The effectiveness of educational interventions for health care staff to prevent and manage aggressive behaviors in patients admitted to an acute hospital: a systematic review protocol

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ABSTRACT

Objective: The objective of this review is to determine the most effective strategies for educating health care staff to manage or prevent aggressive patient behaviors within an acute care setting.

Introduction: Health care workers in acute settings are frequently at risk of being injured by aggressive patients. Staff are often ill-prepared to de-escalate such behaviors and, therefore, are at greater exposure to verbal or physical injury. This protocol outlines methods for a systematic review on the effectiveness of educational strategies to manage and/or prevent aggressive patient behaviors in hospitals.

Inclusion criteria: Quantitative studies that report on programs used to educate or train hospital staff in managing or preventing an episode of aggressive behavior by an adult patient while in an acute health care facility will be included. Individual, program, and organizational outcomes, such as confidence, behavior, knowledge, or attitudes as well as recorded rates of injury, sick leave, stress, anxiety, or detection/prevention of aggression before and/or after the intervention will be analyzed. Psychiatric patients or settings are excluded from this review.

Methods: Two reviewers will independently select and appraise eligible studies and extract data following methods outlined by JBI for systematic reviews of effectiveness. Multiple databases will be searched for studies in English and Chinese from 2008 to the present. The JBI System for the Unified Management, Assessment and Review of Information (SUMARI) will be used to manage studies and, where possible, meta-analysis will be undertaken. Results will be presented in a Summary of Findings following the GRADE approach.

Keywords aggression; education; hospital; systematic review; workplace violence


Introduction

Health care staff working in acute care hospitals are at the highest risk of being exposed to violent and/or aggressive behaviors, with one in five staff internationally, reported to be exposed to physical violence in the workplace in a one-year period. Patients and visitors are reported as the main source of aggression and the negative effects of such experiences can impact both the individual and the organization. Violent or aggressive behavior includes a range of intentional harmful acts both physical and verbal including, but not limited to, shouting, insulting, withholding information, being rude, humiliating, hurting, threatening, or ignoring, and can be further categorized into physical psychological, racial, or sexual acts. Health care staff may experience a range of negative short- and long-term outcomes from such acts and many incidences go unreported. Impacts of such events can be felt by the individual, colleagues, family of the staff member, and the organisation.

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Nurses are at highest risk of exposure to aggression or violent behaviors.² Edward et al.³ report that female nurses have twice as high exposure to verbal abuse than male nurses, however, male nurses had significantly higher risk of physical abuse. These findings were from a systematic review of 14 studies exploring factors influencing violent behaviors.³ As well as gender discrepancy, it was noted that mental health nurses and those working in psychiatric facilities have three times greater risk of exposure to physical assault. The authors noted that limitations with study heterogeneity may impact certainty of results, however, their recommendations were for all nurses (including nursing students) to be trained in managing challenging and potentially aggressive situations.³

Medical staff are also at risk of violent acts from patients or visitors.²,⁴ Raveel and Schoenmakers⁴ reported on 44 studies in a systematic review of interventions to prevent or manage acts of aggression and violence toward doctors in all settings including psychiatric, geriatric, acute care, and primary care contexts. Despite the large number of included studies, no clear intervention was determined as most effective for preventing such incidents. The complexities of balancing patient care with individual safety requirements can impact certain situations. For example, a heavy security presence may be a comfort to staff but can impact how patients perceive a situation, and for some, this mistrust can escalate to suspicious, aggressive, and even violent behavior.⁴ Results of the review suggest organizations have a responsibility to implement workplace policies that aim to meet clinician’s needs while also improving patient satisfaction, for example, decreased waiting times, training in violence prevention, and providing post-incidence debriefing.⁴

Studies have been undertaken internationally to identify factors influencing violence against health care workers. Mento et al.¹ suggest some countries report higher incidences of aggression towards physicians than others. In some Asian countries, such as China, it is suggested that lengthier waiting times in hospitals, heavier workloads, and less time available for health care professionals to communicate with patients contribute toward workplace violence.⁵,⁶ Furthermore, Yi-Lu et al.² suggest that the workplace unit or context can impact on prevalence, with their systematic review of prevalence studies identifying nursing homes as having the highest prevalence of events in a one-year period, followed by tertiary hospital settings. The region or location of the hospital can also be a factor in prevalence statistics with rural and remote centers reporting higher levels of violence or aggression.² Within the hospital context, some units are said to be at higher risk of events, such as the emergency department where patient condition or waiting times may precipitate aggressive events. A systematic review of qualitative and quantitative studies by Pich and Kable⁷ explored patient-related violence toward nurses and other workers within the emergency department. Heterogeneity across the 18 included studies limited analysis, but the review indicated an urgent need to identify effective strategies to limit staff exposure to violence and aggression.⁷

A systematic review undertaken by the primary author,⁸,⁹ explored the effectiveness of several interventions to manage and prevent aggressive behaviors in hospital settings. From 13 included studies, reported strategies included music therapy, chemical and mechanical restraint, staff training programs, and a combination of programs. At that time, no strong evidence was found to identify any intervention as more effective than another. A search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and JBI Evidence Synthesis identified several more-recent systematic reviews in this field,¹⁰-¹² with one Cochrane review exploring programs and policies aimed to prevent violence against health care workers.¹³ The review¹³ included studies reporting on a variety of interventions in nursing homes, psychiatric facilities, and a hospital emergency department, with low quality evidence found overall. No systematic review was found exploring the effect of educational programs and interventions on staff to manage or prevent aggressive behaviors specifically within an acute setting.

**Review question**

What are the most effective strategies for educating health care staff to manage or prevent aggressive patient behaviors within an acute care setting?

**Inclusion criteria**

**Participants**

This review will consider studies that report on health care staff within acute adult hospital settings who are participating in educational programs.
aimed at managing or preventing aggressive behavior from patients. This could include doctors, nurses, allied health professionals, or other clinical or non-clinical staff. We will utilize the definition of acute care as outlined by Hirshon et al.\textsuperscript{14} being, “health system components, or care delivery platforms, used to treat sudden, often unexpected, urgent or emergent episodes of injury and illness that can lead to death or disability without rapid intervention.” \textsuperscript{para.4} Consequently, this may encompass domains of hospital, emergency or pre-hospital emergency care, medicine, trauma care, surgery, critical care, or short-term inpatient stabilization.\textsuperscript{14}

Studies that take place in psychiatry, mental health, or dementia-specific settings will be excluded. Patients with dementia or a diagnosed psychiatric condition will be excluded as these patient groups frequently require specialized care to treat their behaviors. Studies that report on horizontal, upward, or staff-to-staff violence, bullying, and/or harassment are not included in this review. Pediatric hospital settings are excluded from the review.

\textbf{Interventions}

This review will consider studies that evaluate educational or training interventions for hospital staff that can be implemented within an acute setting to manage or prevent aggressive patient behaviors. Such interventions may include de-escalation training, violence prevention or recognition strategies, and/or communication training programs. Types of aggressive behaviors being addressed may include verbal, nonverbal, physical, or threatening behaviors. Programs will be targeted at managing adults’ (over 18) aggressive behaviors. No limitations will be placed on program duration, delivery method, or intensity.

\textbf{Comparators}

This review will consider studies that compare the intervention to no intervention, an alternative intervention, or usual training.

\textbf{Outcomes}

Outcomes such as staff confidence, knowledge, behavior, or attitudes will be assessed to measure effect of education programs. Measurement tools may include but are not limited to: the De-escalating Aggressive Behavior Scale (German version)\textsuperscript{15} or English version (EMDABS),\textsuperscript{16} which measure participant behaviors; the Management of Aggression and Violence Attitude Scale’ (MAVAS), which measures attitudes toward causes of aggression and strategies to manage incidents;\textsuperscript{17} the staff observation aggression scale (SOAS)\textsuperscript{18} or staff observation aggression scale – revised (SOARS-R),\textsuperscript{19} which measure incident severity, provocation, and management; or the Confidence in Coping with Patient Aggression Instrument (CCPAI) scale,\textsuperscript{20} which measures confidence in coping with patient aggression. Change in knowledge may be measured via self-report or through use of a comprehensive and/or validated evaluation tool.

Other individual outcomes may include stress or anxiety levels, measured via self-report or with validated tools such as the Hospital Anxiety and Depression Scale\textsuperscript{21} or Perceived Stress Scale.\textsuperscript{22} Organizational outcomes comprising rates of sick leave and incidence of detecting or preventing aggression will also be analyzed.

\textbf{Types of studies}

This review will consider quantitative study designs such as randomized controlled trials, non-randomized controlled trials, and before and after (pre-test/post-test) studies, with or without a comparison group. Additionally, analytical observational studies including prospective and retrospective cohort studies, case-control studies, and analytical cross-sectional studies will be considered for inclusion. In the absence of higher-level quantitative designs, this review will also consider descriptive observational study designs, such as descriptive cross-sectional studies, case-series or case-reports, for inclusion.

Studies published from 2008 to 2020 will be included. A review was undertaken by the lead author prior to this date and this current review will expand and update those results, relative to our inclusion criteria. Studies published in English or Chinese language will be included as authors are fluent in either language.

\textbf{Methods}

The proposed systematic review will be conducted in accordance with JBI methodology for systematic reviews of effectiveness evidence.\textsuperscript{23}

\textbf{Search strategy}

The search strategy will aim to locate both published and unpublished studies. An initial limited search of
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PubMed (via MEDLINE) and CINAHL (via EBS-COhost) was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for PubMed (see Appendix I). The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The reference list of all studies selected for critical appraisal will be screened for additional studies. A specialist health librarian will be consulted to refine and finalize the search strategies.

Information sources

For studies in English, the following databases were searched for published studies: PubMed (via MEDLINE) and CINAHL (via EBSCOhost), PsycINFO (via EBSCOhost), Embase, ERIC (via EBSCOhost), Cochrane Controlled Trials (via Cochrane Library), and Scopus (Elsevier). Unpublished studies will be searched for via ProQuest Dissertations and Theses (Ovid).


Study selection

Following the searches, all identified titles and abstracts will be collated and uploaded into EndNote V.X8 (Clarivate Analytics, PA, USA) and duplicates will be removed. Titles and abstracts will then be screened for assessment against the inclusion criteria for the review by two independent reviewers for Chinese-language citations and two different reviewers for the English-language citations. Potentially relevant studies will be retrieved in full and citation details will be imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI; JBI, Adelaide, Australia). The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers for each language. Full-text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study selection process will be resolved through discussion or with a third reviewer. The results of the search will be reported in full in the final systematic review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.

Assessment of methodological quality

Eligible studies will be critically appraised by two independent reviewers at the study level for methodological quality in the review using standardized critical appraisal instruments from JBI, relative to study design.

Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise between reviewers will be resolved through discussion or with a third reviewer. The results of critical appraisal will be reported in tables and narrative form. All included studies, regardless of results of their methodological quality, will undergo data extraction and synthesis.

Data extraction

Data will be extracted from studies included in the review by two independent reviewers using the standardized JBI data extraction tool in JBI SUMARI.

Data extracted will include specific details about the populations, study methods, interventions, and outcomes of significance to the review objectives. Additional details will be extracted regarding publication language and context of the study. Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required.

Data synthesis

Synthesizing data from educational interventions/programs is known to be challenging due to methodological heterogeneity.25 However, where there are two or more RCTs with similar interventions and outcome measures, we will pool data with statistical meta-analysis using JBI SUMARI. Effect sizes will be expressed as either odds ratios (for dichotomous data) or weighted (or standardized) final post-intervention mean differences (for continuous data), and their 95% confidence intervals will be calculated for
analysis. If meta-analysis can be conducted, heterogeneity of outcome data will be assessed statistically using the standard $\chi^2$ and I$^2$ tests. Statistical analyses will be performed using the random effects model.\textsuperscript{26} Methodological heterogeneity will be managed using subgroup analyses according to study design and/or focus of program (eg, de-escalation or behavior recognition), program delivery (eg, online or face-to-face) and/or participant type (eg, doctors, nurses, multi- or inter-professional). The aim of this subgroup analysis is to identify the strongest evidence for each category. Heterogeneity tests (I$^2$) will also be conducted to identify any subgroup differences.

We will group studies that measure intervention effects at different time points, according to short (eg, immediately following intervention), medium (up to four weeks following intervention), and long-term effects (over four weeks following intervention delivery). Sensitivity analyses will be undertaken where possible, to test these decisions regarding intervention fidelity and intervention duration. Where statistical pooling is not possible, the findings will be presented in narrative form including tables and figures to aid in data presentation.

A funnel plot will be generated using RevMan5.3 (Copenhagen: The Nordic Cochrane Centre, Cochrane) to assess publication bias if there are 10 or more studies included in a meta-analysis. Statistical tests for funnel plot asymmetry (Egger test) will be performed where appropriate.

Assessing certainty in the findings

The Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach for assessing certainty of the evidence will be followed and a Summary of Findings will be created using GRADEPro GDT software (McMaster University, ON, Canada).\textsuperscript{27} The Summary of Findings will present the following information where appropriate: absolute risks for the treatment and control, estimates of relative risk, and a ranking of the quality of the evidence based on the risk of bias, directness, heterogeneity, precision, and risk of publication bias of the review results. Outcomes reported in the Summary of Findings will be presented as organizational outcomes such as incidence of injury or rates of sick leave; individual outcomes, such as stress or anxiety, and program/participant outcomes, such as skill, confidence, behavior, knowledge, and attitudes.

Acknowledgments

This review represents collaboration between The Queensland Centre for Evidence Based Nursing and Midwifery: A JBI Centre of Excellence, Australia, and the Nanshan Evidence Based Nursing Centre: A JBI Affiliated Group, China.

References


Appendix I: Search strategy

PubMed (via MEDLINE)
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<tr>
<td>#3</td>
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Combined with AND

Date filter: 2008–2020

WanFang Database
Date searched: 31 May 2020

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Date filter: 2008–2020

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