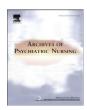
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## Warning Signs prior to Aggressive Behavior in Child Psychiatric Units



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#### ABSTRACT

This study aims at detecting and categorizing early warning signs of aggressive behavior in child psychiatric units. We analyzed 575 violent incident report forms and developed a coding scheme consisting of 16 warning signs. From the 575 incident report forms, a total of 1087 signs were coded. Most common warning signs were 'restlessness' (21.2%), 'not listening' (15.2%) and 'anger' (9.8%). These were also the most prevalent warning signs for the severe incidents. Although warning signs differ for each individual child, this study indicates that there are common warning signs for imminent aggressive incidents in child psychiatric facilities.

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Severe aggression is one of the most common issues for children to be referred to a psychiatric unit and is subsequently a major issue within these units (Blake & Hamrin, 2007; Valenkamp, 2011). Studies found that between 21.7% and 59% of children show one or more aggressive incident during their stay on a psychiatric unit (Crocker, Stargatt, & Denton, 2010; Dean et al., 2008; Philips, Stargatt, & Fisher, 2011; Ryan, Sparrow Hart, & Messick, 2004; van Kessel, Milne, Hunt, & Reed, 2012). It should be noted that due to differences in definitions and measures, it is difficult to determine the frequency and make comparisons between different units, institutions or countries.

Aggression during hospitalization has a major impact on both staff and patients. Dean, Gibbon, McDermott, Davidson, and Scott (2010) concluded that aggression has a physical, emotional and professional impact on staff and could impair their therapeutic capacity. Aggression is also one of the most common motives for the use of restrictive interventions by staff such as seclusion and restraint (Sukhodolsky, Cardona, & Martin, 2005).

De Hert, Dirix, Demunter, and Correl (2011) conducted a literature review including 7 publications and found that 26% of hospitalized children and adolescents under 21 years of age are secluded and 29% experience a physical or mechanical restraint at least once during their stay in child and adolescent psychiatric facilities. Restrictive interventions are often considered effective to reduce the immediate risk of harm to patient and others. Finke (2001) however, found no scientific evidence considering the effectiveness of seclusion in the psychiatric care of children and concluded that seclusion is not therapeutic but rather harmful for the aggressive patients. Moreover, children who witness the

seclusion or physical restriction of a group member may also be traumatized by the event. Another study found that staff experienced anger, distress and anxiety as a response to the use of restraint (Sequeira & Halstead, 2004).

With this paper, we hope to contribute to a reduction of aggressive incidents and subsequent negative consequences by searching for ways to predict aggressive incidents in child psychiatric units, with the aim of providing staff members with more proactive options to prevent imminent escalations. For the purpose of the current study we use the definition of aggression Morrison (1990), which formulates that aggression is: "any verbal, non-verbal, or physical behavior that is threatening (to self, others or property), and/or physical behavior that actually harms (to self, others, or property)".

In the prediction of aggressive incidents, risk factors, provocations and early warning signs are essential. This paper focuses on the early warning signs.

# INDIVIDUAL RISK FACTORS, PROVOCATIONS AND EARLY WARNING SIGNS

Some 'static' patient characteristics can be associated with higher levels of inpatient aggression. Crocker et al. (2010) found that children with a disruptive behavior disorder were four times more likely to engage in more severe aggression. Philips et al. (2011) found similar results and stated that a history of trauma is also predictive for violent incidents. Hage, van Meijel, Fluttert, and Berden (2009) conducted a literature review and found that in adolescent psychiatric settings belowaverage levels of intellectual functioning, a diagnosis of ADHD, male gender, oppositional defiant disorder, conduct disorder, several personality traits and a history of prior aggressive behavior are static risk factors for aggressive incidents in the units. Barzman et al. (2011) developed an actuarial method (the Brief Rating of Aggression by

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Children and Adolescents (BRACHA)) that may help clinicians to rapidly assess the risk for aggressive behavior by hospitalized children and adolescents. The BRACHA includes potential historical predictors of aggression such as abuse in the past, previous psychiatric hospitalization and recent or past aggressive behavior or violent incidents (Barzman et al., 2011). Aggressive incidents with children at risk however, usually do not occur unprovoked and out of the blue. Valenkamp (2011) found that in 94.7% of 1029 inpatient aggressive incidents in children (4–12 years of age), a detectable provocation preceded the incident. In more than 50% of these cases, the provocation concerned limit setting or correction of the child by staff. Similar results were found by Ryan et al. (2004) in an inpatient population of youths (6–17 years of age). From a total of 215 incidents, in 94% a provocation was reported. The most common provocation (68%) was a request, direction or command from the staff that could be perceived as coercive or limit setting by the patient (Ryan et al., 2004).

Although risk factors and provocations can be helpful in the assessment of the risk for aggression, risk factors in terms of patient's behavior prior to aggressive incidents are more closely and directly associated with incidents compared to static risk factors and provocations (Steinert, 2006). Inpatient aggression is usually preceded by observable behaviors such as non-violent agitation (Hankin, Bronstone, & Koran, 2011). These observable behaviors or early warning signs enables staff and/or patients to anticipate on changes in behavior in an attempt to minimize escalation with use of tailored preventive interventions (Faay et al., 2013; van de Sande et al., 2013). Unfortunately, evidence considering warning signs prior to aggressive incidents in child psychiatry is scarce.

In adult psychiatry, research considering early warning signs of aggressive incidents has more of a tradition. Almvik, Woods, and Rasmussen (2000) developed the BrØset Violence Checklist (BVC) which incorporates six behavioral characteristics: confusion, irritability, boisterousness, verbal threats, physical threats and attacks against objects. Each item can be scored 0 or 1 and a total score of 2 or higher indicates a markedly increased risk of violence within 24 hours (Almvik & Woods, 2003). The instrument has been translated in several languages, has good psychometric properties and is considered short and easy to use in daily clinical practice (Almvik & Woods, 2003; Almvik et al., 2000; Clarke, Brown, & Griffith, 2010). The BVC enables staff to objectively monitor patient behavior on a daily basis and anticipate on the first behavioral changes. One study found a reduction of 41% in aggressive incidents and a reduction of 27% in the use of coercive measures by using the BVC during the first days of treatment (Abderhalden et al., 2008). Another study using multiple risk assessment instruments, among which the BVC, also found a significant reduction of aggressive incidents and time spent in seclusion (van de Sande et al., 2011).

Unfortunately, the BVC has never been tested in a population of children as far as we know. We consider the concept of aggression in children to be different from adult populations as evidence supports an increase of aggression during specific developmental periods (Reebye, 2005). Some forms of aggression are considered as normal behavior in children as they learn to control their aggression during their development (Blake & Hamrin, 2007). For example, two of the items on the BVC, 'boisterousness' and 'attacks on objects', are more common behaviors for children compared with adults and could be considered age-appropriate to a certain extent. Therefore we can learn from the extensive experience and research in adult populations but we also need to gather knowledge on the specific warning signs for aggression in children's populations.

#### **STUDY AIM**

The aim of this study is to determine the most prevalent early warning signs prior to aggressive incidents in a sample of children from 4 to 12 years of age in clinical and semi-clinical psychiatric facilities.

#### **METHODS**

Participants & Measures

The Proactive monitoring of Aggression in Children Tool (ProACT; Valenkamp, Verheij, Nijman, Palmstierna, & Bjørkly, 2009, Valenkamp, Verheij, Nijman, Palmstierna, & Bjørkly, 2013) was developed for staff to report aggressive incidents. ProACT is based on the staff observation aggression scale - revised (SOAS-R; Nijman et al., 1999) and the report form for aggressive episodes (REFA; Bjørkly, 1996) and adapted for use in a child inpatient population. The ProACT consists of several categories: provocation, means (aggressive behaviors of the child), target, consequences and measures to stop the aggression or to prevent further escalation. Each of the categories consist of one multiple choice question (for example in category provocation: 'what trigger was there just before the aggression started?') in which respondents are asked to select the best possible answer out of the choices from a list (for example in category provocation: 'unexpected situation', 'pressure to do a certain obligation/task' or 'child was bored' etc.). In the current study the one open-ended question (free text) in the ProACT form about early warning signs was used: "which warning signs did you observe?".

Data that was used for the current study were collected for another study that did not use the data on warning signs (Valenkamp, 2011). Data were collected from April 2009 until June 2010 in 26 inpatients units within 4 child psychiatric settings and 2 child welfare services for children aged 4–12 years in the Netherlands. 236 inpatient children were admitted on these units during the study. Of these children, 131 (56.4%) were involved in one or more aggressive incidents as documented with the ProACT. The children participated on average 12.3 weeks (SD 4.0) in the study. The demographic data of the children involved in the study are displayed in Table 1.

The local medical ethics committee gave permission for the original study from which we retrieved this data (Valenkamp, 2011). Because the original study was completely observational and non-intrusive the medical ethics committee decided that no active permission was needed from the patient or parents. However, all parents received a letter explaining the study including an 'opt out' choice. With this 'opt out' procedure, parents could object if they did not want the data of their child to be used for the study.

**Table 1**Demographic Data of the Children with Aggressive Incident Reports.

Number of incident reports per child  1		
1 27 (20.6) 2-5 46 (35.1) 6-10 27 (20.6) 11-15 11 (8.4) 16-20 8 (6.1) >20 12 (9.2) Age, years (4-12) <6 22 (16.8) 6-9 53 (40.5) >9 41 (31.3) Sex Male 103 (78.6) Female 20 (15.3) Diagnosis Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)		Total ( $n = 131$ ) N (%)
2-5 46 (35.1) 6-10 27 (20.6) 11-15 11 (8.4) 16-20 8 (6.1) >20 12 (9.2) Age, years (4-12) <6 22 (16.8) 6-9 53 (40.5) >9 41 (31.3) Sex Male 103 (78.6) Female 20 (15.3) Diagnosis Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	Number of incident reports per child	
6-10 27 (20.6) 11-15 11 (8.4) 16-20 8 (6.1) >20 12 (9.2) Age, years (4-12) <6 22 (16.8) 6-9 53 (40.5) >9 41 (31.3) Sex Male 103 (78.6) Female 20 (15.3) Diagnosis Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	1	27 (20.6)
11–15	2–5	46 (35.1)
16–20 8 (6.1) >20 12 (9.2)  Age, years (4–12) <6 22 (16.8) 6–9 53 (40.5) >9 41 (31.3)  Sex  Male 103 (78.6) Female 20 (15.3)  Diagnosis  Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	6–10	27 (20.6)
>20 12 (9.2) Age, years (4-12) <6 22 (16.8) 6-9 53 (40.5) >9 41 (31.3) Sex Male 103 (78.6) Female 20 (15.3) Diagnosis Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	11–15	11 (8.4)
Age, years (4–12)       22 (16.8)         6–9       53 (40.5)         >9       41 (31.3)         Sex       103 (78.6)         Female       20 (15.3)         Diagnosis       Attention-deficit/hyperactivity disorder       51 (38.9)         Pervasive development disorder       43 (32.8)         Oppositional defiant disorder       35 (26.7)         Mental retardation       21 (16.0)	16–20	8 (6.1)
<6	>20	12 (9.2)
6–9 53 (40.5) >9 41 (31.3)  Sex Male 103 (78.6) Female 20 (15.3)  Diagnosis  Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8)  Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	Age, years (4–12)	
>9 41 (31.3)  Sex  Male 103 (78.6)  Female 20 (15.3)  Diagnosis  Attention-deficit/hyperactivity disorder 51 (38.9)  Pervasive development disorder 43 (32.8)  Oppositional defiant disorder 35 (26.7)  Mental retardation 21 (16.0)	<6	22 (16.8)
Sex       103 (78.6)         Female       20 (15.3)         Diagnosis       51 (38.9)         Attention-deficit/hyperactivity disorder       51 (38.9)         Pervasive development disorder       43 (32.8)         Oppositional defiant disorder       35 (26.7)         Mental retardation       21 (16.0)	6–9	53 (40.5)
Male 103 (78.6) Female 20 (15.3)  Diagnosis Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	>9	41 (31.3)
Female 20 (15.3)  Diagnosis  Attention-deficit/hyperactivity disorder 51 (38.9)  Pervasive development disorder 43 (32.8)  Oppositional defiant disorder 35 (26.7)  Mental retardation 21 (16.0)	Sex	
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Attention-deficit/hyperactivity disorder 51 (38.9) Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	Female	20 (15.3)
Pervasive development disorder 43 (32.8) Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	Diagnosis	
Oppositional defiant disorder 35 (26.7) Mental retardation 21 (16.0)	Attention-deficit/hyperactivity disorder	51 (38.9)
Mental retardation 21 (16.0)	Pervasive development disorder	43 (32.8)
()	Oppositional defiant disorder	35 (26.7)
Reactive attachment disorder 20 (15.3)	Mental retardation	21 (16.0)
	Reactive attachment disorder	20 (15.3)
Other 12 (9.1)	Other	12 (9.1)
Conduct disorder 11 (8.4)	Conduct disorder	11 (8.4)
Mood disorder 5 (3.8)	Mood disorder	5 (3.8)
Anxiety disorder 4 (3.1)	Anxiety disorder	4 (3.1)
Adjustment disorder 2 (1.5)	Adjustment disorder	2 (1.5)

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