cutoff score of 26 was employed, as is common in European studies with the PCL-R (e.g., Grann, Långström, Tengström, & Stålenheim, 1998; Rasmussen, Storsæter, & Levander, 1999), to differentiate between PCL-R psychopaths and nonpsychopaths, the differences between the two groups became even more pronounced ($t[90] = 3.21$, $p < .01$, for the total number of incidents; $t[90] = 2.32$, $p < .05$, for VA; $t[90] = 2.49$, $p < .01$, for VT; $t[90] = 3.44$, $p < .01$, for VHR; $t[90] = 3.16$, $p < .01$, for frequency of seclusion).

Regression Analyses

To uncover the relative contribution of different demographic and clinical variables to the frequency of total incidents, two stepwise multiple regression analyses were conducted. Predictor variables in the first analysis included age, ethnic origin (White versus other), number of prior convictions, and presence/absence of psychotic disorder, alcohol abuse/dependence, drug abuse/dependence, antisocial and borderline PD, as well as the PCL-R total score. In the second analysis, the PCL-R total score was replaced with the Factor scores.

In predicting the total number of incidents, the PCL-R total score accounted for 13% of the variance. At Step 2, drug abuse/dependence added a ΔR^2 of .06 (i.e., it accounted for 6% of the variance) to the prediction of the total number of incidents. In the second analysis (PCL-R total score replaced with PCL-R factor scores), the Factor 2 score was the only variable to enter the regression equation, accounting for 19% of the variance, making a significant contribution to the prediction of total number of incidents.

Next, as is summarized in Table 3, we conducted a series of stepwise regression analyses on the different incident categories that were significantly correlated with PCL-R Factor scores (i.e., VA, VT, and VHR, as well as seclusion episodes). The predictor variables included the demographic and clinical variables mentioned above, as well as the PCL-R Factor scores. Of these, alcohol abuse/dependence, drug abuse/dependence, antisocial and borderline PD, and PCL-R Factor 1 failed to enter any of the regression equations. PCL-R Factor 2, however, was entered in all these separate analyses.

It is interesting that even when all demographic and clinical variables were entered first (forced entry) at Step 1, and PCL-R scores were allowed to enter the model at Step 2 if they still could improve the prediction model significantly, both the PCL-R total and (in a separate analysis) the PCL-R Factor 2 score still contributed significantly to the prediction of total incidents.

DISCUSSION

In forensic psychiatric patients, the level of PCL-R psychopathy has been demonstrated to be associated with the presence of a wide range of institutional misbehaviors and violence (e.g., Gacono et al., 1995; Heilbrun et al., 1998; Young, Justice, & Erdberg, 1999). In this study, a clear relationship between PCL-R scores and disruptive behavior was observed; high psychopathy patients were involved in significantly more incidents. More specifi-

TABLE 3: Multiple Regression Analyses for Incidents and Seclusion

Incident Predictor	β	ΔR^2	R^2
Total incidents			
Step 1: PCL-R Factor 2	.44	.19	.19
Verbal abuse			
Step 1: PCL-R Factor 2	.16	.12	.12
Verbal threat			
Step 1: PCL-R Factor 2	.09	.11	.11
Step 2: Ethnic origin[a]	.69	.05	.16
Violation of hospital rules			
Step 1: PCL-R Factor 2	.15	.17	.17
Step 2: Age	–.06	.07	.24
Seclusion			
Step 1: Prior convictions	.22	.14	.14
Step 2: Psychotic disorder[b]	4.3	.08	.22
Step 3: PCL-R Factor 2	.26	.05	.27

NOTE: PCL-R = Psychopathy Checklist-Revised. ΔR^2 = the amount of variance explained at each step. R^2 = the amount of variance explained cumulatively.
a. 0 = White, 1 = other.
b. 0 = no psychosis, 1 = psychotic disorder.

cally, verbal aggression (verbal abuse plus verbal threat) and violation of hospital rules were more characteristic of patients with high PCL-R scores than of patients with low PCL-R scores. In general, these findings are in line with earlier findings in forensic psychiatric patients (e.g., Hare & McPherson, 1984; Heilbrun et al., 1998; Hill et al., 1996) supporting the value of the PCL-R as a significant correlate of disruptive behavior in forensic inpatients.

The hypothesis that high PCL-R scorers would be more likely to be secluded than patients with low PCL-R scores was also supported. PCL-R psychopathy was significantly related to the frequency of seclusions as reported in computerized hospital files. This comes as no great surprise because seclusion is often preceded by an incident. It can be concluded that individuals scoring high on the PCL-R pose more managerial problems for hospital staff.

The PCL-R Factor 2 score appeared to be the most effective clinical variable for predicting the total number of incidents, as well as incidents of verbal abuse, verbal threat, and violation of hospital rules, even when other factors related to disruptive behavior (e.g., age, number of prior convictions, psychotic disorder, antisocial PD) were taken into account. This suggests that the chronically unstable and socially deviant lifestyle factor is important to consider in forecasting and effectively managing different types of disruptive

behavior. It should be noted, however, that the amount of variance accounted for appears to be relatively small (e.g., 19% for the total number of incidents) and may be of limited value for making assignments for individual patients. However, concentrating patients with high PCL-R scores on a specialized ward and a better understanding of their way of dealing with problems may reduce the frequency or severity of in-hospital incidents.

In this study, PCL-R scores were not significantly related to incidents of physical violence. It should be noted, however, that the base rate of incidents for physical violence was rather low (9%), as was the total number of 825 registered incidents. The low base rate problem may to some extent account for the absence of predictive accuracy. Other researchers have also reported weak or nonsignificant relationships between PCL-R scores and physical violence incidents (e.g., Cooke, 1997; Heilbrun et al., 1998; Rasmussen & Levander, 1996), suggesting that environmental or situational factors that may inhibit the aggressive tendencies of persons who might be violent in less restrictive settings are important to consider (Buffington-Vollum et al., 2002). Furthermore, base rates of (physical) inpatient aggression may change over time (e.g., Heilbrun et al., 1998; Ross, Hart, & Webster, 1998). Heilbrun et al. (1998) reported that, even though PCL scores were modestly predictive of physical aggression during the first 2 months of hospitalization, this pattern was not observed during the last 2 months rated. Hare et al. (2000), in a similar vein, reported data from a German hospital suggesting that changes in hospital policy and the introduction of special management strategies for patients with high PCL:SV scores reduced hospital violence. Our findings are also relevant from an economic point of view, because inpatient disruptive behavior may be related to a longer length of stay in the hospital and an increase in staff sick leaves (see Nijman, 1999).

Comparing our findings with earlier studies is complicated by the fact that different studies use different criterion measures to operationalize disruptive behavior. Heilbrun et al. (1998), for example, rated only two types of aggression: (a) verbal aggression (shouting, threatening) and (b) physical aggression (pushing, hitting). They reported that PCL scores were predictive of verbal aggression but, contrary to our findings, the PCL total score was also significantly correlated with physical aggression. In this study, verbal aggression was divided into verbal abuse and verbal threats, and the category violation of hospital rules was included. In our opinion, this provides a more comprehensive picture of the nature and extent of incidents in a forensic hospital. Of interest is that although higher PCL-R Factor 1 scores were significantly associated with more verbal threat and total number of incidents, no such relationships were observed with verbal abuse and violation of hospital rules, whereas Factor 2 scores were significantly related to all incidents cate-

gories, except physical violence (i.e., verbal abuse, verbal threat, violation of rules, and total number of incidents).

All in all, given the limited research that has been conducted on the institutional adjustment of Dutch forensic psychiatric patients, these findings are important in that they indicate that certain psychopathic traits (e.g., impulsivity, need for stimulation/proneness to boredom, poor behavioral controls) are associated with institutional misbehavior. Administering the PCL-R at admission may enable hospital staff to make appropriate initial placements with respect to treatment needs as well as disruptive potential. PCL-R psychopaths undermine the treatment milieu, specifically through verbal aggression and violation of hospital rules. The treatment and management of this patient group should be particularly focused on their impulsivity, lack of behavioral control, and sensation-seeking tendency. A highly structured treatment regime (e.g., see Paul & Lentz, 1977, for a successful approach in chronically disruptive schizophrenic patients), possibly supported by the use of medication (e.g., SSRIs, low-dose antipsychotics, Ritalin), should help reduce these characteristics, which is a prerequisite for further cognitive behavioral interventions, aimed at altering cognitive distortions, procriminal attitudes, lack of responsibility, and so on (Serin & Kuriychuk, 1994).

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