The Correspondence Between the Staff Observation Aggression Scale-Revised and Two Other Indicators for Aggressive Incidents

Nienke H. Tenneij, Laurette E. Goedhard, Joost J. Stolker, Henk Nijman, and Hans M. Koot

Previous research has shown good psychometric properties of the Staff Observation Aggression Scale-Revised (SOAS-R). However, it has never been investigated what proportion of aggressive incidents occurring in facilities is documented with the SOAS-R. Furthermore, if incidents are underreported, the consequences for the categorization of clients into aggressive and nonaggressive subgroups based on the SOAS-R are unknown. To examine this, in four inpatient psychiatric facilities for adults with mild intellectual disabilities, aggressive incidents were documented with the SOAS-R and two other indicators of aggressive incidents: the daily staff reports on clients' behavior and reports on the use of restraints. Less than half of the incidents documented with the staff and restraint reports were also documented with the SOAS-R. On the other way around, however, it was also found that a substantial proportion of incidents reported on SOAS-R forms were not documented in the daily staff reports, which points to a more general problem of underreporting aggressive behavior. Apart from that, categorization of clients into an aggressive and a nonaggressive subgroup with SOAS-R data collected during 1 month or longer corresponded largely with the categorization based on both other indicators. This study showed that underreporting of aggressive incidents is likely to occur with the SOAS-R, making the instrument less suitable to assess absolute aggression incidence in facilities. Still, the SOAS-R seems a good instrument to categorize clients into aggressive and nonaggressive subgroups. Ways to improve the compliance of the ward team to document all aggressive incidents are addressed in the Discussion section of this article.

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The Staff Observation Aggression Scale-Revised (SOAS-R; Palmstierna & Wistedt, 1987; Nijman & Palmstierna, 2002) has been developed to assess inpatient aggression. The SOAS-R is an incident-based scale, and it is supposed to be completed every time a staff member witnesses aggressive behavior by a client. In a broad variety of psychiatric facilities, the SOAS-R has been used to study incidence, causes, and determinants of inpatient aggression (see, for a review, Nijman, Palmstierna, Almvik & Stolker, 2005). Besides, the SOAS-R has been used to categorize clients into aggressive and nonaggressive subgroups (e.g., Nijman & Campo, 2002). A recent review about the psychometric properties of the SOAS-R suggested fair to good interrater reliability and validity for SOAS-R assessments (Nijman et al., 2005). For example, two raters judging the same incident come to comparable severity ratings (Nijman, Merckelbach, Allertz & Campo, 1997; Steinert, Wolffe & Gebhardt, 2000) and significant correlations are observed with other methods for assessing aggressive behavior (Steinert et al., 2000; Nijman, Merckelbach, Evers, Palmstierna & Campo, 2002). When using the SOAS-R, the underlying assumption is that all aggressive incidents occurring in inpatient facilities are documented with it. If documentation is incomplete, this may have implications for the reliability and validity of the categorization of clients into aggressive subgroups based on the SOAS-R. In the fore-mentioned review of SOAS-R studies, it was concluded that “there have not been any studies conducted on this potential reliability problem” (Nijman et al., 2005, p. 14). Furthermore, it was assumed by the authors that especially milder forms of aggressive behavior may run a risk of being underreported.

In this study, we examined the correspondence between the SOAS-R and two other indicators of inpatient aggression, namely, the daily staff reports on clients’ behavior and the documentation of the use of restraints, in four treatment facilities for adults with mild intellectual disability (ID) and severe behavioral and/or psychiatric problems. The research questions were the following: (a) Are all incidents documented by both other means also reported with the SOAS-R, and if not, are some types of incidents, that is, mild or severe, selectively missed by the SOAS-R? (b) Is the categorization of clients into aggressive and nonaggressive subgroups based on SOAS-R data comparable with categorization based on both other indicators?

**METHODS**

**Setting**

This study was conducted in four inpatient treatment facilities, together including 138 beds, for adults with mild ID and severe behavioral and/or psychiatric problems. Data of 76 clients, 25 women and 51 men with an average age of 25.8 years (SD = 7.6 years), were included in this study.

**Assessments**

*The SOAS-R*

In the SOAS-R, aggressive behavior is defined as “any verbal, non-verbal, or physical behavior that was threatening (to self, others or property), and/or physical behavior that actually did harm (to self, others, or property)” (Morrison, 1990, p. 67). The SOAS-R is composed of five columns: (a) antecedents provoking the incident (provocation), (b) aggressive means used by the client, (c) target of aggression, (d) consequence(s) for victim(s), and (e) measures taken to stop the incident. Every time a staff member witnessed aggressive behavior displayed by a client in one of the four facilities under study, an SOAS-R form was supposed to be completed.

Autoaggressive incidents were excluded, that is, incidents in which the “patient self” was the target of the aggressive incident. The other incidents reported with the SOAS-R were categorized as being either “mild” or “severe.” Incidents were categorized as mild if the targets were nothing/nobody or objects or if the aggressive means used exclusively consisted of verbal aggression. Incidents were categorized as severe if targets were persons, and the means used during the incident concerned some form of physical aggression. The SOAS-R was implemented for a 6-month trial. In this study, SOAS-R data of the last 3 months of the trial (Months 4–6) were used.

**Alternative Indicators of Inpatient Aggression**

**Restraint Forms**

According to the Dutch law, the use of involuntarily administrated restrictive measures has to be recorded by the doctor in charge on a “restraint form.” Restrictive measures include
mechanical restraints, involuntarily medications, and seclusion. Restraint forms of each facility over a period of 3 months were requested, that is, Months 4 to 6 of the SOAS-R trial. This yielded a total number of 96 restraint forms. Two raters, a research assistant and a clinical psychologist, independently judged whether the restraint was applied to stop an—outwardly directed—aggressive incident. For one form (1%), no agreement was reached; it stated that “X got frantic and started slamming with doors.” Both raters judged differently whether this concerned an aggressive incident or not. This form was excluded from analyses. The description of the behavior of clients that leads to the use of restrictive measures on the forms was judged not to be detailed enough to be able to make distinctions between mild and severe incidents.

Daily Staff Report

The daily staff report is a short report about the behavior of each client during each shift, which is written by a (psychiatric) nurse to facilitate transference of information between shifts. Of a random selection of 64 clients, the daily reports during the fourth month of the SOAS-R trial were evaluated independently by two raters, that is, a research assistant and a psychiatrist. Daily reports were screened for aggressive incidents, as defined in the SOAS-R. These aggressive incidents were categorized as mild or severe using the same criteria as for the incidents reported with the SOAS-R. Disagreements, less than 5% of all incidents, concerning the interpretation of the daily reports between raters were discussed and resolved.

Procedure

Before the implementation of the SOAS-R registration in each facility, the SOAS-R was introduced to staff members on all participating wards. The importance of complete documentation of all aggressive incidents was explained, and instructions on how to use the SOAS-R forms were provided. The definition of aggressive behavior as printed on the SOAS-R forms was also discussed and explained to the ward staff. Writing daily reports and completing restraint forms were both part of general procedures in the facilities. No additional instructions were given. Staff members responsible for the daily reports and restraint forms did not know that these reports would be used to examine the reliability of the SOAS-R. The raters, who assessed the daily reports and restraint forms, were unaware of the SOAS-R results.

Analyses

Correspondence on Incident Level

To study correspondence on the incident level, we examined how many of the incidents reported in the daily reports and on restraint forms were also documented with the SOAS-R; this was expressed as a percentage of all incidents reported in the daily reports and on the restraint forms. To investigate if SOAS-R reporting was dependent on participating facilities, we compared facilities with regard to these percentages using the chi-square test. Besides, we examined whether the type of incident reported in the daily reports, that is, severe or mild, was related to whether or not an SOAS-R form was completed, again using a chi-square test. Vice versa, we examined whether the type of incident reported with the SOAS-R, that is, severe or mild, was related to whether or not this incident was reported in the daily report. We could not perform the above mentioned analyses with the restraint form data as we did with the daily report data. Main reasons for this are that the restraint form incidents could be categorized into mild and severe and not all aggressive incidents occurring in the facilities are expected to be documented with restraint forms, that is, only incidents that led to involuntarily restraints are recorded with it.

Correspondence on Client Level

To examine correspondence on the client level, we assessed the number of clients with at least one restraint form and at least one SOAS-R report during the assessment period of 3 months; this was expressed as a percentage of all clients with at least one restraint form. On the basis of the daily reports data, clients were assigned either to a nonaggressive group, that is, clients caused no aggressive incident, or to an aggressive group, that is, clients caused at least one incident during the month the daily reports were evaluated. We determined correspondence between this categorization and the equivalent categorization based on the collected SOAS-R data during the same month and during 3 months. Kappa value was calculated as a measure of agreement and evaluated according to the criteria of Landis and Koch (1977).
RESULTS

The evaluation of the daily reports of 1 month, the fourth month of the SOAS-R trial, of 64 clients resulted in 109 aggressive incidents. In the corresponding month, for these 64 clients, 56 incidents were documented with the SOAS-R. In the 3 months the restraint forms were evaluated, Months 4–6 of the SOAS-R trial, 54 restraint forms were related to aggressive incidents, in which 20 clients were involved.

Correspondence on Incident Level

For 32 (29.4%) of the 109 incidents documented in the daily reports, an incident documented with the SOAS-R on the same day on the same client was available. The four facilities did not differ with regard to this percentage, \( \chi^2(3) = 5.44, P = .14 \). Of the 77 aggressive incidents that had been documented exclusively in the daily reports but not with the SOAS-R, 51 (66%) incidents were categorized as being mild and 26 (34%) as being severe; of the 32 incidents documented with both the daily reports and the SOAS-R, categorization of incidents based on the daily reports resulted in 19 (59%) of the incidents categorized as mild and 13 (41%) as severe. Differences in these percentages did not reach statistical significance, \( \chi^2(1) = .46, P = .49 \). On the other way around, it was found that not all incidents documented with the SOAS-R, that is, 24 (43%) of the 56, were documented in daily reports. Of the 32 incidents documented with both methods, according to the categorization of incidents based on the SOAS-R, 22 (69%) of the incidents could be considered as being severe and 10 (31%) as being mild. The difference in these percentages was not statistically significant, \( \chi^2(1) = .24, P = .63 \).

For 22 (40.7%) of the 54 aggressive incidents documented with the restraint forms, an SOAS-R form was available. In one unit, no restraint forms related to aggressive behavior by clients. Between the other three facilities, no significant difference in the percentage of restraint forms for which an SOAS-R form was available was observed, \( \chi^2(2) = 2.75, P = .25 \).

Correspondence on Client Level

Thirty (46.9%) of the 64 clients of whom the daily reports were evaluated could be considered aggressive, that is, at least one aggressive incident was documented in the daily report. According to the SOAS-R data collected during the same month, 19 (63.3%) out of these 30 clients could be considered aggressive, that is, at least one aggressive incident was documented with the SOAS-R. In Table 1, the correspondence between the categorization of clients into an aggressive versus a nonaggressive group based on the daily reports and SOAS-R data documented during the same month is presented. With the daily reports categorization as reference, 11 clients were incorrectly categorized as nonaggressive with the SOAS-R data (Table 1). Overall, the SOAS-R classification corresponded with the daily reports data classification for 52 (81%) of the 64 clients. The kappa value for this agreement was .62, indicating good agreement. However, it should be noted that the observations of the aggressive behavior could have taken place at different moments in time. Categorization improved when 3 months, instead of 1 month, of SOAS-R documentation was used to categorize clients, that is, this resulted in 4 clients, in contrast to 11, being incorrectly categorized as nonaggressive (Table 1). In other words, 26 (86.7%) of the 30 clients who had been aggressive according to the daily staff reports had also been observed to behave aggressively by means of the

Table 1. Number and Percentage of Clients Categorized Aggressive Versus Nonaggressive Groups According to the Daily Reports Data and SOAS-R Data and SOAS-R Categorization Based on Data Collected During 1 and 3 Months

<table>
<thead>
<tr>
<th>Daily reports categorization</th>
<th>1 month</th>
<th>3 months</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nonaggressive *</td>
<td>Aggressive †</td>
<td>Nonaggressive *</td>
</tr>
<tr>
<td>Nonaggressive *, n (%)</td>
<td>33 (97.1)</td>
<td>1 (2.9)</td>
<td>30 (88.2)</td>
</tr>
<tr>
<td>Aggressive †, n (%)</td>
<td>11 (36.7)</td>
<td>19 (63.3)</td>
<td>4 (13.3)</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>20</td>
<td>34</td>
</tr>
</tbody>
</table>

* Clients without documented aggressive incidents.
† Clients with one or more documented aggressive incident.
SOAS-R. The kappa value for the overall agreement was .75, indicating good agreement (56 [88%] of the 64 clients were correctly classified).

Of all 20 clients (100%) for whom one or more restraint forms were available, there was also one or more incidents documented with the SOAS-R during the corresponding 3-month period.

DISCUSSION

Results of this study indicate that when the SOAS-R is used to assess the incidence of aggressive incidents in inpatient facilities for individuals with mild ID, underreporting forms a threat to the reliability of the assessments. Less than half of the aggressive incidents documented by other means (i.e., daily reports and restraint forms) were also documented with the SOAS-R. However, also in the daily reports, not all incidents were reported; approximately 4 (i.e., 42.9%) out of 10 incidents that were documented with the SOAS-R were not reported in the daily reports about clients’ behavior. These results suggest that underreporting of aggressive incidents poses a general problem. Clearly, the reliability of any aggression observation method relies on the preparedness of the ward staff to record every aggressive occurrence. However, we assume that the ward staff in this study in this respect did not differ from the ward staff in other studies. The ward staff in the current study seemed motivated to record aggressive behavior, and no significant differences between wards were discovered as far as their documentation “performances” with the SOAS-R were concerned. That is, no statistically significant differences in the percentages of daily report incidents and restraint form incidents, for which an SOAS-R incident on the same client on the same day was available, were found between the facilities. Besides, the derived annual number of 10.5 incidents per year per client found in this study (56 incidents documented with the SOAS-R in 1 month / 64 clients x 12) is comparable to the annual number of 9.3 incidents per client found on acute psychiatric wards reported by Nijman et al. (2005).

It has been suggested that especially mild incidents may run the risk of not being documented with the SOAS-R (De Niet, Hutschemaekers & Lendemeijer, 2005; Nijman et al., 2005); however, this appears not to be supported by the present findings. The proportion of severe and mild incidents was not different for the daily report incidents documented (59% mild) and daily reports not documented (66% mild) with the SOAS-R. Furthermore, almost 60% of the aggressive incidents that resulted in involuntarily restraints, and therefore may be considered relatively severe, were not documented with the SOAS-R.

An explanation for the underreporting might be that a staff member becomes reluctant to complete an SOAS-R form if a patient frequently shows the same pattern of aggressive behavior, especially when the staff member knows how to intervene and does not feel threatened anymore. Alternatively, reporting of aggressive incidents might wane as time progresses and no additional (standardized) efforts are made to keep the ward team aware of the necessity to document incidents. This may be particularly true for the SOAS-R reporting system in case it is not the regular way of reporting aggressive incidents. New or temporary staff members will not have been present at the instruction about the SOAS-R and thus might be less attentive on completing SOAS-R forms, whereas they generally will be used to, and aware of, the necessity of writing daily reports and completing the mandatory restraint forms.

In contrast to the results on incident level, the SOAS-R results with regard to the categorization of clients into aggressive and nonaggressive groups were more promising. With the daily reports data as reference, 81% of the clients were correctly classified with the SOAS-R data registered during the same month. The kappa statistic suggested good agreement between both modes of categorization. The number of clients categorized incorrectly as nonaggressive was further reduced when using a longer period of SOAS-R data to categorize clients, as the results concerning the restraint forms and the categorization with the SOAS-R over a period of 3 months indicated.

Limitations

A limitation of this study is that the two indicators used to compare the SOAS-R data with do not reflect the true incidence of aggressive incidents in facilities. As mentioned previously, not all incidents documented with the SOAS-R were reported in the daily reports, and incidents documented with the restraint forms only concern those incidents that were followed by the use of involuntarily restraints. The results of this study only indicate that by using the SOAS-R, an underreporting of
the true incidence of aggressive incidents can be expected. However, the same seems to be true for other ways of reporting aggressive incidents, such as daily staff reports. Because of this, the absolute amount of underreporting cannot be estimated from these results. As underreporting of aggressive incidents appears to be a general problem and no significant differences between the wards in documentation compliance were found, data obtained with the SOAS-R may still be valid for comparison purposes between wards and institutions with respect to their relative levels of aggressiveness.

Recommendations

The substantial underreporting of aggressive incidents with the SOAS-R, but also in the daily reports, observed in this study, stresses the importance of reminding staff repeatedly and structurally about the necessity to record all aggressive behavior. An effective way to prevent underreporting of aggression with the SOAS-R that is used in practice is to put aggression and its documentation as a fixed item on the agenda of the weekly or even the daily team meetings (i.e., the shift transference meetings). By spending a moment at the beginning of such meetings on whether aggressive incidents have occurred and, if so, whether they have been documented adequately, the focus on documenting aggression will be maintained.

For studying the effects of interventions, however, it seems advisable that the use of “incident-based” aggression observation tools is combined with a “period-based” aggression measurement scale, such as the Social Dysfunction and Aggression Scale (Wistedt et al., 1990), which has to be completed at predetermined times. On the other hand, compared with period-based aggression scales, incident-based aggression assessments may have the advantage that they provide more opportunities to study the specific circumstances and temporal factors involved in triggering aggressive outbursts (see Nijman, Allertz, Merckelbach, Campo & Ravelli, 1997). Possibly, combining SOAS-R with weekly performed assessments such as the SDAS would be the most optimal way to assess inpatient aggression. To assess the absolute number of aggressive incidents in facilities, probably, researcher-based observations on the ward for a certain period could serve as a criterion. However, direct observation can be an intrusive technique and may also influence behavior on a ward.

REFERENCES


