Acceptability and psychometric properties of Brøset Violence Checklist in psychiatric care settings in China

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Keywords: psychiatry, risk assessment, scale, violence

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Accepted for publication: 26 December 2013
doi: 10.1111/jpm.12132

Accessible summary

- Short-term risk assessment instrument owns great importance for psychiatric nurses in China; however, the lack of a standardized violence risk assessment instrument has disadvantaged them in clinical practice.
- The Brøset Violence Checklist (BVC), a behavioural observation tool, is the most frequently cited instrument available for evaluating violence risk in psychiatric inpatients, then worth to be tested in Chinese culture.
- This study, conducted in two closed wards in a psychiatric hospital in Beijing, revealed that the instrument has favourable reliability, validity and predictive accuracy in Chinese population.
- BVC provides nurses with a quick and easily administered method to screening out patients with violence potential, thus allowing for early intervention. Feedback from the nurses was quite encouraging and the further use of BVC seems promising.

Abstract

The lack of standardized violence risk assessment instrument has disadvantaged nurses in clinical practice in China, where violent behaviour is an increasing problem. This study conducted a validation of the Brøset Violence Checklist that has proven effective in violence risk prediction in other countries. A sample of 296 patients consecutively admitted to two wards of a psychiatric hospital in Beijing was recruited. These patients were assessed on day shift and evening shift for the first seven days of hospitalization. Violence data and preventive measures were concurrently collected from nursing records and case reports. A total of 3707 assessments for 281 patients were collected revealing 93 episodes of violence among 55 patients. Receiver operating characteristics yielded an area under the curve of 0.85. At the cut-off point of one, its sensitivity/specificity was 78.5%/88.2% and the corresponding positive/negative predictive value was 14.6%/99.4%. In some false positive cases, intense preventive measures had been implemented. Positive feedback from the nurses was gained. The Brøset Violence Checklist was proved as an easy-to-use and time-saving instrument, therefore, regarded as a promising tool to determine if the psychiatric users are potentially violent in the short term.
Introduction

Violent or aggressive behaviour and its negative consequences have long been a matter of concern in psychiatric care (Cornaggia et al. 2011). Any form of violence such as verbal abuse, physical attack, self-harm and suicide threatens the health, safety and well-being of patients and personnel involved (Abderhalden et al. 2007, Tema et al. 2011). In China, sudden and unpredicted outbursts of violence among psychiatric patients have become increasingly problematic for staff, and are becoming a major concern in mental health care (Chen & Zhou 2012) and a challenge for those working in the field. In their close daily contact with patients, nurses are in the best position to observe patients’ behaviour, to assess imminent violence (Woods et al. 2008) and to initiate consequent preventive measures based on careful evaluation.

However, the lack of a standardized violence risk assessment instrument has disadvantaged Chinese nurses in clinical practice. Despite the existing body of research on the current problem, consequences and risk factors of violence in China, few studies have focused on the assessment of violence in acute inpatient settings, nor have they systematically explored the predictive properties of such risk assessment instruments (Xu 2007, Yao & Li 2010). Relying on instinct, observation and experience is no longer acceptable for psychiatric nurses because such assessment varies between staff, has poor reliability and is difficult to justify in terms of the decision-making process (Dolan & Doyle 2000). An appropriate, reliable and valid violence risk assessment is lacking in psychiatric settings in China and exploration of the use of such instruments is timely.

The Brøset Violence Checklist (BVC), a behavioural observation tool, is the most frequently cited instrument available for evaluating violence risk in psychiatric inpatients (Almvik & Woods 1999, Bjorkly et al. 2009, Clarke et al. 2010, Vaaler et al. 2011). After examining all nursing reports over 5 years in Brøset Regional Secure Unit, Trondheim, Norway, Linaker & Busch-Iversen (1995) found that 55 different changes of behaviours were noted in the 24-h period prior to a violent incident, and the six most frequently recorded were confusion, irritability, boisterousness, physical threats, verbal threats and attacks on objects. Based on the data and logistic regression analysis, which revealed that these behaviour changes were predictive of violence, the BVC emerged (Almvik & Woods 1998).

The BVC specifically assesses three characteristics (confusion, irritability and boisterousness) and three behaviours (verbal threats, physical threats and attack on objects) of patients as absent (score 0) or present (score 1). Each item is scored independently and then a sum total obtained. A sum of 0 suggests that the risk of violence is small, whereas a score between 2 and 6 (the maximum) indicates high risk of violence and immediate need for preventive measures. So, it is hypothesized that a client displaying more than two of these behaviours carries a high potential of becoming violent within the subsequent 24-h period (Almvik & Woods 1998). One assessment per shift has been found most suitable, and then the usual number of ratings is two to three times in 24 h.

The original instrument was applied in 109 patients in three psychiatric wards in Norway (Almvik & Woods 2000). Of all patients admitted during the 2-month period, 23 physical attacks were observed revealing a sensitivity of 0.74 and specificity of 0.91 for the BVC. Encouraged by the good predictive properties of BVC, a number of studies have been conducted to assess the clinical utility of this instrument (Abderhalden et al. 2004, 2006, 2008, Almvik et al. 2007, Woods et al. 2008, Clarke et al. 2010, Vaaler et al. 2011). Bjorkdahl et al. (2006) explored BVC in a psychiatric intensive care unit in Sweden. Seventy-three patients were assessed using the BVC three times daily. Scores were skewed towards the lower end of the BVC total. Cox regression was used to examine how the highest BVC sum, and the individual items, during the previous 24 h, affected the risk of severe violence within the next 24 h. It was found that with a BVC total score of 1 or more, the hazard of severe violence was six times higher than if the total score was 0. In addition, four of the six separate items significantly increased the risk of severe violence with hazard ratios between 3.0 and 6.3.

Woods et al. (2008) reported the application of the BVC in one acute mental health unit in Canada, where 93 patients, with similar numbers of males and females, were admitted during the study period. Nursing staff evaluated each patient three times a day using the BVC. Seven incidents of aggression were reported using the Staff Observation Aggression Scale-Revised (SOAS-R), a psychiatric report and rating scale assessing severity and frequency of aggressive behaviour (Nijman et al. 2005). Though a high potential occurrence of underreporting of incidents was observed, a slight trend was noted for higher BVC scores in violent patients. Feedback from the nurse participants was positive and encouraging for the continued use of the instrument in practice.

Another predictive study by Abderhalden et al. (2004) examined the properties of the BVC in a German-speaking sample. The German version of BVC (BVC-G) was implemented with 219 consecutive patients admitted to six acute psychiatric wards of three psychiatric hospitals of German-speaking region in Switzerland. Two ratings were assessed over 24 h during the first 4 days after admission or until discharge. Analysis of 47 aggressive incidents yielded
sensitivity of 0.64 and specificity of 0.94. The area under the receiver operating characteristic (ROC) curve was 0.88, and predictive accuracy of the BVC-G proved consistent with the original Norwegian study. Subsequently, Abderhalden et al. (2006) sought to ascertain whether risk prediction of BVC could be improved by combining it with subjective risk prediction operationalized by a visual analogue scale (VAS). The new instrument, called the BVC-VAS, was integrated into routine clinical practice in two admission wards in two hospitals. Newly admitted patients were assessed at admission and over the following 3 days, twice daily. Among the 300 patients who were consecutively recruited, 37 episodes were registered, involving 27 patients. The area under the ROC curve for the BVC-VAS amounted to 0.90, congruent with that of the BVC [area under the curve (AUC)-ROC = 0.89] alone. The extended version of BVC retained the accuracy of the original BVC.

Clarke et al. (2010) summarized the clinical utility of the BVC in a secure psychiatric intensive care centre in Canada. After the initial evaluation over 3 months, nursing staff throughout the centre began using the BVC for all clients each shift for the first 72 h of their admission as part of their routine nursing care. A follow-up study on the continued application of BVC was conducted at 1 and 5 years after the initial implementation. A wider acceptance and higher level of satisfaction in using the BVC was reported as time progressed. Nursing staff became comfortable with the instrument after a very brief orientation. The BVC proved to be quick and easy to use even in the busy, highly acute psychiatric inpatient setting.

To sum up, BVC has received widespread support and success in Norway (Almvik et al. 2007, Vaaler et al. 2011), Canada (Woods et al. 2008, Clarke et al. 2010), Sweden (Bjorkdahl et al. 2006) and Switzerland (Abderhalden et al. 2004, 2006, 2008), where it has proven effective in violence risk assessment. According to Almvik & Woods (2003), BVC studies are in progress in UK, USA and Australia. Such an instrument has yet to be introduced in China, where nurses in clinical practice assess inpatients’ potential of violence without such systematic guidance and assistance. Therefore, the BVC with its easy application, accuracy in prediction and high level of acceptance is promising. This study aims to examine its applicability, reliability, validity and acceptability in a Chinese psychiatric setting.

**Methods**

**Settings and subjects**

The study was prospective in nature and involved two acute wards of one psychiatric hospital in Beijing, China. The hospital is university affiliated, providing comprehensive mental health services to around 15 400 000 citizens in Beijing area. It also guides and offers assistance in professional training for 18 district-level mental health-care institutes in different regions of China (Xiang et al. 2007).

Each of the two wards, one each for females and males, has 60 beds. The number of nursing staff was similar with between 22 and 24 qualified full-time nurses for each ward. The mean length of stay for inpatients was around 50 days.

Violence risk assessment for inpatients had already been regarded as a necessary part of patient admission in this hospital, and nursing staff in each ward informed the patients when collecting relevant clinical data. The study was approved by the Human Research and Ethics Committee of the School of Nursing, Peking Union Medical College.

During the 5-month period, from March to August, 2012, 296 patients admitted to the two wards were involved and 283 of them were assessed as part of the study.

**Chinese version of the BVC**

After obtaining permission from the developer of the original BVC, translation and back translation was undertaken independently by two translators. This process was repeated until there were only minor differences between the back translation and the original English version. Five senior psychiatric professionals, one senior psychiatrist and four senior nurses comprised the expert panel and regarded these differences as negligible.

The outcome variable was the occurrence of violent acts towards others and patients themselves. Either episodes of verbal or physical aggression were gathered from the nursing record and case report, and included the details of violence such as the date and time of the incident, possible provocations, type of aggression (verbal, physical or both), target, consequences and measures used to discontinue the behaviour. This method of reporting violence was considered as valid and suitable because it covered all the items of the commonly used and validated record form for violent behaviour, the SOAS-R (Nijman et al. 2005). Behaviours which did not cause obvious harm to the victims were deemed as mild aggression, whereas those which actually led to visible physical harm to the victims were regarded as severe forms of aggression. All nursing staff in the research hospital had received training programmes on how to write standard nursing records and were required to record and report patients’ abnormal behaviour every shift. Managers of the nursing department conducted regular examination to ensure that the reports met the requirements. The
episodes of administration of intense preventive measures including medication and physical restraint were also gathered for analysis. Though not necessarily an independent form of prediction, such an outcome allows the evaluation of false positive cases, for instance, to examine whether patients were unable to move to violence because of the implementation of these preventive measures (Abderhalden et al. 2004). Thus, some of the false positive predictions may in fact be a consequence of effective prevention.

**Procedure**

A 20-min brief training was delivered by the primary investigator (the first author) to the nurse participants. Additional written material about the use of the instrument was provided. For 2 weeks, 12 senior nurses assessed 14 newly admitted patients independently to determine inter-rater reliability. Following this, all admitted patients were assessed by the nurse participants for the first 7 days of their hospitalization.

Two ratings, during day shift (1–2 pm) and evening shift (8–9 pm), were obtained every 24 h. The prediction period was defined as the interval from the first rating to the next rating.

During the data collection period, the primary investigator (the first author) conducted interviews with the nurses to record their evaluation of the instrument. Questions like ‘What do you think of the tool’, ‘Have you encountered any problems in using the tool’ and ‘Do you have any suggestions for use of the tool’ were put forward by the interviewer. Questions, problems and suggestions of the participants with regard to assessment were recorded for future analysis.

**Data analysis**

All data were analysed by SPSS 16.0 for Windows (SPSS, Chicago, IL, USA). Intraclass correlation coefficients (ICC) were used to estimate the inter-rater reliability for the total and each item of the BVC. ROC analysis was used to measure the predictive accuracy of the instrument (Buchanan 2008). The AUC displays a summary measure for the discrimination efficiency of the scale. Descriptive statistics were used for demographic variables and the occurrence of aggression. Chi-square was employed to compare the proportion of records with sum score ≥2 between violent and non-violent incidents. Conventional 5% significance levels and 95% confidence intervals (CI) were employed for all analyses.

**Results**

Of the 281 participants data, which was used in the final analysis, 121 (43.1%) were male and 160 (56.9%) were female. The mean age was 34.53 (SD = 11.63, range 16–60), 72 (26%) were involuntarily admitted, and 133 (47%) had a history of aggression outside of hospital. Half (145, 52%) were admitted to the hospital for the first time, while 50 (18%) had been admitted more than three times. According to International Classificaton of Disease the tenth version, the primary diagnoses were F20–29: schizophrzenia, schizotypal and delusional disorders (208, 70%); and F30–39 affective disorders 133 (23%); and others 19 (7%).

**Incidents of aggression**

There were 93 incidents of aggression recorded in 55 (19.6%) patients. Of these 50 incidents were committed during the prediction period, 31 before the prediction period and 12 violent episodes occurred after the prediction period. Among these events, 20 (5.3%) persons accounted for 58 (62%) episodes of violence.

Among the 93 incidents, 53 (57.0%) were physical violence while 16 (17.2%) were verbal abuse or threat. The remaining 24 (25.8%) involved both verbal and physical violence (Table 1).

There was no significant difference between violent and non-violent participants with regards to age (t(279) = 0.844, P = 0.40) and time of admission (χ²(2, n = 281) = 0.90, P = 0.64). However, female patients tended to be more aggressive than male (34.4% vs. 13.1%; χ²(1, n = 281) = 8.65, P < .01) and participants with a history of

<table>
<thead>
<tr>
<th>Table 1</th>
<th>The occurrence of inpatients’ aggression (n = 93)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Shift</td>
<td>Day</td>
</tr>
<tr>
<td></td>
<td>Evening</td>
</tr>
<tr>
<td></td>
<td>Night</td>
</tr>
<tr>
<td></td>
<td>Provocation</td>
</tr>
<tr>
<td></td>
<td>No understandable provocation</td>
</tr>
<tr>
<td></td>
<td>Treatment/nursing rejection</td>
</tr>
<tr>
<td></td>
<td>Problem with others</td>
</tr>
<tr>
<td></td>
<td>Other provocations</td>
</tr>
<tr>
<td>Means</td>
<td>Verbal aggression</td>
</tr>
<tr>
<td></td>
<td>Physical attack</td>
</tr>
<tr>
<td>Target</td>
<td>Verbal and physical aggression</td>
</tr>
<tr>
<td></td>
<td>Patient self</td>
</tr>
<tr>
<td></td>
<td>Objects</td>
</tr>
<tr>
<td></td>
<td>Staff member(s)</td>
</tr>
<tr>
<td></td>
<td>Other patient(s)</td>
</tr>
<tr>
<td></td>
<td>Nothing/nobody</td>
</tr>
<tr>
<td>Management</td>
<td>Talk to patient</td>
</tr>
<tr>
<td></td>
<td>Physical restriction</td>
</tr>
<tr>
<td></td>
<td>Medication injection</td>
</tr>
<tr>
<td></td>
<td>Restriction and medication</td>
</tr>
<tr>
<td>Severity</td>
<td>Mild violence</td>
</tr>
<tr>
<td></td>
<td>Severe violence</td>
</tr>
</tbody>
</table>

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aggression behaved more violently than those without (33% vs. 17.5%; \( \chi^2(1, n = 281) = 4.40, P < .05 \)).

**BVC applicability and scores**

A total of 3707 completed rating forms were obtained, showing a skewed distribution of Brøset scores (Fig. 1). The scores ranged from 0 (\( n = 3208, 86.5\% \)) to 1 (\( n = 187, 5.1\% \)), 2 (\( n = 91, 2.5\% \)), 3 (\( n = 110, 3.0\% \)), 4 (\( n = 46, 1.2\% \)), 5 (\( n = 40, 1.1\% \)) and 6 (\( n = 25, 0.7\% \)).

Among participants who recorded at least one incident of aggression during the shift on which a BVC rating was given, 20.9% had a BVC score of 2 and above as opposed to 0.08% of the non-violent groups (\( \chi^2(1, n = 3707) = 477.36, P < .001 \)). This indicates that violent patients are more likely to be associated with a higher BVC score (Table 2). The BVC predicted violence within next shift if a score of 2 or more was used as a single cut-off to define a positive or negative test result (Table 3). Chi-square test revealed that the proportion of records with sum score \( \geq 2 \) was significantly higher in violent incidents than in non-violent incidents (\( \chi^2(1, n = 3707) = 309.28, P < .01 \)).

**Inter-rater reliability analysis**

During the first 2 weeks of the study, 12 senior nurses assessed 13 newly admitted patients independently using the BVC for a total of 156 ratings. Some differences were found between raters’ assessments. While one nurse rated an item as 0 (absent) for one patient because the behaviour described occurred just one time, another nurse rated it as 1 (present). A one-way random effects model of ICC was used to estimate the inter-rater reliability for each item and sum scores of BVC. For the purpose of this paper, it is interesting to see how the raters’ total scores agree on average. However, in standard clinical practice, it rarely allows for more than one rating for each patient. Then, it is also essential to test the single measures agreement (Table 4).

**ROC analysis**

The ROC of the BVC score for violent incidents was 0.85 (95% CI: 0.80–0.91) (Fig. 2). It revealed that at cut-off point of 2 or more (0 = low risk, 2–6 = high risk), the sensitivity and specificity was 69.9% and 93.2% respectively. The corresponding positive predictive value (PPV) was 20.8%, and the negative predictive value (NPV) was 99.2%. At the cut-off point of 1 or more (0 = low risk, 1–6 = high risk), the sensitivity and specificity was 78.5% and 88.3%, with 14.6% of PPV and 99.4% of NPV. So, it seems that the cut-off point of 1 yields a higher sensitivity and good specificity.

During the prediction period, 78 intense preventive interventions (injection of psychotropic medication, physical restriction) were undertaken. Using the implementation of intervention and/or the occurrence of violence as the standard, the area under the ROC curve was 0.87 (95% CI: 0.80–0.91) (Fig. 3).

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**Table 2**

<table>
<thead>
<tr>
<th>BVC score</th>
<th>Total group</th>
<th>Violent group</th>
<th>Non-violent group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>BVC = 0</td>
<td>3208</td>
<td>86.5%</td>
<td>20</td>
</tr>
<tr>
<td>BVC = 1</td>
<td>187</td>
<td>5.1%</td>
<td>8</td>
</tr>
<tr>
<td>BVC ( \geq ) 2</td>
<td>312</td>
<td>8.4%</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>3707</td>
<td>100%</td>
<td>93</td>
</tr>
</tbody>
</table>

**Table 3**

<table>
<thead>
<tr>
<th>BVC total score</th>
<th>Occurrence of aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>BVC ( \geq ) 2</td>
<td>39</td>
</tr>
<tr>
<td>BVC (&lt;) 2</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

**Table 4**

<table>
<thead>
<tr>
<th>Items</th>
<th>Single measures ICC (95% CI)</th>
<th>Average measures ICC (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Confused</td>
<td>0.70 (0.56–0.82)</td>
<td>0.88 (0.79–0.93)</td>
</tr>
<tr>
<td>2 Irritable</td>
<td>0.68 (0.53–0.80)</td>
<td>0.86 (0.77–0.92)</td>
</tr>
<tr>
<td>3 Boisterous</td>
<td>0.76 (0.64–0.86)</td>
<td>0.91 (0.84–0.95)</td>
</tr>
<tr>
<td>4 Verbally threatening</td>
<td>0.57 (0.39–0.72)</td>
<td>0.80 (0.66–0.89)</td>
</tr>
<tr>
<td>5 Physically threatening</td>
<td>0.51 (0.32–0.68)</td>
<td>0.76 (0.59–0.86)</td>
</tr>
<tr>
<td>6 Attacking objects</td>
<td>0.41 (0.22–0.60)</td>
<td>0.67 (0.45–0.82)</td>
</tr>
<tr>
<td>Total score</td>
<td>0.84 (0.74–0.90)</td>
<td>0.94 (0.90–0.97)</td>
</tr>
</tbody>
</table>

CI, confidence interval.
0.84–0.89). At the cut-off point of 2 or more, the sensitivity was 62.8% and specificity was 96.2%, with 58.0% of PPV and 96.8% of NPV. At the cut-off point of 1 or more, the sensitivity and specificity was 78.1% and 92.0%, with 45.1% of PPV and 98.0% of NPV. Similarly, the results indicate that the cut-off point of 1 lead to higher sensitivity and good specificity.

Main results of interview

Twelve nurses in the two participating wards were interviewed, six in group and six individually. All of them have mentioned his/her positive impression about using the BVC and regarded it as user-friendly, time-saving and helpful. Instrument guided violence risk assessment was well accepted and supported and suggestions with regard to further using of BVC were proposed.

Discussion

The main finding of this study is that the predictive accuracy of the BVC was consistent with the original Norwegian study, as well as those from other countries (Almvik & Woods 2000, Abderhalden et al. 2004). The instrument proved quick and easy to use in the busy, acute psychiatric inpatient setting in China and demonstrated good psychometric properties.

Acceptance and utilization of the BVC

Before initiation of the study, one concern was how the BVC would be accepted and utilized, given the different culture and nature of the clinical environment. In the clinical setting, there were only 0.3 nurses per bed, most patients were diagnosed with acute psychiatric disorders, and length of stay was relatively long. The staff workload was clearly considerable; therefore, any additional workload was regarded as excessive and difficult for the nursing staff to accept. Although one rating of the BVC per shift was advised, it was decided to use two ratings, during the day and evening shift (Woods & Almvik 2002). Nevertheless, the use of the BVC proved encouraging. After the first 2 months, staff quickly became used to and comfortable with the instrument, and employed it conscientiously in their routine work.

Over 5 months, of the 296 patients who were admitted to the two wards, 283 (95.6%) were assessed, resulting in 3707 evaluations. This high percentage of usage indicated that even in their busy clinical practice, the BVC was still accepted and well utilized. In terms of time consumption, almost all of the nursing staff said that on average, it took them about 1–2 min to complete one assessment. For familiar patients, it took them less than 1 min for each evaluation. The time-saving characteristic of the instrument was echoed by Clarke et al. (2010). In their study, in which five of the six nurses found the BVC very easy to use, four found that they took less than 1 min for each evaluation. The easy-to-use and time-saving character of BVC makes the potential of wide use in the busy clinical practice in China. An easy-to-understand and time-saving violence risk assessments tools like the BVC would be welcomed by clinical nurses.

Psychometric properties

The Chinese version of BVC turned out to be consistent with the original BVC and studies in other countries. In the original validation of the BVC, Almvik & Woods (2000) hypothesized that a score of 2 or above is predictive of imminent violence in the next 24-h period. It was found to be 74% accurate at detecting the outcome of a violent event for a score of 2 or above, and 91% accurate in detecting the outcome of a violent event not occurring for a score of 1 or below. While in the validation study of the German version of the BVC, Abderhalden et al. (2004) revealed that the area under the ROC curve reached 0.88 and at the cut-off point of 3, the sensitivity and specificity of BVC reached 64% and 94% respectively. In addition, multilevel likelihood ratios suggested other classification methods. A total of 0–1 indicates a very low risk of an
ensuing physical attack, score 2–3 indicate a moderate risk and scores of 4 or above indicate high risk.

In this present study, the predictive properties were similar. The area under ROC curve was 0.85 with 79% of sensitivity and 88% of specificity respectively at the cut-off point of 1. The PPV amounted to 14.6% with NPV reached 99.2%. While the value of PPV and NPV was influenced by the low incidence of violence, the sensitivity and specificity values indicate the ability of the instrument as a risk screening tool was satisfying.

Further, when using the standard of the combined outcome (implementation of intensive preventive measures or aggressive episode), the area under ROC curve increased slightly (AUC-ROC = 0.87). This suggests that in some false positive cases, violence did not occur due to the timely initiation of preventive measures. In other words, the false positive assessments based on the occurrence of actual aggression may be exaggerated because of the confounding effect of preventive measures. As violence risk assessment and management are inseparable, too management is also a key component of psychiatric care (Kennedy 2001). When patients are assessed as dangerous, the clinical staff were obliged to intervene, reinforcing the significance of violence risk assessment.

With regard to inter-rater reliability, Almvik & Woods (2000) reported the Kappa value of the BVC ($n = 39$). The consistency of the scale was satisfactory, with Kappa varying from $\kappa = 0.48$ to $\kappa = 1.00$ and 0.44 for the BVC total score, while percentage exact rater agreement varied from 90% to 100%. Abderhalden et al. (2004) studied four nurses who independently rated 16 patients, and reliability ranged from $r = 0.64$ to $r = 1.0$ at the item level. In this study, inter-rater reliability was assessed by ICC among 12 raters assessing 13 patients revealing good inter-rater reliability with the ICC index varying from 0.41 to 0.76 for each item and 0.84 for total score of BVC. Good inter-rater reliability supports the consistent likelihood of nurses with different backgrounds reliably communicating the risk information between different staff members.

Positive feedback and advice from the users

Feedback from the staff elicited their view on the use of the instrument. Most of them supported the use of BVC in their daily practice. ‘The tool didn’t seem special at a glance; however, I quickly became used to it because it made me know what behaviors I should pay additional attention to. And it did not cost me much time, only one to two minutes was enough. I think I will use it in my practice if it is brought in’, said one participated nursing staff.

Besides, one feature of BVC lies in passing the valuable risk information between different staff members and shift, giving time to plan and initiate intervention that could prevent the client from becoming violent (Bjorkdahl et al. 2006). This strength was also echoed by the respondents. ‘The BVC gives me an intuitive feeling about the potential of patients. Even if I came back to work from vacation, I can still screen out the risky patients quickly through a look at their BVC scores. And then, I will know which patient I should be cautious about’, said one staff. ‘I think it (BVC) is especially useful for the young staff with limited working experience. Working for more than twenty years I am keen about managing patient aggression. Through observation and conversation, I can evaluate the risk of violence intuitively. Sometimes it worked, sometimes not. However, such evaluation is hard for the young . . . BVC gave them direction’, said another. In other words, the BVC could standardize observations among nurses and control variation in experience and clinical expertise (Linaker & Busch-Iversen 1995).

In addition, there were also some suggestions and advice about the further exploration of BVC. First, the ratings of the score deserve further refining. ‘How should I rate it if the patients just showed one of the behaviors on the BVC checklist for one or two times during the shift?’ asked one staff. ‘For example, could we refine the rating classification into no, seldom, often, always?’ suggested another. Second, some questioned the necessity of the application among all the admitted patients. ‘Is it necessary to assess those patients who never behaved violently before? Should be there a brief screening question such as the violence history to pick out patients with risk and then evaluate using BVC?’ advised one respondent. A long-term prediction instrument like the Historical, Clinical, Risk-20 often takes demographic variables, as well as past behaviour into account (Douglas et al. 1999). According to the developers, relying solely on readily observed behaviours displayed by inpatients is one advantage of the BVC (Almvik & Woods 2000). For nurses who need to plan for the imminent future, such information is not always available. Therefore, clinical variables play a more important role in violence assessment in acute psychiatric clients, than demographic variables. However, in the hospital under study, violence history is required at admission. Such information was obtained from their family member at admission. That was probably the main reason why nursing staff in this study suggested the application of BVC among certain patients. In other hospitals, such information may be or may not be available at admission. Therefore, the application to all admitted patients was considered necessary.
Limitations and suggestion for future study

The main limitation of this study is the difficulty of generalization of the results to other settings. The clinical venue is considered one of the better psychiatric hospitals in China and all clinical staff receive standardized training. Unfortunately, in China, there is a wide variation between urban and rural areas and among different regions, so the development of mental health services is inconsistent (Yip 2005). Therefore, it is probable that the result may not be replicable in other less advantaged settings. In addition, the main diagnoses of the patients involved were schizophrenia and mood disorder. The application of the BVC among other patient populations, in different clinical settings, should provide more evidence about the applicability, reliability and validity of the instrument across China.

Conclusion

The Chinese version of BVC proved acceptable and applicable for patients admitted to an acute psychiatric setting. The instrument proved quick and easy-to-use in busy clinical practice and gained support among assessors for offering an opportunity to quantify the potential for violence among their clients. The inter-rater reliability and predictive accuracy was consistent with the original studies and those in other countries. Further work needs to explore the necessity of refining the ratings, test the applicability and predictive ability in other psychiatric settings to provide more evidence for what proved a most promising tool for psychiatric nurses in China.

References


