

Systematic Review in Occupational Health Psychology

Workplace violence against healthcare workers during the COVID-19 pandemic: A systematic review

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Abstract

Introduction: Workplace violence (WV) against healthcare workers (HCWs) is a widespread phenomenon, which contributes to increasing occupational stress. The COVID-19 pandemic has exposed the world's population to intense stress. It is therefore questionable whether there is a correlation between the two phenomena, violence and COVID-19. This systematic review aimed to investigate the prevalence and risk factors of WV against HCWs during the COVID-19 pandemic.

Methods: A systematic review was conducted across PubMed Central/Medline, Cochrane Library, PROSPERO and Epistemonikos databases using predefined search criteria. Only studies containing quantitative and mixed-method research from the inception of the pandemic to 22 February 2022 and published in English language were included.

Results: Overall, 61 articles were retrieved, and a total of 15 studies met the full inclusion criteria and were included. Most of the studies reported both physical and psychological (verbal and non-verbal) WV, which was perpetrated by personal (family members, friends, neighbors) and/or professional relationships (bosses, co-workers, patients' relatives, strangers). The overall prevalence of WV ranged

from 18.5% to 84.5%. In many cases, victims of WV during the COVID-19 pandemic included frontline HCWs and staff working in emergency departments.

Discussion: Our findings showed a high prevalence of WV against HCWs during the COVID-19 pandemic. Males, young people, those with less working experience, and those working in direct contact with patients infected by the virus were the most relevant risk factors for WV, that was mostly perpetrated by caregivers and COVID-19 patients' family members. Occupational health services, hospital management and policymakers should cooperate to address these psychosocial risk factors to protect the mental health of HCWs during the COVID-19 pandemic.

Take-home message: This systematic review showed a high prevalence of workplace violence against healthcare workers during the COVID-19 pandemic. Occupational health and public health stakeholders should implement interventions for the prevention and management of workplace violence against healthcare workers during a pandemic.

Keywords: Healthcare workers; mental health; occupational health; systematic review; workplace violence.

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INTRODUCTION

Workplace violence (WV) against healthcare workers (HCWs) is very common. Aggressions against HCWs constitute almost a quarter of all episodes of violence occurring in the workplace [1]. WV in the healthcare sector has been defined by the World Health Organization as "incidents where staff are 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, wellbeing or health" [1]. In general, physical violence may result in physical, sexual, or psychological harm, whereas psychological violence, including verbal abuse, bullying/mobbing, harassment, and threats, can result in harm to physical, mental, spiritual, moral, or social development [1]. WV is increasingly being acknowledged worldwide as a worrying occupational health hazard [2,3], even if to date only a minority of countries have included WV among the occupational hazards that the employer must prevent [4,5].

Prior to the emergence of COVID-19, research has identified staff, environmental, and patient risk factors as the major precursors of workplace violence initiated by patients [6]. The aggressive patient is often affected by diseases or drugs that alter his/her ability to judge and control; for this reason, workers who have closer contact with the patient are most exposed, and therefore nurses experience more assaults than doctors [7-9]. In some cases, however, the most affected workers are doctors who work alone, or who present themselves to the aggressive patients or visitors [10,11]. Assaults are more common in departments where staff are in contact with patients with mental illness or drugs, such as psychiatric services [12,13] or the emergency room [14,15]. However, there are no workplaces or professional categories not exposed to this risk [16]. Several types of occupational WV (e.g., verbal abuse, physical violence, bullying and mobbing, racial and sexual harassment) may be often perpetrated by third parties or by co-workers and/or management (lateral or vertical violence, respectively).

Exposure to WV can impair the quality of care and lead to psychological distress including burnout syndrome and post-traumatic stress disorders (PTSD) [17–21], sleep disorders [22], neurological symptoms [23], job dissatisfaction, impaired work function [24], absenteeism, high turnover [25], and higher costs [26,27]. Longitudinal studies have shown that violence and stress have a circular relationship: WV causes stress in workers, and workers in distress are more exposed to violence than others [10,28]. This last phenomenon is very worrying, because it is believed that when an external factor increases the stress levels of the staff or those of the population, as recorded during the recent COVID-19 pandemic, it could increase the frequency of assaults [29,30].

During the current COVID-19 pandemic, WV constituted a relevant problem for occupational stakeholders and policymakers, because many cases of WV against nurses and physicians [31,32] were reported. According to the International Committee of the Red Cross, 611 incidents were recorded between Feb 1 and July 31, 2020. Although patients and medical infrastructure were often targeted, 67% of incidents were directed at HCWs [33]. Most of the targets were doctors and nurses directly caring for COVID-19 patients, and perpetrators included the family of COVID-19 patients, the general community, or law enforcement personnel [34]. Although physicians, nurses, and other front line HCWs have been celebrated in many countries as heroes for their work during the COVID-19 pandemic, reports from Mexico, Philippines, India, Australia, and the United States, have described verbal, physical and sometimes life-threatening attacks against HCWs during the pandemic, prompting calls for immediate action [35,36]. Many of these attacks were perpetrated by patients belonging to the anti-vaccination movement; a recent article reported numerous cases that occurred in Italy within a few months [37]. During the pandemic, the anti-vaccination movement took on particularly widespread and aggressive characteristics [37,38]. However, this is not the only factor that could have increased the frequency of WV during the pandemic. COVID-19, indeed, could have neurological and neuropsychiatric sequelae [39]. The intense state of tension caused by the pandemic and the emergency measures have strained the mental balance of individuals, and it is feared that this may have increased cases of psychosis [40]. During the pandemic, HCWs at frontline are exposed to many occupational stressors, such as the fear and anxiety of COVID-19 infection and transmission caused by a lack of preparedness, alongside stressful working conditions characterized by excessive workloads and high emotional demands resulting from the death of many patients [41,42]. Such increased distress rate may have favored WV.

To date, only a few countries, mainly in Europe, consider that WV is one of the risks that must be prevented as part of an overall occupational health and safety (OHS) plan. However, even in these countries, very few hospital policies addressing WV among HCWs have been developed [5]. The 2007 European Agreement on harassment and violence at work has indicated WV as a particular psychosocial risk factor [27], which should be considered differently from work-related stress and tackled by employers through evidence-based interventions, established in the framework of the mandatory risk assessment process required by occupational health and safety (OHS) laws [3,4].

However, in the literature, there is a paucity of research on strategies for preventing and managing WV. No one has clarified whether there has been an increased risk of WV during the pandemic and, if so, what should be done to prevent this occurrence in the next pandemic. This systematic review therefore aimed to describe the prevalence and mental health outcomes of WV against HCWs during the COVID-19 pandemic, comparing this prevalence with that recorded in the

past and evaluating what were the triggers of the violence in the episodes reported in the literature, to develop and implement adequate preventive measures.

METHODS

Study design

A systematic review of the literature was conducted according to the PRISMA 2020 guidelines [43].

Participants, interventions, comparators, outcome (PICO) elements

P: healthcare workers. I: exposure to WV. C: workers not experiencing WV. O: mental health outcomes.

Search strategy

From January 30 to February 11, 2022, a search was conducted on PubMed Central and Medline with combinations of the following keywords and synonyms in conjunction with the controlled vocabulary of the database: “healthcare”, “workplace violence”, “Coronavirus 2019”, “COVID-19”, and “SARS-CoV-2” and with no use of any filters. Papers published from database inception to 11 February 2022, were also considered for inclusion. As we aimed to identify prevalence data, the search strategy aimed to identify all types of articles with quantitative or mixed-method research, including systematic reviews, meta-analyses, and other research syntheses. Specific repositories of systematic reviews such as the JBI Database of Systematic Reviews and Implementation Reports, the Cochrane Library, Pedro, OT Seeker, PROSPERO, and federated search engines such as TRIP, DARE and Epistemonikos were also checked. Only articles written in English were included. We excluded all articles concerning violence against the populace or non-healthcare workers during the COVID-19 pandemic. Reference sections of the identified papers were also checked for eligible literature.

Search selection

Two authors (FC and AAA) independently inspected all English language citations from the search to identify relevant titles and abstracts. We obtained the full reports of the papers for more detailed inspection, before deciding whether the paper met the review criteria. We resolved any disagreement with a third author (OSI).

Data Collection Process

Retrieved data were extracted into Microsoft Excel (Microsoft Corporation, 2018). The data recorded included the first author, year of publication, study location, study instrument, perpetrators of WV, type of WV, study population, and main findings.

RESULTS

Description of the studies included

The literature search yielded 61 published references. After review of the title, abstract, and full text, a total of 15 studies met the full inclusion criteria and were included (see Figure 1).

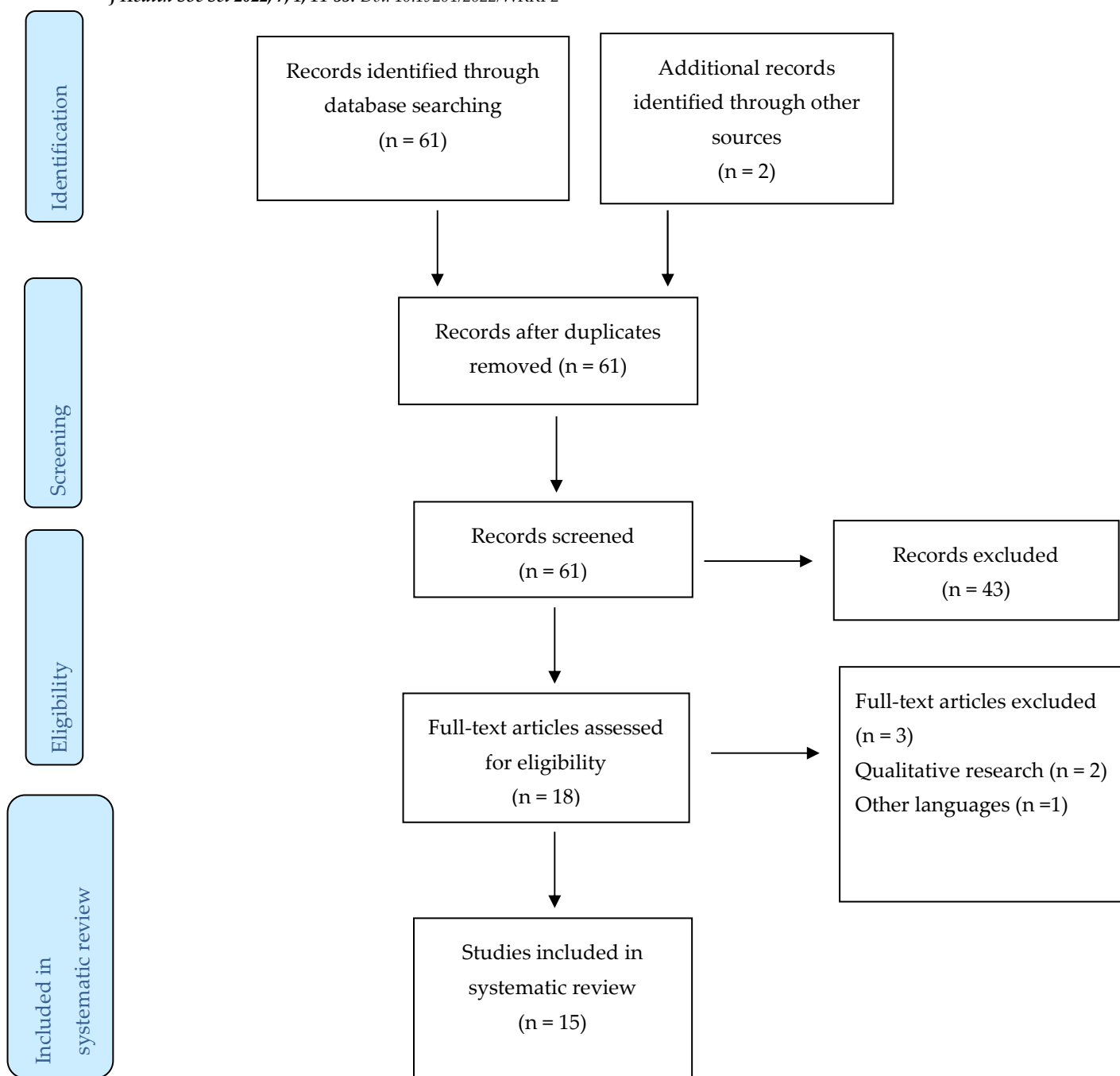


Figure 1. Flowchart for identification of studies included in the systematic review ($n = 15$).

All the included studies were published between 2020 and 2021. In an analysis by country, the greatest scientific production in this field was developed in China ($n=6$) and USA ($n=2$), followed by several countries with only one study, namely Turkey, Brazil, Egypt, Jordan, Iraq, Peru, and Pakistan. The methodology used in the papers analyzed provides an overview of how research and reflection on WV among HCWs is being addressed. Almost all the publications ($n=14$) had a quantitative approach, as seen in Table 1. Only one article with a mixed-method approach was included. All the original articles ($n=13$) were cross-sectional. From the quality assessment of the articles, only 1 (6.7%) article had poor quality, 10 (66.7%) had moderate quality, while 4 (26.7%) had good quality. Overall, majority of the articles included in this review had moderate- good quality.

Table 1. Studies reporting workplace violence towards HCWs during the COVID-19 pandemic (*n* = 15).

Authors and year	Country	Study design	Instruments used for measuring WV	Perpetrators	Type of WV	Quality Evaluation	Type of HCWs	Main findings
Arafa et al, 2021 [44]	Egypt	CS	Self-reported questionnaire	NR	Physical and psychological violence	15	Egyptian HCWs (105 physicians and 104 nurses)	Prevalence of psychological and physical WV was 42.6% and 9.6%, respectively. Relatives of patients were the perpetrators in most WV incidents. Female sex, having physical contact with patients, and working rotational shifts were associated with the increased exposure to psychological and physical WV.
Bhatti et al, 2021 [45]	Pakistan	Review	Review of incident reports from local newspapers	Type 2 WV	Physical (aggression, destruction of property), and psychological violence (verbal abuse)	9	HCWs (medical students, medical doctor, hospital staff, paramedics)	A total of 29 incidents were identified through review of local newspaper reports from April 7, 2020, to August 7, 2020. Perpetrators of the violence were most commonly mobs comprising attendants of patients (60%) and members of the police/armed forces (40%).
Bitencourt et al, 2021 [46]	Brazil	CS	Self-reported questionnaire	Personal relationship (family members, friends, neighbors),	Physical and psychological (verbal abuse) violence	14	Brazilian HCWs (physicians, nurses, technicians)	Violence against health professionals during the pandemic was reported by 47.6% of the participants. The risk factors for

				professional relationship (bosses, co-workers, patients' relatives, strangers).			ns, physiotherapists) from 1 to 15 October 2020	suffering violence during the pandemic were: not having children or partners, being a nursing assistant or technician, less than 20 years in the activity, a monthly income below 5 thousand Brazilian reals, and working over 36 hours a week ($p < 0.01$)
Byon et al, 2021 [47]	United States	CS	Self-reported questionnaire	Customer-on-worker (type II) WV	Physical, and psychological (verbal abuse) violence	13	Hospital nurses	Overall, 44.4% and 67.8% of the nurses reported experiencing physical violence and verbal abuse, respectively, between February and May/June 2020. Nurses who provided care for patients with COVID-19 experienced more physical violence (adjusted odds ratio [aOR] = 2.18, 95% confidence interval [CI] = [1.30-3.67]) and verbal abuse (aOR = 2.10, 95% CI = [1.22-3.61]) than nurses who did not care for these patients. One in 10 nurses felt reporting the incident was more difficult during the pandemic.
Ghareeb et al, 2021 [48]	Jordan	CS	An <i>ad hoc</i> questionnaire	Patients, caregivers, colleagues	Physical and	18	382 HCWs (170	During the past six months (the study was conducted during

					psychologi cal (verbal abuse) violence		physicia ns and 212 nurses)	January and February 2021) most participants (65.5%) reported exposure to WV, mainly verbal (52.0%) and mixed violence (32.0%). The commonest source of violence was from patient relatives (88.0%).
Lafta et al, 2021 [49]	Iraq	CS	NR	Patients, and relatives	Physical and psychological (verbal abuse) violence	16	505 medical doctors from 11 hospital in Iraq	446 (87.3%) had experienced hospital violence in the previous 6 months. Patients were responsible for 95 (21.3%) instances of violence, patients' family or relatives for 322 (72.4%), police or military personnel for 19 (4.3%), and other sources for 9 (2%).
Liu et al, 2021 [50]	China	CS	9-item Workplace Violence Scale	NR	Physical and psychological (verbal abuse) violence	13	1,103 frontline clinician s working in emergen cy departm ents (ED)	The overall prevalence of WV was 29.2% (95% Confidence interval (CI [26.5%-31.9%]; 22/1,103), with verbal violence of 27.5% (95%CI [24.8%-30.1%]; 303/1,103) and physical violence of 5.8% (95%CI [4.4%-7.2%]; 64/1,103) between March 15 and March 20, 2020.
McGuire et al, 2021 [51]	Midwest ern United States.	Mixed metho d study	Electronic medical records review	NR	Physical, Psychologi cal (verbal abuse) and	15	960 emergen cy hospital staff	Violent incidents increased during the pandemic (2.53 incidents per 1,000 visits) compared to the

					sexual violence			3 months prior (1.13 incidents per 1,000 visits, $p < 0.001$), as well as compared to the previous year (1.24 incidents per 1,000 patient visits, $p < 0.001$). Nursing staff ($p = 0.004$) and security officers ($p = 0.037$) experienced higher rates of assault with bodily fluids during the pandemic compared to other job specialties.
Muñoz del Carpo-Toia et al, 2021 [52]	Peru	CS	Workplace Violence Questionnaire	Patients, caregivers, HCWs and others	Physical, psychological and sexual violence	11	Peruvia n physicians (n =200)	84.5% had suffered some type of WV; 97.6% of these suffered nonphysical violence. Suffering more than one incident of violence was reported by 75.7% of respondents. The primary aggressor was a patient's family member or caregiver. Violence occurred most frequently in critical areas inside the health service facility, such as COVID-19 triage, tents, and hospital units, although it also occurred during teleconsultations.
Özkan Şat et al, 2021 [53]	Turkey	CS	Nursing Professional Commitment Scale	Patients, patients' relatives, colleagues	Physical, psychological (verbal abuse,	17	263 nurses	During the COVID-19 pandemic, 8.4% of the nurses stated that they were exposed to

					mobbing) and sexual violence			physical violence, 57.8% to verbal violence, 0.8% to sexual violence and 61.6% to mobbing. 52.1% of the nurses stated that they thought of quitting the profession during the COVID-19 pandemic.
Wang et al, 2020 [54]	China	CS	1-item questionnaire	NR	Physical, and psychological (verbal abuse) violence	15	Chinese healthcare workers (N=1063) from 31 provinces and autonomous regions between February 13th and February 20th.	217 (20.4%) reported experiencing medical WV during the COVID-19 outbreak. Before matching, medical WV was correlated with elevated mental health problems (b=8.248, <i>p</i> <0.001), after adjusting for other variables. After matching, Chinese healthcare workers who experienced medical WV were more likely to suffer from mental health problems than those who did not (ATT =7.097–8.193, <i>p</i> <0.05).
Xie et al, 2021 [55]	China	CS	9-item Workplace Violence Scale	NR	Physical and psychological (verbal abuse/threats) violence	17	10,516 Chinese frontline mental HCWs	Prevalence of WV was 18.5% (95% CI: 17.9%-19.3%) during the COVID-19 outbreak (from January 20 to March 20, 2020). Among those who experienced WV (<i>n</i> = 1,948), 1,658 (15.8%) reported verbal abuse and/or threats, and

								878 (8.4%) reported physical violence.
Yang et al, 2021a [56]	China	CS	Workplace Violence Scale	NR	Physical and psychological (verbal abuse) violence	13	Frontline clinician including doctors, nurses, and nursing assistants working in Psychiatry, Emergency Medicine, Ophthalmology, Otolaryngology.	2,878 (18.5, 95% CI = 17.92-19.14%) reported WV during the outbreak of the COVID-19 pandemic (verbal violence: 16.1%; physical violence: 6.9%). WV was positively associated with more severe anxiety ($r = 0.295, p < 0.001$), depressive ($r = 0.290, p < 0.001$), and insomnia symptoms ($r = 0.257, p < 0.001$), and negatively associated with QOL scores ($r = -0.220, p < 0.001$).
Yang et al, 2021b [57]	China	CS	Self-reported questionnaire	Patients and relatives/friends	Physical and non-physical violence	14	Chinese HCWs	20.4% of participants experienced WV during the COVID-19 pandemic. WV was inversely associated with higher perceived social support ($\beta = -0.348, p < 0.001$), which in turn was negatively correlated with turnover intention ($\beta = -0.186, p < 0.001$). WV also exerted a strong effect on mental health ($\beta =$

								0.475, $p < 0.001$), which in turn had a positive association with turnover intention ($\beta = 0.300, p < 0.001$).
Yang et al, 2021c [58]	China	CS	Self-reported questionnaire	NR	Discrimination and medical workplace violence	15	1,208 Chinese HCWs from 13 February 2020	Stigmatization and medical WV were associated with stress (aOR 1.6 95%CI: 1.1-2.3; aOR 2.2 95%CI 1.6-3.1), anxiety (1.7 95%CI 1.2 to 2.4; aOR 2.3 95%CI 1.6-3.2), and depression (aOR 1.5 95% 1.0-2.1; aOR 1.9 95%CI 1.3-2.7).

Note: NR: Not reported; HCWs: healthcare workers; WV: workplace violence; CS: Cross-sectional; Score: Quality assessment score of the study. ATT: Average treatment effect on the treated (ATT).

The overall prevalence of WV ranged from 18.5% in the study by Xie et al [55] to 84.5% in the study conducted by Muñoz del Carpo-Toia et al [52]. Almost all studies (n =14) reported mixed WV, namely physical and psychological violence, which was described as verbal abuse and/or threats in most of the cases, and even mobbing in one study. Three of the included studies reported physical, psychological, and sexual violence [51–53]. One study analyzed stigmatization against HCWs for working in the hospital and medical WV [58].

Prevalence, risk factors, and mental health outcomes of WV among HCWs during the COVID-19 pandemic

In Pakistan, the most common perpetrators of violence were relatives of COVID-19 patients. Most frequent reasons included mistrust in HCWs, belief in conspiracy theories, hospitals’ refusal to admit COVID-19 patients due to limited space, COVID-19 hospital policies, and the death of the COVID-19 patients [45]. In Iraq, many attacks against medical doctors were verbal assaults or superficial contact, though fractured bones, lacerations, dislocations, contusions and residual psychological trauma occurred. No female doctors reported being physically attacked though one in five male doctors were struck by patients or family members during incidents. Perceived poor quality of hospital care and popular unrest in the country was suggested as the main reasons for the increased violence during the COVID-19 pandemic [49].

In the USA, Byon et al [47] studied type II WV, namely customer-on workers violence, showing that incidents of physical (hitting, pinching, biting, scratching, choking, hair-pulling) and verbal abuse against nurses were significantly higher among those who cared for patients with COVID-19 than those who did not. These attacks were perpetrated by patients, visitors, and family members of COVID-19 patients [47]. McGuire et al [51] showed in an academic emergency department of a small

city in the Midwestern United States an increase of overall violent workplace incidents during the pandemic (2.53 incidents per 1,000 patient visits) compared to the 3 months prior (1.13 incidents per 1,000 patient visits, $p < 0.001$), as well as compared to the previous year (1.24 incidents per 1,000 patient visits, $p < 0.001$).

Research findings showed that HCWs suffered from some degree of mental health problems due to the experience of verbal and non-verbal workplace violence during the COVID-19 pandemic. HCWs developed symptoms of depression, anxiety [45,50,58], distress [46,58], burnout [46], fear, insomnia [49,56], poor quality of life [55], poor social support and turnover intention [57]. The prevalence of mental health problems such as depression, anxiety, and stress was found to be substantially higher among those who experienced WV than those who did not [54]. Yang et al showed that participants having experienced WV also reported more anxiety, depression and insomnia symptoms, and lower quality of life scores. Frontline clinicians' experience of WV directly affected the quality of life (QOL), and emotional disturbances partly mediated the association between WV and QOL [56]. WV had both direct and indirect effects on turnover intention among Chinese HCWs. Specifically, perceived social support, mental health, and perceived social support together with mental health partially mediated the relationship between WV and turnover intention [57].

In the study by Yang et al [56], 18.5% (95% CI = 17.92–19.14%) of frontline clinicians reported WV about 2 months after the outbreak of the COVID-19 pandemic. Risk factors were male sex, older age, longer work experience, higher education level, experience with the 2003 SARS epidemic, working in tertiary hospitals and inpatient departments, looking after infected patients, and having infected family/friends/colleagues [56]. Stress, anxiety, and depression were positively related to lower levels of social support, longer working hours, discrimination experience and workplace violence [58].

Also, male gender, higher educational level, working in tertiary hospitals, caring for COVID-19 patients, and higher anxiety levels were positively associated with WV [55].

Muñoz del Carpio-Toia reported verbal abuse as the most frequent type of violence experienced by COVID-19 physicians (55.8%), critical area residents (72.0%), and COVID-19 support physicians (40.0%) [52]. WV occurred most frequently in COVID-19 triage areas and all types of WV were reported, namely nonphysical violence (97.6%) including insults (3.6%), threats (4.1%), and other forms of verbal abuse (89.9%); sexual harassment, which accounted for a minority of cases (1.8%); and episodic physical violence (0.6%) [52].

In the study by Liu et al [50], the overall prevalence of WV against ED clinicians was 29.2% and associated risk factors were having family/friends/colleagues infected with COVID-19, current smoking, and more severe anxiety symptoms, whereas working in emergency intensive care units was negatively associated with it. In the study by Özkan Şat et al [53], nurses reported that they were exposed to physical and verbal–emotional–psychological violence most often by patients' relatives and to sexual violence most frequently by patients before and during the pandemic.

In the study by Ghareeb et al [48] carried out on HCWs employed in a Jordanian governmental hospital, most participants (65.5%) reported exposure to verbal (52.0%) and mixed violence (32.0%). The most prevalent verbal violence types were shouts (90.5%) and threats of harm (58.6%). Pushes (91.7%) and hits (80.8%) were the prevalent types of physical violence. The commonest source of violence was from patient relatives (88.0%) and psychological problems were found in 84.0% of those

who experienced WV. Main risk factors of WV were rotating shift (aOR 4.2 95%CI 1.94 to 7.58), length of service < 10 years (aOR 3.1 95%CI 1.29 to 8.61), age < 35 years (aOR 2.9 %95 CI 1.26 to 7.22), and male gender (aOR 2.8 95%CI 1.52 to 8.23) [48].

In Brazil, the main predictors of WV were being a nursing technician/assistant; having been working for less than 20 years; working for over 37 hours a week; having suffered violence before the pandemic; having been contaminated with COVID-19; working in direct contact with patients infected by the virus and having family members who have suffered violence [46].

In Egypt [44], relatives of patients were the perpetrators in most incidents. Female sex, having physical contact with patients, and working rotational shifts were associated with the increased exposure to psychological and physical WV.

DISCUSSION

Our findings revealed that during the COVID-19 pandemic HCWs were exposed to different types of WV, with prevalence rates ranging between 5.8%-44.4% for physical and 9.6%-97.6% verbal violence. The different definitions that the authors gave of the term of violence and the different methods of data collection did not allow us to re-analyze such data in the form of meta-analysis. However, this review found that at least one to eight of every ten HCWs suffered some form of WV during the COVID-19 pandemic.

Although a numerical comparison with the risk conditions prior to the pandemic is not possible, we can conclude that during COVID-19 pandemic the risk of suffering violence by health workers was excessively high. Studies included in our review showed an association between WV and mental health disorders, especially high anxiety levels [56–58]. Violence against HCWs has become more profound during the COVID-19 pandemic, thus predisposing HCWs to high levels of mental stress as well as an increased tendency to develop mental health problems [59]. These mishaps could also make HCWs to be frustrated at their duty posts and promote the intention of quitting their profession [56].

McGuire et al [51] found that violent incidents increased overall during the pandemic (2.53 incidents per 1000 visits) compared to the 3 months prior. This finding thus highlights the fact that a global pandemic such as in the COVID-19 context could increase HCWs' vulnerability to WV particularly because of a heavy workload, stressful work settings, as well as inadequate human and material healthcare resources [57,60–63].

A study on doctors treating COVID-19 patients in a hub hospital in central Italy indicated that they perceived a sharp change in the orientation of public opinion, which went from being enthusiastic about the work of doctors in the first pandemic phase to a much more negative attitude [64]. This change has resulted in an increase in malpractice complaints against doctors working in COVID-19 centers [65] and has likely not deterred violence.

There are no data on this, but it is possible that the negative emotional consequences of these acts of violence on the victims were greater than in the past, considering the high commitment that the HCWs were placing to the protection of public health and in the treatment of cases of COVID-19. The short time that has elapsed since the start of the pandemic has not given researchers a way to evaluate all the effects resulting from the violence perpetrated during COVID-19. Subsequent studies will be able to tell us whether these effects have been enhanced by the condition of alarm and psychological fragility that are frequent in those who face epidemics.

A research direction that could be followed in the future, in health companies that systematically record the episodes of violence against their workers, would be to compare the cases that occurred during the pandemic and those reported in the same period in previous years. This type of study, which has unfortunately not yet been published, could tell us whether indeed, as it seems, there has been an increase in violence during the pandemic. In health companies that do not have an efficient system of recording violence incidents (which are probably the majority) it would be interesting to observe whether there is an association between the prevalence of violence and the distribution of COVID-19 cases among the various departments; this data type is not yet available.

WV is a global phenomenon, which nature and drivers are shaped by local context. While HCWs have been described as “super-spreaders” for COVID-19 in some instances in India and Mexico, they have been identified as the “newer untouchables” in Latin America, with COVID-19 misinformation fueling these gruesome acts [66,67]. In addition, a history of social violence has been cited as a driver for WV during the COVID-19 pandemic in Colombia, Libya, and India [68].

This review revealed that differences exist in the exposure to WV among healthcare facility staff. The retrieved studies found that nursing staff and security officers were more likely to be victims of WV in healthcare settings compared to other staff. A likely explanation could be because nurses and security officers serve as the middlemen to patients’ care and entry into the healthcare facility. The literature confirms that even before the pandemic, male gender, higher educational level, working in hospitals at direct contact with and caring for patients were the most frequently reported risk factors of WV among HCWs [69].

There is no justification for WV against HCWs. To arrest the impending danger, various governments including the USA, UK, India, Sudan, and Algeria amended their emergency laws to increase protection for HCWs [32]. Other measures need to be immediately implemented to improve protection for HCWs. This review has the merit of underlining the fact that violence against HCWs could have increased during the pandemic and has indicated the possible causes for which this happened. However, the available studies, all of a cross-sectional nature, do not allow us to understand how much of this violence is due to the pandemic and how much is instead attributable to other conditions of health workers. Further longitudinal studies could shed light on the causal relationship between WV and mental health disorders and/or organizational outcomes including PTSD symptoms, turnover intention, impaired workability and burnout.

CONCLUSION

The COVID-19 pandemic has probably exacerbated the perpetration of WV against HCWs globally. While complying with the oath of providing care to patients regardless of the prevailing circumstances, HCWs are exposed to varying levels of WV perpetrated majorly by patients and their relatives. The emotional impact of WV on HCWs is grave, with many HCWs exposed to high levels of mental stress, fatigue, and increased predisposition to mental illness alongside thoughts of quitting their engagement as HCWs. Frontline clinicians faced great pressure and an overwhelming workload during the COVID-19 pandemic. Furthermore, patients and families were often dissatisfied with limited access to medical care, crowded treatment environment, long waiting hours, and insufficient communication with clinicians [56]. Such a trend has reduced the quality of work done by HCWs and is likely to increase HCWs’ burnout and turnover intention. Thus, efforts need to be put into place to reduce the escalating violence against HCWs.

Firstly, the management of healthcare facilities should develop communication strategies through which information on delays in service provision during long waiting times are properly communicated to patients and their relatives. Social workers could be recruited and trained to carry out these activities. Secondly, sanctions should be unleashed on all perpetrators of WV against HCWs, as this will serve as a deterrent to others. Thirdly, interpersonal support should be promoted among professional groups. Finally, the improvement of the working environment and organizations could lower distress levels among HCWs and tackle the conditions that may promote WV against HCWs.

All these preventive strategies and workplace health promotion programs based on mindfulness and spiritual practices [70–74] could be developed through appropriate occupational risk assessment strategies carried out by occupational safety and health management systems aimed to control all psychosocial risk factors including WV and harassment. Experience has shown us that the prevention of violence in healthcare activities cannot be based on just one type of measure and that only the coordinated implementation of structural, organizational, and individual interventions, preferably of a participatory type, can achieve effective results [13]. Better strategies to address organizational and cultural factors at the workplace and better cooperation between occupational and public health stakeholders may result in the most effective strategies to improve workers' occupational safety and health levels during the COVID-19 times [75].

In the International Labor Organization 2020 report, all the countries have been invited to incorporate provisions related to WV into their occupational safety and health laws, regulations and collective agreement and develop specific standards, codes of practices and guidelines to support the implementation of programs and preventive measures in the workplace [76]. In addition, national and international labor organizations should develop specific policies that promote the safety of HCWs during the occurrence of next pandemics and future global emergencies. This could improve employees' mental health well-being and quality of care.

In conclusion, we believe that our results on the prevalence of WV and their associated risk factors in healthcare settings can inform policymakers and occupational stakeholders for establishing better evidence-based decisions and targeted measures to improve health outcomes among HCWs.

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