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# **Staff Members' Evaluation of Inpatients' Motivation for Aggression - The Roles of Staff Restrictions and Aggression Severity**

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## **Declaration of interest**

The authors declare that they have no competing interest.

## **Abstract**

Improved understanding of inpatient aggression can come from systematic assessment of motivation for aggressive incidents. This study investigates staff members' evaluation of motivation for aggressive incidents, and how such evaluations are influenced by staff restrictions and aggression severity. Staff reports of aggressive incidents in a secure psychiatric unit were collected in clinical practice over a ten-year period (2006 - 2015). Motivation for aggression was assessed with the Aggressive Incident Motivation Evaluation Scale, measuring irritable, instrumental and defensive dimensions. Information about staff restrictions was collected with the Staff Observation Aggression Scale – Revised, and severity was rated with the Visual Analogue Scale. Multilevel analyses of 2649 aggressive incidents, committed by 67 inpatients, revealed greater variation in aggression motivation across incidents than between individual patients. Staff restrictions preceding the aggressive incident and rating of severity were positively related to staffs' evaluation of motivation for aggression, but their impacts differed across motivational dimensions. Staff reports of motivation provide important additional information beyond current standard report forms. Systematically evaluating motivation is essential to risk management, and may contribute to develop more fine-tuned interventions for preventing and managing aggression in inpatient settings.

## **Key Words**

Aggression; violence; secure units; inpatient; motivation

## Introduction

Aggression on psychiatric wards is a serious concern, as it threatens the safety and well-being of both staff and patients (Nijman et al., 1999). There is a constant pressure to prevent and manage aggressive behavior effectively, so as to avoid detrimental effects on the therapeutic climate and the progression of patients (Howells, Daffern, & Day, 2008). Understanding the complex and heterogeneous motivation for aggressive behavior is essential in this respect, but this has received limited focus in previous research. Systematic assessment of motivation is needed in order to improve risk assessment, and fine-tune management and prevention strategies.

Standard assessment instruments are widely used to record different aspects of aggressive incidents on psychiatric wards, including severity and provocation (Nijman et al., 1999). Severity ratings provide good indications of staff members' perception of the aggression and vary according to characteristics of the incidents, patients and staff involved (Nijman et al., 1999; Noda et al., 2012). In regard to provocation, studies have emphasized problematic staff-patient interactions leading to aggression (Papadopoulos et al., 2012; Shepherd & Lavender, 1999; Whittington & Richter, 2005), with staff placing restrictions on patients' behavior being the most commonly reported provocation (Papadopoulos et al., 2012). However, in many cases staff members report no clear cause or provocation prior to patients becoming aggressive (Papadopoulos et al., 2012). Nevertheless, current standard instruments do not capture motives or the emotional/mental state of the patient before and during an aggressive incident. As a result, most reports fail to assess the motivational heterogeneity of inpatient aggression.

Assessment of motivation in others is a demanding task. Previous studies have typically focused on distinguishing between instrumental versus reactive *offenders*, giving

little attention to motivations for individual *incidents* (Bo et al., 2013; Cornell et al., 1996; Tapscott, Hancock, & Hoaken, 2012). However, given the complexity and heterogeneity of aggression, motivation may vary considerably between patients, but also across incidents within patients. Only a few researchers have attempted to assess motivational aspects of aggressive incidents on psychiatric wards. Nolan et al. (2003) and Quanbeck et al. (2007) identified three underlying motives for the aggression: impulsive, organized/planned or psychotic. Daffern and colleagues found that aggression served multiple functions for inpatients, such as expressing anger and avoiding demands (Daffern, Howells, & Ogloff, 2007a; 2007b). Common to these studies is the retrospective assessment of motivation by researchers themselves, using interviews or record reviews. Studies of aggressive incidents systematically evaluated by ward staff are lacking. However, as ward staff are the ones who work closest with patients on a daily basis and the ones to manage the aggression, their evaluations of motivation is of particular importance for ward practice and patient outcomes. For instance, staff members' evaluating a patients' aggression as a defensive response possibly related to paranoia or delusions could later argue for a change in medication, whereas evaluating a patients' aggression as an irritable outburst in a conflict situation may lead to tightening of procedures and rules on the ward.

To address this issue, Urheim et al. (2014) developed an aggressive incident scale for use in clinical practice. Influenced by Nussbaum et al. (1997), the scale measures: *irritable aggression* as a response to provocation associated with frustration and anger; *instrumental aggression* committed for external gain; and *defensive aggression* as a response to a perceived threat associated with fear. In contrast to previous studies, the dimensions are not seen as mutually exclusive, but rather as potentially coinciding and specific to the situation. The dimensions have been supported by exploratory and confirmatory factor analysis and ward staff using the scale appear able to differentiate between motives for incidents (Urheim et al.,

2014). However, as the scale is based on staff evaluations, and not patient self-reports, additional insight into determinants of these evaluations is needed to form the basis for improving management and prevention strategies.

We aim to investigate how two commonly reported features of aggressive incidents, staff restrictions on patients' behavior and aggression severity, influence staff members' evaluation of aggression motivation. Placing restrictions on patients' behaviors may present staff members with an explanatory cause for the aggression (Papadopoulos et al., 2012). Thus, staff members' role in the incident may influence how they evaluate the motivation for aggression. The theoretical assumptions underlying irritable motivation holds that patients may experience injustice or disrespect in response to staff restrictions, causing frustration. Frustrations may in combination with other factors, lead to anger arousal and instigation towards aggressive behavior (Berkowitz, 1993). Therefore, we hypothesize that aggression occurring as a response to staff restrictions will be associated with higher ratings of irritable motivation. Moreover, since motivation varies in type and intensity (Ryan & Deci, 2000), motivation may be more powerfully expressed by patients and readily interpreted by staff in severe incidents. We therefore hypothesize that more severe incidents will be associated with higher ratings on all motivational dimensions.

## **Method**

### ***Sample and design***

This is a cross-sectional study based on staff reports of aggressive incidents in a secure psychiatric unit at Haukeland University hospital in Bergen, Norway. The unit includes one high security and one medium security ward, with a total of 18 beds. The secure unit is highly staffed and is responsible for managing patients with the highest security and treatment needs in South-Western Norway. The study included a convenience sample collected over the period 2006-2015 of all incident reports with information about aggression motivation. During the study period 108 patients were admitted in the two wards. A total of 67 patients were included in the study. Of the 41 patients not included, 25 had no registered aggressive incidents. The remaining 16 patients had aggressive incidents while admitted in the medium security ward, but these occurred prior to 2010 when the motivation scale was introduced on this ward. Thus, there is no assessment of motivation for these patients.

As soon as possible after an aggressive incident occurred, one staff member involved in or witnessing the incident was asked to fill out a report form. The definition of an aggressive incident was "any verbal, nonverbal or physical behavior that was threatening [to self, others or property], or physical behavior that actually did harm (self, others or property)" (Nijman et al., 1999, p.200). Incidents of self-harm were excluded from the sample. Routines were implemented to ensure high reporting coverage, such as immediate reporting, reminders and the active use of reports in joint staff member meetings. The Regional Committee for Medical and Health Research Ethics (West) approved the use of these data for research purposes without patients' informed consent. All patient information was de-identified and stored according to the hospital's safety procedures for research data.

## *Variables and measures*

### *Outcome variables*

Irritable, instrumental and defensive motivation for inpatient aggression, assessed with *The Aggressive Incident Motivation Evaluation Scale* (AIMES) (Urheim et al., 2014). This is a 13-item 5-point likert scale, assessing motives and mental/emotional states associated with each motivational dimension (see Appendix 1). The respondent is asked to evaluate whether “preceding or during the aggressive incident did it seem to you that the patient..”, followed by a list of items rated from "strongly disagree" to "strongly agree". Respondents are asked to answer quickly and based on intuitive experience. There is no special staff training involved in use of the scale.

### *Predictor variables*

*Provocation:* The Staff Observation Aggression Scale - Revised (SOAS-R) (Nijman et al., 1999; Palmstierna & Wistedt, 1987) was used to collect information about provocation. "No observable provocation" was included as the baseline category. The items "patient being denied something" and "patient being demanded" were combined in order to derive a single binary variable, labeled "staff restriction of patient's behavior". As our objective was to investigate differences between observing a clear provocation from staff versus not observing a provocation, the remaining four provocation items were excluded from the analysis. Studies have found satisfactory inter-observer reliability and good concurrent validity for the SOAS-R (Nijman et al., 1999; Nijman, Palmstierna, Almvik, & Stolker, 2005; Palmstierna & Wistedt, 1987).

*Severity:* The Visual Analogue Scale (VAS) was used to assess staff members' rating of aggression severity (Nijman et al., 1999). The VAS is completed by drawing a mark on a 100-mm-long horizontal line, ranging from "not severe" (0-end of VAS) to "extremely severe"

(100-end of VAS) (Nijman et al., 1999). The VAS is a valid, reliable and sensitive measure of subjective phenomena (Gift, 1989; Wewers & Lowe, 1990). There was no special staff training in use of the scale.

*Covariates:* Patients' number of aggressive incidents and patients' gender were included as covariates. In addition, ward location of incidents was included as a covariate as it seemed plausible that differences in the patient population and culture on the two wards might influence staff members' evaluations.

### ***Data analyses***

Report forms were registered as individual episodes, and clustered according to patient ID. SPSS 23 was used for descriptive statistics and internal consistency reliability (Cronbach's alpha) (IBM Corp, 2015). To allow comparison of means between the three motivational outcome variables, a standardized mean value was calculated. Due to data clustering within patients, Mplus 7.4 was used for statistical modeling (Muthén & Muthén, 2015).

First, a confirmatory factor analysis (CFA) with corrected standard errors was specified to confirm the three-factor structure of the AIMES (Heck & Thomas, 2015; Muthén & Muthén, 1998-2015). The indicators are ordinal and were declared as categorical in order to give a polychoric input matrix. The estimator was the robust weighted least squares (Muthén & Muthén, 1998-2015). The comparative fit index (CFI), the Tucker-Lewis fit index (TLI) and the Root Mean Square Error of Approximation (RMSEA) were used to assess model fit (Kline, 2010).

Second, prediction of the outcome variables was done by multilevel modeling with random intercepts and cross-level interaction (Heck & Thomas, 2015; Muthén & Muthén, 1998-2015). Collinearity testing of the predictors indicated no problems for the multilevel model. The covariate and interaction terms not found to be statistically significant were

removed from the model, and the model re-estimated (Cohen, Cohen, West, & Aiken, 2003). Explained variances were estimated ( $R^2$ ) to indicate model fit. Maximum Likelihood Robust (MLR) estimator was used to handle non-normality in data (Muthén & Muthén, 1998-2015). A significance level of  $\alpha = .05$  was applied (two-tailed).

## **Results**

### ***Sample characteristics***

Of the 67 patients, 57 were male (85.1%). The mean age of patients at the first registered aggressive incident was 32 years (SD = 9.63, range 15-62). The mean length of stay for patients was 22.42 months (SD = 3.29, range 0 – 120). All patients were involuntarily hospitalized, mostly referred from other psychiatric wards (89.6%), although some patients (10.4%) were admitted under court orders.

The most common ICD-10 diagnosis of major mental disorder was F20 schizophrenia (59.7%). Some patients had F31 bipolar disorder (6.0%) or F21-29 other psychotic disorders (17.9%). The most common diagnosis of personality disorder was F60.2 dissocial personality disorder (34.3%). Some patients had F60.3 emotionally unstable personality disorder (10.4%) or other personality disorders (9.0%). Almost half of the patient sample (43.3%) had dual diagnosis of a major mental disorder and a personality disorder.

### ***Validity and reliability of the AIMES***

Items for irritable ( $\alpha = .83$ ) and instrumental motivation ( $\alpha = .80$ ) showed high internal consistency reliability, while this was somewhat lower for the defensive motivation items ( $\alpha = .74$ ). The CFA supported the hypothesized three-factor structure of motivation in AIMES ( $\chi^2 = 314.85$ ,  $df = 62$ ,  $p < .001$ , CFI = .96, TLI = .95, and RMSEA = .039, RMSEA 95% CI = .035 - .044, RMSEA close fit = 1.00). The factor loadings were high for all items related to irritable, instrumental and defensive motivation, respectively.

### ***Characteristics of aggression***

On average patients were involved in 39 (SD = 58) aggressive incidents, with a range from 1 to 292. Approximately 40% of patients had ten or fewer aggressive incidents. Overall, 80.5%

of aggressive incidents occurred on the high security ward. The mean rating of aggression severity on VAS was relatively low, with a non-normal distribution and substantial variability in ratings across aggressive incidents ( $M = 23.38$ ,  $SD = 21.78$ ). In total, 1900 incidents were reported with provocation scored as “no observable provocation” (53.2%) or “staff placing restriction on patients’ behavior” (46.8%) in the SOAS-R.

Irritable motivation had the highest mean rating in 47.1% of incidents, instrumental motivation had the highest mean rating in 39.9% and defensive motivation in only 7.5% of incidents. Due to different amounts of missing data for the three dimensions, these percentages do not amount to 100%. Table 1 provides descriptive information for the outcome variables in AIMES. The irritable and instrumental dimensions were reasonably normally distributed, while the defensive dimension was somewhat skewed, with many low scores in the distribution. The variation at the incident level was larger than the variation at patient level for all three motivational dimensions, suggesting more situation specificity than person stability in motivation. The ICC values indicate most consistency in ratings of irritable motivation, and least consistency in ratings of defensive motivation.

Table 1 about here

### ***Determinants of staff members’ evaluation of aggression motivation***

Table 2 presents results from the multilevel analyses for the outcome variables irritable, instrumental and defensive motivation.

Table 2 about here

At the incident level, staff members placing restrictions on patients' behavior was associated with higher levels of irritable and instrumental motivation. No significant relationship was found between provocation and staff members' rating of defensive motivation. The same was true at the patient level. Patients with more incidents provoked by staff restrictions were rated higher on irritable and instrumental motivation across aggressive incidents.

Staff members' rating of severity on the VAS was positively associated with all three outcome variables at the incident level, meaning more severe incidents were associated with higher ratings of irritable, instrumental and defensive motivation. At the patient level however, patients' with higher mean level of aggression severity on VAS were typically rated higher on irritable and instrumental motivation. No significant relationship was found for defensive motivation.

Finally, the two wards differed in defensive motivation at both levels of analysis. Staff members reported higher levels of defensive aggression on the high security ward, and patients with longer stays on this ward were generally rated higher in this dimension. At the patient level, no significant relationship was found between patients' gender and staff members' evaluation of aggression motivation. However, patients with a greater number of aggressive incidents in the observation period were rated higher on instrumental motivation.

## **Discussion**

This study provides insights into the motivational aspects of inpatient aggression. More specifically, we study the role of staff restrictions and aggression severity in staff members' evaluation of motivation for aggressive incidents. In contrast to previous studies, where researchers typically categorize motivation for aggression long after the incident occurred, the present study systematically measured motivation soon after the incidents took place. This may have reduced the risk of recall bias and allowed for a more thorough assessment of aggression within the ward setting.

We found the AIMES to be a reliable and valid measure of motivation, replicating the results of Urheim et al. (2014). Consistent with our hypotheses we found that staff restrictions and aggression severity predicted staff members' evaluation of inpatients' motivation for aggressive incidents. In addition, the ward location and patients' number of incidents were associated with the evaluation of motivation.

In contrast to previous studies, which focus on distinguishing primarily reactive or instrumental offenders (Bo et al., 2013; Cornell et al., 1996; Tapscott et al., 2012), our findings highlight great variation within individuals. This variation may have emerged as a result of our dimensional approach, allowing the evaluation of motivation to vary both in type and intensity. However, some variation is probably due to factors outside the patient, such as the ward context and the staff member involved. Further investigation is necessary to determine this. Nonetheless, our findings illustrate considerable heterogeneity in the aggression that occurs on psychiatric wards, underlining the need to address each incident separately and explore situational- and individual factors underlying the aggression.

As hypothesized, staff members agreed more strongly with items in the irritable dimension for an aggressive incident after restricting patients' behavior. This finding supports

the theoretical assumptions underlying irritable aggression, and is in line with previous findings of conflictful staff-patient interactions leading to aggression on psychiatric wards (Papadopoulos et al., 2012; Whittington & Richter, 2005). Somewhat surprisingly, we also found that aggression provoked by restrictions was associated with higher rating of instrumental motivation. This contradicts the common notion that instrumental aggression is planned and non-emotional, often occurring without provocation (Siegel & Victoroff, 2009; Stahl, 2014). However, planned aggressive acts are relatively rare on psychiatric wards (Nolan et al., 2003) and premeditation was not assessed in this study. Other aspects of instrumental motivation, such as trying to exert pressure or dominate the victim, could be pertinent. Given the high proportion of patients with dissocial and psychopathic traits, which are associated with instrumental aggression (Guy, Edens, Anthony, & Douglas, 2005; Urheim et al., 2014; Vitacco et al., 2009), use of threats in response to restrictions could be particularly relevant in secure psychiatric settings. Instrumental aggression can also escalate by provocation (Cornell et al., 1996), possibly explaining why instrumental and irritable motivation coincided in some incidents.

Conversely, when no observable provocation was reported, staff members rated irritable and instrumental motivation lower. Thus, staff members' evaluations appeared to be influenced by their role in the incident. Plausibly, a staff member restricting a patient's behavior may perceive the aggression as directed towards oneself and would then more naturally report the incident afterwards. Without provocation to guide evaluation the staff member reporting the incident may have been more uncertain about the motivations at play, making it difficult to agree with relevant items. Notably, that an incident is reported without an observable provocation does not mean that no provocation occurred. The patient could have been provoked by other aversive stimuli, such as uncontrollable noise on the ward, or another patient without the staff member observing this. Considering that previous research

has documented discrepancies between provocations observed by staff and provocation experienced by patients (Omérov, Edman, & Wistedt, 2004), a more explicit focus on identifying precipitants of aggression is needed. In clinical practice this may be achieved through staff training aimed at increasing awareness about mental and/or emotional states and motives for aggression, and thus sharpening the skills of ward staff to recognize triggers for individual patients.

In line with the second hypothesis, our findings suggest that staff members more readily evaluated motivation in severe aggressive incidents. This study is, to our best knowledge, the first to assess the relation between evaluation of aggression severity and motivation. Nijman et al. (1999) found that aggression directed toward other people was associated with higher severity ratings than aggression towards objects or non-targeted aggression. Thus, considering that severe aggression may be more clearly directed towards other people, it may be easier for staff to evaluate motivation for such incidents. Moreover, in severe incidents patients may more strongly express their emotional state and motives, and staff members may become more emotionally aroused and alert to motivational signals. Both explanations seem plausible and have explanatory value, but further research is needed to assess this. In milder incidents, on the border between aggression and expressions of anger or disorganized behavior, staff members may have more difficulty in evaluating motivation. In ward practice such incidents may often be bypassed without further follow up. However, communication about motivation for milder incidents is important in order to reveal individual patterns of aggression and help staff in recognizing early signs of aggression. This calls for incorporating systematic debriefs with patients as a part of ward procedures also after milder incidents. Ultimately, it may lead to improved coping strategies for both patients and staff members in stressful situations and also prevent milder aggression to escalate into more severe incidents.

High rating of defensive motivation was uncommon for incidents in our sample, and such evaluations were less determined by provocation and severity. As defensive aggression is a response to a perceived threat, it may have occurred in some situations where patients experienced persecutory delusions or frightening hallucinations (Stahl, 2014). This is indicated by higher prevalence of defensive aggression in the high security ward, housing more severely ill patients. However, considering the long stays and stable antipsychotic treatment of patients, acute psychotic symptoms may have been particularly low in our sample. The finding may also be coupled with the large proportion of incidents with no observable provocation. Evaluation may have failed due to lack of necessary information about provocation, in incidents where defensive aggression was motivated by psychotic symptoms. If so, this would imply that motivation for some aggressive incidents occurring in the secure unit were not well understood by staff. Further investigation of the defensive dimension is called for.

### ***Limitations:***

Some limitations should be considered in regard to our findings. This study only captures *staff members'* evaluation of the aggression, which presents the possibility that findings might be subject to fundamental attribution bias (Ross, 1977). *Patients'* own reports of motivation could well differ, as studies have previously found discrepancies in staff members' and patients' perception of aggressive incidents (Duxbury & Whittington, 2005; Omérov et al., 2004). Moreover, as aggression severity and evaluations of motivation are subjective measures, inter-observer variation may have influenced our findings. Using staff reports as a method of assessment, there is a risk of reporting bias resulting from characteristics of staff members. Urheim et al. (2014) found no evidence of systematic differences in rating across staff members, but such a possible bias cannot be ruled out.

### ***Future research***

The findings of the present study are promising with respect to incorporating systematic evaluations of motivation as a part of standard aggression assessments on secure psychiatric wards. However, future research would benefit from a closer study of how characteristics of staff members influence ratings of motivation. In addition, including patients' perspectives and a wider range of psychiatric settings is recommended for a more inclusive picture of motivation for inpatient aggression. A more comprehensive assessment of motivation is also recommended. For example, the wish to reduce social distance and seek attention from staff members may motivate aggression in inpatient settings (Daffern et al., 2007b), and could be included in a revised version of the AIMES. Moreover, as our study revealed variation within patients' motivation, further investigation is called for in order to explore differences in individual patterns and progression of patients in response to treatment.

### ***Clinical implications***

Routinely assessing motivation for aggression in ward settings provides valuable information beyond what current standard instruments capture. Requiring staff members to reflect on aggressive incidents immediately after they occur, may facilitate greater attention to emotional precipitants and individual triggers for patients, as well as heighten awareness of one's own role in the incident. This may improve communication about aggressive incidents on psychiatric wards, and in turn, assist in risk formulations.

Ultimately, enhanced knowledge of aggression motivation may allow for management strategies more specifically attuned to irritable, instrumental and defensive aggression. This may prevent escalation and reduce the use of coercive measures. For example, enhanced methods for communicating restrictions on patients' behavior and staff training in de-

escalation techniques could prevent irritable aggression. Preventing instrumental aggression in response to staff restrictions could benefit from strengthening staff members' skills in remaining calm with self-assured expressions, so as to avoid reinforcing such behavior. When patients appear fearful, coaching staff members in reassuring the patient and using fear-reducing measures may help in preventing defensive aggression. Finally, individualized treatment approaches, targeting a range of psychological, psychiatric and interpersonal factors for aggression, could be particularly helpful for patients with repeated incidents. With such measures, the detrimental effects of aggression could be reduced, creating a more conducive treatment- and work environment for patients and staff.

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