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Scoping review

Workplace aggression in the healthcare sector: a scoping review to facilitate the development and evaluation of effective de-escalation training programs

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ABSTRACT

Introduction: Workplace aggression is a challenge for preventive and occupational medicine and aggression management training is fundamental to any workplace violence prevention strategy. Despite the increasing interest that has been recently devoted to the importance of prevention of aggressive behaviors, international literature on the topic is huge but heterogeneous.

Methods: The authors tried to analyze literature regarding this issue with the future goal of finalizing a de-escalation training course for healthcare workers, alongside a procedure for evaluating the effectiveness of the course that takes into account evidence synthesis.

Results: Although in recent years several studies have proposed different theoretical models of escalation of aggression and de-escalation techniques, what emerged is that no model can account for all the factors and mechanisms involved in human aggression which present high levels of unpredictability.

Conclusion: Authors argue that common programs, regarding the understanding of aggression and de-escalation strategies, are effective in some way as already evidenced anecdotally through literature references and that de-escalation courses should be useful and should be repeated over time with the main aim to emphasize empathic communication through practice. Further, literature evidence suggests that simulation scenarios should be preferred to test the effectiveness of a course rather than a paper test or self-assessment quality of the course, but the limit of the artificiality of the scenarios should be overcome.

Keywords: Aggression, De-escalation training courses, Effectiveness, Guidelines, Health care setting

Introduction

Convention No. 190 adopted at the General Conference of the 2019 International Labour Organization (ILO), was the first international treaty to recognize the universal right to a workplace free from violence and harassment, including gender-based violence and harassment. Workplace violence in the workplace is a major issue for healthcare systems. Long a "forgotten" issue, the focus on violence at work has dramatically gained momentum in recent years, now a priority for healthcare systems in both industrialized and developing countries. It has been estimated by several reliable studies that stress and violence together may account for approximately 30% of the overall costs of ill health and accidents.[1] According to the World Health Organization (WHO), workplace violence is defined as "incidents where staff is abused, threatened, or assaulted in circumstances related to their work, including commuting to and from

work, involving an explicit or implicit challenge to their safety, well-being, or health."[1,2]

It may derive from multiple sources, including violence from those with criminal intent, violence from patients, domestic violence that occurs in the workplace, or violence from co-workers.[3]

Although workplace aggression affects almost all sectors and groups of workers, it is apparent that violence in healthcare settings poses a significant risk to public health and is an occupational health issue of growing concern.[4] The healthcare sector witnesses a significant proportion of violence, especially against primary healthcare providers such as doctors and nurses that negatively impacts their physical and psychological well-being, ultimately limiting their work performance and job satisfaction. It also has organizational consequences that impact both individuals and organizations. This affects the functioning and efficiency of the entire healthcare system in the long term.[2]

Workplace aggression towards healthcare workers is a challenge for preventive and occupational medicine that has received increased attention in recent years. Approximately 25% of nurses report being physically assaulted by a patient or family member, while over 50% reported exposure to verbal abuse or bullying.[5] It is more difficult to estimate violence against doctors because they tend not to report aggression. Studies suggest that out of the total cases, doctors report only 50% of cases of verbal abuse and less than 40% of cases of physical assault.[2,3] Even though some institutions may have a proper formal incident reporting system, there are still many incidents, especially in the forms of bullying, verbal abuse, and harassment unreported. Workplace violence prevention, therefore, should be a priority.[6]

Despite the increasing interest that has been recently devoted to the importance of prevention of aggressive behaviors, further brought into focus by the COVID-19 pandemic, international literature on the topic is huge but heterogeneous. Thus far, to the best of our knowledge, no reviews have tried to summarize findings from a body of knowledge of various methods and disciplines. The rationale of this article is to analyze literature regarding this issue to shed some light on the future goal to finalize a de-escalation training course for healthcare workers, alongside a procedure for evaluating the effectiveness of the course that takes into account evidence synthesis.

Methods

This scoping review was conducted following the guidelines from the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA-ScR).[7] The review aimed to describe and synthesize relevant literature about aggressive behaviors in health care settings, preventive measures of de-escalation and tools to evaluate the effectiveness of training courses. The main themes addressed were: the concepts of escalation of aggression and its de-escalation; aggressive models and de-escalation techniques with de-escalation recognized domains and recommended behaviors, and de-escalation training programs and their effectiveness. In particular, this paper aims to answer the following questions: how should we define aggressive behaviors in healthcare sector workplaces? What are the main models and tactics suggested to manage aggression in healthcare settings? How are de-escalation techniques taught, and how is their effectiveness assessed?

Before identifying relevant journal articles, the authors determined keywords based on the research questions; in order to answer review questions, were accessed Medline/PubMed, Google Scholar, Scopus, and ScienceDirect databases to search and collect papers. The digital search strategy was divided based on the topics to be covered and involved the following keywords "workplace aggressive behaviors"; "workplace aggression/ health care sector workplace aggression/ health care setting workplace aggression"; "De-escalation techniques/ guidelines/ tactics", "models of aggression", "De-escalation training programs/ De-escalation tools", "De-escalation training programs efficacy" and

derivations of these terms. Reference sections of the identified papers were also checked for additional studies. Reviews and the most current ones were given preference while choosing the articles.

If a concept emerged that needed further exploration, they were searched in older articles. In order not to exclude relevant articles and to limit selection bias, two authors (MC and AD) independently selected articles and subsequently discussed the choice of which ones to use to best describe the topic of interest. When they did not agree another author was consulted (RM).

Results

A total of 45 studies were included out of 2200 retrieved studies as summarized in figure 1. The authors summarized what emerged from the research in subchapters and in Table 1.

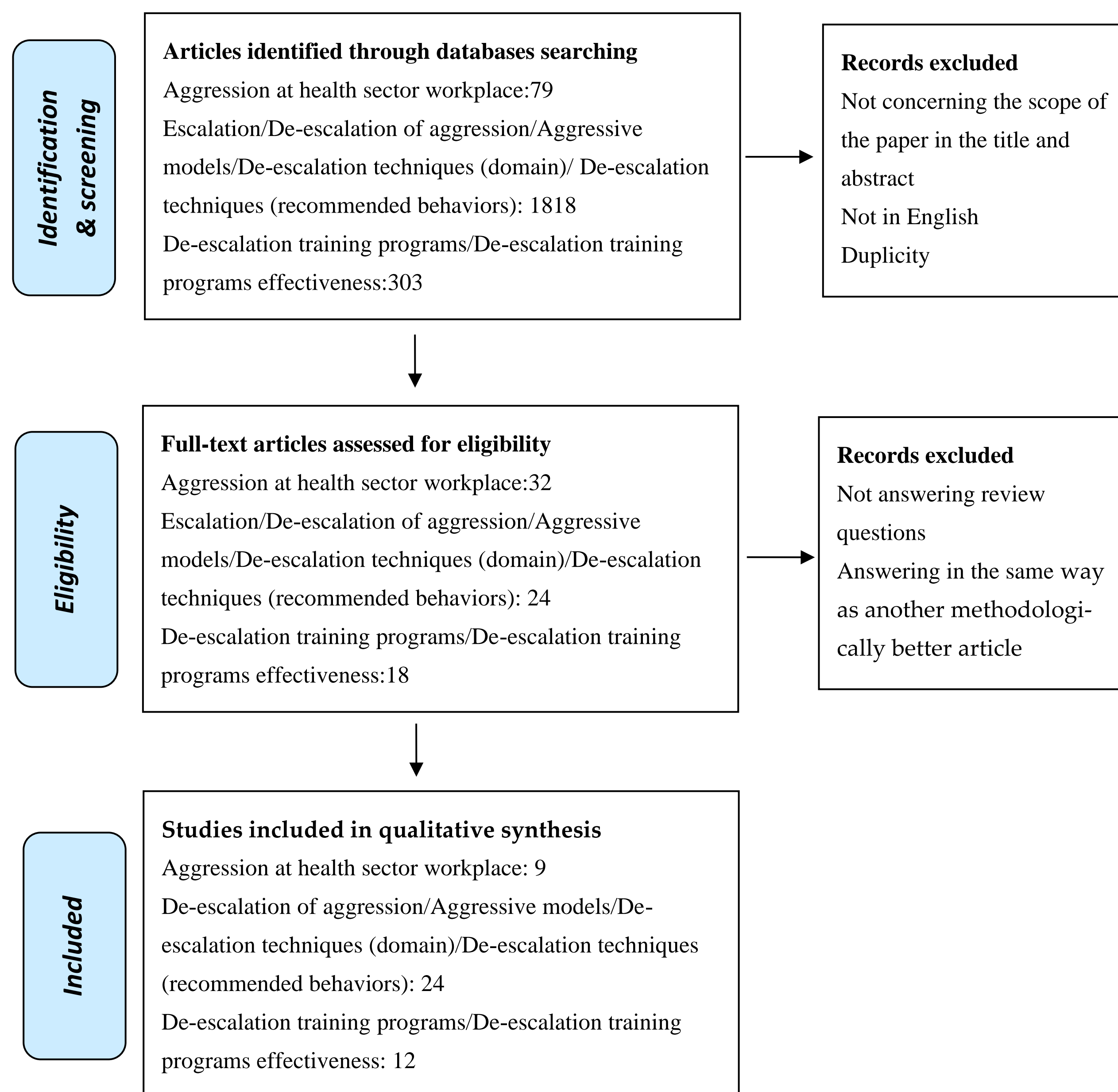

Fig. 1 - PRISMA Flow-chart of study selection process

Table 1: Evidence synthesis of the whole phenomena

Aggression	Aggression at health sector workplace	Escalation of aggression	De-escalation of aggression	Aggressive models	De-escalation techniques (domains)	De-escalation techniques (recommended behaviors)	De-escalation training programs	De-escalation training programs effectiveness
A response that delivers noxious stimuli to another organism	Can be classified as impulsive/defensive/affective aggression and non-impulsive/premeditated/offensive/predatory aggression	Verbal aggression toward staff is common and may lead to poor performance and functioning, as well as low morale	Is described as a psychosocial intervention, which should be used as the first-line response to violence and aggression	Have assumed a linear process of aggression described as the assault cycle, in which a trigger event leads to escalation of aggressive behavior towards a crisis point, usually physical in nature, and subsequently to resolution	The clinician should respect personal space. The clinician must be not provocative and hands should be visible and not clenched.	Recognized de-escalation techniques include verbal strategies, such as maintaining a calm tone of voice and not shouting or verbally threatening the person.	One review states that the most common program elements were verbal and non-verbal de-escalation strategies (72 per cent of programs)	Trainings that incorporate simulation-based learning, such as role playing, practice scenarios, or practice drills, provide the opportunity to apply newly learned skills and reinforce the learned behaviors
A normal survival behavior	Impulsive workplace aggression causes short- and long- term physical and psychological harm	Increased exposure to violence from service users is correlated with increased stress and reduced job satisfaction in social care and social work staff	Has been defined as the main form of secondary violence prevention, occurring in the face of imminent aggression	The assault cycle comprises five stages: the trigger phase, escalation phase, crisis phase, recovery phase, and depression phase	The clinician should establish verbal contact and introduce himself to the patient providing orientation and reassurance	Non-verbal techniques include an awareness of self, body stance, eye contact and personal safety	Control, restraint or seclusion skills (62 per cent of programs)	Simulation-based trainings showed some good results in nursing settings. Measurement instruments and limited to artificial training scenarios
A dangerous, maladjusted behavior which takes aim at inappropriate targets	Impulsive aggression is characterized by high levels of autonomic arousal and precipitation by provocation	Impulsive workplace aggression has been linked to burnout, decreased productivity, increased absenteeism and	De-escalation is a collective term for a range of interwoven staff-delivered components comprising communicati	The cyclical model consists of three interdependent components: assessment,	The clinician should be concise since more complex verbalizations can increase confusion and can	Verbal and non-verbal communication skills may help to redirect someone to a "calmer	learning how to predict and prevent aggression (59 percen	There was a stronger relationship between the programs and increases in staff knowledge and

Aggression	Aggression at health sector workplace	Escalation of aggression	De-escalation of aggression	Aggressive models	De-escalation techniques (domains)	De-escalation techniques (recommended behaviors)	De-escalation training programs	De-escalation training programs effectiveness
	associated with negative emotions such as anger or fear	interrupted patient care	on, self-regulation, assessment, actions, and safety maintenance, which aims to extinguish or reduce patient aggression/agitation irrespective of its cause,	communication and tactics (ACT).	lead to escalation. The clinician should identify wants and feelings and a strategy should be trying to ask what the request is .	personal space"	t of programs)	confidence than there was between the programs and reductions in violent and/or aggressive incidents.
A manifestation of social imbalance	This aggression can be verbal, physical, or sexual but the most commonly experienced at a workplace is verbal	Aggressive and violent behavior may have a significant impact on staff with an estimated 26%, 11% and 6% of incidents respectively relating to mild, moderate or severe injury	Improve staff-patient relationships while eliminating or minimizing coercion or restriction	The de-escalator evaluates the aggressor's response to their use of de-escalation skills by constantly monitoring and evaluating feedback from the aggressor. The authors underline that flexibility in individual cases is more important than basing de-escalation on a few well practiced skills	Listen closely to what the patient is saying. The clinician should find a way to agree and understand the patient experience. The clinician should set clear limits telling the patient which are unacceptable behaviors. The clinician should offer alternatives and choices to aggression The clinician should debrief the patient.	The authors underline that flexibility in individual cases is more important than basing de-escalation on a few well practiced skills, or using those skills in a pre-determined order, since what may be de-escalatory for one person may be inflammatory for another		There can be an inherent bias in self-reported data regarding effectiveness because participants may be likely to report positive outcomes from training they have participated in

1. Workplace aggression

To try to deepen this phenomenon and to try to analyze and identify the possible de-escalation techniques, we must first better describe the concept of aggression. Some authors define aggression as a response that delivers noxious stimuli to Another organism. The noxious stimuli may be physical (e.g., hitting, punching, stabbing, or shooting) or verbal (e.g., cursing or threatening). Certain societies or individuals consider aggression as a normal survival behavior, whereas others consider it a dangerous, maladjusted behavior that aims at inappropriate targets.[8-10] Other authors define aggression as a "manifestation of social imbalance" since aggression is a common type of human behavior and is considered a characteristic that is shared by all humans.[11] The propensity for aggression, however, varies considerably between individuals.[12,13] Literature suggests that aggression is not a unitary phenomenon, and it can be classified as impulsive/defensive/affective aggression and non-impulsive/premeditated/offensive/predatory aggression.[14] Impulsive aggression is characterized by high levels of autonomic arousal and precipitation by provocation associated with negative emotions such as anger or fear and usually represents a response to perceived stress.[15] There is an increased arousal which consists of psychomotor activation involving emotional, physical, and psychological changes. Furthermore, there is a systemic biological activation, involving the cardiovascular system, as well as the central, peripheral, and autonomic nervous system. These processes lead to an impairment of communication abilities and problem-solving capacities, which further exacerbate critical situations.[16]

Impulsive aggression can occur in many working settings, including inpatient settings, emergency settings, and communities served by emergency services such as police or paramedics.[17]

Impulsive workplace aggression causes short- and long-term physical and psychological harm to victims and has been linked to burnout, decreased productivity, increased absenteeism, and interrupted patient care.[18-20] This aggression can be verbal, physical, or sexual but the most experienced at a workplace is verbal. Nevertheless, reports estimate that 4% of the global employee population has also experienced physical violence in the workplace. Aggressive and violent behavior may have a significant impact on staff with an estimated 26%, 11%, and 6% of incidents respectively relating to mild, moderate, or severe injury.[21,22] Verbal aggression toward staff is common and may lead to poor performance and functioning, as well as low morale.[23-25] Increased exposure to violence from service users is correlated with increased stress and reduced job satisfaction in social care and social work staff.[26]

The University of Iowa Injury Prevention Research Center classified workplace violence into four basic types: Type I, Type II, Type III, and Type IV. Type I involves “criminal intent.” In this type of workplace violence, individuals with criminal intent have no relationship with the business or its employees. Type II involves a customer, client, or patient. In this type, an individual has a relationship with the business and becomes violent while receiving services. Type III involves a “worker-on-worker” relationship and includes employees who attack or threaten another employee. Type IV involves personal relationships. It includes individuals who have interpersonal relationships with the intended target but no relationship to the business. Types II and III are the most common in the healthcare industry.[27]

The management of each healthcare setting needs to create or adapt and establish a practical, acceptable and sustainable workplace violence prevention program. Even If there is no single guideline that is suitable for all settings, recommendations by WHO, ILO, Division of Occupational Safety and Health (DOSH) and all the evidence-based research should be taken into account. According to the literature on the prevention of workplace violence in the healthcare sector, environmental changes could be implemented in the form of controlled access,

good lighting, clear signs, comfortable waiting areas, alarm systems, surveillance cameras, and the removal or securing of weaponizable furniture. At an organizational level, sufficient staffing levels are also recommended to avoid having staff work alone, to circulate information on patients, to practice open communication, and to improve work practices. Finally, possible interventions at a behavioral level include training staff members, superiors, and managers on policies and procedures, de-escalation, and self-defense techniques.[28]

General principles of de-escalation of aggression can be found in specific psychotherapies, linguistic science, law enforcement, martial arts, and healthcare professions. However, international literature nowadays indicates that scientific studies and medical writings on verbal de-escalation are few and lack descriptions of specific techniques and efficacy. It seems that no model can account for all the factors and mechanisms involved in aggression.[29]

2. The concept of de-escalation

Professional guidelines recommend that coercive measures should not be considered as first-line interventions for potentially violent incidents and endorse de-escalation instead, with more restrictive measures being used only in the event of its failure to avert violence.[30-32] If a person responds to an "act of aggression" with only an "act of repression", he enters an escalation of events which could lead to a reinforcement of aggressive behaviors.[8]

In line with these concepts, determining what are the best de-escalation attitudes might be very important in terms of workplace and public health prevention.

The term de-escalation was first used in discourses about preventing violence in health and social care in the mid-1980s.[33,34] De-escalation is described as a psychosocial intervention, which should be used as the first-line response to violence and aggression.[32] From a public health perspective, de-escalation has been defined as the main form of secondary violence prevention, occurring in the face of imminent aggression. This contrasts with primary prevention which involves steps that are taken to prevent or reduce the likelihood that violent behavior will be initiated, and tertiary actions which aim to reduce the impact of violence during its occurrence and in its aftermath.[33,34]

In 2012 Price and Baker strived to clarify what the term "de-escalation techniques" means in current literature. Accordingly, de-escalation techniques are "a set of therapeutic interventions frequently used to prevent violence and aggression. De-escalation can be used to refer to any of a broad range of complex verbal and non-verbal communication skills used by staff in a range of settings to prevent the escalation of aggressive behaviors.[35] In particular, de-escalation is a collective term for a range of interwoven staff-delivered components comprising communication, self-regulation, assessment, actions, and safety maintenance, which aims to extinguish or reduce patient aggression/agitation irrespective of its cause and improve staff-patient relationships while eliminating or minimizing coercion or restriction. On the one hand, the key components of these de-escalation techniques include themes broadly relating to staff skills. These staff skills include verbal skills (e.g. negotiating, tactful language, using a calm tone of voice, sensitive use of humor), non-verbal-skills (e.g. attentive posture and body language, active listening, a certain degree of eye contact), the ability to maintain personal control when faced with inpatient aggression as well as the ability to express a positive, empathetic, supportive, and non-authoritarian therapeutic attitude. On the other hand, de-escalation techniques accordingly include themes relating broadly to the process of intervening. This implies the ability to engage with the patient and to make reasonable assessments (e.g. about the necessity and timing of intervening; about what level of staff support is necessary and whether the area is safe). Furthermore, de-escalation strategies are regarded as key components of de-escalation

techniques (e.g. shared problem-solving, facilitating expression, offering alternatives to aggression.[36]

3. De-escalation techniques based on aggression models

To better understand de-escalation procedures, we should introduce first the models of escalation of aggression that mainly fall into two groups: linear and cyclical. Most, following Kaplan and Wheeler (1983), have assumed a linear process of aggression described as the assault cycle, in which a trigger event leads to escalation of aggressive behavior towards a crisis point, usually physical in nature, and subsequently to resolution.[37-39] The assault cycle comprises five stages: the trigger phase, escalation phase, crisis phase, recovery phase, and depression phase. In particular, the theoretical model proposes that the maladaptive behavior of aggressors typically elevates following a trigger event and then passes through an escalation phase where behavior becomes increasingly agitated upon the manifestation of the assaultive behavior that characterizes the crisis phase. Subsequently, there is a recovery phase in which there is a gradual return to baseline behavior and then a post-crisis depression phase characterized by mental-physical exhaustion.[35-39]

Some authors expand on the idea of an assault cycle, to guide de-escalation. They identify phase-specific interventions informed by the hypotheses that each is associated with a different dominant emotion, that the aim(s) of intervention in each is different, and that the staff response needs to be tailored accordingly. Maier and collaborators sustain that during phase 1, the clinician's natural response should be empathy to prevent further escalation and potential violence, reduce arousal, and maintain safety. The appropriate response is coordination of staff interventions, removal of bystanders and potential weapons, and containment of threatening behavior. The tactics used to achieve this include maintaining communication, avoiding loss of authority, use of self-disclosure, conditional limit-setting, mood matching, distraction/diversion, and time-out. Phase 2, at which point the patient displays verbal abuse, is identified as the appropriate time for clinicians to employ 'talk down' or de-escalation techniques.[40] Similarly, Leadbetter and Paterson propose that de-escalation interventions can be employed to prevent further escalation in the first two phases of the assault cycle. They then divide the crisis phase in two, advocating de-escalation in the first part, and adding a 'destructive' phase, being the peak of the arousal, which is when a physical staff response is required.[38,39]

On the contrary, Dix and Page proposed an alternative model which is cyclical and not linear. This model consists of three interdependent components: assessment, communication, and tactics (ACT). Each should be continuously revisited by the de-escalator during the aggression. Like Dix and Page, the Turnbull et al. model additionally describes how the de-escalator evaluates the aggressor's response to their use of de-escalation skills by constantly monitoring and evaluating feedback from the aggressor. The authors underline that flexibility in individual cases is more important than basing de-escalation on a few well-practiced skills or using those skills in a pre-determined order since what may be de-escalator for one person may be inflammatory for another.[41]

The first NICE (2005) guidelines refer to the assault cycle theory, but this is removed in the current (NICE, 2015) guidelines in favor of a descriptive definition of de-escalation as a range of verbal and non-verbal skills and interactional techniques to avoid or manage known "flashpoint" situations without provoking aggression.[32] Nevertheless, there is no agreement in the literature on this issue and some researchers argue that de-escalation qualities are innate while others purport that their use and effectiveness develop through experience[43] or can be learned through role-modeling and education.[42,44-46]

Referring to Price and Baker, Bower developed a simplified and rather linear model portraying de-escalation as a process, starting with delimiting the situation, then moving on to clarification of the

problem with the patient concerned, followed by reaching a resolution.[5,24] According to Bower this process is only likely to succeed if, at every stage, the de-escalator is controlling their own emotions and expressing respect and empathy for the patient they are seeking to de-escalate.''[47]

In this regard, it is evident that there is a lack of clarity about what precisely de-escalation entails and how best it should be trained. Although de-escalation training tends to be heterogeneous in terms of the specific techniques taught, it generally includes the same types of components.[48,49] De-escalation techniques can be based on any one of several different theoretical models of aggression, but they nevertheless tend to focus on a small number of common aims. In particular, the person conducting the de-escalation has the aim to project a sense of calm, increase the sense of autonomy of the potentially violent person, and encourage communication between the aggressors. The final aim is to offer the aggressor alternatives to aggression.[50]

Recognized de-escalation techniques include verbal strategies, such as maintaining a calm tone of voice and not shouting or verbally threatening the person. Non-verbal techniques include an awareness of self, body stance, eye contact, and personal safety.[51-53] Verbal and non-verbal communication skills may help to redirect someone to a "calmer personal space."[52]

Although de-escalation is recommended and widely used for managing aggression, there is little literature on specific techniques and efficacy.[54,55] The consensus statement from the American Association for Emergency Psychiatry Project BETA De-escalation Workgroup estimates that effective de-escalation of an aggressive episode, to return the agitated person to a calm state, should take approximately 5 to 10 minutes. De-escalation, therefore, is intended to ameliorate the immediate aggressive episode and is not associated with benefits in the longer term.[55] With the need to guide on this topic, UK NICE guidance recommends the use of de-escalation techniques for managing aggression and violence based on experience in clinical practice. Crises commonly occur rapidly and require management without time for extensive assessment. This suggests that the cyclical models may be more consistent with modern theories of aggression since both advocate considerable flexibility in the use of different interventions.[54]

NICE guidance identifies ten domains of de-escalation: 1. The clinician should respect personal space which means not only gives the patient the space he needs but also gives the clinician the space needed to move out of the way if the patient were to kick or otherwise strike out 2. The clinician must not be provocative, and hands should be visible and not clenched 3. The clinician should establish verbal contact and introduce himself to the patient providing orientation and reassurance. 4. The clinician should be concise since more complex verbalizations can increase confusion and can lead to escalation 5. The clinician should identify wants and feelings and a strategy should be trying to ask what the request is 6. Listen closely to what the patient is saying. The clinician must convey through verbal acknowledgment, conversation, and body language that he is paying attention to the patient and what he is saying and feeling. 7. The clinician should find a way to agree and understand the patient's experience. 8. The clinician should set clear limits telling the patient which are unacceptable behaviors. 9. The clinician should offer alternatives and choices to aggression 10. The clinician should debrief the patient.

4. De-escalation training programs

Although there are currently no systematic descriptions of de-escalation procedures, aggression management training is fundamental to any workplace violence prevention strategy. There are many types of violence prevention and aggression management training programs. Common programs include theoretical models for understanding aggression, learning about the causes and triggers of aggression, looking at influencing factors, legal factors, prevention measures, effective communication skills, and de-escalation techniques. One review states that the

most common program elements were verbal and non-verbal de-escalation strategies (72 percent of programs); control, restraint, or seclusion skills (62 percent of programs); and learning how to predict and prevent aggression (59 percent of programs).[56,57] Techniques and other concepts that were perceived to be preventive included communication, knowledge (including theoretical knowledge about the causes of violence), limit setting and intervention timing.[20,58,59] Varying in length, some sessions are only an hour long while other programs can extend to several full-length days. Some are lectures delivered by internal staff, while others are interactive programs conducted by outside contractors. Some new employees participate right away, others not until months (or years) after their hire.[57,58]

Only a few are tailored to the specific healthcare environment in which participants work. In short, there is little consistency in the conduct, content, and applicability of these programs, which are major contributing factors to their general ineffectiveness in violence prevention. However, all employees should receive training on the management of aggressive behavior. By training together, staff members gain a better understanding of everyone's role and develop a strong sense of teamwork. This will enhance communication and consistency in program administration. Medical staff will be more comfortable calling on security, for example, when they feel threatened or uncomfortable and security will feel they are part of the patient care team.[56-58]

Research and the clinical experience of the American Association for Emergency Psychiatry (AAEP) have found that by using verbal de-escalation techniques, agitated patients can frequently be calmed to a level of cooperative collaboration and engage in their treatment willingly. The Joint Commission (2018) recommends that all healthcare professionals be trained in de-escalation techniques with the training to include practice drills. In a review that examined the current training programs available, it was observed that behavioral interventions principally come in the form of classroom, online, or hybrid training programs.[59]

Training that incorporates simulation-based learning, such as role-playing, practice scenarios, or practice drills, provides the opportunity to apply newly learned skills and reinforce the learned behaviors. Simulation-based training showed some good results in nursing settings.[60]

However, the quality of de-escalation performance is difficult to assess and therefore an assessment instrument is needed. In order to try to fill this gap some German researchers developed a scale named De-Escalating Aggressive Behavior Scale (DABS), a one-dimensional seven-item scale with good factor loadings. The tool was then validated also in English with the name of English modified DABS (EMDABS).[61,62]

5. De-escalation training program's effectiveness

Training in de-escalation techniques is often a key feature of restraint/seclusion reduction and aggression management programs.[63,64] A systematic review evaluating the impact of these programs concluded that there was a stronger relationship between the programs and increases in staff knowledge and confidence than there was between the programs and reductions in violent and/or aggressive incidents.[64] This is because when staff have the appropriate knowledge, confidence, attitudes and skills to handle aggressive or violent patients they may be less likely to experience negative outcomes resulting from patient aggression such as injuries.[65]

An intervention to manage aggression is likely to be influenced by three categories of factors: staff, patient, and environment that represent the critical contextual dimensions of escalating incidents and are therefore likely to influence the appropriateness of the tactics to apply and the following effectiveness that is the capacity to reduce aggression without the use of restrictive practices.[66]

The current evidence is inconclusive on the effectiveness of de-escalation training in reducing

staff injuries. However, interventions are more likely to be effective when they are not adopted in isolation but instead rely on multimodal approaches.[63]

It is important to note that many evaluations of training outcomes assess staff perceptions of training such as self-assessed knowledge and confidence gains; fewer studies examine objective measures of knowledge gains.[67,68] Further, there can be an inherent bias in self-reported data regarding effectiveness because participants may be likely to report positive outcomes from training they have participated in.[69] In the last, knowledge and confidence gains are often measured using unvalidated measurement instruments and limited to artificial training scenarios.[70,71]

Discussion

Healthcare workplace violence can be divided between impulsive and premeditated incidents. The experience of impulsive workplace violence has physical, personal, emotional, professional, and organizational consequences that impact individuals and organizations. The present review has tried to summarize evidence concerning healthcare setting impulsive workplace violence and its preventive measures, in particular de-escalation tactics and their effectiveness.

What emerged is that no model can possibly account for all the factors and mechanisms involved in human aggression which present high levels of unpredictability. Although in recent years several studies have proposed different theoretical models of escalation of aggression and de-escalation techniques, there is a lack of evidence about a uniform and universal concept model.

We believe that an integrated psychological, sociological, and environmental approach would allow researchers to understand better aggressive behaviors and consequently to develop increasingly adequate de-escalation training approaches.[8] Further research is needed to identify what best reflects de-escalation in practice, as well as understanding which has the greatest utility for training. Large-scale controlled trials are needed to explore the effectiveness of de-escalation training, and particularly to identify the most effective methods of teaching.

In accordance with the current evidence summarized in this review and in anticipation of even more advanced theoretical models, we believe that showing empathy and emotional control skills can bring better results in the face of most occasions of aggression. The clinician should apply a technique that is tailored to the particular situation taking place. Knowing how to communicate empathically with a person can in many cases resolve the situation or improve it greatly, increasing patient compliance and collaboration and avoiding the act of aggressive actions towards the healthcare professional as much as possible.

Fig 2- EBP of Course organization

In light of these observations, we argue that common programs regarding the understanding of aggression and de-escalation strategies should be effective in some way as has already emerged anecdotally through literature references. We believe that empathic communication, meaning the ability to recognize another person's feelings, emotions, and sensations with verbal restitution in a comprehensive and interactive way, is not only an innate skill but one that can be learned and perfected with practice. In keeping with this, we argue that these courses should be repeated over time and supported by practice. Further, literature evidence suggests that simulation scenarios should be preferred to test the effectiveness of a course rather than a paper test or self-assessment quality of the course, but the limit of the artificiality of the scenarios should be overcome. Figure 2.

Conclusion

The knowledge gained from the evidence highlighted in this review and the hypotheses that have arisen are potentially beneficial to professionals involved in the organization, as well as in the effectiveness evaluation of de-escalation training courses for healthcare workers.

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