**Abstract**

This study aimed to systematically review  evidence to assess the efficacy of non-pharmacological brief interventions in the emergency department to reduce the incidence , severity and impact of acute behavioural disturbances. The literature search was conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. A total of 18 articles were identified as meeting our inclusion criteria and read in full. Following a full read and a consensus discussion, it was subsequently considered the studies chosen had not met the inclusion criteria. Research into the use of non-pharmacological brief interventions in the management of acute behavioural disturbance in the emergency department is warranted given the current absence of evidence found by this systematic review.

**Key points**

- The benefits and efficacy of aggression management education for emergency department (ED) staff remains inconclusive

- The use of de-escalation strategies as a non-pharmacological brief intervention for behavioural disturbances needs to become more common among ED staff

- More research is needed on the use of non-pharmacological brief interventions in the ED for behavioural disturbances

- Greater use of interprofessional education on de-escalation skills for behavioural disturbances for ED staff is needed.

**Introduction**

The potential for workplace aggression and violence towards health care workers is not a new phenomenon; it has been reported as being quite common and prevalent (Warren, 2011), especially in mental health care and emergency departments (EDs) (Magnavita and Heponiemi, 2012, Edward et al, 2014; 2016).

The triggers for patient-perpetrated challenging behaviour (e.g. agitation, combatative, shouting, threatening gestures, aggression, violence) may include any of the following: an underlying medical condition; poor communication; misuse of substances such as alcohol or drugs; mental disorders; grief reactions; and long wait times (Edward et al, 2016).

Non-pharmacological brief interventions (BIs) in the ED to reduce the severity, duration or impact of acute behavioural disturbances may offer a means of addressing the widespread problem of aggression or violence in the ED. However, interventions have been found to be difficult to implement in EDs ( Zerhouni et al, 2013, Drummond et al, 2014; Sorsdahl et al, 2014). Emergency department based BIs for problems related to alcohol and substance misuse have been tried but have had mixed results. (Landy et al, 2016). Other BIs provided in the ED have been directed at reducing intimate partner violence (Rhodes et al, 2014; 2015) and suicidal risk (Stanley and Brown, 2012); however these models do not appear to have been evaluated rigorously. While the above are examples of BIs used by ED staff, they are not focused on reducing or de-escalating acute behavioural emergencies such as agitation and aggression.

ED staff have frequent encounters with patients and family members who display agitated as well as verbally and physically aggressive behaviour and often are a danger to themselves or others; however, there is a lack of training available for staff to manage acute behavioural disturbances using de-escalation techniques ( Kansagra et al, 2008; Baker, 2012).

Many studies have reported the prevalence of workplace violence in healthcare settings, in particular in the ED, where staff have reported feeling unsafe and at risk of physical assault (Kowalenko et al, 2012). Literature reviews by Anderson et al (2010) and Kowalenko et al (2012) related to interventions used in the ED to manage acute behavioural disturbances found a paucity of evidence-based interventions.

Non-pharmacological BIs may offer a safe, effective means to de-escalate behavioural disturbances in the ED. Because of the high prevalence of aggression in the ED, there is an urgent need for a rigorous examination of non-pharmacological BIs directed at reducing the incidence, severity, and impact of patient aggression or violence there.

**Aims and Objectives**

The aims of this systematic review were twofold;

- To assess the efficacy of non-pharmacological BIs delivered in the ED that are intended to reduce the incidence, severity, and impact of acute behavioural disturbances among adult patients

- To present a comprehensive systematic review and meta-analysis if possible to inform clinical recommendations.
  The objectives of the review were

- To assess selected studies for methodological, clinical and statistical heterogeneity and assess study quality and risk of bias

- To quantify the magnitude and direction of any benefit of non-pharmacological BI with respect to reducing the incidence, severity, and impact of patient acute behavioural disturbance in the ED

- To assess the significance of any such benefit, and to quantify the associated uncertainty

- To assess the extent of possible publication bias, subject to a sufficient number of studies being identified

- To contrast the efficacy of different types of BIs in comparable settings, subject to a sufficient number of studies being identified

- To develop clinically relevant recommendations for the non-pharmacological BI directed at reducing the incidence, severity and impact of patient acute behavioural disturbance in the ED.

**Definitions**

The following terms were defined *a priori* and are referred to for the purposes of this review.

'Acute behavioural disturbance' was defined as actual or threatened aggression (verbal abuse, or physical abuse/assault) perpetrated in the workplace against the nurse or other health professional staff by patients, relatives or other adult.

'Non-pharmacological brief interventions' were defined as those that can reasonably be conducted during the clinical ED encounter and required less than 15-30 minutes of a clinician's time.

'De-escalation' was defined as 'talking with an angry or agitated consumer/service user in such a way that violence is averted and the person regains a sense of calm and self-control' (National Iinstitute for Care Exellence, 2015).

**Methods**

**Search strategy**

The systematic literature search was conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher et al, 2009).

The electronic bibliographic databases of CINAHL, Medline and PsycINFO were searched for papers published up to and including May 2017. A search for peer-reviewed studies using the keywords

'acute behavioural disturbance' , 'emergency department' and 'brief intervention' were used (*Box 1*). Limiters such as source type, English language and age range (adults) were applied.

[insert Box 1 here]

**Inclusion and exclusion criteria**

Studies were considered eligible for this systematic review if they met all inclusion criteria below:

- Used a non-pharmacological brief intervention provided by clinicians working in the ED directed at adults (aged 18-65 years) who showed either 'early warning signs' or actual acute behavioural disturbance, regardless of the cause for the disturbance

- Reported on a non-pharmacological BI used by health care professionals in the ED

- The non-pharmacological BI was aimed at reducing the severity, duration or impact of acute behavioural disturbance in the ED that was perpetrated by an adult patient

- The non-pharmacological BI was conducted by clinical or research staff face to face or delivered by technological devices

- The non-pharmacological BI was brief, lasting between 15-30 minutes

- The non-pharmacological BI was verbal or behavioural techniques in any combination (excluding pharmacological techniques alone)

- The non-pharmacological BI was compared against routine practice

- The study reported experimental or quasi-experimental data.
  We excluded papers not written in English, literature reviews, systematic reviews, protocols, case-series, case reports, and qualitative studies.

**Quality Appraisal**

The quality assessment of the research was critiqued with reference to the Critical Appraisal Skills Program (CASP) methodological checklists for both quantitative and qualitative research (Taylor et al, 2000).

**Study selection**

The returned abstracts were screened for relevance by title and abstract independently by two of the authors (KE and JG). Following this first level of screening, the remaining articles were extracted for full review and assessed for eligibility against an extraction tool designed for this review. The extractions were completed independently by three authors (TW, SR and JH) followed by a consensus round where any disagreements were resolved by further consensus with authors KE and JG. *Figure 1* shows details of the search strategy and outcome.

[Insert Figure 1 here]

**Data Extraction and Synthesis**

Data extraction was completed independently by the authors, using an extraction tool designed for the project. Extracted data were collated by all, with any disagreements being discussed by the review team. Data was included only if there was consensus.

**Results**

A search of the databases up to 2017 returned a total of 1252 articles. Once duplicates were removed, 925 articles remained for screening. A total of 18 articles were identified as meeting the inclusion criteria and were read in full.

Following a full read and a consensus discussion, it was considered the studies chosen had not met the inclusion criteria (*Figure 1*). *Table 1* sets out each of the excluded studies and a reason for their exclusion.

[insert Table 1 here]

**Discussion**

The lack of any quantitative research on non-pharmacological BI directed at reducing the incidence, severity and impact of patient acute behavioural disturbance in the ED reveals an obvious gap in the evidence base.

Research related to the use of non-pharmacological BIs for substance misuse and intimate partner violence do indicate the feasibility of non-pharmacological BIs in the ED.

Barriers remain to the implementation of non-pharmacological BIs in the ED, such as staffing (that is, the need to have a staff member dedicated to this role with the requisite skills) and environmental factors (such as the ED being a high stimulus area) (Sorsdahl et al, 2014).

Other factors that may affect the implementation of non-pharmacological BIs in the ED may relate to definitional problems i.e. what is understood as a BI. For example, interventions that continue beyond the ED admission (such as those mentioned for substance misuse and intimate partner volience) are often impractical for conditions that may need to be resolved quickly. Protracted interventions include those used to address alcohol misuse by people who present to the ED, delivered in the form of text messaging over 3-6 months (Suffoletto et al, 2012); this model may not easily translate to management of acute behavioural disturbances in the ED.

Nonetheless, communication improvements for staff and environmental modifications (such as quiet spaces)  may offer a non-pharmacological BI that may deter aggressive or violent behaviour. Evidence suggests  poor communication skills and/or a lack of communication due to environmental factors contribute to aggression and/or violence in the ED setting (Angland et al, 2014). Environmental communication remedies include the use of electronic boards indicating anticipated waiting times or engaging a communication officer in the ED to act as a conduit for information between patients and staff. In addition, poor staff communication styles can become a trigger for misunderstandings, annoyance and, potentially, aggression (Edward et al, 2016). Because of the

diversity of patient needs, strategies to manage aggression and/or violence in the ED should have multiple components.

**Existing knowledge**

Education for staff has been offered as a solution (Tan et al, 2015) yet the benefits and efficacy of aggression management for staff in EDs remains inconclusive (Gerdtz et al, 2013). In addition, the benefits of facilitating mindfulness-based treatments for aggressive behaviours remain unclear (Fix and Fix, 2013).

When caring for a patient who is agitated, there are important considerations such as ensuring safety (for self, others and the patient), using the least restrictive method of engagement to reduce agitation levels, and avoiding escalating the behaviour and helping the patient manage their own emotions to regain control (Richmond et al, 2012). Richmond et al (2012) suggest designing safe environments, using an appropriate staff skill mix for the ED setting, ensuring staff have adequate assessment skills for detecting the early warning signs of agitation in patients and providing suitable staff education/professional development on the prevention, assessment and management of patient agitation.

Using a de-escalation approach as a non-pharmacological BI, which has been used in mental health settings for many years, is also a feasible option for the ED.

**Limitations of the review**

The limitations of this review include that no research on the topic of non-pharmacological BI in the ED to manage acute behavioural occurances or aggression was found.

Potentially, excluding articles not written in English could have limited our chances of locating such articles.

**Conclusions**

Research into the use of non-pharmacological BIs for the management of acute behavioural disturbance in the ED is warranted given the lack of evidence located by this systematic review.

Known non-pharmacological BIs such as de-escalation, the use of environmental factors (i.e. reducing external stimulation, using communication boards and providing quiet spaces) and identifying early warning signs of agitation using reliable and valid assessment tools (such as the Behavioural Activity Rating Scale) may be feasible options for the ED environment.

**Implications for clinical practice**

Mental health clinicians are well positioned to professionally collaborate with ED staff with regards to non-pharmacological BIs in the ED to manage challenging behaviours in the least restrictive manner. Since mental healthcare professionals are well versed in non-pharmacological de-escalation techniques, it is feasible that an interprofessional approach to developing these techniques in non-mental health clinicians is adopted.

While sharing expertise amongst specialist teams in healthcare is advocated and encouraged, the reality is that because of time and resource constrainsts, interprofessional education does not routinely happen in practice between mental health and general health staff.

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