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ORIGINAL RESEARCH

Risk factors for violence in an emergency department: Nurses' perspectives

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Abstract

Objective: Work-related violence remains a significant problem in healthcare settings, including EDs. Violence risk assessment tools have been developed to improve risk mitigation in this setting; however, incorporation of these tools into standard hospital processes remains scarce. This research aimed to explore nurses' perspectives on the Bröset Violence Checklist used in routine violence risk assessment and their recommendations for additional items.

Methods: Thirty nursing staff who used the Bröset Violence Checklist (BVC) as standard practice for 5 years participated in two focus groups where 23 violence risk factors were presented. Using multiple methods, participants were asked to select and elaborate from a pre-determined list what they considered most useful in violence risk assessment in respect to descriptors and terminology.

Results: Quantitative data showed most risk factors presented to the group were considered to be predictive of violence. Ten were regarded as associated with risk, and overt behaviours received the highest votes. The terms 'shouting and demanding' was preferred over 'boisterous', and 'cognitive impairment' over 'confusion'. Patient clinical characteristics and staff perceptions of harm, inability to observe subtle behaviour, imposed restrictions and interventions and environmental conditions and impact were also important considerations.

Conclusions: We recommend that violence risk assessment include: history of violence, cognitive impairment, psychotic symptoms, drug and alcohol influence, shouting and demanding, verbal abuse/hostility, impulsivity, agitation, irritability and imposed restrictions and interventions. These violence risk factors fit within the four categories of historical, clinical, behavioural and situational.

Key words: *Bröset Violence Checklist, emergency department, patient violence.*

Key findings

- This research recommends enhancements to the Broset Violence Checklist.
- The research identified risk factors in addition to the Broset Violence Checklist.
- Consistency of terminology is essential for predicting violence.

Introduction

A systematic review reported a pooled incidence of work-related violence (WRV) in ED to be 36 for every 10 000 presentations.[1] WRV is associated with stress, time lost, staff attrition and it impacts the ability of workers to provide best care to patients, families and visitors.[2] As strategies in this setting are typically initiated after a violent incident has escalated, there is an urgent need for practical solutions to this problem and a focus on prevention and risk mitigation.[2,3] Interventions should aim at early identification of at-risk patients to pre-empt and implement precautions before a violent incident occurs.[4] But, a review of violence risk assessment tools found limited evidence of their applicability for general acute care as distinct from mental healthcare facilities.[5]

Several ED-specific instruments and frameworks have been developed to assess WRV, such as STAMP,[6] STAMPEDEAR,[7] the Violence Assessment Tool (VAT)[8] and the Violence Risk Screening Decision Support (VRSDS).[9] Recently designed tools for ED settings include the Queensland Occupational Violence Patient Risk Assessment Tool (QOVPRAO)[4] and the Aggression Behaviour Risk Assessment Tool-ED (ABRAT-ED).[10] QOVPRAO assesses three domains: aggression history, behavioural concerns and clinical presentation/s of concern with corresponding risk ratings of low, medium and high.[4] An audit of clinical file notes found that QOVPRAO had moderate predictive validity (area under the curve [AUC] 0.77, 95% confidence interval).[4] The

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ABRAT, developed initially for use in medical and surgical hospital settings,[11] was expanded with the addition of six risk factors for ED comprising 16 indicators, and four ED visit reasons (10). Receiver operating characteristic analysis of ABRAT-ED data showed an AUC of 0.91, indicating a high likelihood of discriminating between violent and non-violent patients.

The inclusion of situational risk factors in available assessment tools is variable. The general aggression model theory states that while person factors (e.g. personality, clinical condition) play a role in an individual's response, situational factors influence whether aggression occurs.[12] Of the ED-specific tools, the Violence Risk Screening Decision Support in Triage lists 'uncooperative behaviour' as a risk,[13] and the VAT includes 'resistance'.[8] Neither the QOVPRAO[4] nor ABRAT-ED[10] have included these risk factors and relied on patient characteristics alone. The Dynamic Appraisal of Situational Aggression (DASA)[14] is the only instrument which includes both 'easily angered when requests are denied' and 'unwillingness to follow directions' as situational risk factors.

Despite the existence of several tools, their uptake and predictive validity as part of high-frequency routine clinical practices is uncertain. Uptake may be limited by the impost of additional workload tasks in an already busy workplace or limited training in mental health.[5] The Bröset Violence Checklist (BVC)[15] is one tool that has been implemented as part of routine observations in ED. Senz *et al.*[16] found that integrating the tool and response framework reduced reactive security events, increased proactive responses and improved staff confidence in early identification and management of incidents that could escalate to violence. Reported benefits include improved communication between staff of risks and concerns, and improved behaviour monitoring in ED.[17] Further research has recommended improvements through modifications to terminology, and expansion of risk factors across four categories: historical, clinical, behavioural and situational.[17]

While exposure of ED staff to violence provides perspectives on risk, staff using routine violence risk assessment are uniquely placed to reflect on the predictiveness of individual risk factors in practice. Using a total of 23 risk factors across all four categories, the aim of the present study was to test the face validity and content validity of all risk factors using the unique experience of ED

TABLE 1. *Risk factors and examples presented at focus groups and terminology preferences*

Category	Risk factors
Historical	1. History of violence
	2. Criminal history
	3. Arrival with police
	4. Presenting with injury from assault
Clinical	5. Cognitive impairment (e.g. disability, acquired brain injury [ABI], dementia delirium)
	6. Psychotic symptoms (e.g. hallucinations, delusions, paranoia, mania)
	7. Drug and alcohol influence
	8. Confusion (e.g. disorientated to time, person and place)
Behavioural	9. Shouting or demanding (e.g. difficult and insistent)
	10. Verbal abuse/hostility (e.g. insults, swearing, intimidation)
	11. Staring
	12. Agitation/restlessness (e.g. fidgeting, pacing)
	13. Impulsivity (e.g. unpredictable mood and behaviour, quick to react)
	14. Anxiousness (e.g. fear and distress)
	15. Glaring
	16. Boisterous (e.g. raised voice, loud, noisy)
	17. Verbal threats (e.g. verbal threat to harm)
	18. Attacking objects (e.g. attack directed at an object not an individual)
	19. Physical threats (e.g. physical gestures that are threatening)
	20. Irritability (e.g. easily annoyed, angered)
	21. Distracting pain
Situational	22. Imposed restrictions (e.g. cannot leave, smoke)
	23. Imposed interventions (e.g. medication)
Preferences of terminology	• Confusion or cognitive impairment
	• Verbal abuse or verbal threats
	• Confusion or cognitive impairment
	• Staring or glaring
	• Irritability or impulsivity or both (irritability and impulsivity)

clinicians who already use the BVC as part of their patient observations.

Methods

Participants

The present study involved a convenience sample of nurses working at a metropolitan ED in Melbourne, Australia. The administration of the BVC has been a part of routine practice in that ED since 2018, and is performed on all patients at least hourly at the same time as other vital signs. Thirty nursing staff participated in two separate focus groups ($n = 17$; $n = 13$). Participation criteria required they had experience using the BVC for at least 2 weeks in the ED. All participants had a minimum experience with the BVC of 1 year, with the median being 2 years (interquartile range 2–4 years).

Procedure

Email invitations were sent to all ED staff inviting participation in focus groups scheduled for convenience during routine in-service education sessions. All staff signed a consent form before participation. The focus groups were conducted by the principal and associate investigator. The principal investigator (PI) was employed in the occupational health and safety unit at the Health Service. The PI's work role did not involve direct supervision or direct work with the participants. The associate investigator worked directly with the participants in a non-nursing discipline but had no direct supervision responsibilities. The associate investigator introduced the PI to the groups and the PI facilitated the sessions. Focus groups were approximately 45 min in duration and were audio-recorded and transcribed by a paid professional transcription service. Transcripts were not returned to participants for comment and/or correction.

Topics presented in the focus groups included the 13 risk factors identified in a previous study within the ED setting,[17] and 10 from relevant literature which included a selection of shared indicators from the DASA,[14] ABRAT,[11] ABRAT-ED,[10] VAT,[8] M55,[18] STAMP,[6] STAMPEDEAR and the VRSDS.[9] Terminology preferences were also explored (as shown in Table 1). These risk factors included the original BVC items. Participants were asked to vote on a live platform ('Mentimeter') using a Likert scale (1 = not at all, 2 = unlikely, 3 = possibly, 4 = definitely) to assess the predictiveness of each factor for violence in ED. Participants were able to select answers on their mobile phones which were displayed 'live'. Results were revealed to the group after all participants had voted. These selections were discussed in the focus groups as part of an unstructured process to encourage elaboration.

Ethics

This research was approved by the Human Research Ethics Committee of the University of Southern Queensland (H22REA093) and Western Health Office for Research as low risk.

Data analysis

The research took a pragmatic approach to multiple methods and data.[19] Thematic analyses[20] using a general inductive approach[21] was used to interpret the qualitative data in the interview transcripts. This process involved the Braun and Clarke[20] six steps for thematic analysis: (i) familiarisation with the data; (ii) generation of initial codes; (iii) search for themes; (iv) cyclical review; (v) discussion, consensus; and (vi) inclusion of raw quotes to assist with the credibility of the findings. The quantitative data from the Mentimeter votes was analysed descriptively. Proportions of responses were examined by the χ^2 test with a P-value <0.05 considered significant. Quantitative and qualitative data were analysed independently.

Rigour and reflexivity

The six steps of the thematic analysis were enacted by the first author. The research team met on a weekly basis to discuss the process and outcomes of the thematic analyses, share competing perspectives and resolve differences of interpretation. Members of the research team are qualified health practitioners registered with the Australian Health Practitioners Registration Authority.

Results

Quantitative Mentimeter data

Frequency data for Likert ratings of individual factors is depicted in Figure 1. The majority of factors were considered by staff to contribute to violence to some degree. Seventeen factors were considered by at least 80% of participants to contribute to violence either 'possibly' or 'definitely'. Ten factors were considered by the majority of participants to 'definitely' contribute to violence, namely physical threats, verbal abuse, history of violence, verbal threats, attacking objects, psychotic symptoms, imposed restrictions, alcohol and other drugs, agitation and irritability.

Within categories, history of violence was deemed to better predict

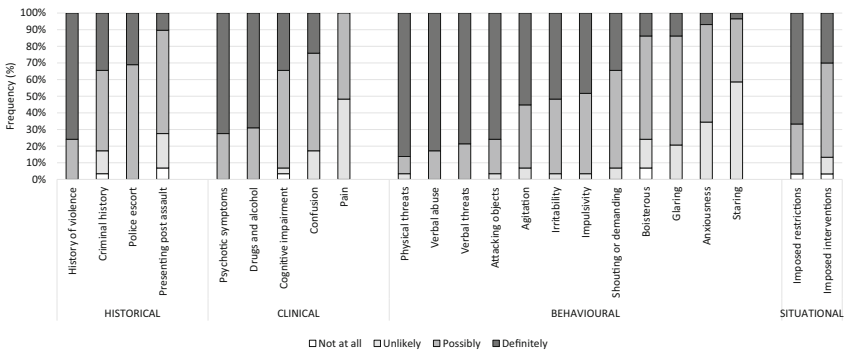

Figure 1. *Strength of predictive ability individual risk factors for violence.*

violence than violent criminal history, presenting with police or presenting with an assault-related injury. Psychotic symptoms and drug and alcohol conditions rated higher than cognitive impairment and confusion. Overt behaviours such as verbal abuse, verbal and physical threats and attacking objects were initially judged much more predictive than all other behaviours; however, further discussion indicated that while predictive of future violence, they occurred too late to be considered useful for preventative action. Agitation, irritability and impulsivity scored similarly and higher than shouting or demanding. Anxiousness and staring were thought the least likely behaviours of concern. Within the two situational risks, imposed restrictions were considered more predictive than imposed interventions.

Comparison between risk factor terminology is shown in Figure 2. There was a statistically significant preference for shouting and demanding over boisterous (75.9% *versus* 24.1%, $\chi^2 = 7.759$, $P < 0.01$). In addition, glaring was strongly favoured over staring (96.6% *vs.* 3.4%, $\chi^2 = 25.138$, $P < 0.001$). There was no significant preference for verbal abuse over verbal threats (50% *vs.* 50%, $\chi^2 = 0.034$, $P = 0.853$), and only a non-significant trend towards cognitive impairment over confusion (65.5% *vs.* 34.5%, $\chi^2 = 2.793$, $P = 0.095$). The group showed a significant preference for the inclusion of both irritability and impulsivity rather than individual items (69.0%, 20.7% and 10.3%, respectively, $\chi^2 = 15.207$, $P < 0.001$).

Focus group discussion results

Several themes emerged from focus group discussions: staff perceptions of harm related to patient clinical characteristics, inability to observe subtle behaviour, imposed restrictions and interventions and environmental conditions and impact (quotes from focus group themes are shown in Table 2).

Staff perceptions of harm based on clinical characteristics

Staff reported that their perceptions of risk differed depending on the patient's clinical characteristics. Patients affected by drugs and alcohol, or those with mental health presentations, were generally perceived to pose a higher risk than those with a cognitive impairment such as dementia or delirium. Participants also noted that if they were familiar with the patient or had information about the patient prior to admission (e.g. nursing home), then this could assist with their management.

Inability to observe subtle behaviour

Subtle behaviours such as staring or glaring were reported as difficult to observe. Unless allocated on a one-to-one basis with a patient, attention was unlikely to be focused on these behavioural cues. Reasons participants provided for this were being very busy and unlikely to be in one place long enough to focus their attention to this.

Imposed restrictions and interventions

Participants reported that patients making requests, and having them subsequently and often repeatedly declined, occurred frequently. In particular, being denied the ability to go outside and smoke was considered a restriction often related to increased risk. Imposed restrictions were reported as higher risk than imposed interventions; however, the intrusiveness of some interventions compounded their risk. Participants described personal interventions such as continence pad changes, and painful interventions like blood sampling and cannulation, as 'high-risk interventions' due to proximity and additional risk of needle-stick injury. These interventions were reported to pose an even higher risk if the patient was confused or had a cognitive impairment. Some participants indicated already planning for this risk in some circumstances.

Environmental conditions and impact

Environmental factors such as wait times, length of stay, lack of distractions, boredom and quality of services such as food were also considered to contribute to escalation. Visible behaviours such as pacing and restlessness were reported to be common due to the confinement of ED cubicles and the prolonged lengths of stay for some patients.

Discussion

The present study explored the opinions of staff with at least 1 year of experience with routine violence assessment using the BVC in ED. Both the focus group discussion and quantitative data supported the inclusion of risk factors identified in all four categories of historical, clinical, behavioural and situational risks. Suggestions for changes to terminology were also supported to improve user understanding of the descriptors.

A previous history of violence was deemed the most important historical risk factor. Participants supported the need to include clinical conditions of drug and alcohol,

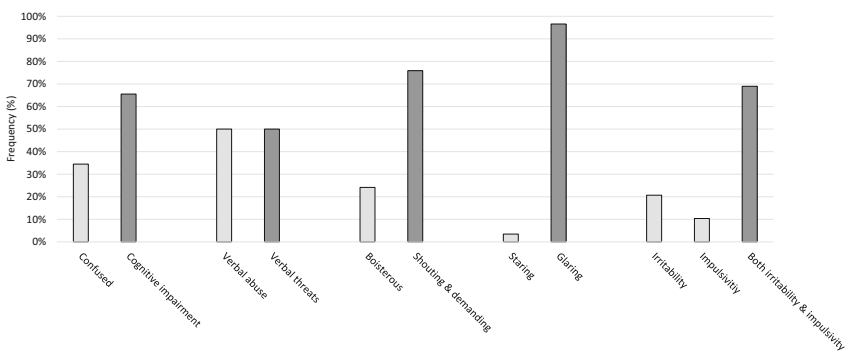

Figure 2. *Comparison of preferred terminology of similar risk factors.*

TABLE 2. *Quotes from focus group discussion*

Staff perceptions of harm based on clinical characteristics	P: You'll have some people that as they're frequent fliers (they) come in and out of the system. We know them, we know how to respond to them, we know what their triggers are. When you've got someone with cognitive impairment, if you get that information from the nursing home, you've got that background information (Focus Group 1).
	P: When you've got someone whose drug affected, that's completely different compared to someone who has a known cognitive impairment (Focus group 1).
	P: I guess the triggers are different as well for mental health, AOD, and delirium (Focus group 1).
	P: When you're coming with these conditions, it exacerbates (that) trigger even more because like you were saying, you can't explain, you don't understand, they're scared (Focus group 1).
Inability to observe subtle behaviour	P: I don't think we'd stand still long enough for people to glare (Focus group 2).
	P: I wouldn't know what percentage of patients would actually glare (Focus Group 2).
	P: You would not know. You don't see them glaring back. (Focus Group 2).
	P: Our assessments are quite quick, they're quite rapid a lot of the time (Focus group 2).
Imposed restrictions and interventions	P: I would say universally, anybody that you are telling somebody you can't do that that they want to do, or you are trying to do something they don't want, that would be a universal trigger for anyone (Focus Group 1).
	P: If you're stopping them from doing something they want to do that will help calm them, that's I think a bigger indicator of violence (Focus group 1).
	P. The trigger goes away because we only try so many times with the imposed intervention. They just say, 'I'm fine, whatever'. Whereas the other one's (restriction) constant, they're constantly going to ask you and you're constantly going to say, 'No'. (Focus Group 1).
	P: I think not being able to smoke is huge (Focus group 2).
	P: They resist sometimes, it compounds the risk (of high-risk interventions) (Focus group 2).
	P: I think there is an issue that the interventions can be quite intrusive (Focus group 2).
	P: I think just getting close. Getting close to a patient. Just getting in their personal space (Focus group 2).
Environmental conditions and impact	P: It's the environment too. Say your smoke patient has been here for 72 h. They didn't get a hot meal but receive the same sandwiches for three days, and then they abuse you because they want different food (Focus group 2).
	P: Mental health patients are here for 72 h and things like that with no distraction and some of the distractions we have here at the moment are quiet silly, we've got colouring pens and some squishy balls and things like that (Focus group 2).
	P: They're getting up, they're moving around, they're fiddling with everything (Focus group 2).
	P: They're pacing up and down, trying to wait for you to turn so they can run out the door (Focus group 2).

psychotic symptoms and cognitive impairment as risk factors. This supports previous research that confusion alone did not capture patients with clinically significant conditions but unaffected orientation.[17]

While overt behaviours scored the highest out of all risk factors, previous research found these indicators

to be more closely associated with how violence is managed rather than prevented.[17] This is also consistent with a study of the BVC in ED[22] in which attacking objects was able to predict only 17% of violent patients in comparison to irritability which predicted 82%. Participants also reported difficulty with identifying very subtle indicators in the context of a busy ED. Both support the need to have a stronger emphasis on indicators that are easy to identify in the early escalation phase.[17]

Staff feedback regarding situational risks in ED was particularly meaningful. Consistent with research in hospitals, one of the most common contributing factors to violence was patients demanding to leave, with preventative intervention also associated with violence.[23] Staff agreed that restrictions applied to patients in ED under a duty of care, and denial of requests, commonly contribute to escalation.[4,10] In addition to restrictions, clinical interventions have also been associated with violence in hospitals[23] especially if the patient does not agree, cooperate or lacks cognitive capacity to facilitate explanation. Staff feedback supports that high-risk interventions, especially those involving pain or discomfort and proximity, pose an increased risk of both violence and staff injury. The frequency of such interventions in an ED setting heightens the impact.

The final selected list included history of violence as it was believed to be a better predictor than criminal history or presenting with police. Drug and alcohol influence, psychotic symptoms, cognitive impairment and impulsivity were selected consistent with results of preferred indicators and terminology. Behaviours thought to be amenable to intervention (e.g. shouting and agitation) were chosen in preference to more overt behaviours which left less opportunity to intervene (e.g. physical threats) and very subtle behaviours such as staring or glaring which were reported difficult to observe in busy ED environments. Situational risks attributed by participants to trigger aggression were also selected. A final list of confirmed items is shown in Table 3. This finding is a potential avenue for future research which may add to conceptualisation and standardisation of terminology to ensure clinicians' understandings, observations and communication is consistent.

Staff familiarity with the BVC and likely enhanced awareness of potential for violence within the ED is acknowledged as a potential bias. The subjectivity of several of the risk factors, and potential influence of culture, gender and demographic of both staff and patient on their interpretation is a confounder which was not explored. The aim to identify factors predictive of violence in the ED favours those obvious enough to be detected quickly in the dynamic ED environment, and limits generalisability to other settings. One of the additional and unexpected limitations of the present study was the impact of ED background noise on the audio integrity and quality of staff responses in the focus groups. While most of the dialogue and resultant themes were able to be heard and understood, not all staff feedback was captured in the transcriptions because of the noise.

TABLE 3. *Final list of items*

Category	Risk factors
Historical	1. History of violence
Clinical	2. Cognitive impairment (e.g. dementia, delirium, disability)
	3. Psychotic symptoms (e.g. hallucinations, paranoia)
	4. Drug and alcohol influence
Behavioural	5. Shouting or demanding
	6. Verbal abuse
	7. Agitation
	8. Irritability
	9. Impulsivity
Situational	10. Imposed restrictions
	11. Imposed interventions

Conclusions

Violence risk screening can assist staff in pre-empting, planning and preventing violence in the workplace.[16] Optimising risk screening to the ED environment has the potential to increase the accuracy of recognising high risk patients and provide a window of opportunity for applying proactive measures to improve staff and patient safety.[16] In our study, staff who routinely use the BVC in ED support the use of factors across all four historical, clinical, behavioural and situational categories. The utility of factors was related to their relevance to early intervention and their practicality in ED. In particular, the frequency of both restrictions and high-risk interventions in ED supports the inclusion of situational risk in an ED-specific tool. While the routine use of the BVC in ED has been shown to promote early intervention,[16,24] only one of the BVC factors, irritability, was considered highly predictive of violence in the ED setting. Our study confirms the need to consider a more specific violence risk screening tool for the ED setting. From this work, the risk factors of history of violence, cognitive impairment, psychotic symptoms, drug and alcohol influence, shouting and demanding, verbal abuse/hostility, agitation, irritability, and imposed restrictions and interventions will be evaluated at individual and group level in the next phase of this research, with the aim of determining the best predictors for violence in the ED.

Competing interests

None declared.

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Data availability statement

Data available on request from the authors.

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