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Workplace violence in different settings and among various health professionals in an Italian general hospital: a cross-sectional study

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Background: Workplace violence (WPV) against health professionals is a global problem with an increasing incidence. The aims of this study were as follows: 1) to examine the frequency and characteristics of WPV in different settings and professionals of a general hospital and 2) to identify the clinical and organizational factors related to this phenomenon.

Methods: The study was cross-sectional. In a 1-month period, we administered the "Violent Incident Form" to 745 professionals (physicians, head nurses, nurses, nursing assistants), who worked in 15 wards of a general hospital in northern Italy.

Results: With a response rate of 56%, 45% of professionals reported WPV. The most frequently assaulted were nurses (67%), followed by nursing assistants (18%) and physicians (12%). The first two categories were correlated, in a statistically significant way, with the risk of WPV (P=0.005, P=0.004, multiple logistic regression). The violent incidents more frequently occurred in psychiatry department (86%), emergency department (71%), and in geriatric wards (57%). The assailants more frequently were males whereas assaulted professionals more often were females. Men committed physical violence more frequently than women, in a statistically significant way (P=0.034, chi-squared test). Verbal violence (51%) was often committed by people in a lucid and normal state of consciousness; physical violence (49%) was most often perpetrated by assailants affected by dementia, mental retardation, drug and substance abuse, or other psychiatric disorders. The variables positively related to WPV were "calling for help during the attack" and "physical injuries suffered in violent attack" (P=0.02, P=0.03, multiple logistic regression).

Conclusion: This study suggests that violence is a significant phenomenon and that all health workers, especially nurses, are at risk of suffering aggressive assaults. WPV presented specific characteristics related to the health care settings, where the aggression occurred. Prevention programs tailored to the different care needs are necessary to promote professional awareness for violence risk.

Keywords: workplace violence, health professionals, nurses, physicians, patient, general hospital, aggression

Introduction

Workplace violence (WPV) is defined as physically and psychologically damaging actions that professionals face in the workplace or while on duty.[1,2] Examples of WPV include direct physical assaults (with or without weapons), written or verbal threats, physical or verbal harassment, and homicide,[2,3] which "…involve an explicit or implicit challenge to … safety, well-being or health" of professionals.[4,5] Only in recent years, physical or psychological WPV, for long a "forgotten" issue, has

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become an emerging problem in different work settings and among professional staff of both industrialized and developing countries.[6–12] WPV causes disruption not only to interpersonal relationships and work organization but also to people's dignity and their emotional and physical well-being.[6,13] Some authors provide evidence of the prevailing attitude that "workplace violence is a culturally accepted and expected part of one's occupation".[14,15] In 2007, the Italian Ministry of Health[16] issued a recommendation for the prevention of violence in health care facilities, which, still now, has not been completely implemented due to the lack of strategies and procedures for counteracting WPV in most Italian health institutions.[17] Violence against health care workers is classified as a "sentinel event" since it represents a signal of risk in the work environment, requiring the adoption of appropriate preventive measures, protection for workers, and accurate monitoring.[18] In a case of violence, many hospital procedures for clinical risk management are provided, such as incident reporting, and Audit and Root Cause analysis.[19]

WPV in health settings constitutes almost a quarter of total violence reported in all workplaces,[6,20] and nursing has been identified as the occupation most at risk for patient violence.[14,21,22] Up to now, the prevalence of this phenomenon has not been completely evaluated since WPV incidents are commonly underreported.[11,14,23–27]

The prevalence of WPV

Recently, the reported annual prevalence of WPV against all health workers in the general hospitals of many countries has been high, although these data are difficult to compare.[24,28] In particular, in Italy the WPV annual prevalence ranged from 48.6% to 65.9%.[26,27] Most studies reported that non-physical violence, represented by psychological violence or verbal abuse, is the most frequent type of aggression in all health care settings. The WPV reported varied according to the type of violence; verbal threat was the most common form, with a frequency range between 19.6% and 98.6%, which was three to six times higher than physical violence.[11,26–28] A recent study conducted in six US hospitals reported a higher prevalence of verbal assault followed by threats and physical abuse against physicians and nurses.[29] In Italy, a study observed that 107 workers reported suffering from a physical aggression in the 12-month period preceding the survey, 101 reported suffering threats, and 229 reported being the victims of verbal aggression.[11]

The annual prevalence of physical assault varied among the different countries, ranging from 11.5% in a cohort of Italian professionals to 56% in German health workers.[14,26] A recent integrative review of WPV against nurses in the Anglo, Asian, European, and the Middle Eastern regions reported, in a sample of 65,424 nurses, the following percentages: 62.8% non-physical violence, 47.6% bullying, 31.8% physical violence, and 17.9% sexual harassment.[30] Most recent studies confirm these data in many different countries.[5,13,31]

Professionals assaulted

Among the different health occupations, nurses are the category most exposed to WPV, as observed by most research.[8,9,11,26,29] In accordance with a recent review, the more frequent occurrence of violence against nurses in comparison to physicians can be explained by many factors: "length of time spent with the patient", "perceived senior authority of doctors by patients when compared with nurses and how this relates to their care and treatment option", "communication style", and "misinformation".[32] Other studies highlighted that the particularly high violence rates for nurses and nursing assistants were probably caused by their earlier and longer interaction with patients, when compared to physicians, which increased their chances of being physically threatened.[25] In a US population of hospital workers, Pompeii et al[33] found that nurses, probably due to their more direct and closer involvement with patients, reported the highest proportions of violent events. Nevertheless, no occupation is immune to the assaults and threats, although with significant differences among occupations. More than two-thirds of physicians have experienced WPV during their career, and more than 50% of physicians have experienced WPV in the previous year.[34–38] A recent study has not evidenced any statistical difference in exposure to violence between physicians and nurses, during twelve months of observation in Palestinian public hospitals.[24] Another study reported that physicians had been more frequently assaulted in a 1-year period.[39] In one Italian specialist setting, an infectious diseases hospital, physicians were the category most exposed to attack, probably due to their decision-making role and the fact that they often worked alone with patients.[17] On the contrary, in another Italian study, physicians and nurses of a general public hospital presented a similar risk of exposure to different forms of violence from patients and visitors.[27] Recently, in Turkey, there has been an increase in the number of violent acts against health care workers, in particular toward physicians.[40] The excessive demands of patients, the expectation of immediately solving clinical problems, and blaming physicians for their problems were indicated in the literature as the most frequent causes of violent behavior.[40,41]

The WPV risk factors

The etiology of WPV is complex and the literature on this topic indicates many risk factors related to both the aggressors and the professionals assaulted. Many authors indicate that health care workers younger than 40 years old are most frequently the victims of violent events[42] and older workers experienced significantly less violence than younger workers,[24,43–45] but not all research findings were consistent with this observation.[46] Other research showed that younger and less experienced personnel, clinician (nurses and physicians) compared to administrative, were significantly at higher risk of exposure to WPV.[47] Young age, female sex, lower education, shorter duration of employment, and high level of anxiety of staff seemed to be the determinants of violence in nursing profession.[48] Discordantly, other researchers reported that male professionals experienced WPV significantly more often than females when they actively intervened, but females were more often the targets of violence.[43,44] In Italian general hospitals, Zampieron et al[48] found that female nurses were the most frequent victims of aggression, whereas in another recent study, Guglielmetti et al[27] highlighted that male health workers had a double risk for being victims of physical violence in comparison to female professionals.[27] In this study, no gender difference was evidenced for non-physical violence. One group of researchers found that participants who had not attended violence-prevention training were at greater risk for WPV than workers who did attend training.[14,46] In contrast with this result, Nachreiner et al[49] reported that violence training increased the likelihood of being a victim of physical violence.[44]

Regarding aggressors, most authors indicate that perpetrators were more often patients than visitors or patients' relatives.[29,39,48] The majority of physical assaults and physical threats perpetrated by patients were also attributed to mental health or behavioral issues.[29,45] Visitor-perpetrated events were more often verbal abuse and were associated with dissatisfaction with care, including concern about patient care, unmet expectations of care, and/or long wait for care/scheduling delays.[29,48] Almvik et al[50] determined that the severity of physical violence perpetrated by male patients was significantly greater than violence perpetrated by female patients. Physical violence was most often enacted by men and people 66 years or older.[44,51] The most frequent aggressions against nurses and physicians were committed by patients, followed by patients' relatives and professional colleagues.[39,52]

In many countries, including Italy, the psychiatric[48] and emergency[24,36] departments were the services at greatest risk of violence.[11,26–28,41,47,53–55] Mental health disorders (such as dementia, schizophrenia, anxiety, acute stress reaction, suicidal ideation, and alcohol and drug intoxication) have often been identified in people who have committed WPV,[24,29,33,36,44,56] that, in the majority of cases, occurred in patient rooms or exam rooms.[29,48] Less than half occurred while the worker was alone with the perpetrator. According to some studies, violence is more likely to occur during certain times of the day: 70% of violent events took place at night,[32] during afternoon shifts (3 pm–11 pm),[12] or during the evening and night shifts (2 pm–8 am).[24] In an Italian study, violence was predominantly diurnal in psychiatry department and nocturnal or evening in emergency department.[55] Increased rates of violence during evening and night-time hours may be attributed to the types and conditions of patients, such as intoxication and/or mental confusion.[32] Higher rates of violence during this time can also be attributed to lower presence of hospital administration and reduced staff during the evening and night shifts that would require personnel to work alone.[24,43,44,50] Most authors underline that all cases of WPV, even without physical injuries, induce in the assaulted persons emotional consequences such as anger or anxiety, which could favor psychological distress.[6,7,20,57] These conditions could be complicated by substance abuse or other severe psychiatric disorders, leading to burnout and even leaving the health professions. In fact some studies reported that professionals who had experienced a high level of WPV suffered from post traumatic stress disorder symptoms such as sleeping disorders, irritability, difficulty concentrating, reliving of trauma, and feeling emotionally upset.[39,58,59] The negative consequences of WPV, which could include deterioration in the quality, efficiency, and availability of care provided and, indirectly, increased health costs, impact heavily on the delivery of health care services.[6,60]

In recent years, some research has shown that, also in Italy, WPV is a widespread problem, although few Italian studies have described the phenomenon in detail, comparing different professionals and settings. As suggested by the literature, the characteristics of violence as well as the risk factors for aggression can change according to the health care environment where assault occurs. Assessing specific risk factors of WPV can represent the first step in preventing violence and its consequences.

Aims

The aims of this study were, therefore, 1) to examine the frequency and the characteristics of WPV in different settings and professionals of a general hospital and 2) to identify the clinical and organizational factors related to this phenomenon.

Methods

Study design

The design of this study was cross-sectional. In order to detect violent attacks against health professionals in a general hospital, we administered the questionnaire "Violent Incident Form" (VIF) of Arnetz,[61] in the Italian version, previously used in other Italian studies.[11,55,62] This instrument consists of 18 questions with binary (yes/no) or multiple choice responses for describing the worst WPV recorded during the previous 12 months.

The VIF requires the professional to describe "a specific incident of violent or threatening behavior directed toward a staff member" and investigates the following domains related to the violent event (Table 1):

- Health worker assaulted
- Aggressor
- Violent event
- Management, consequences, and reporting

Reliability, as evaluated in the previous Italian studies by the 1-month test–retest Spearman-Brown split-half coefficient, was 0.91.[17,62]

Sample

Our convenience sample was represented by the accessible population of all health professionals (n=745), physicians, nurses, head nurses, and nursing assistants, who worked in the health units of a general hospital in northern Italy for at least one year:

1. Service of psychiatric diagnosis and treatment (SPDT)
2. Emergency department
3. Cardiovascular medicine
4. Metabolic medicine

Table 1 Variables collected by Violent Incident Form (VIF)

Violent Incident Form (VIF)	Health worker assaulted	• Gender and age • Work seniority • Profession: Physician, head nurse, nurse, nurse assistant • Health unit
	Aggressor	• Who showed aggression or violence: Patient, patient's relatives, care givers and visitors, co-workers, more than one category • Gender and age • Mental conditions: Conscious and normal, affected by psychiatric disease, cognitive impairment, drug or substance abuse or more than one pathological alteration Non-evaluable
	Violent event	• Place: Patient room, day room, dining room, elevator, examination room, corridor, bathroom, stairway, waiting room, outdoors, other • Activity that preceded the incident: Conversation, patient transfer, patient made demands, examination, treatment, no activity, other • When the incident occurred: While patient was being admitted, during examination/treatment/physical care, at conclusion of examination/treatment, while patient was being discharged, other time • Feeling in advance that something was about to happen: Yes/no • If assaulted worker was working alone when the incident occurred: Yes/no • Type of violent incident: Verbal threat/aggression, spitting, biting, kicking, scratching/pinching, slapping/hitting, unpleasant experience, punching, pushing, restraining, use of object or weapon, other
	Management, consequences and reporting	• Action: Situation handled by assaulted person alone, called for help and or activation alarm, other, no action necessary • Results: Physical injury, no physical injury, fear, anger, irritation, anxiety, humiliation, guilt, helplessness, disappointment, no reaction, other • Reports: Filed a police report, written a work injury report

Note: The Italian version of VIF11.

5. Rehabilitation medicine
6. Gastroenterology
7. Neurology
8. Cardiology/cardiovascular rehabilitation
9. Geriatrics and post-acute geriatric treatment
10. Post-acute extensive phase rehabilitation
11. Orthopedics
12. Vascular surgery
13. General surgery
14. Neurosurgery
15. Neurological and post-surgery intensive care

The distribution of professionals in the hospital units is shown in Table 2.

Procedure for data collection

Before the administration of VIF, we held a meeting with the professionals of each hospital unit in order to give information about this research, encouraging their participation. In particular, we asked the professionals to describe the most significant WPV that occurred during the previous year, following the definitions and the indications of VIF.

After getting permission from the management of the general hospital, on May 5, 2015, we distributed the questionnaire to all health professionals in the aforementioned units, accompanied by a cover letter explaining the purpose of the study. The questionnaire was completed independently and anonymously, and deposited in sealed boxes provided in each unit. The completed questionnaires were collected after 1 month.

Ethics approval and consent to participate

This study was performed in accordance with the Declaration of Helsinki and was authorized by both the Medical Director and Nurse Manager of the General Hospital (NOCSAE) of Modena where the research was conducted. The present study was approved by the Institutional Review Board of the Local Nurses Association. Each professional received verbal and written information in detail from the main researcher. The anonymity and confidentiality of participants were assured and their decision to participate voluntarily in this study was respected. All participants who completed the questionnaire gave their approval for the study and the data protection.

Statistical analysis

We calculated the sample size based on the 2.5% WPV rate among our professionals with 50% expected response rate and 0.80 power, obtaining a sample of 294 professionals. For continuous data, we calculated the average and standard deviation and applied the Student's *t*-test; for categorical variables, we calculated percentages and applied the chi-squared test. Multiple logistic regression model was used in order to highlight variables related to the violent event. Data were analyzed by using STATA Version 12 program.[63]

Results

The prevalence of WPV in our sample

We collected 419 completed questionnaires, with an overall response rate of 56% (419/745), distributed among different

Table 2 VIF response rate, violent episodes, and professionals assaulted divided by health units

Health units	Professionals completing VIF/total professionals, n (%)	VIF with one violent episode reported/total VIF, n (%)*	Professionals assaulted/total professionals completing VIF,** n (%)			
			Physicians	Head Nurses	Nurses	Nursing Assistants
Service of psychiatric diagnosis and treatment	22/40 (55)	19/22 (86)	4/6 (67)	0/0 (0)	13/13 (100)	2/3 (67)
Emergency department	51/115 (44)	36/51 (71)	4/6 (67)	0/3 (0)	27/36 (75)	5/6 (83)
Cardiovascular medicine	32/34 (94)	15/32 (47)	3/8 (38)	1/1 (100)	7/16 (44)	4/7 (57)
Metabolic medicine	23/30 (77)	6/23 (26)	0/7 (0)	1/1 (100)	4/11 (36)	1/4 (25)
Rehabilitation medicine	32/41 (78)	5/32 (16)	0/3 (0)	0/1 (0)	4/22 (18)	1/6 (17)
Gastroenterology	20/36 (56)	12/20 (60)	2/3 (67)	0/1 (0)	7/10 (70)	3/6 (50)
Neurology	24/48 (50)	5/24 (21)	2/7 (29)	0/1 (0)	1/12 (8)	2/4 (50)
Cardiology/cardiovascular rehabilitation	27/53 (51)	8/27 (30)	0/4 (0)	0/1 (0)	6/20 (30)	2/2 (100)
Geriatrics/post-acute geriatric treatment	44/63 (70)	25/44 (57)	5/14 (36)	1/1 (100)	12/20 (60)	7/9 (78)
Post-acute extensive phase rehabilitation	18/36 (50)	9/18 (50)	1/3 (33)	0/3 (0)	4/6 (67)	4/6 (67)
Orthopedics	13/43 (30)	7/13 (54)	0/1 (0)	1/1 (100)	5/9 (56)	1/2 (50)
Vascular surgery	19/38 (50)	6/19 (31)	0/3 (0)	0/1 (0)	5/12 (42)	1/3 (33)
General surgery	19/38 (50)	9/19 (47)	0/0 (0)	1/1 (100)	7/17 (41)	1/1 (100)
Neurosurgery	10/32 (31)	5/10 (50)	0/3 (0)	0/0 (0)	5/6 (83)	0/1 (0)
Neurological and post-surgery intensive care	65/98 (66)	20/65 (31)	2/9 (22)	0/1 (0)	18/49 (37)	0/6 (0)
Total	419/745 (56)	187/419 (45)	23/77 (30)	5/17 (29)	125/259 (48)	34/66 (52)

Notes: *Pearson chi-squared test =6.76, *P*=0.0001; **Pearson chi-squared test =113.91, *P*=0.000.
Abbreviation: VIF, Violent Incident Form.

health workers as follows: 39% (77/200) physicians, 89% (17/19) head nurses, 63% (259/413) nurses, and 56% (66/118) nursing assistants. We observed different response rates to VIF in the various health units (Table 2) as well as between the two genders, since 67% (279/419) of health workers who completed the questionnaire were females, whereas 33% (140/419) were males. The demographic characteristics of respondents are reflective of the underlying population of workers. A total of 45% (187/419) of health workers who completed VIF had experienced an episode of violence, with a different distribution among the various professional categories, as shown in Table 2.

The characteristics of the professional assaulted and the aggressor

Women professionals were more frequently assaulted in comparison with men (Pearson chi-squared test=3.90, P=0.048, chi-squared test) which was statistically significant. The frequency of violent episodes reported in VIF was statistically significantly different among the various hospital units (Pearson chi-squared test=6.76, P=0.0001, chi-squared test): SPDT (86%), emergency (71%), and geriatrics (57%) were the health units with the highest frequency of violence (Table 2). The characteristics of professionals assaulted and aggressors are presented in Table 3. Perpetrators more frequently were patients and, in contrast to assaulted persons, males. The mean age of health workers who had experienced violence (standard deviation 40.44±7.83 years) was statistically significantly different from aggressors' age (52.55±17.86 years; t=−8.30, df =359, P=0.000, unpaired t-test), confirmed by the coefficient of Cohen's d=−0.87611 and by the effect strength, (r)=0.40125. Among the health workers who had experienced aggression, nurses (67%) reported the highest frequency of violence. Non-physical violence was slightly more relevant than physical, and professionals affected reacted in different ways (Table 3).

Table 3 Professionals assaulted, aggressors, and violent events reported in VIF (n=187)

Demographic and professional data of health workers assaulted	
Gender, n (%)	53 (28) Males
	134 (72) Females
Age (years), mean ± SD (min–max)	40.44±7.83 (24–67)
Work seniority (years), mean ± SD (min–max)	12.88 ±7.79 (1–41)
Professional qualification, n (%)	125 (67) Nurses
	23 (12) Physicians
	34 (18) Nursing assistants
	5 (3) Head nurses
Variables of aggressor	
Gender, n (%)	110 (60) Males
	72 (40) Females
Age (years), mean ± SD	52.55±17.86
Typology of aggressor, n (%)	97 (51) Patients
	58 (31) Patients' relatives, care givers, and visitors
	16 (9) Coworkers
	16 (9) More than one category
Mental conditions, n (%)	82 (44) Conscious and normal
	32 (17) Affected by psychiatric disease
	30 (16) Affected by cognitive impairment
	20 (11) Conditioned by drug or abuse substance effects
	16 (8) Not evaluable
	7 (4) Affected by more than one pathological alteration
Type and management of violent event	
Type of aggression, n (%)	96 (51) Verbal violence
	91 (49) Physical violence (with and without weapons)
Management of violent event by the professional assaulted, n (%)	69 (37) By himself/herself
	41 (22) Rescued by others
	40 (21) Call for help
	37 (20) No reaction

Abbreviation: VIF, Violent Incident Form.

Risk factors for physical and non-physical violence

As shown in Table 4, aggressive episodes were registered in all shifts, with a little prevalence during morning ones (43%), more frequently in patient's room (53%), during hospital stay (53%), at the moment of patient's interview (32%), and medical treatments and/or nursing care (26%), while professionals assaulted worked with other staff members (65%). The majority of professionals (72%) was not able to forecast violent episodes, reported psychological consequences from aggressions (73%), but did not report the incident (84%) (Table 4). When the two kinds of violence were compared (Table 5), it was found that physical violence was statistically significantly prevalent in psychiatric, post-acute extensive phase rehabilitation, metabolic medicine and neurological and post-surgery intensive care units; it was exhibited by male patients affected by psychiatric diseases and/or cognitive alteration and/or conditioned by drugs or abuse substances, occurred while professional assaulted was working with other staff members and needed rescue by others. Non-physical violence was statistically significantly more frequently observed in geriatrics and post-acute geriatric treatment, metabolic medicine, and emergency department; it was committed by patients' relatives, caregivers and visitors, in conscious and normal mental conditions, was managed by the professional by himself/herself, induced psychological consequences and was not reported. The category of the assailant differed, in a statistically significant way, among the various health units:

Table 4 Other characteristics of violent events reported in VIF

Time and place of violent event	
Time, n (%)	80 (43) Morning
	66 (35) Afternoon
	41 (22) Night
Place, n (%)	100 (53) Patient's room
	40 (21) Corridor
	19 (10) Waiting room
	8 (4) Medical treatment room
	5 (3) Nursing station
	4 (2) Dining area
	11 (6) Other place
Concomitant circumstances and predictability of violent event	
The time of hospitalization in which attack took place, n (%)	33 (18) At admission
	99 (53) During hospital stay
	6 (3) At discharge or transfer
	49 (26) Other
Clinical activities at the moment of aggression, n (%)	59 (32) Interview with patients
	49 (26) Medical treatments and/or nursing care
	53 (28) No clinical activities
	8 (4) Requests from patients
	8 (4) Transfer of patients
	10 (6) Other activities
Violent event foreseen by professionals, n (%)	135 (72) No
	52 (28) Yes
Modality of working at the moment of aggression, n (%)	122 (65) Professionals assaulted worked with other members of staff
	65 (35) Professionals assaulted worked alone
Consequences of aggression	
Physical and psychological consequences, n (%)	137 (73) Psychological consequences
	34 (18) No physical or psychological consequences
	10 (6) Physical injuries
	6 (3) Both physical and psychological consequences
Reporting of violent event, n (%)	158 (84) No report
	15 (8) Internal incident report
	9 (5) Police report
	5 (3) Work injury report

Abbreviation: VIF, Violent Incident Form.

in SPDT and neurological and post-surgery intensive care, patients were more frequently the aggressors, whereas in emergency department and geriatrics/post-acute geriatric treatment unit, patients' family members or caregivers were more often the assailants (Pearson chi-squared test =103.70; P=0.016, chi-squared test). We also found that violence perpetrated by patients mostly occurred in morning and night shifts, whereas assaults by patients' family members or caregivers were more frequent during afternoon shifts, in a statistically significant way (Pearson chi-squared test =16.37; P=0.037, chi-squared test). In this regard, during night shifts, the violence was mainly committed by males, in a statistically significant way (Pearson chi-squared test =6.35; P=0.042, chi-squared test). We observed a statistically significant difference regarding the place of violent attacks in the various health units: in the emergency department, 63% of all violent events occurred in the waiting room; in SPDT, 47% in the corridor; and in geriatrics/post-acute geriatric treatment unit, 68% in patients' rooms (Pearson chi-squared test =221.32; P=0.000, chi-squared test). Analysis by multiple logistic regression model showed that significantly higher violent episode was found in psychiatric ward compared to other health units, as well as that nurses and nursing assistants were the professions with the highest risk of being assaulted (Table 6). The variables statistically related to the reporting of WPV were "asking for help during the attack" and "physical injuries suffered from violence" with a positive correlation, and being a "professional of neurological and post-surgery intensive care unit" or being "female professional" with a negative correlation, according to our multiple logistic regression model (number of observations=397, pseudo R^2=0.1566; Table 7).

Discussion

Frequency and characteristics of WPV

The response rate (56%) represents a satisfactory outcome, slightly higher than those reported in most Italian studies,[26,27,55] showing an interest in this topic. We did not expect that all professionals would answer the questionnaire because violence experienced in the workplace can represent an embarrassing condition, difficult to report. In our sample, which presented an appropriate size according to power analysis, 45% of health workers reported having suffered a violent incident in the past year, especially nurses, with a relatively high frequency of 67%. This result is in line with literature, which considers this profession the most exposed to the risk for aggression due to the direct contact between nurses and patients.[21,22,32,64,65] In particular, the prevalence of WPV over 1 year reported in our study was similar to that observed in two other general hospitals of northern Italy.[26,27]

This study contributes by highlighting that, also in an Italian general hospital, violence is a significant phenomenon and that all health workers, especially nurses and nursing assistants, are at risk of suffering aggressive assaults. Nevertheless, we observed that even other professionals experienced violence in the workplace, in particular, physicians and nursing assistants, in accordance with the studies that examined more than one health professional category.[33,47] In this regard, according to our data, nurses and nursing assistants had the highest risk for being subjected to violence, indirectly confirming that physical proximity to patients due to care assistance can increase the risk for attacks.[25] Although with a lower percentage in comparison with other studies, our study also evidenced that the most frequent violence was non-physical[5,12,14,29,31,32] and the prevalent aggressors were patients.[5,12,30,52,56] In our study,

Table 5 Prevalence of exposure to workplace non-physical and physical violence (n=187)

Variables	Non-physical violence	Physical violence	Statistical test*
Health units			
Service of psychiatric diagnosis and treatment	3	16	Pearson chi-squared test=66.91
Emergency department	19	17	*P*=0.019
Cardiovascular medicine	10	5	
Metabolic medicine	1	5	
Rehabilitation medicine	4	1	
Gastroenterology	6	6	
Neurology	3	2	
Cardiology/cardiovascular rehabilitation	4	4	
Geriatrics and post-acute geriatric treatment	18	7	
Post-acute extensive phase rehabilitation	1	8	
Orthopedics	3	4	
Vascular surgery	4	2	
General surgery	7	2	
Neurosurgery	5	0	
Neurological and post-surgery intensive care	8	12	
Typology of aggressors			
Patients	27	70	Pearson chi-squared test=68.33
Patients' relatives, caregivers, and visitors	54	4	*P*=0.000
Coworkers	11	5	
More than one category	4	12	
Gender of aggressor			
Males	48	62	Pearson chi-squared test=4.5
Females	43	29	*P*=0.034
Mental conditions of aggressor			
Conscious and normal	69	13	Pearson chi-squared test=70.70
Affected by psychiatric disease	12	20	*P*=0.000
Affected by cognitive impairment	5	25	
Conditioned by drugs or abuse substances	3	17	
Non-evaluable	7	9	
Affected by more than one pathological alteration	0	7	
Modality of working at the moment of aggression			
Professionals assaulted worked with staff members	56	66	Pearson chi-squared test=4.15
Professionals assaulted worked alone	40	25	*P*=0.042
Management of violent event by the professional assaulted			
By himself/herself	51	18	Pearson chi-squared test=30.42
Rescued by others	9	32	*P*=0.000
Call for help	16	24	
No reaction	20	17	
Consequences of aggression			
No physical consequences	13	19	Pearson chi-squared test=25.15
Physical consequences	0	10	*P*=0.000
Psychological consequences	83	54	
No psychological consequences	0	2	
Both physical and psychological consequences	0	6	
Reporting of violent event			
No report	89	69	Pearson chi-squared test=13.27
Internal incident reporting	5	10	*P*=0.010
Work injury report	0	5	
Police report	2	7	

Note: *Only statistically significant differences are shown.

in line with others, [6,25,44,48,51,55,64–67]professionals physically assaulted or verbally abused were younger than aggressors and more frequently females, whereas aggressors were more often males, who committed prevalently physical violence.

Clinical and organizational factors related to WPV

We reported WPV in all health units, but the typology and modality of aggressions were different, reflecting specific clinical and organizational issues. Psychiatry, emergency department, and geriatric wards were the most frequent places for WPV due to several factors concerning both patient pathology and modality of work.[11,24,25,30,32,41,48,55,60] In line with other studies, we found that in emergency department and geriatrics, verbal violence was prevalent and usually committed by family members, caregivers, visitors. Diversely, physical violence perpetrated by patients was more frequent in SPDT and neurological and post-surgery intensive care, partially in line with other research.[42,55,68–70] Verbal violence was more frequently exhibited by people in a lucid and normal state of consciousness, whereas physical violence was most often perpetrated by assailants with dementia or mental retardation or affected by other psychiatric disorders or conditioned by drugs and abuse substances.[29,71] These mental conditions can induce behavioral disinhibition and irritability, as well as leading to agitation and aggressiveness, symptoms that often represent the main reasons for hospitalization.[65,72,73] In particular, the highest number of physical attacks against workers was reported in our psychiatric area and violence appeared closely related to the psychiatric diseases of patients.[29,32,55] These data are in line with literature and are indirectly confirmed by the observation that, in psychiatry, the aggressor was mainly the patient, whereas, in emergency department the majority of aggressions was perpetrated by relatives and visitors.[42,55] We can infer different causes of violence, which are related to both patients and visitors or family members such as altered mental conditions, anxiety and worry for health treatments, excessive medical expectations, dissatisfactions with therapies, intolerance for long waiting times, and misunderstanding in communications or missing information.[28,33,40,47,74]

Also, the place where aggression occurs can indirectly indicate the different origins of violence, which often represents an extreme behavior aimed at communicating discomfort and calling for help, although expressed in a paradoxical and unacceptable way. Patient's room was the place with the highest number of aggressions reported, as in all other studies.[64] These data could suggest that the physical proximity of professionals to the patient could be interpreted by the patient, often in alarmed state, as a sort of personal space violation and induce his/her defensive behavior, which

Table 6 Variables related to violent episode (multiple logistic regression)

Variable* (reference category)	Odds ratio	Standard error	Probability	Confidence interval 95%
Health units (service of psychiatric diagnosis and treatment)				
Cardiovascular medicine	0.11	0.08	0.004	0.07–1.14
Metabolic medicine	0.04	0.03	0.000	0.02–0.48
Rehabilitation medicine	0.01	.01	0.000	0.00–0.20
Gastroenterology	0.16	0.13	0.031	0.00–0.08
Neurology	0.02	0.02	0.000	0.03–0.85
Cardiology/ cardiovascular rehabilitation	0.05	0.04	0.000	0.00–0.12
Geriatrics/post-acute geriatric treatment	0.16	0.12	0.013	0.01–0.23
Post-acute extensive phase rehabilitation	0.13	0.11	0.015	0.04–0.68
Orthopedics	0.12	0.11	0.016	0.02–0.67
Vascular surgery	0.05	0.04	0.000	0.02–0.67
General surgery	0.09	0.07	0.002	0.00–0.25
Neurosurgery	0.14	0.13	0.032	0.02–0.43
Neurological and post-surgery intensive care	0.05	0.03	0.000	0.01–0.20
Health profession (physician)				
Nurse	2.72	0.94	0.004	1.38–5.34
Nursing assistant	3.29	1.41	0.005	1.42–7.62

Note: *Only the statistically significant variables are reported.

Table 7 Variables related to the reporting of violent episode (multiple logistic regression)

Variable* (reference category)	Odds ratio	Standard error	Probability	Confidence interval 95%
Management of violent event by the professional assaulted (by himself/herself)				
Call for help	9.03	8.22	0.02	1.51–53.83
Consequences of aggression (no physical or psychological consequences)				
Physical injuries	18.17	24.02	0.03	1.36–242.42
Health units (service of psychiatric diagnosis and treatment)				
Neurological and post-surgery intensive care	0.04	0.07	0.03	0.00–0.81
Gender (male)				
Female	0.23	0.17	0.05	0.05–0.98

Note: *Only the statistically significant variables are reported.

can escalate into aggression. Moreover, we have reported that, in emergency department, 63% of violent events took place in the waiting room.[55] Here, violence could symbolize the high level of anxiety and stress suffered by both patients and their relatives or caregivers in situations of trepidation and long waits, all factors which can favor the development of violence.[12,47,66,75] The majority of aggressions was reported during morning shifts, in line with some,[42,76] but not all, studies since discordant data are in the literature.[24] Our results evidenced that during the morning shift and at night, the violence was more frequently performed by patients, whereas during afternoon shifts, family members, caregivers, or visitors were the most frequent aggressors, suggesting that visiting hours can condition the moment of aggression.[12,32] This result indicates that correct visiting procedures and their clear communication during visits to the ward could prevent violence. Moreover, as suggested by our results, we emphasize that both male and female professionals should work together during shifts in order to be less exposed to violence and to better manage hostile behavior. Another important element that emerged from our research was that 72% of professionals were not able to foresee a violent event and did not have any premonition of danger before being assaulted.[55] This can be interpreted as a physiological defense, determined by the so-called psychological mechanism of "denial" that allows professionals to work in risk areas such as health care settings, but, at the same time, makes them more vulnerable. Therefore, adequate psychological preparation aimed at increasing awareness of violence risk could make professionals more prepared to safely manage hazardous situations.[14]

Consequences and reporting of violent events

In our study, as in most research on the subject, the main consequences reported by abused or assaulted professionals, especially those verbally abused, were to morale, such as fear, anger, irritation, anxiety, depression, humiliation, guilt, feelings of helplessness, and disappointment.[11,13,14,26,28,33,53,77] These feelings, as reported in the literature, can reduce the empathy capacity of health care workers[78] and, sometimes, constitutes causes of burnout,[7,31,57] leading professionals to leave nursing or to change institution.[60] Stress and violence can interact in the workplace and their negative effects exponentially accumulate, leading professionals to a situation of exhaustion and conflicts as highlighted by some authors.[7,59]

Our study highlighted that 84% of health care workers did not report violent events, in accordance with the literature,[11] which indicates many reasons for under-reporting of WPV: fear of retaliation from aggressor and his/her family, feelings of shame related to being the subject of aggression, or addiction to WPV considered an integral part of job.[14,23,24] Our data evidenced that only the most dramatic attacks with physical injuries are the situations that induce professionals to report the incident, whereas being professionals in some health units, such as neurological and post-surgery intensive care, where patients are often not aware of their aggressiveness due to an altered mental condition, disadvantaged incident reporting. Also, being female, among professionals, did not favor the denouncing of violence, probably due to cultural reasons.

Limitations and practical implications

The main limitation is the possibility that data related to violent incidents which occurred during the year before the administration of VIF can be distorted since they are based on professionals' memory. More variables should be analyzed to describe this phenomenon in greater detail. Our results, limited to a single general hospital, cannot be generalized to all hospitals.

This study has important implications for clinical practice as it highlights the specific characteristics of violence expressed in different hospital settings, allowing us to tailor preventive interventions. Providing focused training programs aimed at reducing specific risk factors of violence can improve work conditions and favor effective and ethically correct health care.

Conclusion

Our data, in line with the literature, indicate different reasons and modalities of violence related to patients' pathology; expectations of both patients and visitors regarding medical treatments; misunderstanding or confused communications among staff, patients, and their caregivers, anxiously waiting for, for example, diagnosis and treatment. Nevertheless, we can infer that WPV consists of two main types of violence: 1) physical violence performed by patients in an altered mental state, strongly related to their clinical condition, representing a symptom of diseases which need hospitalization, potentially very dangerous for health worker safety and 2) non-physical violence exhibited by visitors, family members, and caregivers of patients, in an apparent lucid and conscious state but dictated by trepidation, long and anxious waiting for patients' prognosis, sometimes originating from the professional's partial empathic comprehension or insufficiently clear communication. Therefore, we underline that the violence from patients, which needs to be managed like other symptoms, although more dangerous, can be difficult to prevent in

hospital because it is often the reason for consultation and/or admission. Violence from visitors, family members, and caregivers should be more successfully prevented by correct and clear communication with them, showing an empathic interest in their distress.

WPV, which occurred during daily clinical activities when professionals were working together with other members of staff, was not foreseen by our professionals, who were probably more vulnerable to it since they had not had any premonition of being assaulted. We noted that verbal violence produced more frequent psychological distress than physical aggressiveness, but it was not frequently reported by our professionals. Only severe and dramatic physical violence was reported to hospital management and/or police, but not when the physical violence was perpetrated by patients in very regressed conditions and/or in unconscious state. In light of our results, we believe that it is essential to put in place preventive measures not only at organizational and structural level but also at individual level in order to increase the awareness of professionals to WPV risk and to prepare them to manage violence in an ethical, professional, and humanistic way. To develop effective strategies of violent event management it is important to favor incident reporting by staff for all violent episodes, from verbal offenses or threats to dangerous physical attacks, in order to implement analysis procedures, such as Clinical Audit and Root Causes Analyses, for understanding the causes of violent episodes. Violent incidents can undermine the physical and mental health of professionals, cause job dissatisfaction and, at the same time, can adversely affect the quality of care provided.

Finally, we conclude emphasizing that effective professional training regarding the management of violent events consists of good collaboration and communication among staff members, and constant monitoring and an empathetic approach – never symmetrically aggressive – to the patient, extended to family or caregivers, in order to prevent violence in the health workplace. Further studies are needed to investigate the causes and dynamics of violence in health care settings, since the variables related to this phenomenon are numerous and not always clearly identifiable.

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Author contributions

PF and RDL prepared the design and the manuscript of this study. PF, MS, and RDL participated in the acquisition of data. PF, CA, and RDL performed the analysis and interpretation of data. All authors helped to draft the manuscript and approved the final version.

Disclosure

The authors report no conflicts of interest in this work.

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