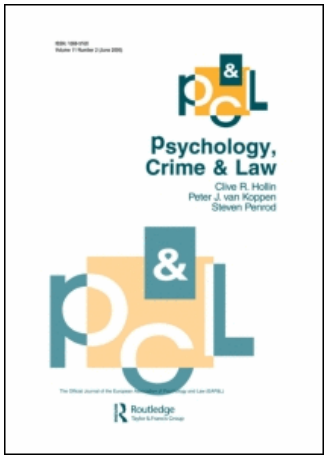

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Ruud H. J. Hornsveld [ab]; Henk L. I. Nijman [bc]; Floor W. Kraaimaat [a]
[a] Department of Medical Psychology, Radboud University Nijmegen, Nijmegen, the Netherlands
[b] De Kijvelanden Forensic Psychiatric Centre, Poortugaal, the Netherlands
[c] Academic Centre for Social Sciences, Radboud University Nijmegen, Nijmegen, the Netherlands

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Aggression Control Therapy for violent forensic psychiatric patients: First results

RUUD H. J. HORNSVELD[1,2], HENK L. I. NIJMAN[2,3], & FLOOR W. KRAAIMAAT[1]

[1]*Department of Medical Psychology, Radboud University Nijmegen, Nijmegen, the Netherlands,* [2]*De Kijvelanden Forensic Psychiatric Centre, Poortugaal, the Netherlands, and* [3]*Academic Centre for Social Sciences, Radboud University Nijmegen, Nijmegen, the Netherlands*

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Abstract
Aggression Control Therapy (ACT), a treatment programme developed in the Netherlands for violent forensic psychiatric patients with a conduct disorder or antisocial personality disorder, was investigated in two studies. In the first study, the personality traits and problem behaviours of these patients and a normative Dutch population were compared, and then the traits and behaviours of patients who completed the ACT were compared with those who dropped out. In the second study, the ACT was evaluated by comparing pre-treatment, post-treatment, and follow-up data. Two control conditions were added: a waiting-list period for outpatients and a control group for inpatients. The patients who received ACT were psychologically unstable, egoistic, and prone to anger. They reported little social anxiety when exhibiting limit-setting behaviour (e.g. giving criticism) but tended to avoid approaching behaviour (e.g. giving a compliment). Results suggested that ACT diminished aggressive behaviour but did not change socially competent behaviour. The limitations of the two studies are mentioned and suggestions for further research into the effects of ACT are presented.

Keywords: *Forensic psychiatry, violence, personality traits, Aggression Control Therapy, treatment effect*

Introduction

Although various institutions in the Netherlands have started implementing treatment programmes for violent forensic psychiatric patients, little is known about the characteristics of these patients and the results of these programmes. The term violence is used here to refer to aggressive behaviour that is intended to injure someone psychologically and physically (Berkowitz, 1993), but especially physically (Browne & Howells, 1996). In the Netherlands, forensic psychiatric patients are offenders for whom a judge has established, on the basis of information provided by a psychiatrist and/or psychologist, a connection between a "deficient mental development or mental disorder' and the crime committed. Without treatment, the risk of recidivism is high.

Correspondence: Ruud H. J. Hornsveld, Lange Dreef 52, 2285 LA, Rijswijk, The Netherlands. E-mail: r.hornsveld@tiscali.nl

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The personality traits and problem behaviours of more or less comparable non-Dutch populations have been described in several publications. Nietzel, Hasemann, and Lynam (1999) determined that "severe antisocial behaviour" is associated with low scores on the Big Five personality domains (Costa & McCrae, 1992), a relationship previously proposed by others (Digman, 1994; Widiger, Trull, Clarkin, Sanderson, & Costa Jr, 1994). Eysenck and Gudjonsson (1989) concluded that the personality dimensions of extraversion and neuroticism are associated with criminality, with the association with extraversion being thought to be stronger, and that with neuroticism to be weaker, in younger, more active criminals than in older, incarcerated criminals. According to Digman (1994), Eysenck and Gudjonsson's neuroticism and extraversion dimensions correspond to the Big Five personality domains with the same names.

Goldstein, Glick, and Gibbs (1998) considered aggressive behaviour to be associated with problem behaviours, such as inadequate emotional control, a limited range of social skills, and a combination of antisocial norms and values, and empirical evidence has been found to support this supposition. Compared with non-aggressive people, aggressive people have dysfunctions in perception (Akhtar & Bradley, 1991), attention (Lochman, White, & Wayland, 1991), attribution (Dodge, Price, Bachorowski, & Newman, 1990), cognition (Lochman & Dodge, 1994), emotion (Zamble & Quinsey, 1997), social competence (Hollin, 1990), and awareness of current norms and values (Nelson, Smith, & Dodd, 1990; Palmer & Hollin, 1999).

There have been no studies of the effect of treatment programmes for Dutch violent forensic psychiatric patients but more is known about the treatment of similar populations. For instance, Nas, Brugman, and Koops (2005) evaluated an EQUIP programme for Dutch juvenile delinquents in high-security correctional facilities. After treatment completion, the members of the treatment group reported fewer "cognitive distortions" but no more social skills than the members of the control group who received "care as usual". However, the study was small and not all the delinquent juveniles had committed a violent crime. In a review of meta-analyses, Lipton, Pearson, Cleland, and Yee (2003) concluded that, in general, cognitive behaviour therapy programmes for offenders have a beneficial effect on the risk of recidivism. However, the studies included in this review differed in terms of offender age (most were adolescents), type of offence (violent or non-violent), and treatment focus (most treatments were not primarily focused on reducing aggressive behaviour). Moreover, the quality of the various studies was far from uniform. Polaschek (2006) pointed out that while there are studies showing that treatment programmes for violent offenders lead to a decrease in reconviction for violent crimes, in most cases these programmes lack a treatment model in which associations are drawn between criminogenic needs and recidivism outcome.

Goldstein et al. (1998) developed Aggression Replacement Training (ART) for children and adolescents who show violent and aggressive behaviour and found ART to significantly improve behaviour in a controlled study of aggressive and/or delinquent adolescents in residential institutions, in outpatient projects, and in gangs (Goldstein et al., 1998). An adapted version of ART administered to boys and girls in a day care centre led to a decrease in antisocial behaviour, manifest as violation of house rules, violation of social norms, violations of someone's personal property, and aggression towards the physical or mental well-being of others (Nugent, Bruley, & Allen, 1999). A large study in the state of Washington revealed that ART significantly decreased the risk of recidivism among aggressive and/or violent young people in the long term, provided the training was

administered in a "competent manner" (Washington State Institute for Public Policy, 2004). However, the effect of ART applied to violent adults has not been studied.

Although there is evidence that violent offenders who drop out of a treatment programme are at increased risk of recidivism, little is known about the characteristics of completers and dropouts (Hollin, 2006). Recidivism risk, attitude, education, and employment are predictors of dropout, but Hollin suggested that this might be a simplification because findings may vary by type of sentence imposed and offender population. Nas, Brugman, and Koops (2005) found that Dutch juvenile delinquents who dropped out of an EQUIP programme did not differ from completers in intelligence, age, moral judgement, cognitive distortions, social skills, and "social information processing". However, in this study a number of dropouts had to stop participation in the programme because they were transferred to another facility or because they were released before they completed the post-treatment evaluation. Little is known about the characteristics of completers and dropouts of Dutch programmes for adult violent forensic psychiatric patients.

The lack of a Dutch treatment programme for violent patients with a conduct disorder or an antisocial personality disorder prompted us to develop Aggression Control Therapy (ACT) (Hornsveld, 2004a). An initial evaluation of the applicability of ACT revealed that it could be used in various institutions, but that the dropout rate was very high, especially among adolescent patients attending outpatient clinics (Hornsveld, Nijman, Hollin, & Kraaimaat, in press). We therefore investigated the personality traits and problem behaviours of Dutch violent forensic psychiatric patients who did or did not complete ACT, compared with those of Dutch norm groups. In a second study, we evaluated the effect of ACT.

Study 1: Characteristics of patients

In this study, we compared the personality traits and problem behaviours of violent forensic psychiatric patients who were indicated for ACT with those of Dutch norm groups. We also compared the therapy completers with the dropouts for differences in tracts and behaviours. Dropouts were participants who were absent from more than two sessions without legitimate reason or who were no longer allowed to participate in therapy because of their continuously disruptive behaviour. On the basis of an earlier pilot study (Hornsveld, Van Dam-Baggen, Lammers, Nijman, & Kraaimaat, 2004), we expected that Dutch outpatients and inpatients would score higher on neuroticism, lower on agreeableness, and higher on disposition to anger than norm groups, and that inpatients would report less social anxiety and more social skills than norm groups. Likewise, based on the findings of another pilot study (Hornsveld, 2005), we expected that dropouts would score lower on agreeableness, higher on hostility, higher on aggressive behaviour, and lower on social anxiety than completers. We also expected that outpatient dropouts would score higher for psychopathy than outpatient completers would, but did not expect to find this difference among inpatients.

Method

Patients

The 136 *inpatients* had been admitted to six forensic psychiatric institutions[1] and were "placed at the disposal of the government" for serious violent offences. Their average age was 33.4 year (SD = 7.6; range = 21–56 years); 37.5% of the patients were from an ethnic

minority. The primary diagnosis was an antisocial personality disorder on axis II or a (chronic) psychotic disorder on axis I in combination with an antisocial personality disorder on axis II (DSM-IV: American Psychiatric Association, 1994). The chronic psychiatric condition of the psychotic patients had stabilized to the extent that their personality disorder became prominent. This group of patients was not representative of the population of inpatients because they were eligible for ACT, based on file study, psychiatric/psychological assessment (including risk assessment), and clinical evaluation. Patients with a psychotic disorder that had not stabilized, patients with a poor command of written and spoken Dutch, and patients who could not function in a group were not considered eligible for ACT. In the Netherlands, while forensic psychiatric patients are sentenced to receive care, treatment is not compulsory and some patients chose not to receive ACT.

The 200 *outpatients* were treated at a forensic psychiatric outpatient clinic (Het Dok Outpatient and Day Treatment Centre at Rotterdam) as part of their court-ordered sentence for violent offences. Their average age was 23.4 years (SD = 9.4; range = 16–51 years); 53.8% of the patients were from an ethnic minority. All patients were from Rotterdam and the surrounding area. The outpatients had an (oppositional defiant) conduct disorder as a primary diagnosis on axis I or, if they were 18 years or older, a main diagnosis of antisocial personality disorder on axis II (DSM-IV: American Psychiatric Association, 1994). This group of patients was representative of the population of violent outpatients in Rotterdam and the surrounding area sentenced by court to receive treatment and who were about to participate in ACT. Exclusion criteria were acute psychosis, substance dependence, poor command of the Dutch language, or inability to function in a group. The indication for ACT was established on the basis of an intake interview, to which not only the patient, but also the referring person and, in the case of adolescents, the parents were invited. The person conducting the intake interview usually had access to information from a preliminary psychiatric or psychological examination.

Patients belonging to ethnic minority groups had parents born in Surinam, the Netherlands Antilles, Turkey, Morocco and Cape Verdian Islands.

Measures

The following instruments were used:

File study (combined with structured interview). The *Psychopathy Checklist – Revised* (PCL-R: Hare, 1991; Dutch version: Vertommen, Verheul, De Ruiter, & Hildebrand, 2002) is a checklist for measuring psychopathy and is 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).

Self-report questionnaires. The following two questionnaires were used to measure personality traits: 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 of 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.

Four self-report questionnaires were used to identify aggressive and socially competent behaviour. The *Attributie Vragenlijst* (ATV: Hornsveld, Nijman & Kraaimaat, 2002; PFS-AV: Hornsveld, Nijman, Hollin, & Kraaimaat, 2007) is an experimental questionnaire

for measuring hostility. For this, patients had to write down their reactions to 17 pictures of ambiguous and provocative interpersonal situations. Answers were scored on a seven-point Likert scale, ranging from 1 = not at all hostile to 7 = extremely hostile. Cronbach's α in this study was 0.83.

The *Agressie Vragenlijst* (AVL: Meesters, Muris, Bosma, Schouten, & Beuving, 1996) is a Dutch version of Buss and Perry's (1992) Aggression Questionnaire with 29 items that measure various types of aggressive behaviour, i.e. physical aggression, verbal aggression, anger, and hostility.

The *Novaco Anger Scale* (NAS: Novaco, 1994) used in this study was a translation of a provisional version with 48 items in part A and 25 items in part B. Patients only had to complete part A, where they indicated the extent to which an anger-inciting situation had a bearing on them. Cronbach's α of part A was 0.95 in this study.

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 behaviour described (social skills) if the situation occurred. The five subscales in this questionnaire, for both social anxiety and social skills, are Giving criticism, Giving your opinion, Giving someone a compliment, Making contact, and Appreciating yourself.

Observation scale. The *Observation Scale for Aggressive Behaviour* (OSAB: Hornsveld, Nijman, Hollin, & Kraaimaat, in press) was used, which has 40 items and includes the subscales of Irritation/Anger, Anxiety/Gloominess, Aggressive Behaviour, Social Behaviour, Antecedent and Sanction. Staff scored the behaviour of the inpatients in the preceding 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 et al., 1996). Both groups were also compared with a norm group of "randomly selected male residents of Leiden between the ages of 16 and 71" (van der Ploeg et al., 1982) regarding disposition to become angry. The patients were also compared to a norm group (aged 16–80 years) regarding social competence (IOA van Dam-Baggen & Kraaimaat, 2000). Dutch norm groups were not available for the other instruments.

Procedure

The questionnaires were individually administered before ACT. In some institutions, this was done by a therapist and in others by an examiner. The PCL-R was scored in most cases by the first author based on information contained in the patient's file, combined with information from the intake interview or with therapists' impressions during treatment. This method was chosen because some institutions had limited expertise with the PCL-R at the time of the study. The scores were considered sufficiently reliable for exploratory research; comparison of the scores of two raters revealed only minor differences. Patients received €5 for completing the questionnaires. The study design was approved by the Review Committee for Patient-linked Research in Arnhem and by the Scientific Research and Documentation Centre of the Ministry of Justice.

Results

Description of the population

The average scores of the patients on the NEO-FFI, ZAV, and IOA were compared (two-tailed) with the average scores of norm groups by means of one-sample *t*-tests (Table I), during which Bonferroni correction was applied (0.05:36 comparisons = 0.001). Outpatients had significantly higher scores for neuroticism ($p < 0.001$) and significantly lower scores for agreeableness ($p < 0.001$) than the norm group (NEO-FFI). However, they had also significantly lower scores for openness ($p < 0.001$) and conscientiousness ($p < 0.001$). The outpatients were more disposed to anger ($p < 0.001$) than the norm group (ZAV) but did not differ regarding social anxiety and social skills (IOA) (Table I).

Inpatients had significantly higher scores for neuroticism ($p < 0.001$) and significantly lower scores for agreeableness ($p < 0.001$), but not significantly different scores for extraversion, openness, conscientiousness, and disposition to anger, compared with those of the norm group. In contrast to the outpatients, the inpatients reported significantly lower social anxiety ($p < 0.001$) and greater social skills ($p < 0.001$) than the norm group. It was striking that both the outpatients and inpatients reported significantly lower social anxiety ($p < 0.001$) and greater social skills ($p < 0.001$) in situations where, for example, criticism is given (limit-setting behaviour) and greater anxiety ($p < 0.001$) and fewer skills ($p < 0.001$) in situations where, for example, another person is complimented (approaching behaviour).

We used 2×2 ANCOVAs to compare outpatients and inpatients, and completers and dropouts, with correction for age because the outpatients were significantly younger than the inpatients [$t(334) = -11.0$; $p < 0.01$]. Compared with the inpatients, the outpatients had significantly lower scores for an aspect of psychopathy (PCL-R factor 2, $p < 0.001$) (Table II) and had significantly higher scores for aggressive behaviour (AVL Total, $p < 0.001$; NAS, $p < 0.001$).

Differences between completers and dropouts

The dropout rate was 41% among the outpatients and 13% among the inpatients. To investigate possible pre-treatment differences between those who completed the ACT and those who dropped out, we further analysed the results obtained with the ANCOVAs (Table II). Both the outpatient and the inpatient dropouts had significantly higher scores [$F(4,331) = 4.6$; $p < 0.05$] on PCL-R factor 2 than the completers did after correcting for age. The outpatient dropouts had higher scores for neuroticism [$F(2,197) = 13.7$; $p < 0.001$], lower scores for extraversion [$F(2,197) = 4.6$; $p < 0.05$], higher scores for disposition to anger [$F(2,197) = 5.4$; $p < 0.01$], higher scores for aggressive behaviour [AVL Total: $F(2,197) = 7.7$; $p < 0.01$] than outpatient completers after correction for age, but there were no differences between the inpatients groups. After correction for age, the inpatient dropouts had significantly lower scores for openness than the inpatient completers [$F(2,133) = 5.1$; $p < 0.01$], whereas there were no differences for the outpatients groups. Contrary to what was expected, we did not find that the outpatient and inpatient dropouts had lower scores for agreeableness than the therapy completers.

Summary and discussion

Both the outpatients and the inpatients had higher scores for neuroticism and lower scores for agreeableness than the norms. The outpatients had lower scores for openness and conscientiousness and higher scores for disposition to anger than the norms, and the

Table I. Comparison of outpatients and inpatients with norm groups.

		Norm groups	Outpatients ($n=200$)			Inpatients ($n=136$)		
Instrument	Subscales	M (SD)	M (SD)	Compared with norm group	Statistics	M (SD)	Compared with norm group	Statistics
NEO-FFI	Neuroticism	29.6 (7.8)	32.0 (8.2)	6th decile	$t(199)=4.1^{\star}$	33.2 (7.8)	6th decile	$t(135)=5.4^{\star}$
	Extraversion	39.8 (6.5)	40.9 (5.5)	5th decile	$t(199)=2.9$	40.3 (5.5)	5th decile	$t(135)=1.0$
	Openness	35.4 (6.6)	33.9 (5.3)	5th decile	$t(199)=-4.1^{\star}$	36.6 (5.4)	6th decile	$t(135)=2.5$
	Agreeableness	42.5 (5.1)	39.3 (5.3)	4th decile	$t(199)=-8.5^{\star}$	40.7 (4.8)	4th decile	$t(135)=-4.3^{\star}$
	Conscientiousness	45.3 (5.7)	43.8 (6.5)	4th decile	$t(199)=-3.3^{\star}$	45.1 (5.6)	5th decile	$t(135)=-0.4$
ZAV	Disposition	17.3 (5.4)	21.1 (7.4)	8th decile	$t(199)=7.1^{\star}$	19.9 (8.7)	8th decile	$t(135)=3.2$
IOA Social anxiety	Total	70.5 (17.8)	65.6 (23.4)	Average	$t(199)=-2.9$	63.7 (21.6)	Below average	$t(135)=-3.6^{\star}$
	Criticizing	19.0 (5.2)	14.1 (5.5)	Below average	$t(199)=-12.4^{\star}$	14.9 (5.4)	Below average	$t(135)=-8.7^{\star}$
	Giving opinion	12.6 (4.0)	11.4 (4.6)	Average	$t(199)=-3.8^{\star}$	10.9 (4.2)	Average	$t(135)=-4.6^{\star}$
	Complimenting somebody else	5.3 (2.2)	6.9 (3.7)	High	$t(199)=6.0^{\star}$	6.4 (3.0)	Above average	$t(135)=4.3^{\star}$
	Initiating contact	9.6 (3.3)	9.7 (3.7)	Average	$t(199)=0.3$	9.0 (3.4)	Average	$t(135)=-2.1$
	Appreciating yourself	7.7 (2.7)	7.3 (3.2)	Average	$t(199)=-1.8$	7.1 (2.8)	Average	$t(135)=-2.5$
IOA Social skills	Total	111.3 (15.8)	113.2. (22.8)	Average	$t(199)=1.2$	119.2 (20.6)	Above average	$t(135)=4.4^{\star}$
	Criticizing	18.0 (4.6)	21.6 (5.2)	High	$t(199)=9.6^{\star}$	22.5 (5.2)	High	$t(135)=10.0^{\star}$
	Giving opinion	18.9 (3.5)	18.7 (4.5)	Average	$t(199)=-0.8$	19.6 (4.3)	Above average	$t(135)=1.9$
	Complimenting somebody else	16.2 (2.7)	14.7 (3.5)	Average	$t(199)=-6.0^{\star}$	15.4 (2.9)	Average	$t(135)=-3.3^{\star}$
	Initiating contact	15.8 (3.1)	15.7 (4.1)	Average	$t(199)=-0.3$	16.4 (3.4)	Average	$t(135)=1.9$
	Appreciating yourself	11.7 (3.0)	12.7 (3.6)	Above average	$t(199)=3.9^{\star}$	12.8 (3.5)	Above average	$t(135)=3.8^{\star}$

$^{\star}p<0.001$ (two-tailed). *Note:* NEO-FFI, NEO Five-Factor Inventory; ZAV, Zelf-Analyse Vragenlijst; IOA, Inventarisatielijst Omgaan met Anderen.

inpatients had lower scores for social anxiety and higher scores for social skills. Both the inpatients and the outpatients reported less anxiety and more social skills in social situations where "limit-setting" behaviour (e.g. giving criticism) could be exhibited. However, they avoided exhibiting "approaching" behaviour (e.g. giving a compliment) because of social anxiety. The outpatients had lower scores for psychopathy but higher scores for aggressive behaviour than the inpatients. Outpatients may find themselves in an environment where aggressive behaviour is more often permitted and/or reinforced, and there is evidence that they exhibit aggressive behaviour to the same extent as their peers. Inpatients however live in a highly structured institution in which aggressive behaviour is not tolerated (Nijman, De Kruyk, & van Nieuwenhuizen, 2004).

The outpatients and the inpatients who dropped out from ACT had higher scores on "chronically unstable and antisocial behaviour" than the patients who completed ACT. Since factor 2 of the PCL-R is a good predictor of future violent behaviour, the patients who dropped out may be more likely to become recidivists than the patients who completed ACT. Hildebrand, Hesper, Spreen, and Nijman (2005) found in a group of 156 violent patients who were "placed at the disposal of the government" that factor 2 was as accurate a predictor of violent recidivism as the HCR-20 score (Webster, Douglas, Eaves, & Hart, 1997) or the Dutch HKT-30 score (Ministry of Justice, 2002). Dropouts may consider ACT as less relevant to their current concerns (McMurran & McCulloch, 2006).

Study 2. Evaluation of Aggression Control Therapy (same as for Study 1)

ACT includes the modules Anger management, Social skills, Moral reasoning, and Self-regulation and consists of 15 weekly meetings and three five-weekly follow-up meetings of 90 minutes (Table III). It is given to groups of five to eight patients. The therapy has to be administered according to a detailed treatment manual for trainers, which provides specific instructions for each session about how to provide information brochures, organize role play, and give homework assignments. Patients receive a portfolio containing information brochures and homework assignments (Hornsveld, 2004b). In this study, most trainers were psychologists with several years of experience with the assessment and treatment of forensic psychiatric patients. The other trainers had less experience but were following a post-masters course for Health Psychologist and were supervised by the first author when giving ACT.

ACT was evaluated by comparing pre-treatment, post-treatment, and follow-up scores on the various instruments. We expected that results would be similar to those reported in a pilot study (Hornsveld, 2005), namely that ACT would reduce hostility and aggressive behaviour but would not significantly change social anxiety and social skills. We included two control conditions, one for the outpatients (waiting-list condition) and one for the inpatients (inpatient "care as usual" control group). The waiting-list control was appropriate for the outpatients because outpatients usually had to wait 2–5 weeks before receiving ACT. The waiting-list outpatients were asked to fill in questionnaires after the intake interview, so that we could compare these scores with those for the pre-treatment evaluation. Because this waiting-list condition was not appropriate for the inpatients, we compared the inpatients who followed ACT with the same number of matched inpatients who received "care as usual". We expected to find no significant changes in outpatient hostility, aggressive behaviour, social anxiety, and social skills during the waiting-list period. We also expected that ACT would reduce hostility and aggressive behaviour, but not social anxiety and social skills, in the patients relative to the controls.

Table II. Comparison between inpatients and outpatients and between completers and dropouts.

				ANCOVA (*F*)			
Instrument	Factors or subscales	Completers *M* (SD)	Dropouts *M* (SD)	Out- vs. inpatients	Completers vs. dropouts	Interaction	Age
PCL-R	Total			6.4*	3.1	0.9	0.0
	Outpatients	18.0 (5.5)	20.6 (5.7)				
	Inpatients	21.7 (7.4)	22.4 (7.0)				
	Factor 1			10.3**	0.1	5.1*	0.9
	Outpatients	9.7 (3.4)	10.7 (3.2)				
	Inpatients	9.3 (3.8)	7.9 (2.9)				
	Factor 2			21.2***	4.6*	0.8	1.4
	Outpatients	8.0 (3.1)	9.5 (3.2)				
	Inpatients	10.7 (3.5)	11.4 (3.0)				
NEO-FFI	Neuroticism			1.1	0.8	0.0	25.3***
	Outpatients	32.0 (7.9)	32.5 (8.5)				
	Inpatients	33.1 (7.9)	34.1 (7.0)				
	Extraversion			3.8	1.8	5.3*	8.4**
	Outpatients	41.1 (5.1)	40.4 (6.0)				
	Inpatients	39.9 (5.5)	42.8 (4.8)				
	Openness			1.2	1.4	9.8**	4.3*
	Outpatients	33.0 (4.9)	34.4 (5.2)				
	Inpatients	37.0 (5.4)	33.7 (4.6)				
	Agreeableness			3.5	1.4	1.2	0.5
	Outpatients	39.8 (5.1)	38.1 (5.3)				
	Inpatients	40.8 (4.8)	40.7 (5.0)				
	Conscientiousness			1.3	2.0	0.0	0.0
	Outpatients	44.3 (6.2)	42.8 (7.1)				
	Inpatients	45.2 (5.7)	44.1 (5.0)				
ZAV	Dispostion			3.3	0.1	0.0	4.8*
	Outpatients	21.1 (7.4)	21.4 (7.6)				
	Inpatients	19.9 (8.3)	20.3 (11.0)				
ATV	Total			0.0	1.7	0.4	2.6
	Outpatients	46.7 (16.3)	48.5 (14.2)				
	Inpatients	43.2 (13.7)	48.6 (16.0)				
AVL	Total			28.1***	0.6	0.4	8.3**
	Outpatients	88.1 (19.1)	91.7 (21.2)				
	Inpatients	77.1 (16.0)	77.6 (12.9)				
NAS	Part A			14.7***	0.0	0.2	4.1*
	Outpatients	90.9 (18.5)	92.0 (20.3)				
	Inpatients	83.2 (13.1)	82.1 (14.5)				
IOA	Social anxiety			2.1	0.5	0.3	0.7
	Outpatients	66.6 (24.1)	65.8 (23.0)				
	Inpatients	64.1 (21.6)	59.9 (22.4)				
	Social skills			1.5	0.0	0.0	0.4
	Outpatients	113.0 (21.1)	112.8 (25.9)				
	Inpatients	119.3 (20.7)	118.1 (21.2)				

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. *Note*: PCL-R, Psychopathy Checklist-Revised; NEO-FFI, NEO Five-Factor Inventory; ZAV, Zelf-Analyse Vragenlijst; ATV, Attributie Vragenlijst; AVL, Agressie Vragenlijst; NAS, Novaco Anger Scale; IOA, Inventarisatielijst Omgaan met Anderen.

Table III. Modules of the Aggression Control Therapy.

Module	Sessions	Aims
Anger management	Weeks 1–5	Recognizing and managing feelings such as irritation, anger and rage
Social skills	Weeks 6–10	Improving or extending relevant social skills
Moral reasoning	Weeks 11–15	Becoming aware of current values and norms, and solving moral problems
Self-regulation skills	Weeks 6–15	Changing inadequate aspiration level, reinforcing oneself for attained results and making programmes for new behaviour
Follow-up	Weeks 20, 25 and 30	Evaluation and report

Method

Patients

Of the 200 outpatients and 136 inpatients in study 1, pre-treatment and post-treatment data were available for 92 outpatients and 89 inpatients, and pre-treatment and follow-up data were available for 21 outpatients and 66 inpatients. Patients were not obliged to take part in the study and some refused to complete the questionnaires. Essentially, the outpatients and inpatients filled in the questionnaires at the start, at the end of the weekly sessions, and at the last follow-up session of therapy. However, we did not obtain data for all patients for a number of reasons. Several patients in study 1 were still receiving ACT at the time of the follow-up evaluation of study 2. Moreover, a substantial proportion of patients dropped out (outpatients: 41%; inpatients: 13%). Other patients followed the weekly sessions but did not come to the last follow-up session, or they did not attend the last of the weekly sessions, but attended the last follow-up session. Lastly, a number of institutions were not able to supply the post-treatment or follow-up data of all the inpatients who followed ACT.

The waiting-list outpatient controls completed the questionnaires at the intake, pre-treatment, and post-treatment evaluation times, and in this way intake and pre-treatment data for 86 outpatients were collected. For 38 inpatients who finished ACT, a control group was composed of comparable inpatients of the same age, duration of admission, and PCL-R Total score. This part of the study was carried out in only one forensic psychiatric centre, De Kijvelanden.

Measures and procedure

The same instruments were used as in study 1. The questionnaires were administered for the intake evaluation directly after the intake interview, for the pre-treatment evaluation directly after an individual introduction conversation with the trainers, for the post-treatment evaluation directly after the 15th weekly session, and for the follow-up evaluation directly after the last follow-up session. Patients were paid €5 for completing the questionnaires. For inpatients, staff on the ward were requested to complete the observation scale for the pre-treatment, post-treatment and follow-up evaluations.

OSAB data were available for 38 inpatients and 38 inpatient controls but insufficient data for the self-report questionnaires were obtained from the inpatient controls to allow comparison of the ACT and control inpatient groups. Age, length of hospital stay, PCL-R Total score, and pre-treatment scores on the OSAB subscales, with the exception of the Social Behaviour subscale [$t(74) = 3.0$; $p < 0.01$], were not significantly different between the ACT and control inpatient groups. The patients of the ACT and control groups had

significantly higher scores for psychopathy [PCL-R Total: $t(131) = 1.8$, $p < 0.05$] than the other patients at De Kijvelanden institution.

Results

Evaluation

Post-treatment scores for hostility (ATV, $p < 0.01$), aggressive behaviour (AVL, $p < 0.01$; NAS, $p < 0.05$), and social anxiety (IOA, $p < 0.05$) were significantly lower than pre-treatment scores in the outpatients (Table IV). Compared with pre-treatment scores, scores for hostility (ATV, $p < 0.05$) and aggressive behaviour (AVL, $p < 0.05$; NAS, $p < 0.05$) were significantly lower and scores for social skills were higher at the follow-up evaluation. However, only 21 patients completed the pre-treatment and follow-up evaluation questionnaires, which means that the mean pre-treatment scores for these patients differed from those for the 92 outpatients who completed the post-treatment evaluation.

Post-treatment scores for hostility (ATV, $p < 0.01$), aggressive behaviour (AVL, $p < 0.01$; NAS, $p < 0.05$), and social anxiety (IOA, $p < 0.05$) were significantly lower than pre-treatment scores for the inpatients but there was no significant decrease in aggressive behaviour or significant increase in social behaviour, as measured with the OSAB. Compared with pre-treatment scores, scores for hostility (ATV, $p < 0.01$) and aggressive behaviour (AVL, $p < 0.01$; OSAB, $p < 0.05$) were significantly lower at the follow-up evaluation (Table V). Only 55 inpatients completed both the pre-treatment and follow-up evaluations, which means that the mean pre-treatment scores for these 55 patients were different from those for the 89 inpatients who completed the post-treatment evaluation.

Waiting list condition for outpatients and control group for inpatients

Comparison of the data for the intake and pre-treatment evaluations of outpatients revealed no difference in hostility (ATV), aggressive behaviour (AVL, NAS), social anxiety (IOA), and social skills (IOA) (Table VI).

The data of the 38 inpatients receiving ACT were then compared with the data of the 38 matched control inpatients receiving "care as usual". Pre-treatment and follow-up OSAB data for both groups were compared, using 2×2 ANOVAs (Table VII). The ACT group had significantly lower scores on the OSAB subscale Aggressive Behaviour at the follow-up evaluation than at the pre-treatment evaluation [$F(1,74) = 5.1$; $p < 0.05$], whereas no such difference was noted for the control group. Contrary to what we expected, we found that both the inpatients receiving ACT and the matched control inpatients had significantly lower scores [$F(4,72) = 5.3$; $p < 0.01$] on the OSAB subscale Social Behaviour at the follow-up evaluation than at the pre-treatment evaluation.

The patients who received ACT had significantly lower scores for hostility ($p < 0.01$) and aggressive behaviour ($p < 0.05$) at follow-up than before treatment, but there was no difference in scores for social anxiety and social skills (data not reported). There were too few data for the control group to make a comparison.

Summary and discussion

Both the outpatients and the inpatients had lower scores for hostility and aggressive behaviour at the post-treatment and follow-up evaluations than at the pre-treatment

Table IV. Evaluation of ACT in outpatients (pre-treatment, post-treatment, and follow-up evaluations).

Instrument	Subscales	Pre-treatment *M* (SD)	Post-treatment *M* (SD)	Pre-treatment vs post-treatment ($n=92$)	Pre-treatment *M* (SD)	Follow-up *M* (SD)	Pre-treatment vs follow-up ($n=21$)
ATV	Total	45.2 (15.3)	41.2 (14.3)	$t(91)=2.7^{**}$	52.7 (17.1)	42.8 (11.3)	$t(20)=2.2^{*}$
AVL	Total	87.2 (21.5)	82.2 (20.9)	$t(91)=2.7^{**}$	97.6 (24.8)	91.3 (19.8)	$t(20)=1.4^{*}$
	Physical aggression	29.2 (8.2)	26.8 (7.4)	$t(91)=3.3^{**}$	31.2 (9.5)	29.8 (7.7)	$t(20)=0.4$
	Verbal aggression	15.2 (3.6)	14.8 (3.3)	$t(91)=1.0$	16.4 (4.2)	15.5 (3.0)	$t(20)=1.2$
	Anger	20.1 (6.1)	19.1 (6.0)	$t(91)=1.8^{*}$	23.9 (6.9)	20.6 (6.4)	$t(20)=2.6^{**}$
	Hostility	22.8 (6.4)	21.5 (6.8)	$t(91)=2.0^{*}$	26.2 (7.4)	25.4 (7.1)	$t(20)=0.5$
NAS	Part A	90.0 (18.8)	86.4 (16.8)	$t(91)=2.3^{*}$	96.6 (23.5)	90.8 (15.7)	$t(20)=1.6^{*}$
IOA	Social anxiety	66.6 (23.6)	60.8 (23.3)	$t(91)=2.1^{*}$	73.7 (17.6)	76.1 (22.5)	$t(20)=-0.6$
	Social skills	113.1 (21.1)	115.4 (25.3)	$t(91)=-0.9$	103.7 (18.6)	111.5 (17.4)	$t(20)=-2.2^{*}$

$^{*}p<0.05$; $^{**}p<0.01$ (one-tailed). *Note:* ATV, Attributie Vragenlijst; AVL, Agressie Vragenlijst; NAS, Novaco Anger Scale; IOA, Inventarisatielijst Omgaan met Anderen.

Table V. Evaluation of ACT in inpatients (pre-treatment-, post-treatment and follow-up evaluations).

Instrument	Subscales	Pre-treatment *M* (SD)	Post-treatment *M* (SD)	Pre-treatment vs post-treatment ($n=89$)	Pre-treatment *M* (SD)	Follow-up *M* (SD)	Pre-treatment vs follow-up ($n=55/66$)
ATV	Total	43.8 (14.5)	35.3 (12.7)	$t(88)=5.8^{**}$	43.7 (14.4)	35.6 (10.9)	$t(54)=4.4^{**}$
AVL	Total	77.2 (17.0)	72.8 (18.4)	$t(88)=2.8^{**}$	78.6 (16.5)	73.0 (16.2)	$t(54)=2.9^{**}$
	Physical aggression	25.2 (7.8)	23.5 (7.7)	$t(88)=2.8^{**}$	25.9 (7.4)	23.5 (6.9)	$t(54)=3.0^{**}$
	Verbal aggression	14.5 (2.8)	13.8 (2.8)	$t(88)=2.0^{*}$	14.5 (2.7)	14.3 (2.6)	$t(54)=0.5$
	Anger	17.6 (6.7)	16.9 (6.7)	$t(88)=0.9$	17.9 (4.8)	16.5 (4.8)	$t(54)=2.5^{**}$
	Hostility	20.0 (6.5)	18.5 (6.5)	$t(88)=2.4^{**}$	20.4 (6.3)	18.8 (6.2)	$t(54)=1.8^{*}$
NAS	Part A	82.6 (13.2)	80.5 (12.7)	$t(88)=1.7^{*}$	83.5 (13.3)	81.1 (13.8)	$t(54)=1.5$
IOA	Social anxiety	64.1 (21.8)	58.4 (18.9)	$t(88)=2.1^{*}$	68.7 (22.1)	66.7 (24.2)	$t(54)=0.8$
	Social skills	120.5 (21.1)	121.9 (21.8)	$t(88)=-0.6$	118.0 (22.2)	119.2 (22.5)	$t(54)=-0.4$
OSAB	Irritation/anger	12.1 (3.3)	11.7 (3.4)	$t(88)=1.0$	12.1 (3.2)	11.8 (3.3)	$t(65)=0.7$
	Anxiety/gloominess	9.5 (2.9)	8.9 (3.1)	$t(88)=1.2$	9.2 (2.8)	9.6 (2.8)	$t(65)=-0.9$
	Aggressive behaviour	15.8 (5.7)	15.2 (4.6)	$t(88)=0.8$	16.1 (5.3)	14.9 (4.3)	$t(65)=2.2^{*}$
	Social behaviour	34.9 (6.4)	35.4 (6.5)	$t(88)=1.3$	34.1 (6.4)	34.5 (6.6)	$t(65)=0.8$
	Antecedent	12.3 (4.6)	11.5 (4.4)	$t(88)=0.8$	12.2 (4.6)	11.6 (4.6)	$t(65)=1.1$
	Sanction	5.9 (2.5)	5.7 (2.2)	$t(88)=-0.6$	6.0 (2.5)	5.6 (2.2)	$t(65)=-0.5$

$^{*}p<0.05$; $^{**}p<0.01$ (one-tailed). *Note:* ATV, Attributie Vragenlijst; AVL, Agressie Vragenlijst; NAS, Novaco Anger Scale; IOA, Inventarisatielijst Omgaan met Anderen; OSAB, Observation Scale for Aggressive Behaviour. At the follow-up measurement, for a number of inpatients data could only be obtained from the observation scale.

Table VI. Waiting-list condition outpatients (intake vs. pre-treatment evaluations).

Instrument	Subscales	Intake *M* (SD)	Pre-treatment *M* (SD)	Intake- vs. pre- treatment ($n=86$)
ATV	Total	45.6 (13.6)	44.2 (14.1)	$t(85)=1.0$, n.s.
AVL	Total	85.6 (20.0)	84.5 (20.8)	$t(85)=0.6$, n.s.
	Physical aggression	28.2 (7.5)	28.2 (7.8)	$t(85)=0.1$, n.s.
	Verbal aggression	15.0 (3.3)	14.9 (3.9)	$t(85)=0.2$, n.s.
	Anger	19.3 (5.8)	19.4 (5.6)	$t(85)=-0.3$, n.s.
	Hostility	23.1 (6.6)	22.0 (6.4)	$t(85)=1.5$, n.s.
NAS	Part A	86.4 (15.9)	88.1 (19.0)	$t(85)=-1.2$, n.s.
IOA	Social anxiety	68.7 (27.2)	67.1 (24.7)	$t(85)=1.0$, n.s.
	Social skills	113.1 (24.5)	112.3 (25.1)	$t(85)=0.3$, n.s.

n.s.=not significant (two-tailed). *Note:* ATV, Attributie Vragenlijst; AVL, Agressie Vragenlijst; NAS, Novaco Anger Scale; IOA, Inventarisatielijst Omgaan met Anderen.

evaluation. However, ACT did not influence social anxiety and social skills, probably because forensic psychiatric patients did not consider themselves socially incompetent at the start of therapy. Compared with their behaviour before treatment, the inpatients were judged by staff to exhibit less aggressive behaviour at the time of the follow-up measurement.

Comparison of the scores on the self-report questionnaires completed after intake and before treatment showed that hostility, aggressive behaviour, social anxiety, and social skills did not improve spontaneously during the period while outpatients waited for ACT. Compared with control inpatients who received care as usual, the patients in the ACT group were judged by staff to exhibit less aggressive behaviour at the time of the follow-up evaluation, whereas the control patients were not. The patients who received ACT reported less hostility and less aggressive behaviour at the follow-up evaluation.

General discussion

Forensic psychiatric outpatients and inpatients with violent offences in their history have higher scores for personality traits such as neuroticism and lower scores for traits such as agreeableness than a Dutch normative population. In addition, outpatients appear to be less open, less conscientious, and more likely to experience anger, whereas inpatients feel less social anxiety and exhibit more social skills than a Dutch normative population. Outpatients appear to be less psychopathic than inpatients, but they exhibit more aggressive behaviour, probably because they live in an antisocial environment whereas inpatients live in a hospital. The patients who dropped out of the ACT programme may be at higher risk of violent recidivism than the patients who completed the ACT programme.

ACT was administered to treat criminogenic factors such as being fast to anger, lack of adequate social skills, and limited awareness of prosocial norms and values. Patients who did not complete therapy differed from completers in exhibiting more chronically antisocial behaviour. There were indications that ACT reduced aggressive behaviour, but did not increase social skills. Although information about the outpatients' progress was based solely on self-report questionnaires, staff on the ward could provide information about the inpatients (in addition to inpatient self-report data). However, differences between pre-treatment and post-treatment scores and between pre-treatment and follow-up scores were

Table VII. Comparison of OSAB scores in the therapy group ($n = 38$) and control group ($n = 38$) (pre-treatment vs. follow-up measurement).

Subscales	Pre-treatment *M* (SD)	Follow-up *M* (SD)	ANCOVA (*F*) Therapy vs. control group	Pre-treatment vs. follow-up	Interaction
Irritation/anger			2.0	0.0	0.2
Therapy	10.9 (3.2)	10.6 (3.4)			
Control	9.9 (3.2)	10.1 (3.5)			
Anxiety/gloominess			0.2	3.2	0.1
Therapy	9.8 (2.7)	8.9 (2.0)			
Control	9.5 (2.6)	8.8 (2.6)			
Aggressive behaviour			0.1	1.2	3.7*
Therapy	16.1 (4.7)	13.8 (4.0)			
Control	14.6 (5.2)	15.2 (4.6)			
Social behaviour			14.5**	1.4	0.0
Therapy	34.6 (4.4)	33.2 (6.1)			
Control	30.5 (7.0)	29.6 (7.1)			
Antecedent			0.0	2.6	2.5
Therapy	13.1 (4.5)	10.7 (4.0)			
Control	12.0 (4.9)	12.0 (4.8)			
Sanction			0.1	4.9*	0.4
Therapy	6.4 (2.5)	5.3 (2.1)			
Control	6.3 (2.6)	5.7 (2.2)			

*$p < 0.05$; **$p < 0.01$.

small. The lack of change in social anxiety and social skills can be explained by the already relatively low scores for social anxiety and the relatively high scores for social skills. The forensic psychiatric patients appeared not to consider themselves socially incompetent, stating that they had no problems at all in getting along with others. However, the questionnaire data revealed that both groups had problems exhibiting approaching behaviour and that they exhibited limit-setting behaviour too often. This could indicate that the Social Skills component of ACT should place greater emphasis on teaching approaching skills and "normalizing" inadequate, limit-setting skills. Teaching approaching skills seems less appropriate, however, in patients with high scores for psychopathy.

For various reasons, we cannot draw definite conclusions about the effectiveness of ACT. Firstly, the patients were not representative of the population of violent forensic psychiatric patients because the patients had to meet inclusion criteria, such as having an (oppositional defiant), conduct, or antisocial personality disorder, having an adequate command of the Dutch language, and being able to function in a group. In addition, in the study with the inpatient control condition, the inpatients in the ACT group had significantly higher scores on the PCL-R than the other patients in the hospital.

A second limitation concerns the choice of measurement tools. Self-report questionnaires have the disadvantage that scores may be influenced by the tendency to give socially desirable answers (Bech & Mak, 1995) and/or by the limited insight of the respondents into their own social functioning (Hollin & Palmer, 2001). Giving socially desirable responses will have played a role primarily among the inpatients because they may have assumed that unfavourable research data could result in their sentence being extended. Moreover, the

staff were not blind to the allocation of ACT among the inpatients and there was also a high staff turnover, which may have influenced assessment data.

A third limitation concerns the study design, which was determined primarily by the current possibilities in Dutch forensic psychiatric institutions to investigate the effect of treatment programmes. The control condition for the outpatients (waiting list) thus differed from that of the inpatients (control group who received "care as usual"). Furthermore, it was difficult to collect complete datasets for all patients who participated in the study, in spite of appointments with institutions, trainers, and researchers. Therefore, the evaluation had to be carried out with different samples of the same group of patients to achieve sufficient combinations of measurement data. The follow-up period used in the evaluation study was rather short (15 weeks) but the trainers considered that this would be the last opportunity to collect data from the outpatients in particular.

It is unlikely that a relatively short treatment such as ACT will result in a decrease in aggressive behaviour, particularly among inpatients with long-term personality problems. In this subpopulation, ACT should be part of an intensive programme of interventions for criminological factors that are not addressed by ACT, such as drug dependence, dysfunctional relationships, limited education, unemployment, and antisocial friends. While a start can be made in hospital with interventions for individual factors, "booster" sessions should be organized during extramural resocialization, to see whether the patient can adequately apply what he has learned to the outside situation. Until now, no such a programme for violent forensic psychiatric inpatients with an antisocial personality disorder has been available at any forensic institution in the Netherlands. Implementation is hindered by the current expansion of several institutions to meet the increasing number of offenders who are "placed at the disposal of the government". At the same time, the Dutch government demands the implementation and evaluation of "evidence-based" programmes. In our opinion, this requires considerable cooperation between all parties because institutions are still relatively small (150–200 places), admit patients with different offences and problem behaviours, and have a slow throughput of patients.

For these reasons, a multicentre approach is needed when evaluating programmes such as the ACT. Since Dutch forensic psychiatric patients are not obliged to participate in control groups, such research can only be carried out using quasi-experimental designs (Hollin, 2006). A multicentre approach would mean that institutions should identify the same subgroups of patients, use the same instruments, and apply identical treatment programmes. Only with such a policy will it be possible to draw definitive conclusions about the effectiveness of treatment programmes or a therapy as ACT.

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

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