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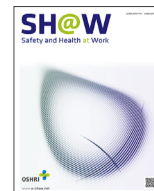

Review Article

A Systematic Review: Effectiveness of Interventions to De-escalate Workplace Violence against Nurses in Healthcare Settings

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A B S T R A C T

Workplace violence (WPV) is an increasing cause of concern around the globe, and healthcare organizations are no exception. Nurses may be subject to all kinds of workplace violence due to their frontline position in healthcare settings. The purpose of this systematic review is to identify and consider different interventions that aim to decrease the magnitude/prevalence of workplace violence against nurses. The standard method by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA, 2009) has been used to collect data and assess methodological quality. Altogether, twenty-six studies are included in the review. The intervention procedures they report on can be grouped into three categories: stand-alone trainings designed to educate nurses; more structured education programs, which are broader in scope and often include opportunities to practice skills learned during the program; multi-component interventions, which often include organizational changes, such as the introduction of workplace violence reporting systems, in addition to workplace violence training for nurses. By comparing the findings, a clear picture emerges; while standalone training and structured education programs can have a positive impact, the impact is unfortunately limited. In order to effectively combat workplace violence against nurses, healthcare organizations must implement multicomponent interventions, ideally involving all stakeholders.

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1. Introduction

Workplace violence poses a serious problem for healthcare organizations. Unsurprisingly, the healthcare system can be a challenging environment to work in, with a wide range of occupational hazards, from infections and falls to chemical exposure. However, the foremost occupational hazard remains workplace violence, and this is true in both developed and developing countries [1]. Presently there is no unified definition of workplace violence due to its subjective nature and the variety of personal and organizational beliefs and perceptions [2]. The Occupation Health and Safety Act, 2019 defines workplace violence as “the exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker; a statement or behaviour that it is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker” [3]. Expanding upon this, the International Labour Office (ILO), International Council of Nurses (ICN), World Health Organization (WHO), and Public Services International (PSI) defines workplace violence as “the intentional use of physical force or power, threatened or actual, against one self, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development or deprivation” [4]. The University of Iowa Injury Prevention Research Center (UIIPRC) has categorized workplace violence into four major types, including Criminal intent (Type I), Customer/client (Type II), Worker-on-worker (Type III), and Personal relationship (Type IV) [7]. Yet, regardless of lingering uncertainty surrounding the precise definition of workplace violence, what is certain is the constant

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threat it poses to healthcare workers. Compared to other occupations, healthcare workers are at higher risk for various kinds of violence in the workplace due to the nature of the healthcare settings and overstressed people [5]. Nurses, in particular, are at especially high risk due to their frontline position and constant contact with patients and their relatives [6]. The majority of these instances of workplace violence are customer/client (Type II) or worker-on-worker (Type III), based on the UIIPRC's categorizations [7]. Sadly, the rates of workplace violence against nurses remain underreported due to a widely held belief among nurses that violent incidents are a regrettable, but inevitable part of their profession [8].

Perhaps unsurprisingly, workplace violence is a leading cause of job dissatisfaction among nurses and contributes significantly towards high rates of absenteeism and turnover, as well as compromised patient care [1]. In the United States, the annual turnover rate of nurses is estimated to be between 15% to 36% due to workplace violence [9]. When nurses do remain in their role, they often experience emotional trauma due to workplace violence, which can manifest as post-traumatic stress disorder, burnout, anxiety, depression, lack of ability to perform patient care, and job dissatisfaction [10]. Moreover, workplace violence also has financial ramifications for healthcare organizations. This is due in part to nurse turnover costs but also from treatment for injuries resulting from workplace violence and time away from work because of violence [11].

The phenomenon of workplace violence in the healthcare sector has been studied by several researchers, in different contexts. Several systematic reviews have also been conducted. Among these, some reviews have focused on descriptive studies to identify the magnitude and characteristics of workplace violence, as well as its consequences on individuals and healthcare organizations [1,5,12]. Individual studies have assessed strategies to manage aggressive patients, as well as consequences of workplace violence, such as nurse absenteeism and job dissatisfaction [8,13]. The aim of this systematic review is to fill an existing gap by identifying studies, which propose effective interventions to help mitigate or prevent workplace violence against nurses.

2. Method

This systematic review aims to answer the following question:

What interventions are most effective at mitigating/preventing workplace violence towards nurses?

The standard method by Preferred Reporting Items for Systematic Reviews and Meta-Analyses [14] has been used to collect data and assess the methodological quality of each included study.

2.1. Literature search methods

Inclusion Criteria: In order to be included in this review, studies had to test the impact/effectiveness of interventions to mitigate or prevent violence in healthcare settings, using Randomized Control Trials (RCTs), Quasi-Experimental, and Pre and Post designs. The studies were published in English with interventions conducted between 2000 and 2020.

Databases: Published studies were gathered from Medline, CINAHL, and Web of Science databases. A combination of Medical Subject Headings (MeSH), text words, and search terms were utilized in the search. The reference list of retrieved articles was examined manually to identify further research studies relevant to violence in healthcare sectors.

Concepts and Terms: The following key words were used during the systematic search for relevant articles:

Nurses, nursing staff, registered nurses, staff nurses, head nurses, clinical nurses, nurse practitioners, registered nurse practitioners, practice nurses, nurse supervisor, nurse manager, nurse administrator, director nursing, nurse superintendent.

Healthcare setting, hospital, workplace, healthcare sectors, healthcare settings, healthcare facilities, inpatient units, acute care

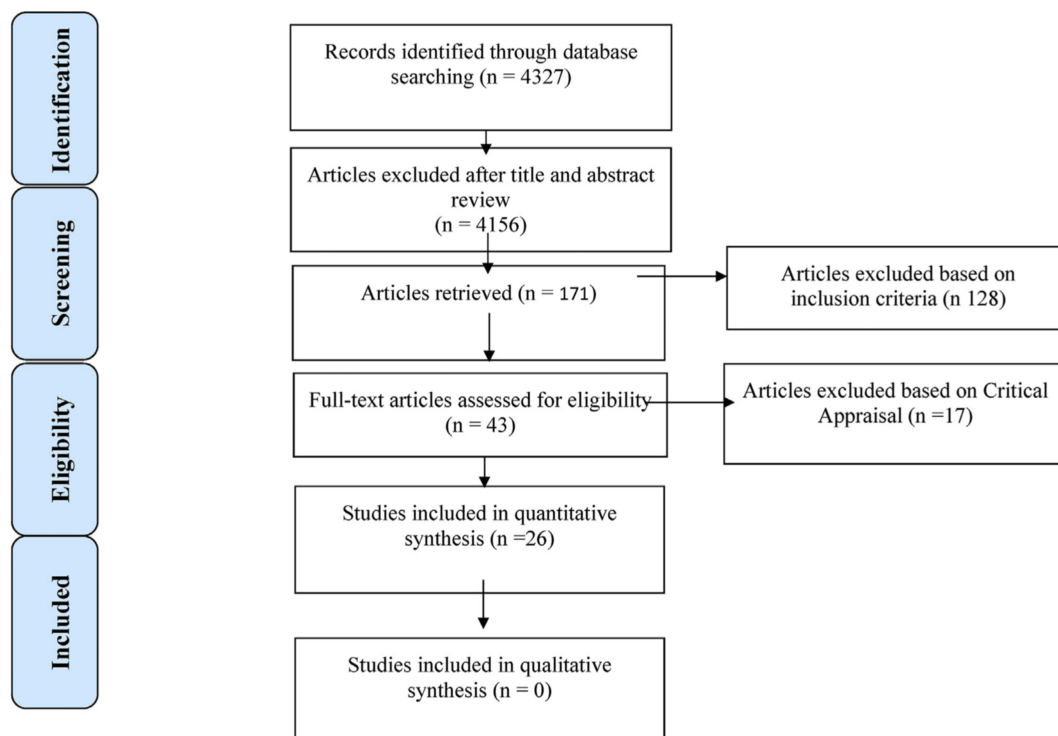

Fig. 1. PRISMA flow Diagram, Summary of Search Process.

setting, private hospital, public hospital, general hospital, government hospital, occupation, ambulatory services, emergency department, tertiary care centers.

Violence, mobbing, aggression, bullying, incivility, assault, abuse, verbal (violence, abuse, harassment), sexual (violence, abuse, harassment), physical (violence, abuse, harassment), racial (violence, abuse, harassment), vertical violence, horizontal violence. ateral violence (refer to Appendix A for Search Strategy).

Participants: The systematic review included all interventions conducted on behalf of nursing healthcare providers, including nurses, midwives, nurse managers, nursing supervisors, clinical nurse instructors, clinical nurse specialists, directors of nursing services, nursing superintendents, head nurses, nursing case managers, working in private or public healthcare settings.

Interventions: This review highlights the broad range of interventions that can be implemented to combat workplace violence, including training and educational sessions aimed at improving knowledge about workplace violence; practical skills for nurses to help prevent/minimize workplace incivility, lateral violence, verbal abuse, physical violence, sexual abuse, and bullying. This review also considers interventions that have been conducted at an organizational level to address workplace violence policies and processes.

2.2. Critical appraisal

Each potentially relevant study was evaluated independently for methodological validity by the Primary Investigator and the thesis supervisor. A specially designed checklist was used to assess each study based on the inclusion criteria of this systematic review. (See Table 1 for selected studies based on inclusion criteria and critical appraisal). Certain articles were not included because they did not, for instance, provide enough detail about the healthcare setting where the intervention was implemented or the type of intervention used in the study. (refer to Appendix B for studies not selected for final systematic review). A PRISMA flow diagram provides the summary of the search process used for this systematic review (see Fig. 1).

2.3. Risk of bias

The included studies were screened for outcome reporting bias by utilizing PRISMA, 2009 guidelines. The risk of bias matrix was developed to list the aims, intervention tested, and outcomes of each selected study. These were assessed by comparing the study aim, intervention tested, and study outcomes. All included studies were labeled as low, high, or unclear risk of bias by the primary investigator based on reported outcomes in the given articles. Only two studies [15,16] included in this review identified to have a high risk of bias. The study [15] involved 43 nurses, 22 of whom received a three-hour online training program, and the remaining 21 nurses acted as a control group. The authors mentioned that due to validity threats, diffusion between groups, small sample size, and selection bias, the results were statistically insignificant. However, the study results revealed a statistically significant difference between the control and intervention groups for the recognition of verbal and emotional abuse, and post-training reporting of workplace violence. Similarly, a 1.5 hours educational session was implemented in the study [16]. The authors have emailed the post-intervention survey to the study participants. The results indicated that the rate of lateral violence shifted from an incident in a week to an incident in a month. This result may be valid for the study participants of this session but not for the entire study setting (refer to Appendix C for Assessment of risk of bias matrix).

Table 1
Selected Studies based on Inclusion Criteria and Critical Appraisal

Databases utilized for search			
MEDLINE	CINAHL	Web of Science	Total
Abstracts reviewed by Primary Investigator			
n = 1944	n = 1206	n = 1177	n = 4327
Relevant Hits			
n = 84	n = 22	n = 65	n = 171
Full-text Articles Assessed for Eligibility			
n = 16	n = 10	n = 17	n = 43
Studies Included in the Final Review after Critical Appraisal			
n = 11	n = 06	n = 09	n = 26

3. Results

3.1. Characteristics

Altogether, twenty-six studies were selected for inclusion in this review. Of these, four were RCTs, ten used a quasi-experimental design and twelve applied pre and post-study design. Only four studies [17–19,42] used both quantitative and qualitative components.

Most studies included in this review were conducted in developed countries. Fourteen of the included studies were conducted in the United States [15,16,18,20–29,42]. Three were conducted in Australia [17,30,31], two were carried out in Canada [32,38], two in South Korea [34,43], one in Taiwan [42], and one in Sweden [35]. The remaining studies were conducted in developing countries such as Jordan [36], Turkey [37], and Pakistan [19]. The preponderance of workplace violence interventions is taking place in the developed countries. The lack of tested interventions in developing countries is not surprising, given the lack of research capacity and funding available in these regions. (refer to Appendix D for Description of included studies).

3.2. Major findings

The studies included in this review all took different approaches to combat workplace violence. However, the approaches can be grouped into three categories based on the scope of the intervention. Some studies provided standalone training, such as awareness workshops. Others offered more structured education programs, such as multiweek training involving practical communication skills and roleplaying scenarios. Finally, the interventions falling into the third category offered multicomponent solutions.

3.3. Standalone training

Of the twenty-six studies included in this review, 10 implemented standalone training sessions/workshops for nurses in an effort to counter workplace violence. However, the standalone sessions did not all focus on targeting the same category of WPV. Out of the 10 studies, five were intended to help counter verbal and physical abuse [15,21,31,36,42], a type of WPV where the primary perpetrators are patients and their relatives. One study [31] addressed sexual abuse, which is primarily inflicted by male patients and physicians. Finally, the remaining studies focused on workplace aggression [19], and workplace bullying/incivility [16,26,37,42], types of WPV, which tend to be perpetrated among staff members and by nurse managers. Beyond these differing points of focus, the training sessions also varied in length. Two studies assessed the effectiveness of a three to four hours training session to de-escalate violence [19,41]. Meanwhile, another study implemented an eight-

hour training program on violence prevention [36]. These studies report that, as a result of the standalone training session, nurses were more confident in their ability to deal with violent situations, and their ability to assess violent situations increased [19,36,41]. One study [41] used a simulation training method and concluded that the training increased nurses' confidence in dealing with workplace incivility. The study reports that Workplace Civility Index (WCI) scores improved significantly ($p < .00001$) for the intervention group. In another study [19], the authors report that, once they had completed the session, nurses had a broader range of communication tools and coping strategies at their disposal. However, the authors also indicated that the training session did not have a meaningful impact on the level of aggression faced by nurses. A study [37] reported an increase in assertiveness among the nurses who took part in their training. Other studies, including [21,31], highlight similar findings. Notably, study [21] also reported a decrease in the financial impact of workplace violence on the organization where the study took place. Several other studies reported on the impact of shorter, two to three hours, training sessions, which focused on lateral violence management and team building. These studies reveal that nurses' interactions with their colleagues were improved by the training, and their comfort level when handling critical conversations with colleagues increased. Moreover, nurse turnover was reduced by the standalone training [26,42]. The study by Al Ali et al. meanwhile reported that while nurses were more confident in their handling of workplace violence after they had completed an eight-hour training session, the training had not altered the fundamental safety concerns underlying workplace violence [36]. Moreover, the standalone eight-hour training session did not equip nurses with the ability to easily take legal action against perpetrators of violence. As these studies demonstrate, standalone training is certainly beneficial but is often only effective at impacting discrete elements of workplace violence and fails to have a substantive impact on the overall level of violence experienced by nurses.

3.4. Structured education programs

Structured education programs are used in 11 studies included in this review. Structured education programs differ from standalone training primarily in duration. These structured programs often span weeks, allowing participants to absorb more information. Of the 11 studies considered here, 9 of them targeted workplace bullying/lateral violence/incivility [22–25,28,29,34,38,43]. The common perpetrators of this kind of workplace violence are coworkers, nurse managers or supervisors, and physicians. In two of the studies, aggression and emotional abuse were the primary focus of the structured education program [17,30]. In these instances, the common perpetrators were patients and their family members. Besides having differing focal points, the 11 studies considered here also used divergent types of structured education programs in their interventions. For instance, five of the studies [22,24,28,34,43] employed a Cognitive Rehearsal Program (CRP).

CRP is a technique wherein specific scenarios are role-played in a structured way, facilitated by trained professionals. Using CRP, nurses have the opportunity to practice and analyze effective responses to common violent behaviors. According to the findings of the four studies that employed CRP as their intervention, CRP enabled nurses to strengthen their coping mechanisms and build prevention skills. It can help improve participants' interpersonal relationships and increase awareness about violence between nurses. CRP can also play a role in reducing nurse turnover [34]. In another study, the authors state that 70% of nurses who took part in a CRP course reported a positive change in their own behavior when responding to bullying, and a further 40% reported, over the subsequent six months, the bullying they experienced actually decreased. In one more study [43], in which CRP was introduced through a smartphone application, the authors reported that CRP was successful in reducing work-related bullying experiences and turnover intention among nurses. However, CRP was not effective in reducing the intimidation experiences of nurses. Hence, much like the standalone training sessions, it has a limited positive impact and is not effective at reducing the overall rate of workplace bullying and the consequences experienced by nurses. This study suggested having some more effective interventions to minimize and manage workplace bullying against nurses [22].

Another structured education program revolves around the Culture of Civility, Respect, and Engagement in the Workplace (CREW) initiative, which was the intervention used in two studies [25,38] Both studies found that utilizing CREW as an intervention mechanism resulted in a significant increase in nurses' confidence and in their ability to identify and respond to workplace aggression. In another study [38], the authors also noted an improvement in the trust relationships between nurses and their supervisors. However, the training did not have a significant impact on the level of incivility between coworkers.

Another type of structured education program using a train-the-trainers approach was evaluated in one study [23]. Train-the-trainer programs are designed to train certain 'champions' within the workplace, who then go on to train their colleagues. Essentially, this methodology is intended to facilitate the spread of specialist knowledge in an efficient, cost-effective manner. The study that used train-the-trainer workshops focused on overcoming lateral violence by strengthening nurses' communication skills. Over the course of three years, 203 workshops were conducted with a total of 4,000 participants. The study reported that verbal abuse towards nurses decreased from 90% to 76%, and nurses' awareness of verbal abuse influencing their patient care increased from 42% to 63%, following the implementation of workshops by trained facilitators.

Similar to the train-the-trainer model, the Management of Clinical Aggression- Rapid Emergency Department Interventions (MOCA-REDI) was also used in an intervention study [17]; the authors examine the effectiveness of a 45-minute education program led by trained facilitators. The study reported a significant increase in participants' ability to deal with patients' aggression, and a significant change was observed in only one item out of 11 items that were assessed with postintervention study measures.

One more study assessed the effectiveness of a 'series of workshops' to de-escalate workplace violence and to increase the confidence level of nurses. This study identified increased nurses' confidence level to deal with patients' aggression in the post-intervention group. However, there were no significant differences found in the WPV exposure score [30].

Finally, Chipps and McRury evaluated the effectiveness of a three-month education program on communication and conflict management skills to address workplace bullying. This study revealed increased job satisfaction among participants. However, the frequency of bullying score was statistically insignificant. The rate of bullying incidents increased from 1 act weekly to 1.6 acts weekly ($p = 0.13$). The findings were contrary to the study hypothesis that the bullying rate will be decreased after the structured bullying training program [29].

3.5. Multicomponent interventions

Five of the studies considered in this review used multicomponent interventions to combat workplace violence. As the name suggests, multicomponent interventions differ from the other two intervention forms already discussed by using a multipronged approach. Several of these studies feature the involvement of

relevant stakeholders when shaping the format of the multicomponent interventions. The types of WPV considered in these studies are patient-to-worker violence [18,20], physical assaults and threats [27], and overall workplace violence [32,35]. The common perpetrators are patients, their relatives/visitors, and coworkers. In one study [18], a "worksite walkthrough strategy" was utilized with the aim of involving staff and administration in assessing what the most effective interventions might be, in order to decrease the overall rate of workplace violence against nurses. This stakeholder involvement resulted in an action plan where multiple strategies were implemented across three categories:

1. Environmental (panic buttons, security locks)
2. Administrative (policies for workplace violence prevention, safety procedures)
3. Behavioral (staff training for workplace violence management).

It is reported that as a result of involving stakeholders, around (81%) of participants implemented environmental, administrative, and behavioral interventions in their units, leading to a reduction in workplace violence rates. Another multicomponent interventional study by Arnetz et al. used a three-phased intervention model, also featuring the involvement of relevant stakeholders: [20].

1. Development of a standardized reporting system for workplace violence
2. Implementation of a hazard risk matrix to identify work units where there is an increased risk of workplace violence
3. Worksite walkthrough strategy.

This study found a significant decrease in the rate of workplace violence in the intervention units as compared to control units (IRR: 0.48, 95% CI 0.29−0.80) at six months and at 24 months (IRR 0.37, 95% CI 0.17−0.83). Similarly, in one more study [27], a three-pronged intervention model featuring:

1. Meetings with all stakeholders to revise workplace violence policies
2. Walkthrough meetings with healthcare personnel for environmental changes
3. Education and training sessions for staff.

After the implementation of these steps, there was a significant decrease in the rate of assaults (from 0.17 to 0.13, $P < 0.1$) and threats (from 0.49 to 0.37, $P < 0.1$) experienced by nurses taking part in the study.

Two other studies also took a multicomponent approach, although they did not feature the broad involvement of relevant stakeholders. Of these, study [32] used a two-phase intervention:

1. Implementation of alert system to identify high-risk patients upon admission
2. Nursing staff training for prevention of workplace violence.

Overall, violent incident rates decreased during the implementation period from 1.6 incidents per 100,000 worked hours to 1.1 incidents per 100,000 worked hours, meanwhile, a longitudinal study by Arnetz & Arnetz assessed the effectiveness of implementing a violence incident form for structured reporting, along with subsequent feedback sessions where staff were given the opportunity to discuss the circumstances surrounding reported incidents. At postintervention assessment, the intervention group reported statistically significant ($P < 0.05$) results such as increased awareness of risk assessment, ability to deal with violence, and increased confidence in reporting [35].

4. Discussion

The purpose of this review was to identify and consider different interventions aimed at decreasing the magnitude/prevalence of workplace violence against nurses. These interventions range from standalone training sessions designed to educate nurses, to more structured education programs, to broader organizational changes, such as the introduction of workplace violence reporting systems and safety procedures.

Although these studies exhibit different approaches, training for nurses features in almost all of the interventions, in one form or another. As Chappell and DiMartino explain, this is a tactical approach, in that …

> "training involves instilling interpersonal and communication skills which defuse and prevent a potentially threatening situation, developing competence in the particular function to be performed, improving the ability to identify potentially violent situations and people and preparing a 'core' group of mature and specifically competent staff who can take responsibility for more complicated interactions" [[39], p. 114].

Indeed, as the studies have demonstrated, violence prevention training sessions for nurses can yield positive changes, with nurses reporting increased confidence and improved communication skills. However, as the studies have also demonstrated, training interventions are, by themselves, ineffective at decreasing the rate of workplace violence [17,19,21,25,44,45]. For instance, a study conducted to assess the effectiveness of training designed to help nurses de-escalate workplace violence and manage aggressive patient behavior identified no difference in the rate of workplace violence and aggression experienced by healthcare providers in the control and intervention groups [19]. Perhaps, the workplace violence programs that are targeted at changing nurses' behaviors are not likely to impact the behaviors of the patients/families. They may impact the level of violence if these interventions can de-escalate situations and circumstances that spark a perpetrator's initial reactions [30].

Even the structured education programs considered as part of this review, such as CRP, CREW, MOCA-REDI, and train-the-trainers, which offer a more comprehensive form of training than standalone sessions, have also demonstrated that while training increases the confidence of those taking part, as well as develop other skills such as conflict management and effective communication methods, it does not significantly decrease workplace violence for nurses. Basically, these interventions do not address the behavior of the person (generally) instigating the violence, who is the person not receiving the training. Moreover, the studies considering structured education programs also highlighted other limitations, including a lack of management support, the limited number of nurses taking part in training, and the short duration of the implementation phase.

Of the twenty-six studies considered in this review, only five investigated the outcomes of multicomponent interventions for addressing workplace violence. In some instances, these interventions included staff training, but they were also focused on policy changes and environmental changes. Unlike the standalone training sessions and the structured education programs, several of the multicomponent interventions demonstrated an actual decrease in rates of workplace violence against nurses, rather than peripheral improvements, such as increased confidence among nurses. Structured policies and environmental changes are more likely to help decrease the violence experienced by nurses. With structured WPV policies, the perpetrators of WPV will become more cautious, as they will be aware that WPV will not go unnoticed and that committing WPV will incur consequences [46].

With this in mind, it seems unsurprising that the multicomponent format falls in line with recommendations put forward by ILO, WHO, PSI, and ICN [4], stating that workplace violence interventions should ideally include several components such as training of healthcare providers, security measures, and structured workplace violence prevention and management policies.

The studies included in this review reveal several reasons as to why workplace violence is still high in healthcare settings, despite the implementation of interventions and policies. These factors included a lack of structured reporting mechanisms, inaction on behalf of management despite reporting, ill-defined workplace violence prevention policies, and a lack of engagement by certain stakeholders. This last point is particularly relevant, as many organizations working to create a violence-free environment for healthcare providers indicate that the effectiveness of interventions depends on the involvement of all stakeholders working in the healthcare setting [10,40]. However, formal incident reporting systems can also be extremely impactful. Underreporting poses a significant problem for any organization attempting to mitigate or prevent workplace violence because it hinders their ability to identify high-risk settings and design policies and strategies in response to this. A formal incident reporting system is vital to data collection. Only one study [35] evaluated the effectiveness of utilizing a Violence Incident Form (VIF) as a structured tool within healthcare settings. The main purpose of the study was to generate awareness among healthcare staff to recognize and report violent incidents. The study further suggested that violence reporting systems can facilitate hospital management in determining where to focus their efforts for workplace violence education and related interventions.

This systematic review is among the first to consider the effectiveness of various interventions in combating workplace violence against nurses. Previous systematic reviews conducted in the same context have predominantly focused on descriptive studies or addressed only one kind of workplace violence, such as aggression, bullying, or lateral violence. A handful of reviews have assessed strategies to manage patient aggression, while others focused on the consequences of workplace violence or organizational interventions to prevent workplace aggression [5,33,47–49]. By contrast, this review considered three different kinds of intervention, enacted at both the individual and organization levels. Importantly, it reveals the effectiveness of different forms of interventions and highlights replicable interventions to prevent or minimize workplace violence against nurses. Of course, replicating these interventions is not always feasible, particularly in developing countries, due to resource constraints. Nevertheless, comparing these different studies helps to define how resources can be most usefully deployed in the effort to combat workplace violence against nurses.

5. Conclusion

This review has demonstrated, multicomponent interventions are the most effective approach to impacting rates of workplace violence. This finding has also been borne out in the work of Ramacciati et al., 2016 [50]. This awareness will, ideally, help shape future workplace violence interventions conducted in healthcare settings. Of course, for an intervention model to be successful in a new environment, there are multiple factors that can impact the outcome. This review has identified the involvement of key stakeholders, alongside positive management support, as fundamental factors for the successful implementation of planned interventions. In addition, individual nurses must be able to commit the necessary time to learning, practicing, and implementing different strategies. Underpinning their time commitment must be an awareness that workplace violence is not an inevitable part of the nursing profession, and nurses must feel confident that if, and when, they report violent incidents, they will be supported rather than punished.

Many organizations are working to adjust their guidelines, policies, and position statements to create a safe work environment for healthcare providers. Making changes at an organizational level is in line with recommendations made by the World Health Organization (WHO) [40], which asserts that training and interventions must go beyond the individual level and include organizational policies and work environment changes. This recommendation is supported by the various studies considered in this review, which suggest that successful interventions are based on strong collaboration between healthcare providers and hospital management. This review also contends that researchers, stakeholders, policymakers, and funding agencies need to work in collaboration to implement workplace violence interventions in developed and developing countries. A strong commitment is required by investing human and material resources to create violence-free healthcare settings.

Conflict of interest

We have no conflicts of interest to disclose.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.shaw.2021.04.004.

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