

Development of the Observation Scale for Aggressive Behavior (OSAB) for Dutch forensic psychiatric inpatients with an antisocial personality disorder

Ruud H.J. Hornsveld^{a,*}, Henk L.I. Nijman^b, Clive R. Hollin^c, Floor W. Kraaimaat^d

^a Department of Medical Psychology, Radboud University Nijmegen, Nijmegen, The Netherlands

^b De Kijvelanden Forensic Psychiatric Hospital, Poortugaal, The Netherlands

^c Department of Health Sciences, University of Leicester, UK

^d Department of Medical Psychology, Radboud University Nijmegen, Nijmegen, The Netherlands

Abstract

The Observation Scale for Aggressive Behavior (OSAB) has been developed to evaluate inpatient treatment programs designed to reduce aggressive behavior in Dutch forensic psychiatric patients with an antisocial personality disorder, who are “placed at the disposal of the government”. The scale should have the sensitivity to measure changes in the possible determinants of aggressive behavior, such as limited control of displayed negative emotions (irritation, anger or rage) and a general deficiency of social skills. In developing the OSAB 40 items were selected from a pool of 82 and distributed among the following a priori scales: Irritation/anger, Anxiety/gloominess, Aggressive behavior, Antecedent (to aggressive behavior), Sanction (for aggressive behavior) and Social behavior. The internal consistency of these subscales was good, the inter-rater reliability was moderate to good, and the test–retest reliability over a two to three week period was moderate to good. The correlation between the subscales Irritation/anger, Anxiety/gloominess, Aggressive behavior, Antecedent, Sanction was substantial and significant, but the anticipated negative correlation between these subscales and the Social behavior subscale could not be shown. Relationships between the corresponding subscales of the OSAB and the FIOS, used to calculate concurrent validity, yielded relatively high correlations. The validity of the various OSAB subscales could be further supported by significant correlations with the PCL-R and by significant but weak correlations with corresponding subscales of the self-report questionnaires. The Observation Scale for Aggressive Behavior (OSAB) seems to measure aggressive behavior in Dutch forensic psychiatric inpatients with an antisocial personality disorder reliably and validly. Contrary to expectations, a negative relationship was not found between aggressive and social behavior in either the OSAB or FIOS, which were used for calculating concurrent validity.

© 2007 Elsevier Inc. All rights reserved.

Keywords: Forensic psychiatry; Observation scale; Aggressive behavior

1. Introduction

Forensic psychiatric inpatients in The Netherlands who are “placed at the disposal of the government” have committed a crime carrying a prison sentence of at least four years. These are offenders for whom a relationship has

* Corresponding author. Lange Dreef 52, 2285 LA RIJSWIJK, The Netherlands.

E-mail address: r.hornsveld@tiscali.nl (R.H.J. Hornsveld).

been established between “deficient mental development or mental disorders” and the crime committed on the basis of examination by a psychiatrist and/or psychologist. In about 75% of the cases the main diagnosis of those inpatients is an antisocial personality disorder on axis II of the DSM-IV and in about 25% of the cases a psychotic disorder on axis I, combined with an antisocial personality disorder on axis II (Van Emmerik, 2001).

Cognitive-behavioral therapeutic methods have been increasingly developed and implemented in forensic psychiatric hospitals in The Netherlands in recent years, including Aggression Control Therapy (ACT) for patients with an antisocial personality disorder (Hornsveld, 2004). To evaluate these therapies, there was a need for specifically designed measurement instruments, the psychometric properties of which were understood with the Dutch forensic psychiatric population. Thus, researchers such as Timmerman, Vastenburg, and Emmelkamp (2001) and Brand and Van Emmerik (2001) have published observation scales for inpatients, the Forensic Inpatient Observation Scale (FIOS) and the FP40 respectively.

It is advisable to use both self-report questionnaires and observation scales to measure aggressive and social behavior in forensic psychiatric populations (Bech, 1994; Polaschek & Reynolds, 2001). Forensic psychiatric patients frequently have insufficient insight into their behavior to give accurate reports, although this is tempered by a tendency to provide socially acceptable answers to questions. Observation scales are not affected by these limitations, however they do require expertise and independence on the part of evaluators in the wards (Bech & Mak, 1995). Since the FIOS and FP40 were not available when development of the Aggression Control Therapy began in 2000 (Hornsveld, 2004), a decision was made to construct an observation scale for aggressive behavior in inpatients with an antisocial personality disorder. This scale would have to have the sensitivity to measure changes in “criminogenic” problem behaviors (Andrews & Bonta, 2003), such as limited control of displayed negative emotions (irritation, anger or rage) and a general deficiency of social skills, as they arise in Aggression Control Therapy (Appendix 1). A literature search showed that most observation scales for aggressive behavior have been developed for (chronic) psychotic patients in closed wards of general psychiatric hospitals. One type of scale, such as the Overt Aggression Scale (OAS: Yudofsky, Silver, Jackson, Endicott, & Williams, 1986; MOAS: Kay, Wolkenfeld, & Murrill, 1988), categorizes acts of aggression according to type, i.e. verbal aggression, physical aggression towards objects, physical aggression towards oneself, and physical aggression towards others. Another approach is to view aggressive behavior as part of a behavioral chain, as seen with the Calgary General Hospital Aggression Scale (CGH Aggression Scale: Arboleda-Florez, Crisanti, Rose, & Holley, 1994; SOAS-R: Nijman, 1999), which includes five aspects of aggressive behavior, i.e. provocation, means used by patients, target of aggression, consequences for victims, and measures to stop aggression. Other scales measure both aggressive behavior and social competence (NOSIE: Hafkenscheid, 1991) or mood (MIBS: Evenson & Dong, 1987; SDAS: Wistedt et al., 1990).

To evaluate the effect of ACT (Hornsveld, 2004), an observation scale was required that could record the following behaviors: (1) emotions or moods displayed that play a possible mediating role in aggressive behavior (e.g. irritation, anger, anxiety or gloominess); (2) aggressive behavior towards fellow patients (e.g. threats), staff (e.g. abusive language) or oneself (e.g. self-inflicted lacerations); (3) antecedents of aggressive behavior (e.g. restrictive measures); (4) sanctions for the patient as consequences of aggressive behavior (e.g. sent to his room); and (5) prosocial behavior towards fellow patients or staff (e.g. giving constructive criticism or adequately making contact). Further, it had to be possible for group supervisors on the ward to fill out such a scale in a short time without the need for extensive instructions.

This article describes the development of the OSAB. In this context, the terms “irritation,” “anger,” and “rage” are understood to mean emotions exhibited in response to a (perceived) provocation, as manifested in behaviors such as staring, talking too loudly, and standing too close to another person. “Anxiety” and “gloominess” are used to refer to moods that last a longer period of time, as can be inferred from behaviors such as restlessness, complaining, and lack of initiative. The term “aggressive behavior” is seen as any form of behavior that is intended to injure someone, physically or psychologically (Berkowitz, 1993); the term violence is used to refer to aggressive behavior where above all physical means are used (Browne & Howells, 1996). Where personality traits are referred to, this is in the context of the “big five” (Hoekstra, Ormel, & de Fruyt, 1996); specifically, antisocial personality disorder refers to the medical-psychiatric classification on axis II of DSM-IV (American Psychiatric Association, 1994).

2. Design of the scale: Pilot stage

The following criteria were used to select items for the OSAB: (a) the observation scales for recording aggressive incidents in the extant literature; (b) items drawn from a structured interview on the determinants of aggressive ward

behavior with six group supervisors and six patients at De Kijvelanden forensic psychiatric hospital; (c) the list of social skills to be practiced within the scope of Aggression Control Therapy (Appendix 1). From these sources, the pilot version of the OSAB initially consisted of 82 items, which were sorted into eight categories: Emotion (11 items), Aggressive behavior towards the institution (14 items), Aggressive behavior towards fellow patients (11 items), Aggressive behavior towards oneself (7 items), Antecedent (5 items), Sanction by the staff (6 items), Social behavior towards the staff (14 items) and Social behavior towards fellow patients (14 items). Scoring was introduced using a 4-point scale: “no” (score=1), “seldom” (2), “occasionally” (3), and “frequently” (4), with raters instructed to refer to behavior that has taken place in the previous week.

To calculate inter-rater reliability of the pilot version, the OSAB with 82 items was simultaneously and independently filled out on the ward by two group supervisors who had experience in the use of observation scales for 56 male patients (mean age 35.50 years, $SD=7.78$; range=23–55 years) in a medium security unit of De Kijvelanden forensic psychiatric hospital. In The Netherlands, forensic psychiatric hospitals have at their disposal intensive care units for acute psychotic patients and medium security units for patients with an antisocial personality disorder, or both a stabilized psychotic disorder and an antisocial personality disorder. In the medium security units the 11 patients have their own room; patient–staff ratio is about 1:2.

According to at least one of the observers, 11 of the 56 patients had not been involved in any conflicts in the period studied. Therefore items related to aggressive behavior were not considered for these eleven patients. Aggressive behavior towards oneself occurred in just six patients and consequently analysis could not be performed for this factor. Aggressive behavior towards fellow patients was rarely exhibited in the presence of the staff and consisted only of abusive language or threats. Thus, after removing items related to aggressive behavior towards one-self and items with insignificant inter-rater reliability (Kendall's τ ; $p>.05$), the OSAB contained 42 items, distributed over the following categories: Emotion (10 items), Aggressive behavior towards the institution (8 items), Aggressive behavior towards fellow patients (2 items), Antecedent (6 items), Sanction (4 items), Social behavior towards the staff (7 items) and Social behavior towards fellow patients (5 items).

3. Factor structure

Data from 169 patients (mean age 36.8 years, $SD=10.0$; range=21–76 years) at six forensic psychiatric hospitals¹ was compiled to determine the factor structure of the remaining 42 items. The patients had the same mixture of diagnoses as in the previous phase of the study. Principal-axis factor analysis with oblimin rotation yielded five factors that provided an easily interpretable solution that for the most part corresponded with the *a priori* categories: (a) verbally aggressive behavior towards people, including antecedents and sanctions, (b) social behavior, (c) physically aggressive behavior towards objects, (d) anxiety/gloominess, and (e) anger/hostility. Although the items in the anger/hostility category also ranked high in the verbally aggressive behavior category, this classification was still used as it matched the design of Aggression Control Therapy. Two items (Emotion/mood: “indifferent”, and Sanction: “patient is put into isolation”) were rated less than .50 on any factor and so were removed from the scale.

As shown in Table 1, the principal-axis factor analysis, with oblimin rotation and a forced five-factor solution, was repeated yielding a factor structure that explained 61.1% of the variance. Thus, five subscales were constructed (see Appendix 2): Irritation/Anger (5 items), Anxiety/Gloominess (4 items), Aggressive Behavior (10 items), Antecedent (6 items), Sanction (3 items), and Social Behavior (12 items).

4. Reliability

To calculate inter-rater reliability of the OSAB with 40 items, the scale was simultaneously and independently filled out on the ward by two group supervisors for 74 male patients (mean age 36.87 years, $SD=8.02$; range=23–57 years) in a medium security unit of the De Kijvelanden forensic psychiatric hospital.

As shown in Table 2, the inter-rater reliability was moderate to good, ranging from .49 ($p<.01$) for the Antecedent subscale to .81 ($p<.01$) for the Aggressive behavior subscale. When the results on the subscales were compared

¹ De Kijvelanden Forensic Psychiatric Hospital at Poortugaal; De Singel TBS hospital (currently Flevo Future, Amsterdam branch), Dr. F.S. Meijers Hospital (currently Flevo Future, Utrecht branch), De Rooyse Wissel Forensic Psychiatric Hospital at Oostrum (L), Forensic Psychiatry Department of the Drenthe Mental Health Agency at Assen, and Dr. S. van Mesdag Hospital at Groningen.

Table 1
Mean, standard deviation, and factor loading of the items ($n=169$)

| Item | <i>M</i> | SD | Factor loading | | | | |
|------|----------|------|----------------|------------|------------|------------|------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| 14 | 1.56 | 0.84 | .80 | -.12 | .37 | .26 | .44 |
| 21 | 2.31 | 1.12 | .80 | -.12 | .19 | .24 | .32 |
| 13 | 1.74 | 0.97 | .80 | -.17 | .32 | .25 | .53 |
| 28 | 1.46 | 0.79 | .78 | -.05 | .53 | .19 | .38 |
| 27 | 1.74 | 0.90 | .77 | .14 | .20 | .15 | .51 |
| 20 | 2.22 | 1.06 | .77 | -.15 | .20 | .08 | .19 |
| 12 | 1.73 | 0.94 | .74 | -.14 | .27 | .29 | .55 |
| 9 | 1.83 | 1.01 | .73 | -.17 | .40 | .36 | .58 |
| 24 | 2.27 | 1.09 | .70 | -.01 | .13 | .38 | .26 |
| 23 | 1.76 | 0.98 | .68 | -.09 | .01 | .22 | .21 |
| 11 | 2.63 | 1.05 | .66 | -.21 | .21 | .27 | .58 |
| 10 | 1.87 | 1.00 | .66 | -.18 | .22 | .35 | .47 |
| 18 | 1.62 | 0.89 | .65 | .12 | .31 | .02 | .41 |
| 25 | 2.03 | 1.02 | .65 | -.08 | .09 | .27 | .24 |
| 26 | 2.63 | 1.07 | .64 | -.18 | .20 | .16 | .57 |
| 19 | 1.34 | 0.72 | .58 | .11 | .13 | -.03 | .42 |
| 22 | 2.41 | 1.17 | .50 | -.18 | .04 | .37 | .40 |
| 40 | 2.71 | 0.85 | -.12 | .87 | .06 | -.22 | -.07 |
| 38 | 2.55 | 0.96 | .01 | .81 | -.02 | -.15 | -.10 |
| 35 | 2.75 | 0.77 | .10 | .81 | .18 | -.22 | -.11 |
| 36 | 2.66 | 0.93 | -.01 | .79 | -.10 | -.22 | .10 |
| 33 | 2.51 | 0.89 | -.03 | .76 | .03 | -.09 | -.20 |
| 32 | 2.64 | 0.84 | -.18 | .75 | -.09 | -.22 | .03 |
| 30 | 2.92 | 0.78 | -.37 | .67 | -.02 | -.20 | -.43 |
| 37 | 3.24 | 0.91 | .22 | .65 | .16 | -.24 | .31 |
| 29 | 3.32 | 0.77 | -.25 | .59 | -.22 | -.22 | -.48 |
| 39 | 2.54 | 0.98 | .16 | .57 | .36 | -.41 | .36 |
| 34 | 2.55 | 0.95 | .12 | .52 | .33 | -.46 | .33 |
| 31 | 2.92 | 0.82 | -.21 | .51 | -.08 | -.04 | -.16 |
| 15 | 1.09 | 0.38 | .22 | .02 | .85 | .06 | .10 |
| 17 | 1.06 | 0.30 | .12 | -.05 | .85 | .14 | .03 |
| 16 | 1.12 | 0.42 | .19 | .03 | .83 | .14 | .11 |
| 6 | 2.28 | 0.97 | .32 | -.10 | .18 | .81 | .21 |
| 7 | 2.79 | 0.89 | .32 | .01 | .17 | .71 | .37 |
| 1 | 1.93 | 0.93 | .24 | -.28 | .19 | .69 | -.08 |
| 4 | 2.78 | 0.91 | .45 | -.32 | .24 | .58 | .55 |
| 2 | 2.68 | 0.99 | .61 | -.16 | .25 | .41 | .78 |
| 3 | 3.04 | 0.82 | .57 | -.13 | .21 | .32 | .74 |
| 8 | 2.08 | 1.07 | .59 | -.25 | .30 | .36 | .72 |
| 5 | 1.74 | 0.93 | .35 | -.10 | .07 | .03 | .67 |

Note. Boldface indicates factor loading larger than or equal to 0.50. Factor 1 = Verbally aggressive behavior towards persons, factor 2 = social behavior, factor 3 = physically aggressive behavior towards objects, factor 4 = anxiety/gloominess, and factor 5 = anger.

between the group supervisors with a *t*-test, no significant differences were found. The internal consistency of the subscales (Cronbach's α) were calculated on the basis of measures for the 74 patients (who were assessed by two different group supervisors) and was more than satisfactory for all subscales, varying from .63 for the Sanction subscale to .93 for the Social Behavior subscale. To calculate test-retest reliability, the OSAB was simultaneously and independently filled out again two to three weeks after the assessment for the inter-rater reliability. However, because of personnel changes and removals of patients, only 108 comparisons could be made. The test-retest reliability of the subscales turned out to be moderate to good, ranging from .48 ($p < .01$) for Sanction, to .79 ($p < .01$) for Social behavior. When a comparison with a *t*-test was made between the successive results on the subscales, the differences in results turned out to be significant for all the subscales except the Social behavior subscale.

5. Summary

The OSAB shows good internal consistency and moderate to good inter-rater reliability. The moderate test–retest coefficients could be due to the fluctuations in aggressive behavior during the period between the two assessments (two to three weeks), as can be expected in forensic psychiatric patients.

6. Validity

6.1. Patients and procedure

The relationships between the various subscales were calculated using the data from 90 patients at De Kijvelanden forensic psychiatric hospital in February 2004. A positive correlation was expected between the subscales Irritation/Anger, Anxiety/Gloominess, Aggressive Behavior, Antecedent, and Sanction; the Irritation/Anger and Aggressive Behavior subscales were expected to show a negative correlation with the Social Behavior subscale. First, possible relationships between the OSAB subscales and the forensic psychiatric observation scale, the FIOS (Timmerman et al., 2001), were examined to determine concurrent validity. In addition, relationships were studied between the OSAB and PCL-R (Hare, 1991; Dutch version by Vertommen, Verheul, De Ruiter, & Hildebrand, 2002), and between the OSAB and self-report questionnaires for personality traits, aggressive behavior, and social behavior. The study was carried out with 220 patients (mean age 36.35 years, SD=9.70; range=21–76 years) at six forensic psychiatric hospitals. All measures were not available for all the 220 patients: some inpatients refused to complete the questionnaires.

Significant positive correlations were expected for aggressive behavior (OSAB) and oppositional behavior (FIOS), and also for OSAB and FIOS social behavior. In addition, significant negative correlations were anticipated between aggressive or oppositional behavior and social behavior. The relationship between the aggressive behavior subscale and the PCL-R was expected to be significantly positive, but weaker than between the aggressive behavior subscale of the OSAB and the oppositional behavior subscale of the FIOS. With regard to the self-report questionnaires, a weak but significant relation was supposed for the aggressive behavior subscale and the NEO-FFI subscales of neuroticism (positive) and agreeableness (negative) (Hornsveld, Van Dam-Baggen, Lammers, Nijman, & Kraaimaat, 2004). Weak but positive correlations were also expected for the aggressive behavior subscale and aggressive behavior questionnaires like the ZAV, AVL and NAS, and for the social behavior subscale and the IOA.

6.2. Measurement instruments

6.2.1. Observation scale

The Forensic Inpatient Observation Scale (FIOS: Timmerman et al., 2001) is an observation scale designed for measuring ward behavior and includes the subscales Self-care, Social Behavior, Oppositional Behavior, Insight, Verbal Skills and Distress. In a later phase of the study, the FIOS was introduced in De Kijvelanden forensic psychiatric

Table 2
Internal consistency, inter-rater reliability, and test–retest reliability of the OSAB subscales

| Subscale | Number of items | Internal consistency | | Inter-rater reliability | | Test–retest reliability | | |
|---------------------|-------------------------|----------------------|---------------------|-------------------------|--------------------|-------------------------|--------------------|-------|
| | | <i>n</i> | Cronbach's α | <i>n</i> | Pearson's <i>r</i> | <i>n</i> | Pearson's <i>r</i> | |
| Emotion | Irritation/anger | 5 | 148 | .82 | 74 | .79** | 108 | .59** |
| | Anxiety/gloominess | 4 | 148 | .79 | 74 | .53** | 108 | .57** |
| Aggressive behavior | Total | 10 | 148 | .79 | 74 | .81** | 108 | .57** |
| | Towards institution | 8 | 148 | .72 | 74 | .80** | 108 | .50** |
| | Towards fellow patients | 2 | 148 | .86 | 74 | .65** | 108 | .51** |
| Antecedent | | 6 | 148 | .79 | 74 | .49** | 108 | .58** |
| Sanction | | 3 | 148 | .63 | 74 | .70** | 108 | .48** |
| Social behavior | Total | 12 | 148 | .93 | 74 | .71** | 108 | .79** |
| | Towards staff | 7 | 148 | .86 | 74 | .66** | 108 | .74** |
| | Towards fellow patients | 5 | 148 | .89 | 74 | .70** | 108 | .76** |

** $p < .01$ (two sided).

Table 3
Correlations between the OSAB subscales ($n=90$)

| Subscale | | Emotion | | | Aggressive behavior | | Antecedent | Sanction | Social behavior | |
|------------------------|----------------------------|----------------------|------------------------|-------|------------------------|----------------------------|------------|----------|-----------------|------------------|
| | | Irritation/ anger | Anxiety/ gloominess | Total | Towards institution | Towards fellow patients | | | Total | Towards staff |
| Emotion | Anxiety/ gloominess | .59** | – | | | | | | | |
| Aggressive behavior | Total | .70** | .51** | – | | | | | | |
| | Towards institution | .70** | .52** | .98** | – | | | | | |
| | Towards fellow patients | .48** | .31** | .78** | .62** | – | | | | |
| Antecedent | | .67** | .56** | .72** | .70** | .56** | – | | | |
| Sanction | | .68** | .49** | .69** | .66** | .57** | .62** | – | | |
| Social behavior | Total | –.10 | .08 | –.06 | –.09 | .04 | –.09 | –.04 | – | – |
| | Towards staff | –.18 | .07 | –.14 | –.15 | –.04 | –.20 | –.09 | .95** | – |
| | Towards fellow patients | .01 | .10 | –.04 | –.00 | .13 | –.03 | .02 | .94** | .77** |

** $p < .01$ (two sided).

hospital for validating the OSAB. As a rule, the FIOS requires that behavior be recorded in the preceding three weeks but since the OSAB refers to “past week,” the FIOS was also used for this period.

6.2.2. Structured interview in combination with file research

The Psychopathy Checklist-Revised (PCL-R: Hare, 1991; Dutch version: Vertommen et al., 2002) is a psychopathy checklist completed on the basis of a structured interview and patient file review. The checklist has two factors: “Egocentricity, manipulativeness, shallow emotions, deceptiveness and lack of empathy, remorse or guilt” (Factor 1), and “Impulsive, irresponsible, unstable lifestyle and persistent violation of social norms and expectations” (Factor 2).

6.2.3. Self-report questionnaires

Two questionnaires were used to measure personality traits. The NEO Five Factor Inventory (NEO-FFI: Costa & McCrae, 1992; Dutch version: Hoekstra et al., 1996) has 60 items and measures the “big five” personality domains of neuroticism, extraversion, openness, agreeableness and conscientiousness. The Zelf-Analyse Vragenlijst (Self-Analysis Questionnaire, ZAV; Van der Ploeg, Defares, & Spielberger, 1982) is a Dutch translation of the Spielberger State-Trait Anger Scale (Spielberger, 1980). Ten trait items were used from this questionnaire for assessing anger as a disposition.

Patients had to complete three questionnaires to assess aggressive and socially competent behavior. The Aggressie Vragenlijst (AVL: Meesters, Muris, Bosma, Schouten, & Beuving, 1996) is a Dutch adaptation of the Buss and Perry (1992) Aggression Questionnaire. This 29-item questionnaire measures different types of aggressive behavior, 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 (Cronbach's $\alpha = .95$), containing 48 items in part A and 25 items in part B. Patients only completed part A, which focuses on how individuals experience anger.

In the Inventarisatielijst Omgaan met Anderen (IOA: Van Dam-Baggen & Kraaimaat, 2000; IIS: Van Dam-Baggen & Kraaimaat, 1999), patients were presented with two questions related to 35 interpersonal situations, i.e. how nervous they would feel (social anxiety) and how often they would perform the behavior described in that situation (social skills). The five subscales of the questionnaire, both for social anxiety and social skills, are Criticizing, Giving your opinion, Giving a compliment to somebody, Making contact and Appreciating yourself.

7. Results

As expected, mutual correlations between the OSAB subscales Irritation/Anger, Anxiety/Gloominess, Aggressive Behavior, Antecedent, and Sanction were high and significant ($p < .01$). Contrary to expectations, however, negative relationships were not found between aspects of aggressive and social behavior (see Table 3).

Table 4

Correlations between OSAB subscales and FIOS subscales (correlations between two observation scales)

| Scale | Subscale | OSAB | | | |
|-------|-----------------------|------------------|--------------------|---------------------|-----------------|
| | | Emotion | | Aggressive behavior | Social behavior |
| | | Irritation/anger | Anxiety/gloominess | | |
| OSAB | Anxiety/gloominess | .56** (168) | – | | |
| | Aggressive behavior | .81** (168) | .46** (168) | – | |
| | Social behavior | –.20** (168) | –.24** (168) | –.11 (202) | – |
| FIOS | Distress | .53** (102) | .73** (102) | .56** (121) | –.29** (121) |
| | Oppositional behavior | .77** (102) | .36** (102) | .75** (121) | –.06 (121) |
| | Social behavior | –.31** (102) | –.40** (102) | –.27** (121) | .62** (121) |

* $p < .05$; ** $p < .01$ (two sided); the number of subjects is in parentheses.

To examine concurrent validity, the subscales of OSAB and the FIOS were correlated. The OSAB Irritation/Anger and Aggressive Behavior subscales were significantly correlated ($p < .01$) with the FIOS Oppositional Behavior subscale. There was also a significant correlation between the OSAB Anxiety/Gloominess subscale and the FIOS Distress subscale. Moreover, the OSAB Social Behavior subscale showed a relatively high positive correlation with the FIOS Social Behavior subscale. No significant correlations were found for either the OSAB or FIOS between and the Aggressive and Oppositional Behavior subscales and Social behavior respectively. As shown in Table 4, there was also a significantly negative relationship between the OSAB Aggressive Behavior subscale and the FIOS Social Behavior subscale.

As shown in Table 5, there was a low but positive correlation between the OSAB Irritation/Anger subscale and total score on the PCL-R, PCL-R Factor 1, the NEO-FFI Neuroticism subscale, the ZAV Disposition to anger subscale, and the AVL Anger subscale. Significant but relatively low correlations were found for the OSAB Anxiety/Gloominess subscale with the NEO-FFI Neuroticism subscale and the ZAV Disposition to anger subscale. The OSAB Aggressive Behavior subscale was significantly correlated with PCL-R Total, PCL-R Factor 1, PCL-R Factor 2, the ZAV Disposition to anger subscale, the AVL Total, the AVL Verbal Aggression subscale, and the AVL Anger subscale. Finally, there was a positive but low correlation between the OSAB Social Behavior subscale and the IOA Frequency scale (social skills). In general, the OSAB (observation) subscales were positively but slightly associated with comparable measures in the self-report questionnaires. When items of the OSAB subscale Social behavior were compared with IOA subscales, significant positive correlations were found between corresponding formulated items of the OSAB and of the IOA subscales of Giving your opinion ($p < .05$) and Making contact ($p < .01$). Probably, correlations between observation and self-report questionnaires are only significantly positive if there is close concurrence between the description of the items of the scale and of the questionnaire.

Table 5

Correlations between the OSAB (observation scale), the PCL-R (structured interview), and self-report questionnaires

| Measurement instrument | Factor or subscale | Emotion | | Aggressive behavior | Social behavior |
|------------------------|----------------------|------------------|--------------------|---------------------|-----------------|
| | | Irritation/anger | Anxiety/gloominess | | |
| PCL-R | Total | .21* (131) | –.06 (131) | .25** (154) | .12 (154) |
| | Factor 1 | .23* (115) | –.06 (115) | .17* (137) | .11 (137) |
| | Factor 2 | .17 (115) | .01 (115) | .18* (137) | .15 (137) |
| NEO-FFI | Neuroticism | .21* (98) | .21* (98) | .14 (118) | –.15 (118) |
| | Extraversion | –.10 (98) | –.16 (98) | –.01 (118) | .26** (118) |
| | Openness | –.00 (97) | .08 (97) | –.03 (117) | .29** (117) |
| | Agreeableness | –.09 (98) | .02 (98) | –.17 (118) | .12 (118) |
| | Conscientiousness | –.04 (98) | –.12 (98) | –.03 (118) | .18* (118) |
| ZAV | Disposition to anger | .25* (93) | .21* (93) | .27** (108) | –.10 (108) |
| AVL | Total | .17 (101) | –.00 (101) | .20* (120) | –.13 (120) |
| | Physical aggression | .04 (101) | –.12 (101) | .14 (120) | .05 (120) |
| | Verbal aggression | .19 (101) | .05 (101) | .22** (120) | –.19* (120) |
| | Anger | .29** (101) | .12 (101) | .26** (120) | –.11 (120) |
| | Hostility | .09 (101) | .03 (101) | .08 (120) | –.23* (120) |
| NAS | Part A | .15 (98) | .09 (98) | .18 (113) | –.19 (113) |
| IOA | Social anxiety | –.03 (90) | .07 (90) | –.05 (108) | –.12 (108) |
| | Social skills | –.08 (99) | –.10 (99) | –.00 (118) | .22* (118) |

* $p < .05$; ** $p < .01$ (two sided). Note: The number of subjects is in parentheses. PCL-R = Psychopathy Checklist-Revised; NEO-FFI = Five Factor Inventory; ZAV = Zelf-Analyse Vragenlijst; AVL = Aggressie Vragenlijst; NAS = Novaco Anger Scale; IOA = Inventarisatielijst Omgaan met Anderen.

8. Discussion

Based on the literature and interviews, the original pool of 82 items was reduced to 40 through selection on the basis of inter-rater reliability at the item level and through factor analysis. The factor analysis showed that the 40 items could be categorized into five subscales, which are of importance for the evaluation of a cognitive–behavioral treatment program, focusing on the reduction of aggressive behavior: Irritation/Anger, Anxiety/Gloominess, Aggressive Behavior, Antecedent, Sanction, and Social Behavior. The internal consistency of the subscales was good, inter-rater reliability was moderate to good, and test–retest reliability was moderate to good. The correlations for test–retest reliability differ little from those reported by Nijman, Van Nieuwenhuizen, and De Kruijk (2004), based on two successive measures in a population of forensic psychiatric patients, for the REHAB observation scale (Baker & Hall, 1988; Dutch version: Van der Gaag & Wilken, 1994). Probably, the significant lower scores on all OSAB subscales except the Social behavior during the second assessment has to do with the changeable behavior of the patients.

It should also be noted that the OSAB and FIOS were completed by group supervisors who had experience in the use of observation scales but who did not have continued training with feedback in behavioral observation. Therefore, the supervisors received short additional instructions before filling out both scales. Supplemental training in this area, say at the start of employment at the forensic psychiatric hospital and regularly repeated thereafter, would probably make for more reliable observational data. To increase motivation for participating in this type of supplemental training, it is important to keep group supervisors informed of the results of the information they record and conclusions that can be drawn to inform treatment planning.

As expected, the correlations between the subscales of Irritation/Anger, Anxiety/Gloominess, Aggressive Behavior, Antecedent, and Sanction were all substantial and significant; however, the expected negative correlation between these subscales and the Social behavior subscale was not evident. Three OSAB subscales mainly showed satisfactory concurrent validity in terms of high correlations with the FIOS, although a significant (negative) correlation was not found between Oppositional Behavior and Social Behavior for the FIOS (see Timmerman et al., 2001). However, there was a small negative, significant, correlation between the OSAB Aggressive Behavior subscale and the FIOS Social Behavior subscale. This finding might be accounted for in that the OSAB Aggressive Behavior subscale concerns specific behaviors while the OSAB Social Behavior subscale refers to more general behaviors. Alternatively, in the FIOS, the Oppositional Behavior subscale seems to measure more general behaviors and the Social Behavior subscale specific situations.

The validity of the OSAB Irritation/Anger subscale is further supported by the significant correlations with other scales, including PCL-R Total, PCL-R Factor 1, Neuroticism (NEO-FFI), Disposition to anger (ZAV), and Anger (AVL). Thus, the Irritation/Anger subscale is associated with traits such as egotism, remorselessness, emotional instability, and a tendency readily to experience anger or rage. The validity of the OSAB Aggressive Behavior subscale is also manifested by significant correlations with PCL-R Total, PCL-R Factor 1, PCL-R Factor 2, Disposition to anger (ZAV), Verbal aggression (AVL) and Anger (AVL). As expected, the relation between the Aggressive Behavior subscale and the PCL-R was positive and significant, but not very strong. This is in accordance with the findings of Hildebrand, de Ruiter, and Nijman (2004). Very probably the PCL-R predicts aggressive behavior better in real-life situations than in a heavily structured environment like a hospital. The Aggressive Behavior subscale indicates antisocial and verbally aggressive behavior, in addition to the tendency to experience anger and rage at (perceived) provocation. Finally, the OSAB Social Behavior subscale correlates positively with Extraversion (NEO-FFI), Openness (NEO-FFI), Conscientiousness (NEO-FFI), and Social skills (IOA Frequency). Thus, the Social Behavior subscale indicates sociability, curiosity, and being goal-orientated. The low but significant negative correlations with Verbal aggression (AVL) and Hostility (AVL) support the anticipated relationship between aggressive and social behavior, although the magnitude of the inverse relationship was slight.

The Observation Scale for Aggressive Behavior (OSAB) was developed for measuring possible behavioral changes produced by a cognitive–behavioral treatment program that focuses on anger management, social skills, and moral awareness (Hornsveld, 2004). The scale appears to measure behaviors reliably and validly — mediating emotions or moods, aggressive behavior, antecedents to this behavior, and the consequences of aggressive behavior for patients — in a forensic psychiatric hospital that play a major role in conflict situations. The OSAB also measures patients' general social skills.

The correlations between OSAB subscales and corresponding measures in self-report questionnaires are low, which can primarily be explained by the limited capacity of forensic psychiatric patients to observe their own behavior. It is also possible patients were trying to give the best possible impression of their behavior in completing the self-report questionnaires that social acceptability, hoping to affect their compulsory stay in the forensic psychiatric hospital.

The preliminary data with respect to the slight negative relationship between aggressive and social behavior indicates that a treatment program for violent forensic psychiatric patients geared to their learning new social skills does not automatically result in a reduction of aggressive behavior. Moreover, there are suggestions that acquiring social skills is contraindicated for those with high scores on psychopathy, as they can use these skills better to manipulate others (Quinsey, Harris, Rice, & Cormier, 1998). Aggressive behavior can appear in combination with competent social skills, and non-aggressive behavior can be related to limited social skills. For these reasons, treating forensic psychiatric patients requires a different approach to aggressive behavior and prosocial behavior. This approach should be based on assessment prior to treatment, which includes assessment of social skills deficits and whether enhancing social skills could contribute to a decrease in aggressive behavior. For instance, there are indications that forensic psychiatric patients too frequently display inadequate “limit-setting” behavior, such as giving criticism; and too infrequently exhibit “approaching” behavior, such as giving a compliment (Hornsveld, 2005). Clearly, patients’ reports should be seen in the context of staff observations and recording in patients’ files rather than taken a face value.

In summary, the OSAB is a promising instrument for use in observing aggressive and social behavior in Dutch forensic psychiatric patients who are “placed at the disposal of the government”. Contrary to the two other Dutch observation scales for forensic psychiatric inpatients, the OSAB is specifically designed for the evaluation of cognitive-behavioral therapies for the reduction of aggressive behavior. The OSAB registers the antecedents and consequences of this behavior and discriminates between different forms of aggressive and social behavior. An OSAB computer program has been developed that can be installed on a central server and retrieved and completed on ward computers for the purpose of taking measurements. The data can then be made available to authorized clinicians and researchers. The initial evaluation presented here indicates that the psychometric properties are moderate to good, so that the scale is a significant addition to existing instruments for evaluating treatment programs for reducing aggressive behavior in Dutch forensic psychiatric inpatients.

Acknowledgement

This study was conducted with financial support from the Research and Documentation Center of the Dutch Ministry of Justice.

Appendix A. By patients to be chosen social skills during the Aggression Control Therapy

| Number | Social skill |
|--------|-----------------------------|
| 1. | Making contact |
| 2. | Ending a situation |
| 3. | Doing a request |
| 4. | Refusing a request |
| 5. | Reacting on a refusal |
| 6. | Criticizing |
| 7. | Reacting on criticism |
| 8. | Giving one’s opinion |
| 9. | Standing up for oneself |
| 10. | Complimenting somebody else |
| 11. | Appreciating yourself |
| 12. | Reacting on a compliment |

Appendix B. OSAB items

| 1. Emotion/mood | No | Seldom | Occasionally | Frequently | |
|--|-----------------------|--------|--------------|------------|---|
| 01. Anxious: | 0 | 0 | 0 | 0 | |
| 02. Angry: | 0 | 0 | 0 | 0 | |
| 03. Agitated: | 0 | 0 | 0 | 0 | |
| 04. Tense: | 0 | 0 | 0 | 0 | |
| 05. Calm: | 0 | 0 | 0 | 0 | |
| 06. Gloomy: | 0 | 0 | 0 | 0 | |
| 07. Disappointed: | 0 | 0 | 0 | 0 | |
| 08. Hostile: | 0 | 0 | 0 | 0 | |
| 09. Enraged: | 0 | 0 | 0 | 0 | |
| 2. Aggressive behavior | No | Seldom | Occasionally | Frequently | |
| <i>Towards the institution</i> | | | | | |
| – Staff: – Verbal: | 10. Ignoring: | 0 | 0 | 0 | 0 |
| | 11. Complaining: | 0 | 0 | 0 | 0 |
| | 12. Swearing: | 0 | 0 | 0 | 0 |
| | 13. Abusive language: | 0 | 0 | 0 | 0 |
| | 14. Threats: | 0 | 0 | 0 | 0 |
| – Object – Physical: | 15. Kicking: | 0 | 0 | 0 | 0 |
| | 16. Throwing: | 0 | 0 | 0 | 0 |
| | 17. Destructive: | 0 | 0 | 0 | 0 |
| <i>Towards fellow patients</i> | | | | | |
| – Person: – Verbal: | 18. Abusive language: | 0 | 0 | 0 | 0 |
| | 19. Threats: | 0 | 0 | 0 | 0 |
| 3. Antecedent | No | Seldom | Occasionally | Frequently | |
| <i>Conflicts were about</i> | | | | | |
| 20. Regulations: | 0 | 0 | 0 | 0 | |
| 21. Appointment: | 0 | 0 | 0 | 0 | |
| 22. Progress of TBS/treatment: | 0 | 0 | 0 | 0 | |
| 23. Restrictive measure: | 0 | 0 | 0 | 0 | |
| 24. Personal issue: | 0 | 0 | 0 | 0 | |
| 25. Other reasons, i.e. ... | 0 | 0 | 0 | 0 | |
| 4. Sanction for patient | No | Seldom | Occasionally | Frequently | |
| 26. Patient receives criticism for behavior: | 0 | 0 | 0 | 0 | |
| 27. Patient has to apologize: | 0 | 0 | 0 | 0 | |
| 28. Patient is sent to his room: | 0 | 0 | 0 | 0 | |
| 5. Social behavior | No | Seldom | Occasionally | Frequently | |
| <i>Towards staff</i> | | | | | |
| 29. Adequately makes contact: | 0 | 0 | 0 | 0 | |
| 30. Tactfully ends situations: | 0 | 0 | 0 | 0 | |
| 31. Refuses in friendly but definite manner: | 0 | 0 | 0 | 0 | |
| 32. Gives constructive criticism: | 0 | 0 | 0 | 0 | |
| 33. Gives sincere compliments: | 0 | 0 | 0 | 0 | |
| 34. Speaks about oneself with esteem: | 0 | 0 | 0 | 0 | |
| 35. Makes good proposals: | 0 | 0 | 0 | 0 | |
| <i>Towards fellow patients</i> | | | | | |
| 36. Gives constructive criticism: | 0 | 0 | 0 | 0 | |
| 37. Clearly gives opinion: | 0 | 0 | 0 | 0 | |
| 38. Gives sincere compliments: | 0 | 0 | 0 | 0 | |
| 39. Speaks about oneself with esteem: | 0 | 0 | 0 | 0 | |
| 40. Makes good proposals: | 0 | 0 | 0 | 0 | |

References

- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: Author.
- Andrews, D. A., & Bonta, J. (2003). *The psychology of criminal conduct*, 3rd ed. Cincinnati, OH: Anderson.
- Arboleda-Florez, J., Crisanti, A., Rose, S., & Holley, H. (1994). Measuring aggression on psychiatric inpatient units: Development and testing of the Calgary General Hospital Aggression Scale. *International Journal of Offender Therapy and Comparative Criminology*, *38*, 183–204.
- Baker, R. D., & Hall, J. N. (1988). REHAB: A new assessment instrument for chronic psychiatric patients. *Schizophrenia Bulletin*, *14*, 97–111.
- Bech, P. (1994). Measurement by observation of aggressive behavior and activities in clinical situations. *Criminal Behavior and Mental Health*, *4*, 290–302.
- Bech, P., & Mak, M. (1995). Measurements of impulsivity and aggression. In E. Hollander & D.J. Stein (Eds.), *Impulsivity and aggression* (pp. 25–41). Chichester, UK: Wiley.
- Berkowitz, L. (1993). *Aggression: Its causes, consequences, and control*. Boston, MA: McGraw-Hill.
- Brand, E. F. J. M., & Van Emmerik, J. L. (2001). *Handboek Forensisch Psychiatrische Profielen: Handleiding FP40 [Handbook Forensic Psychiatric Profiles: Manual FP40]*. Den Haag, NL: Ministerie van Justitie [Ministry of Justice].
- Browne, K., & Howells, K. (1996). Violent offenders. In C. R. Hollin (Ed.), *Working with offenders: Psychological practice in offender rehabilitation* (pp. 188–210). Chichester, UK: Wiley.
- Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology*, *63*, 452–459.
- Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and the Five Factor Inventory (NEO-FFI): Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Evenson, R. C., & Dong, W. C. (1987). The Missouri Inpatient Behavior Scale. *Journal of Clinical Psychology*, *43*, 100–110.
- Hafkenscheid, A. (1991). Psychometric evaluation of the Nurses Observation Scale for Inpatient Evaluation in The Netherlands. *Acta Psychiatrica Scandinavica*, *83*, 46–52.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist-Revised*. Toronto, CN: Multi-Health Systems.
- Hildebrand, M., de Ruiter, C., & Nijman, H. L. I. (2004). PCL-R psychopathy predicts disruptive behavior among male offenders in a Dutch forensic psychiatric hospital. *Journal of Interpersonal Violence*, *19*(1), 13–29.
- Hoekstra, H. A., Ormel, J., & de Fruyt, F. (1996). *Handleiding NEO Persoonlijkheidsvragenlijsten [Manual NEO Personality Questionnaires]*. Lisse, NL: Swets.
- Hornsveld, R. H. J. (2004). Aggression Control Therapy for forensic psychiatric patients: Development and preliminary results. In A. P. Goldstein, R. Nensén, B. Daleflod, & M. Kalt (Eds.), *New perspectives on Aggression Replacement Training* (pp. 189–196). Chichester, UK: Wiley.
- Hornsveld, R. H. J. (2005). Evaluation of Aggression Control Therapy for violent forensic psychiatric patients. *Psychology, Crime and Law*, *11*(4), 403–410.
- Hornsveld, R. H. J., Van Dam-Baggen, C. M. J., Lammers, S. M. M., Nijman, H. L. I., & Kraaiaam, F. W. (2004). Forensisch psychiatrische patiënten met geweldsdelicten: Persoonlijkheidskenmerken en gedrag [Violent forensic psychiatric patients: Personality characteristics and behavior]. *Tijdschrift voor Psychiatrie [Dutch Journal of Psychiatry]*, *46*, 133–143.
- Kay, S. R., Wolkenfeld, F., & Murrill, L. M. (1988). Profiles of aggression among psychiatric patients. I: Nature and prevalence. *Journal of Nervous and Mental Disease*, *176*, 539–546.
- Meesters, C., Muris, P., Bosma, H., Schouten, E., & Beuving, S. (1996). Psychometric evaluation of the Dutch version of the Aggression Questionnaire. *Behavior Research and Therapy*, *34*, 839–843.
- Nijman, H. L. I. (1999). *Aggressive behavior of psychiatric inpatients: Measurement, prevalence, and determinants*. Maastricht, NL: Datawyse.
- Nijman, H. L. I., Van Nieuwenhuizen, Ch., & De Kruijk, C. (2004). Behavioral changes during forensic psychiatric (TBS) treatment in The Netherlands. *International Journal of Law and Psychiatry*, *27*, 79–85.
- Novaco, R. W. (1994). Anger as a risk factor for violence among the mentally disordered. In J. Monahan & H.J. Steadman (Eds.), *Violence and mental disorder* (pp. 21–59). Chicago, IL: The University of Chicago.
- Polaschek, D. L. L., & Reynolds, N. (2001). Assessment and treatment: Violent offenders. In C. R. Hollin (Ed.), *Handbook of offender assessment and treatment* (pp. 415–431). Chichester, UK: Wiley.
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (1998). *Violent offenders: Appraising and managing risk*. Washington, DC: American Psychological Association.
- Spielberger, C. D. (1980). *Preliminary Manual for the State-Trait Anger Scale (STAS)*. Tampa, FL: University of South Florida.
- Timmerman, I. G. H., Vastenburg, N. C., & Emmelkamp, P. M. G. (2001). The Forensic Inpatient Observation Scale (FIOS): Development and validity. *Criminal Behavior and Mental Health*, *11*, 144–162.
- Van Dam-Baggen, R., & Kraaiaam, F. (1999). Assessing social anxiety: The Inventory of Interpersonal Situations (IIS). *European Journal of Psychological Assessment*, *15*(1), 25–38.
- Van Dam-Baggen, C. M. J., & Kraaiaam, F. W. (2000). *Inventarisatielijst Omgaan met Anderen (IOA). Handleiding [Inventory of Interpersonal Situations (IOA). Manual (2nd revised edition)]*, 2^e druk Lisse, NL: Swets.
- Van der Gaag, M., & Wilken, J. P. (1994). *Handleiding REHAB: Een maat van psychiatrische invaliditeit [Manual REHAB: assessment of psychiatric disablement]*. Lisse, NL: Swets.
- Van der Ploeg, H. M., Defares, P. B., & Spielberger, C. D. (1982). *Handleiding bij de Zelf-Analyse Vragenlijst, ZAV [Manual for the Self-Analysis Questionnaire, ZAV]*. Lisse, NL: Swets & Zeitlinger.
- Van Emmerik, J. L. (2001). *De Terbeschikkingstelling in Maat en Getal [The TBS-measure in measures and numbers]*. Den Haag, NL: Ministry of Justice.

- Vertommen, H., Verheul, R., De Ruiter, C., & Hildebrand, M. (2002). *De herziene versie van Hare's Psychopathie Checklist (PCL-R)* [The revised version of Hare's Psychopathy Checklist (PCL-R)]. Lisse, NL: Swets.
- Wistedt, B., Rasmussen, A., Pedersen, L., Malm, U., Träskman-Bendz, L., Wakelin, J., et al. (1990). The development of an observer-scale for measuring social dysfunction and aggression. *Pharmacopsychiatry*, 23, 249–252.
- Yudofsky, S. C., Silver, J. M., Jackson, W., Endicott, J., & Williams, D. (1986). The overt aggression scale for the objective rating of verbal and physical aggression. *American Journal of Psychiatry*, 143, 35–39.