

**Workplace Violence Against Nurses: Use of Patient Screening for Early Identification of Violence**

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I have no known conflict of interest to disclose.

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### Abstract

**Background:** Workplace violence (WV) is a significant problem in healthcare that affects the nurses' physical and mental health and impacts patient care. This is costing healthcare organizations millions of dollars for damage control as there is a lack of prevention. Hence, this evidence-based practice project uses the theory of planned behavior and nursing process discipline theory to explore the effectiveness of screening patients for violence.

**Method:** After an aggregate IRB approval, a violence screening tool with high sensitivity and specificity, Broset Violence Checklist (BVC), was implemented twice daily and as needed for 15 days with 275 adult patients in a neurology/telemetry unit to help identify patients at high-risk for violence. All interventions and procedures were based on established policies, not the BVC score.

**Results:** A generalized estimating approach with a logit link and linear regression was used for data analysis. Of the 1504 BVC screenings completed, 43 violent incidents were reported, with interventions recorded in 106 (7.1%) screenings. Patients with a BVC score of <2 required an intervention 16 times (1.2%), and BVC score of >2 required an intervention 90 times (54.2%), OR= 17.95 (95% CI: 3.55 to 90.84),  $p < 0.001$ .

**Discussions:** Total BVC score, male gender, and older age were highly predictive of violence. Also, as the BVC score increased above 1, additional interventions were utilized.

**Conclusion:** The BVC has value, indicating that patients who score above 1 can pose enough threat to require an intervention. Thus, uncovering risks and identifying the potential for violence is essential to diminishing harm and WV.

*Keywords: Workplace violence, Violence screening tool, Workplace violence against nurses, Inpatient violence, Healthcare violence, Workplace violence prevention, Broset Violence Checklist.*

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### **Workplace Violence Against Nurses: Use of Patient Screening for Early Identification of Violence**

Nurses have a structured and predictable routine. They might not always know the patient load they will get, but they know that the patients will be sick, vulnerable, not always rational, and sometimes even dangerous. Because these irrational acts like shouting, spitting, scratching, shoving, and even hitting or choking are coming from the sick and vulnerable, the nurses deem these unintentional and get used to them. Few incidents get reported, and few nurses quit their jobs, but many learn to live with it as a part of their profession. It is known that most nurses will have faced patient-initiated workplace violence (WV) at least once throughout their careers. Hence, this paper addresses the issue of patient violence and brings attention to this rising problem.

#### **Problem Statement**

WV is a rising problem both nationally and globally. The European Agency for Safety and Health at Work has reported that WV rates are highest at healthcare facilities (Berlanda et al., 2019). Healthcare workers, especially nurses, are regularly subjected to violent acts at hospitals and other healthcare facilities. The most common perpetrators are the patients, their families, and visitors (Babaei et al., 2018; Spector et al., 2014). From 2002 to 2013, WV incidents requiring days off due to injuries were four times higher in healthcare than in other workplace settings (Occupational Safety and Health Administration [OSHA], 2015B). Healthcare and social service workers are five times more likely to face WV, and 73% of non-fatal WV-related injuries required days off in 2018 alone (The Joint Commission [TJC], 2021).

This paper addresses a healthcare facility where the problem is the increasing incidence of WV against nurses, which is largely underreported or not at all reported. The Joint Commission (TJC) (2021) attests that there is a lack of reporting of WV, which states that the incidents are significantly underreported, and actual rates of violence are high. Yet, nothing seems to be in place to identify a potentially

violent patient. Therefore, this under-reporting and a lack of a tool to identify future risks of violence put the nurses' safety at stake.

### **Purpose and Rationale**

WV is nothing short of a crisis with constantly rising incidence rates. The American Nurses Association (ANA) (n.d.) reports that one in four nurses in the United States (U.S.) gets assaulted. A study has found that 15.9% and 19.1% of nurses in Cyprus had experienced verbal and physical violence, respectively, and 62% of Taiwanese nurses had faced verbal violence (Najafi et al., 2018). With the nature of a nurse's job and working very closely with patients with a history of violence, mental illness, and even crimes, the risk is notably high. Moreover, nursing is a people-centered profession where customer service is essential. The cultural belief that a customer is always right plays a significant role in creating unnecessary dissatisfaction resulting in different kinds of violent acts toward nurses. This takes a toll on healthcare and the nursing workforce, affecting their physical and mental health. Eventually, this puts the patient's health and safety at risk. Therefore, this paper aims to highlight the problem of patient-to-nurse violence and bring attention to the causes, consequences, and potential interventions.

### **Background and Significance**

Nursing is the most trusted profession, yet nurses face high rates of violence. Worldwide, one-third of the nurses reported being exposed to physical violence and sustaining injuries, while two-thirds reported facing nonphysical violence (Spector et al., 2014). In the U.S. alone, 21% of nurses and nursing students have faced physical assault, and 50% have been verbally abused in a 12-month period; yet only 20-60% of those are reported (OSHA, 2015B; ANA, n.d.). Per the new data by Press Ganey, two nurses are assaulted every hour in U.S. hospitals (TJC, n.d.). With COVID and its added stress, this problem was heightened and amplified. U.S. hospitals had a 23% increase in assault rates, and nurses experienced a 35% increase in injuries due to intentional and non-intentional violence in 2020 (Lynda Enos, 2022). It

was noted that violence was precipitated by simple routine procedures like asking to wear a mask, vaccination status, and visitation restrictions (Lynda Enos, 2022).

Additionally, WV is burdensome financially as well. It has cost facilities \$1.1 billion in security and training and \$429 million in medical care, staffing, and other costs (Van Den Bos et al., 2017). The latest data suggest that the U.S. incurs a cost of \$151 billion annually due to workplace violence, with each incident costing \$250,000 (Chapin & Koller, 2022). However, these estimates do not fully account for the additional costs of workplace violence, such as emotional suffering, depression, social isolation, and anxiety (Chapin & Koller, 2022). So, it is not irrational to say that not just WV incidences, the associated costs are unimaginable and unacceptable.

Despite the prevalence and this massive financial dent, there are limited studies to identify and evaluate patient-centered interventions for potential prevention. A study established that passive training on violence prevention and education was not an effective strategy to help increase nurses' safety perception in medical-surgical and psychiatric units (Havaei et al., 2019). Yet, most recent studies were based on nurse training and resiliency to help with the problem. However, the rising number of WV incidents speaks for itself, and how an effective intervention is imperative. Some studies recommend using violence screening tools and yearly or biannual training and education for nurses to tackle WV (Senz et al.; Sharifi et al.). Due to WV's significance and concern, the Centers for Disease Control and Prevention (CDC), National Institute of Occupational Safety and Health (NIOSH), Emergency Nurses Association (ENA), TJC, OSHA, and ANA have all stepped in with their WV prevention (WVP) programs; and TJC even created new accreditation requirements (Story et al., 2020; TJC, 2021).

Some links to organizations addressing and working towards WVP are as follows:

1. [http://www.qualityforum.org/News\\_And\\_Resources/Press\\_Releases/2020/National\\_Quality\\_Forum\\_Action\\_Teams\\_Address\\_Healthcare\\_Workplace\\_Violence\\_and\\_Patient\\_Partnership\\_on\\_Designing\\_Health\\_Systems.aspx](http://www.qualityforum.org/News_And_Resources/Press_Releases/2020/National_Quality_Forum_Action_Teams_Address_Healthcare_Workplace_Violence_and_Patient_Partnership_on_Designing_Health_Systems.aspx)

2. <https://www.jointcommission.org/resources/patient-safety-topics/workplace-violence-prevention/>
3. [https://www.cdc.gov/niosh/topics/violence/training\\_nurses.html](https://www.cdc.gov/niosh/topics/violence/training_nurses.html)
4. <https://www.nursingworld.org/practice-policy/work-environment/end-nurse-abuse/>

### **Population**

Nurses are the most affected by WV as they work closely with patients their entire shift. Hospital staffing issues that lead to unsafe nurse-to-patient ratios and the nursing shortage are consistent problems that have worsened WV (Najafi et al., 2018). Patients and their families are the perpetrators of violence against nurses, and a study has assessed and confirmed this by evaluating patients, their families, and nurses (Babaei et al., 2018). In the Emergency Department (ED), the patients are in the most vulnerable and untreated state, intoxicated with alcohol or illicit drugs, frustrated with lack of space or long waiting times, experiencing mental conditions, and lack of nurse-to-patient rapport (Al-Qadi, 2020). Subsequently, ED nurses face higher rates of violence. However, it is commonly seen in practice that WV is not just limited to the ED and is equally prevalent in all inpatient units.

The hospital of concern for this paper reported the highest rates of violence in a neurology-telemetry unit that regularly sees many patients with confusion and other mental health conditions. If this problem persists, the healthcare system may end up with many calloused nurses tired of being abused. As is seen in the present situation with the pandemic, when overexploited, abused, or exposed to unsafe conditions far too often, nurses do not hesitate to quit their jobs and profession. This eventually affects patient care as nurses who have experienced WV are more likely to use chemical and physical restraints to feel safer (Lamothe et al., 2021).

### **Intervention**

Violence against nurses requires a multifaceted approach to assess, intervene, and fix the problem. Several studies suggest that certain behaviors predict aggression and violence, and a few

interventions have been utilized for healthcare-associated violence (Kim et al., 2012; Gillespie & Leming-Lee, 2019; Luck et al., 2007). Some interventions developed and tried in the last two decades include educating nurses about violence; creating a consistent violence reporting process; using a tool to identify potential violence; and providing workshops for nurses to develop and increase resilience (Kim et al., 2012; Gillespie & Leming-Lee, 2019; Story et al., 2020; Provost et al., 2021).

Dynamic Appraisal of Situational Aggression (DASA) is a validated tool that can assess and predict the likelihood of patient aggression, which has been used in both psychiatric and emergency departments (Connor et al., 2020; Ogloff & Daffern, 2006). The Electronic Hamilton Anatomy of Risk Management tool (e-HARM) has been used at a hospital in Ontario for a decade that helps predict a patient's risk for future violence (Vogel, 2016). Several studies support systematic and consistent incident reporting and mixed-method violence prevention education with longer training sessions; this helped increase nurses' safety perception and confidence and decreased WV (Provost et al., 2021; Story et al., 2020; Wirth et al., 2021).

RESPECT is a four-day training program about aggression management that has been shown to significantly help staff's attitude and understanding of the causes and management of aggression (Coneo et al., 2020). Violence Risk Assessment Tool (M55), with a sensitivity of 41% and specificity of 99%, mainly showed older, male, or Caucasian patients were at higher risk of becoming violent (Ideker et al., 2011). Additionally, the Aggressive Behavior Risk Assessment Tool (ABRAT) has been shown to help predict violent behaviors in the medical-surgical unit and long-term care facility with acceptable sensitivity, specificity, and inter-rater reliability (Kim et al., 2012; Kim et al., 2017). Some studies have also utilized factors like Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing (STAMP) to identify potential violence and use it as a framework for screening tools (Luck et al., 2007).



Additionally, the Broset Violence Checklist (BVC) is also available, which helps predict the probability of violence from patients and families, and its use has shown a significant decrease in violent incidents (Sharifi et al., 2020; Linaker & Busch-Iversen, 1995; Senz et al., 2021; Hvidhjelm et al., 2016). This tool has been utilized not only in psychiatric settings but also in ED and a few other inpatient units. This tool was developed through a retrospective study based on patient behaviors; therefore, it has produced many successful studies and valuable outcomes (Sharifi et al., 2020; Linaker & Busch-Iversen, 1995; Senz et al., 2021; Hvidhjelm et al., 2016).

### **Comparison**

When patients become violent, it is commonly seen in practice that male nurses get assigned to those patients. Evidence suggests that this has exposed male nurses to more harm and physical violence than female nurses and creates situations where patients might perceive them as bodyguards instead of professionals (Dafny & Beccaria, 2020; Hassankhani et al., 2018; Hamzaoglu & Türk, 2019). Also, despite management instructions to report every incident, big or small, that is not currently observed in practice. The reasons for under-reporting were violence tolerance; time-consuming, confusing, and inconvenient reporting process; heavy workloads; fear of being called weak; reports requiring justification; victim-blaming; legal procedures; and no action taken post-reporting (Dafny & Beccaria, 2020).

Assessing the extent of WV becomes problematic when the incidents are under-reported; some studies have even found that rate to be as high as 88% (Berlanda et al., 2019; Gillespie & Leming-Lee, 2019). Thus, it becomes difficult to assess and gauge the effects of WV and implement appropriate interventions to help tackle the problem. Nonetheless, the reporting process is nothing but cumbersome in many organizations to date. Additionally, nursing shortages, unsafe staffing, and the nurse-to-patient ratio are still significant problems in daily practice, which seem to remain unchanged.

### **Outcome**

The overall goal for WV is to reduce all possible incidences. The organization of interest's primary goal is to identify and utilize a screening tool and implement training and education for nurses to reduce WV. However, accurately assessing and identifying the problem is impossible until all events get reported. When there is an understanding of the reasons for violence and its consequences, understanding the depth of the problem is possible, and it might fuel work toward prevention. Therefore, the desired future state also involves increased incident reporting, which will be addressed as their WVP work continues in phases.

The goal with the available screening tools like DASA, BVC, M55, e-HARM, ABRAT, and STAMP, is to identify and predict future risks of violence to reduce and avoid its incidence in different hospital settings (Connor et al., 2020; Sharifi et al., 2020; Ideker et al., 2011; Vogel, 2016; Kim et al., 2012; Luck et al., 2007). With its guidelines for WV, OSHA's goal is a safety culture, and they want organizations to be safe for their workers and patients (OSHA, 2015A). Therefore, from January 2022, all of TJC-accredited and critical access hospitals must utilize new WV prevention standards involving annual worksite analysis, continual monitoring, reporting, and investigation of violence, and ongoing safety education and training (TJC, 2021).

### **Common Themes**

A review of several pieces of the literature attests that patient-to-nurse violence is a critical issue requiring intervention in every way possible. Moreover, they all confirm that it is problematic for healthcare overall, has many avoidable impacts on the nurses, and even negatively affects patient care. The scope of the problem is hindered by a lack of accurate assessment due to underreporting, which impedes efforts for intervention.

### **Internal Data**

This paper focuses on a large 427-bed full-service non-profit hospital in a large health system in the southwest U.S. This facility serves patients of all ages and diseases as a Magnet-

designated facility. Additionally, it is a bariatric surgery center of excellence, certified cardiac arrest center, chest pain center, designated primary stroke center, heart attack center, and total joint replacement center. Like several others around the globe, this organization sees increased WV against nurses. Despite that being a problem, they cannot produce the data to reflect the severity of this problem. This is because nurses are not reporting the incidents. The managers and leadership hear about, witness, attend to, and mitigate several patient-led violent situations but do not see those translated into the reports and data.

The nurses in this organization seem to perceive many incidents as normal patient behaviors, and only highly violent incidents or those that cause an injury get reported. There were 151 incidents reported in 2020 and 36 in the first quarter of 2021 throughout the hospital system, accounting only for 0.15% and 0.04%, respectively. It indicated a meager incidence rate, but the management and leadership know this number does not reflect all the incidents. In June 2022 alone, the neurology-telemetry unit had 20 reported incidents. Then in August 2022, there were no reports, and in September 2022, there were three incident reports, highlighting the inconsistency in reporting. Internal questioning and nurse assessments have revealed several factors, including being unaware of the reporting process or resources during or after the incident, heavy workload, lack of time to report, and tolerance to violence as the cause of this underreporting. Knowing this, the organization wants to implement a screening tool to identify potentially violent patients and other solutions produced by their WVP committee to tackle this problem.

#### **PICOT Question**

For violence against nurses (P), does the use of a violence screening tool (I) compared to not using a violence screening tool (C) improve the identification of violence prediction that leads to the prevention of the risk of violence and injury to nurses (O) during a 15-day period (T)?

#### **Search Strategy and Keyword Selection**

For this literature review, the databases included were CINAHL and PubMed, for their rigor; and PsycInfo, for rigor, since the problem topic is behavioral and psychological. The search yielded several pieces of literature, including journals, organizational brochures, news articles, doctorate-level work, and Ph.D. dissertations. The search on all databases was broadly similar, with the exact keywords to identify relevant studies and make duplication possible. The search started with a MeSH term (Workplace Violence), then the PICO components were searched, and finally, they were all added together with each new search in each database to yield relevant studies.

The initial search was on CINAHL, followed by PubMed and PsycINFO. The search started with the keyword *WV*, then other keywords for the problem like *occupational violence*, *violent patient*, *violent patient family member*, *patient violence*, *nurse abuse*, *nursing abuse*, *healthcare personnel abuse*, and *healthcare personal violence* were added with the Boolean connector “or”. Then the PICO components were searched using the keywords *violence screening tool (VST)*, *violence screening*, *violence questionnaire*, *violence patients screening*, *violence survey*, *hospital abuse screening*, and *hospital abuse questionnaire* (interventions) with the Boolean connector “or”. Keyword *hospital* was also added to ensure inpatient studies.

### **Initial and Final Search Yields**

The initial search in CINAHL with only *WV* yielded 6569 results. The keywords indicating problems were searched for, including the Boolean phrases “or” in CINAHL, which produced 10310, PubMed yielded 56346, and PsycInfo yielded 26339 results. When intervention keywords were separately searched in CINAHL, it yielded 1942, PubMed yielded 80178, and PsycInfo yielded 33154 results. Then with the inclusion of the Boolean phrase “and”, “or”, “not” all the different keywords identifying the problem and intervention were combined, and irrelevant topics were excluded. This search in CINAHL yielded 73, PubMed yielded 7849, and PsycInfo yielded 26339 results.

The last search with the inclusion of the keyword hospital yielded 73 results in CINAHL. Also, after including some pre-identified screening tools, keywords like BVC and STAMP yielded 13 studies in PubMed. PsycInfo still yielded significant results, with similar searches producing many irrelevant results.

### **Limitations, Inclusion, and Exclusion Criteria**

The search with the keyword WV and similar keywords yielded several studies, many of which were irrelevant. Thus, the Boolean phrase “not” was used to exclude other types of violence. MeSH terms and “not” were also utilized to exclude reviews as the title to produce good quality evidence and primary studies. The search was narrowed to find studies from 2017 to 2022 to produce the most recent work on the topic. Also, inpatient and hospital were added as keywords to produce targeted and relevant results. This process helped identify multiple studies with relevant problems, appropriate interventions, and valuable outcomes, which helped finalize ten high-quality peer-reviewed studies.

### **Evidence Synthesis and Literature Review**

Ten studies were finalized and retained for this review, comprising two cross-sectional, one cross-sectional with a descriptive qualitative, three quasi-experimental, one case-control retrospective, one mixed-method, and two qualitative studies. All the studies were critically appraised using the rapid critical appraisal (RCA) tool (Melnik & Fineout-Overholt, 2019) (See Appendix A, Table A1, and A2). Then, the relevant problems, interventions, themes, and outcomes were identified and compared to synthesize the information from the studies (See Appendix A, Table A3).

The studies were a mix of level III, IV, and VI evidence, and the outcomes were statistically significant, making the studies valuable. Additionally, all studies have no bias stated or inferred. Although the two qualitative studies can be considered a lower level of evidence, these were valuable. They help highlight different perspectives to understand WV, its causes, identifying factors, and complicated outcomes for nurses, patients, and family members.

The heterogeneity of the study design, interventions, and outcomes slightly complicated the evaluation and synthesis. However, they all highlight WV as a prevalent and significant problem with major adverse outcomes like nursing burnout and reduced patient safety. All the studies' subjects were nurses, primarily females, except Linaker & Busch-Iversen (1995) and Hvidhjelm et al. (2016), who studied patients instead to validate a VST and assess a VST's use in the reduction of aggression. Also, most of the studies were conducted in an ED setting, whereas Linaker & Busch-Iversen (1995) and Hvidhjelm et al. (2016) used psychiatric units. Most of the studies utilized a questionnaire or survey either related to WV or about the implications of WV and a VST or scale. On the contrary, in their study, Luck et al. (2007) and Linaker & Busch-Iversen (1995) created themes used to create a VST instead.

Most studies had low attrition rates; utilized non-invasive interventions; were easily replicable and feasible; and utilized short screening tools representing their strengths. However, most were deemed non-generalizable by the researcher either because of the sampling method, sample size, or the setting selected, which were the identified limitations. Also, the outcomes differed with the heterogeneity of the interventions utilized for all studies. Nevertheless, the studies collectively indicate reduced violent incidents and increased nursing self-efficacy post-intervention. Overall, the outcomes are primarily unanimous in producing statistically significant results despite the different interventions, which attests to their reliability. Using validated, reliable, and credible organizations' recommended questionnaires and tools in most studies adds to their validity. Both also make the selected studies strong.

It is well established now through evidence that WV yields several adverse outcomes ranging from decreased nurses' safety to increased nursing burnout and even reduced patient safety. Many organizations worldwide, including the organization of interest for this project, are aware of the problem; however, there are either ineffective interventions or no interventions in place to tackle WV. Knowing the amount of WV that occurs and its outcomes, this should not be an acceptable state for any healthcare organization.

The literature review suggests that an intervention must be in place to fight the problem of WV. The use of interventions like VSTs, violence education and training, and leadership and security team involvement have all been shown to help increase violence reporting and decrease violent incidents. Although the studies may identify their results as non-generalizable, with all healthcare organizations being very similar, the interventions are easily applicable, and the studies are reproducible. A VST seems to be the first step in the challenge that helps identify potentially violent patients; making identifying, analyzing, and applying safety measures before a situation escalates to violence a possible reality. With the wide availability of several valid and reliable screening tools for this purpose, at least one tool should be routinely utilized at every healthcare organization if reducing WV is the ultimate goal. Thus, a VST should be one of the first interventions in a nurse's routine shift charting to identify at-risk situations and prevent escalating violence.

#### **Influence of Evidence on the Project**

Evidence suggests that having no intervention is not an option for WV as its outcomes are detrimental to the nursing profession and eventually impact patient safety. Evidence also suggests that any available intervention, either screening tools, education, enhanced security, or management measures, helps when no intervention exists. The interventions bring light to the problem, help reduce the violence incidence to some degree, and have positive outcomes for the nurses, the organization, and the patients. However, as established, out of all these interventions, a VST is the only intervention that helps predict potential violence and allows an organization to be proactive in prevention.

Several validated and reliable VSTs exist that help identify a potentially violent patient. As the literature suggests, a screening tool helps predict potential violence and implement preventative measures, including but not limited to appropriate caution during care, de-escalation techniques, and enhanced security personnel and management involvement. Therefore, the intervention selected for

this project implementation is the use of a VST, the BVC, that helps screen all patients for potential violence.

The proposal for the project was to utilize a paper version of BVC with permission from the tool creators and have nurses, the main stakeholders of this project, screen all patients during their daily shift charting routine. This helps produce a score based on the screening tool that places the individual patient at an appropriate risk level. Data was then collected on the number of patients who scored high on the screening tool and eventually became violent. This helps further validate the screening tool used and helps identify that a change process or further intervention is needed when a patient meets the high-risk category. The presence of a predictability factor helps increase nursing self-efficacy and their perception of safety. Additionally, it helps appropriately identify the problem and the patient at risk of committing violence to be able to intervene proactively. Thus, implementing this proposed screening tool will do the same for the organization of interest and aid in their larger goal of reducing and eventually mitigating WV against nurses.

This project's outcome was to predict imminent violence and reduce its likelihood accurately. The ability to predict violence is something the organization is lacking at this point. This project will help monitor the patients more closely and implement appropriate interventions timely instead of after the fact, which is the current reality. Which will eventually help achieve the potential outcome of reduced risk of violent incidents and injury to the nursing staff. This aids the organization's goal of creating a safe space for healthcare workers. The organization also plans to implement staff education and training, enhanced security and management involvement, crisis team development, and its implementation in phases, which will help the organization reach its end goal of reducing violent incidents overall and increasing incident reporting by the nurses.

### **Theory/Theoretical Framework Application**



The theory of planned behavior (TPB) is about the relationship between one's behavior and beliefs, attitudes, subjective norms, motivation, and intentions (Butts & Rich, 2018). The authors explain that TPB's primary assumption is that someone's behavioral intention most accurately determines their actual behavior. Also, their belief of whether they can control their behaviors and internal and external motivation plays a role. This theory has been widely used to successfully predict and explain many behaviors (Butts & Rich, 2018).

Nursing Process Discipline Theory (NPDT), developed by Ida Jean Orlando, explains that a nurse's role is to identify and meet a patient's immediate needs (Butts & Rich, 2018). However, that need might not be evident; hence, they must use their thoughts, feelings, and perceptions to decipher the meaning and the patient's needs and then meet them. NPDT consists of the person's behavior, the nurse's reaction, and appropriate nursing action (Butts & Rich, 2018).

The two theories mentioned above are the most applicable theories to the problem of WV. TPB helps understand behavior to curate the necessary steps and interventions. If applied to WV, this theory will help understand a patient's behavior, eventually helping identify and develop the best response to mitigate violence. With the motivation factor at play from this theory, changing someone's behavioral perception, modifying their behavioral intention, and changing the occurring end behavior can be possible.

Similarly, using NPDT can help strengthen and improve the nurse-patient relationship and alleviate distressing situations. Patients express several behaviors, like anxiety, cooperation, aggression, calmness, etcetera, throughout a nurse's workday. With this theory, a nurse's perception and feelings determine their action, which might not meet the patient's needs. Following these feelings and perceptions, the action will determine whether a situation is de-escalated or escalated into a violent situation. Thus, this theory applies to WV and potentially creates interventions to handle the issue.

### **Implementation Framework**

The Iowa model of evidence-based practice to promote quality care will be utilized to implement this project (See Appendix B, Figure B3). This model focuses on the entirety of the healthcare system, including the nurses, the patients, and the infrastructure, and then drives change based on the best evidence (Titler, 2001). This model includes several steps: identifying the trigger; determining if the trigger is an organizational priority; creating a team with stakeholders; identifying, collecting, appraising, and synthesizing exhaustive evidence; and conducting the research (Titler, 2001). Therefore, this is the most applicable framework for this WV project, as this can involve a pilot study in the organization. With its ability to circle back between its steps to make the necessary adjustments to create the desired final practice change, the Iowa model would fit best for this project and the organization.

### **Method**

This pilot project aimed to answer the evaluation question, “Will the use of a violence screening tool in the inpatient setting improve violence prediction and prevent the risk of violence and injury to nurses after 15 days post-intervention?” This project was a piloted system change involving the use of a validated violence screening tool, BVC, at the organization's 3rd-floor neurology-telemetry unit. The facility's designated WVP committee, formed by a Health Catalyst group, facilitated the project. They will continue the project even after the Arizona State University (ASU) team's project completion, make necessary adjustments along the way, and apply other planned interventions in their stepwise plan.

There is strong evidence to support the use of BVC. Several studies have conducted validity and reliability tests on BVC. According to Rechenmacher et al. (2014), BVC's sensitivity was 58.5%, and specificity was 96.8%; low sensitivity was due to early intervention after scoring. Yao et al. (2014) stated that BVC's sensitivity was 78.5% and specificity was 88.3%. Similarly, Marques et al. (2015) found a sensitivity of 77% and a specificity of 100%. Almvik et al. (2000) stated that BVC's sensitivity was 63% and specificity was 92%. Several works have been done with BVC in different inpatient settings to prevent violence, and the evidence is proof of its replicability and reliability. Since this project aims to

predict imminent violence and intervene to prevent violence from occurring, this screening tool has the best evidence. It is the best tool to solve the identified problem. In the most recent Webinar that ANA presented about WV against nurses, BVC was the tool that was promoted as something to highly consider and as valid and reliable (Lynda Enos, 2022).

The project developer had permission to use the paper version of BVC from the tool's creators (See Appendix E Image E2). Some modifications were needed to reduce the data collection burden, the number of screening forms produced during the implementation phase, and to ensure all BVC forms were recovered. Thus, the project developer obtained permission for that as well (See Appendix E Image E3)

### **Ethical Considerations and Human Subject Protection, IRB Approval**

ASU provided an exempt IRB approval in September 2022, and the facility's Network Nursing Research Council (NNRC) endorsed the project in August 2022 before implementation. There are insignificant anticipated risks to any participants in this project. The projected risks to the nurses could be increased stress due to an additional charting of the screening tool and consistent event reporting in case of any incidents. Another risk is the nurses' not intervening based on the tool, despite higher scores on BVC. This could pose an ethical concern. However, this is no different from the protocols already being implemented, and no changes are being made. Currently, nurses utilize interventions like medications, sitters, and restraints as needed, and they call security after an incident occurs or to de-escalate patients and will continue per their protocol. Although BVC is a valid and reliable tool that has shown significant efficacy in psychiatric and some acute care settings studies. Since the chosen facility is different, with different patient populations, there might be no surety of BVC being accurately predictive. Hence, the process mentioned above is necessary.

As this is a quality improvement project that a large organization is hoping to adopt long-term, nurses' consent did not necessarily apply as the upper management and unit directors gave their buy-in

and consent. This might affect nurses' autonomy, but nurses' safety can be ensured by the ability to predict imminent violence. Therefore, the benefit outweighs the concern about autonomy. For the staff at the facility de-identifying the data, the risk could be stress due to increased workload during de-identification and frequent communication.

### **Population and Setting**

This project was conducted as a pilot in the facility's neurology-telemetry unit, which had the highest rates of violence. This unit serves all hospital stroke admissions and several confused patient populations. The unit also has many patients with mental health problems and substance use disorders that lead to hospitalization, making the unit vulnerable to WV. Some interventions had been piloted in this unit previously with poor success. The challenging patient population they serve puts the unit at high risk of patient-led violence.

All the patient records related to the BVC assessment, its scoring, and basic demographic information from the pilot units were included. The implementation and assessment period was two weeks long. All nurses at the unit administered the screening tool to the patients during admission and transfer to the floor, each shift, and as needed based on specific behaviors and changes to behaviors such as anxiousness, restlessness, etc., which would trigger BVC assessment. This generated a score that would be used later to analyze and co-relate to corresponding reported violent incidents.

There are several stakeholders for this project who spread throughout the hospital network. Firstly, all nurses in the unit are the main stakeholders, as they would administer the screening tool. Then the unit director is the other most significant stakeholder, as she has a complete buy-in as a WVP committee member. However, nursing assistants and nurse managers play an equally important role. Also, the facility's Chief Nursing Officer (CNO) and network Chief Nursing Executive (CNE) are the other two significant stakeholders who have been a champion for this project by giving full buy-in and support. The NNRC, the organization's project-endorsing body, is also an important stakeholder. Lastly,

the organization has a WVP committee comprising managers, directors, security staff, an informatics team, and quality and project improvement department representatives who have been closely working with the project development and implementation.

### **Intervention and Timeline**

The ASU student collaborated with the facility's WVP committee, which identified the need for a violence screening tool. The committee approved the use of BVC and identified the pilot unit where the tool would be used for two weeks. Then the copyright information was obtained along with approval to use from the tool's creators. After NNRC endorsement and exempt approval from ASU, the unit director identified the superusers, who were educated on the use of the tool, along with the unit nurses. The ASU student reiterated the importance of reporting and documenting every incident and ensuring every patient got screened for successful project implementation. After implementation from October 1-15, 2022, the student was able to compile the data and all incident reports and conduct the analysis to identify BVC's usefulness.

### **Data Collection Plan**

The role of the student in this project was the identification of the violence screening tool and data analysis of the tool's effectiveness in predicting violent incidents. The student also led the project and managed the processes, reviewing how consistently the tool was used and reporting the outcomes. The student accessed only scores charted on the paper version of BVC with a patient label that helped compare and correlate the incident reports. The scored BVC paper charts were kept in the director's office in an alphabetized folder. The student accessed these at the director's office during audits and data entry periods. The additional data included patient demographics (age, sex, ethnicity), diagnosis, incident reports, and the scores generated from the screening tool over a two-week period. These were obtained with the help of security staff, informatics, and the outcomes team.

The original plan was to collect the data for a month and analyze the process midway to identify any administrative issues and areas of improvement. However, with a large number of patients that get admitted to this unit, the produced data was anticipated to be extensive. Thus, the project was only conducted for two weeks. At the project's conclusion, the facility's security staff, the outcomes team, and the informatics team helped collect and de-identify data from incident reports. These de-identified data were provided to the ASU team in an Excel spreadsheet for analysis.

The aggregate data from the paper charts and their event reporting system was stored at the facility's password-protected computer until any identifiers were stripped from the document and sent to the ASU team for data analysis. The student stored the de-identified data on the Excel spreadsheet on a password-protected computer in a passcode-protected file of the primary investigator on a facility computer. The data was stored until all analyses were completed. All data will be deleted and erased from the computer on or before May 10, 2023. The director will keep the paper charts in her office for the continuation of the project by the WVP team.

### **Data Analysis Plan**

De-identified data were collected as described in an Excel sheet with the patient's demographics, BVC scores, type of occurred violence, any interventions used per pre-existing protocols, and co-relating incident reports. The data was cleaned and then analyzed using the Intellectus and SPSS software. The collected data helped identify whether a patient with scores higher than two became violent. An accurate analysis was only possible if consistent incident reporting, small or big, occurred after each incident.

### **Budget and Funding**

The total estimated potential cost of the project and implementation is \$12995 (See Appendix C), which includes everything needed for the project. With the approval to utilize the paper tool, the copyright cost has been eliminated from the budget, which is a significant amount not to have to worry

about. Since this is a facility's WVP committee lead project, the facility will absorb some costs, such as the superuser pay. The project developer will bear the cost of the needed stationaries and statistical help through Intellectuals during analysis since no funding is available for this project.

The cost of this project is high; however, the benefits include the nurse's safety which ensures patient safety as a result. This reduces burnout and increases nurses' job satisfaction, contributing to retention and productivity. A report from 2017 estimated the cost associated with workplace violence for hospitals and health care systems in the U.S. for 2016 to be \$2.7 billion that, included \$280 million for preparedness and prevention, \$852 million in unreimbursed medical care for victims, \$1.1 billion in security and training costs, and an additional \$429 million in medical care, staffing, indemnity, and other workplace violence related costs (ASH Clinical News,2018). Clearly, the cost of this implementation is much lower in comparison.

### Results

Descriptive and summary statistics were run. Summary statistics were calculated for each interval and ratio variable, and frequencies and percentages were calculated for each nominal variable. Violent behaviors were identified as sexual, verbal, and physical. Management of these behaviors included restraints, medications, security, and sitter with frequency and percentages calculated.

The study was piloted on a neurology telemetry floor, with two hundred seventy-three (n=273) patients admitted for various diagnoses. The diagnosis of chest pain was noted most frequently, though in only 16 (5.86%) admissions. The population was primarily females, 148 (54.21%), white 241 (88.28%), and the average age was 69.49 years ( $SD = 18.08$ , range 20 -97) (Table 1)

Regarding patients who exhibited violent behaviors, most had one episode (n=10), and a few had two episodes (n=4). Multiple episodes of violent behaviors were identified in three patients who had six, seven, and eight episodes. Seventeen (17) patients accounted for the incidents used in the

analysis. Forty-two (42) incident reports were made; however, three (3) had missing data leaving thirty-nine (39) for analysis. The 17 patients were responsible for 48 verbal and 37 physical violence incidences, and no sexual violence was reported. For those patients, medications were used 68 (4.52%) times, security 34 (2.26%) times, sitter 27 (1.8%) times, and restraints were applied 59 (3.92%) times (Table 2 & 3).

There were a total of 1504 BVC administrations for 273 patients over the course of 15 days of project implementation. The number of unit admission days for each patient varied substantially. It resulted in a vastly varying number of BVC administrations for each patient, ranging from 1 to 34 (graph 1). Of note, the patients that are part of this project were admitted to the hospital but not the intervention unit prior to the project initiation. A Spearman’s correlation was done [( $\rho$ )=0.936 and  $a < 0.001$ ], which showed that the longer a patient stayed in the unit, the more BVC administration they received. Hence, the multiple BVC administrations were directly related to the patient’s length of stay. p SPSS ver 28 (IBM Corp., Armonk, NY) was used for this analysis.

**Table 1**

Frequency Table Demographic

Variable	<i>n</i>	%
Sex		
M	125	45.79
F	148	54.21
Race		
White	241	88.28



**WORKPLACE VIOLENCE AGAINST NURSES**

25

Native American	11	4.03
Asian	8	2.93
African American	5	1.83
Hispanic	3	1.10
Unknown	5	1.83

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*Note.* Due to rounding errors, percentages may not equal 100%.

**Table 2**

Frequency Table for Nominal Variables

Variable	n	%
<b>Restraints</b>		
No	1445	96.08
Yes	59	3.92
<b>Medication</b>		
No	1436	95.48
Yes	68	4.52

Security

No	1470	97.74
Yes	34	2.26

Sitter

No	1477	98.20
Yes	27	1.80

Note. Due to rounding errors percentages may not equal 100%.

**Table 3**

Frequency table for patients with episodes of violence

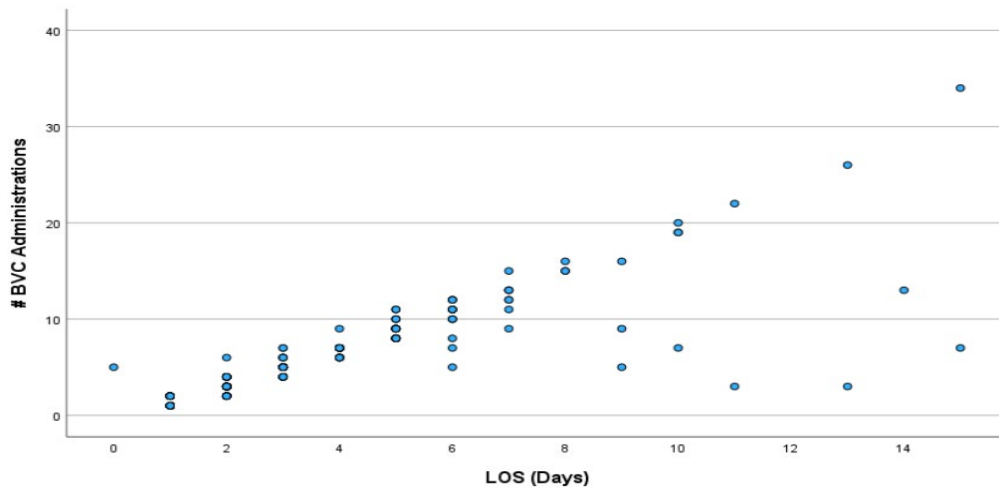
Episodes of Reported Violence	Individual Patients Who Had Reported Episodes of Violence ( % of 273) #(%)	Verbal Violence	Physical Violence	Security Used	Medication Used	Sitter Used	Restraints Used
1	10 (3.36%)	9	5	5	6	0	4
2	4 (1.47%)	11	5	6	14	1	6
6	1 (0.37%)	6	6	4	9	8	2
7	1 (0.37%)	11	10	11	10	10	10
8	1 (0.37%)	11	11	0	6	1	11
Total							

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39	17	48	37	26	45	20	33
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**Graph 1**



The linear regression model results were significant,  $F(3,13) = 5.44, p = .012, R^2 = .56$ , indicating that approximately 55.67% of the variance in total reported incidences is explainable by Sex, Age, and total BVC score, all in combination. The male sex significantly predicted total reported incidences,  $B = 2.08, t(13) = 2.38, p = .033$ . This sample suggests that moving from the female to male category of sex will increase the mean value of Total Reported Incidences by 2.08 units on average. Age significantly predicted the total reported incidences,  $B = 0.06, t(13) = 2.25, p = .042$ . This indicates that, on average, a one-unit increase in age will increase incidents by 0.06 units. The total BVC score significantly predicted reported incidences,  $B = 0.77, t(13) = 3.05, p = .009$ . This indicates that, on average, a one-unit increase in total BVC score will increase the value of total reported incidences by 0.77 units. Table 4 summarizes the results of the regression model.

**Table 4**

*Predicting Reported Incidence of Violence using Total Score on 1<sup>st</sup> BVC, Sex, and Age*

Variables	<i>B</i>	<i>SE</i>	95% CI	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>
(Intercept)	-4.52	2.25	[9.39, 0.35]	0.00	-2.01	.066	
Total score 1 <sup>st</sup> BVC	0.77	0.25	[0.23, 1.32]	0.62	3.05	.009	
Sex M	2.08	0.87	[0.19, 3.96]	0.46	2.38	.033	
Age	0.06	0.03	[0.003,0.12]	0.47	2.25	.042	

Note. Results:  $F(3,13) = 5.44, p = .012, R^2 = .56$

Unstandardized Regression Equation: Total\_Reported\_Incidences = -4.52 + 0.77\*BVC\_Total\_Score\_11 + 2.08\*SexM + 0.06\*Ag

A generalized estimating approach with a logit link was performed to accommodate the multiple administrations for many patients. At least one intervention was recorded in 106 (7.1%) of 1500 BVC administration observations. Among observations with a BVC score of <2, an intervention was used 16 (1.2%) times, and for a BVC score of >2, an intervention was used 90 (54.2%) times, OR= 17.95 (95% CI: 3.55 to 90.84),  $p < 0.001$ . This indicates that nurses were much more likely to intervene for patients with a BVC score of >1 than those scoring <2 on the BVC.

**Project Impact**

Although the project's focus has been the nurses, this project significantly impacts the entire healthcare system and not just the nurses. As previously mentioned, nurses are on the frontlines and come in direct contact with a patient for at least 12 straight hours, even if the patient is aggressive, exposing them to various possibilities of violence. However, other healthcare professionals are also at risk, as violence has not always been predicted. So, any healthcare professional might fall victim to workplace violence perpetrated by a patient or their family and visitors at any given time during their shift. Therefore, when there is an ability to predict violence, there is a chance to act proactively and

prevent it from happening. Thus, one of the significant project impacts is the possibility of safety the organization can offer its employees.

Additionally, cost savings is another impact this project has on the organization and the healthcare system. A safe work environment is desirable to every employee. Thus, this can also ensure retention and make the organization more popular amongst other healthcare workers and patients. Moreover, when the turnover rate is lower, the cost of hiring and training new employees is significantly reduced. Even the cost incurred, like treatment for injuries sustained due to the violent acts and worker compensation costs, are eliminated.

### **Project Sustainment**

Project sustainment would be complex with paper charting, so this tool must get implemented into Electronic Medical Records (EMR). When BVC is available in EMR, the project can be well automated. However, the associated costs for the copyright halted project sustainment. Nevertheless, with the significant results from this project, the organization is finally utilizing a behavioral plan navigator, which has been in their EMR for years as a pilot in two of their facilities. This behavioral plan can alert all staff in the patient's charts when they become violent, which can be turned on and off as appropriate and will not be visible to the patients. This will also alert security to round on those patients every shift. If successful, they plan to adopt the navigator network-wide. Additionally, the organization's security team will also start an inventory of personal items of all ED patients before admission, or the items will be stored with security until discharge, which is a new and positive change. Additionally, the WVP committee also has other interventions they plan to implement and phase out at different intervals to tackle workplace violence where the project developer will not be needed after the conclusion of this project.

### **Discussion**

Data analysis was complicated due to the variability in the number of BVC tool administrations, which varied from 1 to 34. It was directly related to the patient's length of stay in the unit. However, the data analysis shows that more intervention was required as the BVC score increased above one (1). This indicates that patients who score above one (1) on the BVC can pose enough threat for intervention to be required. Additionally, there was a direct correlation between the total BVC score, age, and male gender. Combined, they were highly predictive of violence; an older male patient who scored high on the BVC tool was much more likely to commit a violent incident than any other patient.

### **Limitations**

One of the significant limitations of the project was the manpower. For a project of this intensity that produced a large amount of data, one individual for manual data entry slowed the process extensively. This also increased the potential for data error, requiring more time to filter and correct the entered data. The manual data entry was a direct result of having a paper tool. If the tool had been embedded in the EMR, the process could have been more streamlined, automated, and less cumbersome. The other limitation was the variability in the data, especially the BVC administration data. This was directly associated with the patient's length of stay at the unit, which varied considerably. This posed a significant challenge during data analysis with the un-uniformity of the data across the 15 days of implementation. This greatly limited the ability to show a correlation between the BVC scores and incidences of violence through data analysis.

Additionally, three (3) incident reports were missing vital data entry and analysis information. Despite explicit education, instructions, and reminders, some patients were even missing incident reports entirely when compared to the information on their completed BVC administration. Although significant results were produced post-data analysis with the available usable data, all incident reports were vital, which might have somewhat affected the potential data analysis outcome. Many BVC forms also had missing information, creating limited data for a more meaningful result.

**Recommendation**

Recommendations for future studies would be to collect more data and follow the patients throughout their hospital stay to capture the trend for accurate data analysis as desired. This ensures the fidelity of the data, and a much larger data set is obtained for an improved and limitless data analysis. Additionally, with this tool being highly sensitive and specific, and with the proven results from this project, considering embedding this in the EMR for future studies will help with the time costs and prevent potential data errors. Also, a designated team for a project of this caliber is recommended for future success instead of an individual. This would ensure constant monitoring and guidance for the nurses, the BVC administration, and incident reports. This designated team can support the incident reporting process during busy nursing shifts to ensure no incident goes undocumented and that the BVC tool is completed correctly with all necessary information.

**Conclusion**

Uncovering risks and identifying the potential for violence is essential to diminishing WV and associated harm. Management of aggression and violence is imperative in any healthcare facility. Experiencing violence should never be a part of a nursing job, and normalizing such incidences as usual occurrences is appalling. The results of this project support that violence screening is an essential step in combating WV. This project proves that the BVC tool has value in being able to predict the possibility of potential violence. The early identification of violence that the BVC tool can provide helps an organization be more proactive than reactive. Future projects should further assess this tool to create a tailored intervention based on the BVC score to assess its impacts and benefits on violence management.

## References

- Almvik, R., Woods, P., & Rasmussen, K. (2000). Broset violence checklist sensitivity, specificity, and interrater reliability. *Journal of Interprofessional Violence, 15*(12), 1284-1296. <https://doi.org/10.1177/088626000015012003>
- Al-Qadi, M. M. (2020). Nurses' perspectives of violence in emergency departments: A metasynthesis. *International Emergency Nursing, 52*, 100905. <https://doi.org/10.1016/j.ienj.2020.100905>
- ANA. (n.d.). *End nurse abuse*. Nursing world. <https://www.nursingworld.org/practice-policy/work-environment/end-nurse-abuse/>
- ASH Clinical News. (2018). *Hazardous to your health: Violence in the healthcare workplace*. <https://ashpublications.org/ashclinicalnews/news/4208/Hazardous-to-Your-Health-Violence-in-the-Health>
- Babaei, N., Rahmani, A., Avazeh, M., Mohajjelaghdam, A.-R., Zamanzadeh, V., & Dadashzadeh, A. (2018). Determine and compare the viewpoints of nurses, patients and their relatives to workplace violence against nurses. *Journal of Nursing Management, 26*(5), 563–570. <https://doi.org/10.1111/jonm.12583>
- Berlanda, S., Pedrazza, M., Fraizzoli, M., & de Cordova, F. (2019). Addressing risks of violence against healthcare staff in emergency departments: The effects of job satisfaction and attachment style. *BioMed Research International, 2019*, 1–12. <https://doi.org/10.1155/2019/5430870>
- Bordignon, M., & Monteiro, M. I. (2021). Analysis of workplace violence against nursing professionals and possibilities for prevention. *Revista Gaúcha de Enfermagem, 42*, e20190406. <https://doi.org/10.1590/1983-1447.2021.20190406>
- Butts, J. B., & Rich, K. L. (Eds.). (2018). *Philosophies and theories for advanced nursing practice* (Third edition). Jones & Bartlett Learning.



- Chapin, J., & Koller, C. D. (2022). Are healthcare professionals optimistic about workplace violence? *Online Journal of Issues in Nursing, 27*(3), 1–5. <https://doi.org/10.3912/OJIN.Vol27No02PPT41>
- Coneo, A. M. C., Thompson, A. R., Parker, K., & Harrison, G. (2020). The outcome of a training programme (RESPECT) on staff's attitudes towards causes and management of aggression in a regional referral hospital of northern Uganda. *Journal of Psychiatric and Mental Health Nursing, 27*(1), 25–40. <https://doi.org/10.1111/jpm.12549>
- Connor, M., Armbruster, M., Hurley, K., Lee, E., Chen, B., & Doering, L. (2020). Diagnostic sensitivity of the dynamic appraisal of situational aggression to predict violence and aggression by behavioral health patients in the emergency department. *Journal of Emergency Nursing, 46*(3), 302–309. <https://doi.org/10.1016/j.jen.2019.12.006>
- Dafny, H. A., & Beccaria, G. (2020). I do not even tell my partner: Nurses' perceptions of verbal and physical violence against nurses working in a regional hospital. *Journal of Clinical Nursing, 29*(17–18), 3336–3348. <https://doi.org/10.1111/jocn.15362>
- Gillespie, G. L., & Leming-Lee, T.' Susie.' (2019). Chart it to stop it. *Nursing Clinics of North America, 54*(1), 21–32. <https://doi.org/10.1016/j.cnur.2018.10.004>
- Hamzaoglu, N., & Türk, B. (2019). Prevalence of physical and verbal violence against health care workers in Turkey. *International Journal of Health Services, 49*(4), 844–861. <https://doi.org/10.1177/0020731419859828>
- Hassankhani, H., Parizad, N., Gacki-Smith, J., Rahmani, A., & Mohammadi, E. (2018). The consequences of violence against nurses working in the emergency department: A qualitative study. *International Emergency Nursing, 39*, 20–25. <https://doi.org/10.1016/j.ienj.2017.07.007>

- Havaei, F., MacPhee, M., & Lee, S. E. (2019). The effect of violence prevention strategies on perceptions of workplace safety: A study of medical-surgical and mental health nurses. *Journal of Advanced Nursing*, 75(8), 1657–1666. <https://doi.org/10.1111/jan.13950>
- Hvidhjelm, J., Sestoft, D., Skovgaard, L. T., Rasmussen, K., Almvik, R., & Bue Bjerne, J. (2016). Aggression in psychiatric wards: Effect of the use of a structured risk assessment. *Issues in Mental Health Nursing*, 37(12), 960–967. <https://doi.org/10.1080/01612840.2016.1241842>
- Ideker, K., Todicheeney-Mannes, D., & Kim, S. C. (2011). A confirmatory study of violence risk assessment tool (M55) and demographic predictors of patient violence: Patient violence. *Journal of Advanced Nursing*, 67(11), 2455–2462. <https://doi.org/10.1111/j.1365-2648.2011.05667.x>
- Intellectus Statistics. (2022). [Online computer software]. Intellectus Statistics. <https://analyze.intellectusstatistics.com/>
- Kim, S. C., Ideker, K., & Todicheeney-Mannes, D. (2012). Usefulness of aggressive behaviour risk assessment tool for prospectively identifying violent patients in medical and surgical units: Aggressive behaviour tool. *Journal of Advanced Nursing*, 68(2), 349–357. <https://doi.org/10.1111/j.1365-2648.2011.05744.x>
- Kim, S., Mayer, C., & Jones, C. B. (2021). Relationships between nurses' experiences of workplace violence, emotional exhaustion and patient safety. *Journal of Research in Nursing*, 26(1–2), 35–46. <https://doi.org/10.1177/1744987120960200>
- Kim, S. C., Young, L., & Berry, B. (2017). Aggressive behaviour risk assessment tool for newly admitted residents of long-term care homes. *Journal of Advanced Nursing*, 73(7), 1747–1756. <https://doi.org/10.1111/jan.13247>
- LaMorte, W. W. (2019, September 9). *The Theory of Planned Behavior*. Behavioral change models. <https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/BehavioralChangeTheories3.html>

- Lamothe, J., Boyer, R., & Guay, S. (2021). A longitudinal analysis of psychological distress among healthcare workers following patient violence. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, 53(1), 48–58. <https://doi.org/10.1037/cbs0000187>
- Linaker O.M. & Busch-Iversen, H. (1995). Predictors of imminent violence in psychiatric inpatients. *Acta Psychiatr Scand*, 92, 250-254.
- Luck, J. D., & Usher, K. (2007). STAMP: Components of observable behaviour that indicate potential for patient violence in emergency departments. *Journal of Advanced Nursing*, 59(1), 11–19. <https://doi.org/10.1111/j.1365-2648.2007.04308.x>
- Lynda, E. (Presenter). (2022). *Workplace violence against nurses: What you can do* [Webinar]. American Nurses Association. <https://event.on24.com/wcc/r/3942937/356608F01C261C0CBC6B371D91404E8E>
- Marques, M. I., Bessa, A., Santos, L., Carvalho, S., & Neves, G. (2015). Assessment of the risk of violence in Portuguese psychiatric settings using the Brøset violence checklist. *Sociology Study*, 5(5), 360–370. <https://doi.org/10.17265/2159-5526/2015.05.004>
- Melnyk, B. M. (2019). *Evidence-based practice in nursing & healthcare: A guide to best practice* (Fourth edition). Wolters Kluwer Health.
- Najafi, F., Fallahi-Khoshknab, M., Ahmadi, F., Dalvandi, A., & Rahgozar, M. (2018). Antecedents and consequences of workplace violence against nurses: A qualitative study. *Journal of Clinical Nursing*, 27(1–2), e116–e128. <https://doi.org/10.1111/jocn.13884>
- OSHA. (2015A). *Workplace violence prevention and related goals*. US Department of Labor, OSHA. <https://www.osha.gov/sites/default/files/OSHA3828.pdf>
- OSHA (2015B). *Workplace violence in healthcare: understanding the challenge*. US Department of Labor, OSHA. <https://www.osha.gov/sites/default/files/OSHA3826.pdf>

- Ogloff, J. R. P., & Daffern, M. (2006). The dynamic appraisal of situational aggression: An instrument to assess risk for imminent aggression in psychiatric inpatients. *Behavioral Sciences & the Law*, 24(6), 799–813. <https://doi.org/10.1002/bsl.741>
- Okundolor, S. I., Ahenkorah, F., Sarff, L., Carson, N., Olmedo, A., Canamar, C., & Mallett, S. (2021). Zero staff assaults in the psychiatric emergency room: Impact of a multifaceted performance improvement project. *Journal of the American Psychiatric Nurses Association*, 27(1), 64–71. <https://doi.org/10.1177/1078390319900243>
- Provost, S., MacPhee, M., Daniels, M. A., Naimi, M., & McLeod, C. (2021). A realist review of violence prevention education in healthcare. *Healthcare*, 9(3), 339. <https://doi.org/10.3390/healthcare9030339>
- Rechenmacher, J., Muller, G., Abderhalden, C., & Schulc, E. (2014). The diagnostic efficiency of the extended German Brøset violence checklist to assess the risk of violence. *Journal of Nursing Measurement*, 22(2), 201–212.
- Senz, A., Ilarda, E., Klim, S., & Kelly, A. (2021). Development, implementation and evaluation of a process to recognise and reduce aggression and violence in an Australian emergency department. *Emergency Medicine Australasia*, 33(4), 665–671. <https://doi.org/10.1111/1742-6723.13702>
- Sharifi, S., Shahoei, R., Nouri, B., Almvik, R., & Valiee, S. (2020). Effect of an education program, risk assessment checklist and prevention protocol on violence against emergency department nurses: A single center before and after study. *International Emergency Nursing*, 50, 100813. <https://doi.org/10.1016/j.ienj.2019.100813>
- Spector, P. E., Zhou, Z. E., & Che, X. X. (2014). Nurse exposure to physical and nonphysical violence, bullying, and sexual harassment: A quantitative review. *International Journal of Nursing Studies*, 51(1), 72–84. <https://doi.org/10.1016/j.ijnurstu.2013.01.010>

Story, A. R., Harris, R., Scott, S. D., & Vogelsmeier, A. (2020). An evaluation of nurses' perception and confidence after implementing a workplace aggression and violence prevention training program. *JONA: The Journal of Nursing Administration, 50*(4), 209–215.

<https://doi.org/10.1097/NNA.0000000000000870>

TJC. (n.d.). *Press Ganey study: More than 2 nurses assaulted every hour in 2Q 2022.*

[https://www.jointcommission.org/resources/news-and-](https://www.jointcommission.org/resources/news-and-multimedia/newsletters/newsletters/joint-commission-online/sept-14-2022/press-ganey-study-more-than-2-nurses-assaulted-every-hour-in-2q-2022/#.Y1XZNezML4s)

[multimedia/newsletters/newsletters/joint-commission-online/sept-14-2022/press-ganey-study-more-than-2-nurses-assaulted-every-hour-in-2q-2022/#.Y1XZNezML4s](https://www.jointcommission.org/resources/news-and-multimedia/newsletters/newsletters/joint-commission-online/sept-14-2022/press-ganey-study-more-than-2-nurses-assaulted-every-hour-in-2q-2022/#.Y1XZNezML4s)

TJC. (2021). *R3 report issue 30 workplace violence prevention standards.*

<https://www.jointcommission.org/standards/r3-report/r3-report-issue-30-workplace-violence-prevention-standards/>

Titler M. G., Klieber, C., Steelman, V. J., Rakel, B. A., Budreau, G., Everett, L. Q., Buckwalter, K. C., Tripp-Reimer, T., & Goode, C.J. (2001). The Iowa model of evidence-based practice to promote quality care. *Critical Care Nursing Clinics of North America, 13*(4), 497-509

TK, A. K., & Chandran, S. (2017). *Application of Nursing Theories.* Jaypee Brothers (Jaypeedigital).

Tsukamoto, S. A. S., Galdino, M. J. Q., Barreto, M. F. C., & Martins, J. T. (2022). Burnout syndrome and workplace violence among nursing staff: A cross-sectional study. *Sao Paulo Medical Journal, 140*(1), 101–107. <https://doi.org/10.1590/1516-3180.2021.0068.r1.31052021>

Van Den Bos, J., Creten, N., Davenport, S., & Roberts, M. (2017). *Cost of community violence to hospitals and health systems: Report for the American hospital association.* American Hospital Association. <https://www.aha.org/system/files/2018-01/community-violence-report.pdf>

Vogel, L. (2016). New tool evaluates risk of patient aggression. *Canadian Medical Association Journal, 188*(10), E200–E200. <https://doi.org/10.1503/cmaj.109-5276>

- Wirth, Peters, C., Nienhaus, A., & Schablon, A. (2021). Interventions for workplace violence prevention in emergency departments: A systematic review. *International Journal of Environmental Research and Public Health*, 18(16), 8459–. <https://doi.org/10.3390/ijerph18168459>
- Yao, X., Li, Z., Arthur, D., Hu, L., An, F.-R., & Cheng, G. (2014). Acceptability and psychometric properties of Brøset violence checklist in psychiatric care settings in China: BVC validation study in China. *Journal of Psychiatric and Mental Health Nursing*, 21(9), 848–855. <https://doi.org/10.1111/jpm.12132>
- Yesilbas, H., & Baykal, U. (2021). Causes of workplace violence against nurses from patients and their relatives: A qualitative study. *Applied Nursing Research*, 62, 151490. <https://doi.org/10.1016/j.apnr.2021.151490>

Appendix A

Evaluation and Synthesis Tables

Table A1 Quantitative Evaluation Table

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
<p><b>Sharifi et al., (2020)</b> Effect of an education program, risk assessment checklist and prevention protocol on violence against emergency department</p>	<p>Inferred to be theory of caregiver dynamics</p>	<p><b>Design:</b> Quasi-Experimental before and after study  <b>Purpose:</b> Evaluate the effects of an education program, RAC and PP on</p>	<p><b>N= 37</b>  <b>Demographics:</b> ED nurses <b>mean age</b> 30+/- 2.5 years <b>M:</b>48.6% <b>F:</b> 35.1% <b>Bachelors:</b> 5.4% <b>Masters:</b> 86.5% <b>WE:</b> 6.5+/-4.4 years</p>	<p><b>IV1:</b> RAC and PP  <b>DV1:</b> MV  <b>DV2:</b> TV  <b>Definitions:</b>  <b>RAC:</b> BVC a six-item checklist to predict risk of violence</p>	<p><b>Tools:</b> SPSS version 16, BVC, SOAS-R (<math>\alpha=0.7</math>), NQAWV (<math>\alpha=0.72</math>)  <b>Validity:</b> Conducted in the ED with small number of participants so not</p>	<p><b>Statistical Tests Used:</b> Wilcoxon signed rank test, McNemar’s test, Stuart Maxwell test</p>	<p><b>DV1:</b> p=0.0001 Reduced by 14%  <b>DV2:</b> PV p=0.15 2.9 ± 3.2 before and 0.8 ± 1.8 after the intervention  VA p=0.0001 Reduced by 43.3%</p>	<p><b>Level of Evidence:</b> Level III  <b>Strengths:</b> Low AR, non-invasive, suggests a holistic approach and a succinct validated and</p>

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<p>nurses: A single center before and after study</p> <p><b>Country:</b> Iran</p> <p><b>Funding:</b> Research fund of the Kurdistan University of Medical Sciences, Sanandaj, Iran</p> <p><b>Bias:</b> None recognized</p>		<p>violence against ED nurses.</p>	<p><b>WE in ED:</b> 3+-3.5 months  <b>CN:</b> 8.1%  <b>TL:</b> 2.7%  <b>TN:</b> 16.2%  <b>AN:</b> 2.7%  <b>OUN:</b> 73%</p> <p><b>Setting:</b> ED of Tohid Hospital, Sanandaj, Iran</p> <p><b>Exclusion:</b> No undergraduate and graduate degree in nursing, less than 3 months experiences, involuntary participation in the study.</p>	<p><b>PP:</b> Respect for PS, TA, making VC, speaking with patient briefly and simply, EA, AL, displaying sympathy and acceptance, regulation reminders and determining respectful limitations, LV, PE and patient’s explanations, identifying needs and feelings, suggesting choices and optimism, SO, avoiding stimulation and intensifying consequences</p>	<p>generalizable to the other units in the hospital</p> <p><b>Reliability:</b> SS</p>		<p>RV p=0.1  0.1 ± 0.4 before and 0.02 ± 0.1 after the intervention</p>	<p>reliable screening tool</p> <p><b>Weakness:</b> Small N and only limited to one ED, non-generalizable</p> <p><b>Feasibility:</b> RAT is succinct for easy applicability and adoption at other units</p> <p><b>Application:</b> ED and all units and healthcare setting prone to and at risk of patient violence</p>
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			<b>Attrition:</b> Not discussed but the end of the study still mentions all 37 participants	<b>MV:</b> mean of number of violence  <b>TV:</b> number of PV, number of VA incidents, number of RV				
<b>Tsukamoto et al., (2022)</b> Burnout syndrome and WV among nursing staff: a cross-sectional study  <b>Country:</b> Brazil  <b>Funding:</b> None  <b>Bias:</b> None stated or inferred	Inferred to be Maslach theory of burnout	<b>Design:</b> Cross-sectional study  <b>Purpose:</b> To investigate the association between BS and WV among nursing workers	<b>N=</b> 242  <b>Demographics:</b> Nursing workers M (n=62) F (n=180) Nurse (n=68) Auxiliary nurse and NT (n=174) Single (n=117) Married (n=125) Mean years of school 15.4 Mean years of experience 12.9	<b>IV1:</b> WV  <b>DV1:</b> emotional exhaustion  <b>DV2:</b> Depersonalization  <b>DV3:</b> Professional accomplishment  <b>Definitions:</b> N/A	<b>Tools:</b> MBI-GS SQWVHS SPSS  <b>Validity/Reliability:</b> SS	<b>Statistical Tests Used:</b>  Univariate LR MLR Hosmer-Lemeshow test	<b>DV1:</b> Emotional exhaustion: PV (P<0.001), VA (P<0.001), SH (P=0.002), Concerns about WV (P=0.005)  <b>DV2:</b> Depersonalization PV (P<0.001), VA (P<0.001), SH (P=0.088), Concerns about WV (P=0.002)	<b>Level of Evidence:</b> IV  <b>Strengths:</b> zero AR, non-invasive and considerable assessment period with SS results, use of validated and internationally credible organization recommended tools

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			<p><b>Setting:</b> 313 bed teaching hospital</p> <p><b>Exclusion:</b> Less than 1 year of experience, workers on holiday or leave</p> <p><b>Attrition:</b> None stated</p>				<p><b>DV3:</b> Professional accomplishment PV (P=0.001), VA (P=0.001), SH (P=0.031), Concerns about WV (P=0.002)</p>	<p><b>Weakness:</b> Convenience sampling effecting generalizability</p> <p><b>Feasibility:</b> Use of validated and short tools, easy replication in any nursing setting for assessment</p> <p><b>Application:</b> All nursing units in any hospital</p>
<p><b>Bordignon &amp; Monteiro (2021)</b> Analysis of WV against nursing professionals and possibilities for prevention</p>	Inferred to be TPB	<p><b>Design:</b> Descriptive and cross-sectional study, with quantitative approach,</p>	<p><b>N=</b> 267</p> <p><b>Demographics:</b> NPs Nurse = 72 NT= 195 M= 54 F = 209</p>	<p><b>IV1:</b> WV</p> <p><b>DV1:</b> Health problems</p> <p><b>DV2:</b> Sleep quality</p>	<p><b>Tools:</b> QSETS Questionnaire on Workplace violence</p> <p><b>Validity/Reliability:</b></p>	<p><b>Statistical Tests Used:</b> SPSS Chi-Square test</p>	<p><b>DV1:</b> p=0.0186</p> <p><b>DV2:</b> p=0.0414</p> <p><b>DV3:</b> p=0.0420</p> <p><b>DV4:</b> p=0.0052</p>	<p><b>Level of Evidence:</b> III</p> <p><b>Strengths:</b> Low AR, Use of VRQ</p> <p><b>Weakness:</b> use of measuring</p>

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<p><b>Country:</b> Brazil</p> <p><b>Funding:</b> Grant from SPRF, NCSTD, and CIHEP</p> <p><b>Bias:</b> None stated or inferred</p>		<p><b>Purpose:</b> investigate WV against NP, its relationship with personal, health and work variables, and to know possibilities for prevention.</p>	<p><b>Setting:</b> 7 EDs of 3 institutions</p> <p><b>Exclusion:</b> Work experience of &lt;3 months Those on leave or vacation</p> <p><b>Attrition:</b> 4 participants</p>	<p><b>DV3:</b> Tiredness and discouragement after work</p> <p><b>DV4:</b> Satisfaction with current life</p> <p><b>Definitions:</b> unclear</p>	<p>Use of VRQ for accurate assessment</p> <p>SS, hence, reliable</p>	<p>Fisher's exact test</p> <p>Mann-Whitney test</p>		<p>instruments with unknown psychometric properties, possibility of memory bias, unclear definition of variables</p> <p><b>Feasibility:</b> use of VRQ makes replication easy for assessment at other inpatient units</p> <p><b>Application:</b> All nursing units in any hospital</p>
<p><b>Okundolor et al. (2021)</b></p> <p>Zero Staff Assaults in the Psychiatric</p>	<p>Inferred to be TPB</p>	<p><b>Design:</b> Quasi-Experimental</p>	<p><b>N=</b> 80</p> <p><b>Demographics:</b> all nursing staff</p>	<p><b>IV1:</b> BRT drills</p> <p><b>IV2:</b> Shift dose</p> <p><b>IV3:</b> HCR 20-3</p>	<p><b>Tools:</b> Pre and post survey with 18 item questionnaires</p>	<p><b>Statistical Tests Used:</b> QI Macros</p>	<p><b>DV1:</b> reduced by 75%</p> <p><b>DV2:</b> increased from 78% to 95%</p>	<p><b>Level of Evidence:</b> III</p> <p><b>Strengths:</b> Multifaceted</p>

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<p>Emergency Room: Impact of a Multifaceted Performance Improvement Project</p> <p><b>Country:</b> USA</p> <p><b>Funding:</b> None</p> <p><b>Bias:</b> None</p>		<p><b>Purpose:</b> To develop, implement, and evaluate a set of bundled multifaceted interventions to reduce the number of physical assaults by patients on psychiatric ER staff</p>	<p><b>Setting:</b> Large urban public academic hospital Psychiatric ED</p> <p><b>Exclusion:</b> Non-ED staff</p> <p><b>Attrition:</b> 37.5%</p>	<p><b>IV4:</b> post assault debriefing</p> <p><b>IV5:</b> trained peer support group</p> <p><b>IV6:</b> engaged executive-level leaders</p> <p><b>DV1:</b> VI</p> <p><b>DV2:</b> SE</p> <p><b>Definitions:</b> BRT drills: training by a team of trained and certified individuals</p> <p>Shift dose: Brief huddle for all staff to discuss potentially violent patients</p>	<p>Modified HCR 20-3 screening tool</p> <p><b>Validity/Reliability:</b> SS results</p>	<p>SPC software</p> <p>Shewhart control chart</p> <p>A C chart</p> <p>A T chart</p>	<p>approach with SS results, non-invasive, use of validated intervention methods</p> <p><b>Weakness:</b> high AR, the lack of resources, availability of a dedicated BRT within the psychiatric ER, a SSED, availability of dedicated CPI instructors, and a quality improvement department</p> <p><b>Feasibility:</b> Reproducible and feasible due to the organizational</p>
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								and team approach  <b>Application:</b> All nursing units in any hospital
<b>Kim et al. (2021)</b> Relationships between nurses' experiences of workplace violence, emotional exhaustion, and patient safety  <b>Country:</b> USA  <b>Funding:</b> None	Inferred to be theory of caregiver dynamics and Maslach theory of burnout	<b>Design:</b> Cross sectional analysis  <b>Purpose:</b> to understand the status of WV in hospitals and the relationships between nurses' experiences of WV, emotional exhaustion, and perceptions of patient safety.	<b>N=</b> 1781  <b>Demographics:</b> Nurses Medicine 342 Surgery 224 Perioperative 165 Obstetrics 128 Paediatrics 115 ED 121 Intensive care 380 Psychiatry 111 Others 195	<b>IV1:</b> WV  <b>DV1:</b> Emotional exhaustion  <b>DV2:</b> Patient safety  <b>Definitions:</b> None	<b>Tools:</b> Online survey  emotional exhaustion subscale from the MBI  <b>Validity/Reliability:</b> SS results  Use of validated and reliable tools and questionnaires	<b>Statistical Tests Used:</b>  Descriptive analyses  bivariate Pearson correlations  Multiple linear regression analysis	<b>DV1:</b> p<0.001  <b>DV2:</b> p<0.01	<b>Level of Evidence:</b>  IV  <b>Strengths:</b> Zero AR, SS results, non-invasive, low cost, easy replicability  <b>Weakness:</b> Use of a new WV tool, use of partial subscale of MBI, possibility of duplication of the incident

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<p><b>Bias:</b> None stated, and none inferred</p>			<p><b>Setting:</b> A large academic medical center</p> <p><b>Exclusion:</b> None stated</p> <p><b>Attrition:</b> None</p>					<p>reports that were analyzed</p> <p><b>Feasibility:</b> Low cost, easy replication makes it more feasible</p> <p><b>Application:</b> All nursing units in any hospital</p>
<p><b>Linaker &amp; Busch-Iversen (1995)</b> Predictors of imminent violence in psychiatric inpatients</p> <p><b>Country:</b> Norway</p>	<p>Inferred to be TPB</p>	<p><b>Design:</b> A case-control retrospective study</p> <p><b>Purpose:</b> to assess if increases in specific behaviors or behavior groups could function as</p>	<p><b>N=</b> 92</p> <p><b>Demographics:</b> Patients M= 27 F= 5</p> <p><b>Setting:</b> Norwegian maximum-security unit at Broset</p>	<p><b>IV1:</b> Behaviors and Symptoms</p> <p><b>DV1:</b> Violence prediction</p> <p><b>Definitions:</b> Behaviors and symptoms seen in 24-hour periods preceding violent episodes</p>	<p><b>Tools:</b> BVC</p> <p><b>Validity/Reliability:</b> SS result</p> <p>Sensitivity 81.3% Specificity 100%</p>	<p><b>Statistical Tests Used:</b> Logistic regression and Chi-square</p>	<p><b>DV1:</b> 85.4% prediction</p>	<p><b>Level of Evidence:</b> III</p> <p><b>Strengths:</b> SS results, non-invasive, low cost, development of a VST, high specificity and sensitivity</p>

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<p><b>Funding:</b> None stated</p> <p><b>Bias:</b> None stated none inferred</p>		<p>useful warning signals for oncoming violence.</p>	<p><b>Exclusion:</b> patient with no episodes of violent incidents</p> <p><b>Attrition:</b> 60</p>	<p>for violence who scored high and became violent</p>				<p><b>Weakness:</b> Small sample size, the study does not inform about motivations behind violent incidents, data used from subjective measure of behavior, missed data due to lack of continuous monitoring of patients</p> <p><b>Feasibility:</b> low cost and easy replication</p> <p><b>Application:</b> Any inpatient setting</p>
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**Key:** **AL** active listening, **AN** admission nurse, **AR** attrition rate, **BOC** behaviours of concern, **BRT** behavioral response teams, **BS** burnout syndrome, **BVC** Brøset Violence Checklist, **CIHEP** Coordination for the Improvement of Higher Education Personnel, **CN** chief nurse, **CPI** crisis prevention intervention, **CW** control ward, **EA** early action, **ED** emergency department, **ER** emergency room, **F** female, **HC** healthcare, **HCR 20-3** Historical, Clinical and Risk Assessment Version 20, third revision attributes, **Hrs** hours, **IRR** inter-rater reliability, **IW** Intervention ward, **LR** logistic regression, **LV** limited visitors, **M** male, **MBI** Maslach Burnout Inventory, **MBI-GS** Maslach Burnout Inventory - General Survey, **Mins** minutes, **MLR** multiple logistic regression, **MV** mean number of violence against nurses, **NCSTD** National Council for Scientific and Technological Development, **NM** nurse managers, **NP** nursing professional, **NQAWV** national questionnaire for analyzing workplace violence, **NS** nurses station, **NT** nurse technician, **OUN** outpatient unit nurse, **OVA** occupational violence and aggression, **PE** patient education, **PP** preventative protocol, **PS** personal space, **PV** physical violence, **QI** quality improvement, **QSETS** Questionnaire of socio-demographic, life style and work and health aspects, **RAC** risk assessment checklist, **RAT** Risk assessment tool, **ROC** Receiver operating characteristics, **RV** racial violence, **SE** Self efficacy, **SH** sexual harassment, **SO** speaking optimistically, **SOAS-R** The Staff Observation Aggression Scale-Revised, **SPRF** São Paulo Research Foundation, **SQWVHS** Survey Questionnaire Workplace Violence in the Health Sector, **SS** Statistically significant, **SSED** supportive staff education department, **TA** team approach, **TL** team lead, **TN** triage nurse, **TPB** theory of planned behavior, **TV** type of violence, **USA** United States of America, **VA** verbal abuse, **VC** verbal communication, **VI** violent incidents, **VRQ** valid and reliable questionnaire, **VST** violence screening tool, **WV** workplace violence

<p><b>Senz et al. (2021)</b> Development, implementation and evaluation of a process to recognise and reduce aggression and violence in an Australian emergency department</p> <p><b>Country:</b> Australia</p> <p><b>Funding:</b> None stated</p> <p><b>Bias:</b> one of the authors is a member of the editorial</p>	<p>Inferred to be TPB</p>	<p><b>Design:</b> Quasi-experimental study</p> <p><b>Purpose:</b> To describe the impact of that new process on staff confidence in the identification of 'at risk' patients and initiating a response, staff perceptions of safety in the ED and the rate of security responses to OVA.</p>	<p><b>N=</b> 76- pre-implementation survey 83- post-implementation survey</p> <p><b>Demographics:</b> ED nurses M= 20 F=63</p> <p><b>Setting:</b> ED of a metropolitan teaching hospital</p> <p><b>Exclusion:</b> None stated, inferred to be non-ED nurses</p> <p><b>Attrition:</b> None</p>	<p><b>IV1:</b> Staff Education</p> <p><b>IV2:</b> BOC chart</p> <p><b>IV 3:</b> BVC</p> <p><b>DV1:</b> Violent incident reporting</p> <p><b>DV2:</b> Confidence in violence screening</p> <p><b>DV3:</b> Perception of organizational support</p> <p><b>DV4:</b> Planned code greys</p> <p><b>DV5:</b> Unplanned code greys</p> <p><b>Definitions:</b></p>	<p><b>Tools:</b> BVC Before and after survey BOC chart Vassar Stats</p> <p><b>Validity/Reliability:</b> SS results, use of validated tools</p>	<p><b>Statistical Tests Used:</b> chi-squared analysis  Fisher's exact test</p>	<p><b>DV1:</b> p&lt;0.0001</p> <p><b>DV2:</b> p=0.04</p> <p><b>DV3:</b> p=0.04</p> <p><b>DV4:</b> p&lt;0.001</p> <p><b>DV5:</b> p=0.001</p>	<p><b>Level of Evidence:</b>  III</p> <p><b>Strengths:</b> Demonstrates practical use of BVC, SS results, non-invasive, short RAT, multiple aspects assessed</p> <p><b>Weakness:</b> Selected setting has a low rate of violence so possibly less generalizable, possibility of inaccurate data input resulting in inaccurate security data extraction</p>
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board of Emergency Medicine Australasia.								<b>Feasibility:</b> Easy replication  <b>Application:</b> All inpatient setting
<b>Hvidhjelm et al. (2016)</b> Aggression in Psychiatric Wards: Effect of the Use of a Structured Risk Assessment <b>Country:</b> Denmark  <b>Funding:</b> None  <b>Bias:</b> None	Inferred to be TPB	<b>Design:</b> Quasi-experimental study  <b>Purpose:</b> to evaluate the effect of routine use of the BVC throughout the entire admission on the risk of patient aggression as assessed at the ward level	<b>N=</b> 2030  <b>Demographics:</b> Patients in 15 psychiatry wards Mean age: 45.2 in IW and 44.4 in CW M: 55.3% in IW and 50.4% in CW  <b>Setting:</b> A large Psychiatric hospital in the capital region	<b>IV1:</b> BVC  <b>DV1:</b> Risk of violence  <b>Definitions:</b> N/A	<b>Tools:</b> BVC  <b>Validity/Reliability:</b> SS results, use of validated tool	<b>Statistical Tests Used:</b> Chi Square, t-tests, Linear regression, and binominal model	<b>DV1:</b> Reduced by 45%	<b>Level of Evidence:</b> III  <b>Strengths:</b> Demonstrates practical use of BVC, SS results, non-invasive, short RAT, multiple aspects assessed, reduction in number of aggressive incidents  <b>Weakness:</b> Non-conclusive results with

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			<p><b>Exclusion:</b> Patients younger than 18 years old, prior use of BVC or other short-term risk assessment in the units, and patients on specialty treatment for conditions like depression or addiction</p> <p><b>Attrition:</b> None</p>					<p>statistically insignificant reduction in aggression, less than desired number of wards participated</p> <p><b>Feasibility:</b> Easy replication</p> <p><b>Application:</b> All inpatient setting</p>
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**Key:** **AL** active listening, **AN** admission nurse, **AR** attrition rate, **BOC** behaviours of concern, **BRT** behavioral response teams, **BS** burnout syndrome, **BVC** Brøset Violence Checklist, **CIHEP** Coordination for the Improvement of Higher Education Personnel, **CN** chief nurse, **CPI** crisis prevention intervention, **CW** control ward, **EA** early action, **ED** emergency department, **ER** emergency room, **F** female, **HC** healthcare, **HCR 20-3** Historical, Clinical and Risk Assessment Version 20, third revision attributes, **Hrs** hours, **IRR** inter-rater reliability, **IW** Intervention ward, **LR** logistic regression, **LV** limited visitors, **M** male, **MBI** Maslach Burnout Inventory, **MBI-GS** Maslach Burnout Inventory - General Survey, **Mins** minutes, **MLR** multiple logistic regression, **MV** mean number of violence against nurses, **NCSTD** National Council for Scientific and Technological Development, **NM** nurse managers, **NP** nursing professional, **NQAWV** national questionnaire for analyzing workplace violence, **NS** nurses station, **NT** nurse technician, **OUN** outpatient unit nurse, **OVA** occupational violence and aggression, **PE** patient education, **PP** preventative protocol, **PS** personal space, **PV** physical violence, **QI** quality improvement, **QSETS** Questionnaire of socio-demographic, life style and work and health aspects, **RAC** risk assessment checklist, **RAT** Risk assessment tool, **ROC** Receiver operating characteristics, **RV** racial violence, **SE** Self efficacy, **SH** sexual harassment, **SO** speaking optimistically, **SOAS-R** The Staff Observation Aggression Scale-Revised, **SPRF** São Paulo Research Foundation, **SQWVHS** Survey Questionnaire Workplace Violence in the Health Sector, **SS** Statistically significant, **SSED** supportive staff education department, **TA** team approach, **TL** team lead, **TN** triage nurse, **TPB** theory of planned behavior, **TV** type of violence, **USA** United States of America, **VA** verbal abuse, **VC** verbal communication, **VI** violent incidents, **VRQ** valid and reliable questionnaire, **VST** violence screening tool, **WV** workplace violence

Table A2 Qualitative Evaluation Table

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
<p><b>Luck et al. (2007)</b> STAMP: Components of Observable behaviour that indicate potential for patient violence in ED</p> <p><b>Country:</b> Australia</p> <p><b>Funding:</b> Undisclosed</p>	<p>Inferred to be Grounded theory</p>	<p><b>Design:</b> Qualitative study design</p> <p><b>Method:</b> 290 hours of PO, 16 SSI and 13 informal field interviews over a 5-month period</p> <p><b>Purpose:</b> To explicate behavioral cues to identify potential violence in patients</p>	<p><b>Sample:</b> (n= 20)</p> <p><b>Demographics:</b> M (n=2) F (n=18) 0 to &gt;10 years of nursing experience, FT (n=12) PT (n=8)</p> <p><b>Setting:</b> 33-bed ED in a public hospital in Australia</p> <p><b>Attrition:</b> None stated</p>	<p><b>Objectives</b> -Observe the incidence and nature of violence towards ED nurses. -Gain insights into ED nurses' perceptions of VE they are involved in. -Gain insights into the VAS used by ED nurses. -Develop a nursing VAF for ED</p>	<p><b>Data Collection:</b> <b>Phase 1:</b>50 hrs of PO, unstructured OEI and RJ <b>Phase 2:</b> 290 hrs of PO, 16 (45-60 mins) SS OEI, 13 (30-40 mins) unstructured OEI, and RJ Phase 2 data generated over 5 months period through 51 separate occasions and 16 violent events</p> <p><b>Data Dependability:</b> Main researcher recoded the</p>	<p>Transcription of all digitally recorded data</p> <p>Textual data thematically analyzed, assisted by qualitative data management and retrieval software NVivo2, recognition of coding moments, development of themes.</p> <p>Concurrent data</p>	<p>STAMP</p> <p><b>S:</b> Prolonged glaring or absence of eye contact <b>T:</b> sharp/caustic retorts, sarcasm, increasing volume, and demeaning inflection <b>A:</b> flushed appearance, rapid speech, dilated pupils, physical indicators of pain, confusion/disorientation, not understanding ED process <b>M:</b> slurred/incoherent speech, criticism towards staff or institution, taking under their breath, repetition or questions or requests.</p>	<p><b>Level of Evidence:</b> VI</p> <p><b>Strengths:</b> Zero AR, Rigorous DAP for dependable accurate results, framework developed from the nurse's firsthand observation and experience with the patients that tend to perpetrate violence, so</p>

**Key:** AR attrition rate, DAP data analysis process, ED emergency department, F female, FT full time, FTF face-to-face, M male, Mins minutes, OEI open-ended interviews, PI post intervention, PO participant observation, PVSS post violence screening score, RJ research journaling, SDB social desirability bias, SS semi-structured, SSI semi-structured interviews, STAMP staring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing., TBVPI technology-based violence prevention interventions., TPB theory of planned behavior, VAF violence assessment framework, VAS violence assessment strategies, VE violent events

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
<p><b>Bias:</b> None stated or inferred</p>				<p>Nurses</p> <p><b>Definitions:</b></p> <p>None stated</p>	<p>details of ongoing process, feelings, emergent ideas, hunches, and questions for follow up.</p> <p>Issues pertaining self and method were recorded using transparent audit trail and philosophical and methodological log</p> <p>member checking of emergent themes and ideas as part of the field interviews</p>	<p>collection and analysis for confirmation of STAMP</p>	<p><b>P:</b> Walking around confined space or back and forth to NS, flailing in bed but resisting HC</p>	<p>accuracy of assessment through STAMP can be high</p> <p><b>Weakness:</b></p> <p>small N, may not be completely generalizable</p> <p><b>Feasibility:</b></p> <p>Short scale therefore less time consuming and easy application on all nursing unit</p> <p><b>Application:</b></p> <p>Applicable to all ED setting and possible application to</p>

**Key:** **AR** attrition rate, **DAP** data analysis process, **ED** emergency department, **F** female, **FT** full time, **FTF** face-to-face, **M** male, **Mins** minutes, **OEI** open-ended interviews, **PI** post intervention, **PO** participant observation, **PVSS** post violence screening score, **RJ** research journaling, **SDB** social desirability bias, **SS** semi-structured, **SSI** semi-structured interviews, **STAMP** staring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing., **TBVP** technology-based violence prevention interventions., **TPB** theory of planned behavior, **VAF** violence assessment framework, **VAS** violence assessment strategies, **VE** violent events

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
								all nursing units
<p><b>Yesilbas &amp; Baykal (2021)</b> Causes of workplace violence against nurses from patients and their relatives: A qualitative study</p> <p><b>Country:</b> Turkey</p> <p><b>Funding:</b> None</p> <p><b>Bias:</b> None stated or inferred</p>	<p>Inferred to be Grounded theory</p>	<p><b>Design:</b> Qualitative descriptive study</p> <p><b>Method:</b> SS in-depth FTF interviews</p> <p><b>Purpose:</b> to explore the causes of violence against nurses exercised by patients and/or their relatives in different departments</p>	<p><b>Sample:</b> (n= 34)</p> <p><b>Demographics:</b> Nurses M=7 F=27</p> <p><b>Setting:</b> a university hospital, two public hospitals, and two private hospitals</p> <p><b>Attrition:</b> None</p>	<p>Could you please talk about yourself?</p> <p>What do you think about workplace violence perpetrated by patients and their relatives in your institution?</p> <p>What does the violence of patients and their relatives against nurses mean to you?</p>	<p><b>Data Collection:</b> 34 SS in-depth FTF interviews, 10 months long process</p> <p><b>Data Dependability:</b> Evaluation of themes and sub-themes by colleagues not part of the study, use of truly bilingual translator to translate all themes to English and back translate</p>	<p>10 months long process, Verbatim transcription of interview recordings and analysis using inductive content analysis method</p>	<p>(1) Healthcare system</p> <p>(2) Health institutions</p> <p>(3) Health professionals</p> <p>(4) Patients and their relatives</p>	<p><b>Level of Evidence:</b> VI</p> <p><b>Strengths:</b> Low risk, non-invasive, low AR, inclusion of 5 different facilities for broader assessment</p> <p><b>Weakness:</b> Non generalizable, the study did not include significant incidents due to participant hesitation, limited recall of incidents by</p>

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Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
				<p>Why do you think nurses are exposed to violence?</p> <p>Could you please tell us about your personal experience of violence from patients and their relatives that affects you most?</p> <p>What might be the reasons of violence that you were personally exposed to?</p>				<p>the participants</p> <p><b>Feasibility:</b> low cost, easy administration for replication and accurate assessment</p> <p><b>Application:</b> Applicable to all acute care setting and nursing units</p>

**Key:** **AR** attrition rate, **DAP** data analysis process, **ED** emergency department, **F** female, **FT** full time, **FTF** face-to-face, **M** male, **Mins** minutes, **OEI** open-ended interviews, **PI** post intervention, **PO** participant observation, **PVSS** post violence screening score, **RJ** research journaling, **SDB** social desirability bias, **SS** semi-structured, **SSI** semi-structured interviews, **STAMP** staring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing., **TBVI** technology-based violence prevention interventions., **TPB** theory of planned behavior, **VAF** violence assessment framework, **VAS** violence assessment strategies, **VE** violent events

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
				Do you have any other thoughts or comments you would like to share?  <b>Definitions:</b> None				

**Key:** **AR** attrition rate, **DAP** data analysis process , **ED** emergency department, **F** female, **FT** full time, **FTF** face-to-face , **M** male, **Mins** minutes , **OEI** open-ended interviews , **PI** post intervention , **PO** participant observation, **PVSS** post violence screening score , **RJ** research journaling, **SDB** social desirability bias, **SS** semi-structured, **SSI** semi-structured interviews , **STAMP** starring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing. , **TBVP** technology-based violence prevention interventions., **TPB** theory of planned behavior, **VAF** violence assessment framework, **VAS** violence assessment strategies, **VE** violent events

Table A3

Synthesis Table Workplace Violence Against Nurses

Study (Author, year)	Sharifi et al., 2020	Tsukamoto et al., 2022	Bordignon & Monteiro, 2021	Okundolor et al., 2021	Kim et al., 2021	Linaker & Busch-Iversen, 1995	Senz et al., 2021	Hvidhjelm et al. 2016	Luck et al., 2007	Yesilbas & Baykal 2021
Design	Quasi-Experimental before and after study	Cross-sectional study	Descriptive and cross-sectional study	Quasi-Experimental study	Cross-sectional analysis	Case control retrospective study	Quasi-Experimental study	Quasi-Experimental study	Qualitative study	Qualitative descriptive study
LOE	III	IV	III	III	IV	III	III	III	VI	VI
Country				X	X					
USA										

Key: **BVC** Brøset Violence Checklist, **ED** emergency department, **F** female, **M** male, **NT** nurse technicians, **STAMP** starring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing, **USA** United States of America, **VST** violence screening tool, **WV** workplace violence



Study (Author, year)	<i>Sharifi et al., 2020</i>	<i>Tsukamoto et al., 2022</i>	<i>Bordignon &amp; Monteiro, 2021</i>	<i>Okundolor et al., 2021</i>	<i>Kim et al., 2021</i>	<i>Linaker &amp; Busch-Iversen, 1995</i>	<i>Senz et al., 2021</i>	<i>Hvidhjelm et al. 2016</i>	<i>Luck et al., 2007</i>	<i>Yesilbas &amp; Baykal 2021</i>
<b>Iran</b>	X									
<b>Norway</b>						X				
<b>Denmark</b>								X		
<b>Australia</b>							X		X	
<b>Brazil</b>		X	X							
<b>Turkey</b>										X
<b>Sample</b>										
<i>n subjects</i>	37	242	267	80	1781	92	83	2030	20	34
<i>F</i>	35.1%	180	209	n/a	n/a	5	63	44.7%	18	27
<i>Participants</i>	Nurses	Nurses and NT	Nurses	Nurses	Nurses	Patients	Nurses	Patients	Nurses	Nurses

**Key:** **BVC** Brøset Violence Checklist, **ED** emergency department, **F** female, **M** male, **NT** nurse technicians, **STAMP** starring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing, **USA** United States of America, **VST** violence screening tool, **WV** workplace violence

Study (Author, year)	Sharifi et al., 2020	Tsakamoto et al., 2022	Bordignon & Monteiro, 2021	Okundolor et al., 2021	Kim et al., 2021	Linaker & Busch-Iversen, 1995	Senz et al., 2021	Hvidhjelm et al. 2016	Luck et al., 2007	Yesilbas & Baykal 2021
Mean years of experience	6.5+/-4.4	12.9	>6 months		<=5		7		7	12.5
<b>Setting</b>										
ED	X	X	X	X	X		X		X	X
Psychiatric				X		X		X		
Other inpatient unit		X			X					X
<b>Interventions</b>										
Questionnaire on Burnout		X			X					
Questions/ Questionnaire on WV	X	X	X						X	X

**Key:** **BVC** Brøset Violence Checklist, **ED** emergency department, **F** female, **M** male, **NT** nurse technicians, **STAMP** starring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing, **USA** United States of America, **VST** violence screening tool, **WV** workplace violence

Study (Author, year)	Sharifi et al., 2020	Tsukamoto et al., 2022	Bordignon & Monteiro, 2021	Okundolor et al., 2021	Kim et al., 2021	Linaker & Busch-Iversen, 1995	Senz et al., 2021	Hvidhjelm et al. 2016	Luck et al., 2007	Yesilbas & Baykal 2021
Pre and post survey				X			X			
VST/ Aggression and concerning behavior/ aggression concerning behavior scale	X		X			X	X	X		
Preventative protocol/measures/ Violence prevention education	X			X				X		
<b>Outcomes</b>										
Nurse burnout		↑			↑					

**Key:** **BVC** Brøset Violence Checklist, **ED** emergency department, **F** female, **M** male, **NT** nurse technicians, **STAMP** starring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing, **USA** United States of America, **VST** violence screening tool, **WV** workplace violence

Study (Author, year)	Sharifi et al., 2020	Tsukamoto et al., 2022	Bordignon & Monteiro, 2021	Okundolor et al., 2021	Kim et al., 2021	Linaker & Busch-Iversen, 1995	Senz et al., 2021	Hvidhjelm et al. 2016	Luck et al., 2007	Yesilbas & Baykal 2021
Poor nursing health/career outcomes			↑							
Violent incidents	↓			↓			↓			
Nursing self-efficacy/safety				↑			↑			
Patient safety					↓					
Incident reporting							↑			
Screening tool development/ accuracy						↑		↑		
<b>Themes</b>										
STAMP									X	
Several Causes of WV										X

**Key:** BVC Brøset Violence Checklist, ED emergency department, F female, M male, NT nurse technicians, STAMP starring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing, USA United States of America, VST violence screening tool, WV workplace violence

<b>Study</b> <b>(Author, year)</b>	<i>Sharifi et al., 2020</i>	<i>Tsakamoto et al., 2022</i>	<i>Bordignon &amp; Monteiro, 2021</i>	<i>Okundolor et al., 2021</i>	<i>Kim et al., 2021</i>	<i>Linaker &amp; Busch-Iversen, 1995</i>	<i>Senz et al., 2021</i>	<i>Hvidhjelm et al. 2016</i>	<i>Luck et al., 2007</i>	<i>Yesilbas &amp; Baykal 2021</i>
<i>Prevalence of workplace violence</i>	↑									

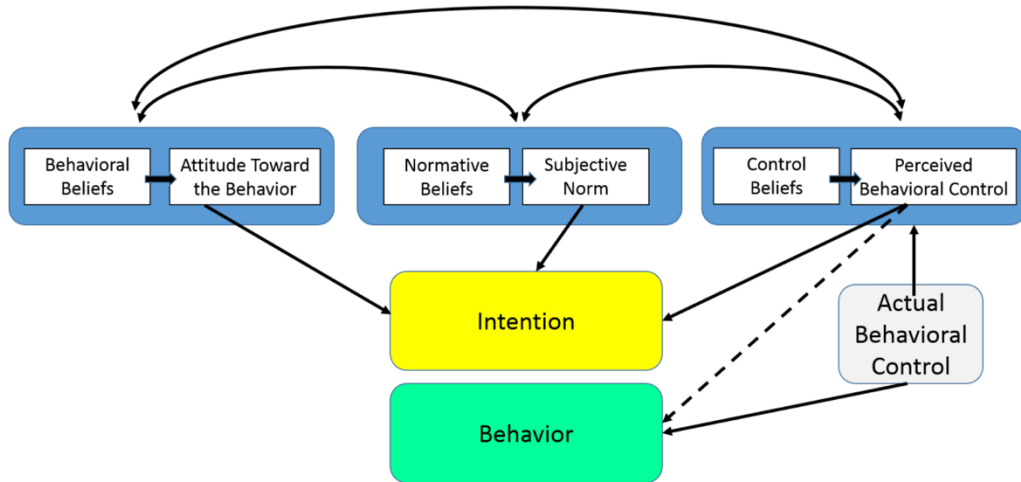
**Key:** **BVC** Brøset Violence Checklist, **ED** emergency department, **F** female, **M** male, **NT** nurse technicians, **STAMP** starring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing, **USA** United States of America, **VST** violence screening tool, **WV** workplace violence

Appendix B

Models and Frameworks

Figure B1

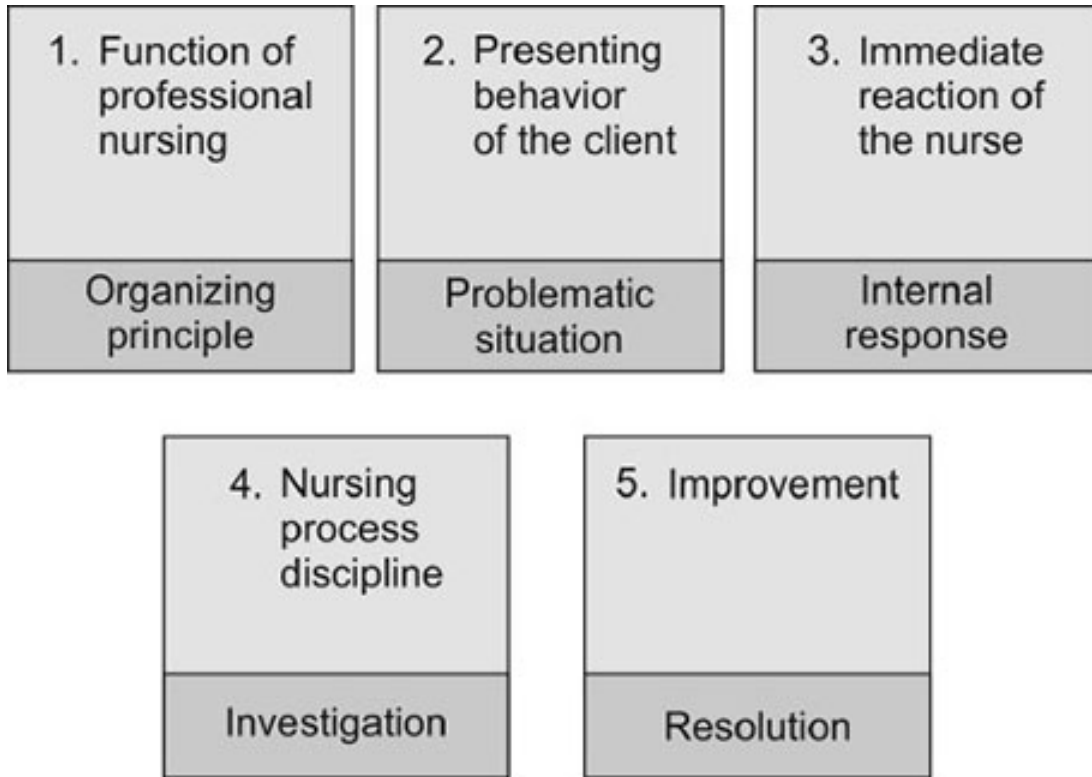
*Theory of Planned Behavior*



(LaMorte, 2019)

Figure B2

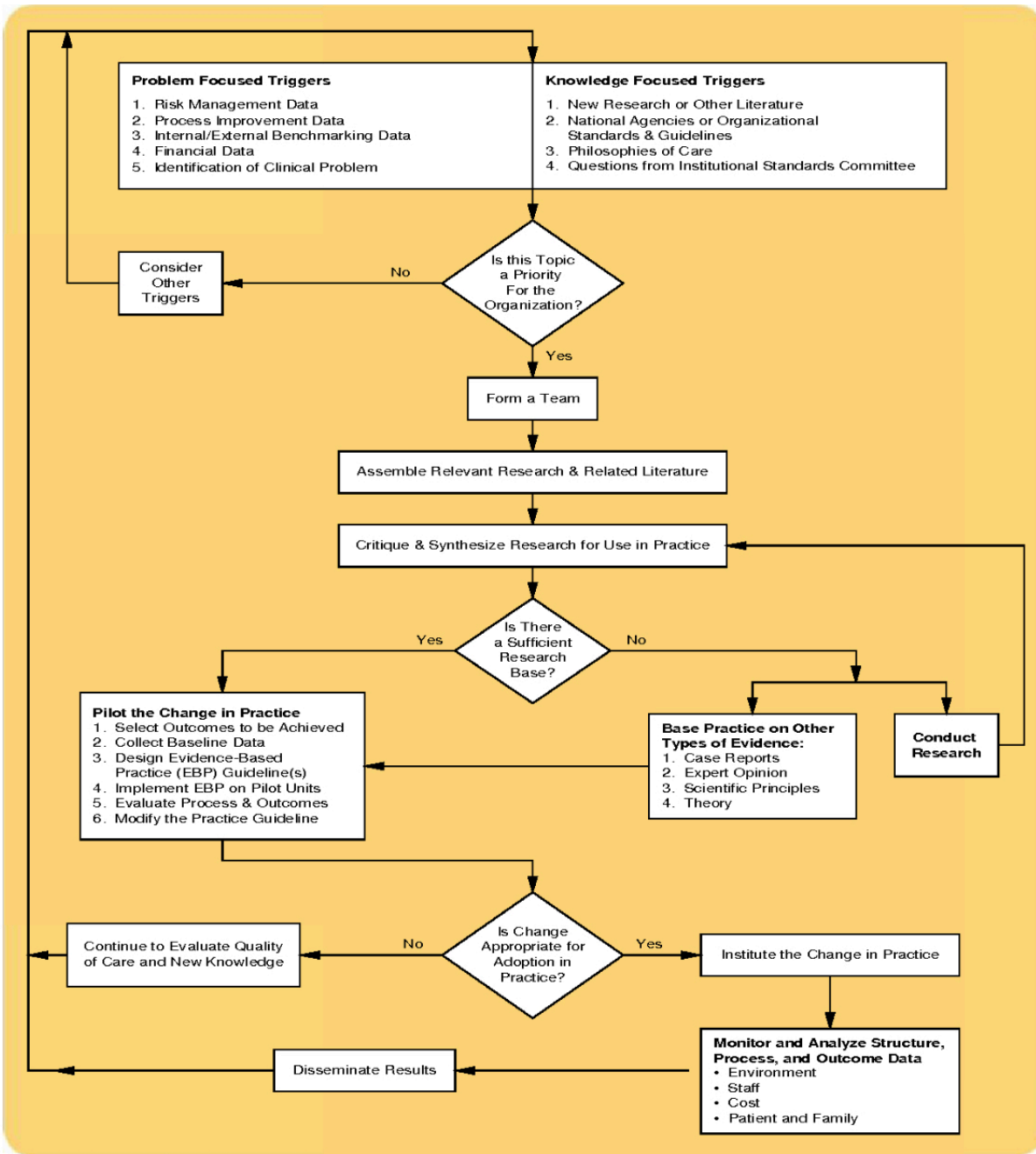
*Nursing Process Discipline Theory*



(TK & Chandran, 2017)

Figure B3

The Iowa Model



The Iowa Model of Evidence-Based Practice to Promote Quality Care

(Titler, 2001)



Appendix C

Budget

Phase	Activities	Cost	subtotal	Total
<b>Preparation</b>	Create and design an educational video presentation on the violence screening tool and workplace violence	\$200		
	Project developer time cost for evidence search and project development (200hrs@ 20/hr)	\$4000		
	Stationary supplies for data storage and organization	\$175		
	Paper and printing for implementation for a month	\$300	<b>\$4675</b>	
<b>Delivery</b>	Training and education time by the project developer (4hrs at 50/hr)	\$200		
	Super user's pay (168 hrs@40/hr)	\$6720	<b>\$6920</b>	

<b>Evaluation</b>	Data extraction by analyst (20 hours at 40/hr)	\$800		
	Statistical help through Intellectus	\$100		
	Review and analysis of results (10hrs@50/hr)	\$500	<b>\$1400</b>	<b>\$12995</b>

Appendix D

Instrument

Table D1: Original BVC

<p><b>The Brøset Violence Checklist (BVC®) - quick instructions:</b>                  Score the patient at agreed time on every shift. Absence of behaviour gives a score of 0. Presence of behaviour gives a score of 1. Maximum score (SUM) is 6. If behaviour is normal for a well known client, only an increase in behaviour scores 1, e.g. if a well know client normally is confused (has been so for a long time) this will give a score of 0. If an increase in confusion is observed this gives a score of 1.</p>	Patient/Client data
---	---------------------

Monday / /	Day	Evening	Night
Confused			
Irritable			
Boisterous			
Verbal threats			
Physical threats			
Attacking objects			
SUM			

Tuesday / /	Day	Evening	Night
Confused			
Irritable			
Boisterous			
Verbal threats			
Physical threats			
Attacking objects			
SUM			

Wednesday / /	Day	Evening	Night
Confused			
Irritable			
Boisterous			
Verbal threats			
Physical threats			
Attacking objects			
SUM			

Thursday / /	Day	Evening	Night
Confused			
Irritable			
Boisterous			
Verbal threats			
Physical threats			
Attacking objects			
SUM			

Friday / /	Day	Evening	Night
Confused			
Irritable			
Boisterous			
Verbal threats			
Physical threats			
Attacking objects			
SUM			

Saturday / /	Day	Evening	Night
Confused			
Irritable			
Boisterous			
Verbal threats			
Physical threats			
Attacking objects			
SUM			

**The Brøset Violence Checklist**  
 Interpretation and Operationalisation

Interpretation of scoring:

- Score = 0      The risk of violence is small
- Score = 1-2      The risk of violence is moderate. Preventive measures should be taken.
- Score > 2      The risk of violence is very high. Preventive measures should be taken  
 In addition, a plans should be developed to manage the potential violence.

Operationalisation of behaviours/items:

Confused	Appears obviously confused and disorientated. May be unaware of time, place or person.
Irritable	Easily annoyed or angered. Unable to tolerate the presence of others.
Boisterous	Behaviour is overtly "loud" or noisy. For example slams doors, shouts out when talking etc.
Physically threatening	Where there is a definite intent to physically threaten another person. For example the taking of an aggressive stance; the grabbing of another persons clothing; the raising of an arm, leg, making of a fist or modelling of a head-butt directed at another.
Verbally threatening	A verbal outburst which is more than just a raised voice; and where there is a definite intent to intimidate or threaten another person. For example verbal attacks, abuse, name-calling, verbally neutral comments uttered in a snarling aggressive manner.
Attacking objects	An attack directed at an object and not an individual. For example the indiscriminate throwing of an object; banging or smashing windows; kicking, banging or head-butting an object; or the smashing of furniture.



## Appendix E

## Creator's Permission

## Image E1

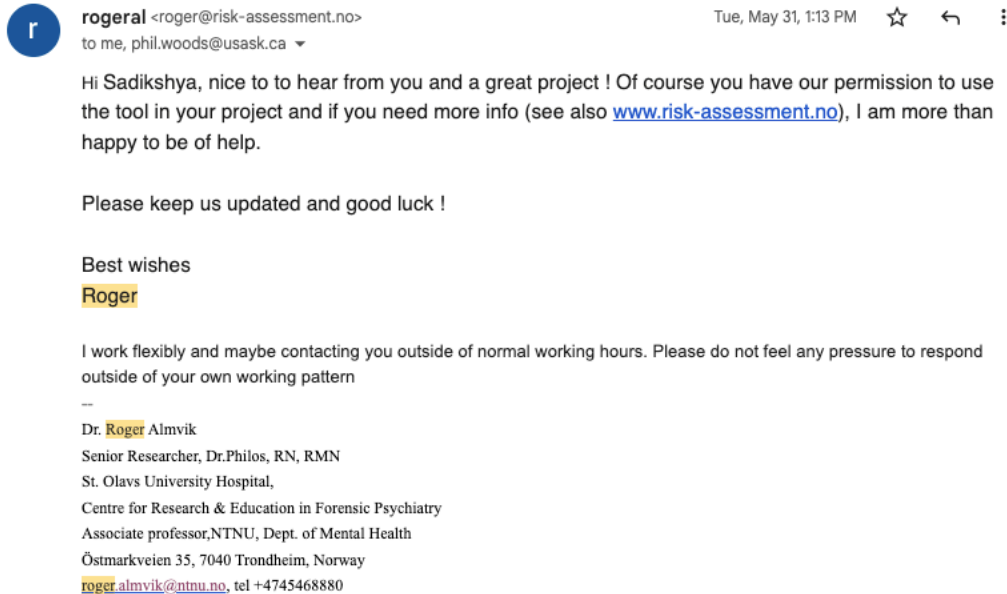


Image E2



**sadikshya silwal** <ssilwal2@asu.edu>  
to rogeral, phil.woods@usask.ca ▾

Wed, Jun 1, 10:18 AM ☆ ↶ ⋮

Dr. Almvik,  
Thank you very much for your prompt response.  
I appreciate you sharing that website and making it available for us who are interested.

Also, since I noticed there is copyright on BVC, would you please confirm that your approval in the last email was all I needed to actually implement and use it at the organization I am working with?

\*\*\*

--

Thank you,  
Sincerely,

\*\*\*



**Woods, Philip** <phil.woods@usask.ca>  
to me, rogeral ▾

Wed, Jun 1, 1:41 PM ☆ ↶ ⋮

Good afternoon

Yes you have permission to use the paper version of the BVC

Regards  
Phil

## Image E3

**Roger Almvik**

to me, Philip ▾

Mon, Jul 25, 4:09 AM



Hi Sadikshya

Good questions ! But not necessarily fully answered... 😊

Re how often; in our research we asked the staff to observe their clients for a minimum of 2 hrs before scoring on the BVC. This to avoid staff scoring a BVC on the basis of eg an incident. However, today, then scoring time varies a lot. Formally the most usual time of putting the BVC score on a sheet of paper (or electronic) is the way you describe. Others, for certain disturbed individuals, can score BVC on an hourly basis. So, in short; how often and with which patients varies a lot, very much depending on ward culture, how they are organized etc. Impossible to say what is the best way or gold standard.

Re changing the paper tool; please feel free to do whatever you like as long as you keep the 6 BVC items and, if you would like to add items, keep the new items sort of separate from the original BVC items, otherwise it is no longer BVC, more an extended (and not tested/evidence based) version.

Re Interventions; BVC does not say anything on interventions as it is purely a risk assessment tool. In my experience, which intervention work for which client/patient is very often highly individual. Which interventions available is also depending on culture, legislation, traditions etc (eg in UK seclusion is widely used, hardly ever mechanical restraint while in Norway it is totally the opposite). Blair et al in US have added a list of (generic) interventions (see attachment) but in the ideal world each patient should have a list of interventions proven to be effectful in their treatment plan. Again as an example; 2 patients with similar diagnosis and aggressive behaviour etc – one of them will need immediate seclusion while the other might be helped simply by having a walk in the garden.

Re Frequency of reassessment; no gold standard here either. In the electronic version there is an option to let all unassessed patients have automatically a score of zero on all six items, while in the paper version it might seem meaningless to spend time scoring BVC on patients that never has been aggressive and probably never be. As mentioned above, I know forensic units in Denmark scoring every hour if the initial score is high

I am not sure if this answers your question in full, but please feel free to set up a skype/Teams/zoom meeting if that's better for you – I am more than happy to help 😊