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The Brøset Violence Checklist: clinical utility in a secure psychiatric intensive care setting

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Accessible summary

- Fear of violence from patients may affect the quality of care mental health nurses provide.
- The Brøset Violence Checklist (BVC), a six-item instrument, has the potential to assist health-care providers in identifying patients who may become aggressive.
- A trial of the BVC on a secure psychiatric intensive care unit suggested that the tool was well accepted by staff and may have contributed to reduced seclusion rates.
- Five-year follow-up has revealed an incorporation of the BVC into routine practice on the psychiatric intensive care unit.

Abstract

Violence towards health-care workers, especially in areas such as mental health/psychiatry, has become increasingly common, with nursing staff suggesting that a fear of violence from their patients may affect the quality of care they provide. Structured clinical tools have the potential to assist health-care providers in identifying patients who have the potential to become violent or aggressive. The Brøset Violence Checklist (BVC), a six-item instrument that uses the presence or absence of three patient characteristics and three patient behaviours to predict the potential for violence within a subsequent 24-h period, was trialled for 3 months on an 11-bed secure psychiatric intensive care unit. Despite the belief on the part of some nurses that decisions related to risk for violence and aggression rely heavily on intuition, there was widespread acceptance of the tool. During the trial, use of seclusion decreased suggesting that staff were able to intervene before seclusion was necessary. The tool has since been implemented as a routine part of patient care on two units in a 92-bed psychiatric centre. Five-year follow-up data and implications for practice are presented.

Violence towards health-care workers, especially in the fields of mental health, care of older people, and in the Emergency Department (ED), is so frequent that some nurses consider it to be 'part of the job' (e.g. Lanza 1988, Poster & Ryan 1994, Jones & Lyneham 2003, Jansen *et al.* 2005). As an example, in a 5-year period at the Health Sciences Centre, Winnipeg, Canada, a total of 579 injuries were sustained by health-care providers stemming from assaults. This resulted in a Workers' Compensation Board (WCB) expenditure of CDN$244 919.33 [Health Sciences Centre (HSC) Department of Occupational and Environmental Medicine, pers. comm.]. These figures are undoubtedly only the 'tip of the iceberg', as it has been suggested from an Ontario-based study of institution-based nurses, that only about 5% of individuals assaulted by patients received WCB benefits (Liss & McCaskell 1994). When staff in the 80-bed mental health programme at HSC were surveyed regarding their satisfaction with work life, fear of

violence in the workplace and the impact of that fear on their provision of patient care were revealed to be strong themes in the data.

As part of the response to these issues, funding was obtained from the Workers' Compensation Board of Manitoba to undertake an evaluation of the Brøset Violence Checklist (BVC; Almvik & Woods 1999) on the psychiatric intensive care unit (PICU) at the HSC. The purpose of this paper is to describe the uptake of the BVC and its continued use and clinical utility 5 years later.

Literature review

Violence has been defined as 'an act that includes physical force such as slapping, punching, kicking and biting; use of an object as a weapon; aggressive behaviour such as spitting, scratching and pinching; or a verbal threat involving no physical contact' (Nolan *et al.* 2001, p. 421). Risk factors for violence in the mental health/psychiatric setting have been categorized as internal (e.g. those inherently belonging to the patient, such as demographics, psychopathology, personality characteristics), external (e.g. environmental factors such as privacy and unit design) or interactional (staff/patient relations) (Duxbury & Whittington 2005). Internal factors can further be categorized as static (demographics, history, diagnosis, personality) or dynamic (untreated psychiatric symptoms such as psychosis) (Rueve & Welton 2008). Most published research has focused on internal factors. Those most highly related to risk of violence have included age (younger), sex (male), past history of antisocial and violent behaviour and substance abuse. Major mental disorder and psychiatric disturbance itself has been shown to be a poor predictor of violence (Harris & Rice 1997, Flannery *et al.* 1999, Soliman & Reza 2001). Environmentally, on an inpatient unit, assault seems more likely to occur during meals and in the afternoon, and in congested areas such as corridors and the day room (Lanza *et al.* 1994, Ng *et al.* 2001). Common antecedents include agitation, placing restrictions on the patient's behaviour (e.g. enforcement of rules) and provocation from other patients or visitors (Powell *et al.* 1994, Yassi *et al.* 1998, Alexander & Bowers 2004). More recently, researchers have begun to look at conflicts arising from interactions between staff and patients as a precursor for violent incidents (Duxbury & Whittington 2005, Bowers 2006).

Predicting potentially violent situations has long been a challenge for health-care providers. Traditionally, unstructured clinical risk assessment (clinical judgment and intuition) was used by clinicians with varying degrees of effectiveness (Almvik 2008). More recently, a number of more structured professional risk assessments have been evaluated in the literature and have been found to be more accurate than unaided clinical judgments (Ogloff & Daffern 2006).

One of those structured tools has been the BVC (Almvik & Woods 1999), a six-item checklist from which a nurse can determine the potential for violence for a particular patient within the subsequent 24 h. The BVC specifically assesses three patient characteristics (confusion, irritability and boisterousness) and three patient behaviours (verbal threats, physical threats and attacks on objects) as present or absent. It is hypothesized that an individual displaying two or more of these behaviours is more likely to become violent within the subsequent 24-h period than the patient who does not display these behaviours. A patient scoring 0 is at very low risk for violence, whereas a score between 3 and 6 (the maximum) would indicate immediate need for preventive measures. The instrument has been shown to be more reliable in predicting violence than clinical judgment or intuition in inpatient populations for the first 72 h post-admission (e.g. Almvik & Woods 1999, Almvik *et al.* 2000, Alderhalden *et al.* 2004, Vaaler *et al.* 2006, Almvik *et al.* 2007) as well as throughout the admission (Björkdahl *et al.* 2005) and takes less than 1 min to complete. Furthermore, it standardizes observations among nurses and controls for variation in experience and clinical expertise (Linaker & Busch-Iversen 1995).

The bulk of the BVC-related research to date has looked at the tool's effectiveness in predicting episodes of violence or aggression. However, the primary utility of identifying potentially violent situations is to prevent their occurrence (Royal College of Psychiatrists Research Unit 2006). Theoretically, with the BVC's ability to pinpoint problematic behaviours, the health-care provider could be able to determine what may be contributing to those behaviours (whether internal or external factors) and target interventions at that level. The purpose of this study was to evaluate the BVC's ability to assist health-care workers in early identification of patients with the potential for violence, with a view to implementing the least restrictive interventions that may circumvent or reduce the impact of the violence. This paper reports two different but related processes – a formal, externally funded, research-based evaluation of the tool performed initially to determine the tool's utility for the clinical practice setting; and an ongoing formative evaluation of the tool's continued use.

Methods

Baseline evaluation

The initial evaluation of the BVC took place on the PICU of an 80-bed psychiatric centre attached to a large tertiary

care, university-affiliated hospital. The PICU is a secure 11-bed unit where the most unstable and potentially aggressive patients are first admitted, or where patients who have been assessed to be at risk for violence on other units are often transferred. Over a period of 3 months, the BVC was completed by general duty nursing staff on each patient on each shift for the first 72 h of admission. Participating staff members were oriented to the use of the tool by the research nurse (A. M. B.) in brief 15-min sessions, either in a group or individually. Each nurse completed a form for each patient assigned to her or him on that shift. A record was also kept of each patient's age, gender, admitting diagnosis and the patient's admission status (i.e. voluntary vs. involuntary). An aggressive incident was defined as one requiring an occurrence report. Related occurrence reports of all aggressive/violent incidents were compared with the BVC ratings statistically and qualitatively. Additionally, nurses involved in each incident were interviewed by the research assistant regarding details of the incident and whether or not it could have been predicted or prevented. Seclusion rates were being collected as a routine part of quality assurance; and these data were also available for examination.

Written permission to use the BVC was received from the tool's developers Drs Almvik and Woods. Ethical approval was received from the University of Manitoba Education Nursing Ethical Review Board on the condition that patients consented to the use of their data. Verbal, documented consent was received from 48 patients, 28 refused to give consent, two could not be approached during the course of hospitalization due to an unresolving psychiatric condition, and three were discharged before consent could be obtained.

One- and five-year follow-ups

After the initial evaluation, nurses throughout the centre began using the BVC for all patients as part of routine nursing care. Follow-up on the continued use of the BVC was conducted as a part of routine quality assurance at 1 and 5 years after the initial implementation.

Results

Initial evaluation: patient data

BVCs were completed for all 3 days on 48 consenting patients – 19 women and 29 men. Eight of these patients had been voluntarily admitted to the unit, while the rest were involuntarily held on a 72-h order under the Mental Health Act, a 21-day order or a 'Not Criminally Responsible' order.

Average BVC scores were 1.44 ± 1.7 on Day 1, 0.78 ± 1.0 on Day 2 and 0.83 ± 1.1 on Day 3. High standard deviations suggest a great deal of variability among patients' scores. Scores on Day 1 were significantly related to scores on Day 2 ($r = 0.515$, $P = 0.000$), scores on Day 2 were significantly correlated with scores on Day 3 ($r = 0.475$, $P = 0.03$), but Day 1 scores were not correlated with Day 3 scores ($r = 0.19$, ns). This suggests a day-to-day predictability with a longer-term general trend to patients settling with treatment.

Involuntarily admitted patients scored slightly higher than voluntarily admitted patients on Day 1 with the difference approaching statistical significance ($F_{2,45} = 2.9$, $P = 0.06$). Female patients scored significantly higher than male patients on Day 1 of admission ($F_{1,46} = 5.04$, $P = 0.03$). In terms of patient characteristics and/or behaviours observed, 'irritability' was recorded for 46% of patients on Day 1, with physical and verbal threats each recorded in 23% of patients. Multiple regression analysis showed that 'physical threats' and 'irritability' were the strongest predictors of total BVC score on Day 1, accounting for 90% of the variance. By Day 2, the prevalence of irritability had dropped to 35%, while physical and verbal threats were no more frequent than other behaviours. Irritability, however, remained the most prevalent recorded patient characteristic and/or behaviour for all 3 days and was most predictive in BVC scores.

Among patients who consented to the study, one patient was involved in two assaultive incidents. The incidents occurred on two consecutive days and a BVC score of 4 had been recorded for the patient on both days (i.e. two positive results). This patient had been previously unknown to PICU staff. In one incident, the aggression had been towards a staff member and, in the other, towards another patient. An injury was sustained by the staff member, who had been bitten by the patient. In the post-incident interview, staff reported that it was predictable that the patient might be aggressive although the action (biting the staff member) was not predictable.

Using a modified case study approach, use of seclusion decreased dramatically for the duration of the 3-month trial (see Fig. 1). In the 2 months before the implementation of the BVC, there was an average of 30 episodes of seclusion per month. During the trial, the rate dropped to 12 per month, while after completion of the trial, the rate again increased, but only to 22 episodes per month.

Initial evaluation: staff feedback

Questionnaires regarding the use of the BVC were completed by the six full-time nursing staff who were charged with the responsibility of completing the BVCs during the

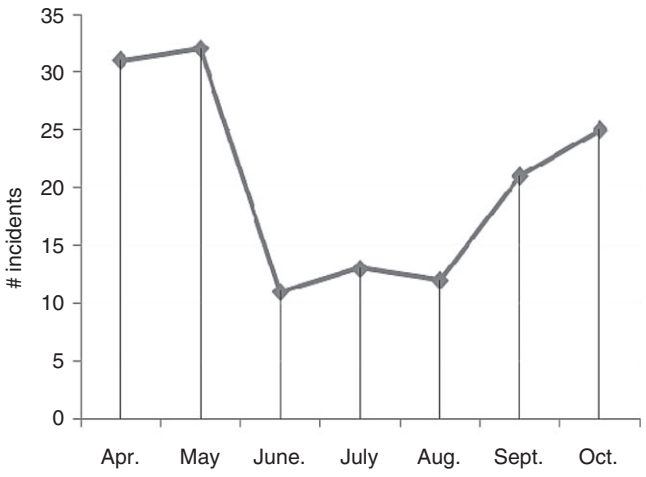

Figure 1
Initial trial: seclusion rates during pre-intervention, intervention and post-intervention

trial. Five of the six found the BVC very easy to use. Four of the nurses found they took less than 1 min to complete the BVC, while the remaining two took 1–2 min. Five of the six found the terms used in the tool easy to understand, while the remaining one found some terms ambiguous. Five respondents thought the tool 'somewhat' reflected the patient's behaviour. When nurses were asked how aware they were of potentially aggressive patients during the course of the study, they responded 'about the same as usual'. To examine interrater reliability, full-time and part-time nursing staff and two nursing students were asked to rate the same two patients – one who was familiar to the unit and one who was not. Scores were remarkably similar for all staff.

Snapshot: 1 year later

Three months worth of BVC scores on all admitted patients in the mental health programme (excluding the addictions unit) were examined 1 year after the original trial. At this point, all units were using the BVC routinely or as needed for unknown or agitated patients and shift BVC scores were being entered on the daily patient flow sheets at the nurses' request. Data were available for 241 patients.

The psychiatric intensive care unit consistently observed the highest scores on nights, thus providing justification to management for the continuation of increased staffing on nights on this unit. Involuntary admission status consistently predicted higher scores on all 3 days. As with the initial trial, irritability was the most frequently occurring behaviour on all nine shifts, occurring in 15–20% of patients on day and evening shifts. There was no statistically significant difference between men and women on BVC scores.

Staff were surveyed again, although this time the survey was extended to paraprofessional staff and students, yielding a sample of 36 individuals. The vast majority (83%) found the tool easy to use and reflected the patients' behaviour 'somewhat' to 'very' accurately. Sixty-seven per cent of staff were in favour of continuing use of the BVC. All paraprofessional staff were in favour of continuing with the tool. One nursing staff member commented: 'The BVC should be a routine part of the chart flow sheet. We graph many things that have potentially less importance than this.' Anecdotally, during this time, it also became evident that attending psychiatrists were becoming acculturated to BVCs by being more prompt in responding to calls when told of a high BVC score.

Snapshot: 5 years later

The BVC at this point was being routinely used on only two units – the PICU and the mood disorders unit. Monitoring of BVC scores on the PICU had increased from the first 3 days of admission to every day for the entire admission. In cases of complex patient diagnoses and very unsettled patients, experimentation with hourly use of the BVC has also occurred. As before, the majority of the patients (64%) were involuntarily admitted. Despite the growing belief among staff working in the adult mental health programme that patient acuity is increased, all other units commonly use the BVC only as needed for aggressive or unknown patients.

During the 3 months of this 5-year snapshot, there were 13 occurrence reports completed for episodes of violence (seven in February, six in March and none in April), with the Department of Occupational and Environmental Health reporting nine assaults directed towards staff with no Workers' Compensation Claims.

Discussion

The BVC trial was considered to be successful on a number of levels. The tool was demonstrated to be quick and easy to use even in a busy, highly acute psychiatric inpatient setting. Staff quickly became comfortable with the instrument after a very brief orientation and all were extremely cooperative with data collection during the trial period. The payback for the staff appeared to be considerable in light of minimum investment. The strongly expressed desire to continue to use the BVC after the trial's completion and the subsequent extension to use the tool past the initial 72 h were a further testament to its perceived value to nursing staff. Positive responses from staff have recently been echoed by Woods *et al.* (2008) in another Canadian

study, although the response rate from staff in that study was much smaller and less definitive.

Although the staff involved in the trial denied that their care was influenced by BVC scores and that they continued to rely on their 'intuitive' assessment skills, it could be argued that the unusually low rate of aggressive incidents and the reduction in use of seclusion on the PICU during the trial period could be partly attributable to the increased vigilance around potentially aggressive behaviours. The decrease in seclusion rates observed during the study may provide some evidence, albeit weak, that the staff were perhaps being more responsive to patient behaviours before the behaviour escalated to the point where seclusion was required. It could be conceded that a number of factors, such as seasonal variation in seclusion rates and changes in staffing levels, could also have contributed to these numbers. However, even for experienced staff with those intuitive assessment skills, a tool such as the BVC has the potential to bring the various aspects of assessment (i.e. behaviours such as irritability or boisterousness) into cognitive awareness and can validate experienced staff's intuitive judgment. For inexperienced staff and students, the discrete categories of observable behaviours found in the BVC can assist them in honing their assessment skills. Research to examine the effectiveness with which BVC assessments can guide interventions is warranted.

The higher average scores from involuntarily admitted patients were expected by the researchers while the higher scores from women were not. It was initially thought that higher scores in women might have been an artefact of women being more closely observed in light of fears of sexual assault especially with disinhibited manic patients. Alternatively, aggressive behaviours may have been more unexpected from women and thus, more salient. Consultation with clinical staff in the study revealed that they were not surprised by this finding. In support of this, a recent study of psychiatric inpatients found women to be 'significantly' more verbally aggressive than men (Serper *et al.* 2005), while another found that women are equally as likely to be violent as men (Barlow *et al.* 2000).

Breakdowns in verbal and written communication between health-care providers are said to be a significant concern often associated with adverse events (Haig *et al.* 2006). BVC scores have the potential to become a type of communication shorthand for staff in patient handovers, transfers and calls for assistance. Consideration has been given to the potential utility of BVC scoring with mental health patients in the ED. The BVC score could be used to prioritize admissions, determine the most suitable unit to which to admit and improve communication between ED and mental health nurses. Trialling the use of the BVC with mental health patients in an emergency setting, however, has the potential to be complex on a number of levels, among them: the ethics of gaining permission to monitor for research purposes; decisions about whom to monitor and how often; interrater reliability and consistency of language between what mental health nurses would identify as irritability/confusion/etc. and how ED nurses would classify those same behaviours; and a difference in levels of tolerance of various behaviours from one setting to the next. A further complication would be related to counteracting the stereotyped belief that mental health patients are more likely to be violent than other categories of patients.

Inconsistent or limited use of the BVC by other units in our programme remains an interesting but unanswered question. Informal conversations with programme staff suggest that the use of the BVC may be affected by several factors, including initial buy-in, familiarity and habit. Unlike the PICU where the BVC is completed for all patients on every shift for the duration of their admission, the other units have adopted alternate approaches that may impact the habituation to the use of the form, and therefore its degree of use.

The BVC has received widespread support and success on at least one of the inpatient units in the Adult Mental Health programme at the Health Sciences Centre. Whether or not the rest of the programme adopts the tool with the same consistency undoubtedly depends on a number of factors. In a climate of almost constant change, process improvements and new initiatives, health-care professionals and paraprofessionals need to see the usefulness of a tool such as the BVC. For staff to prioritize the BVC, they must believe it has merit for themselves and for the patients for whom they care. Critically, the impact of the BVC as a predictor of violence lies with the total score documented on the completed form and its interpretation. In terms of the overall assessment of the patient, the specific items being scored on the BVC are also of importance to the individualized treatment plan. For example, if the primary nurse were to record a BVC score of 1 for confusion for a period of 3 days, the cause of the confusion should be investigated and, if need be, the individual's plan of care should be altered in response.

Conclusion

Introduction of the BVC has offered staff in our programme a tool that helps to quantify the potential for aggression among known and unknown patients. Despite the belief on the part of some nurses that decisions related to risk for violence and aggression rely heavily on intuition and 'gut', there has been widespread acceptance of the tool.

The consistent use of the BVC on all units in the programme for a minimum of the first 72 h has not yet occurred. This inconsistency is important, as it suggests that clinicians who do not use the BVC fail to see the benefit or relevance of the information it can provide. The risk here is in a situation where a violent occurrence takes place and nurses have failed to use a tool that has demonstrated reliability, validity and practicality. To better understand the barriers to consistent use of the BVC throughout the programme, future projects may include an exploration of clinical decision-making among mental health nurses. Improved understanding of the information or cues nurses use to make decisions, how they prioritize that information and how that process may change depending on specific tasks has the potential to make decision-making related to determining a patient's risk for violence more transparent and defensible.

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