

Protective and risk factors of workplace violence against nurses: A cross-sectional study

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Abstract

Aims: To describe how workplace violence (WPV) is experienced by nurses in hospitals and community services and identify protective and risk factors.

Funding information

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Methods: An online cross-sectional national study was conducted from January to April 2021 in Italy. Hospitals and community services were involved in the study. The survey combined the adapted and validated Italian version of the Violence in Emergency Nursing and Triage (VENT) questionnaire, which explores the episodes of WPV experienced during the previous 12 months, the Practice Environment Scale of the Nursing Work Index (PES-NWI) and some additional questions about staffing levels extracted from a previous RN4CAST study. Nurses working in all clinical settings and community services were invited to participate in the survey. Descriptive and inferential statistics were used for data analysis. We adhered to the STROBE reporting guidelines.

Results: A total of 6079 nurses completed the survey, 32.4% ($n=1969$) had experienced WPV in the previous 12 months, and 46% ($n=920$) reported WPV only in the previous week. The most significant protective factors were nurses' age, patients' use of illegal substances, attitude of individual nurses and considering effective the organization's procedures for preventing and managing episodes of violence. The most significant risk factors included workload, recognizing violence as an inevitable part of the job, patients' cultural aspects and patients' agitated behaviour. The frequency of WPV was significantly higher in certain areas, such as the emergency department and in mental health wards.

Conclusion: Workplace violence (WPV) against nurses is a very frequent and concerning issue, especially in hospitals and community services. Based on our findings, integrated and multimodal programmes for prevention and management of WPV are recommended. More attention and resources need to be allocated to reduce WPV by improving the quality of nurses' workplace environment and implementing violence-free policies for hospitals.

Implications for the Profession and/or Patient Care**Impact:**

- Workplace verbal and physical violence is a widespread phenomenon, both in hospital and community settings, and even during COVID-19 pandemic. This problem is exacerbated by the lack of effective reporting systems, fear of retaliation and the tendency to consider violence as an inevitable part of the job.
- The characteristics of professionals, patients, work environment and organizational factors are involved in the spread of workplace violence, determining its multifactorial nature. Integrated and multimodal programmes to prevent and manage of workplace violence are probably the only way to effectively counteract workplace violence against nurses.
- Healthcare policymakers, managers of hospital and community services need to proactively prevent and effectively manage and monitor episodes of violence. Nurses need to feel protected and safeguarded against any form of verbal or physical violence, to provide high-quality care in a totally safe environment.

Patient or Public Contribution: No patient or public contribution.

KEYWORDS

abuse, aggression, community services, hospitals, nurses, protective factors, risk factors, survey, workplace violence

1 | INTRODUCTION

In Italy, the annual prevalence of violence in the workplace ranges from 48.6% to 65.9%. In a systematic review of 2022, which included 17 studies and a sample size of 17,207 healthcare workers (HCWs), the total prevalence of violence during COVID-19 was 47% (Ramzi et al., 2022). In addition, the prevalence of physical and psychological violence was 17% and 44%, respectively (Ramzi et al., 2022). In the last 15 years, increasing numbers of studies have investigated the incidence of workplace violence reported by nurses. A scoping review of the literature affirmed that this phenomenon is increasing, and the extrapolated data indicate the need to deepen the studies in order to undertake prevention and management actions (Pagnucci et al., 2022). Although the violent and aggressive behaviour of patients is predominantly experienced by staff working in mental health units and emergency departments, the violence and aggression of patients is increasing in other hospital areas, including units of general medicine and surgery, paediatrics and intensive care (Ferri et al., 2016). Episodes of WPV are also being reported by nurses caring for patients at home (Byon et al., 2020) and community services (Fafliora et al., 2015), in pre-services, outside the hospital and in the ambulance (Coskun Cenk, 2019).

In our study, we relied on the definitions provided by the Centers for Disease Control and Prevention (CDC) to identify the risk and protective factors that are associated with WPV. Risk factors refer to things that increase the likelihood of experiencing WPV. Conversely, protective factors mitigate the adverse effects or protect people and decrease the possibility of experiencing WPV (Centers for Disease Control and Prevention – National Center for Injury Prevention and Control, 2023).

2 | BACKGROUND

Healthcare professionals are often exposed to the risk of violence by patients and their family members or caregivers (Dadfar & Lester, 2021; Estryn-Behar et al., 2008; Liu et al., 2019; Magnavita & Heponiemi, 2012). There are various definitions to describe violence in the workplace and the most widely used definition of workplace violence (WPV), also shared and accepted by International Labour Organization, International Council of Nurses, World Health Organization and Public Services International in the health sector is '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, well-being or health' (Richards, 2003). From 2002 to 2013, WPV was much more frequent in the health and social care settings than elsewhere (National Institute for Occupational Safety and Health, 2002). In 2013 the U.S. Department of Labor in a survey estimated the incidence rate of aggression for hospital workers to be 7.8 out of 10,000, compared with less than two out of 10,000 for industrial workers (U.S. Department of Labor, 2013). WPV against healthcare professions is a growing phenomenon in recent years, especially for

What does this paper contribute to the wider global clinical community?

- This study offers a list of protective and risk factors that nurse administrators, policymakers, nurse leaders and educators, could use to implement interventions to prevent and effectively manage episodes of violence.
- The solution to the complex phenomenon of workplace violence against nurses is multifaceted, therefore we recommend the implementation of integrated and multimodal programmes for the prevention and management of workplace violence in hospitals and the community.

nurses. Nurses are the first point of contact for patients in care facilities. They attend to patients' needs, administer medications, and provide emotional support. Due to the nature of their job, nurses spend more time with patients than any other healthcare provider. This increased interaction can lead to a higher risk of violence towards nurses. (Escribano et al., 2019; Pich et al., 2017). Moreover, from a cultural perspective, nursing is a profession considered less authoritative than medicine (Ferri et al., 2016). In North America, the Emergency Nurses Association confirmed that violence against nurses was extremely common and that about 25% of the nurses declared that they had suffered some form of physical violence more than 20 times in the previous 3 years and in the same period, almost one in five had suffered more than 200 episodes of verbal violence. In 2018, in a survey conducted by the American Nurses Association, 62% of nurses reported that they had suffered at least one WPV incident (American Nurses Association (ANA), 2019). In 2019, a European study involving 260 nurses in five countries, 20.4% had experienced physical violence at work in the last year and 76.9% said that the incident could not have been avoided (Tomagová et al., 2020). In 92.3% of the cases, the perpetrators of WPV were patients or people who use drugs during their professional careers (Tomagová et al., 2020).

The causes of the phenomenon are many and include reduced personnel, high workload, characteristics of the patients and inappropriate care approaches (Caruso et al., 2022; Pagnucci et al., 2022; Pich et al., 2017). The risk factors of violence suffered by nurses perpetrated by patients and/or caregivers are many and include: caring for people with a history of violence or under the influence of drugs or with mental problems (Dopelt et al., 2022); handling and transporting patients; working alone; structural limitations of the working environment; lack of staff training and education; reduction of staff especially during visiting hours and meals; high turnover; inadequate safety; waiting and crowding times; distrust towards reporting incidents (Caruso et al., 2022; Occupational Safety and Health Administration (OSHA), 2015). A common aspect of this phenomenon at the global level concerns the tendency not to report episodes of violence (underreporting and miscommunication), especially in verbal forms (Tyler

et al., 2022) and for the lack of effective reporting systems, both for fear of consequences (if the violence was committed by colleagues) and the tendency to accept such episodes as an inevitable part of the work of the nurse (Pich et al., 2017). Another important aspect is the lack of educational programmes finalized to reduce WPV. Education programmes for healthcare professionals based on the management of conflict and anger and problem-solving strategies and communication skills, may improve the ability to cope with aggressive patients and/or caregivers (Thompson et al., 2022).

3 | THE STUDY

3.1 | Aims

To describe the characteristics of the episodes of workplace violence experienced by nurses in Italian hospital and community settings, and identify the protective and risk factors of the phenomenon of violence.

4 | METHODS

4.1 | Study design and setting

A descriptive cross-sectional study was conducted between January and April 2021 based on the CEASE-IT protocol (Bagnasco et al., 2021). The study involved NHS Hospitals, University hospitals and community services identified by the nurses' principal investigator of eight Italian universities taking part in the project. We adhered to the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) reporting guidelines (Appendix S2).

4.2 | Sample

The study was conducted in all clinical settings of public and university hospitals and community services identified in the eight participant Italian universities. All nurses working in these contexts in the last 12 months received the link to participate in the online survey. Only nurses who provided a written consent, had access to the online survey. Nurses, who had already completed the survey but had changed working departments during the data collection period, could not participate again.

4.3 | Survey instrument

The survey developed for this study included the validated Italian version of the Violence in Emergency Nursing and Triage questionnaire (VENT), the validated Italian version of the Practice

Environment Scale of the Nursing Work Index (PES-NWI) (Zanini et al., 2022). Additional questions on staffing levels from the previous the Italian RN4CAST study were extracted to verify the possible correlation between staffing levels and WPV (Squires et al., 2013).

The original English version of the VENT questionnaire was culturally and linguistically validated in Italian, and subsequently modified according to the experts' comments. In addition, a panel of experts rated the questionnaire items in terms of its relevance for the underlying construct. A content validity index for the scale was computed and a value of .91 was obtained (unpublished data).

The validated Italian version of the VENT Questionnaire (Pich et al., 2017) is composed of 39 items divided into six sections with the aim to describe WPV experiences that occurred in the last year. The Italian version was adapted to all clinical and community settings. The term 'violence' used in this tool includes verbal, physical and sexual violence. The first section includes questions to verify the participant's eligibility for the study. Section 2 includes questions on the nurses' demographic characteristics, and Section 3 includes questions that explore participants' experience of WPV perpetrated by patients and/or caregivers. Sections four and five include questions on the perception of nurses about WPV factors that either promoted, increased or reduced WPV and collect data on the type of violence nurses had suffered. The last section includes items about risk prevention measures and risk management strategies (Pich et al., 2017).

The work environment was evaluated with the validated Italian version of the Practice Environment Scale of the Nursing Work Index (PES-NWI) (Lake, 2002). The PES-NWI aims to explore and measure the characteristics of nurses' workplace environment in hospitals. The tool comprises 31 items grouped into five subscales: staffing and resource adequacy; nurse manager ability, leadership and support for nurses; nursing foundations for quality of care; collegial nurse-physician relations; and nurse participation in hospital affairs (Zanini et al., 2022).

A four-point rating Likert scale was used to answer each item (from 1=mainly disagree to 4=mainly agree). A four-point rating Likert scale was used to answer each item (1=mainly disagree; 2=partially disagree; 3=partially agree; 4=manly agree). A mean score of each subscale and the composite mean score were provided to facilitate comparisons. As suggested by Lake (2002), a mean score of 2.5 has been considered the neutral midpoint. Mean scores lower than 2.5 described a negative nursing practice workplace environment; on the other hand, mean scores higher than 2.5 described a positive nursing practice workplace environment.

4.4 | Data collection

Data collection took place between January and April 2021. The survey was sent to participants via Lime Survey®, a web-based application for professional surveys. An email containing the link to the participant information statement and the actual

questionnaire was sent to all potential participants by managers or directors of the community services and public and/or university hospitals involved. Participants had 15 days to complete the online survey. The web platform automatically saved the data on the server. An alphanumeric password was used to protect the data saved on the server by allowing access only to the researchers directly involved in the study. The web application automatically sent a reminder after 7 days to those who still had not completed the questionnaire. After 15 days, the data were entered into a database created by the web application and downloaded to conduct statistical analyses.

4.5 | Data analysis

Categorical data were analysed in terms of percentage and frequency while continuous variables were described through mean values, standard deviations (SD) and mean differences (MD). Pearson's chi-squared test for categorical variables or Student's *t*-test for continuous variables were used to compare possible predictors of violence between the group of nurses who did not suffer violence in the last 12 months and/or in the last 7 days with the group of nurses who did. The variables that significantly differed between the two groups (independent variables) were analysed through a logistic regression model to identify any risk factors related to the experience of violence and only the factors found statistically significant were retained in the model. The statistically significant factors in the logistic regression model were analysed for each working area, followed by the interaction test for area and single factors. The dichotomous dependent variable was 'violence in the past 12 months and/or the past 7 days' (yes or no). The sample size was calculated considering the Italian nursing population of about 450,000 and estimating a proportion of about .8% of the population (which could answer to the survey), reaching a total of 3680 nurses. Therefore, the required sample size of nurses for each university involved was 460, defined based on a margin of error of 5%, a dropout rate of 20% and a confidence level of 95%. Data analysis was conducted using Jamovi version 2.2.2.0.

4.6 | Ethical considerations

The study protocol was developed with the aim of protecting the rights of the participants through the respect of ethics and ethical aspects provided for by the law on Good Clinical Practice and Research (Ministerial Decree 14/7/97) although no drug administration was envisaged. The study was conducted in line with the Helsinki Declaration (Fortaleza 2013 version) and in agreement with the current rules on clinical trials and good clinical practice.

The study protocol was approved by the Regional Ethics Committee of Liguria, Italy (Reg. N. 78/2020 – DB id 10357). Participation was voluntary and nurses were free to withdraw at any time. To ensure confidentiality, all the data were anonymized.

TABLE 1 Nurses' demographic characteristics (N=6079).

Age, mean (SD) years	43.2 (10.8)
Years of experience, mean (SD) years	16.3 (12.1)
Sex, N (%)	
Female	4631 (76.2)
Male	1318 (21.7)
Not declared	130 (2.1)
Nurses' qualification, N (%)	
Regional diploma	1949 (32.1)
University diploma	477 (7.8)
Bachelor's degree	3045 (50.1)
Master in Science of Nursing	351 (5.8)
Ph-D	257 (4.2)
Post Graduate Diploma, N (%)	
Yes	1654 (27.2)
Main area of work, N (%)	
Medical	1975 (32.5)
Surgical	1068 (17.6)
Critical/emergency care	787 (13.0)
Intensive care	571 (9.4)
Paediatric/neonatal and obstetrical care	80 (1.3)
Nursing home care	276 (4.5)
Mental health	538 (8.9)
Outpatient services/day hospital	585 (9.6)
Palliative care	5 (0.8)
Other	140 (2.3)

5 | RESULTS

Data were collected from 22 community services, and public and/or university hospitals; 6079 nurses completed the questionnaire of invited nurses (N=21,051) and a participation rate of 28.8%. Table 1 reported the demographic characteristics of the nurses participating in the study: the mean age was 43.2 years (SD 10.8), 76.2% (n=4631) were female and the mean length of work experience was 16.3 years (SD 12.1). The nurses participating main working areas were the medical area (n=1975; 32.5%) and surgical area (n=1068; 17.6%). (See Table 1).

A total of 1969 nurses, 32.4% had experienced WPV in the previous 12 months and/or week. Of these, 46% (n=920) reported WPV only in the previous week. The number of WPV episodes reported by nurses in the previous year was n=35,347 with a mean of 8 (SD=72). Verbal abuse, without physical contact, was the most common form of violence suffered (84%; n=1657) with a mean of 15 (SD=102) episodes per year per nurse.

All the variables investigated in the survey as possible predictors of violence were compared between the group of nurses who had not experienced WPV in the last 12 months and/or 7 days with the group of nurses who did suffer WPV. The variables, which differed significantly between the two groups, were grouped into five

categories: (a) characteristics of the professionals; (b) characteristics of patients; (c) organisational and professional characteristics; (d) workplace preventive measures of violence; and (e) workplace characteristics (See Appendix S1).

A logistic regression model was used to analyse factors related to violence experienced by nurses in the previous 12 months and/or 7 days. The independent variables included variables that were found to be significant in the univariate analyses. The model identified some significant variables as risk or protective factors for WPV. As no statistically significant difference was found between male and female nurses who suffered from violence and those who did not, sex was not included in our regression model.

5.1 | Protective factors

The odds ratio (OR) of the logistic regression model (Table 2) showed that with an increase in age of 1 year, nurses were 3% less likely to experience violence (OR = .974, $p < .001$). Perceiving violence as a decreasing phenomenon was associated with a reduction in the probability of suffering violence by 35% compared with nurses who perceived it to be increasing (OR = .653, $p = .030$) and perceiving it as a stable phenomenon was related to a reduction in the probability of suffering violence by 25% compared with nurses who perceived it as an increasing phenomenon (OR = .748, $p = .002$). Nurses who recognized the use of illegal substances as a predictor of violence were 36% less likely to suffer violence than those who did not recognize this factor as a predictor (OR = .639, $p < .001$). Recognizing the attitude of individual nurses as a factor that contributed to violence, reduced the probability of suffering violence by 34% compared to nurses who did not recognize it as a contributing factor (OR = .655, $p < .001$). The existence of clear procedures for managing episodes of violence within the organization reduced the probability of suffering violence by 26% compared to workplaces where these procedures did not exist (OR = .737, $p < .001$). Furthermore, where professionals consider effective the organization's procedures for the prevention and management of episodes of violence, the probability of suffering violence decreases by 69% compared to those who did not consider them effective (OR = .311, $p < .001$). Where professionals consider them effective only in part, this reduces the probability of suffering violence by 49% compared to those who did not consider them effective (OR = .510, $p < .001$). (See Table 2).

5.2 | Risk factors

The odds ratio (OR) of the logistic regression model (Table 2) showed that taking care of each additional patient during the last work shift (i.e. workload) increased the probability of experiencing violence by 4% (OR = 1.041, $p < .001$). Nurses who recognized violence as an inevitable part of the job were 70% more likely to experience violence

TABLE 2 Binomial regression model for violence suffered by nurses in the past 12 months and/or the past 7 days.

Protective factors	Odds ratio	95% confidence interval		p
		Lower	Upper	
Age	.974	.966	.981	<.001
Frequency of violence (decreasing vs. increasing)	.653	.445	.959	.030
Frequency of violence (decreasing vs. stable)	.748	.623	.898	.002
Use of illicit substances as predictor of violence (yes vs. no)	.639	.535	.763	<.001
Attitude of nurses as a contributing factor to violence (yes vs. no)	.655	.550	.780	<.001
Presence of clear procedures for managing violence (yes vs. no)	.737	.625	.870	<.001
Considering effective the procedures for preventing and managing violence (yes vs. no)	.311	.241	.403	<.001
Considering effective the procedures for preventing and managing violence (only in part vs. no)	.510	.425	.611	<.001
Risk factors	Odds ratio	95% confidence interval		p
Workload	1.041	1.031	1.050	<.001
Recognize violence as an inevitable part of the job (yes vs. no)	1.700	1.448	1.997	<.001
Some categories of patients expose nurses to a greater probability of violent (yes vs. no)	1.723	1.462	2.032	<.001
Cultural aspects of the patients as predictor of violence (yes vs. no)	1.203	1.021	1.418	.027
Patient's agitated behaviour as predictor of violence (yes vs. no)	1.662	1.373	2.014	<.001
Working as nurse in the emergency area (emergency area vs. medical area)	2.540	2.096	3.077	<.001
Working as nurse in the mental health area (mental health area vs. medical area)	4.155	3.259	5.297	<.001

than those who did not recognize it as such ($OR=1.700, p<.001$). Furthermore, recognizing that some categories of patients expose nurses to a greater probability of violence increased the probability of suffering violence by 72% compared with nurses who did not recognize the existence of these categories ($OR=1.723, p<.001$). Recognizing the patients' cultural aspects as characteristics that favour episodes of violence increased the probability of suffering violence by 20% compared with nurses who did not recognize this aspect ($OR=1.203, p=.027$). There was an association between nurses who recognized patients' agitated behaviour as a predictor of violence and being likely to experience violence; they were 66% more likely to experience violence than those who did not recognize this behaviour as a predictor ($OR=1.662, p<.001$). Working as a nurse in the area of critical/emergency care increased the probability of suffering violence by more than twice compared with the medical area ($OR=2.540, p<.001$). Working as a nurse in the mental health area increased the probability of suffering violence by more than four times than working in the medical area ($OR=4.155, p<.001$). The logistic regression model analysis conducted on the three working areas (medical, critical/emergency care and mental health) and the interaction test by area on a single factor showed a significant interaction for 'recognizing the use of illegal substances as a predictor of violence' factor. The impact of this factor on suffering violence was significantly different between the three working areas (Table 3).

6 | DISCUSSION

The study sample included nurses from northern, central and southern Italy and was the first in this area to include so many participants in this country. The 28.8% response rate was in line with other studies (Yang et al., 2018) considering all areas of nursing. The demographic characteristics of the nurses who participated in the study are representative of the real population of Italian nurses described by the 'Health Profile 2019' of Italy published by the OECD and the European Commission (OECD and European Observatory on Health Systems and Policies, 2019).

The rate of violence suffered by Italian nurses equal to 32.4% was lower than in studies conducted in Turkey 34.3% (Hamzaoglu & Turk, 2019), Lebanon 54% (Alameddine et al., 2015), Brazil 52% (Ceballos et al., 2020), Hong Kong 44% (Cheung & Yip, 2017), United States 38.8% (Bureau of Labor Statistic, 2017) and Canada 28.8% (Canadian Federation of Nurses Union, 2017).

Although the authors had not planned to conduct the study during the COVID-19 period, data were collected during the pandemic and the respondents referring to the previous 12 months enabled to explore the phenomenon of WPV during the pandemic. Other studies conducted during the COVID-19 period have shown higher rates of violence towards nurses in the United States (44%) (Byon et al., 2021) and Turkey (58%) (Ozkan Sat et al., 2021), lower in Spain (17%) (Aspera-Campos et al., 2020) and in China (18%) (Yang et al., 2021). These differences could be justified by the different

pandemic containment policies adopted by each country, which produced different effects on access to health facilities. Our model showed six factors that were protective for WPV.

We found that as nurses' age increases, there was a reduction in the likelihood of suffering violence. In the literature, many studies found, in fact, that being younger than 35 years was a risk factor (Park & Choi, 2020). Other studies have found that the lower age of patients contributes to increasing the risk of aggression (Nguluwe et al., 2016). The perception of violence against nurses as a decreasing phenomenon, compared with perceiving it as stable or increasing, reduces the probability of suffering violence. This result is in contrast with what has been stated so far by a previous study (Hamdan et al., 2017). This factor could be explained by less prejudiced attitudes towards people who use drugs and a greater willingness to mediate thanks to the positive perception of the dimensions of WPV. Confirming the findings of other previous studies, we found that alcohol and drug abuse in patients is a significant risk factor of WPV (Paola Ferri et al., 2016; Nguluwe et al., 2016). Nurses who are aware of this risk factor, will be more careful when providing care to people who are alcohol and drug abusers. Moreover, the early identification of risky subjects enables to implement preventive measures to reduce the likelihood of aggression (Baby et al., 2014; D'Ettorre et al., 2018). By validating the results obtained in the study of Hamdan et al. (2017), where negative attitudes and behaviours from nurses are identified as risk factors for WPV, the awareness that these can contribute to increasing the risk of violence enables to reduce the risk itself. The lack of clear procedures for the prevention and management of violence has been identified in the past as an important risk factor for WPV (Alameddine et al., 2015). In our study, the existence of clear procedures was found to be a protective factor as also identified in studies performed in specialist contexts (Ferri et al., 2016). Considering the procedures adopted by the hospital to prevent and manage WPV as being effective, was found to be a factor that reduces the risk of suffering violence. Although this result has not been found in previous studies, it enables to understand the important impact prevention procedures can have in reducing WPV.

Our model showed seven risk factors for WPV. As in previous studies, which found high levels of workload and high pressure due to the lack of time available to complete nursing activities (Estryn-Behar et al., 2008; Hanohano, 2017; Liu et al., 2019), our study confirmed high workload as a contributing factor that increases the risk of violence. Likewise, intrinsic characteristics of patients, such as cultural aspects and agitated and aggressive behaviours, also highlighted by AbuAlRub and Al-Asmar (2011), may contribute to increasing the likelihood of WPV, and have been identified as risk factors for violence. Focusing attention on specific categories of patients or with given characteristics seems to expose more to the risk of violence, probably due to the lower level of attention paid to other types of patients, erroneously considered as less dangerous. The risk factors that most increase the chances of being a victim of violence, according to our model, are working in the emergency area or mental health area rather than working

TABLE 3 Logistic regression model for violence suffered by nurses in the past 12 months and/or the past 7 days for medical, critical/emergency care and mental health area.

Protective factors	Medical				Emergency				Mental health				Interaction test for area and single factor (p-value)
	Odds ratio		95% confidence interval		Odds ratio		95% confidence interval		Odds ratio		95% confidence interval		
	Lower	Upper	p		Lower	Upper	p		Lower	Upper	p		
Age	.977	.977	.967	<.001	.966	.950	.982	<.001	.969	.950	.988	.002	.29
Frequency of violence (decreasing vs. increasing)	.658	.352	1.229	.189	.321	.136	.757	.009	.806	.419	1.552	.519	.14
Frequency of violence (decreasing vs. stable)	.872	.683	1.113	.272	.692	.474	1.010	.056	.521	.342	.792	.002	
Use of illicit substances as predictor of violence (yes vs. no)	.526	.421	.656	<.001	1.030	.711	1.494	.874	.860	.487	1.519	.604	.0049
Attitude of nurses as a contributing factor to violence (yes vs. no)	.616	.487	.780	<.001	.822	.577	1.172	.278	.581	.385	.877	.010	.27
Presence of clear procedures for managing violence (yes vs. no)	.788	.635	.978	.031	.585	.412	.832	.003	.825	.553	1.230	.345	.73
Considering effective the procedures for preventing and managing violence (yes vs. no)	.358	.252	.507	<.001	.292	.174	.491	<.001	.226	.117	.437	<.001	.75
Considering effective the procedures for preventing and managing violence (only in part vs. no)	.523	.414	.661	<.001	.456	.321	.650	<.001	.476	.269	.844	.011	
Risk factors	Odds ratio	Lower	Upper	p	Odds ratio	Lower	Upper	p	Odds ratio	Lower	Upper	p	Interaction test for area and single factor (p-value)
Workload	1.038	1.025	1.052	<.001	1.050	1.031	1.069	<.001	1.034	1.011	1.057	.004	.40
Recognize violence as an inevitable part of the job (yes vs. no)	1.676	1.357	2.069	<.001	1.492	1.078	2.064	.016	2.169	1.428	3.295	<.001	.42
Some categories of patients expose nurses to a greater probability of violent (yes vs. no)	1.787	1.436	2.223	<.001	1.533	1.102	2.133	.011	1.714	1.128	2.603	.012	.96
Cultural aspects of the patients as predictor of violence (yes vs. no)	1.315	1.061	1.630	.012	1.265	.911	1.757	.161	.777	.507	1.192	.248	.24
Patient's agitated behaviour as predictor of violence (yes vs. no)	.616	.487	.780	<.001	1.483	1.005	2.186	.047	.581	.385	.877	.010	.19

in the medical area. These settings have been identified by numerous previous studies as the most frequently studied (Pagnucci et al., 2022) and where violence against nurses occurs most frequently (Berlanda et al., 2019; Estryn-Behar et al., 2008; Ferri et al., 2016; Yang et al., 2021). Similarly to another study (Byon et al., 2020), we found that violence was perceived by nurses as an inevitable part of their job. According to our model, this is an important factor that could increase the probability of violence, because accepting WPV as an inevitable part of one's profession would lead nurses to give up implementing any kind of preventive action and this would consequently increase in the chances of suffering violence again. The analysis of the interactions by area and single factor showed the impact of the factor 'recognizing the use of illegal substances as a predictor of violence' to be significantly different across the three areas covered by the test. Compared to previous studies, which studied homogeneous contexts (Ceballos et al., 2020), we understood how high this was in the emergency area and how it decreased in the area of mental health and in the medical area.

6.1 | Strengths and limitations of the study

This was a national study in which 22 community services, and public and/or university hospitals were enrolled to participate. We examined the phenomenon of WPV across different settings.

The study has some limitations. Due to the nature of the combined questionnaire, the survey was too long, and many nurses did not complete the survey. In addition, some questions of the survey were based on the nurses' perception of WPV. Therefore, the phenomenon is not clearly detailed by these questions.

7 | CONCLUSION

Through this study we disclosed the high rate of violence suffered by Italian nurses during the COVID-19 pandemic, highlighting the widespread nature of this phenomenon in every care context. We found that the characteristics of professionals, patients, the working environment and the organization were all involved in the phenomenon of WPV, determining its multifactorial nature. Considering the important role of nurses' attitudes towards specific populations and their beliefs about violence, we recommend educational interventions for nursing staff to be provided on a regular basis. Instead, standalone educational programmes tend to have a limited effect (Somani et al., 2021). Integrated and multimodal programmes for the prevention and management of workplace violence are probably the only way to effectively counteract WPV. Multicomponent interventions can range from standalone training sessions designed to educate nurses, to structured education programmes to improve their ability to communicate, attitudes and perspectives on WPV. These interventions should also counter the underreporting of workplace violence and include

broader organizational changes, such as the introduction of workplace violence reporting systems, as well as safety policies and procedures. The commitment of administrations must be fostered through policies that reject violence in the field of professional practice and by allocating resources to prevent and manage this phenomenon, carefully considering the risk and protective factors of violence in the workplace. The development and promotion of key initiatives in the field of health and safety for nurses, the definition of objectives and responsibilities in relation to WPV, and the monitoring and reporting of the results of policies for the prevention and management of attacks and incidents of violence should be a priority for the administration of any health organization. It is important that all healthcare professionals feel safeguarded by their administrations in the event of verbal or physical abuse to provide high-quality care with maximum safety for patients and for themselves.

AUTHOR CONTRIBUTIONS

AB, GCa, NP, RA, GCi, ADM, LL, ML, DM, PCM, RW, MH, FN, AS, BM, MZ, LS: Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data. AB, GCa, NP, RA, GCi, ADM, RW, MH, FT, GA, FN, MZ, LS: Involved in drafting the manuscript or revising it critically for important intellectual content. AB, GCa, NP, RA, GCi, ADM, LL, ML, DM, PCM, RW, MH, FT, GA, FN, AS, BM, MZ, LS: Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content. AB, GCa, NP, RA, GCi, ADM, LL, ML, DM, PCM, RW, MH, FT, GA, FN, AS, BM, MZ, LS: Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

STATISTICS

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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