

Violent Forensic Psychiatric Patients: Individual Differences and Consequences for Treatment

Ruud H. J. Hornsveld, Clive R. Hollin, Henk L. I. Nijman, and Floor W. Kraaimaat

The literature on differences between aggressive individuals exhibiting reactive and proactive aggression raises the issue whether different treatment programs should be developed for violent forensic psychiatric patients with a conduct disorder or an antisocial personality disorder. In order to study this issue, aggressive behavior of 133 inpatients and of 176 outpatients was analyzed in detail for four subgroups, composed on the basis of the two factors of the Psychopathy Checklist-Revised. Contrary to expectations, there were no differences found in scores on self-report questionnaires for disposition to anger, hostility and aggressive behavior between the four subgroups. Minor differences were found, however, between these four subgroups in the relationship to aspects of aggressive behavior on the one hand, and neuroticism, social anxiety and social skills on the other hand. To some extent, this explorative study appears to confirm recommendations to distinguish between individuals who exhibit reactively aggressive behavior, and those who primarily display proactively aggressive behavior. In line with our clinical experiences and with our findings, it seems advisable to focus especially on anger management and social skills in the reactively aggressive group and on moral reasoning and prosocial thinking styles in the proactively aggressive group.

Numerous indications can be found in the literature that a distinction has to be made according to subpopulations of violent forensic psychiatric patients on account of differences in dynamic criminogenic needs. In view of these differences, it is important that specific treatment programs are developed for these subpopulations. In this article we examine a group of violent forensic psychiatric patients with regard to mutual differences in dynamic criminogenic needs (Andrews & Bonta, 2003) and we make recommendations for the development of specific treatment programs.

Definitions

A problem with the research on dynamic criminogenic needs is that concepts such as violence, aggressive behavior and hostility are often used interchangeably in literature without any further description (Norlander & Eckhardt, 2005). In this

article, aggressive behavior is taken to imply conduct causing (mental or physical) harm to others (Berkowitz, 1993). Violence is seen as a specific form of aggressive behavior that mainly involves the infliction of physical harm (Browne & Howells, 1996). With aggressive or violent behavior we make a distinction between reactively and proactively or instrumentally aggressive behavior (Dodge, 1991). Reactively aggressive persons are described by Dodge, Lochman, Harnish, Bates, and Petit (1997) as “emotional, defensive and hot-tempered” and proactively aggressive persons as “calculating, offensive and cold-blooded”. Anger and rage refer to emotions that are displayed as a reaction to an (alleged) provocation and which manifest themselves in behavior such as staring, talking loud and standing too close. With hostility we refer to the inclination to attribute negative intentions to others (Blackburn, 1993). A personality trait concerns one of the “Big Five” personality domains (Hoekstra, Ormel, & De

Ruud H. J. Hornsveld and Henk L. I. Nijman are both at De Kijvelanden Forensic Psychiatric Center, Poortugaal, Netherlands. Ruud H. J. Hornsveld is also affiliated with the Department of Medical Psychology, Radboud University Nijmegen, Nijmegen, Netherlands, and Henk L. I. Nijman with the Academic Center for Social Sciences, Radboud University Nijmegen. Clive R. Hollin is head of the School of Psychology, University of Leicester, Leicester, United Kingdom. Floor W. Kraaimaat is head of the Department of Medical Psychology, Radboud University Nijmegen.

The study was conducted with financial support from the Research and Documentation Center of the Dutch Ministry of Justice. Correspondence concerning this article should be addressed to Ruud H. J. Hornsveld, Lange Dreef 52, 2285 LA RIJSWIJK, The Netherlands (Email: r.hornsveld@tiscali.nl).

Fruyt, 1996), while the term *psychopathy* refers to “callous and remorseless use of others in combination with a chronic unstable and antisocial life style” (Hare, 1991). An (oppositional-defiant) conduct disorder refers to a classification on Axis I and an antisocial personality disorder to a classification on Axis II of the DSM-IV (American Psychiatric Association, 1994).

Literature Review

Since different mechanisms appear to operate in reactively and proactively aggressive behavior, several authors have recommended the development of separate treatment programs for these problem behaviors (Akhtar & Bradley, 1991; Coie & Koeppl, 1990; Crick & Dodge, 1996; Day, Bream, & Pal, 1992). Reactive aggression is often associated with impulsivity, shyness and social awkwardness (Crick & Dodge, 1996; Loeber & Stouthamer-Loeber, 1998), whereas proactive aggression is related more to planning, impudence and social skillfulness (Price & Dodge, 1989). According to Brendgen, Vitaro, Tremblay, and Lavoie (2001) and Pulkinen (1996), proactively aggressive behavior or a combination of reactively and proactively aggressive behavior in young males is closely related to (future) physically aggressive behavior.

Cornell et al. (1996) investigated the relationship between psychopathy and proactive violence in violent offenders. Their study revealed that the subgroup of proactively violent offenders scored higher on psychopathy, measured by the *Psychopathy Checklist-Revised* (PCL-R: Hare, 1991), compared with a subgroup of reactively violent and a subgroup of nonviolent offenders. A second study of violent offenders who had been referred for pretrial forensic evaluation yielded the same results, namely that the instrumentally violent offenders scored significantly higher on the psychopathy as measured by the short version of the PCL-R (PCL-SV: Hart, Cox, & Hare, 1995) than the reactively violent offenders (Cornell et al., 1996).

Vassileva, Kosson, Abramowitz, and Conrod (2005) explored subtypes in criminal offenders based on two factors of the PCL-R, the interpersonal interaction during a standardized interview, alcohol and drug abuse, and trait anxiety. They clustered four subtypes: (1) “primary” (= low anxiety) psychopaths,

(2) “secondary” (= high anxiety) psychopaths, (3) offenders with features of psychopathy, and (4) non-psychopathic offenders with alcohol and drug problems. The authors suggested that because of the presence of anxiety, “secondary” psychopaths could be more amenable to treatment than “primary” psychopaths, who have been considered notoriously recalcitrant or resistant to treatment.

Frick, Cornell, Barry, Bodin, and Dane (2003) compared four subgroups, each with 24 to 25 children, to each other. The subgroups included: (1) “normal” children, (2) children with conduct problems, (3) children with callous and unemotional traits, and (4) children with conduct problems and callous and unemotional traits. The authors found that the group of children with conduct problems and callous and unemotional traits were disposed to exhibit proactively aggressive behavior, while children with only conduct problems exhibited reactively aggressive behavior more frequently.

In summary, the literature appears to demonstrate that subgroups can be distinguished by means of the PCL-R in populations varying from aggressive children to psychopathic offenders. It seems that those subgroups differ in the determinants of their aggressive behavior and these differences may have implications for the development of specific treatment programs.

Present Study

In our experience with the Aggression Control Therapy (Hornsveld, Nijman, & Kraaimaat, in press), we noticed that the approach of patients who scored relatively low on the PCL-R and who exhibited mainly reactive aggression had to differ from the approach of the patients with a relatively high score and who were more proactively aggressive. For the reactively aggressive patients, the therapy had to focus on anger management and learning new social skills, while for the proactively aggressive patients, normalizing present social skills and prosocial thinking needed to be emphasized. Therefore, the question occurred to us whether this clinical experience could be supported by a more detailed exploration of the personality traits and problem behaviors of subgroups. We therefore formed four subgroups of violent forensic psychiatric patients based on the two factors of the PCL-R. In a first

study, we evaluated personality traits and problem behaviors of the four subgroups by comparing them with norm groups. In a second study, we investigated for each subgroup which personality traits and problem behaviors function as determinants of aggressive behavior.

STUDY 1: CHARACTERISTICS OF SUBGROUPS

Owing to the results of a pilot study (Hornsveld, Van Dam-Baggen, Lammers, Nijman, & Kraaimaat, 2004), the four subgroups were compared with norm groups on neuroticism, agreeableness, and disposition to anger. In addition, they were compared with norm groups on social anxiety and social skills in “limit-setting” and “approaching” situations. Violent forensic psychiatric patients not only tend to respond differently from norm groups in these situations, but also in each situation in a different direction (Hornsveld, 2005). Then the four subgroups were compared with each other on neuroticism, agreeableness, hostility, aggressive behavior, and on social anxiety and social skills in “limit-setting” and “approaching” situations.

METHOD

Patients

In the Netherlands, forensic psychiatric patients are offenders for whom, based on examination by a psychiatrist and/or a psychologist, a judge has established a connection between a “deficient mental development or a mental disorder” and a committed offence. The study concerned measurements in a total of 133 inpatients and 176 outpatients.

Inpatients were admitted to six forensic psychiatric hospitals¹ and had been convicted of

serious violent crimes. Their average age was 35.31 years ($SD = 8.90$; range = 21-63 years). The main diagnosis of the inpatients was an antisocial personality disorder on Axis II or a psychotic disorder on Axis I, combined with an antisocial personality disorder on Axis II (DSM-IV: American Psychiatric Association, 1994). The chronic psychiatric condition of the psychotic patients was stabilized to the extent that their personality disorder became prominent.

The outpatients in this study were treated on two forensic psychiatric outpatient clinics,² to which they had been referred for compulsory treatment by the court for their violent crimes. Their average age was 22.61 years ($SD = 8.39$; range = 16-48 years). The main diagnosis of the outpatients was an (oppositional-defiant) conduct disorder on Axis I or, when they were 18 years or older, an antisocial personality disorder on Axis II (DSM-IV: American Psychiatric Association, 1994).

All patients were referred to follow Aggression Control Therapy (Hornsveld, Nijman, & Kraaimaat, in press). Contraindications were inability to function in a treatment group, inability to read a simple Dutch text and, for the outpatients, acute substance abuse and acute psychotic symptoms.

Composition of Subgroups

The subgroups were made up by first calculating the median of the PCL-R factors 1 and 2 for the total group of patients (10 and 10, respectively). Then the four subgroups were defined: subgroup 1 (“rejected males”) with factor 1 < 10 and factor 2 < 10 (average total PCL-R score: 12.54, $SD = 3.97$); subgroup 2 (“popular males”) with factor 1 ≥ 10 and factor 2 < 10 (average total PCL-R score: 19.68, $SD = 3.25$); subgroup 3 (“sociopaths”) with factor 1 < 10 and factor 2 ≥ 10 (average total PCL-R score: 20.15, $SD = 3.53$), and subgroup 4 (“psychopaths”) with factor 1 ≥ 10 and factor 2 ≥ 10 (average total PCL-R score: 26.47, $SD = 3.97$). In the Netherlands, the cut-off score used for psychopathy is 26.

¹ De Kijvelanden Forensic Psychiatric Center at Poortugaal; Oostvaarderskliniek Forensic Psychiatric Center, Amsterdam branch; Oostvaarderskliniek Forensic Psychiatric Center, Utrecht branch; De Rooyse Wissel Forensic Psychiatric Center at Oostrum (L); Forensic Psychiatric Department of the Drenthe Mental Health Agency at Assen, and Dr. S. van Mesdag Forensic Psychiatric Center at Groningen.

² Het Dok Outpatient and Day Treatment Center at Rotterdam and Ambulante Forensische Psychiatric-Jeugd at Assen.

Table 1
Distribution of the Four Subgroups With Regard to Settings

Subgroup	Setting						Total		
	Inpatients			Outpatients					
	<i>N</i>	Age (<i>M, SD</i>)	Percentage	<i>N</i>	Age (<i>M, SD</i>)	Percentage		<i>N</i>	Age (<i>M, SD</i>)
1 (rejected males)	35	37.54 (9.40)	11.33	55	22.78 (10.12)	17.80	90	28.52 (12.18)	29.13
2 (popular males)	12	46.42 (8.65)	3.88	45	22.00 (6.87)	14.56	57	27.12 (12.36)	18.45
3 (sociopaths)	36	32.42 (7.15)	11.65	18	24.44 (9.40)	5.83	54	29.76 (8.75)	17.47
4 (psychopaths)	50	33.16 (7.34)	16.18	58	22.38 (7.42)	18.77	108	27.37 (9.12)	34.95
Total	133	35.31 (8.90)	43.04	176	22.61 (8.39)	56.96	309	28.07 (10.69)	100.00

Measures

The *Psychopathy Checklist-Revised* (PCL-R: Hare, 1991; Dutch version: Vertommen, Verheul, De Ruiter, & Hildebrand, 2002) is a checklist for measuring psychopathy, which must be completed on the basis of a structured interview and a file study. The checklist has two factors: “callous and remorseless use of others” (factor 1) and “chronically unstable and antisocial lifestyle” (factor 2).

The *NEO Five Factor Inventory* (NEO-FFI: Costa & McCrae, 1992; Dutch version: Hoekstra, Ormel, & De Fruyt, 1996) has 60 items and measures the “Big Five” personality domains: Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness.

The *Zelf-Analyse Vragenlijst* (ZAV: Van der Ploeg, Defares, & Spielberger, 1982) is a Dutch version of the Spielberger State-Trait Anger Scale (Spielberger, 1980). Ten trait items were used from this questionnaire to determine disposition to anger.

The *Adapted Version of the Picture-Frustration Study* (PFS-AV: Hornsveld, Nijman, Hollin, & Kraaimaat, 2007) was used for measuring hostility. For this, patients had to write down their reactions to 12 pictures of ambiguous and provocative interpersonal situations. Answers were scored on a 7-point Likert scale, ranging from 1 (*not at all hostile*) to 7 (*extremely hostile*).

The *Aggressie Vragenlijst* (AVL: Meesters, Muris, Bosma, Schouten, & Beuving, 1996) is a Dutch version of Buss & Perry’s Aggression Questionnaire (1992) with 29 items and four subscales (Physical Aggression, Verbal Aggression, Anger, and Hostility). Aside from the total score on the AVL, we only used the subscale Physical Aggression score since the patients in this study were convicted for violent crimes.

The *Inventarisatielijst Omgaan met Anderen* (IOA: Van Dam-Baggen & Kraaimaat, 2000; IIS: Van Dam-Baggen & Kraaimaat, 1999) was used to determine how patients evaluated 35 interpersonal situations. Patients first had to indicate how much anxiety they would experience (social anxiety) in these situations and then how often they would actually perform the behavior described (social skills). The five subscales in this questionnaire, both for social anxiety and social skills, are Giving criticism, Giving your opinion, Giving someone a

compliment, Making contact, and Appreciating yourself. Two a priori subscales were designed for this study: The “limit-setting behavior” subscale³ consists of the “giving criticism” and “giving your opinion” subscales, and the “approaching behavior” subscale consists of “giving someone a compliment” and “making contact.”

The *Observation Scale for Aggressive Behavior* (OSAB: Hornsveld, Nijman, Hollin, & Kraaimaat, in press) was used to assess behavior in the ward. The scale was developed for forensic psychiatric patients, has 40 items and contains the subscales Irritation/anger, Anxiety/gloominess, Aggressive behavior, Antecedent, Sanction and Social behavior. The ward staff completed the scale on the basis of behavior displayed the previous week.

Regarding personality traits, the scores on the NEO-FFI were compared with those of “Men over age 17” from the norm group, derived from a broadly based Dutch population sample (Hoekstra, Ormel, & De Fruyt, 1996). Groups were also compared with a norm group of randomly selected male residents of the city of Leiden between the ages of 16 and 71 (Van der Ploeg, Defares, & Spielberger, 1982) for their disposition to become angry (ZAV). The patients were also compared to a norm group (aged 16 to 80 years) regarding social competence (IOA). Dutch norms were not available for the other instruments.

Procedure

The questionnaires were submitted individually to the patients prior to the Aggression Control Therapy. They received a fee of € 5 for this. The staff on the ward was asked to complete the observation scale for the inpatients in the same week.

RESULTS

Description of the Four Subgroups

The average scores of the subgroups on the NEO-FFI, ZAV, and IOA were compared (two-tailed)

³ In order to compare the a priori subscales Limit-setting and Approaching behavior to norm groups, norm group average and standard deviation for the constituent subscales were added.

with the average scores of norm groups by means of one-sample *t*-tests (Table 2), during which a Bonferroni correction was applied (.05 : 7 subscales = .007). Subgroups 1 (rejected males), and 3 (sociopaths) scored significantly higher than the norm group on neuroticism (NEO-FFI). All four subgroups scored significantly lower on agreeableness (NEO-FFI). Subgroups 1, 3, and 4 (psychopaths) scored significantly higher on the disposition to anger (ZAV).

All four subgroups scored significantly lower on social anxiety in situations where limit-setting behavior can be exhibited. Subgroups 2 (popular males), 3, and 4 also reported significantly more social skills (IOA Social skills) in these situations. Subgroup 1 was the only subgroup that scored significantly higher on social anxiety and significantly lower on social skills in approaching situations. For the questionnaires measuring hostility (PFS-AV) and aggressive behavior (AVL) no norms were available, which made it impossible to study the extent to which the various subgroups differed in terms of these behaviors from “normal” people.

Differences Between Subgroups

We used an ANCOVA to compare (two-tailed) the four subgroups with each other, during which a Bonferroni correction was applied (.05 with 9 (sub)scales = .006). No significant differences were found between the subgroups in reported disposition to anger (ZAV), hostility (PFS-AV), and aggressive behavior (AVL Total). Significant differences were found in neuroticism (NEO-FFI), $F(3,305) = 4.39$; $p < .006$ and in social skills in limit-setting situations (IOA Social skills), $F(3,305) = 5.00$; $p < .006$. When we further analyzed these results, it appeared that subgroup 1 scored significantly higher on neuroticism (NEO-FFI) than subgroup 2, $F(1,145) = 9.05$; $p < .006$ and subgroup 4, $F(1,196) = 7.35$; $p < .006$. The patients of subgroup 1 reported less social skills in limit-setting situations (IOA) than the patients of subgroup 3, $F(1,142) = 13.36$; $p < .006$ and of subgroup 4, $F(1,196) = 12.96$; $p < .006$.

SUMMARY AND DISCUSSION

When compared with the average Dutch person, the patients of all four subgroups scored lower on agreeableness and social anxiety in limit-setting situations. Subgroup 1 is characterized by a higher score on neuroticism and on anger as a disposition. In social situations in which approaching behavior can be displayed, only subgroup 1 scored higher on social anxiety and lower on social skills than the average Dutch person. With subgroup 2, significant differences with norm groups were only found with a few measurement instruments.

The differences proved to be small with a mutual comparison between the four subgroups. Contrary to expectations, no significant differences were found in reported disposition to anger, hostility and aggressive behavior. Subgroup 1 differed from subgroups 2 and 4 in neuroticism and from subgroups 3 and 4 in social skills regarding limit-setting situations. The patients of subgroup 1 appear to be neurotic in particular and not very competent from a social viewpoint, while those of subgroup 2 were only antisocial. Subgroup 3 seems to consist of neurotic, angry, socially skilled patients and subgroup 4 probably includes the more shrewd patients who have relatively little social anxiety.

STUDY 2: DETERMINANTS OF AGGRESSIVE BEHAVIOR

For a first impression of possible relations between scores on questionnaires, correlations were calculated for each subgroup between aggressive behavior on the one hand and neuroticism, agreeableness, disposition to anger, hostility, and social anxiety or social skills in limit-setting or approaching situations on the other hand. Then the relations between certain traits and behaviors were further investigated for each subgroup with the use of regression analyses.

Table 2
Four Subgroups Compared With Norms

Measurement Instruments	Subscales	Norm groups	Subgroup 1 (rejected males) (<i>N</i> = 90)	Subgroup 2 (popular males) (<i>N</i> = 57)
		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
NEO-FFI	Neuroticism	29.6 (7.8)	34.57 (8.94)	30.18 (8.10)
	Agreeableness	42.5 (5.1)	40.00 (5.54)	40.63 (4.24)
	Disposition	17.2 (5.3)	21.38 (8.54)	18.89 (6.42)
	Limit-setting behavior	31.6 (9.2)	27.92 (9.72)	23.77 (9.28)
	Approaching behavior	14.9 (5.5)	17.89 (6.28)	15.58 (7.28)
ZAV	Limit-setting behavior	36.9 (8.1)	37.92 (7.66)	41.26 (10.91)
	Approaching behavior	32.0 (5.8)	29.00 (6.14)	31.36 (7.78)
Statistics				
			<i>t</i> (89) = 5.27*	<i>t</i> (56) = 0.54
			<i>t</i> (89) = -4.28*	<i>t</i> (56) = -3.33*
			<i>t</i> (89) = 4.49*	<i>t</i> (56) = 1.95
			<i>t</i> (89) = -3.45*	<i>t</i> (56) = -6.14*
			<i>t</i> (89) = 4.33*	<i>t</i> (56) = 0.69
			<i>t</i> (89) = 1.23	<i>t</i> (56) = 2.91*
			<i>t</i> (89) = -4.58*	<i>t</i> (56) = -0.59
Measurement Instruments	Subscales	Norm groups	Subgroup 3 (sociopaths) (<i>N</i> = 54)	Subgroup 4 (psychopaths) (<i>N</i> = 108)
		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
NEO-FFI	Neuroticism	29.6 (7.8)	33.30 (7.52)	31.39 (7.55)
	Agreeableness	42.5 (5.1)	39.57 (4.91)	39.06 (5.57)
	Disposition	17.2 (5.3)	21.41 (8.32)	20.90 (9.00)
	Limit-setting behavior	31.6 (9.2)	25.64 (9.56)	24.52 (8.63)
	Approaching behavior	14.9 (5.5)	15.20 (5.46)	15.75 (6.34)
ZAV	Limit-setting behavior	36.9 (8.1)	43.00 (8.32)	42.38 (9.29)
	Approaching behavior	32.0 (5.8)	32.35 (5.75)	31.26 (6.90)
Statistics				
			<i>t</i> (53) = 3.61 *	<i>t</i> (107) = 2.46
			<i>t</i> (53) = -4.38*	<i>t</i> (107) = -6.41 *
			<i>t</i> (53) = 3.36*	<i>t</i> (107) = 3.99*
			<i>t</i> (53) = -4.41*	<i>t</i> (107) = -8.28*
			<i>t</i> (53) = 0.39	<i>t</i> (107) = 1.35
			<i>t</i> (53) = 5.29*	<i>t</i> (107) = 5.99*
			<i>t</i> (53) = 0.43	<i>t</i> (107) = -1.09

* $p < .007$ (two-tailed). Note: NEO-FFI = Neo Five Factor Inventory, ZAV = Zelf-Analyse Vragenlijst; IOA = Inventarisatieijst Omgaan met Anderen.

METHOD

Patients, measures and procedure were the same in this study as in study 1.

RESULTS

Correlations Between Scores on Questionnaires

The total score on aggressive behavior (AVL Total) correlated positively (.44, $p < .01$; .42, $p < .01$; .39, $p < .01$; .46, $p < .01$ successively) with neuroticism (NEO-FFI), positively (.67, $p < .01$; .63, $p < .01$; .54, $p < .01$; .53, $p < .01$ successively) with disposition to anger (ZAV), and negatively (-.51, $p < .01$; -.55, $p < .01$; -.39, $p < .01$; -.48, $p < .01$ successively) with agreeableness (NEO-FFI) for each subgroup. Aggressive behavior (AVL-Total) also correlated positively with hostility (PFS-AV) for subgroups 1 and 4 (.57, $p < .01$; .41, $p < .01$ successively) and subgroups 2 and 3 (.36, $p < .05$; .30, $p < .05$). No significant correlations were found between aggressive behavior (AVL Total) and social anxiety or social skills in limit-setting or approaching situations, with the exception of a positive correlation (.23, $p < .05$) for subgroup 1 with social anxiety in approaching situations (IOA).

Physical aggression (AVL Physical aggression) correlated positively (.21, $p < .05$; .34, $p < .05$; .25, $p < .01$ successively) with neuroticism (NEO-FFI) for subgroups 1, 2, and 4, and negatively (-.40, $p < .01$; -.54, $p < .01$; -.32, $p < .05$; -.36, $p < .01$ successively) with agreeableness (NEO-FFI) for all four subgroups. For all subgroups positive correlations (.57, $p < .01$; .60, $p < .01$; .46, $p < .01$; .46, $p < .01$ successively) were found with disposition to anger (ZAV). Positive correlations (.51, $p < .01$; .46, $p < .01$; .42, $p < .01$ successively) were found between physical aggression (AVL Physical aggression) and hostility (PFS-AV) for subgroups 1, 2, and 4. No significant correlations were found between physical aggression (AVL Physical aggression) and social anxiety or social skills in limit-setting or approaching situations, with the exception of a positive correlation (.26, $p < .05$) for subgroup 1 with social skills in limit-setting situations (IOA).

Regression Analyses of Aggressive Behavior

Several multiple regression analyses were performed to see how aggressive behavior (AVL Total and AVL Physical aggression) was predicted by neuroticism and by social anxiety or social skills in limit-setting or approaching situations (Table 3). For subgroup 1 (rejected males), aggressive behavior (AVL Total) was predicted positively by neuroticism (NEO-FFI) and by limit-setting social skills (IOA), and negatively by approaching social skills (IOA). Physical aggression (AVL Physical aggression) appeared to be predicted positively with social skills in limit-setting and negatively with social skills in approaching situations (IOA).

Aggressive behavior (AVL Total) was for subgroup 2 (popular males) predicted positively by neuroticism (NEO-FFI), by social anxiety in approaching situations, and by social skills in limit-setting situations (IOA). Physical aggression appeared to be predicted positively by neuroticism (NEO-FFI) and by limit-setting social skills (IOA), and significant negatively by limit-setting social anxiety and approaching social skills (IOA). For subgroup 3 (sociopaths), aggressive behavior (AVL Total) was only predicted positively by neuroticism (NEO-FFI), while no predicting factor could be found for physical aggression (AVL Physical aggression). Aggressive behavior (AVL Total) and physical aggressive behavior (AVL Physical aggression) were positively predicted by neuroticism (NEO-FFI) for subgroup 4 (psychopaths).

The data from the observation scale were collected for the inpatients of each subgroup (OSAB). Several multiple regression analyses were performed to see how aggressive behavior on the ward (OSAB Aggressive behavior) was predicted by scores on the OSAB subscales Irritation/Anger, Anxiety/Gloominess, and Social Behavior. The regression analyses yielded the same results for the inpatients of all four subgroups: Aggressive behavior was positively (.74, $p < .001$; .89, $p < .001$; .91, $p < .001$; .81, $p < .001$ successively) predicted by scores on the OSAB subscale Irritation/Anger, but this did not apply to the scores on the OSAB subscale Anxiety/Gloominess. Aggressive behavior of the inpatients as measured by the OSAB was also not predicted by the scores on the OSAB subscale Social behavior for each subgroup.

Table 3
Summary Regression Analysis of Neuroticism, Social Anxiety, and Social Skills for the Prediction of (Physical) Aggression

Measurement instruments	Subscales	AVL Total: Standardized coefficients (β)								AVL Physical aggression: Standardized coefficients (β)			
		Subgroup 1 (rejected males) ($N = 90$)	Subgroup 2 (popular males) ($N = 57$)	Subgroup 3 (socio- paths) ($N = 54$)	Subgroup 4 (psycho- paths) ($N = 108$)	Subgroup 1 (rejected males) ($N = 90$)	Subgroup 2 (popular males) ($N = 57$)	Subgroup 3 (socio- paths) ($N = 54$)	Subgroup 4 (psycho- paths) ($N = 108$)				
NEO-FFI	Neuroticism	.37**	.56**	.35*	.47**	.22	.52**	.20	.25*				
IOA Social anxiety	Limit-setting behavior	.00	-.51	.11	-.15	-.04	-.64*	.07	-.05				
	Approaching behavior	.12	.58**	.09	.20	.12	.56	.13	.13				
IOA Social skills	Limit-setting behavior	.60**	.56**	.16	.26	.63**	.52*	.25	.20				
	Approaching behavior	-.48**	-.58**	-.03	-.10	-.40*	-.62*	-.03	-.06				
R^2		.35	.30	.18	.25	.25	.24	.11	.08				
Statistics		$F(5,89) = 8.18**$	$F(5,56) = 4.11**$	$F(5,53) = 1.96$	$F(5,108) = 6.20**$	$F(5,89) = 4.97**$	$F(5,56) = 3.00*$	$F(5,53) = 1.06$	$F(5,108) = 1.65$				

* $p < .05$; ** $p < .01$ (two-tailed). Note: NEO-FFI = Neo Five Factor Inventory; AVL = Aggressive Vragenlijst; IOA = Inventarisatie lijst Omgaan met Anderen.

SUMMARY AND DISCUSSION

For all subgroups, aggressive behavior in general appeared to be predicted by neuroticism. Physical aggression was only predicted positively by neuroticism for the subgroups 2 and 4. General aggressive and physically aggressive behavior was predicted by social skills for subgroup 1 (rejected males) and for subgroup 2 (popular males), but not for subgroup 3 (sociopaths) or 4 (psychopaths). Social anxiety appeared to predict general and physical aggression for subgroup 2, but not for subgroups 1, 3 or 4. The aggressive behavior of the inpatients on the ward was predicted for all subgroups by irritation/anger but not by anxiety/gloominess or social behavior on the ward.

GENERAL DISCUSSION

Preliminary Description of Subgroups

We distinguished between four subgroups based on the two factors of the PCL-R. The patients of subgroup 1 (rejected males, low on factor 1 and low on factor 2) scored higher on social anxiety and lower on social skills than the other subgroups. They appeared to correspond with the group of shy, withdrawn, and rejected young males for which Loeber and Stouthamer-Loeber (1998) demanded special attention. These young males exhibit mainly reactively aggressive behavior according to researchers such as Crick and Dodge (1996). Subgroup 2 (popular males, high on factor 1 and low on factor 2) scored similarly as the norm group on neuroticism and conscientiousness. The patients in subgroup 2 probably not only exhibit proactive (physical) aggression, but reactive aggression as well. Popular boys usually exhibit more social skills than peers according to Coie and Dodge (1998). Subgroup 3 (sociopaths, low on factor 1 and high on factor 2) consisted of relatively more inpatients with a stabilized psychotic disorder than the other three subgroups. Contrary to expectations, (physically) aggressive behavior in this subgroup was related only to neuroticism and not to social anxiety. Possibly, the minimal insight of chronic psychotic patients into their own behavior may explain the relatively low scores on social anxiety and the relatively high scores

on social skills. Subgroup 4 (psychopaths, high on factor 1 and high on factor 2) also scored higher on neuroticism and social skills, and lower on social anxiety than norm groups. At the same time, subgroup 4 was the only subgroup for which no relation was found between disposition to anger, hostility or aggressive behavior on the one hand, and social anxiety and social skills on the other hand. (Physically) aggressive behavior was related to neuroticism and not to social skills.

Remarkably, the aggressive behavior of the inpatients from all four subgroups seemed to be influenced by irritation or anger, and not by anxiety or gloominess, nor by their generally exhibited social behavior on the ward. Possibly, this finding indicates that the determinants of aggressive behavior for inpatients differ from those of outpatients.

Consequences for Treatment Programs

Although the differences between the four subgroups appeared to be minor, the study seems to support our clinical experiences and is to some extent in agreement with the various recommendations in the literature to make a distinction between people primarily exhibiting reactively aggressive behavior and those prominently displaying proactively aggressive behavior in the treatment of violent offenders (Akhtar & Bradley, 1991; Coie & Koeppel, 1990; Crick & Dodge, 1996; Day, Bream, & Pal, 1992). There are indications that treatment for patients with a relatively low score on factor 1 of the PCL-R should focus on an increase in social competence, while treatment for patients with a relatively high score on factor 1 should focus on an enhanced understanding of the negative consequences of their behavior for themselves. For this reason, it is recommended in the Aggression Control Therapy (Hornsveld et al., in press) as well as in the Aggression Replacement Training (Goldstein, Glick, & Gibbs, 1998) for “rejected males” (subgroup 1) and “sociopaths” (subgroup 3) that the emphasis be placed on the modules Anger Management and Social Skills, primarily focusing on teaching “approaching” skills. For “popular males” (subgroup 2) and “psychopaths” (subgroup 4), who generally experience little anger, the Social Skills module should be normative in nature, as is also the case in the Moral Reasoning module. A Character Education

module (Salmon, 2004) and a Positive Thinking styles module (Gibbs, Potter, & Goldstein, 1995) should be added to the therapy for “popular males” and “psychopaths” (subgroups 2 and 4), where the patients are extensively confronted with the long-term consequences of their aggressive behavior and where they are stimulated to use prosocial thinking styles.

Limitations of the Current Study

The present study, in which four subgroups of violent forensic psychiatric patients were analyzed in detail, supported our assumption that patients with significantly different scores on the *Psychopathy Checklist-Revised* need to be assigned to different treatment programs to a limited extent; however, the findings should be viewed with caution for a number of reasons. Firstly, psychopathy as measured by the PCL-R merely refers to the exhibition of behavior in the past and in the present and is not directly related to the functionality of aggressive behavior. A second problem is that although a dichotomy regarding aggressive behavior is used often in literature (e.g., Dodge, 1991), most aggressive or violent persons exhibit both reactive and proactive aggressive behavior according to a number of authors (Berkowitz, 1993; Cornell et al., 1996; Dodge et al., 1997). Thirdly, self-reported questionnaires were largely used for the measurement of personality traits and problem behaviors. The disadvantage of these instruments is that scores can be affected by a tendency to provide socially acceptable answers (Bech & Mak, 1995) and/or by the limited understanding of respondents of their own social functioning (Hollin & Palmer, 2001). Finally, the number of patients in two of the four subgroups was relatively small and this study only concerned patients who were indicated to follow Aggression Control Therapy.

The Importance of Thorough Assessment

Differentiation in the treatment of violent forensic psychiatric patients again underlines the importance of a thorough assessment for various reasons, including the fact that a program that is focused on acquiring new (approaching) skills seems to be contraindicated for patients who scored

relatively high on both factors of the PCL-R (Harris, Rice, & Cormier, 1994). These patients can therefore expand their repertoire of skills through which others can be manipulated.

It was notable that both inpatients and outpatients were members of all four subgroups. It indicates that, in addition to personality traits, problem behaviors and duration of antisocial behavior, other criteria seem to play a major role in the court’s decision to impose inpatient or outpatient treatment, such as the severity of offenses committed and the nature of the “deficient mental development or mental disorder.”

In any case, the study illustrates the statement from Widiger and Lynam (1998) that “psychopathy appears to be on a continuum with normal personality functioning, with different pathologies reflecting the different facets of personality that are involved.” A distinction of violent forensic psychiatric patients into subtypes, based on the two factors of the PCL-R, only produces general indications for further differentiation of treatment programs for this population. Therefore, further research is needed for a valid division into subpopulations of violent forensic psychiatric patients with a conduct disorder or an antisocial personality disorder.

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