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Review Article

Effectiveness of Workplace Lateral Violence Training for Healthcare Workers: A Scoping Review

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ABSTRACT

Violence is common in healthcare settings. Several studies have highlighted the prevalence of lateral violence (i.e violence between colleagues) among healthcare workers. For healthcare organizations, the preferred solution is often to provide workplace training to reduce such violence. However, few studies have evaluated the effectiveness of such training. This scoping review of 19 studies reveals several findings. The main conclusions are that these studies are limited in their ability to provide a clear answer as to the effectiveness of this type of training, given the small number of studies on the subject, their great heterogeneity and their shortcomings on several levels (i.e. conceptual, methodological, and evaluative). The absence of criteria to evaluate the learning transfer that may result from such training is an important shortcoming. In light of these observations, avenues are proposed to guide future research.

1. Introduction

Many survey reports highlight the presence of acts of violence in the workplace [1–3]. Violent is particularly high in the health and social services sector [3,4]. Healthcare professionals are up to 4 times more likely than all private sector workers combined to be injured or absent from work following an incident of violence [1]. Studies report that between 30% to 90% of nurses have experienced violence at work [5,6]. As noted by several studies, these figures are likely to be higher given the low reporting rate of incidents of violence in healthcare settings [7,8].

The literature on violence between coworkers reveals a wide variety of concepts, including horizontal violence, incivility, harassment, bullying, and mobbing. While few authors offer distinctive bases between these concepts, no studies to date have empirically verified these distinctions. Moreover, the authors seem to consider the differences between these concepts negligible, since similar elements can be identified among their proposed definitions. According to others, these concepts also reflect the same general construct of psychological violence between coworkers [9,10]. For these reasons, in keeping with several authors, these concepts will be grouped under the term lateral violence (LV) [10,11]. Christie and Jones (p.1) define LV as “any disruptive or inappropriate behavior demonstrated in the course of work by an employee against another employee who occupies an equal or superior position” [12]. One particularity of the healthcare sector is that workers perform many of their daily tasks in collaboration with their supervisor (e.g. the head nurse). This singularity is rare or nonexistent in other sectors, outside of healthcare.

Several studies highlight significant consequences of LV on healthcare workers, such as anxiety, depression, and psychosomatic disorders [6,13]. Incivility has been found to be strongly correlated with increased absenteeism, intention to leave the organization and in some cases, an intention to leave nursing altogether [14–16]. Of course, these consequences entail significant costs for healthcare institutions, particularly in terms of replacement, recruitment, and training [17,18]. Some studies also suggest that LV may affect nurses’ concentration, which can affect the quality of care provided and patient safety [19–21].

Considering the presence and negative effects of LV in healthcare settings, several interventions have been deployed in various ways to reduce instances of violence [22]. One prevention measure that has frequently been praised by some researchers in the field is training [22,23]. However, reports and statistical data on the presence of LV training in healthcare organizations are scarce, if

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nonexistent. There is also scant information on how such training is conducted or about its contents [17].

Taken together, these elements and gaps in the literature suggest the need for more observations concerning the effectiveness of LV training offered to healthcare professionals. As healthcare settings operate with limited resources, it is crucial to ensure that investment in LV training courses can achieve its objectives to reduce cases of coworker violence and enabling healthcare staff to better manage violent situations [22]. With this in mind, the present study offers a scoping review of existing research on the effectiveness of LV training. It also aims to identify current studies trends on this topic to guide future research.

2. Methods

This scoping review was conducted while considering principles of Arksey and O'Malley and is also in line with Preferred Reporting Items for Systematic reviews and Meta-Analyses guidelines [24,25].

2.1. Inclusion criteria

To identify relevant articles, only those corresponding to the following inclusion criteria were retained: (1) the type of violence addressed in the training evaluated had to be at the lateral level; (2) participants had to be healthcare workers; (3) the studies had to be published in a peer-reviewed scientific journal; and (4), the research design had to be quantitative in nature.

2.2. Article selection process

Database searches were conducted using the following keywords: *workplace violence/aggression, lateral violence/aggression, horizontal violence/aggression, incivility, bullying, harassment, intimidation, verbal abuse, challenging behavior, conflicts,* AND *training, program, intervention.* Searches were conducted in the following databases: *ABI/INFORM Collection, Business Source Complete, PsyInfo, ScienceDirect, Taylor & Francis, Wiley Online Library, Emerald Insight, ScienceDirect*, and *Sage Journals*. Public databases (e.g. *Google Scholar and ResearchGate*) and specialized nursing and medical databases (e.g. *CINAHL Plus and Medline*) were also searched. Lastly, the reference lists of articles selected were consulted for additional studies.

This process resulted in an initial sample of 215 potential articles. An initial selection was made after reading the titles and abstracts. One hundred fifty articles were eliminated for not meeting the inclusion criteria. A second sorting was carried out through careful reading of the remaining 65 articles, eliminating another 48 articles that did not meet the inclusion criteria. Finally, a third triage justified the removal of 2 additional articles [9,26]. In the latter studies, the type of training activities being evaluated (respectively, a mobile application and an asynchronous type of online training) were inconsistent with the training presented in the other articles, limiting possible comparisons. Upon completing the above-outlined process, the final sample consisted of 19 articles (Fig. 1). These articles are designated by an asterisk in the list of references.

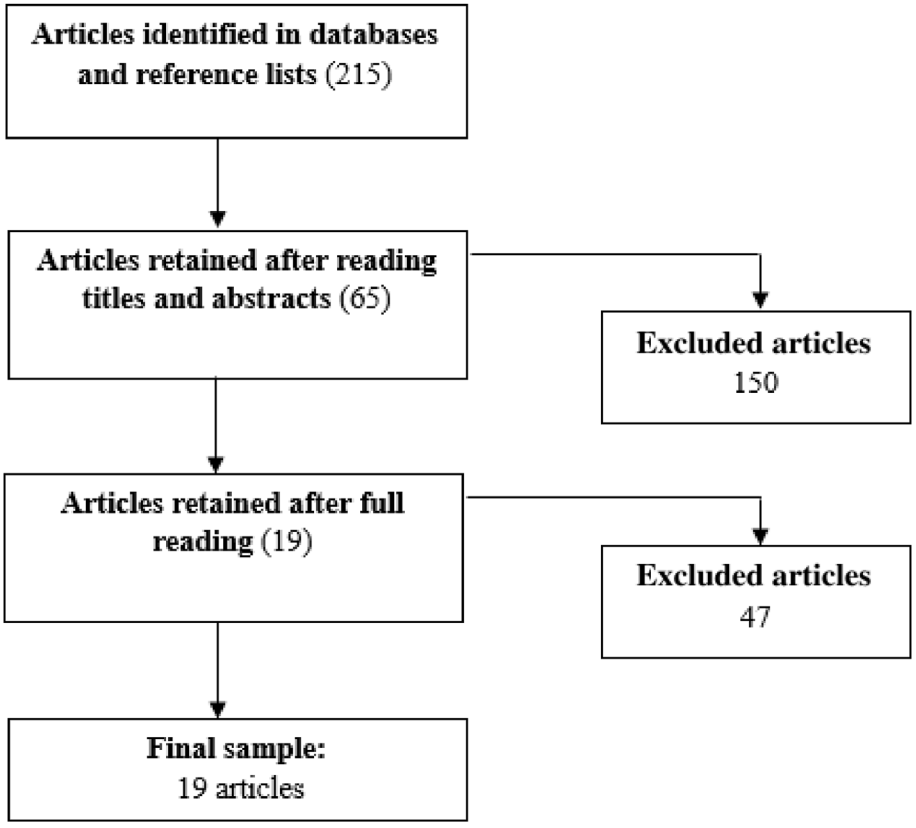

Fig. 1. Study selection process.

2.3. Analysis grid and study coding process

The 19 studies in the sample were then coded using an analysis grid. This grid included 4 categories of criteria: (1) conceptual criteria: concepts related to LV and definitions of concepts; (2) criteria on study characteristics and their participants: sample size and participants' functions/occupations; (3) criteria on the parameters of the training being evaluated: training descriptions and objectives, number of participants, duration, type of trainer (internal or external), mode of delivery (in person or virtual), training location (internal or external), participants' role during training (active or passive), type of knowledge (declarative or procedural), and training enrollment (voluntary or involuntary); (4) criteria on evaluation of the training's effectiveness: evaluation criteria, types of outcomes according to Kirkpatrick's typology, means used to evaluate each variable, evaluation timing, research design, results and sizes effect, researchers' main findings, and their recommendations to increase the effectiveness of training.

To ensure the quality of the coding grid, a pretest was conducted, which led to certain adjustments. All articles were coded by 2 different coders. Disagreements were resolved through discussion. Inter-rater agreement was established using inter-rater reliability (IRR) [27]. Overall, this process resulted in a high inter-rater agreement of 83%.

2.4. Characteristics of selected studies

The 19 articles sample collected information on a total of 4376 participants. Almost all the studies were conducted in the United States (14/19; 73.6%), with the exception of 3 studies conducted in Canada (3/19; 15.8%), 1 in the Republic of Korea (1/19; 5.3%) and 1 in Turkey (1/19; 5.3%). Training programs were delivered to an average of 140 trainees (min = 9; max = 1328). All research samples were composed of nurses; however, their sectors and departments varied. Over half of the studies did not specify what the nurses' specializations were (12/19; 63.2%).

The duration of the training programs under study varied considerably. Some studies evaluated a training program of less than 2 hours (4/19; 21.1%), while other training courses lasted several days (4/19; 21.1%). However, most training programs were between 2 and 8 hours (7/19; 36.8%). Nearly one quarter of the studies did not specify the training duration (3/19; 15.8%). Considering Armstrong's typology of training [17], the courses under study consisted mainly of interactive educational sessions with practical learning exercises (10/19; 52.6%). The second most offered type in the sample was training that included noninteractive educational sessions with hands-on learning exercises (5/19; 26.3%). Only 2 studies fell outside of these two categories, which are interactive educational sessions without hands-on learning exercises and noninteractive educational sessions with no hands-on learning exercises. Most training programs were offered in ways that elicit both active and passive role from trainees (17/19; 89.5%). The content of these training courses highlighted both declarative and procedural knowledge (18/19; 94.7%). While most training was offered in person (16/19; 84.2%), 1 training program was held virtually (1/19; 5.3%). This information was not specified for 2 of the studies (2/19; 10.5%). As for the type of trainer, in most cases the trainer was an internal member of the organization (12/19; 63.1%). Only 1 study specified the use of an external trainer, and another 1 mixed trainers (internal and external). A small number of studies did not specify this information (5/19; 26.3%). The results table (Table 1) provides a list of characteristics specific to the research comprised in the sample under study [10,11,17,19,28–41].[1]

3. Results

3.1. Conceptual findings

3.1.1. Divergent definitions

The majority of the studies have defined and distinguished their concepts (15/19; 78.9%). However, these definitions were rarely explained, justified or supported by research addressing differences between concepts. Therefore, one key observation is a lack of consensus on how concepts related to co-worker violence are conceived and distinguished. Indeed, although all studies comprised in the sample under study represented the LV construct, it was possible to identify significant contradictions within the definitions presented. For example, Razzi and Bianchi [38] define incivility as a generic term that encompasses a continuum of uncivil behaviors from verbal and physical aggression to bullying [38]. Their point of view differs from Ceravolo et al. who consider incivility and bullying as a subconcept of LV [30]. On the other hand, Warner defines incivility as a synonym for bullying, LV and harassment [41].

A second observation at the conceptual level concerns divergent opinions on definitions of different concepts. One of these divergences concerns the notion of intention. Some definitions specify that the aggressor must have the intention to injure his victim for the situation to be considered as LV. This is the case with definitions provided in Nikstaitis et al. [37] and Anderson and Pearson [42]. On the other hand, other definitions mention that intention may be absent, for example, Razzi and Bianchi [38]. Furthermore, several definitions do not address intention at all.

3.2. Methodological findings

3.2.1. Research design

Methodological analysis of the articles revealed a high use of correlational designs (14/19; 73.7%). Although this type of design can sometimes provide relevant information [43], a disadvantage is that it does not allow the establishment of cause-and-effect relationships between variables, thus limiting the scope of its conclusions. For this reason, these studies cannot make a robust judgment about the quality of their training program. Only an experimental design can be used to estimate real change in learners following a training program [44]. Unfortunately, only a small number of studies have used this type of design (2/19; 10.5%). A few studies (3/19, 15.8%) have used a quasi-experimental design that provides some indication of the quality of the training program, but with a lower degree of certainty [10,35,39]. There is therefore a risk that the differences observed between groups are due to the presence of bias resulting from the lack of randomization.

3.2.2. Choice of measures of evaluation and time of evaluation

All studies in the sample mainly based the evaluation of their training program on custom-made or pre-existing self-reported questionnaires. Among the studies that used pre-existing and validated tools, it was possible to observe the use of same questionnaires across several studies (11/19; 57.9%), thus facilitating comparison between studies. The most commonly used questionnaires were the *Negative Acts Questionnaire–Revised* (NAQ-R) by Einarsen et al. (3/19; 15.8%) and the *Nursing Incivility Scale* (NIS) by Cortina et al. (8/19; 42.1%) [45,46]. While these instruments are not directly related to the evaluation of LV phenomena in the workplace (and even less in healthcare settings), their use in this research sample is not surprising given the low number of validated

[1] These references have been added this way for reference only, as the tableau is currently attached to another document.

Table 1
Characteristics of the sample studies

Studies	Topics	Duration	Design	N			Evaluation criteria	Categories of criteria	Effect size (*d*)
				Total	Exp.	Contr.			
Studies using a correlational design									
Barrett and al. (2009)	Lateral violence	4 h	3	45			Perceived effects of training	Perceptual: direct	—
							Perceived effects of training	Perceptual: direct	—
							Attitudinal consequences	Perceptual: indirect	—
Stagg and al. (2011)	Harassment/bullying	2 h	1	20			Knowledge	Knowledge	0.09
							Satisfaction	Perceptual: direct	0.32
							Self-efficacy	Perceptual: direct	—
							Perceived effects of training	Perceptual: direct	0.62
							Perceived effects of training	Perceptual: direct	0.41
Ceravolo and al. (2012)	Lateral violence	2 h	2	285			Perceived effects of training	Perceptual: direct	—
							Self-efficacy	Perceptual: indirect	—
							Organizational results	Result	—
							Organizational results	Result	—
Chips and McRury (2012)	Harassment/bullying	—	4	16			Perceived effects of training	Perceptual: direct	—
							Attitudinal consequences	Perceptual: indirect	—
							Perceived work performance	Perceptual: indirect	—
Embree and al. (2013)	Lateral violence	2 h	1	35			Perceived effects of training	Perceptual: direct	—
							Perceived effects of training	Perceptual: indirect	—
							Self-efficacy	Perceptual: indirect	—
							Attitudinal consequences	Perceptual: indirect	—
Dalhby and al. (2014)	Lateral violence	1.5 h	—	25			Perceived effects of training	Perceptual: direct	—
							Perceived effects of training	Perceptual: direct	—
Nikstaitis and Simko (2014)	Incivility	1 h	3	21			Perceived effects of training	Perceptual: direct	—
Lasater and al. (2014)	Incivility	7 h	1	94			Perceived effects of training	Perceptual: direct	—
							Perceived work performance	Perceptual: indirect	—
							Perceived work performance	Result	—
							Self-efficacy	Perceptual: direct	—
Warner and al. (2016)	Incivility	0.45 h	4	41			Perceived effects of training	Perceptual: direct	—
							Perceived effects of training	Perceptual: direct	—
							Perceived effects of training	Perceptual: direct	—
Armstrong (2017)	Incivility	4 days	1	9			Self-efficacy	Perceptual: direct	0.95
							Self-efficacy	Perceptual: direct	0.51
							Perceived effects of training	Perceptual: direct	—
Balevre and al. (2018)	Harassment/bullying	—	2	25			Perceived effects of training	Perceptual: direct	0.69
							Trust in the organization	Perceptual: direct	0.93
							Trust in the organization	Perceptual: direct	0.78
Kile and al. (2018)	Incivility	10 h	2	17			Perceived effects of training	Perceptual: direct	—
							Perceived effects of training	Perceptual: direct	—
							Perceived effects of training	Perceptual: indirect	—
							Attitudinal consequences	Perceptual: indirect	0.08
Razzi and al. (2019)	Incivility	1 h	1	24			Perceived effects of training	Perceptual: direct	0.32
Karakas and Okanli (2015)	Mobbing	20 h	1	30			Perceived effects of training	Perceptual: direct	1.70
							Self-efficacy	Perceptual: direct	-0.68
Studies using a quasi-experimental design									
Leiter and al. (2011)	Incivility	—	1	2080	443	1637	Perceived effects of training	Perceptual: direct	Exp. (0.38) Contr. (0.06)
							Perceived effects of training	Perceptual: direct	Exp. (0.25) Contr. (0.05)
							Perceived effects of training	Perceptual: direct	Exp. (0.28) Contr. (0.00)
							Attitudinal consequences	Perceptual: indirect	Exp. (0.40) Contr. (0.08)
							Perceived effects of training	Perceptual: indirect	Exp. (0.55) Contr. (0.12)
							Trust in the organization	Perceptual: indirect	Exp. (0.42) Contr. (0.18)
							Affective consequences	Perceptual: indirect	Exp. (0.29) Contr. (0.06)
							Perceived work performance	Perceptual: indirect	Exp. (0.15) Contr. (0.01)
							Attitudinal consequences	Perceptual: indirect	Exp. (0.37) Contr. (0.15)
							Attitudinal consequences	Perceptual: indirect	Exp. (0.27) Contr. (0.08)
							Attitudinal consequences	Perceptual: indirect	Exp. (0.57) Contr. (0.16)
							Attitudinal consequences	Perceptual: indirect	Exp. (0.27) Contr. (0.01)
Spence-Lashinger and al. (2012)	Incivility	24 days	1	1328	—	—	Perceived effects of training	Perceptual: direct	Exp. (0.30) Contr. (0.02)
							Perceived effects of training	Perceptual: direct	Exp. (0.23) Contr. (0.26)
							Self-efficacy	Perceptual: indirect	Exp. (0.39) Contr. (0.08)
							Trust in the organization	Perceptual: indirect	Exp. (0.48) Contr. (0.24)
O'Connell and al. (2019)	Lateral violence	2 h	1	76	11	65	Perceived effects of training	Perceptual: direct	—
Studies using an experimental design									
Mallette and al. (2009)	Horizontal violence	7.5 h	2	165	—	—	Self-efficacy	Perceptual: direct	—
							Knowledge	Knowledge	—
							Perceived work performance	Perceptual: direct	—
							Satisfaction	Perceptual: direct	—
Kang and al. (2017)	Harassment/bullying	20 h	2	40	20	20	Perceived effects of training	Perceptual: direct	Exp. (0.31) Contr. (0.40)
							Perceived effects of training	Perceptual: direct	Exp. (0.04) Contr. (0.02)
							Affective consequences	Perceptual: indirect	Exp. (0.06) Contr. (0.00)
							Attitudinal consequences	Perceptual: indirect	Exp. (0.33) Contr. (0.16)

Note. Topics = concepts central of the study; duration = duration of training; design = training category according to Armstrong's typology (1 = interactive educational sessions with hands-on learning exercises; 2 = non-interactive educational sessions with hands-on learning exercises; 3 = interactive educational sessions without hands-on learning exercises, and 4 = non-interactive educational sessions without hands-on learning exercises); – = information not available or insufficient.
Categories of evaluation criteria: perceived effects of training, self-efficacy, trust in the organization, perceived work performance (performance, efficacy, quality of care, security of patients), affective consequences (experienced symptoms), attitudinal consequences (work satisfaction, engagement, intention to leave the organization), organizational results.

measurement instruments in the field. Only 3 studies used other means of evaluation—respectively, a database on staff turnover and job vacancies, a registry reporting violent behavior observed or experienced by participants, and a national database on the quality of nursing care [19,30,34].

Another key observation in this regard concerns the timing of completion of the second questionnaire after the training. Several studies distributed their questionnaire at times that might have been more appropriate for measuring learners' learning. Although there is no consensus on the ideal number of weeks after training at which to conduct an evaluation, Schoeb et al. noted an average delay of 15 weeks following a systematic review of the evaluation of learning transfer after training [47]. Thus, some studies in the sample (3/19; 15.8%) based their conclusions on questionnaires distributed too close to the training, either just after the training or less than 2 weeks after it ended. These short delays could distort the results presented by these studies, as learners may not have had sufficient time to put their new learning into practice. Other studies in the sample (8/19; 42.1%) administered their questionnaire after a longer period, in some cases years after the training. In these cases, it is quite possible that other phenomena in the workplace influenced the observed effects in these studies.

3.2.3. Statistical power

A general observation revealed that in several of the articles under study, the number of learners was low. Following this observation, the statistical power of the sample was calculated using *GPower* software. From the results, it was concluded that the vast majority (15/19; 78.9%) of the studies had insufficient sample size to obtain conclusive results. It should be noted that the effect size selected in these calculations was set at 0.20, which is considered a small but acceptable effect for measuring attitudes in the fields of occupational psychology or human resources management, according to the recommendations and benchmarks proposed by Bosco et al. [48].

3.3. Findings at the evaluation level

3.3.1. Choice of evaluation criteria

A first observation concerns the number of studies that used an evaluation model to guide the evaluation of their training program. Notably, only 1 study in the sample referred to a model, that being Kirkpatrick's model [49]. Further observations concern the choice of evaluation criteria selected by the researchers. These criteria were categorized in 2 ways: first, according to Kirkpatrick's evaluation levels, and second, according to whether they are directly or indirectly related to the objectives of the LV training.

3.3.2. Categorization according to Kirkpatrick's model

Several observations were made following this first categorization. A key observation is that all studies in the sample evaluated impact at the level of perceptions (learners' reactions). Indeed, most studies (15/19; 78.9%) evaluated their training program solely on this first level of Kirkpatrick's model [49]. Results based on these perceptual criteria were generally high, especially in respect to criteria such as self-efficacy. Criteria related to performance or completion of tasks were generally lower. In 2 studies, the results of the control group were equivalent to those of the experimental group. In the first, the researchers explain these results by noting that the participants had initially reported a low rate of incivility within their work unit. The researchers also posit that the control group may have inadvertently acquired effects from the intervention due to the increased use of civil behaviors by the experimental group following their participation in the training. In the second study, the justifications provided are the probable influence of organizational determinants and the distribution of the questionnaires too soon after the training.

Subsequent levels of Kirkpatrick's model were scarcely used in the sample studies. Specifically, only 2 of the studies have measured the knowledge (second level of Kirkpatrick's model) acquired by learners following training. In the first of these, the researchers unfortunately did not provide any information about the validity of the knowledge measure used. The results of the knowledge test were also found to be nonsignificant. There was therefore no significant difference in learners' level of knowledge following their participation in the training. In the second study, while the researchers had their knowledge measured by a questionnaire validated by a panel of experts on LV, results obtained were also inconclusive (i.e. with a very small effect between the pre- and post-test of $d = 0.09$).

Surprisingly, none of the studies have measured the transfer that may result from learners' application of their new learning (the third level of Kirkpatrick's model).

As for the last level of this model, which focuses on the effects of training at the organizational level, 2 studies used criteria corresponding to this level of evaluation. Although these studies used so-called objective measures, they highlight an important shortcoming of this fourth level: the difficulty of isolating the effect of training from other phenomena in the workplace. The first of these studies measured the effect of training on the quality of nursing care. Specifically, the researchers used a report published every 2 years that assesses the quality of nursing care at the hospital. The researchers compared the results of the last report published before the implementation of the training with those of the following report, despite the fact that only 2 hospital units participated in the training (a total of 94 learners). An improvement in the quality of care was observed in this study. However, the researchers rightly pointed out that it is impossible to attribute this change solely to the training, as other measures were taken by the hospital during this period to improve staff recruitment and retention. As for the second study, it evaluated the effect of training on staff turnover and the number of job vacancies, 3 years after the implementation of this activity in the workplace. After these years had passed, a 5.9% decrease in job vacancies and a 2.9% decrease in staff turnover were noted. Again, the possibility of making clear inferences to the training offered is limited. The researchers pointed out that these changes could be due to economic conditions and a decrease in external opportunities.

3.3.3. Categorization of criteria as direct or indirect

The evaluation criteria of the sample studies were then categorized as *direct* or *indirect*, relative to the main objective of the LV training. *Direct* criteria are directly related to the main goal of LV training, which is to reduce the occurrence of incidents and/or teaching staff to respond better when in such situations. On the other hand, *indirect* criteria refer to criteria that are indirectly related to this goal (i.e. job satisfaction, absenteeism rate, burnout, etc.). Analysis revealed that half of the research criteria (out of 56 criteria) were indirectly related to the objective of this training (26/56, 46.4%). Of the direct criteria, almost half (26/56; 46.4%) were perceptual in nature. In other words, although some studies evaluated the effect of training on reducing LV behaviors, in the majority of cases, the conclusions were drawn from learners' perceptions only.

4. Discussion

The objective of this scoping review was to conduct an analysis of research evaluating the effectiveness of LV training activities for healthcare professionals. In short, based on the limited number of studies that met inclusion criteria and due to certain deficiencies

identified at the conceptual, methodological and evaluative levels of the sample studies, it is difficult to draw clear conclusions as to the effectiveness of LV training offered to healthcare workers.

A key finding was a lack of consensus in the literature on how to conceive and differentiate the various concepts related to LV. Although all the training described focused on this type of violence between coworkers, the various researchers do not appear to agree on a fundamental element of the training contents, namely the definitions of concepts. The lack of studies to date examining the differences between these concepts represents a gap in the literature on LV. This problem might evidence the low level of maturity of LV as a field of study. Moreover, this diversity of terms, coupled with the fact that the number of training courses on distinct content is almost equal to the number of studies currently available on the subject—with 2 exceptions: Griffin's *cognitive rehearsal educational program* and the *Cultural Responsiveness and Equity in Workplaces (CREW) program*—makes it difficult to compare studies or combine their results to better estimate the effect size [50,51].

In addition, several methodological problems were observed, particularly about the prevalence of non-experimental designs. The lack of experimental research is important considering the need for evidence of a cause-and-effect relationship between LV training and its anticipated results. Several biases are also associated with self-reported questionnaires, which are therefore not optimal for identification of changes in learners' behavior following training. The low statistical power of almost all the research was another important observation. However, these shortcomings could be explained by the current lack of resources in healthcare settings. In fact, several studies highlighted their inability to recruit participants to carry out their research [17,28,38].

Other research gaps were noted at the evaluation level. One such gap is the lack of studies using an evaluation model to guide their evaluation of the training activity. For instance, the Kirkpatrick model [49] and the decision-based model by Kraiger et al. [52] are both well-recognized models in other fields such as management and human resource development. It would be interesting to see a greater application of these models in future research conducted in healthcare settings, in particular to identify the direct and indirect impacts as well as the ineffective elements of LV training. A second gap concerns suboptimal choices of evaluative criteria, the majority of which were indirect and perceptual. These shortcomings indicate a lack of use of basic principles in the evaluation of training, which may be due to the strong partitions between the healthcare field and the other fields accustomed to these notions (i.e. management, human resource development).

Ultimately, the literature does not currently provide sufficient evidence to determine whether LV training achieves its objectives of reducing LV cases and helping healthcare workers to better manage LV situations. Unfortunately, it is difficult to draw conclusions given the small number of research projects (and participants) and their high heterogeneity, particularly in terms of design (i.e. duration of training, content taught, type of trainer, etc.). Furthermore, the evaluations conducted in these studies were carried out at the superficial level of perception, providing little information as to training quality in terms of knowledge acquired, learning transfer and organizational impacts. Based on the data provided, the only conclusion is that participants seemed to be in favor of or even confident in the content taught during the training. Hence, this finding unfortunately provides very little evidence as to the quality and effectiveness of such training activities.

4.1. Study limitations and future avenues of research

This scoping review may have certain limitations. The first concerns possible selection bias in the identified articles. Relevant studies may not have been considered due to the keywords chosen for database searches. A second limitation concerns possible publication bias. As Dickersin has noted, scoping reviews are based mainly on published studies, which sometimes leads to an underrepresentation of studies with negative or relatively small effects, those published in a language other than English, or those that have not been submitted for publication (what some call *the file drawer effect*) [53]. On this point, searches were also extended to French databases (no studies were founded). A third limitation concerns the decision to include all research related to violence between co-workers, even if it focused on different concepts in terms of intensity of violence which is common in the current literature on LV [10,11]. The different concepts were also retained due to a lack of research to date demonstrating significant differences between terms - distinctions that future research may help to establish.

Furthermore, effective prevention of workplace violence requires a comprehensive approach that is not solely based on the deployment of training [54]. Organizational culture plays an important role, as do policies, complaints systems, appropriate responses from managers, etc. [55–57]. As such, it would be interesting for future research to focus on the potential interactions between various prevention measures and the extent to which each plays a role in anticipated outcomes of LV training [58]. As the recent pandemic has imposed numerous changes upon the way training is now delivered to trainees, it would also be interesting to conduct this type of scoping review again when more research on the subject becomes available to compare modes of delivery (i.e. in-person *vs* virtual).

5. Conclusion

The objective of this scoping review was to provide a portrait of the effectiveness of the training offered to healthcare professionals to reduce violence between co-workers, also known as lateral violence. While the limited number of studies on the subject made it difficult to draw clear conclusions as to the effectiveness of such training programs, conceptual, methodological, and evaluative gaps were identified in the literature in hope to inspire and guide future research on the subject. This review has the merit of being the first to offer a summary of studies on this subject.

CRediT authorship contribution statement

Marie-Eve Corneau: Conceptualization, Methodology, Investigation, Formal analysis, Data curation, Writing - original draft, Writing- review & editing, Writing. **Martin Lauzier:** Supervision, Conceptualization, Methodology, Data curation, Writing - review and editing, Validation.

Conflicts of interest

The authors have no conflicts of interest to report.

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