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## Characteristics of Aggressive Behavior in People With Mild to Borderline Intellectual Disability and Co-Occurring Psychopathology

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### ABSTRACT

*Introduction:* People with intellectual disabilities and co-occurring psychopathology have a relatively high likelihood to engage in aggressive behavior. Nevertheless, structured clinical assessment of aggressive behavior, including when and where it occurs, is scarce in this population. *Methods:* On three wards specializing in the care for people with mild to borderline intellectual disability and co-occurring psychopathology, staff members completed the Staff Observation Aggression Scale–Revised adapted for people with intellectual disabilities (SOAS-R-ID) during a nine-month period, every time they witnessed aggressive behavior. *Results:* Based on 236 SOAS-R-ID forms, it was found that aggressive incidents were most common on Thursdays, and on two specific moments of the day (between 9–11 a.m. and 7–9 p.m.). The aggressive behavior was often exclusively of a verbal nature and was usually targeted against staff members (77.1% of the incidents). The Interclass (Pearson) Correlation Coefficient agreement between observers on the total score of the SOAS-R-ID was 0.72. Correlation between the judgment of the severity of aggressive behavior made by the staff members and the SOAS-R-ID severity scores was moderate ( $r = .40$ ), but significant. *Conclusions:* Because aggressive behavior appeared to result often from interactions between the client and staff member or other clients, these interactions might be an important starting point for interventions. Structured clinical assessment of aggressive behavior can help to devise and test the effects of interventions. The SOAS-R-ID seems to be a clinically useful instrument and could therefore help to reduce the frequency of these incidents in the future.

### KEYWORDS

Aggressive behavior; intellectual disabilities; psychopathology; Staff Observation Aggression Scale–Revised; structured clinical assessment

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## Introduction

Aggressive behavior is a common phenomenon in the care of people with intellectual disability (ID), especially in inpatient settings (Crocker et al., 2006; Tyrer et al., 2006). The prevalence rates of aggressive behavior among people with ID, however, varies drastically between studies (e.g., Crocker et al., 2006; Tyrer et al., 2006), due to methodological differences and differences in definitions of aggressive behavior and the populations studied. In this study, aggressive behavior is defined as any verbal, nonverbal, or physical behavior that was threatening, or physical behavior that actually did harm (in Morrison, 1990). Tenneij and Koot (2008) measured the incidence of aggressive behavior for people with mild ID in residential settings in the Netherlands. They found that about 50% of their participants had shown aggressive behavior (object destruction, verbal or physical aggressive behavior) during a 20-week observation period.

Aggressive behavior not only has negative consequences for the environment of the person, but often also for the aggressor. Physical injury, interference with social activities, and abuse are some of the detrimental consequences of aggressive behavior for the aggressors (e.g., Cooper et al., 2009; Emerson & Einfeld, 2011; Matson & Kozlowski, 2012). Staff and family members can experience negative emotions, stress, physical injuries, and fear of assault or burnout (e.g., Allen, Hawkins, & Cooper, 2006; Hensel, Lunsky, & Dewa, 2014; Mills & Rose, 2011). Research shows that aggressive behavior in persons with ID, as is the case in other populations, generally tends to persist over time (Einfeld et al., 2006) and that persons with ID often display multiple forms of aggressive behavior at the same time (e.g., physical, verbal, and/or auto-aggressive behavior; Cooper et al., 2009; Crocker et al., 2006; Nijman & à Campo, 2002; Tenneij & Koot, 2008).

Factors associated with aggressive behavior in people with ID are, among others, psychiatric disorders (e.g., Crocker, Prokić, Morin, & Reyes, 2014; Tsiouris, Kim, Brown, & Cohen, 2011), a low level of intellectual functioning (e.g., Cooper et al., 2009; Crocker et al., 2014), gender (e.g., Cooper et al., 2009; Sigafos, Elkins, Kerr, & Attwood, 1994), and genetic syndromes (e.g., Arron, Oliver, Moss, Berg, & Burbidge, 2011). Moreover, environmental factors such as negative interactions with staff members (instructions; disagreements) or wanting to escape from daily tasks (e.g., Embregts, Didden, Huitink, & Schreuder, 2009a; Embregts, Didden, Schreuder, Huitink, & van Nieuwenhuijzen, 2009b) are also associated with aggressive behavior.

There is increasing knowledge of the causes and functions of aggressive behavior and a growing recognition to use functional assessment methods to map these behaviors in relation to their environment (e.g., Lloyd & Kennedy, 2014). Descriptive assessment and experimental functional analyses of aggressive behavior provide more information about the setting and

conditions (antecedents and consequences) that can trigger and maintain aggressive behavior (Beavers, Iwata, & Lerman, 2013). Beavers et al. (2013) showed in their review that aggressive behavior was mostly maintained by escape, but other functions were also common (e.g., attention, maintenance by tangible reinforcements, and combinations of these (multiple sources of control)).

To explore the characteristics of aggressive behavior in people with mild ID and severe challenging behavior, Tenneij and Koot (2008) used the Staff Observation Aggression Scale- Revised (SOAS-R; Nijman et al., 1999). In earlier research (e.g., Emerson, Einfeld, & Stancliffe, 2010; Wieland, van den Brink, & Zitman, 2015), it is shown that people with mild ID or borderline intellectual functioning are at a clearly increased risk of developing mental health problems. These mental health problems, as known from the *Diagnostic Manual-Intellectual Disability (DM-ID; Fletcher, Loschen, Stavrakaki, & First, 2007)*, do often have different clinical representations in people with (mild) ID and borderline intellectual functioning. Aggression is one of the often-mentioned clinical representations (for example in mood disorders: “Although more systematic investigation is needed, people with ID and Mood Disorder diagnoses do appear to present with irritability and aggression at high rates” (*DM-ID, Fletcher et al., 2007, p. 288*)). A recent large-scale empirical study by Nieuwenhuis, Noorthoorn, Nijman, Naarding, and Mulder (2017) showed that: (1) people with mild ID or borderline intellectual functioning often are not detected as such in general psychiatric settings, leading to unaddressed treatment needs, and (2) clients with mild ID or borderline intellectual functioning that are admitted to general psychiatric wards indeed seem to have a much higher likelihood to become aggressive on these wards than clients without mild ID or borderline intellectual functioning, which is illustrated by the fact that they are confronted with the use of coercive measures, such as seclusion, much more often, even up to four times as often compared to clients without ID (Nieuwenhuis et al., 2017). Tenneij and Koot (2008) found that aggressive behavior was aimed at staff members in most cases. They also noticed that staff members used restrictive behavior management techniques, such as seclusion, to stop or control the aggressive behavior in almost half of the incidents. On average, Tenneij and Koot (2008) found a prevalence of 7.9 outwardly directed aggressive incidents (i.e., aggression directed against other persons or objects) per client per year.

To explore the characteristics of aggressive behavior of patients and clients residing in institutions for mental health care, the SOAS-R (Nijman et al., 1999) is an often-used measure (e.g., Nijman, Palmstierna, Almvik, & Stolker, 2005). Previous studies showed that the interrater reliability of SOAS severity scores was between  $k = 0.61-0.74$  (Nijman, Merkelbach, Allertz, & à Campo, 1997; Steinert, Woelfle, & Gebhardt, 1999; Steinert, Wölfle, & Gebhardt, 2000) and the Pearson product-moment correlation between independent assessors was  $r = 0.87$  (Nijman et al., 1997). In addition, significant correlations between the SOAS-R

assessments and various other instruments measuring aggressive behavior have been found in previous studies (e.g., Kobes, Nijman, & Bulten, 2012). There seems to be a great variation between the numbers of aggressive incidents on acute admission wards ( $n = 38$ ), varying from 0.4–33.2 incidents per patient per year (Nijman et al., 2005). The average numbers also seemed to differ between countries, with, for example, the Netherlands having high rates of aggression. In order to attune the SOAS-R for people with ID, it would be beneficial to add specific triggers and consequences for this population, and as Tenneij and Koot (2008) suggested, to assess the interrater reliability of this instrument when used in this population, and explore more client characteristics (e.g., adaptive functioning) to get a clearer picture of aggressive behavior in people with mild ID or borderline intellectual functioning. Accordingly, this study has two goals. First, to examine the incidence of aggressive incidents, the temperospatial characteristics and the circumstances under which aggressive behavior occurs using an adapted version of the SOAS-R, adapted for use in persons with ID (SOAS-R-ID). The second goal was to evaluate the clinical usefulness and reliability of the SOAS-R-ID for measuring aggressive behavior of people with ID in the clinical setting.

## Methods

### *Setting and Participants*

This study was conducted on three closed wards at a specialized treatment center for people with mild ID (IQ between 50 and 70) and borderline intellectual functioning (IQ between 70 and 85), who hereafter will collectively be indicated as clients with mild to borderline ID, or MBID clients in short, and co-occurring psychiatric and/or behavior problems in the south of the Netherlands. All participating clients lived at the treatment center, and received treatment. The treatment consisted of participating in an activating day care therapy and more specific training courses (e.g., self-management training). Besides that, all clients were offered one-on-one treatment talks with support staff, psychologists, and psychiatrists. Some clients received extra treatments related to their specific problems, such as eye movement desensitization and reprocessing. Each ward contained 10 beds. The staff members ( $N = 40$ ) who completed SOAS-R-ID forms were 25 women (62.5%) and 15 men (37.5%). Their mean age was 34.2 years ( $SD = 9.4$ ). The majority of staff members had a higher vocational training (55%), and on average they had 7.1 years ( $SD = 6.8$ ) of experience in working with persons with ID. Most of them (82.5%) had received some specific training in managing aggressive behavior. During the observation period of nine months, a total of 51 clients stayed at the center, of which a total of 33 (64.7%) were included in the study. Criteria of inclusion were: (a) having

provided informed consent, (b) being 18 years of age or older, (c) having resided at the ward for a period of four weeks or more, and (d) participating in the study was judged to not interfere with the personal well-being of the client according to the psychologist and psychiatrist of the treatment center. The 33 participants with MBID (20 men) had a mean age of 31.3 years ( $SD = 11.4$ ) and an average IQ score of 73.3 ( $SD = 6.4$ ). On average, they had stayed at the treatment center for 54.0 weeks at the end of the study ( $SD = 38.2$  weeks). Besides MBID, all included clients had co-occurring psychiatric disorders (*Diagnostic and Statistical Manual of Mental Disorders-IV*; APA, 1994). The primary diagnoses were as follow: 12 persons (36.4%) had schizophrenia or other psychotic disorders, seven persons (21.2%) had a mood disorder, six persons (18.2%) had a pervasive developmental disorder, four persons (12.1%) had an anxiety disorder, and four persons (12.1%) had a different diagnosis (e.g., attention deficit disorder). In total, 66% of the clients were diagnosed with two or more psychiatric disorders.

### **Procedure**

After ethical approval was given by the scientific and ethics committee of both the participating center as well as the University of Tilburg, data were collected between April 2014 and January 2015 (a 41-week period). Every person with MBID that received treatment at the participating center during the observation period (or their legal representative) as well as their staff members were asked to participate in the current study and to give informed consent prior to the data collection. After consent, demographic variables of all participants (persons with MBID and staff members) were collected. Support staff were asked to complete a short questionnaire regarding their demographics. For clients who were willing to participate in the study, the client files with the most recent diagnostic information were provided by their treating psychologist and psychiatrist (based on the *DSM-IV*). Subsequently, both clients and support staff received information about the goal of this study and the role of the researcher in their treatment center. Support staff also received instructions during a team meeting about the use of the SOAS-R-ID, the way they had to report aggressive incidents, and the specific contents of the five SOAS-R-ID columns. Next, data collection started for the duration of the nine months. Staff members completed the SOAS-R-ID every time they witnessed aggressive behavior. The current study focused on aggression aimed at other persons and objects (outwardly directed aggression), and not on aggression aimed at oneself (auto-aggression). If two or more staff members had witnessed an aggressive incident simultaneously, each staff member was instructed to complete an SOAS-R-ID form independently. Based on these multiple SOAS-R-ID forms related to the same incidents, interrater reliability was calculated.

## Measures

### *The SOAS-R-ID*

The SOAS-R-ID (Nijman & Palmstierna, 2005; see the Appendix) is based on the SOAS-R (Nijman et al., 1999), which in its turn originated from the SOAS of Palmstierna and Wistedt (1987). The SOAS-R report form consists of five columns. In the first column of the instrument, staff members are asked to specify what apparently triggered the aggressive behavior. In the second column of the SOAS-R, the nature of the aggressive behavior is documented (e.g., exclusively verbal aggressive behavior, physical aggressive behavior, use of objects or weapons, or combinations). The target of the aggressive behavior (e.g., objects, fellow-clients, staff members) is specified in the third column. In the fourth column, the consequences of the aggressive behavior for victims and/or materials are recorded. Finally, in the fifth column, staff members are asked to describe the measures they took to stop or control the aggressive behavior. For the SOAS-R-ID, several extra potential triggers of aggressive behavior, which are specific for clients with ID and/or autism spectrum disorders, were added to the first column of the instrument. These were, among others, aggressive behavior triggered by physical proximity between people, aggression triggered by unexpected situations, or aggression triggered by changes of activity. Likewise, in the fifth column of the SOAS-R-ID, some adaptations were made in the measures taken to stop or control the aggressive behavior, such as trying to stop aggressive behavior by distracting the aggressive client, or trying to prevent escalation by sending the aggressive person to his or her room.

On the basis of completed SOAS-R-ID forms, severity scores ranging from 0–22 points can be assigned to the reported aggressive incidents (for the severity scoring system see Nijman et al., 1999), with 22 points reflecting the most severe incidents in which the victim(s) of the aggressive behavior were physically injured, and the aggressive client had to be secluded or medicated against their will in response to the aggressive behavior. The rationale behind this revised severity scoring system was that the severity of aggressive behavior depends on an array of characteristics of the incidents, with some, such as the consequences for victims, being more important than others (e.g., means used by the aggressive client). With regression analyses (see Nijman et al., 1999), a validated severity scoring system was developed in which separate features are weighted in a way such that they make a differential contribution to the overall aggression severity score. To be more specific, the maximum contribution to the total SOAS-R severity score of the first column is 2 points (range 0–2 points), the maximum contribution of the second column is 3 points (0–3 points), the maximum score of the third column is 4 points (0–4 points), the maximum severity score of the fourth column is 9 points (0–9 points), and the maximum severity score of the fifth column is 4 points (0–4 points). The overall SOAS-R severity score is calculated by adding the highest



score of each the five columns and therefore has a theoretical maximum of 22 points in case of the most severe aggression, consisting of the maximum scores of  $2 + 3 + 4 + 9 + 4 = 22$  points from each of the columns. The severity score for the SOAS-R-ID was calculated in the current study in the same way as the original SOAS-R scores are calculated, and can only range from 0–22 points, as the additions, such as the extra triggers added to column 1 of the SOAS-R version for clients with ID, were set to 0 points (for the time being) in the calculation of the overall severity SOAS-R-ID scores.

In line with an earlier study on the psychometric properties of the SOAS-R (Nijman et al., 1999), staff members in the current study were also asked to judge the overall severity of the aggressive incident separately on a 100-mm Visual Analogue Scale (VAS) (see Figure 1), ranging from 0 (*not severe at all*) to 100 (*extremely severe*).

Severity scores of every incident in this study (SOAS-R-ID form) were calculated based on the SOAS-R scoring system (Nijman et al., 1999) and compared with the 100-mm VAS severity scores. No carryover effects from the severity scoring on the SOAS-R-ID to the VAS severity scoring were expected because the staff members participating in the current study were not familiar with the calculation of SOAS-R severity scores. Gender and working experience of staff members were included as covariates in the correlational analysis between SOAS-R-ID and VAS severity scores, as men and women might have different perceptions of aggressive behavior, and the same is plausible for highly experienced versus less-experienced staff members (Nijman, Evers, Merckelbach, & Palmstierna, 2002; Noda et al., 2012). The correlation between the SOAS-R-ID and VAS severity ratings were compared using a Pearson product-moment correlation, controlling for the effects of working experience and gender of the completing staff member (see Nijman et al., 2002; Noda et al., 2012), to determine whether the severity scoring system is also be valid for the SOAS-R-ID. The mean SOAS-R-ID severity score was 7.7 ( $SD = 4.1$ , range 0–19). The mean VAS severity score was 43.4 mm ( $SD = 21.4$  mm; range 4–90 mm). The correlation between the SOAS-R-ID and VAS severity scores, corrected for gender and years of working experience of the completing staff member, was 0.40 ( $p < 0.01$ , two-tailed).

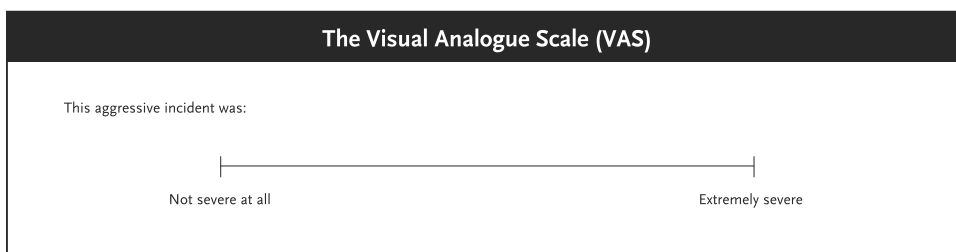


Figure 1. The Visual Analogue Scale (VAS).



In the current study, the interrater reliability for SOAS-R-ID forms completed by two independent observers was assessed using Cohen's kappa for each of the five columns, and for the total score using the Interclass (Pearson) Correlation Coefficient (ICC). Kappa values between 0.21 and 0.40 indicate fair agreement, kappa values between 0.41 and 0.60 indicate moderate agreement, kappa values between 0.61 and 0.80 indicate substantial agreement, and kappa values  $> 0.80$  indicate almost perfect agreement (Viera & Garrett, 2005). In the current study, there were 23 incidents (out of the total of 236 reported SOAS-R-ID incidents; see results section) for which at least two SOAS-R-ID forms were completed by independent observers. Two forms were selected at random for each of these 23 incidents. The kappa scores between the dyads of observers per column, based on the severity scores, were: column 1 (provocation)  $\kappa = 0.629$ ; column 2 (means used)  $\kappa = 1.000$ ; column 3 (target)  $\kappa = 0.892$ ; column 4 (consequence for victim)  $\kappa = 0.368$ ; and column 5 (measures to stop the aggressive behavior)  $\kappa = 0.736$ . The ICC of the total score on SOAS-R-ID was 0.72. The absolute percentages of agreement were: 82.6% for column 1; 100% for column 2; 95.7% for column 3; 65.2% for column 4, and 82.6% for column 5.

### ***Vineland-Z***

To measure the adaptive behavior of the participants with MBID, the Dutch translation of the Vineland Adaptive Behavior Scale (VABS) survey form (the Vineland-Z; de Bildt & Kraijer, 2003) was used. This instrument contains a total of 225 items in three domains: communication ( $n = 67$ ), daily living skills ( $n = 92$ ) and socialization ( $n = 66$ ). Staff members, in an open-ended interview, could indicate per item if their client usually performed in this way (score 2), sometimes or partly performed in this way (score 1), or never performed in this way (score 0). Total scores on the three domains are calculated by summing the scores of all items. A higher score on a domain represents a higher level of adaptive behavior. Reliability and validity measures of the instrument have found to be moderate to good (e.g., de Bildt & Kraijer, 2003).

### ***Statistical Analysis***

The characteristics of the aggressive incidents and the aggressive clients were analyzed using descriptive statistics in the Statistical Package for the Social Sciences (SPSS) version 22. Univariate comparative analyses with *t*-tests or chi-square calculations and, if needed, Fisher exact tests were performed to investigate potential differences between aggressive versus nonaggressive persons.

## Results

In the next paragraphs, the frequency of aggressive incidents as reported by means of the SOAS-R-ID, as well as the results per column of the SOAS-R-ID and temperospatial characteristics of the aggression, are described.

### *Frequency of Aggressive Incidents*

During the 41-weeks of data collection, a total of 236 incident forms were completed by staff members on the three wards, of which 210 concerned unique incidents of aggressive behavior. The average number of incidents was 5.1 per week, or 8.9 incidents per client per year.

### *Triggers of Aggressive Behavior*

In 28.6% ( $n = 60$ ) of the incidents staff members indicated that they did not understand what triggered the aggressive behavior. Where staff members could specify what triggered the aggressive behavior ( $n = 150$ ; 71.4%), in 28.0% ( $n = 42$ ) of the 150 cases the clients became aggressive after they were denied something they wanted. In 24.0% ( $n = 36$ ) of the 150 cases, aggressive behavior occurred when a client was requested to execute a certain task, and in 14.0% of the incidents ( $n = 21$ ), it was judged that other clients provoked the aggressive behavior. In 11.3% ( $n = 17$ ) of the 150 cases, the provocation for the aggressive incident was either hearing bad news, a change of activity, staff members requiring the client to take medication, unexpected events or (help with) daily living activities. The rest of the 150 provocations (22.7%;  $n = 34$ ) that staff members recorded were outside the existing categories, like losing a soccer match or fear of the dentist.

### *The Means Used by the Client*

The majority of the incidents ( $n = 120$ ; 57.1%) consisted exclusively of verbal aggressive behavior. In 31.9% ( $n = 67$ ) of the incidents, the aggressive clients engaged in physical aggressive behavior, mostly combined with verbal aggressive behavior and/or property destruction ( $n = 57$ ; 85.1%). Aggressive behavior exclusively targeted against property occurred in 9.5% ( $n = 20$ ) of the incidents. If there was aggressive behavior against property, clients smashed or threw glassware, cutlery, chairs, and other utensils (e.g., broom, ashtray, or flower pot). In three incidents (1.4%), clients threatened someone with a knife.

### ***The Target of the Aggressive Behavior***

Most of the aggressive incidents ( $n = 162$ ; 77.1%) were aimed at staff members, of which 73.5% ( $n = 119$ ) were exclusively aimed at staff members, and 14.2% ( $n = 23$ ) at staff members and objects, 11.7% ( $n = 19$ ) at staff members and other clients. A minority of the incidents was targeted exclusively against other clients ( $n = 19$ ; 9%), objects ( $n = 19$ ; 9%), or both ( $n = 2$ ; 1%). In 3.8% ( $n = 8$ ), no person or nothing in particular was targeted, or it was unclear what the aggressive behavior was directed against.

### ***Consequence(s) for the Victim(s)***

In 53.3% ( $n = 12$ ) of the incidents, staff members recorded that there were no consequences of the aggressive incident for victims. If consequences were reported ( $n = 98$ , 46.7%), in more than three fourths ( $n = 78$ ; 79.6%) of these incidents the victim had felt threatened by the client's behavior. In eight incidents (8.2%) there was damage to objects and replacement was sometimes ( $n = 3$ ; 37.5%) necessary. In 7.1% ( $n = 7$ ) of the incidents, victims sustained physical pain or had visible injuries.

### ***Measures to Stop Aggressive Behavior***

Staff members usually carried out more than one measure in an attempt to stop or control the aggressive behavior. Here we only report the measures with the highest severity scores. In 55.7% ( $n = 117$ ) of the incidents, the staff member spoke to the client, distracted the client, offered closeness, or the contact was actively terminated by the staff member (e.g., by leaving the area). In 33 incidents (15.7%), clients were sent to their room. In 12.4% ( $n = 6$ ) of the cases, the client was either manually or mechanically restrained and in 9.5% ( $n = 20$ ) clients were secluded. In 3.3% ( $n = 7$ ) of the incidents, no measure was taken to stop the aggressive behavior (e.g., the client left the area). In seven other incidents (3.3%), the client was given medication (orally or parenterally).

### ***Location of the Incidents***

Most incidents took place near or at the entrance to the staff office or in the corridors of the ward ( $n = 67$ ; 31.9%). Additionally, relatively many incidents took place in the garden ( $n = 40$ ; 19.0%) or in the client's room ( $n = 35$ ; 16.7%). Incidents occurred in the living room ( $n = 20$ ; 9.5%) and 7.1% ( $n = 15$ ) of the incidents were reported in the activity center, where clients follow a daily activity program. The rest of the incidents ( $n = 33$ ; 15.7%) took place in other areas (e.g., the relaxation room, the kitchen, or dining room).

### **Temporal Distribution**

There was a significant difference on the frequency of aggressive incidents per day [ $\chi^2(6) = 27.28, p < .001$ ], with the highest number of incidents on Thursdays (24.3%,  $n = 51$ ). Most of the incidents occurred between 9:00–11:00 a.m. (17.6%,  $n = 37$ ) and between 7:00–9:00 p.m. (17.1%,  $n = 36$ ), [ $\chi^2(8) = 40.19, p < .001$ ].

### **Characteristics of the Aggressive Clients**

Of the 33 persons with MBID included in the study, 22 (66.7%) displayed some form of aggressive behavior based on the SOAS-R incident forms. In [Table 1](#), the characteristics of the individuals with MBID displaying aggressive behavior are summarized and compared with the persons with MBID not displaying these behaviors. Four of the 22 aggressive participants (18.2%) caused more than half of all the incidents (58.1%).

### **Discussion**

The current study was aimed to gain more insight into the characteristics of aggressive behavior in people with MBID and co-occurring psychopathology. In addition, the clinical usefulness and reliability of the SOAS-R-ID was assessed.

The results of this study show that aggressive behavior in people with MBID and co-occurring psychopathology is a widespread problem, with a frequency of 8.9 incidents per client per annum. This is comparable with earlier research conducted in a similar setting (7.9 incidents per client annually; treatment facility for people with mild ID and severe challenging behavior; Tenneij & Koot, 2008); and other settings (e.g., general psychiatry) in which the median value per person per year was 7.6 (Nijman et al., 2005).

The majority of the aggressive incidents consisted of verbal aggressive behavior, and the mean SOAS-R-ID severity score in this study was 7.7. This is lower than the results of studies in general psychiatric admissions wards (SOAS-R severity ranged between 9.2 and 11.0; Nijman et al., 2005).

In line with earlier studies conducted in general psychiatry, most of the incidents were caused by a minority of clients (i.e., four clients were involved in more than half of all reported incidents). This suggests that effective prevention of aggression in clients with MBID preferably consists of tailor-made interventions that targeting the specific triggers of the behavior in individual clients with high aggression risks.

Aggressive behavior took place most often on a specific day of the week (Thursday) and between 9:00–11:00 a.m. and 7:00–9:00 p.m. On Thursdays, staff members and clients have their weekly meeting on the three wards that participated in the current study. In these weekly meetings, clients and staff

**Table 1.** Characteristics of Aggressive and Non-Aggressive Clients during Observation Period.

	Aggressive clients ( <i>n</i> = 22)	Non-aggressive clients ( <i>n</i> = 11)	Statistical comparison	<i>P</i>	ODD's ratio	Cohen's <i>D</i>
Gender, male: <i>n</i> (%)	13 (59.1)	7 (63.6)	$\chi^2(1) = 0.06$	0.80	0.92	–
IQ: <i>M</i> ( <i>SD</i> )	72 (6.4)	76 (5.8)	$t(28) = -1.72$	0.10	–	-0.68
Age, years: <i>M</i> ( <i>SD</i> )	31.1 (13.1)	31.8 (7.1)	$t(30.68) = -0.21$	0.84	–	-0.07
Diagnosis, <i>n</i> (%)						
Schizophrenia or psychotic disorder	6 (27.3)	6 (54.5)	Fisher Exact Test	0.13	0.50	–
Pervasive developmental disorder	4 (18.2)	2 (18.2)	Fisher Exact Test	0.69	1.00	–
Mood disorder	5 (22.7)	2 (18.2)	Fisher Exact Test	0.57	1.25	–
Anxiety disorder	4 (18.2)	0 (0.0)	Fisher Exact Test	0.18	n.a.	–
Other disorder (e.g., Attention Deficit Disorder or substance-related disorder)	3 (13.6)	1 (9.1)	Fisher Exact Test	0.59	1.50	–
Involuntary admitted, <i>n</i> (%)	7 (31.8)	4 (36.4)	$\chi^2(1) = 0.03$	0.86	0.87	–
Length of admission in weeks: <i>M</i> ( <i>SD</i> )	45 (26.5)	72 (51.8)	$t(12.69) = -1.60$	0.13	–	-0.65
Adaptive behavior age: <i>M</i> ( <i>SD</i> )						
Communication	10.1 (2.2)	10.3 (1.8)	$t(31) = -0.27$	0.79	–	-0.10
Daily activities	9.6 (2.5)	10.3 (1.9)	$t(30) = -0.83$	0.42	–	-0.32
Socialization	6.8 (2.0)	7.4 (2.2)	$t(31) = -0.72$	0.48	–	-0.26
Total score on Vineland-Z	8.9 (2.3)	9.5 (1.7)	$t(30) = -0.69$	0.50	–	-0.27

members discuss practical issues such as general tasks for the next week. Between 9:00–11:00 a.m., most of the clients get ready for their daily program, and between 7:00–9:00 p.m., most of the clients had no specific program. This could be related to the fact that in these hours staff members anticipate stressful situations for the clients because of time pressure, the transition to (other) activities, and the interactions between clients, but further research is needed to give indications about the potential causality of these relations.

In general, the aggressive behavior was mostly aimed at staff members and almost half of the time (46.9%) negative consequences of the behavior were reported. If there were consequences reported, on most occasions it concerned psychological consequences, with staff members having felt threatened by the aggressor. Clearly, aggressive behavior can have an impact on staff members' feelings of safety and constitutes a psychological strain for them. However, in most of the cases staff members used verbal interventions or sent clients to their room. In 25% of incidents, however, more intrusive and/or restrictive measures (e.g., medication, seclusion) were used in an attempt to control the aggressive behavior. Many incidents took place close to or in front of the office, a place where many interactions between clients and staff members take place. It seems that interactions between clients and staff members can play an important role in initiating agitation and aggressive behavior (Nijman et al., 1997; Tenneij & Koot, 2008; Whittington & Wykes, 1996).

The interrater reliability of the SOAS-R-ID was satisfactory and varied for the separate columns from fair to excellent. This suggests that the SOAS-R-ID has the potential to become a reliable measure to objectively rate aggressive incidents in people with MBID. The interrater reliability was most modest for the SOAS-R-ID scores in the fourth column, by which the consequences for victim(s) of the aggressive behavior are recorded, with the kappa being 0.368, and the overall percentage agreement being 65.2%. The data from the 23 SOAS-R-ID incident forms that were rated by two staff members suggest that rating the psychological impact of the aggression in particular can be subjective. An incident can be experienced as being very threatening by one staff member, whereas another staff member witnessing the same incident doesn't have to feel threatened by the aggressive behavior at all. To further test the reliability and (convergent) validity of the SOAS-R-ID, it may be advisable to use large samples and other instruments which also assess aggression, like the Social Dysfunction and Aggression Scale (SDAS; Wistedt et al., 1990). For the SOAS-R, in its original form, this research has already been conducted in a maximum-security forensic psychiatric institution in the Netherlands (Kobes et al., 2012). In that study, a significant correlation of .731 was found between SOAS-R aggression reports and SDAS-9 scores.

The correlation between the severity scores of the SOAS-R-ID and the VAS severity scores of  $r = 0.40$  was modest but significant, and was in the

range found in previous studies performed in general psychiatric institutions. (i.e., in earlier studies, correlations were found between 0.387 [Nijman et al., 2002; Noda et al., 2012] and 0.62) The modest correlation suggests that the severity of incident as experienced by individual staff members can vary quite a bit from the SOAS-R-ID severity scores. Staff members sometimes, for example, rated verbal aggressive behavior, with no consequences for the victim and no severe measures to stop the aggressive behavior, as very severe (i.e., a high VAS severity score). This suggests that to fully understand the impact of aggressive behavior for staff members, a more subjective measure of the experience and impact of the aggressive behavior such as our single-item VAS severity score may also have to be taken into account, especially when the aggressive behavior “only” involves verbal abuse or threats. This subjective measure may provide us more insight into the experiences of the victims of aggressive behavior and the consequences of this, as also has been reported in earlier research (e.g., Rose, Horne, Rose, & Hastings, 2004).

### **Limitations of the Study**

This study took place on three different wards of one treatment center, which limits the ability to generalize to other institutions caring for persons with ID.

Despite the effort and willingness of the team to report as many incidents as possible, forgetting to report due to a high workload or not being in the place where an incident took place (e.g., for incidents between clients) likely has prevented staff members from reporting all the aggressive incidents, which might have led to underreporting, which is also seen in other studies (e.g., Tenneij, Goedhard, Stolker, Nijman, & Koot, 2009). Besides that, the SOAS-R-ID is an observation scale completed by staff members, which makes it so that the recorded incidents will have been limited to those that were seen or noticed by the staff and, particularly when verbal aggression is concerned, the used definition of aggression may leave room for interpretation on the part of the observers. Thus, the incidence of incidents is likely to be higher than that reported in the current study.

No significant differences in demographic characteristics (e.g., age, psychiatric disorders, or adaptive functioning) were found between the aggressive and nonaggressive clients in this study. Based on earlier studies (e.g., Holden & Gitlesen, 2006), it was expected that differences in, for example, adaptive functioning would be present. The small sample size and also the specific setting, with its recruitment criteria, are likely explanations for the lack of significant findings.



## Relevance for Clinical Practice

The present study aimed at providing more insight into the characteristics of aggressive incidents. People with ID reside in many different settings (in general psychiatry, in regular care for people with ID, but also in prisons; e.g., Søndena, Rasmussen, Palmstierna, & Nøttestad, 2008) that often lack expertise in recognizing people with ID and are not specialized in the care and treatment of people with ID with co-occurring psychiatric disorders. Getting to know more about their challenging behaviors (e.g., aggressive behavior) and the circumstances in which incidents are triggered may help staff members to react and intervene more appropriately.

Challenging behaviors, including aggressive behavior, are seen as the product of the interaction between different persons (e.g., staff members and clients; Banks et al., 2007). If somebody wants to know more about the aggressive behavior, it is necessary to get more information about the person showing the aggressive behavior and the person witnessing the aggressive behavior. The SOAS-R-ID is an easy-to-use instrument, which can give an overview of the aggression that takes place on a ward, with minimal time investment. The instrument can be helpful to identify the most aggressive clients, and to get insight, albeit a rather global one, in the type and severity of aggression these clients display. Based on the results of the SOAS-R-ID, a deeper analysis of aggression of specific clients that are aggressive relatively often can take place, using, for example, a functional behavior assessment. In other words, the SOAS-R-ID can be a screening instrument for aggressive behavior of clients with ID, and help to determine which clients cause most incidents. Subsequently, functional analyses can be used for an in-depth exploration of the functions and maintaining variables of aggressive behavior in specific clients. For evaluating the effects of interventions that are derived from the functional analyses, the SOAS-R-ID can be useful again as an outcome measure, to indicate the effects of aggression-reducing interventions and treatment on the amount and types of aggression displayed. The current study contributed to this as a first step by using and testing the reliability and clinical usefulness of a structured clinical observation instrument, but more work has to be done to complete the picture of aggressive behavior in this specific population.

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## Declaration of Interest

H. N and T. P are authors of the Staff Observation Aggressive Behavior Scale–Revised (SOAS-R). Currently, a computerized version of the SOAS-R is published by Frenzs b.v. in Nijmegen, the Netherlands.

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## Appendix

### Staff Observation Aggression Scale-Revised, Adapted for People With Intellectual Disabilities (SOAS-R-ID)

**Staff Observation Aggression Scale-Revised**, adapted for people with Intellectual Disabilities **SOAS-R-ID**

Initials of the client: _____ Registration no.: _____ Other aggressive person, namely: _____ Registering staff member: _____	Ward: _____ Incident no.: _____ Date (dd/mm/yyyy): _____ / _____ / _____ Time (hours:minutes): _____ : _____
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This form is to be completed by staff members witnessing aggressive behavior of a client whereby aggression is defined as: **any verbal, non-verbal or physical behavior that was threatening (to self, others or property), or physical behavior that actually did harm (to self, others or property)** (in: *Morrison, 1990*). In the case of an aggressive incident please note the initials of the client and/or the other aggressive person, date and the time on which the incident started, and put at least one mark in each column.

1. Provocation	2. Means used by the client	3. Target of aggression	4. Consequence(s) for victim(s)	5. Measures to stop aggression
no understandable provocation <input type="checkbox"/>	verbal aggression <input type="checkbox"/>	nothing/nobody <input type="checkbox"/>	no <input type="checkbox"/>	none <input type="checkbox"/>
<b>PROVOKED BY:</b>	<b>ORDINARY OBJECTS:</b>	object(s) <input type="checkbox"/>	<b>OBJECTS:</b>	talk to client <input type="checkbox"/>
other client(s) <input type="checkbox"/>	chair <input type="checkbox"/>	other client(s) <input type="checkbox"/>	damaged: replacement not necessary <input type="checkbox"/>	client distracted <input type="checkbox"/>
request to perform certain task <input type="checkbox"/>	glass(ware) <input type="checkbox"/>	client self <input type="checkbox"/>	damaged: replacement necessary <input type="checkbox"/>	ended contact/ left situation <input type="checkbox"/>
client being denied something <input type="checkbox"/>	other objects, namely: _____ <input type="checkbox"/>	staff member(s) <input type="checkbox"/>	<b>PERSONS:</b>	peroral medication <input type="checkbox"/>
help with ADL <input type="checkbox"/>	<b>PARTS OF THE BODY:</b>	other persons, namely: _____ <input type="checkbox"/>	felt threatened <input type="checkbox"/>	parenteral medication <input type="checkbox"/>
physical proximity <input type="checkbox"/>	hands (e.g. hitting, punching) <input type="checkbox"/>		pain < 10 min. <input type="checkbox"/>	held with force <input type="checkbox"/>
unexpected situations <input type="checkbox"/>	hands (inappropriate physical contact) <input type="checkbox"/>		pain > 10 min. <input type="checkbox"/>	sent to room <input type="checkbox"/>
change of activity <input type="checkbox"/>	feet (e.g. kicking) <input type="checkbox"/>		visible injuries <input type="checkbox"/>	seclusion <input type="checkbox"/>
alcohol or drug abuse <input type="checkbox"/>	teeth (biting) <input type="checkbox"/>		need for treatment <input type="checkbox"/>	mechanical restraint <input type="checkbox"/>
staff requiring client to take medication <input type="checkbox"/>	other parts, namely: _____ <input type="checkbox"/>		need for treatment by a physician <input type="checkbox"/>	other measures, namely: _____ <input type="checkbox"/>
hearing bad news <input type="checkbox"/>	<b>DANGEROUS OBJECTS OR METHODS:</b>		other consequences, namely: _____ <input type="checkbox"/>	
other provocations, namely: _____ <input type="checkbox"/>	knife <input type="checkbox"/>			
	strangulation <input type="checkbox"/>			
	other means, namely: _____ <input type="checkbox"/>			

Based on: Nijman, Muris, Merckelbach, Palmstierna, Wistedt, Vos, van Rixtel & Allertz (1999). The Staff Observation Aggression Scale – Revised (SOAS-R). *Aggressive behavior*, 25, 197-209.