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Abstract

Background
Violence in health care facilities complicates patient care in an already complex environment. Despite the increased volume of published literature on healthcare workplace violence since 1987, the first quality improvement (QI) study of the problem did not publish until 2014.

Aims
Violence-related QI study poses conceptual framework requirements different from those used for previously published research studies. The new requirements called for adaptation of an existing conceptual framework or the creation of a new framework. Efforts were initiated to determine the best course of action and produce a viable conceptual framework.

Methods
The existing conceptual frameworks for workplace violence were compared and contrasted after requirements were identified. A gap analysis determined if any of the existing frameworks were appropriate to fulfill the new requirements, or if a new framework was needed.

Results
A new framework was developed to manage QI-related aspects of violence magnitude, actors, influences and manifestations (MAIM). The MAIM framework fulfills a new need for readily understood, extensible conceptual frameworks to support new violence-related QI literature.

Implications for Practice
The MAIM conceptual framework can serve as a common point-of-reference for new healthcare violence-related QI and research studies. It can also be extended or modified to support violence-related QI studies in non-healthcare fields.

Keywords:
Healthcare violence; workplace violence conceptual framework; workplace violence QI

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Background

A health care employee's risk of experiencing workplace violence varies by work area. Staff who work in emergency departments (EDs), mental health settings and intensive care units (ICUs) are at greatest risk. People who work in obstetrical/gynecological, and medical/surgical areas also incur higher risks than people in other areas (Gillespie, Gates & Berry, 2013). These violent events in health care workplaces pose threats to both patients and care givers. Violence also complicates the delivery of care to patients.

Potential influences on workplace violence are many, especially in health care. Anxiety may induce violent behaviors by individuals who aren't normally aggressive (Luck, Jackson, & Usher, 2008). Illness or injury can also induce stress which may manifest as violent outbursts (Gates, Ross, & McQueen, 2006). Alcohol, drugs and organizational characteristics can also influence violent events (Gacki-Smith et al., 2009; Gillespie, Gates & Berry, 2013).

Need for a Conceptual Model

The National Institute for Occupational Safety and Health (NIOSH) defines workplace violence as "violent acts (including physical assaults and threats of assaults) directed toward persons at work or on duty" (National Institute for Occupational Safety and Health [NIOSH], 2002, p. 1). Despite this seemingly simple definition, workplace violence is a complex topic (Cai, Deng, Liu, & Yu, 2010). Its attribute numbers, origins and interactions form dynamic relationships, making the phenomenon difficult to predict or analyze.

Increased Focus on Workplace Violence

Increasing interest in the study of workplace violence calls for an adaptable conceptual framework which can be readily understood, modified, and extended. The results of a Scopus
The search in Figure 1 shows how published studies of workplace violence have increased since 1987; the increase has been particularly dramatic since 2002.

![Figure 1. Workplace Violence Journal Articles by Year (Title/Keyword/Abstract) - Scopus](image)

Despite the increase in violence-related publications, no frameworks have yet been created for violence-related quality improvement (QI) studies. The purpose of this paper is to:

(a) Explore the existing conceptual frameworks related to violence in the workplace, and (b) report on the creation of a new conceptual framework to support violence-related QI studies.

**Applicability of Existing Frameworks for New Study**

Literature searches revealed several conceptual frameworks for workplace violence. The author planned to use the "best fitting" existing framework as the conceptual model for a new study. Despite the common general subject matter, the framework foci varied. Each framework and its area of focus is shown in Table 1.
Table 1.

**Conceptual Frameworks Relating to Workplace Violence**

<table>
<thead>
<tr>
<th>#</th>
<th>Framework</th>
<th>Author/date</th>
<th>Focus</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Therapeutic Management of Patient Aggression</td>
<td>Finfgeld-Connett (2009)</td>
<td>Therapeutic model based on: Normalization, Downplay of negativity, Reality grounding, Limit setting, Reciprocity, Person/context centeredness, Creativity/flexibility, Team-based approach</td>
<td>Behavioral model</td>
</tr>
<tr>
<td>2</td>
<td>Haddon Matrix</td>
<td>Haddon (1980)</td>
<td>Generalized model for factors relating to work-related injuries, including injuries from violent events. Focused on: Phase (pre-event, event, post-event), Humans, Vehicle/weapon, Environment (physical/sociocultural)</td>
<td>General model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Runyon, Zakocs and Zwerling (2000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ecological Occupational Health Model of Workplace Assault</td>
<td>Levin et al. (2003)</td>
<td>Influences of violent acts by patients and the consequences of violence.</td>
<td>Victim-centric model</td>
</tr>
<tr>
<td>4</td>
<td>Direct and Indirect Paths for Victim Vulnerability Factors for Workplace Aggression among Penitentiary Workers</td>
<td>Mierlo and Bogaerts (2011)</td>
<td>Victim vulnerability factors and (maladapted) coping strategies</td>
<td>Victim-centric model</td>
</tr>
</tbody>
</table>

**Conceptual Framework Requirements for a QI Violence Study**

The second step in exploring the current frameworks was to identify the general attributes needed for a conceptual framework to be applicable to QI study. To accomplish this, violence-
related attributes identified in the literature were grouped by general characteristics. The major attribute groups are described in detail in the following sub-sections.

**Magnitude**

The *magnitude* of a violent event is manifested in terms of severity (victim injury or death) and/or in its frequency of occurrence if the violence is repetitive in nature. Such considerations were documented by May and Grubbs (2002), Mooij (2012), and Tyrer et al. (2007).

**People**

The people involved in a violent healthcare event, such as patients, family members, care givers, professional colleagues or incidental visitors to the patient care unit were grouped and classified as *actors*. Aggressors and victims both fall into this attribute group; future refinement of the model may cause this group to split to accommodate the differences between aggressors and victims. These attributes were identified and described by Ben Naten, Hanukayev, and Fares (2011), Pai and Lee (2011), and Winstanley and Wittington (2004).

**Background Factors**

Background factors which influence how a violent event surfaces and transpires were grouped and classified as *influences*. These factors are:

- Care giver staff behaviors which may be favorably impacted by training to assist in de-escalating or diffusing violent events. This attribute is described in detail by Cahill (2008).

- Social factors such as drugs and alcohol use by assailants, which have been highlighted repeatedly in recent years regarding their effects on violence in the health
care workplace. Literature authored by May and Grubbs (2002), Ferns (2006) and Luck et al. (2008) treat such factors as pivotal within the problem domain.

- Socio-demographic factors such as gender, age or ethnic differences between victims and assailants which have been shown to correlate with incidents of health care workplace violence (Ben Naten et al., 2011).

- Psychological factors such as frustration, separation from family members and long wait times which have been implicated with violent events in the healthcare workplace (May & Grubbs, 2002; Crilly et al., 2004).

- The nature of a patient’s illness or injury may influence a violent event. Such considerations include head injury, hypoxia, endocrine disorders, prescription side effects and various psychiatric, conduct or hyperkinetic disorders (Ferns, 2006).

**Manifestation**

The *manifestation* of a violent incident is reflected by the general actions of an assailant. Assailant actions may manifest as verbal or threatening behaviors, or may transpire as physical attacks on victims. Both manifestations are consistent with the definition of workplace violence as per NIOSH (2002).

**Comparison of Existing Frameworks Against Detailed Requirements**

A coverage matrix, shown in Table 2, summarized gaps and commonalities between the candidate frameworks and the required attribute groups. Coverage gaps were ubiquitous, indicated by the shaded areas of Table 2.
Table 2.

Coverage Matrix

<table>
<thead>
<tr>
<th>Candidate Framework</th>
<th>Attribute Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Severity/Magnitude</td>
</tr>
<tr>
<td></td>
<td>Injury Severity</td>
</tr>
<tr>
<td>1. Therapeutic Management of Patient Aggression (Finfgeld-Connett, 2009)</td>
<td>Not addressed</td>
</tr>
<tr>
<td>3. Ecological Occupational Health Model of Workplace Assault (Levin et al., 2003)</td>
<td>Described but not included in model</td>
</tr>
<tr>
<td>4. Direct and Indirect Paths for Victim Vulnerability Factors for Workplace Aggression (Mierlo and Bogaerts, 2011)</td>
<td>Described but not included in model</td>
</tr>
</tbody>
</table>
Applicability of Existing Frameworks

In summary, the number of coverage gaps highlighted by Table 2 were surprising, given the number of studies on workplace violence published after 1987. The gaps revealed that none of the models were expansive enough to support a QI-based violence study.

Forming a New Framework

Given the lack of existing frameworks to support new QI study, a new framework was needed. Thus, a new framework was built around the four major attribute groups identified from the literature.

Attribute Dimensions and a New Framework

The groupings identified in the coverage analysis appeared independent (a change to an attribute in one group doesn’t change attributes in other groups). Although multi-dimensional scaling (Kruskal, 1964; Torgerson, 1952) wasn’t used to formally prove orthogonality between the four attribute groups, the word *dimension* was informally adopted to refer to the groups in light of their independent nature. Use of the term is consistent with violence-related studies by Estrada, Nilsson, Jerre, and Wikman (2010), Katrinli, Atabay, Gunay, and Guneri Cangarli (2010), and Ramirez et al. (2012).

The first letter of each dimension (magnitude, actors, influences and manifestation) was used to form a new acronym and name the model. The resulting MAIM conceptual framework is shown in Figure 2.
Using the MAIM Framework

The MAIM framework does not require all dimensions to be defined or engaged to set the context for study. For example, a QI study can evaluate the effectiveness of a hospital nonviolent crisis intervention training initiative using a correlation and regression-based model which leverages three of the four MAIM dimensions: \textit{Influences} (behaviors/training), \textit{magnitude} (frequency), and \textit{actors} (care givers). The author recently completed one such study (Gillam, 2014). The framework assisted the formulation of the study as it allowed the dimensions to be

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viewed abstractly while the study context was formed. Ultimately, the study proposal included a modified version of Figure 2 which highlighted the affected attributes; the highlights were accompanied by detailed descriptions of the study intervention. Use of the MAIM framework also facilitated review and approval by committees for academic review and hospital ethics.

**Conclusion**

Future violence-related studies will need flexible conceptual frameworks which can incorporate and manage attributes in increasingly complex ways. The MAIM conceptual model recently served as a framework for the first QI-based study of a violence-related phenomenon (Gillam, 2014). Given the success of that study, and having incorporated key attributes from earlier published work, MAIM may also serve as a conceptual framework for new violence-related QI study.
References


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