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A qualitative analysis of administrative records of violent episodes experienced by healthcare workers working in a large public Italian hospital

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Gender differences in reporting workplace violence: A qualitative analysis of administrative records of violent episodes experienced by healthcare workers in a large public Italian hospital

ABSTRACT

Objectives: This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence experienced by healthcare workers (HCWs) in a large public Italian hospital. The qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which they deal with it. A comparison between genders was performed to better understand what type of different strategies could be used to improve the prevention of workplace violence for HCWs.

Design and Setting: The retrospective observational study was carried out in "Città della Salute e della Scienza", a complex of four interconnected hospitals situated in the northern Italy. This study analysed aggression data from the four-year period of 2015-2018 that included all HCWs categories. The data were obtained from the Aggression Reporting Form.

Participants: The analysed records were filled by 396 HCWs (3.6% of all HCWs in the hospital).

Results: Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of work experience reported more violent episodes than their female counterparts. Among the professions, nurse was the profession in which HCWs were more prone to experience a violent episode, while male medical doctors were more prone to report violent episodes than female medical doctors. Moreover, female HCWs experienced more verbal violence (insulting) than male HCWs, while male HCWs experienced more physical violence (bodily contact) than female HCWs.

Conclusions: The findings from this explorative study suggest that there is a gender difference in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors and in the way in which these episodes are described. Consequently, it is important in informative and preventive courses to consider gender differences in experiencing a violent episode.

Strengths and limitations of this study

(+) A qualitative analysis was used to collect the victims' description of workplace violence.

(+) The method permits to capture respondents' points of view.

(+) The comparison between genders could be useful to improve the prevention in this population.

(-) It was not possible to overcome the bias in reporting violence.

(-) Unreported incidents could not be included in the study.

Keywords: human resources management; health & safety**;** healthcare workers; workplace violence; qualitative analysis; gender difference.

INTRODUCTION

Workplace violence has been defined by the World Health Organization as "the intentional use of power, threatened or actual, against another person or against a group, in work-related circumstances, that either results in or has a high degree of likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation"[1].

As underlined by several investigations[2-4], the healthcare sector is at particular risk of workplace violence. Elliot[5] estimated that the risk of violence from patients and their relatives towards healthcare workers is 16 times higher than that towards other workers. This risk is highest for healthcare workers (HCWs) working in psychiatric and emergency rooms[6-7] since they report more violent events than other professionals, such as those

working in wards[8-10]. Moreover, the risk of aggression is highest for those HCWs working as nurses since they report more violent episodes than physicians and administrative staff[11]. A possible explanation for this finding is linked with the nature of their job, as nurses have direct contact with patients (who could be confused, frightened, delirious or under the influence of drugs) and their families/relative[12-14].

Another explanation is linked to gender: in some countries, such as Italy, in more than 70% of cases, nurses are female[15], and some studies have shown that female workers are more often affected by violence than their male colleagues[16-17]. Gender is also related to the type of violence experienced by HCWs; the investigation by[10] showed that, in hospitals, female nurses experienced verbal violence (such as yelling and screaming) more often, while male nurses were more often victims of physical assault (such as hitting and kicking). These types of violent episodes affect their perceived wellbeing; they could lead to several consequences, such as the interruption of work, medical treatment, and hospital and/or home care, and psychological support might be needed to cope with the event[18].

An interesting question concerns the report by HCWs of violent episodes in the workplace. Findings from investigations have shown that violence in the healthcare sector is under-reported[19-20], especially verbal violence[2]. The under-reporting of violence is not a phenomenon that involves only workplace violence. All forms of violence (sexual harassment, domestic violence, school bullying, and so on) are under-reported due to different reasons, including the stigma of victimization, such as shame, isolation, fear, or threat of further violence, which often deter victims from reporting violent episodes[21].

Moreover, for HCWs, there is the risk of desensitization to violence, as violence – due to contact with frail and ill people – is perceived as part of HCWs' job[22]. Nevertheless, the reporting of any act of violence is fundamental in engaging hospital management to activate appropriate organizational responses. Indeed, the administrative records of violent episodes

experienced by HCWs constitute an important source of information[23] about the type of violence (physical or verbal), the type of perpetrator (patient, relative, or visitor), the type of HCW (administrator, midwife, nurse, or physician), the place in which the HCW experienced the violence (psychiatry, emergency, or ward) and the type of activity that she/he was doing (support activity for patients, professional team's back-office activity, or assistance and patient care). These records permit the prevention of workplace violence, providing information about, for example, the type of training course that a particular HCW sub-population needs and/or the safety device to be installed in a particular ward.

In Italy, the violent behaviours reported by HWCs in 2018 total 1200. In most cases (70%), the victim is female, and the perpetrator is a patient, a patient's relative or a visitor[24]. To deal with this phenomenon, in 2007, the Italian Ministry of Health published Recommendation n. 8, "Preventing acts of violence against health workers". This recommendation had several goals. First, it foresees the reporting of incidents of violence using official sources, such as the judicial authority, the police forces and the National Workplace Accident Institute. Second, it promotes the collection of data through specific surveys to identify the frequency and severity of violent episodes. The results could be useful for adopting appropriate action, from an organizational and structural point of view, for example, redesigning the space and/or reformulating procedures for access to the ward. Moreover, data could be used to improve the training course that aims to prevent violence, to improve the coping strategy and to reduce the negative consequences[25].

This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence experienced by HCWs working in a large public Italian hospital. The qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which to deal with it[26]. The advantage offered by this method is that it allows us to capture respondents' points of view without predetermining their answers[27-28]. This

approach is widely used in social science research[29] and has been used to investigate HCWs' perceptions of physical and verbal aggression[30-32]. A comparison between genders was used to better understand what type of differences, if any, could be used to improve the prevention of workplace violence for HCWs. Based on the literature analysis presented above, the hypothesis is that there are gender differences in the violent episodes experienced by female and male HCWs: female HCWs experience more verbal violence than their male colleagues, and male HCWs experience more physical violence than their female colleagues. Moreover, from the analysis of the episodes, as described by female and male HCWs, we expected that the emerged semantic differences characterized the experience of victimization. This is the novelty aspect of this work. Therefore, we do not have specific hypotheses about the relationship between gender and the lexical words used to define the violent episodes. We thus intended to analyse this from an explorative perspective.

METHOD

The retrospective observational study was carried out in Città della Salute e della Scienza (City of Health and Science University Hub), a complex of four interconnected hospitals situated in the northern Italy. It has 1917 ordinary hospital beds and more than 400 day hospital and day surgery beds, and it is one of largest national and European health hubs, boasting approximately twelve thousand employees. This study analysed aggression data from the four-year period of 2015-2018 that included all worker categories. The data were obtained from the Aggression Reporting Form, adopted in 2014 in compliance with the abovementioned recommendation of the Ministry of Health. The form is available on the intranet portal and must be completed in all its parts by victims of assault within 72 hours of the event and sent to the Safety and Environment Office. Each administrative record of a violent episode contains the following information: the sociodemographic data of the victim (age, gender, years of experience, and profession), workplace in which the violent episode

occurred (psychiatry, emergency room or ward - 1 item), the type of activity performed by the HCW at the moment of aggression (i.e., conversation), the HCW's shift at the time of aggression, the type of aggressor (the perpetrator could be more than one person: patient, patient's relative, or visitor – 3 items, yes/no answer), the misconduct (violent behaviour could be of more than one type: insult, threat, bodily contact, drop of object, or use of weapon – 5 items, yes/no answer), the consequences (consequences could be of more than one type: interruption of work, medical treatment, psychological support, hospital care, home care, or no consequence – 5 items, yes/no answer), the possibility of preventing the attack (1 item, yes/no answer), and the description of the event. Similar to other investigations (see[10]), age was categorized as <30 years, 30-39 years, 40-49 years, and >=50 years, and the years of experience were classified as <=5 years, 6-15 years, 16-25 years, and >25 years (1 item each). The type of activity was categorized as support activity for patients (e.g., meal preparation and administration), the professional team's back-office activity (e.g., treatment prescriptions), and assistance and patient care (e.g., assistance at the front desk)[33] (1 item). The profession was categorized as midwife, nurse, medical doctor, administrative staff or technician (such as a radiologist) (1 item). The work shift in which the aggression occurred was categorized as morning (6:00-12:00), afternoon (12:00-18:00), evening (18:00-24:00) and night (0:00-6:00) (1 item).

Procedure

Data were analysed by the authors of this paper and by assistants trained by researchers. After the approval of the Local Ethics Committee (Prot. 19468 January 17, 2019), the administrative records of violent episodes were consulted in January-February 2019. Records were transcribed in a database; sensitive data were omitted. This procedure was in accordance with the code of ethics of the Italian Association of Professional Psychologists and with Italian law concerning privacy. The files that constituted the corpus of administrative records

were saved in a folder. Overall, the sample contained 408 records. The inclusion criteria for the episodes in this analysis were the record describing the case of violence perpetrated by a patient, a relative or a visitor. Thus, 14 records were excluded because the perpetrator was a colleague, a subordinate or a supervisor. Moreover, eight records were excluded because the gender of the victim was omitted. Therefore, 396 records were included in the present work.

Data analysis

Descriptive statistics were calculated using IBM SPSS Statistics, version 24. Descriptive measures (mean ± SD) were calculated for all the continuous variables. Because of the categorical nature of the data, $\chi 2$ tests were used to examine gender differences, followed by effect-size calculations (Phi and Cramer's V) to estimate the practical significance of the differences. As a post hoc test, standardized Pearson residuals (SPRs) were calculated for each cell to determine which cell differences contributed to the $\chi 2$ test results. SPRs with absolute values greater than 1.96 indicated that the number of cases in that cell was significantly larger than would be expected (in terms of over- or underrepresentation) if the null hypothesis was true, with a significance level of .05[34].

As suggested by[35], content analysis was used to process the written description of the violent episodes. Content analysis is defined as "the systematic assignment of communication content to categories according to rules, and the analysis of relationships involving those categories using statistical methods"[36, p. 3]. These data were analysed using *Alceste 6.0*[37]. This software permits the analysis of written data according to a descending hierarchical classification (DHC) in which the text is divided into elementary context units (E.C.U.) and categorized into homogeneous classes. The software allows for the isolation and separation of internally homogeneous groups (or classes) within specific populations. Classes are formed on the basis of the co-occurrence of forms and units of context[35]. The software uses symbols to indicate the type of root. If the word is followed by

the symbol <, this indicates that only the root of the word is recognized (e.g., aggressi< denotes the words aggressive, aggression, and aggressively). The symbol + indicates the identification of the termination and of different forms with the same root (e.g., nurse+ indicates the words nurse and nurses). The first class that is formed will be the most homogeneous in terms of content, i.e., the one whose lexical universe appears to differ from those of others. The software performs the χ^2 test on the association between words and classes to identify the specific vocabulary for each class. This step allows the researcher to identify the lexical worlds in the text, i.e., the "usual places" (*topoi*) of discourse[38]. The software allows for repeated segments to be highlighted, i.e., associations of the most frequent words in a class and related classes with the selected variables. These are called illustrative variables and carry further information about the textual corpus, allowing the researcher to identify the specific characteristics that define individuals who share the same semantic universe.

In this study, the findings from the descriptive analysis were used as illustrative variables for the text analysis. An example of an illustrative variable is *midwife, which indicates the profession of the HCW that draws up the administrative record to report the violence experienced in the workplace. The resulting data were examined by three independent and autonomous subjects, as suggested by[39]. This phase was followed by a discussion of the meaning attributed to the data to reach an agreement on the results. Consistency was guaranteed by reproducibility (or intercoder reliability -[40]; Cohen's k = .85).

Patient and public involvement

No patient involved.

RESULTS

Descriptive analysis

Overall, the records were compiled by 396 HCWs (3.6% of all HCWs working in the hospital). A total of 302 HCWs (76.3%) were female, representing approximately 4% of the entire female HCW population; 94 (23.7%) were male, representing 3.1% of the entire male HCW population. Most of the HCWs aged 40-49 years (146, 36.9%; 4.7% of the entire HCW population aged 40-49 years). Regarding years of experience, most HCWs were in the range of 6-15 years (181, 46.3%; 6.1% of the entire HCW population with 6-15 years of experience). Two hundred ninety-eight HCWs (76.2%) were nurses (26.6% of the entire nurse population), 53 (13.6%) were midwives (25.4% of the entire midwife population), 22 (5.6%) were medical doctors (1.2% of the entire medical doctor population), 15 (3.8%) were administrative staff (1.7% of the entire administrative staff population) and 3 (0.8%) were technicians (0.5% of the entire technician population). Table 1 presents the sociodemographic characteristics of the female and male HCWs that experienced violence.

Regarding the age of victims, the findings showed a statistically significant difference between genders (Cramer's V = 0.16). In particular, there were no male victims aged <30 years (|SPR| = -2.0). Male HCWs with 6-15 years of experience referred more frequently to episodes of violence (|SPR| = 1.7, Cramer's V = 0.16) than female HCWs. Moreover, male medical doctors referred more frequently to episodes of violence than female doctors, and these episodes of violence occurred more frequently for male medical doctors (|SPR| = 2.5, Cramer's V = 0.18). For female HCWs, more than male HCWs, the perpetrator was a patient's relative, while for male HCWs, more than female HCWs, the perpetrator was a visitor. Regarding consequences, home care was indicated by male HCWs, while female HCWs did not mention it.

Table 1. Sociodemographic characteristics of the female and male HCWs that experienced violence. The percentages (N = 396) are in brackets.

	Female $n = 302$	Male $n = 94$	χ^2	p
Age:			9.45	.024
- <30 years	17(5.7)	-		
- 30-39 years	83(27.9)	18(19.4)		
- 40-49 years	105(35.4)	41(44.1)		
- >=50 years	92(31)	34(36.6)		
Years of experience:			10.24	.017
- <=5	44(14.8)	6(6.5)		
- 6-15	128(43)	53(57)		
- 16-25	80(26.8)	27(29)		
- >25	46(15.4)	7(7.5)		
Profession:			13.11	.011
- Midwife	39(13.1)	14(15.1)		
- Nurse	236(79.2)	62(66.7)		
- Medical doctor	11(3.7)	11(11.8)		
- Administrative staff	9(3)	6(6.5)		
- Technician	3(1)	-		
Workplace:			4.38	n.s.
- Psychiatry	35(38.5)	84(28.3)		
- Emergency room	104(35)	23(25.3)		
- Ward	109(36.7)	33(36.3)		
Type of activity:			3.61	n.s.
- Support activity for patient	125(45.8)	40(48.8)		
- Professional team's back-office activity	77(28.2)	15(18.3)		
- Assistance and patient care	71(26)	27(32.9)		
Work shift:			0.55	n.s.
- Morning	85(28.5)	30(32.3)		
- Afternoon	124(41.6)	36(38.7)		
- Evening	64(21.5)	20(21.5)		
- Night	25(8.4)	7(7.5)		
Perpetrator:				
- Patient	173(57.3)	56(59.6)	0.15	n.s.
- Patient's relative	157(52)	35(37.2)	6.25	.012
- Visitor	4(1.3)	5(5.3)	5.15	.023
Misconduct:				
- Insult	252(83.4)	67(71.3)	6.78	.009
- Threat	141(46.7)	42(44.7)	0.12	n.s.
- Bodily contact	77(25.5)	37(39.4)	6.72	.010
- Throwing objects	42(13.9)	20(21.3)	2.95	n.s.
- Use of weapon	14(4.6)	5(5.3)	0.07	n.s.
Consequences:				
- Interruption of work	61(64.9)	210(69.8)	0.79	n.s.
- Medical treatment	29(9.6)	14(15.1)	2.15	n.s.
- Psychological support	16(5.3)	6(6.4)	0.16	n.s.
- Hospital care	2(0.7)	1(1.1)	0.15	n.s.
- Home care	-	2(2.2)	6.53	.011
- No consequences	64(21.3)	26(28)	1.76	n.s.
The attack could be prevented	104(40)	25(29.4)	3.07	n.s.

Note. n.s. = not statistically significant.

Text analysis

Based on findings from the descriptive analysis, age, years of experience and profession were used as illustrative variables. The analysis of the administrative record drawn up by female HCWs showed that the corpus was composed of 14,951 occurrences, 2,739 distinct forms (mean frequency = 13 per form) and 1,345 *hapax*, i.e., words used only once. The overall number of E.C.U. was 516. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 329), *aggressi*< (n = 125), *medic*< (n = 62), *wait*< (n = 61), and *staff* (n = 39). The dendrogram of stable classes (Figure 1) shows the classification procedure used to create the two classes that emerged (amount of variance explained = 96.9%). For each class, the first characterizing five words are presented in order of the Chi-squared results (Table 2), together with the associated illustrative variables.

INSERT FIGURE 1 ABOUT HERE

Table 2. Findings from text corpus of administrative records compiled by female HCW victims of workplace violence.

Class I		Class II	
Words	*χ2*	*Words*	*χ2*
Visit<	20	Kick+	88
Wait<	17	Agitat<	76
Therap+	13	Cris+	69
Work<	12	Personal+	63
Triage	11	Object+	56
Illustrative variables: emergency room, ward.		Illustrative variables: psychiatry, midwife.	

Class I explained 75% of the variance and was labelled *Waiting time.* The most representative words in terms of χ^2 describe the violent episodes as a consequence of patients and relatives waiting for a visit or therapy or of an assignment of the degrees of urgency to wounds or illnesses to decide the order of treatment of a patient. This waiting time was considered by the perpetrator as unacceptable. The following sentence is an example of how a female HCW described the violent episode.

> *"The patient's relatives were complaining about the waiting time. They could tell that the staff are unable to work. The patient's son and daughter repeatedly came into the emergency room instead of waiting in the hall. The patient's son said to not annoy him because otherwise there would be trouble"* (nurse, aged 30-39 years, 6-15 years of work)

Class II explained 25% of the variance and was labelled *Physical attack.* The lexical world refers to the behaviours demonstrated by psychiatric patients during routine activities, such as the distribution of meals. Perpetrators were described as patients who suffered from a psychotic crisis and who physically assaulted an HCW. In the sentence below, there is an example of a respondent's textual production.

> *"At the end of the dinner, the patient had a crisis; he became aggressive with staff that was around him and kicked me in the face, cutting my upper lip"* (midwife, aged 30-39 years, 6-15 years of experience)

The analysis of the administrative record drawn up by male HCWs showed that the corpus was composed of 3,804 occurrences, 1,271 distinct forms (mean frequency = 9 per form) and 795 *hapax*, i.e., words used only once. The overall number of E.C.U. was 144. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 103), *aggressi*< (n = 34), *threat*+ (n = 29), *person*< (n = 26), and *medic*< (n = 20). The dendrogram of stable classes (Figure 2) shows the classification procedure used to create the five classes that emerged (amount of variance explained = 93.6%). For each class, the first characterizing five

words are presented in order of the Chi-squared results (Table 3), together with the associated illustrative variables.

INSERT FIGURE 2 ABOUT HERE

The dendrogram shows that Classes I, II and III are more similar than Classes IV and V. At the same time, Classes IV and V are more similar than the other classes. Classes I, II and III explain – together – 65% of the variance; Classes IV and V explain 35% of the variance.

Classes I, II and III were labelled *Verbal violence*. The words characterizing these classes were related to violent behaviours – such as insulting and threatening – which HCWs experienced principally in the emergency room and ward, both through direct contact (face to face) and by phone. In these episodes, one or more colleagues were involved. Below are some examples from the descriptions of violent events made by male HCWs:

> *"Before the conclusion of the visit, the father started to attack me verbally. He told me 'I pay the taxes, I ask you to do everything, I do not go out until the child has a diagnosis'. After reiterating that it is not possible to perform this exam in an emergency room, the father threatened me and the nurse verbally, repeatedly"* (medical doctor, aged 40-49 years, 6-15 years of experience)
>
> *"I phoned the patient's son to inform him of the imminent discharge of his father. I was insulted with elevated tone repeatedly. It was impossible to manage communication; I did not reply in any way to the insults"* (nurse, 6-15 years of experience)
>
> *"The patient's husband accused me and my colleague of not respecting the numbering in the call for assistance. The colleague explained to him that there is a work plan, but he verbally attacked us"* (nurse, aged >=50 years, 16-25 years of experience)

Classes IV and V were labelled *Corporeal assault*. The words characterizing these classes were related to physical violent behaviours – such as hitting and throwing objects –

which HCWs experienced principally in psychiatry. Below are some examples of sentences from administrative records:

> *"While me and my colleague were preparing a medicament, we were interrupted by the noise of shots coming from the kitchen door. Then, we were reached for and assaulted by the patient"* (nurse, aged >50 years, 6-15 years of experience)
>
> *"An agitated patient – for no apparent reason – pushed a cart against the entrance door to break through. He was shunted out, and then he came back and threated to break our arms"* (administrative staff, aged 40-49 years, 16-25 years of experience)

Table 3. Findings from text corpus of administrative records compiled by male HCW victims of workplace violence.

Class I		Class II		Class III		Class IV		Class V	
Words	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*
Wait<	47	Insult<	48	Colleague+	12	Launch<	57	Follow<	24
Ask<	30	Staff	11	Ward	11	Object+	45	Therap+	20
Visit	25	Motiv<	10	Verbal<	11	Kick+	22	Nois+	19
Time	24	Recei<	9	Patient+	11	Hit<	16	Attempt<	15
Behaviour+	24	Phon+	9	Relative+	9	Person<	16	Violen<	15
Illustrative variables: emergency room, nurse		Illustrative variables: emergency room, professional team's back-office activity		Illustrative variables: ward, medical doctor, midwife		Illustrative variables: psychiatry, administrative staff		Illustrative variables: psychiatry, nurse	

DISCUSSION

The aim of this work was to explore and analyse, from a descriptive and qualitative point of view, the episode of violence experienced by HCWs and perpetrated by patients, patients' relatives and visitors. Data were collected from the administrative records used to report

violent episodes in an Italian hospital. The findings from the descriptive analysis showed some differences based on HCWs' gender. Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of experience reported more violent episodes than their female counterparts. Among the professions, nurse was the profession in which HCWs were more prone to experience a violent episode, confirming the results of[11]. Nevertheless, the findings showed that male medical doctors were more prone to report violent episodes than female medical doctors. Confirming the findings of[10], in this study, female HCWs experienced more verbal violence (insulting) than male HCWs, while male HCWs experienced more physical violence (bodily contact) than female HCWs. Thus, our hypothesis was confirmed. An interesting finding concerns the perpetrator: female HCWs experienced a violent episode acted out by a patient's relative more than male HCWs, and male HCWs experienced a violent episode acted out by a visitor more than female HCWs. Regarding the workplace, type of activity, and work shift, no statistically significant difference between gender emerged. This finding did not confirm the results of[10], as in this study, it was not found that male HCWs experienced workplace violence in wards more than female HCWs.

Text analyses showed that female and male HCWs reported violent episodes in different ways. The findings from the text analysis of female HCWs identified a contextual factor for the violent episodes that occurred principally in those who were working in emergency rooms and wards. This contextual factor is the waiting time, a condition in which a patient and a patient's relative – as suggested by[14] – could experience anxiety, confusion, and fear. Moreover, female HCWs (in particular, midwives) describe the violent episodes that occurred in psychiatry as a consequence of a mental health disease and noted that the assault was unpredictable. Thus, it seems that female HCWs perceive dealing with violence as part of their role[41]. Male HCWs use different words to describe the violent episodes. They, more

often than female HCWs, described the episodes including the witness of the episode, namely, colleagues. In the same way as female HCWs, male HCWs described episodes that occurred in the emergency room and ward (verbal violence) and in psychiatry (corporeal assault). Those episodes were related more to the type of profession than to the gender of the HCWs. Regarding the other illustrative variables (age and years of experience), they did not have an effect on the differences in experiencing violent episodes between male and female HCWs.

This study has strengths and limitations. Regarding strengths, in this study, administrative records in which HCWs experienced violent episodes were used. Usually, self-administered questionnaires are utilized to collect data about workplace violence. Self-assessment could have been affected by recall bias[42]; thus, this method does not solve the problem of overreporting or underreporting: the long study period could influence the memory. The analysis of reports within 72 hours of the aggression permits the retrieval of important information about the episode. Moreover, in this study, a qualitative analysis was used to identify differences between genders in reporting these episodes. According to[43], the majority of studies in work and health psychology and investigations on workplace violence utilized a quantitative approach: this choice stems from the fact that this method allows large numbers of subjects to complete standardized questionnaires. Otherwise, a qualitative approach permits the gathering of the complexity and nuances of individual experiences and reveals the range of ways in which common features operate in the experiences of workplace violence[44]. Indeed, this method was useful to better understand the lexicon that characterized the victimization experienced by female and male HCWs.

This study also has weaknesses. First, because HCWs decided to report or not the violent episodes, the results cannot be generalized and should be taken with caution. Thus, it was not possible to overcome the bias in reporting violence, and HCWs may be more likely to report serious events and exclude less serious ones[45]. Future research should explore, in a

more comprehensive way, this phenomenon within the health organization. For example, interviews and focus group discussion techniques could be used to better understand the obtained results and how to promote the reporting of all violent behaviour, not only the most serious events. A better comprehension of the phenomenon could be useful to prevent it, as recommended by the Italian Ministry of Health. Another limitation is in the procedure adopted: administrative records had different styles of reports, which we tried to make homogeneous through a classification procedure. Otherwise, this process included a subjective component, which must be contemplated in every narrative analysis[46]. The use of a mixed-method technique could permit the description of the phenomenon by a quantitative and qualitative approach. Future research could use this technique to expand the scope and improve the analytic power of studies on workplace violence in the healthcare sector[47].

CONCLUSIONS

Overall, the findings from this explorative study suggest that there is a gender difference not only in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors but also in the way in which these episodes are described. Consequently, it is important in informative and preventive courses to consider gender differences in experiencing a violent episode. For female HCWs, it could be useful to provide clear messages that the acceptance of such violence is not "part of the job"[48], explaining that anger should not be taken as a common emotion in the healthcare environment and that exposure to verbal violence should not be accepted as a hazard of the profession[49]. For male HCWs, it could be useful to reflect on feelings related to the stigma of victimization and to stress that a witness is not necessary to corroborate their version of the event. This finding could be analysed more in depth through an investigation that involves witnesses of the violent episodes describing the episodes from their points of view. Moreover, these findings

could be utilized by health organization management to better organize the security arrangements in some departments, to manage the overload of the emergency room and to increase the use of safety devices.

In conclusion, the findings could be used by health organization management to improve individual measures, such as intervention programmes, counselling, and psychological help, to reflect on victimization experiences and the way in which female and male HCWs react to and cope with workplace violence.

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REFERENCES

1 WHO. Violence: a public health priority. Geneva: World Health Organization 1995.

2 Cooper CL, Swanson N. Workplace violence in the health sector. State of the art. Geneva: Organización Internacional de Trabajo, Organización Mundial de la Salud, Consejo Internacional de Enfermeras Internacional de Servicios Públicos 2002.

3 Phillips JP. Workplace violence against health care workers in the United States. *New England journal of medicine* 2016;374(17):1661-1669. doi:10.1056/NEJMra1501998

4 Sun P, Zhang X, Sun Y, Ma H, Jiao M, Xing K, Kang Z, et al. Workplace violence against health care workers in North Chinese hospitals: a cross-sectional survey. *Int. J. Environ. Res. Public Health* 2017;14(1):96. doi:10.3390/ijerph14010096

5 Elliott PP. Violence in healthcare. *Nurs Manage* 1997:38-41.

6 Grottoli E, Ciriello S, Gabriele M, Giudice A, Lilli M, Mammi F, Quaranta D, Roccia K, Spadone F, Magnavita N. Assaults and nuisances in health care environment. *Giornale italiano di medicina del lavoro ed ergonomia* 2007;29(3):653-5.

7 Iozzino L, Ferrari C, Large M, Nielssen O, De Girolamo G. Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PloS one* 2015;10(6):e0128536. doi:10.1371/journal.pone.0128536

8 Arnetz JE, Hamblin L, Essenmacher L, Upfal MJ, Ager J, Luborsky M. Understanding patient-to-worker violence in hospitals: a qualitative analysis of documented incident reports. *J Adv Nurs* 2015;71(2):338-48. doi:10.1111/jan.12494

9 Kim SC, Ideker K, Todicheeney-Mannes D. Usefulness of aggressive behaviour risk assessment tool for prospectively identifying violent patients in medical and surgical units. *J Adv Nurs* 2012;68(2):349-57. doi: 10.1111/j.1365-2648.2011.05744.x

10 Magnavita N, Heponiemi T. Violence towards health care workers in a Public Health Care Facility in Italy: a repeated cross-sectional study. *BMC Health Serv Res* 2012;12(1):108. doi:10.1186/1472-6963-*12-108*

11 Hahn S, Hantikainen V, Needham I, Kok G, Dassen T, Halfens RJG. Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs* 2012;68(12):2685-2699.

12 Ahmad M, Al-Rimawi R, Masadeh A, Atoum M. Workplace violence by patients and their families against nurses: Literature review. *Int J Nurs Health Sci* 2015;2(4):46-55.

13 Lawoko, S, Soares, JJ, Nolan P. Violence towards psychiatric staff: A comparison of gender, job and environmental characteristics in England and Sweden. *Work Stress* 2004;18(1):39-55. doi: 10.1080/02678370410001710337

14 Schablon A, Wendeler D, Kozak A, Nienhaus A, Steinke S. Prevalence and Consequences of Aggression and Violence towards Nursing and Care Staff in Germany—A Survey. *Int J Environ Res Public Health* 2018;15(6):1274. doi:10.3390/ijerph15061274

15 Italian Ministry of Health. Personale delle A.S.L. e degli istituti di cura pubblici.www.salute.gov.it/imgs/C_17_pubblicazioni_2161_allegato.pdf

16 Morganson, VJ, Brown SE. Gender and Sexualized Aggression in the Workplace. In: Nadler JY, Lowery MR, eds. The War on Women in the United States: Beliefs, Tactics, and the Best Defenses. Praeger Publishing 2018:2051.

17 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;76(1):3-9. doi:10.1136/oemed-2018-105152

18 Itzhaki M, Peles-Bortz A, Kostistky H, Barnoy D, Filshtinsky V, Bluvstein I. Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff

resilience, and post-traumatic growth. *Int J Ment Health Nurs* 2015;24(5):403-412. doi.org/10.3389/fpsyt.2018.00059

19 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN journal* 2005;53(9):399-406. doi:10.1177/216507990505300906

20 Gillespie GL, Leming-Lee TS, Crutcher T, Mattei J. Chart It to Stop It. *J Nur Care Qual* 2016;31(3):254-61. doi:10.1097/NCQ.0000000000000172

21 Clements PT, DeRanieri JT, Clark K, Manno MS, Kuhn DW. Workplace violence and corporate policy for health care settings. *Nur Econ* 2005;*23*(3):119-124.

22 Kennedy MP. Violence in emergency departments: under-reported, unconstrained, and unconscionable. *Med J Aust* 2005;183(7):362-365. doi:10.5694/j.1326-5377.2005.tb07084.x

23 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;*76*(1):3-9. doi:10.1136/oemed-2018-105152

24 Inail. Violenza, aggressione e non solo. Dati Inail 2018. Available at https://www.inail.it/cs/internet/docs/alg-dati-inail-2018-novembre.pdf

25 Ministero della Salute. Raccomandazione per prevenire gli atti di violenza a danno degli operatori sanitari. Raccomandazione n. 8, novembre 2007. http://www.salute.gov.it/portale/documentazione/p6_2_2_1.jsp?id=721

26 Hopkins L, Taylor L, Bowen E, Wood C. A qualitative study investigating adolescents' understanding of aggression, bullying and violence. *Child Youth Serv Rev* 2013;35(4):685-93. doi:10.1016/j.childyouth.2013.01.012

27 Patton MQ. Qualitative research and evaluation methods. Thousand Oaks, CA: Sage 2002:339-427.

28 Ritchie J, Lewis J, Nicholls CM, Ormston R, eds. Qualitative research practice: A guide for social science students and researchers. Thousand Oaks, CA: Sage 2013.

29 Fetters MD, Curry LA, Creswell JW. Achieving integration in mixed methods designs—principles and practices. *Health Serv Res* 2013;48:2134-56. doi:10.1111/1475-6773.12117

30 Arnetz JE., Hamblin L, Essenmacher L, Upfal MJ, Ager J, Luborsky M. Understanding patient-to-worker violence in hospitals: a qualitative analysis of documented incident reports. *J Adv Nurs* 2015;71(2):338-348. doi:10.1111/jan.12494

31 Ramacciati N, Ceccagnoli A, Addey B, Rasero L. Violence towards emergency nurses. The Italian national survey 2016: A qualitative study. *Int J Nurs Stud* 2018;81:21-29. doi:10.1016/j.ijnurstu.20

32 Shahzad A, Malik RK. Workplace Violence: An Extensive Issue for Nurses in Pakistan—A Qualitative Investigation. *J Interpers Violence* 2014;29,11:2021-2034. doi:10.1177/088626051351600518.01.017

33 Tucker AL, Spear SJ. Operational failures and interruptions in hospital nursing. *Health Serv Res* 2006; *41*(3p1):643-662. doi:10.1111/j.1475-6773.2006.00502.x

34 Agresti A. Categorical Data Analysis (3" ed.). Hoboken, New Jersey: John Wiley & Sons Inc. 2002:267-313.

35 Matteucci MC, Tomasetto C. Alceste: un software per l'analisi dei dati testuali. In: Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:305-27.

36 Riff D, Lacy S, Fico F. Analyzing media messages: Using quantitative content analysis in research. New York: Routledge. 2014. doi:10.4324/9780203551691

37 Reinert M. Un logiciel d'analyse lexicale. *Cahiers de l'analyse des données* 1986;11(4):471-81.

38 Reinert, M. Mondes lexicaux et topoi dans l'approche de Alceste. [Lexical worlds and topoi in Alceste approach] In: S. Mellet & M. Vuillome, eds. Mots chiffrés et déchiffrés [Coded and decoded words]. Paris, France: Honoré Champion Editeur 1998:289-303.

39 Annese S, Mininni G. La focus group discussion tra analisi del contenuto e analisi del discorso. In Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:125-48.

40 Burla L, Knierim B, Barth J, Liewald K, Duetz M, Abel T. From text to codings: intercoder reliability assessment in qualitative content analysis. *Nurs Res* 2008;57(2):113-7. doi:

41 Brockmann, M. New perspectives on violence in social care. *Journal of Social Work* 2002;2(1):29-44. doi:10.1177/146801730200200103

42 Graydon J, Kasta W, Khan P. Verbal and physical abuse of nurses. *Can J Nurs Adm* 1994;7(4):70-89.

43 Griffiths A, Schabracq MJ. Work and health psychology as a scientific discipline: Facing the limits of the natural science paradigm. In: Schabracq MJ, Winnubst JAM, Cooper CL, eds. The handbook of work and health psychology. New York: Wiley 2003:173-189.

44 Coyle A. Introduction to qualitative psychological research. In: Lyons E, Coyle A, eds. Analysing qualitative data in psychology. Thousand Oaks, CA: Sage Publications 2007:9-29. doi:10.4135/9781446207536.d7

45 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN Journal* 2005;*53*(9):399-406.

46 Amaratunga D, Baldry D, Sarshar M, Newton R. Quantitative and qualitative research in the built environment: application of "mixed" research approach. *Work study* 2002;*51*(1):17-31. doi:10.1108/00438020210415488

47 Sandelowski M. Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Res Nurs & Health* 2000;*23*(3):246-255. doi:10.1002/1098240X(200006)23:3<246::AID-NUR9>3.0.CO;2-H

48 Potera C. Violence against nurses in the workplace. *Am J Nurs* 2016;*116*(6):20-21. doi:10.1097/01.NAJ.0000484226.30177.ab

49 Rippon TJ. Aggression and violence in health care professions. *J Adv Nurs* 2000;*31*(2):452-460.

Figure 1. *Text corpus of administrative records compiled by female HCWs victims of workplace violence. Dendrogram of stable classes.*

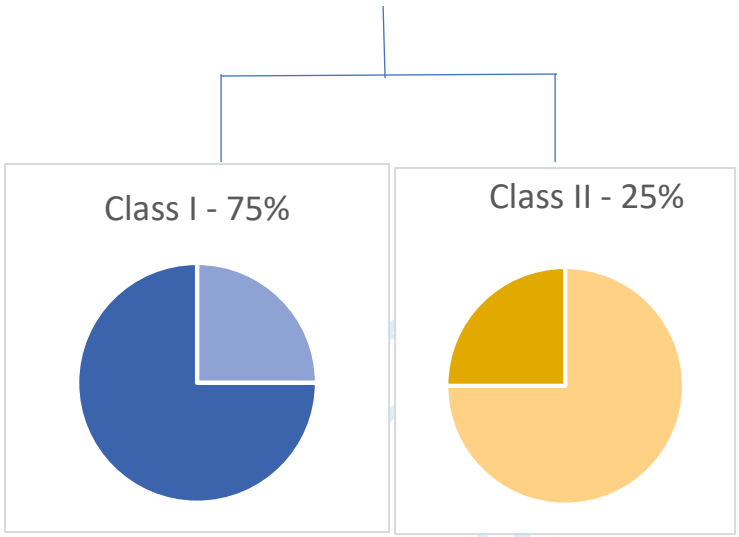
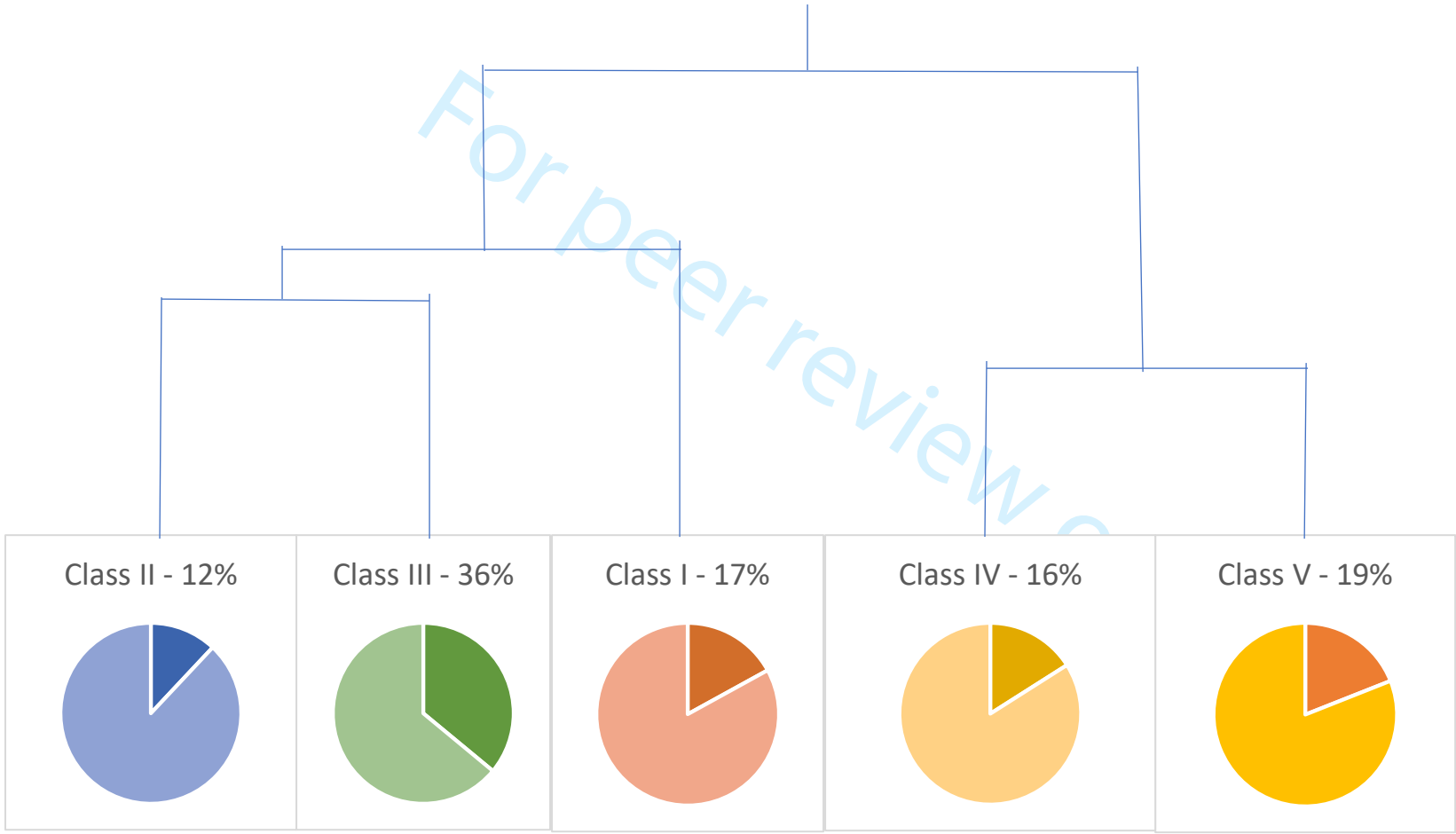


Figure 2. *Text corpus of administrative records compiled by male HCWs victims of workplace violence. Dendrogram of stable classes.*



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Gender differences in reporting workplace violence: A qualitative analysis of administrative records of violent episodes experienced by healthcare workers in a large public Italian hospital

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Gender differences in reporting workplace violence: A qualitative analysis of administrative records of violent episodes experienced by healthcare workers in a large public Italian hospital

ABSTRACT

Objectives: This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence reported by healthcare workers (HCWs) in a large public Italian hospital. Qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which they dealt with it. A comparison between genders was performed to better understand what type of different strategies could be used to improve the prevention of workplace violence for HCWs.

Design and Setting: The retrospective observational study was carried out in "Città della Salute e della Scienza", a complex of four interconnected hospitals situated in northern Italy. This study analysed aggression data from the four-year period of 2015-2018 that included all HCW categories. The data were obtained from the Aggression Reporting Form.

Participants: The analysed records were supplied by 396 HCWs (3.6% of all HCWs in the hospital).

Results: Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of work experience reported more violent episodes than their female counterparts. Among the HCW professions, nursing was the profession in which HCWs were more prone to experience a violent episode, while male medical doctors were more prone to report violent episodes than female medical doctors. Moreover, female HCWs experienced more verbal violence (insults) than male HCWs did, while male HCWs experienced more physical violence (bodily contact) than female HCWs did.

Conclusions: The findings from this explorative study suggest that there is a gender difference in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors and in the way in which these episodes are described. Consequently, it is important for informative and preventive courses to consider gender differences in experiencing a violent episode.

Strengths and limitations of this study

(Strength) A qualitative analysis was used to collect the victims' descriptions of workplace violence.

(Strength) The method permits the capture of respondents' points of view.

(Strength) The comparison between genders could be useful to improve the prevention of workplace violence in this population.

(Limitation) It was not possible to overcome the bias in reporting violence.

(Limitation) Unreported incidents could not be included in the study.

Keywords: healthcare workers; workplace violence; qualitative analysis; gender difference; reported incidents.

INTRODUCTION

Workplace violence has been defined by the World Health Organization as "the intentional use of power, threatened or actual, against another person or against a group, in work-related circumstances, that either results in or has a high degree of likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation"[1].

As noted by several investigations [2-4], the healthcare sector is at particular risk of workplace violence. Elliot [5] estimated that the risk of violence from patients and their relatives towards healthcare workers (HCWs) is 16 times higher than that towards other workers. This risk is highest for healthcare workers working in psychiatric wards and

emergency rooms [6-7] since they report more violent events than other HCWs, such as those working in wards [8-10]. As suggested by Renwick and colleagues [11], it is possible that subjects who work in other wards have biased their answers, presenting themselves as at less risk than they are in reality because of such complex reasons as denial and social stigma of reporting workplace violence. At the same time, working in wards with patients who are more dangerous because they suffer from mental illness (psychiatric ward) or are under the influence of drugs or alcohol (emergency room), may make workers who are victims of violence feel more comfortable about reporting violent episodes.

Moreover, the risk of aggression is highest for HCWs working as nurses since they report more violent episodes than do physicians and administrative staff [12]. A possible explanation for this finding is linked with the nature of their job, as nurses have direct contact with patients (who could be confused, frightened, or delirious) and their families/friends [13-15]. In this case, a possible explanation could be found in the sample bias, since in the literature about nurses being assaulted, respondents who had been assaulted would be expected to have a higher rate of response than those who had not been assaulted [16].

Another possible explanation is linked to gender: in some countries, such as Italy, in more than 70% of cases, nurses are female [17], and some studies have shown that female workers are more often affected by violence than their male colleagues [18-19]. Gender is also related to the type of violence experienced by HCWs; the investigation by Magnavita and Heponiemi [10] showed that, in hospitals, female nurses experienced verbal violence (such as yelling and screaming) more often than male nurses, who were more often victims of physical assault (such as hitting and kicking). Moreover, the importance of investigating the gender difference in workplace violence experienced by HCWs was noted by Lawoko and colleagues [14]: “intervention/prevention measures need to review the gender and profession issue. It is likely that men and women, psychiatrists and nurses may require different interventions

related to their specific problems" (page 51). These types of violent episodes affect the perceived wellbeing of HCWs and could lead to several consequences, such as the interruption of work, medical treatment, and hospital and/or home care; psychological support might be needed for the HCWs to cope with the event [20]. Workplace violence might also lead staff to leave the profession [21].

Furthermore, workplace violence in this sector could be related to turnover intention through occupational stress first and then burnout [22]: regarding this, Kim and colleagues [23] suggested that the prevention of workplace violence is one way of reducing burnout in the healthcare sector.

An interesting question concerns the reports made by HCWs regarding violent episodes in the workplace. Findings from investigations have shown that violence, especially verbal violence [2], in the healthcare sector is under-reported [24-25]. The under-reporting of violence is not a phenomenon that involves only workplace violence. All forms of violence (sexual harassment, domestic violence, school bullying, and so on) are under-reported for different reasons, including both the stigma of victimization, such as shame, isolation, and fear, and the threat of further violence, which often deter victims from reporting violent episodes [26].

Moreover, for HCWs, there is a risk of desensitization to violence, as violence – due to contact with frail and ill people – is perceived as part of an HCW's job [27]. Nevertheless, the reporting of any act of violence is fundamental in engaging hospital management to activate appropriate organizational responses. Indeed, the administrative records of violent episodes experienced by HCWs constitute an important source of information [28] about the type of violence (physical or verbal), the type of perpetrator (patient, relative, or visitor), the type of HCW (administrator, midwife, nurse, or physician), the place in which the HCW experienced the violence (psychiatric ward, emergency room, or ward) and the type of activity that she/he

was doing (support activity for patients, professional team back-office activity, or assistance and patient care). These records permit the prevention of workplace violence, providing information about, for example, the type of training course that a particular HCW sub-population needs and/or the safety devices that should be installed in a particular ward.

In Europe, the Fifth European Working Conditions Survey [29] shows that, on average, 14.9% of workers reported levels of subjection to adverse social behaviour, and the highest level was in the healthcare sector (23%). The overall percentage of reported levels of subjection to adverse social behaviour in Italian workers was 8%; in the healthcare sector, this percentage was 41.4% of the workers [30]. There were 1200 total violent behaviours reported by HWCs in 2018. In most cases, (70%), the victim was female, and the perpetrator was a patient, a patient's relative or a visitor [31]. To deal with this phenomenon, in 2007, the Italian Ministry of Health published Recommendation no. 8, "Preventing acts of violence against health workers". This recommendation had several goals. First, it oversees the reporting of incidents of violence using official sources, such as the judicial authority, the police forces and the National Workplace Accident Institute. Second, it promotes the collection of data through specific surveys to identify the frequency and severity of violent episodes. The results could be useful for adopting appropriate action from an organizational and structural point of view, for example, redesigning the space and/or reformulating procedures for access to the ward. Moreover, data could be used to improve the training courses that aim to prevent violence, to improve the coping strategies and to reduce the negative consequences [32].

This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence experienced by HCWs working in a large public Italian hospital. The qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which they dealt with it [33]. The advantage offered by this method is that it allows

us to capture respondents' points of view without predetermining their answers [34-35]. This approach is widely used in social science research [36] and has been used to investigate HCWs' perceptions of physical and verbal aggression [8, 37-38]. It has also been used, for example, to investigate the descriptions of violent behaviour provided by workers [39] and perceptions of the organizational safety climate [40].

A comparison between genders was used to better understand what type of differences, if any, could be used to improve the prevention of workplace violence for HCWs. Based on the literature review presented above, the hypothesis is that there are gender differences in the violent episodes experienced by female and male HCWs: female HCWs experience more verbal violence than their male colleagues, and male HCWs experience more physical violence than their female colleagues. Moreover, from the analysis of the episodes, as described by female and male HCWs, we expected that the observed semantic differences characterized the experience of victimization. This is the novel contribution of this work. We do not have specific hypotheses about the relationship between gender and the lexical words used to define the violent episodes; therefore, we intend to analyse this relationship from an explorative perspective.

METHOD

The retrospective observational study was carried out in Città della Salute e della Scienza (City of Health and Science University Hub), a complex of four interconnected hospitals situated in northern Italy. It has 1917 ordinary hospital beds and more than 400 day hospital and day surgery beds, and it is one of the largest national and European health hubs, boasting approximately twelve thousand employees. This study analysed aggression data from the four-year period of 2015-2018 that included all worker categories. The data were obtained from the Aggression Reporting Form adopted in 2014 in compliance with the abovementioned recommendation of the Ministry of Health. The form is available on the

intranet portal, and all parts of the form must be completed by victims of assault within 72 hours of the event and sent to the Safety and Environment Office. Each administrative record of a violent episode contains the following information: the sociodemographic data of the victim (age, gender, years of experience, and profession), workplace in which the violent episode occurred (psychiatric ward, emergency room or ward - 1 item), the type of activity performed by the HCW at the moment of aggression (i.e., conversation), the HCW's shift at the time of aggression, the type of aggressor (the perpetrator could be more than one person: patient, patient's relative, or visitor – 3 items, yes/no answers), the misconduct (violent behaviour could be of more than one type: insult, verbal threat, bodily contact, throwing objects, or use of a weapon – 5 items, yes/no answers), the consequences (consequences could be of more than one type: interruption of work, medical treatment, psychological support, hospital care, home care, or no consequence – 5 items, yes/no answers), the possibility of preventing the attack (1 item, yes/no answer), and the description of the event. Similar to other investigations (see Magnavita and Heponiemi [10]), age was categorized as <30 years, 30-39 years, 40-49 years, and ≥50 years, and the years of experience were classified as ≤5 years, 6-15 years, 16-25 years, and >25 years (1 item each). The type of activity was categorized as support activity for patients (e.g., meal preparation and administration), professional team back-office activity (e.g., treatment prescriptions), and assistance and patient care (e.g., assistance at the front desk) [41] (1 item). The profession was categorized as midwife, nurse, medical doctor, administrative staff or technician (such as a radiologist) (1 item). The work shift in which the aggression occurred was categorized as morning (6:00-12:00), afternoon (12:00-18:00), evening (18:00-24:00) or night (0:00-6:00) (1 item).

Procedure

Data were analysed by the authors of this paper and by assistants trained by researchers. After the approval of the Local Ethics Committee (Comitato di Bioetica dell'Ateneo, University of

Torino, Prot. 19468 January 17, 2019) was received, the administrative records of violent episodes were consulted in January-February 2019. Records were transcribed in a database; sensitive data (name, surname and worker's registration number) were omitted. This procedure was in accordance with the code of ethics of the Italian Association of Professional Psychologists and with Italian law concerning privacy. The files that constituted the corpus of administrative records were saved in a folder. Overall, the sample contained 418 records. The inclusion criteria for the episodes in this analysis were the record describing the case of violence perpetrated by a patient, a relative or a visitor. Thus, 14 records were excluded because the perpetrator was a colleague, a subordinate or a supervisor. Moreover, eight records were excluded because the gender of the victim was omitted. Therefore, 396 records were included in the present work.

Data analysis

Descriptive statistics were calculated using IBM SPSS Statistics, version 24. Descriptive measures (mean ± SD) were calculated for all the continuous variables. Because of the categorical nature of the data, $\chi 2$ tests were used to examine gender differences, followed by effect-size calculations (Phi and Cramer's V) to estimate the practical significance of the differences. As a post hoc test, standardized Pearson residuals (from this point forward: SPRs) were calculated for each cell to determine which cell differences contributed to the $\chi 2$ test results. SPRs with absolute values greater than 1.96 indicated that the number of cases in that cell was significantly larger than would be expected (in terms of over- or underrepresentation) if the null hypothesis were true, with a significance level of .05 [42].

As suggested by Matteucci and Tomasetto [43], content analysis was used to process the written description of the violent episodes. Content analysis is defined as "the systematic assignment of communication content to categories according to rules and the analysis of relationships involving those categories using statistical methods" [44, p. 3]. These data were

analysed using *Alceste 6.0* [45]. This software permits the analysis of written data according to a descending hierarchical classification (DHC) in which the text is divided into elementary context units and categorized into homogeneous classes. The software allows for the isolation and separation of internally homogeneous groups (or classes) within specific populations. Classes are formed on the basis of the co-occurrence of forms and units of context [43]. The software uses symbols to indicate the type of root. If the word is followed by the symbol <, this indicates that only the root of the word is recognized (e.g., aggressi< denotes the words aggressive, aggression, and aggressively). The symbol + indicates the identification of the termination and of different forms with the same root (e.g., nurse+ indicates the words nurse and nurses). The first class that is formed will be the most homogeneous in terms of content, i.e., the one whose lexical universe (a specific vocabulary that is used and to which the speaker attributes relevant meaning) appears to differ from those of others. The software performs the χ^2 test on the association between words and classes to identify the specific vocabulary for each class. This step allows the researcher to identify the lexical worlds in the text, i.e., the "usual places" (conventional themes) of discourse [46]. The software allows for repeated segments to be highlighted, i.e., associations of the most frequent words in a class and related classes with the selected variables. These are called illustrative variables and carry further information about the textual corpus, allowing the researcher to identify the specific characteristics that define individuals who share the same semantic universe.

In this study, the findings from the descriptive analysis were used as illustrative variables for the text analysis. An example of an illustrative variable is *midwife, which indicates the profession of the HCW who draws up the administrative record to report the violence experienced in the workplace. The resulting data were examined by three independent and autonomous subjects, as suggested by Annese and Mininni [47]. This phase was followed by a discussion of the meaning attributed to the data to reach an agreement on

the results. Consistency was guaranteed by reproducibility (or intercoder reliability -[48]; Cohen's k = .85).

Patient and public involvement

No patient involved.

Data availability statement

No additional data available.

RESULTS

Descriptive analysis

Overall, the records were compiled by 396 HCWs (3.6% of all HCWs working in the hospital). A total of 302 HCWs (76.3%) were female, representing approximately 4% of the entire female HCW population; 94 (23.7%) were male, representing 3.1% of the entire male HCW population. Most of the HCWs were aged 40-49 years (146, 36.9%; 4.7% of the entire HCW population aged 40-49 years). Regarding years of experience, most HCWs were in the range of 6-15 years (181, 46.3%; 6.1% of the entire HCW population with 6-15 years of experience). Two hundred ninety-eight HCWs (76.2%) were nurses (26.6% of the entire nurse population), 53 (13.6%) were midwives (25.4% of the entire midwife population), 22 (5.6%) were medical doctors (1.2% of the entire medical doctor population), 15 (3.8%) were administrative staff (1.7% of the entire administrative staff population) and 3 (0.8%) were technicians (0.5% of the entire technician population). Table 1 presents the sociodemographic characteristics of the female and male HCWs who experienced violence.

Regarding the age of the victims, the findings showed a statistically significant difference between genders (Cramer's V = 0.16). In particular, there were no male victims aged <30 years (|SPR| = -2.0). Male HCWs with 6-15 years of experience referred more

frequently to episodes of violence (|SPR| = 1.7, Cramer's V = 0.16) than did female HCWs. Moreover, male medical doctors referred more frequently to episodes of violence than did female doctors, and these episodes of violence occurred more frequently for male medical doctors (|SPR| = 2.5, Cramer's V = 0.18). The perpetrator was a patient's relative for more female HCWs than male HCWs (52% and 37.2%, respectively, $p = .012$), while the perpetrator was a visitor for more male HCWs than female HCWs (5.3% and 1.3%, respectively, $p = .023$). Regarding consequences, home care was indicated by male HCWs, while female HCWs did not mention it.

Table 1. Sociodemographic characteristics of the female and male HCWs who experienced violence. The percentages (N = 396) are in brackets.

	Female $n = 302$	Male $n = 94$	χ^2	p
Age:			9.45	.024
- <30 years	17(5.7)	-		
- 30-39 years	83(27.9)	18(19.4)		
- 40-49 years	105(35.4)	41(44.1)		
- ≥50 years	92(31)	34(36.6)		
Years of experience:			10.24	.017
- ≤5	44(14.8)	6(6.5)		
- 6-15	128(43)	53(57)		
- 16-25	80(26.8)	27(29)		
- >25	46(15.4)	7(7.5)		
Profession:			13.11	.011
- Midwife	39(13.1)	14(15.1)		
- Nurse	236(79.2)	62(66.7)		
- Medical doctor	11(3.7)	11(11.8)		
- Administrative staff	9(3)	6(6.5)		
- Technician	3(1)	-		
Workplace:			4.38	n.s.
- Psychiatric ward	35(38.5)	84(28.3)		
- Emergency room	104(35)	23(25.3)		
- Ward	109(36.7)	33(36.3)		
Type of activity:			3.61	n.s.
- Support activity for patient	125(45.8)	40(48.8)		
- Professional team's back-office activity	77(28.2)	15(18.3)		
- Assistance and patient care	71(26)	27(32.9)		
Work shift:			0.55	n.s.
- Morning	85(28.5)	30(32.3)		
- Afternoon	124(41.6)	36(38.7)		
- Evening	64(21.5)	20(21.5)		
- Night	25(8.4)	7(7.5)		
Perpetrator:				

- Patient	173(57.3)	56(59.6)	0.15	n.s.
- Patient's relative	157(52)	35(37.2)	6.25	.012
- Visitor	4(1.3)	5(5.3)	5.15	.023
Misconduct:				
- Insult	252(83.4)	67(71.3)	6.78	.009
- Threat	141(46.7)	42(44.7)	0.12	n.s.
- Bodily contact	77(25.5)	37(39.4)	6.72	.010
- Throwing objects	42(13.9)	20(21.3)	2.95	n.s.
- Use of a weapon	14(4.6)	5(5.3)	0.07	n.s.
Consequences:				
- Interruption of work	61(64.9)	210(69.8)	0.79	n.s.
- Medical treatment	29(9.6)	14(15.1)	2.15	n.s.
- Psychological support	16(5.3)	6(6.4)	0.16	n.s.
- Hospital care	2(0.7)	1(1.1)	0.15	n.s.
- Home care	-	2(2.2)	6.53	.011
- No consequences	64(21.3)	26(28)	1.76	n.s.
The attack could have been prevented	104(40)	25(29.4)	3.07	n.s.

Note. n.s. = not statistically significant.

Text analysis

Based on findings from the descriptive analysis, age, years of experience and profession were used as illustrative variables. The analysis of the administrative record drawn up by female HCWs showed that the corpus was composed of 14,951 occurrences, 2,739 distinct forms (mean frequency = 13 per form) and 1,345 *hapax*, i.e., words used only once. The overall number of elementary context units was 516. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 329), *aggressi*< (n = 125), *medic*< (n = 62), *wait*< (n = 61), and *staff* (n = 39). The dendrogram of stable classes (Figure 1) shows the classification procedure used to create the two classes that emerged (amount of variance explained = 96.9%). For each class, the first characterizing five words are presented in order of the $\chi 2$ results (Table 2), together with the associated illustrative variables.

INSERT FIGURE 1 ABOUT HERE

Table 2. Findings from text corpus of administrative records compiled by female HCW victims of workplace violence.

Class I - *Waiting time*		Class II - *Physical attack*	
Words	*χ2*	*Words*	*χ2*
Visit<	20	Kick+	88
Wait<	17	Agitat<	76
Therap+	13	Cris+	69
Work<	12	Personal+	63
Triage	11	Object+	56
Illustrative variables: emergency room, ward.		Illustrative variables: psychiatric ward, midwife.	

Class I explained 75% of the variance and was labelled *Waiting time.* The most representative words in terms of χ^2 describe the violent episodes as a consequence of patients and relatives waiting for a visit or therapy or of the assignment of degrees of urgency to wounds or illnesses to decide the order in which patients will be treated. This waiting time was considered by the perpetrator as unacceptable. The following sentence is an example of how a female HCW described a violent episode.

> *"The patient's relatives were complaining about the waiting time. They could tell that the staff were overworked. The patient's son and daughter repeatedly came into the emergency room instead of waiting in the hall. The patient's son said to not annoy him because otherwise there would be trouble"* (nurse, aged 30-39 years, 6-15 years of work)

Class II explained 25% of the variance and was labelled *Physical attack.* This lexical world refers to the behaviours demonstrated by psychiatric patients during routine activities, such as the distribution of meals. Perpetrators were described as patients who suffered from a psychotic crisis and who physically assaulted an HCW. The sentence below provides an example of a respondent's textual production.

"At the end of the dinner, the patient had a crisis; he became aggressive with staff that was around him and kicked me in the face, cutting my upper lip" (midwife, aged 30-39 years, 6-15 years of experience)

The analysis of the administrative record drawn up by male HCWs showed that the corpus was composed of 3,804 occurrences, 1,271 distinct forms (mean frequency = 9 per form) and 795 *hapax*, i.e., words used only once. The overall number of elementary context units was 144. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 103), *aggressi*< (n = 34), *threat*+ (n = 29), *person*< (n = 26), and *medic*< (n = 20). The dendrogram of stable classes (Figure 2) shows the classification procedure used to create the five classes that emerged (amount of variance explained = 93.6%). For each class, the first characterizing five words are presented in order of the Chi-squared results (Table 3), together with the associated illustrative variables.

INSERT FIGURE 2 ABOUT HERE

Table 3. Findings from text corpus of administrative records compiled by male HCW victims of workplace violence.

Verbal violence								*Corporeal assault*	
Class I		Class II		Class III		Class IV		Class V	
Words	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*
Wait<	47	Insult<	48	Colleague+	12	Launch<	57	Follow<	24
Ask<	30	Staff	11	Ward	11	Object+	45	Therap+	20
Visit	25	Motiv<	10	Verbal<	11	Kick+	22	Nois+	19
Time	24	Recei<	9	Patient+	11	Hit<	16	Attempt<	15

Behaviour+ 24	Phon+ 9	Relative+ 9	Person< 16	Violen< 15
Illustrative variables: emergency room, nurse	Illustrative variables: emergency room, professional team's back-office activity	Illustrative variables: ward, medical doctor, midwife	Illustrative variables: psychiatric ward, administrative staff	Illustrative variables: psychiatric ward, nurse

The dendrogram (Figure 2) shows the classification procedure used to create the five classes that emerged and highlights which classes are closer and therefore more similar. Specifically, the dendrogram shows that Classes I, II and III are more similar than Classes IV and V. At the same time, Classes IV and V are more similar than the other classes. Classes I, II and III explain – together – 65% of the variance; Classes IV and V explain 35% of the variance.

Classes I, II and III were labelled *Verbal violence*. The words characterizing these classes were related to violent behaviours – such as insults and threats – that HCWs experienced principally in the emergency room and ward, both through direct contact (face to face) and by phone. In these episodes, one or more colleagues were involved. Below are some examples from the descriptions of violent events made by male HCWs:

> *"Before the conclusion of the visit, the father started to attack me verbally. He told me 'I pay the taxes, I ask you to do everything, I do not go out until the child has a diagnosis'. After reiterating that it is not possible to perform this exam in an emergency room, the father threatened me and the nurse verbally, repeatedly"* (medical doctor, aged 40-49 years, 6-15 years of experience)
>
> *"I phoned the patient's son to inform him of the imminent discharge of his father. I was insulted with elevated tone repeatedly. It was impossible to manage communication; I did not reply in any way to the insults"* (nurse, 6-15 years of experience)

"The patient's husband accused me and my colleague of not respecting the numbering in the call for assistance. The colleague explained to him that there is a work plan, but he verbally attacked us" (nurse, aged ≥50 years, 16-25 years of experience)

Classes IV and V were labelled *Corporeal assault*. The words characterizing these classes were related to physical violent behaviours – such as hitting and throwing objects – which HCWs experienced principally in the psychiatric ward. Below are some examples of sentences from administrative records:

"While my colleague and I were preparing a medication, we were interrupted by the noise of shots coming from the kitchen door. Then, we were reached for and assaulted by the patient" (nurse, aged >50 years, 6-15 years of experience)

"An agitated patient – for no apparent reason – pushed a cart against the entrance door to break through. He was shunted out, and then he came back and threatened to break our arms" (administrative staff, aged 40-49 years, 16-25 years of experience)

DISCUSSION

The findings from the descriptive analysis showed some differences based on the HCW's gender. Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of experience reported more violent episodes than their female counterparts did. Among the HCW professions, nursing was the profession in which HCWs were more prone to experience a violent episode, confirming the results of[11]. Nevertheless, the findings showed that male medical doctors were more prone to report violent episodes than female medical doctors. Confirming the findings of Magnavita and Heponiemi [10], in this study, female HCWs experienced more verbal violence (insults) than male HCWs did, while male HCWs experienced more physical violence (bodily contact) than female HCWs did. Thus, our hypothesis was confirmed. An interesting finding concerns the perpetrator: female HCWs experienced a violent episode acted out by a patient's relative more often than male HCWs did, and male HCWs experienced a violent episode acted out by

a visitor more often than female HCWs did. Regarding the workplace, type of activity, and work shift, no statistically significant difference between genders emerged. This finding did not confirm the results of Magnavita and Heponiemi [10], as in this study, it was not found that male HCWs experienced workplace violence in wards more often than female HCWs did.

Text analyses showed that female and male HCWs reported violent episodes in different ways. The findings from the text analysis of female HCWs identified a contextual factor for the violent episodes that occurred principally in those who were working in emergency rooms and wards. This contextual factor is the waiting time, a condition in which a patient and a patient's relative – as suggested by Schablon and colleagues [14] – could experience anxiety, confusion, and fear. Moreover, female HCWs (in particular, midwives) describe the violent episodes that occurred in the psychiatric ward as a consequence of a mental health disorder and noted that the assault was unpredictable. Thus, it seems that female HCWs perceive dealing with violence as part of their role [49]. Male HCWs use different words to describe violent episodes. They, more often than female HCWs, described the episodes including the witness of the episode, namely, colleagues. Male HCWs described episodes that occurred in the emergency room and ward (verbal violence) and in the psychiatric ward (corporeal assault) in the same way that female HCWs did. These episodes were related more to the type of profession than to the gender of the HCWs. The other illustrative variables (age and years of experience) did not have an effect on the differences between how male and female HCWs experience violent episodes.

This study has strengths and limitations. Regarding strengths, in this study, administrative records in which HCWs experienced violent episodes were used. Usually, self-administered questionnaires are utilized to collect data about workplace violence. However, self-assessment could be affected by recall bias [50]; thus, this method does not solve the problem of overreporting or underreporting: a long study period could also influence the

victim's memory. The analysis of reports completed within 72 hours of the aggression permits the retrieval of important information about the episode. Moreover, in this study, a qualitative analysis was used to identify differences between genders in reporting these episodes. According to Griffiths and Schabracq [51], the majority of studies in work and health psychology and investigations on workplace violence utilize a quantitative approach: this choice stems from the fact that this method allows large numbers of subjects to complete standardized questionnaires. Otherwise, a qualitative approach permits the gathering of the complexity and nuances of individual experiences and reveals the range of ways in which common features operate in experiences of workplace violence [52]. Indeed, this method was useful to better understand the lexicon that characterized the victimization experienced by female and male HCWs.

This study also has weaknesses. First, because HCWs decided whether to report violent episodes, the results cannot be generalized and should be taken with caution. Thus, it was not possible to overcome the bias in reporting violence, as HCWs may be more likely to report serious events and exclude less serious ones [53]. Future research should explore, in a more comprehensive way, this phenomenon within health organizations. For example, interviews and focus group discussion techniques could be used to better understand the obtained results and how to promote the reporting of all violent behaviour, not only the most serious events: as recommended by the Italian Ministry of Health [32], a better comprehension of workplace violence could be useful to prevent it. Another limitation is in the procedure adopted: administrative records had different styles of reports, which we tried to make homogeneous through a classification procedure. This process included a subjective component, which must be considered in any narrative analysis [54]. The use of a mixed-method technique could permit the description of the phenomenon by a quantitative and qualitative approach. Future

research could use this technique to expand the scope and improve the analytic power of studies on workplace violence in the healthcare sector [55].

CONCLUSIONS

Overall, the findings from this explorative study suggest that there is a gender difference not only in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors but also in the way in which these episodes are described. Consequently, as noted by Lawoko and colleagues [14] and Chen and colleagues [10], it is important in informative and preventive courses to consider gender differences in experiencing a violent episode. For female HCWs, it could be useful to provide clear messages that the acceptance of such violence is not "part of the job" [27,56], explaining that anger should not be taken as an acceptable emotion in the healthcare environment and that exposure to verbal violence should not be accepted as a hazard of the profession [57]. For male HCWs, it could be useful to reflect on feelings related to the stigma of victimization and to stress that a witness is not necessary to corroborate a male HCW's version of the event. This finding could be analysed in greater depth through an investigation that involves witnesses of the violent episodes describing the episodes from their points of view: a follow-up study could include interviews with staff on gender differences in the long-term impact of these events.

Moreover, these findings could be utilized by health organization management to better organize the security arrangements in some departments, to manage the overload of the emergency room and to increase the use of safety devices.

In conclusion, the findings could be used by health organization management to improve individual measures, such as intervention programmes, counselling, and psychological help, to reflect on victimization experiences and the way in which female and male HCWs react to and cope with workplace violence.

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REFERENCES

1 WHO. Violence: a public health priority. Geneva: World Health Organization 1995.

2 Cooper CL, Swanson N. Workplace violence in the health sector. State of the art. Geneva: Organización Internacional de Trabajo, Organización Mundial de la Salud, Consejo Internacional de Enfermeras Internacional de Servicios Públicos 2002.

3 Phillips JP. Workplace violence against health care workers in the United States. *New England journal of medicine* 2016;374(17):1661-1669. doi:10.1056/NEJMra1501998

4 Sun P, Zhang X, Sun Y, Ma H, Jiao M, Xing K, Kang Z, et al. Workplace violence against health care workers in North Chinese hospitals: a cross-sectional survey. *Int. J. Environ. Res. Public Health* 2017;14(1):96. doi:10.3390/ijerph14010096

5 Elliott PP. Violence in healthcare. *Nurs Manage* 1997:38-41.

6 Grottoli E, Ciriello S, Gabriele M, Giudice A, Lilli M, Mammi F, Quaranta D, Roccia K, Spadone F, Magnavita N. Assaults and nuisances in health care environment. *Giornale italiano di medicina del lavoro ed ergonomia* 2007;29(3):653-5.

7 Iozzino L, Ferrari C, Large M, Nielssen O, De Girolamo G. Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PloS one* 2015;10(6):e0128536. doi:10.1371/journal.pone.0128536

8 Arnetz JE, Hamblin L, Essenmacher L, Upfal MJ, Ager J, Luborsky M. Understanding patient-to-worker violence in hospitals: a qualitative analysis of documented incident reports. *J Adv Nurs* 2015;71(2):338-48. doi:10.1111/jan.12494

9 Kim SC, Ideker K, Todicheeney-Mannes D. Usefulness of aggressive behaviour risk assessment tool for prospectively identifying violent patients in medical and surgical units. *J Adv Nurs* 2012;68(2):349-57. doi: 10.1111/j.1365-2648.2011.05744.x

10 Magnavita N, Heponiemi T. Violence towards health care workers in a Public Health Care Facility in Italy: a repeated cross-sectional study. *BMC Health Serv Res* 2012;12(1):108. doi:10.1186/1472-6963-*12-108*

11 Renwick L, Lavelle M, James K, Stewart D, Richardson M, Bowers L. The physical and mental health of acute psychiatric ward staff, and its relationship to experience of physical violence. *International journal of mental health nursing* 2019;28(1):268-77. doi: 10.1111/inm.12530

12 Hahn S, Hantikainen V, Needham I, Kok G, Dassen T, Halfens RJG. Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs* 2012;68(12):2685-2699.

13 Ahmad M, Al-Rimawi R, Masadeh A, Atoum M. Workplace violence by patients and their families against nurses: Literature review. *Int J Nurs Health Sci* 2015;2(4):46-55.

14 Lawoko, S, Soares, JJ, Nolan P. Violence towards psychiatric staff: A comparison of gender, job and environmental characteristics in England and Sweden. *Work Stress* 2004;18(1):39-55. doi: 10.1080/02678370410001710337

15 Schablon A, Wendeler D, Kozak A, Nienhaus A, Steinke S. Prevalence and Consequences of Aggression and Violence towards Nursing and Care Staff in Germany—A Survey. *Int J Environ Res Public Health* 2018;15(6):1274. doi:10.3390/ijerph15061274

16 Maguire BJ, O'Meara P, O'Neill BJ, Brightwell R. Violence against emergency medical services personnel: A systematic review of the literature. *American journal of industrial medicine* 2018;61(2):167-80. doi: 10.1002/ajim.22797

17 Italian Ministry of Health. Personale delle A.S.L. e degli istituti di cura pubblici.www.salute.gov.it/imgs/C_17_pubblicazioni_2161_allegato.pdf

18 Morganson, VJ, Brown SE. Gender and Sexualized Aggression in the Workplace. In: Nadler JY, Lowery MR, eds. The War on Women in the United States: Beliefs, Tactics, and the Best Defenses. Praeger Publishing 2018:2051.

19 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;76(1):3-9. doi:10.1136/oemed-2018-105152

20 Itzhaki M, Peles-Bortz A, Kostistky H, Barnoy D, Filshtinsky V, Bluvstein I. Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *Int J Ment Health Nurs* 2015;24(5):403-412. doi.org/10.3389/fpsyt.2018.00059

21 Hampton D, Rayens MK. Impact of psychological empowerment on workplace bullying and intent to leave. *JONA: The Journal of Nursing Administration*. 20191;49(4):179-85. doi: 10.1097/NNA.0000000000000735

22 Laeeque SH, Bilal A, Babar S, Khan Z, Ul Rahman S. How patient-perpetrated workplace violence leads to turnover intention among nurses: The mediating mechanism of occupational stress and burnout. *Journal of Aggression, Maltreatment & Trauma* 2018;27(1):96-118.doi:10.1080/10926771.2017.1410751

23 Kim H, Kim JS, Choe K, Kwak Y, Song JS. Mediating effects of workplace violence on the relationships between emotional labour and burnout among clinical nurses. *Journal of advanced nursing* 2018;74(10):2331-9.doi: 10.1111/jan.13731

24 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN journal* 2005;53(9):399-406. doi:10.1177/216507990505300906

25 Gillespie GL, Leming-Lee TS, Crutcher T, Mattei J. Chart It to Stop It. *J Nur Care Qual* 2016;31(3):254-61. doi:10.1097/NCQ.0000000000000172

26 Clements PT, DeRanieri JT, Clark K, Manno MS, Kuhn DW. Workplace violence and corporate policy for health care settings. *Nur Econ* 2005;*23*(3):119-124.

27 Kennedy MP. Violence in emergency departments: under-reported, unconstrained, and unconscionable. *Med J Aust* 2005;183(7):362-365. doi:10.5694/j.1326-5377.2005.tb07084.x

28 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;*76*(1):3-9. doi:10.1136/oemed-2018-105152

29 Eurofound. Fifth European Working Conditions Survey. Publication Office of the European Union. Luxembourg, 2012. Available at https://www.eurofound.europa.eu/it/publications/report/2012/working-conditions/fifth-european-working-conditions-survey-overview-report

30 Istat. Il disagio nelle relazioni lavorative. Istat 2010. Available at https://www.istat.it/it/archivio/5191

31 Inail. Violenza, aggressione e non solo. Dati Inail 2018. Available at https://www.inail.it/cs/internet/docs/alg-dati-inail-2018-novembre.pdf

32 Ministero della Salute. Raccomandazione per prevenire gli atti di violenza a danno degli operatori sanitari. Raccomandazione n. 8, novembre 2007. http://www.salute.gov.it/portale/documentazione/p6_2_2_1.jsp?id=721

33 Hopkins L, Taylor L, Bowen E, Wood C. A qualitative study investigating adolescents' understanding of aggression, bullying and violence. *Child Youth Serv Rev* 2013;35(4):685-93. doi:10.1016/j.childyouth.2013.01.012

34 Patton MQ. Qualitative research and evaluation methods. Thousand Oaks, CA: Sage 2002:339-427.

35 Ritchie J, Lewis J, Nicholls CM, Ormston R, eds. Qualitative research practice: A guide for social science students and researchers. Thousand Oaks, CA: Sage 2013.

36 Fetters MD, Curry LA, Creswell JW. Achieving integration in mixed methods designs—principles and practices. *Health Serv Res* 2013;48:2134-56. doi:10.1111/1475-6773.12117

37 Ramacciati N, Ceccagnoli A, Addey B, Rasero L. Violence towards emergency nurses. The Italian national survey 2016: A qualitative study. *Int J Nurs Stud* 2018;81:21-29. doi:10.1016/j.ijnurstu.20

38 Shahzad A, Malik RK. Workplace Violence: An Extensive Issue for Nurses in Pakistan—A Qualitative Investigation. *J Interpers Violence* 2014;29,11:2021-2034. doi:10.1177/0886260513516005l8.01.017

39 Pattani R, Ginsburg S, Johnson AM, Moore JE, Jassemi S, Straus SE. Organizational factors contributing to incivility at an academic medical center and systems-based

solutions: a qualitative study. *Academic Medicine* 2018;93(10):1569.doi: 10.1097/ACM.0000000000002310

40 Arnetz J, Hamblin LE, Sudan S, Arnetz B. Organizational determinants of workplace violence against hospital workers. *Journal of occupational and environmental medicine* 2018;60(8):693.doi: 10.1097/JOM.0000000000001345

41 Tucker AL, Spear SJ. Operational failures and interruptions in hospital nursing. *Health Serv Res* 2006; *41*(3p1):643-662. doi:10.1111/j.1475-6773.2006.00502.x

42 Agresti A. Categorical Data Analysis (3" ed.). Hoboken, New Jersey: John Wiley & Sons Inc. 2002:267-313.

43 Matteucci MC, Tomasetto C. Alceste: un software per l'analisi dei dati testuali. In: Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:305-27.

44 Riff D, Lacy S, Fico F. Analyzing media messages: Using quantitative content analysis in research. New York: Routledge. 2014. doi:10.4324/9780203551691

45 Reinert M. Un logiciel d'analyse lexicale. *Cahiers de l'analyse des données* 1986;11(4):471-81.

46 Reinert, M. Mondes lexicaux et topoi dans l'approche de Alceste. [Lexical worlds and topoi in Alceste approach] In: S. Mellet & M. Vuillome, eds. Mots chiffrés et déchiffrés [Coded and decoded words]. Paris, France: Honoré Champion Editeur 1998:289-303.

47 Annese S, Mininni G. La focus group discussion tra analisi del contenuto e analisi del discorso. In Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:125-48.

48 Burla L, Knierim B, Barth J, Liewald K, Duetz M, Abel T. From text to codings: intercoder reliability assessment in qualitative content analysis. *Nurs Res* 2008;57(2):113-7. doi:

49 Brockmann, M. New perspectives on violence in social care. *Journal of Social Work* 2002;2(1):29-44. doi:10.1177/146801730200200103

50 Brophy, J. T., Keith, M. M., & Hurley, M. (2018). Assaulted and unheard: violence against healthcare staff. *New solutions: a journal of environmental and occupational health policy*, *27*(4), 581-606.

51 Griffiths A, Schabracq MJ. Work and health psychology as a scientific discipline: Facing the limits of the natural science paradigm. In: Schabracq MJ, Winnubst JAM, Cooper CL, eds. The handbook of work and health psychology. New York: Wiley 2003:173-189.

52 Coyle A. Introduction to qualitative psychological research. In: Lyons E, Coyle A, eds. Analysing qualitative data in psychology. Thousand Oaks, CA: Sage Publications 2007:9-29. doi:10.4135/9781446207536.d7

53 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN Journal* 2005;*53*(9):399-406.

54 Amaratunga D, Baldry D, Sarshar M, Newton R. Quantitative and qualitative research in the built environment: application of "mixed" research approach. *Work study* 2002;*51*(1):17-31. doi:10.1108/00438020210415488

55 Sandelowski M. Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Res Nurs & Health* 2000;*23*(3):246-255. doi:10.1002/1098240X(200006)23:3<246::AID-NUR9>3.0.CO;2-H

56 Potera C. Violence against nurses in the workplace. *Am J Nurs* 2016;*116*(6):20-21. doi:10.1097/01.NAJ.0000484226.30177.ab

57 Duxbury, J., & Whittington, R. (2005). Causes and management of patient aggression and violence: staff and patient perspectives. *Journal of advanced nursing*, *50*(5), 469-478.

Figure legends:

Figure 1. *Text corpus of administrative records compiled by female HCW victims of workplace violence. Dendrogram of stable classes: Class I was labelled Waiting time, and Class II was labelled Physical attack.*

Figure 2. *Text corpus of administrative records compiled by male HCW victims of workplace violence. Dendrogram of stable classes: Classes I, II and III were labelled Verbal violence. Classes IV and V were labelled Corporeal assault.*

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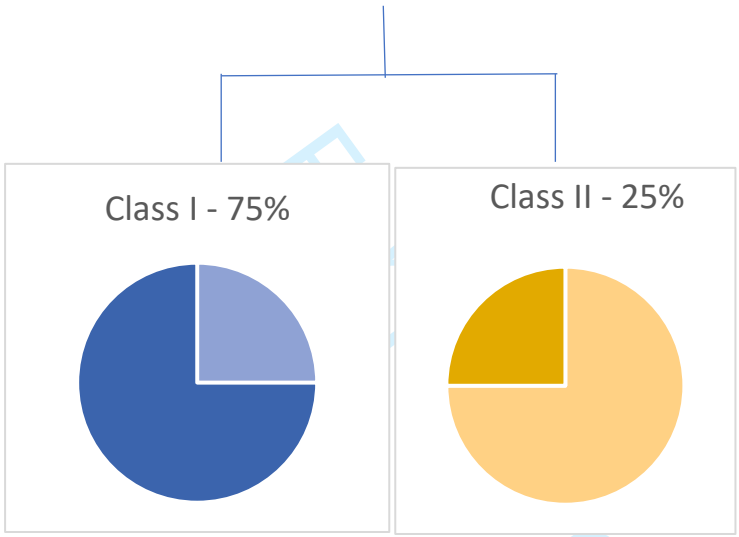
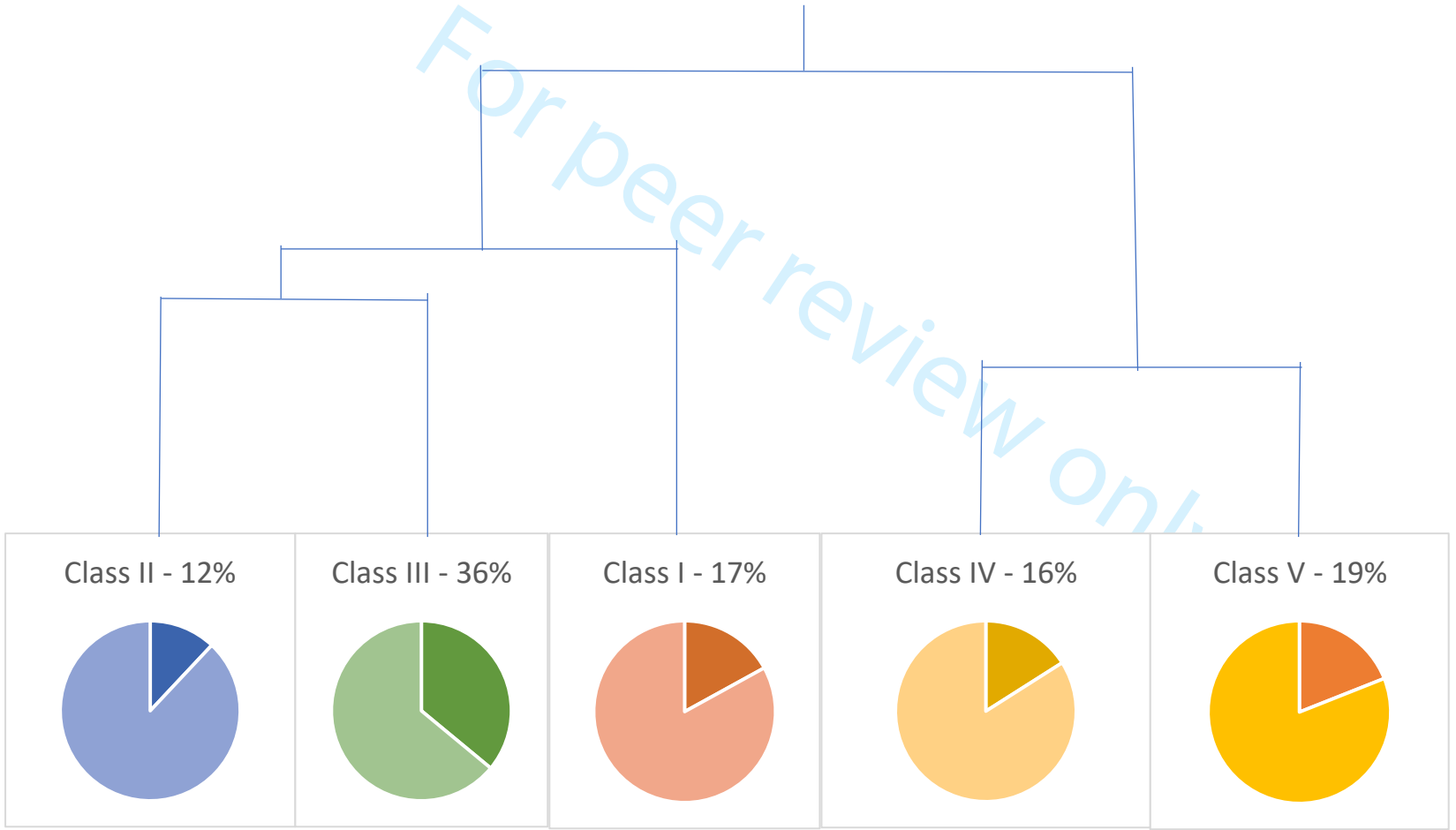


Figure 2. *Text corpus of administrative records compiled by male HCWs victims of workplace violence. Dendrogram of stable classes: Classes I, II and III were labelled Verbal violence. Classes IV and V were labelled Corporeal assault.*



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Gender differences in reporting workplace violence: A qualitative analysis of administrative records of violent episodes experienced by healthcare workers in a large public Italian hospital

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Gender differences in reporting workplace violence: A qualitative analysis of administrative records of violent episodes experienced by healthcare workers in a large public Italian hospital

ABSTRACT

Objectives: This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence reported by healthcare workers (HCWs) in a large public Italian hospital. Qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which they dealt with it. A comparison between genders was performed to better understand what type of different strategies could be used to improve the prevention of workplace violence for HCWs.

Design and Setting: The retrospective observational study was carried out in "Città della Salute e della Scienza", a complex of four interconnected hospitals situated in northern Italy. This study analysed aggression data from the four-year period of 2015-2018 that included all HCW categories. The data were obtained from the Aggression Reporting Form.

Participants: The analysed records were supplied by 396 HCWs (3.6% of all HCWs in the hospital).

Results: Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of work experience reported more violent episodes than their female counterparts. Among the HCW professions, nursing was the profession in which HCWs were more prone to experience a violent episode, while male medical doctors were more prone to report violent episodes than female medical doctors. Moreover, female HCWs experienced more verbal violence (insults) than male HCWs did, while male HCWs experienced more physical violence (bodily contact) than female HCWs did.

Conclusions: The findings from this explorative study suggest that there is a gender difference in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors and in the way in which these episodes are described. Consequently, it is important for informative and preventive courses to consider gender differences in experiencing a violent episode.

Strengths and limitations of this study

(Strength) A qualitative analysis was used to collect the victims' descriptions of workplace violence.

(Strength) The method permits the capture of respondents' points of view.

(Strength) The comparison between genders could be useful to improve the prevention of workplace violence in this population.

(Limitation) It was not possible to overcome the bias in reporting violence.

(Limitation) Unreported incidents could not be included in the study.

Keywords: healthcare workers; workplace violence; qualitative analysis; gender difference; reported incidents.

INTRODUCTION

Workplace violence has been defined by the World Health Organization as "the intentional use of power, threatened or actual, against another person or against a group, in work-related circumstances, that either results in or has a high degree of likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation"[1].

As noted by several investigations [2-4], the healthcare sector is at particular risk of workplace violence. Elliot [5] estimated that the risk of violence from patients and their relatives towards healthcare workers (HCWs) is 16 times higher than that towards other workers. This risk is highest for healthcare workers working in psychiatric wards and

emergency rooms [6-7] since they report more violent events than other HCWs, such as those working in wards [8-10]. As suggested by Renwick and colleagues [11], it is possible that subjects who work in other wards have biased their answers, presenting themselves as at less risk than they are in reality because of such complex reasons as denial and social stigma of reporting workplace violence. At the same time, working in wards with patients who are more dangerous because they suffer from mental illness (psychiatric ward) or are under the influence of drugs or alcohol (emergency room), may make workers who are victims of violence feel more comfortable about reporting violent episodes.

Moreover, the risk of aggression is highest for HCWs working as nurses since they report more violent episodes than do physicians and administrative staff [12]. A possible explanation for this finding is linked with the nature of their job, as nurses have direct contact with patients (who could be confused, frightened, or delirious) and their families/friends [13-15]. In this case, a possible explanation could be found in the sample bias, since in the literature about nurses being assaulted, respondents who had been assaulted would be expected to have a higher rate of response than those who had not been assaulted [16].

Another possible explanation is linked to gender: in some countries, such as Italy, in more than 70% of cases, nurses are female [17], and some studies have shown that female workers are more often affected by violence than their male colleagues [18-19]. Gender is also related to the type of violence experienced by HCWs; the investigation by Magnavita and Heponiemi [10] showed that, in hospitals, female nurses experienced verbal violence (such as yelling and screaming) more often than male nurses, who were more often victims of physical assault (such as hitting and kicking). Moreover, the importance of investigating the gender difference in workplace violence experienced by HCWs was noted by Lawoko and colleagues [14]: “intervention/prevention measures need to review the gender and profession issue. It is likely that men and women, psychiatrists and nurses may require different interventions

related to their specific problems" (page 51). These types of violent episodes affect the perceived wellbeing of HCWs and could lead to several consequences, such as the interruption of work, medical treatment, and hospital and/or home care; psychological support might be needed for the HCWs to cope with the event [20]. Workplace violence might also lead staff to leave the profession [21].

Furthermore, workplace violence in this sector could be related to turnover intention through occupational stress first and then burnout [22]: regarding this, Kim and colleagues [23] suggested that the prevention of workplace violence is one way of reducing burnout in the healthcare sector.

An interesting question concerns the reports made by HCWs regarding violent episodes in the workplace. Findings from investigations have shown that violence, especially verbal violence [2], in the healthcare sector is under-reported [24-25]. The under-reporting of violence is not a phenomenon that involves only workplace violence. All forms of violence (sexual harassment, domestic violence, school bullying, and so on) are under-reported for different reasons, including both the stigma of victimization, such as shame, isolation, and fear, and the threat of further violence, which often deter victims from reporting violent episodes [26].

Moreover, for HCWs, there is a risk of desensitization to violence, as violence – due to contact with frail and ill people – is perceived as part of an HCW's job [27]. Nevertheless, the reporting of any act of violence is fundamental in engaging hospital management to activate appropriate organizational responses. Indeed, the administrative records of violent episodes experienced by HCWs constitute an important source of information [28] about the type of violence (physical or verbal), the type of perpetrator (patient, relative, or visitor), the type of HCW (administrator, midwife, nurse, or physician), the place in which the HCW experienced the violence (psychiatric ward, emergency room, or ward) and the type of activity that she/he

was doing (support activity for patients, professional team back-office activity, or assistance and patient care). These records permit the prevention of workplace violence, providing information about, for example, the type of training course that a particular HCW sub-population needs and/or the safety devices that should be installed in a particular ward.

In Europe, the Fifth European Working Conditions Survey [29] shows that, on average, 14.9% of workers reported levels of subjection to adverse social behaviour, and the highest level was in the healthcare sector (23%). The overall percentage of reported levels of subjection to adverse social behaviour in Italian workers was 8%; in the healthcare sector, this percentage was 41.4% of the workers [30]. There were 1200 total violent behaviours reported by HWCs in 2018. In most cases, (70%), the victim was female, and the perpetrator was a patient, a patient's relative or a visitor [31]. To deal with this phenomenon, in 2007, the Italian Ministry of Health published Recommendation no. 8, "Preventing acts of violence against health workers". This recommendation had several goals. First, it oversees the reporting of incidents of violence using official sources, such as the judicial authority, the police forces and the National Workplace Accident Institute. Second, it promotes the collection of data through specific surveys to identify the frequency and severity of violent episodes. The results could be useful for adopting appropriate action from an organizational and structural point of view, for example, redesigning the space and/or reformulating procedures for access to the ward. Moreover, data could be used to improve the training courses that aim to prevent violence, to improve the coping strategies and to reduce the negative consequences [32].

This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence experienced by HCWs working in a large public Italian hospital. The qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which they dealt with it [33]. The advantage offered by this method is that it allows

us to capture respondents' points of view without predetermining their answers [34-35]. This approach is widely used in social science research [36] and has been used to investigate HCWs' perceptions of physical and verbal aggression [8, 37-38]. It has also been used, for example, to investigate the descriptions of violent behaviour provided by workers [39] and perceptions of the organizational safety climate [40].

A comparison between genders was used to better understand what type of differences, if any, could be used to improve the prevention of workplace violence for HCWs. Based on the literature review presented above, the hypothesis is that there are gender differences in the violent episodes experienced by female and male HCWs: female HCWs experience more verbal violence than their male colleagues, and male HCWs experience more physical violence than their female colleagues. Moreover, from the analysis of the episodes, as described by female and male HCWs, we expected that the observed semantic differences characterized the experience of victimization. This is the novel contribution of this work. We do not have specific hypotheses about the relationship between gender and the lexical words used to define the violent episodes; therefore, we intend to analyse this relationship from an explorative perspective.

METHOD

The retrospective observational study was carried out in Città della Salute e della Scienza (City of Health and Science University Hub), a complex of four interconnected hospitals situated in northern Italy. It has 1917 ordinary hospital beds and more than 400 day hospital and day surgery beds, and it is one of the largest national and European health hubs, boasting approximately twelve thousand employees. This study analysed aggression data from the four-year period of 2015-2018 that included all worker categories. The data were obtained from the Aggression Reporting Form adopted in 2014 in compliance with the abovementioned recommendation of the Ministry of Health. The form is available on the

intranet portal, and all parts of the form must be completed by victims of assault within 72 hours of the event and sent to the Safety and Environment Office. Each administrative record of a violent episode contains the following information: the sociodemographic data of the victim (age, gender, years of experience, and profession), workplace in which the violent episode occurred (psychiatric ward, emergency room or ward - 1 item), the type of activity performed by the HCW at the moment of aggression (i.e., conversation), the HCW's shift at the time of aggression, the type of aggressor (the perpetrator could be more than one person: patient, patient's relative, or visitor – 3 items, yes/no answers), the misconduct (violent behaviour could be of more than one type: insult, verbal threat, bodily contact, throwing objects, or use of a weapon – 5 items, yes/no answers), the consequences (consequences could be of more than one type: interruption of work, medical treatment, psychological support, hospital care, home care, or no consequence – 5 items, yes/no answers), the possibility of preventing the attack (1 item, yes/no answer), and the description of the event. Similar to other investigations (see Magnavita and Heponiemi [10]), age was categorized as <30 years, 30-39 years, 40-49 years, and ≥50 years, and the years of experience were classified as ≤5 years, 6-15 years, 16-25 years, and >25 years (1 item each). The type of activity was categorized as support activity for patients (e.g., meal preparation and administration), professional team back-office activity (e.g., treatment prescriptions), and assistance and patient care (e.g., assistance at the front desk) [41] (1 item). The profession was categorized as midwife, nurse, medical doctor, administrative staff or technician (such as a radiologist) (1 item). The work shift in which the aggression occurred was categorized as morning (6:00-12:00), afternoon (12:00-18:00), evening (18:00-24:00) or night (0:00-6:00) (1 item).

Procedure

Data were analysed by the authors of this paper and by assistants trained by researchers. After the approval of the Local Ethics Committee (Comitato di Bioetica dell'Ateneo, University of

Torino, Prot. 19468 January 17, 2019) was received, the administrative records of violent episodes were consulted in January-February 2019. Records were transcribed in a database; sensitive data (name, surname and worker's registration number) were omitted. This procedure was in accordance with the code of ethics of the Italian Association of Professional Psychologists and with Italian law concerning privacy. The files that constituted the corpus of administrative records were saved in a folder. Overall, the sample contained 418 records. The inclusion criteria for the episodes in this analysis were the record describing the case of violence perpetrated by a patient, a relative or a visitor. Thus, 14 records were excluded because the perpetrator was a colleague, a subordinate or a supervisor. Moreover, eight records were excluded because the gender of the victim was omitted. Therefore, 396 records were included in the present work.

Data analysis

Descriptive statistics were calculated using IBM SPSS Statistics, version 24. Descriptive measures (mean ± SD) were calculated for all the continuous variables. Because of the categorical nature of the data, $\chi 2$ tests were used to examine gender differences, followed by effect-size calculations (Phi and Cramer's V) to estimate the practical significance of the differences. As a post hoc test, standardized Pearson residuals (from this point forward: SPRs) were calculated for each cell to determine which cell differences contributed to the $\chi 2$ test results. SPRs with absolute values greater than 1.96 indicated that the number of cases in that cell was significantly larger than would be expected (in terms of over- or underrepresentation) if the null hypothesis were true, with a significance level of .05 [42].

As suggested by Matteucci and Tomasetto [43], content analysis was used to process the written description of the violent episodes. Content analysis is defined as "the systematic assignment of communication content to categories according to rules and the analysis of relationships involving those categories using statistical methods" [44, p. 3]. These data were

analysed using *Alceste 6.0* [45]. This software permits the analysis of written data according to a descending hierarchical classification (DHC) in which the text is divided into elementary context units and categorized into homogeneous classes. The software allows for the isolation and separation of internally homogeneous groups (or classes) within specific populations. Classes are formed on the basis of the co-occurrence of forms and units of context [43]. The software uses symbols to indicate the type of root. If the word is followed by the symbol <, this indicates that only the root of the word is recognized (e.g., aggressi< denotes the words aggressive, aggression, and aggressively). The symbol + indicates the identification of the termination and of different forms with the same root (e.g., nurse+ indicates the words nurse and nurses). The first class that is formed will be the most homogeneous in terms of content, i.e., the one whose lexical universe (a specific vocabulary that is used and to which the speaker attributes relevant meaning) appears to differ from those of others. The software performs the χ^2 test on the association between words and classes to identify the specific vocabulary for each class. This step allows the researcher to identify the lexical worlds in the text, i.e., the "usual places" (conventional themes) of discourse [46]. The software allows for repeated segments to be highlighted, i.e., associations of the most frequent words in a class and related classes with the selected variables. These are called illustrative variables and carry further information about the textual corpus, allowing the researcher to identify the specific characteristics that define individuals who share the same semantic universe.

In this study, the findings from the descriptive analysis were used as illustrative variables for the text analysis. An example of an illustrative variable is *midwife, which indicates the profession of the HCW who draws up the administrative record to report the violence experienced in the workplace. The resulting data were examined by three independent and autonomous subjects, as suggested by Annese and Mininni [47]. This phase was followed by a discussion of the meaning attributed to the data to reach an agreement on

the results. Consistency was guaranteed by reproducibility (or intercoder reliability -[48]; Cohen's k = .85).

Patient and public involvement

No patient involved.

Data availability statement

No additional data available.

RESULTS

Descriptive analysis

Overall, the records were compiled by 396 HCWs (3.6% of all HCWs working in the hospital). A total of 302 HCWs (76.3%) were female, representing approximately 4% of the entire female HCW population; 94 (23.7%) were male, representing 3.1% of the entire male HCW population. Most of the HCWs were aged 40-49 years (146, 36.9%; 4.7% of the entire HCW population aged 40-49 years). Regarding years of experience, most HCWs were in the range of 6-15 years (181, 46.3%; 6.1% of the entire HCW population with 6-15 years of experience). Two hundred ninety-eight HCWs (76.2%) were nurses (26.6% of the entire nurse population), 53 (13.6%) were midwives (25.4% of the entire midwife population), 22 (5.6%) were medical doctors (1.2% of the entire medical doctor population), 15 (3.8%) were administrative staff (1.7% of the entire administrative staff population) and 3 (0.8%) were technicians (0.5% of the entire technician population). Table 1 presents the sociodemographic characteristics of the female and male HCWs who experienced violence.

Regarding the age of the victims, the findings showed a statistically significant difference between genders (Cramer's V = 0.16). In particular, there were no male victims aged <30 years (|SPR| = -2.0). Male HCWs with 6-15 years of experience referred more

frequently to episodes of violence (|SPR| = 1.7, Cramer's V = 0.16) than did female HCWs. Moreover, male medical doctors referred more frequently to episodes of violence than did female doctors, and these episodes of violence occurred more frequently for male medical doctors (|SPR| = 2.5, Cramer's V = 0.18). The perpetrator was a patient's relative for more female HCWs than male HCWs (52% and 37.2%, respectively, $p = .012$), while the perpetrator was a visitor for more male HCWs than female HCWs (5.3% and 1.3%, respectively, $p = .023$). Regarding consequences, home care was indicated by male HCWs, while female HCWs did not mention it.

Table 1. Sociodemographic characteristics of the female and male HCWs who experienced violence. The percentages (N = 396) are in brackets.

	Female $n = 302$	Male $n = 94$	χ^2	p
Age:			9.45	.024
- <30 years	17(5.7)	-		
- 30-39 years	83(27.9)	18(19.4)		
- 40-49 years	105(35.4)	41(44.1)		
- ≥50 years	92(31)	34(36.6)		
Years of experience:			10.24	.017
- ≤5	44(14.8)	6(6.5)		
- 6-15	128(43)	53(57)		
- 16-25	80(26.8)	27(29)		
- >25	46(15.4)	7(7.5)		
Profession:			13.11	.011
- Midwife	39(13.1)	14(15.1)		
- Nurse	236(79.2)	62(66.7)		
- Medical doctor	11(3.7)	11(11.8)		
- Administrative staff	9(3)	6(6.5)		
- Technician	3(1)	-		
Workplace:			4.38	n.s.
- Psychiatric ward	35(38.5)	84(28.3)		
- Emergency room	104(35)	23(25.3)		
- Ward	109(36.7)	33(36.3)		
Type of activity:			3.61	n.s.
- Support activity for patient	125(45.8)	40(48.8)		
- Professional team's back-office activity	77(28.2)	15(18.3)		
- Assistance and patient care	71(26)	27(32.9)		
Work shift:			0.55	n.s.
- Morning	85(28.5)	30(32.3)		
- Afternoon	124(41.6)	36(38.7)		
- Evening	64(21.5)	20(21.5)		
- Night	25(8.4)	7(7.5)		
Perpetrator:				

- Patient	173(57.3)	56(59.6)	0.15	n.s.
- Patient's relative	157(52)	35(37.2)	6.25	.012
- Visitor	4(1.3)	5(5.3)	5.15	.023
Misconduct:				
- Insult	252(83.4)	67(71.3)	6.78	.009
- Threat	141(46.7)	42(44.7)	0.12	n.s.
- Bodily contact	77(25.5)	37(39.4)	6.72	.010
- Throwing objects	42(13.9)	20(21.3)	2.95	n.s.
- Use of a weapon	14(4.6)	5(5.3)	0.07	n.s.
Consequences:				
- Interruption of work	61(64.9)	210(69.8)	0.79	n.s.
- Medical treatment	29(9.6)	14(15.1)	2.15	n.s.
- Psychological support	16(5.3)	6(6.4)	0.16	n.s.
- Hospital care	2(0.7)	1(1.1)	0.15	n.s.
- Home care	-	2(2.2)	6.53	.011
- No consequences	64(21.3)	26(28)	1.76	n.s.
The attack could have been prevented	104(40)	25(29.4)	3.07	n.s.

Note. n.s. = not statistically significant.

Text analysis

Based on findings from the descriptive analysis, age, years of experience and profession were used as illustrative variables. The analysis of the administrative record drawn up by female HCWs showed that the corpus was composed of 14,951 occurrences (frequency of words in absolute values), 2,739 distinct forms (words with frequency > 3; mean frequency = 13 per form) and 1,345 *hapax* (words used only once, occurrences with a frequency = 1). The overall number of elementary context units was 516. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 329), *aggressi*< (n = 125), *medic*< (n = 62), *wait*< (n = 61), and *staff* (n = 39). The dendrogram of stable classes (Figure 1) shows the classification procedure used to create the two classes that emerged (amount of variance explained = 96.9%). For each class, the first characterizing five words are presented in order of the $\chi 2$ results (Table 2), together with the associated illustrative variables.

INSERT FIGURE 1 ABOUT HERE

Table 2. Findings from text corpus of administrative records compiled by female HCW victims of workplace violence.

Class I - *Waiting time*		Class II - *Physical attack*	
Words	*χ2*	*Words*	*χ2*
Visit<	20	Kick+	88
Wait<	17	Agitat<	76
Therap+	13	Cris+	69
Work<	12	Personal+	63
Triage	11	Object+	56
Illustrative variables: emergency room, ward.		Illustrative variables: psychiatric ward, midwife.	

Class I explained 75% of the variance and was labelled *Waiting time.* The most representative words in terms of χ^2 describe the violent episodes as a consequence of patients and relatives waiting for a visit or therapy or of the assignment of degrees of urgency to wounds or illnesses to decide the order in which patients will be treated. This waiting time was considered by the perpetrator as unacceptable. The following sentence is an example of how a female HCW described a violent episode.

> *"The patient's relatives were complaining about the waiting time. They could tell that the staff were overworked. The patient's son and daughter repeatedly came into the emergency room instead of waiting in the hall. The patient's son said to not annoy him because otherwise there would be trouble"* (nurse, aged 30-39 years, 6-15 years of work)

Class II explained 25% of the variance and was labelled *Physical attack.* This lexical world refers to the behaviours demonstrated by psychiatric patients during routine activities, such as the distribution of meals. Perpetrators were described as patients who suffered from a psychotic crisis and who physically assaulted an HCW. The sentence below provides an example of a respondent's textual production.

"At the end of the dinner, the patient had a crisis; he became aggressive with staff that was around him and kicked me in the face, cutting my upper lip" (midwife, aged 30-39 years, 6-15 years of experience)

The analysis of the administrative record drawn up by male HCWs showed that the corpus was composed of 3,804 occurrences, 1,271 distinct forms (mean frequency = 9 per form) and 795 *hapax*, i.e., words used only once. The overall number of elementary context units was 144. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 103), *aggressi*< (n = 34), *threat*+ (n = 29), *person*< (n = 26), and *medic*< (n = 20). The dendrogram of stable classes (Figure 2) shows the classification procedure used to create the five classes that emerged (amount of variance explained = 93.6%). For each class, the first characterizing five words are presented in order of the Chi-squared results (Table 3), together with the associated illustrative variables.

INSERT FIGURE 2 ABOUT HERE

Table 3. Findings from text corpus of administrative records compiled by male HCW victims of workplace violence.

Verbal violence								*Corporeal assault*	
Class I		Class II		Class III		Class IV		Class V	
Words	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*
Wait<	47	Insult<	48	Colleague+	12	Launch<	57	Follow<	24
Ask<	30	Staff	11	Ward	11	Object+	45	Therap+	20
Visit	25	Motiv<	10	Verbal<	11	Kick+	22	Nois+	19
Time	24	Recei<	9	Patient+	11	Hit<	16	Attempt<	15

Behaviour+ 24	Phon+ 9	Relative+ 9	Person< 16	Violen< 15
Illustrative variables: emergency room, nurse	Illustrative variables: emergency room, professional team's back-office activity	Illustrative variables: ward, medical doctor, midwife	Illustrative variables: psychiatric ward, administrative staff	Illustrative variables: psychiatric ward, nurse

The dendrogram (Figure 2) shows the classification procedure used to create the five classes that emerged and highlights which classes are closer and therefore more similar. Specifically, the dendrogram shows that Classes I, II and III are more similar than Classes IV and V. At the same time, Classes IV and V are more similar than the other classes. Classes I, II and III explain – together – 65% of the variance; Classes IV and V explain 35% of the variance.

Classes I, II and III were labelled *Verbal violence*. The words characterizing these classes were related to violent behaviours – such as insults and threats – that HCWs experienced principally in the emergency room and ward, both through direct contact (face to face) and by phone. In these episodes, one or more colleagues were involved. Below are some examples from the descriptions of violent events made by male HCWs:

> *"Before the conclusion of the visit, the father started to attack me verbally. He told me 'I pay the taxes, I ask you to do everything, I do not go out until the child has a diagnosis'. After reiterating that it is not possible to perform this exam in an emergency room, the father threatened me and the nurse verbally, repeatedly"* (medical doctor, aged 40-49 years, 6-15 years of experience)
>
> *"I phoned the patient's son to inform him of the imminent discharge of his father. I was insulted with elevated tone repeatedly. It was impossible to manage communication; I did not reply in any way to the insults"* (nurse, 6-15 years of experience)

"The patient's husband accused me and my colleague of not respecting the numbering in the call for assistance. The colleague explained to him that there is a work plan, but he verbally attacked us" (nurse, aged ≥50 years, 16-25 years of experience)

Classes IV and V were labelled *Corporeal assault*. The words characterizing these classes were related to physical violent behaviours – such as hitting and throwing objects – which HCWs experienced principally in the psychiatric ward. Below are some examples of sentences from administrative records:

"While my colleague and I were preparing a medication, we were interrupted by the noise of shots coming from the kitchen door. Then, we were reached for and assaulted by the patient" (nurse, aged >50 years, 6-15 years of experience)

"An agitated patient – for no apparent reason – pushed a cart against the entrance door to break through. He was shunted out, and then he came back and threatened to break our arms" (administrative staff, aged 40-49 years, 16-25 years of experience)

DISCUSSION

The findings from the descriptive analysis showed some differences based on the HCW's gender. Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of experience reported more violent episodes than their female counterparts did. Among the HCW professions, nursing was the profession in which HCWs were more prone to experience a violent episode, confirming the results of[11]. Nevertheless, the findings showed that male medical doctors were more prone to report violent episodes than female medical doctors. Confirming the findings of Magnavita and Heponiemi [10], in this study, female HCWs experienced more verbal violence (insults) than male HCWs did, while male HCWs experienced more physical violence (bodily contact) than female HCWs did. Thus, our hypothesis was confirmed. An interesting finding concerns the perpetrator: female HCWs experienced a violent episode acted out by a patient's relative more often than male HCWs did, and male HCWs experienced a violent episode acted out by

a visitor more often than female HCWs did. Regarding the workplace, type of activity, and work shift, no statistically significant difference between genders emerged. This finding did not confirm the results of Magnavita and Heponiemi [10], as in this study, it was not found that male HCWs experienced workplace violence in wards more often than female HCWs did.

Text analyses showed that female and male HCWs reported violent episodes in different ways. The findings from the text analysis of female HCWs identified a contextual factor for the violent episodes that occurred principally in those who were working in emergency rooms and wards. This contextual factor is the waiting time, a condition in which a patient and a patient's relative – as suggested by Schablon and colleagues [14] – could experience anxiety, confusion, and fear. Moreover, female HCWs (in particular, midwives) describe the violent episodes that occurred in the psychiatric ward as a consequence of a mental health disorder and noted that the assault was unpredictable. Thus, it seems that female HCWs perceive dealing with violence as part of their role [49]. Male HCWs use different words to describe violent episodes. They, more often than female HCWs, described the episodes including the witness of the episode, namely, colleagues. Male HCWs described episodes that occurred in the emergency room and ward (verbal violence) and in the psychiatric ward (corporeal assault) in the same way that female HCWs did. These episodes were related more to the type of profession than to the gender of the HCWs. The other illustrative variables (age and years of experience) did not have an effect on the differences between how male and female HCWs experience violent episodes.

This study has strengths and limitations. Regarding strengths, in this study, administrative records in which HCWs experienced violent episodes were used. Usually, self-administered questionnaires are utilized to collect data about workplace violence. However, self-assessment could be affected by recall bias [50]; thus, this method does not solve the problem of overreporting or underreporting: a long study period could also influence the

victim's memory. The analysis of reports completed within 72 hours of the aggression permits the retrieval of important information about the episode. Moreover, in this study, a qualitative analysis was used to identify differences between genders in reporting these episodes. According to Griffiths and Schabracq [51], the majority of studies in work and health psychology and investigations on workplace violence utilize a quantitative approach: this choice stems from the fact that this method allows large numbers of subjects to complete standardized questionnaires. Otherwise, a qualitative approach permits the gathering of the complexity and nuances of individual experiences and reveals the range of ways in which common features operate in experiences of workplace violence [52]. Indeed, this method was useful to better understand the lexicon that characterized the victimization experienced by female and male HCWs.

This study also has weaknesses. First, because HCWs decided whether to report violent episodes, the results cannot be generalized and should be taken with caution. Thus, it was not possible to overcome the bias in reporting violence, as HCWs may be more likely to report serious events and exclude less serious ones [53]. Future research should explore, in a more comprehensive way, this phenomenon within health organizations. For example, interviews and focus group discussion techniques could be used to better understand the obtained results and how to promote the reporting of all violent behaviour, not only the most serious events: as recommended by the Italian Ministry of Health [32], a better comprehension of workplace violence could be useful to prevent it. Another limitation is in the procedure adopted: administrative records had different styles of reports, which we tried to make homogeneous through a classification procedure. This process included a subjective component, which must be considered in any narrative analysis [54]. The use of a mixed-method technique could permit the description of the phenomenon by a quantitative and qualitative approach. Future

research could use this technique to expand the scope and improve the analytic power of studies on workplace violence in the healthcare sector [55].

CONCLUSIONS

Overall, the findings from this explorative study suggest that there is a gender difference not only in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors but also in the way in which these episodes are described. Consequently, as noted by Lawoko and colleagues [14] and Chen and colleagues [10], it is important in informative and preventive courses to consider gender differences in experiencing a violent episode. For female HCWs, it could be useful to provide clear messages that the acceptance of such violence is not "part of the job" [27,56], explaining that anger should not be taken as an acceptable emotion in the healthcare environment and that exposure to verbal violence should not be accepted as a hazard of the profession [57]. For male HCWs, it could be useful to reflect on feelings related to the stigma of victimization and to stress that a witness is not necessary to corroborate a male HCW's version of the event. This finding could be analysed in greater depth through an investigation that involves witnesses of the violent episodes describing the episodes from their points of view: a follow-up study could include interviews with staff on gender differences in the long-term impact of these events.

Moreover, these findings could be utilized by health organization management to better organize the security arrangements in some departments, to manage the overload of the emergency room and to increase the use of safety devices.

In conclusion, the findings could be used by health organization management to improve individual measures, such as intervention programmes, counselling, and psychological help, to reflect on victimization experiences and the way in which female and male HCWs react to and cope with workplace violence.

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REFERENCES

1 WHO. Violence: a public health priority. Geneva: World Health Organization 1995.

2 Cooper CL, Swanson N. Workplace violence in the health sector. State of the art. Geneva: Organización Internacional de Trabajo, Organización Mundial de la Salud, Consejo Internacional de Enfermeras Internacional de Servicios Públicos 2002.

3 Phillips JP. Workplace violence against health care workers in the United States. *New England journal of medicine* 2016;374(17):1661-1669. doi:10.1056/NEJMra1501998

4 Sun P, Zhang X, Sun Y, Ma H, Jiao M, Xing K, Kang Z, et al. Workplace violence against health care workers in North Chinese hospitals: a cross-sectional survey. *Int. J. Environ. Res. Public Health* 2017;14(1):96. doi:10.3390/ijerph14010096

5 Elliott PP. Violence in healthcare. *Nurs Manage* 1997:38-41.

6 Grottoli E, Ciriello S, Gabriele M, Giudice A, Lilli M, Mammi F, Quaranta D, Roccia K, Spadone F, Magnavita N. Assaults and nuisances in health care environment. *Giornale italiano di medicina del lavoro ed ergonomia* 2007;29(3):653-5.

7 Iozzino L, Ferrari C, Large M, Nielssen O, De Girolamo G. Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PloS one* 2015;10(6):e0128536. doi:10.1371/journal.pone.0128536

8 Arnetz JE, Hamblin L, Essenmacher L, Upfal MJ, Ager J, Luborsky M. Understanding patient-to-worker violence in hospitals: a qualitative analysis of documented incident reports. *J Adv Nurs* 2015;71(2):338-48. doi:10.1111/jan.12494

9 Kim SC, Ideker K, Todicheeney-Mannes D. Usefulness of aggressive behaviour risk assessment tool for prospectively identifying violent patients in medical and surgical units. *J Adv Nurs* 2012;68(2):349-57. doi: 10.1111/j.1365-2648.2011.05744.x

10 Magnavita N, Heponiemi T. Violence towards health care workers in a Public Health Care Facility in Italy: a repeated cross-sectional study. *BMC Health Serv Res* 2012;12(1):108. doi:10.1186/1472-6963-*12-108*

11 Renwick L, Lavelle M, James K, Stewart D, Richardson M, Bowers L. The physical and mental health of acute psychiatric ward staff, and its relationship to experience of physical violence. *International journal of mental health nursing* 2019;28(1):268-77. doi: 10.1111/inm.12530

12 Hahn S, Hantikainen V, Needham I, Kok G, Dassen T, Halfens RJG. Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs* 2012;68(12):2685-2699.

13 Ahmad M, Al-Rimawi R, Masadeh A, Atoum M. Workplace violence by patients and their families against nurses: Literature review. *Int J Nurs Health Sci* 2015;2(4):46-55.

14 Lawoko, S, Soares, JJ, Nolan P. Violence towards psychiatric staff: A comparison of gender, job and environmental characteristics in England and Sweden. *Work Stress* 2004;18(1):39-55. doi: 10.1080/02678370410001710337

15 Schablon A, Wendeler D, Kozak A, Nienhaus A, Steinke S. Prevalence and Consequences of Aggression and Violence towards Nursing and Care Staff in Germany—A Survey. *Int J Environ Res Public Health* 2018;15(6):1274. doi:10.3390/ijerph15061274

16 Maguire BJ, O'Meara P, O'Neill BJ, Brightwell R. Violence against emergency medical services personnel: A systematic review of the literature. *American journal of industrial medicine* 2018;61(2):167-80. doi: 10.1002/ajim.22797

17 Italian Ministry of Health. Personale delle A.S.L. e degli istituti di cura pubblici.www.salute.gov.it/imgs/C_17_pubblicazioni_2161_allegato.pdf

18 Morganson, VJ, Brown SE. Gender and Sexualized Aggression in the Workplace. In: Nadler JY, Lowery MR, eds. The War on Women in the United States: Beliefs, Tactics, and the Best Defenses. Praeger Publishing 2018:2051.

19 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;76(1):3-9. doi:10.1136/oemed-2018-105152

20 Itzhaki M, Peles-Bortz A, Kostistky H, Barnoy D, Filshtinsky V, Bluvstein I. Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *Int J Ment Health Nurs* 2015;24(5):403-412. doi.org/10.3389/fpsyt.2018.00059

21 Hampton D, Rayens MK. Impact of psychological empowerment on workplace bullying and intent to leave. *JONA: The Journal of Nursing Administration*. 20191;49(4):179-85. doi: 10.1097/NNA.0000000000000735

22 Laeeque SH, Bilal A, Babar S, Khan Z, Ul Rahman S. How patient-perpetrated workplace violence leads to turnover intention among nurses: The mediating mechanism of occupational stress and burnout. *Journal of Aggression, Maltreatment & Trauma* 2018;27(1):96-118.doi:10.1080/10926771.2017.1410751

23 Kim H, Kim JS, Choe K, Kwak Y, Song JS. Mediating effects of workplace violence on the relationships between emotional labour and burnout among clinical nurses. *Journal of advanced nursing* 2018;74(10):2331-9.doi: 10.1111/jan.13731

24 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN journal* 2005;53(9):399-406. doi:10.1177/216507990505300906

25 Gillespie GL, Leming-Lee TS, Crutcher T, Mattei J. Chart It to Stop It. *J Nur Care Qual* 2016;31(3):254-61. doi:10.1097/NCQ.0000000000000172

26 Clements PT, DeRanieri JT, Clark K, Manno MS, Kuhn DW. Workplace violence and corporate policy for health care settings. *Nur Econ* 2005;*23*(3):119-124.

27 Kennedy MP. Violence in emergency departments: under-reported, unconstrained, and unconscionable. *Med J Aust* 2005;183(7):362-365. doi:10.5694/j.1326-5377.2005.tb07084.x

28 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;*76*(1):3-9. doi:10.1136/oemed-2018-105152

29 Eurofound. Fifth European Working Conditions Survey. Publication Office of the European Union. Luxembourg, 2012. Available at https://www.eurofound.europa.eu/it/publications/report/2012/working-conditions/fifth-european-working-conditions-survey-overview-report

30 Istat. Il disagio nelle relazioni lavorative. Istat 2010. Available at https://www.istat.it/it/archivio/5191

31 Inail. Violenza, aggressione e non solo. Dati Inail 2018. Available at https://www.inail.it/cs/internet/docs/alg-dati-inail-2018-novembre.pdf

32 Ministero della Salute. Raccomandazione per prevenire gli atti di violenza a danno degli operatori sanitari. Raccomandazione n. 8, novembre 2007. http://www.salute.gov.it/portale/documentazione/p6_2_2_1.jsp?id=721

33 Hopkins L, Taylor L, Bowen E, Wood C. A qualitative study investigating adolescents' understanding of aggression, bullying and violence. *Child Youth Serv Rev* 2013;35(4):685-93. doi:10.1016/j.childyouth.2013.01.012

34 Patton MQ. Qualitative research and evaluation methods. Thousand Oaks, CA: Sage 2002:339-427.

35 Ritchie J, Lewis J, Nicholls CM, Ormston R, eds. Qualitative research practice: A guide for social science students and researchers. Thousand Oaks, CA: Sage 2013.

36 Fetters MD, Curry LA, Creswell JW. Achieving integration in mixed methods designs—principles and practices. *Health Serv Res* 2013;48:2134-56. doi:10.1111/1475-6773.12117

37 Ramacciati N, Ceccagnoli A, Addey B, Rasero L. Violence towards emergency nurses. The Italian national survey 2016: A qualitative study. *Int J Nurs Stud* 2018;81:21-29. doi:10.1016/j.ijnurstu.20

38 Shahzad A, Malik RK. Workplace Violence: An Extensive Issue for Nurses in Pakistan—A Qualitative Investigation. *J Interpers Violence* 2014;29,11:2021-2034. doi:10.1177/0886260513516005l8.01.017

39 Pattani R, Ginsburg S, Johnson AM, Moore JE, Jassemi S, Straus SE. Organizational factors contributing to incivility at an academic medical center and systems-based

solutions: a qualitative study. *Academic Medicine* 2018;93(10):1569.doi: 10.1097/ACM.0000000000002310

40 Arnetz J, Hamblin LE, Sudan S, Arnetz B. Organizational determinants of workplace violence against hospital workers. *Journal of occupational and environmental medicine* 2018;60(8):693.doi: 10.1097/JOM.0000000000001345

41 Tucker AL, Spear SJ. Operational failures and interruptions in hospital nursing. *Health Serv Res* 2006; *41*(3p1):643-662. doi:10.1111/j.1475-6773.2006.00502.x

42 Agresti A. Categorical Data Analysis (3" ed.). Hoboken, New Jersey: John Wiley & Sons Inc. 2002:267-313.

43 Matteucci MC, Tomasetto C. Alceste: un software per l'analisi dei dati testuali. In: Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:305-27.

44 Riff D, Lacy S, Fico F. Analyzing media messages: Using quantitative content analysis in research. New York: Routledge. 2014. doi:10.4324/9780203551691

45 Reinert M. Un logiciel d'analyse lexicale. *Cahiers de l'analyse des données* 1986;11(4):471-81.

46 Reinert, M. Mondes lexicaux et topoi dans l'approche de Alceste. [Lexical worlds and topoi in Alceste approach] In: S. Mellet & M. Vuillome, eds. Mots chiffrés et déchiffrés [Coded and decoded words]. Paris, France: Honoré Champion Editeur 1998:289-303.

47 Annese S, Mininni G. La focus group discussion tra analisi del contenuto e analisi del discorso. In Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:125-48.

48 Burla L, Knierim B, Barth J, Liewald K, Duetz M, Abel T. From text to codings: intercoder reliability assessment in qualitative content analysis. *Nurs Res* 2008;57(2):113-7. doi:

49 Brockmann, M. New perspectives on violence in social care. *Journal of Social Work* 2002;2(1):29-44. doi:10.1177/146801730200200103

50 Brophy, J. T., Keith, M. M., & Hurley, M. (2018). Assaulted and unheard: violence against healthcare staff. *New solutions: a journal of environmental and occupational health policy*, *27*(4), 581-606.

51 Griffiths A, Schabracq MJ. Work and health psychology as a scientific discipline: Facing the limits of the natural science paradigm. In: Schabracq MJ, Winnubst JAM, Cooper CL, eds. The handbook of work and health psychology. New York: Wiley 2003:173-189.

52 Coyle A. Introduction to qualitative psychological research. In: Lyons E, Coyle A, eds. Analysing qualitative data in psychology. Thousand Oaks, CA: Sage Publications 2007:9-29. doi:10.4135/9781446207536.d7

53 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN Journal* 2005;*53*(9):399-406.

54 Amaratunga D, Baldry D, Sarshar M, Newton R. Quantitative and qualitative research in the built environment: application of "mixed" research approach. *Work study* 2002;*51*(1):17-31. doi:10.1108/00438020210415488

55 Sandelowski M. Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Res Nurs & Health* 2000;*23*(3):246-255. doi:10.1002/1098240X(200006)23:3<246::AID-NUR9>3.0.CO;2-H

56 Potera C. Violence against nurses in the workplace. *Am J Nurs* 2016;*116*(6):20-21. doi:10.1097/01.NAJ.0000484226.30177.ab

57 Duxbury, J., & Whittington, R. (2005). Causes and management of patient aggression and violence: staff and patient perspectives. *Journal of advanced nursing*, *50*(5), 469-478.

Figure legends:

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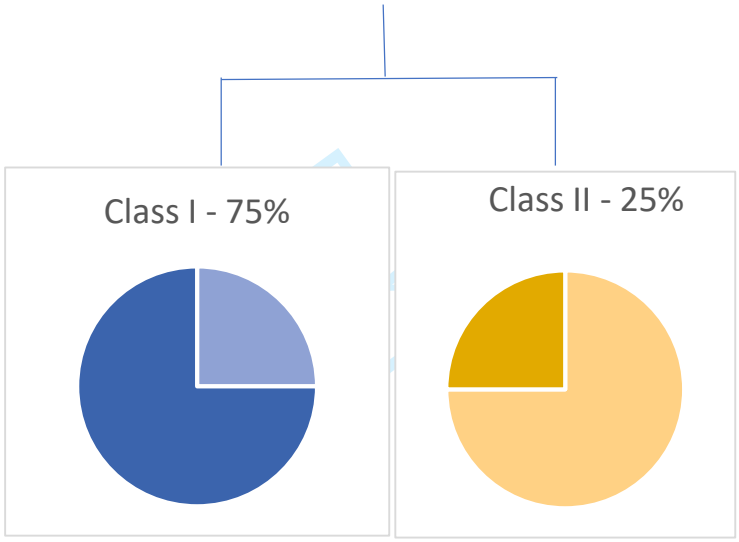

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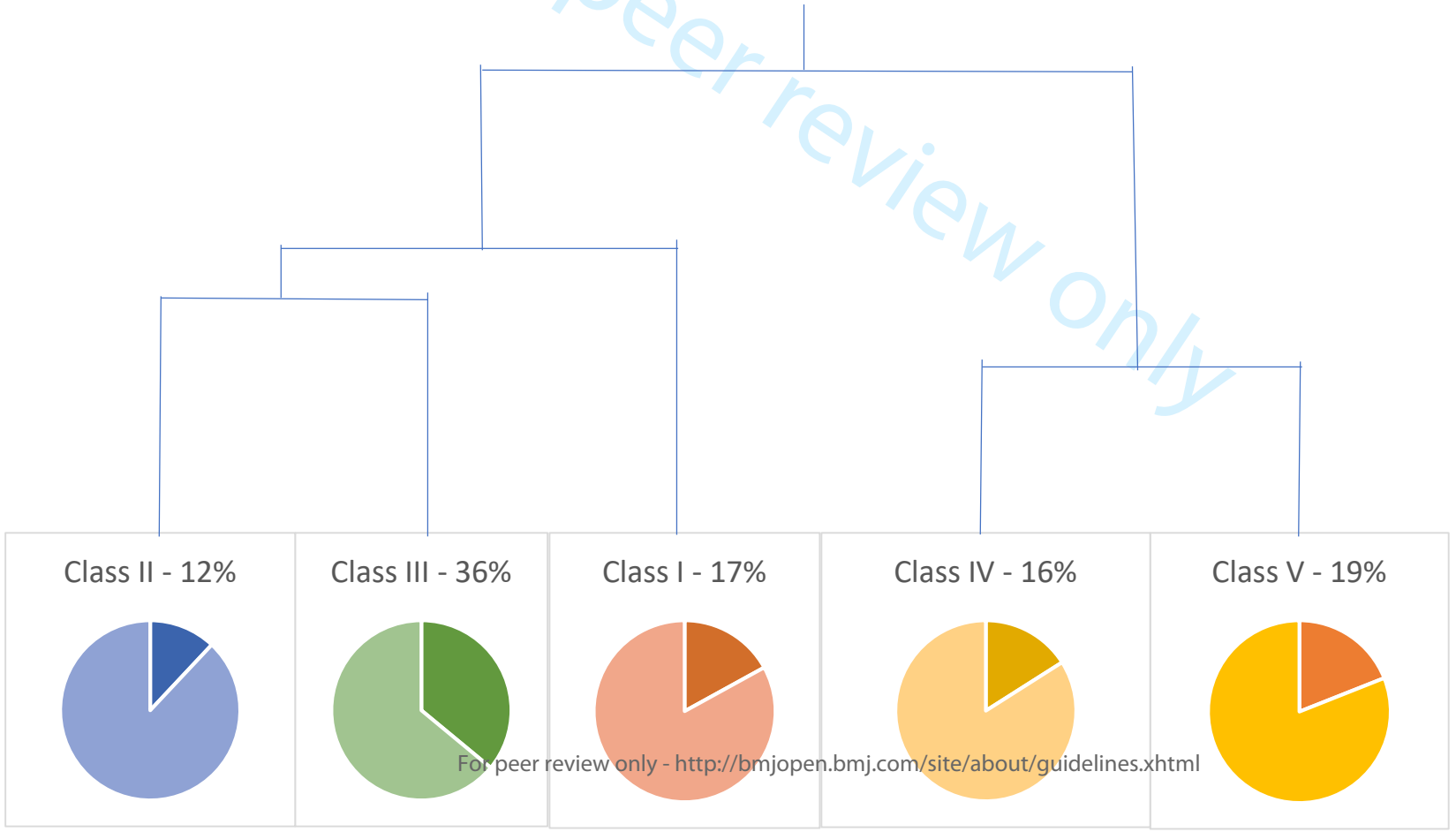

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Gender differences in reporting workplace violence: A qualitative analysis of administrative records of violent episodes experienced by healthcare workers in a large public Italian hospital

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Gender differences in reporting workplace violence: A qualitative analysis of administrative records of violent episodes experienced by healthcare workers in a large public Italian hospital

ABSTRACT

Objectives: This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence reported by healthcare workers (HCWs) in a large public Italian hospital. Qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which they dealt with it. A comparison between genders was performed to better understand what type of different strategies could be used to improve the prevention of workplace violence for HCWs.

Design and Setting: The retrospective observational study was carried out in "Città della Salute e della Scienza", a complex of four interconnected hospitals situated in northern Italy. This study analysed aggression data from the four-year period of 2015-2018 that included all HCW categories. The data were obtained from the Aggression Reporting Form.

Participants: The analysed records were supplied by 396 HCWs (3.6% of all HCWs in the hospital).

Results: Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of work experience reported more violent episodes than their female counterparts. Among the HCW professions, nursing was the profession in which HCWs were more prone to experience a violent episode, while male medical doctors were more prone to report violent episodes than female medical doctors. Moreover, female HCWs experienced more verbal violence (insults) than male HCWs did, while male HCWs experienced more physical violence (bodily contact) than female HCWs did.

Conclusions: The findings from this explorative study suggest that there is a gender difference in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors and in the way in which these episodes are described. Consequently, it is important for informative and preventive courses to consider gender differences in experiencing a violent episode.

Strengths and limitations of this study

(Strength) A qualitative analysis was used to collect the victims' descriptions of workplace violence.

(Strength) The method permits the capture of respondents' points of view.

(Strength) The comparison between genders could be useful to improve the prevention of workplace violence in this population.

(Limitation) It was not possible to overcome the bias in reporting violence.

(Limitation) Unreported incidents could not be included in the study.

Keywords: healthcare workers; workplace violence; qualitative analysis; gender difference; reported incidents.

INTRODUCTION

Workplace violence has been defined by the World Health Organization as "the intentional use of power, threatened or actual, against another person or against a group, in work-related circumstances, that either results in or has a high degree of likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation"[1].

As noted by several investigations [2-4], the healthcare sector is at particular risk of workplace violence. Elliot [5] estimated that the risk of violence from patients and their relatives towards healthcare workers (HCWs) is 16 times higher than that towards other workers. This risk is highest for healthcare workers working in psychiatric wards and

emergency rooms [6-7] since they report more violent events than other HCWs, such as those working in wards [8-10]. As suggested by Renwick and colleagues [11], it is possible that subjects who work in other wards have biased their answers, presenting themselves as at less risk than they are in reality because of such complex reasons as denial and social stigma of reporting workplace violence. At the same time, working in wards with patients who are more dangerous because they suffer from mental illness (psychiatric ward) or are under the influence of drugs or alcohol (emergency room), may make workers who are victims of violence feel more comfortable about reporting violent episodes.

Moreover, the risk of aggression is highest for HCWs working as nurses since they report more violent episodes than do physicians and administrative staff [12]. A possible explanation for this finding is linked with the nature of their job, as nurses have direct contact with patients (who could be confused, frightened, or delirious) and their families/friends [13-15]. In this case, a possible explanation could be found in the sample bias, since in the literature about nurses being assaulted, respondents who had been assaulted would be expected to have a higher rate of response than those who had not been assaulted [16].

Another possible explanation is linked to gender: in some countries, such as Italy, in more than 70% of cases, nurses are female [17], and some studies have shown that female workers are more often affected by violence than their male colleagues [18-19]. Gender is also related to the type of violence experienced by HCWs; the investigation by Magnavita and Heponiemi [10] showed that, in hospitals, female nurses experienced verbal violence (such as yelling and screaming) more often than male nurses, who were more often victims of physical assault (such as hitting and kicking). Moreover, the importance of investigating the gender difference in workplace violence experienced by HCWs was noted by Lawoko and colleagues [14]: “intervention/prevention measures need to review the gender and profession issue. It is likely that men and women, psychiatrists and nurses may require different interventions

related to their specific problems" (page 51). These types of violent episodes affect the perceived wellbeing of HCWs and could lead to several consequences, such as the interruption of work, medical treatment, and hospital and/or home care; psychological support might be needed for the HCWs to cope with the event [20]. Workplace violence might also lead staff to leave the profession [21].

Furthermore, workplace violence in this sector could be related to turnover intention through occupational stress first and then burnout [22]: regarding this, Kim and colleagues [23] suggested that the prevention of workplace violence is one way of reducing burnout in the healthcare sector.

An interesting question concerns the reports made by HCWs regarding violent episodes in the workplace. Findings from investigations have shown that violence, especially verbal violence [2], in the healthcare sector is under-reported [24-25]. The under-reporting of violence is not a phenomenon that involves only workplace violence. All forms of violence (sexual harassment, domestic violence, school bullying, and so on) are under-reported for different reasons, including both the stigma of victimization, such as shame, isolation, and fear, and the threat of further violence, which often deter victims from reporting violent episodes [26].

Moreover, for HCWs, there is a risk of desensitization to violence, as violence – due to contact with frail and ill people – is perceived as part of an HCW's job [27]. Nevertheless, the reporting of any act of violence is fundamental in engaging hospital management to activate appropriate organizational responses. Indeed, the administrative records of violent episodes experienced by HCWs constitute an important source of information [28] about the type of violence (physical or verbal), the type of perpetrator (patient, relative, or visitor), the type of HCW (administrator, midwife, nurse, or physician), the place in which the HCW experienced the violence (psychiatric ward, emergency room, or ward) and the type of activity that she/he

was doing (support activity for patients, professional team back-office activity, or assistance and patient care). These records permit the prevention of workplace violence, providing information about, for example, the type of training course that a particular HCW sub-population needs and/or the safety devices that should be installed in a particular ward.

In Europe, the Fifth European Working Conditions Survey [29] shows that, on average, 14.9% of workers reported levels of subjection to adverse social behaviour, and the highest level was in the healthcare sector (23%). The overall percentage of reported levels of subjection to adverse social behaviour in Italian workers was 8%; in the healthcare sector, this percentage was 41.4% of the workers [30]. There were 1200 total violent behaviours reported by HWCs in 2018. In most cases, (70%), the victim was female, and the perpetrator was a patient, a patient's relative or a visitor [31]. To deal with this phenomenon, in 2007, the Italian Ministry of Health published Recommendation no. 8, "Preventing acts of violence against health workers". This recommendation had several goals. First, it oversees the reporting of incidents of violence using official sources, such as the judicial authority, the police forces and the National Workplace Accident Institute. Second, it promotes the collection of data through specific surveys to identify the frequency and severity of violent episodes. The results could be useful for adopting appropriate action from an organizational and structural point of view, for example, redesigning the space and/or reformulating procedures for access to the ward. Moreover, data could be used to improve the training courses that aim to prevent violence, to improve the coping strategies and to reduce the negative consequences [32].

This study aims to analyse, from a descriptive and qualitative point of view, the episodes of violence experienced by HCWs working in a large public Italian hospital. The qualitative analysis permits us to collect the victims' words used to describe the event and the ways in which they dealt with it [33]. The advantage offered by this method is that it allows

us to capture respondents' points of view without predetermining their answers [34-35]. This approach is widely used in social science research [36] and has been used to investigate HCWs' perceptions of physical and verbal aggression [8, 37-38]. It has also been used, for example, to investigate the descriptions of violent behaviour provided by workers [39] and perceptions of the organizational safety climate [40].

A comparison between genders was used to better understand what type of differences, if any, could be used to improve the prevention of workplace violence for HCWs. Based on the literature review presented above, the hypothesis is that there are gender differences in the violent episodes experienced by female and male HCWs: female HCWs experience more verbal violence than their male colleagues, and male HCWs experience more physical violence than their female colleagues. Moreover, from the analysis of the episodes, as described by female and male HCWs, we expected that the observed semantic differences characterized the experience of victimization. This is the novel contribution of this work. We do not have specific hypotheses about the relationship between gender and the lexical words used to define the violent episodes; therefore, we intend to analyse this relationship from an explorative perspective.

METHOD

The retrospective observational study was carried out in Città della Salute e della Scienza (City of Health and Science University Hub), a complex of four interconnected hospitals situated in northern Italy. It has 1917 ordinary hospital beds and more than 400 day hospital and day surgery beds, and it is one of the largest national and European health hubs, boasting approximately twelve thousand employees. This study analysed aggression data from the four-year period of 2015-2018 that included all worker categories. The data were obtained from the Aggression Reporting Form adopted in 2014 in compliance with the abovementioned recommendation of the Ministry of Health. The form is available on the

intranet portal, and all parts of the form must be completed by victims of assault within 72 hours of the event and sent to the Safety and Environment Office. Each administrative record of a violent episode contains the following information: the sociodemographic data of the victim (age, gender, years of experience, and profession), workplace in which the violent episode occurred (psychiatric ward, emergency room or ward - 1 item), the type of activity performed by the HCW at the moment of aggression (i.e., conversation), the HCW's shift at the time of aggression, the type of aggressor (the perpetrator could be more than one person: patient, patient's relative, or visitor – 3 items, yes/no answers), the misconduct (violent behaviour could be of more than one type: insult, verbal threat, bodily contact, throwing objects, or use of a weapon – 5 items, yes/no answers), the consequences (consequences could be of more than one type: interruption of work, medical treatment, psychological support, hospital care, home care, or no consequence – 5 items, yes/no answers), the possibility of preventing the attack (1 item, yes/no answer), and the description of the event. Similar to other investigations (see Magnavita and Heponiemi [10]), age was categorized as <30 years, 30-39 years, 40-49 years, and ≥50 years, and the years of experience were classified as ≤5 years, 6-15 years, 16-25 years, and >25 years (1 item each). The type of activity was categorized as support activity for patients (e.g., meal preparation and administration), professional team back-office activity (e.g., treatment prescriptions), and assistance and patient care (e.g., assistance at the front desk) [41] (1 item). The profession was categorized as midwife, nurse, medical doctor, administrative staff or technician (such as a radiologist) (1 item). The work shift in which the aggression occurred was categorized as morning (6:00-12:00), afternoon (12:00-18:00), evening (18:00-24:00) or night (0:00-6:00) (1 item).

Procedure

Data were analysed by the authors of this paper and by assistants trained by researchers. After the approval of the Local Ethics Committee (Comitato di Bioetica dell'Ateneo, University of

Torino, Prot. 19468 January 17, 2019) was received, the administrative records of violent episodes were consulted in January-February 2019. Records were transcribed in a database; sensitive data (name, surname and worker's registration number) were omitted. This procedure was in accordance with the code of ethics of the Italian Association of Professional Psychologists and with Italian law concerning privacy. The files that constituted the corpus of administrative records were saved in a folder. Overall, the sample contained 418 records. The inclusion criteria for the episodes in this analysis were the record describing the case of violence perpetrated by a patient, a relative or a visitor. Thus, 14 records were excluded because the perpetrator was a colleague, a subordinate or a supervisor. Moreover, eight records were excluded because the gender of the victim was omitted. Therefore, 396 records were included in the present work.

Data analysis

Descriptive statistics were calculated using IBM SPSS Statistics, version 24. Descriptive measures (mean ± SD) were calculated for all the continuous variables. Because of the categorical nature of the data, $\chi 2$ tests were used to examine gender differences, followed by effect-size calculations (Phi and Cramer's V) to estimate the practical significance of the differences. As a post hoc test, standardized Pearson residuals (from this point forward: SPRs) were calculated for each cell to determine which cell differences contributed to the $\chi 2$ test results. SPRs with absolute values greater than 1.96 indicated that the number of cases in that cell was significantly larger than would be expected (in terms of over- or underrepresentation) if the null hypothesis were true, with a significance level of .05 [42].

As suggested by Matteucci and Tomasetto [43], content analysis was used to process the written description of the violent episodes. Content analysis is defined as "the systematic assignment of communication content to categories according to rules and the analysis of relationships involving those categories using statistical methods" [44, p. 3]. These data were

analysed using *Alceste 6.0* [45]. This software permits the analysis of written data according to a descending hierarchical classification (DHC) in which the text is divided into elementary context units and categorized into homogeneous classes. The software allows for the isolation and separation of internally homogeneous groups (or classes) within specific populations. Classes are formed on the basis of the co-occurrence of forms and units of context [43]. The software uses symbols to indicate the type of root. If the word is followed by the symbol <, this indicates that only the root of the word is recognized (e.g., aggressi< denotes the words aggressive, aggression, and aggressively). The symbol + indicates the identification of the termination and of different forms with the same root (e.g., nurse+ indicates the words nurse and nurses). The first class that is formed will be the most homogeneous in terms of content, i.e., the one whose lexical universe (a specific vocabulary that is used and to which the speaker attributes relevant meaning) appears to differ from those of others. The software performs the χ^2 test on the association between words and classes to identify the specific vocabulary for each class. This step allows the researcher to identify the lexical worlds in the text, i.e., the "usual places" (conventional themes) of discourse [46]. The software allows for repeated segments to be highlighted, i.e., associations of the most frequent words in a class and related classes with the selected variables. These are called illustrative variables and carry further information about the textual corpus, allowing the researcher to identify the specific characteristics that define individuals who share the same semantic universe.

In this study, the findings from the descriptive analysis were used as illustrative variables for the text analysis. An example of an illustrative variable is *midwife, which indicates the profession of the HCW who draws up the administrative record to report the violence experienced in the workplace. The resulting data were examined by three independent and autonomous subjects, as suggested by Annese and Mininni [47]. This phase was followed by a discussion of the meaning attributed to the data to reach an agreement on

the results. Consistency was guaranteed by reproducibility (or intercoder reliability -[48]; Cohen's k = .85).

Patient and public involvement

Patients were not involved in the planning and conception of this study.

RESULTS

Descriptive analysis

Overall, the records were compiled by 396 HCWs (3.6% of all HCWs working in the hospital). A total of 302 HCWs (76.3%) were female, representing approximately 4% of the entire female HCW population; 94 (23.7%) were male, representing 3.1% of the entire male HCW population. Most of the HCWs were aged 40-49 years (146, 36.9%; 4.7% of the entire HCW population aged 40-49 years). Regarding years of experience, most HCWs were in the range of 6-15 years (181, 46.3%; 6.1% of the entire HCW population with 6-15 years of experience). Two hundred ninety-eight HCWs (76.2%) were nurses (26.6% of the entire nurse population), 53 (13.6%) were midwives (25.4% of the entire midwife population), 22 (5.6%) were medical doctors (1.2% of the entire medical doctor population), 15 (3.8%) were administrative staff (1.7% of the entire administrative staff population) and 3 (0.8%) were technicians (0.5% of the entire technician population). Table 1 presents the sociodemographic characteristics of the female and male HCWs who experienced violence.

Regarding the age of the victims, the findings showed a statistically significant difference between genders (Cramer's V = 0.16). In particular, there were no male victims aged <30 years (|SPR| = -2.0). Male HCWs with 6-15 years of experience referred more frequently to episodes of violence (|SPR| = 1.7, Cramer's V = 0.16) than did female HCWs. Moreover, male medical doctors referred more frequently to episodes of violence than did female doctors, and these episodes of violence occurred more frequently for male medical doctors (|SPR| = 2.5, Cramer's V = 0.18). The perpetrator was a patient's relative for more

female HCWs than male HCWs (52% and 37.2%, respectively, $p = .012$), while the perpetrator was a visitor for more male HCWs than female HCWs (5.3% and 1.3%, respectively, $p = .023$). Regarding consequences, home care was indicated by male HCWs, while female HCWs did not mention it.

Table 1. Sociodemographic characteristics of the female and male HCWs who experienced violence. The percentages (N = 396) are in brackets.

	Female $n = 302$	Male $n = 94$	χ^2	p
Age:			9.45	.024
- <30 years	17(5.7)	-		
- 30-39 years	83(27.9)	18(19.4)		
- 40-49 years	105(35.4)	41(44.1)		
- ≥50 years	92(31)	34(36.6)		
Years of experience:			10.24	.017
- ≤5	44(14.8)	6(6.5)		
- 6-15	128(43)	53(57)		
- 16-25	80(26.8)	27(29)		
- >25	46(15.4)	7(7.5)		
Profession:			13.11	.011
- Midwife	39(13.1)	14(15.1)		
- Nurse	236(79.2)	62(66.7)		
- Medical doctor	11(3.7)	11(11.8)		
- Administrative staff	9(3)	6(6.5)		
- Technician	3(1)	-		
Workplace:			4.38	n.s.
- Psychiatric ward	35(38.5)	84(28.3)		
- Emergency room	104(35)	23(25.3)		
- Ward	109(36.7)	33(36.3)		
Type of activity:			3.61	n.s.
- Support activity for patient	125(45.8)	40(48.8)		
- Professional team's back-office activity	77(28.2)	15(18.3)		
- Assistance and patient care	71(26)	27(32.9)		
Work shift:			0.55	n.s.
- Morning	85(28.5)	30(32.3)		
- Afternoon	124(41.6)	36(38.7)		
- Evening	64(21.5)	20(21.5)		
- Night	25(8.4)	7(7.5)		
Perpetrator:				
- Patient	173(57.3)	56(59.6)	0.15	n.s.
- Patient's relative	157(52)	35(37.2)	6.25	.012
- Visitor	4(1.3)	5(5.3)	5.15	.023
Misconduct:				
- Insult	252(83.4)	67(71.3)	6.78	.009
- Threat	141(46.7)	42(44.7)	0.12	n.s.
- Bodily contact	77(25.5)	37(39.4)	6.72	.010
- Throwing objects	42(13.9)	20(21.3)	2.95	n.s.
- Use of a weapon	14(4.6)	5(5.3)	0.07	n.s.

Consequences:				
- Interruption of work	61(64.9)	210(69.8)	0.79	n.s.
- Medical treatment	29(9.6)	14(15.1)	2.15	n.s.
- Psychological support	16(5.3)	6(6.4)	0.16	n.s.
- Hospital care	2(0.7)	1(1.1)	0.15	n.s.
- Home care	-	2(2.2)	6.53	.011
- No consequences	64(21.3)	26(28)	1.76	n.s.
The attack could have been prevented	104(40)	25(29.4)	3.07	n.s.

Note. n.s. = not statistically significant.

Text analysis

Based on findings from the descriptive analysis, age, years of experience and profession were used as illustrative variables. The analysis of the administrative record drawn up by female HCWs showed that the corpus was composed of 14,951 occurrences (frequency of words in absolute values), 2,739 distinct forms (words with frequency > 3; mean frequency = 13 per form) and 1,345 *hapax* (words used only once, occurrences with a frequency = 1). The overall number of elementary context units was 516. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 329), *aggressi*< (n = 125), *medic*< (n = 62), *wait*< (n = 61), and *staff* (n = 39). The dendrogram of stable classes (Figure 1) shows the classification procedure used to create the two classes that emerged (amount of variance explained = 96.9%). For each class, the first characterizing five words are presented in order of the $\chi 2$ results (Table 2), together with the associated illustrative variables.

INSERT FIGURE 1 ABOUT HERE

Table 2. Findings from text corpus of administrative records compiled by female HCW victims of workplace violence.

Class I - *Waiting time*		Class II - *Physical attack*	
Words	$\chi 2$	*Words*	$\chi 2$

Visit<	20	Kick+	88
Wait<	17	Agitat<	76
Therap+	13	Cris+	69
Work<	12	Personal+	63
Triage	11	Object+	56
Illustrative variables: emergency room, ward.		Illustrative variables: psychiatric ward, midwife.	

Class I explained 75% of the variance and was labelled *Waiting time.* The most representative words in terms of χ^2 describe the violent episodes as a consequence of patients and relatives waiting for a visit or therapy or of the assignment of degrees of urgency to wounds or illnesses to decide the order in which patients will be treated. This waiting time was considered by the perpetrator as unacceptable. The following sentence is an example of how a female HCW described a violent episode.

> *"The patient's relatives were complaining about the waiting time. They could tell that the staff were overworked. The patient's son and daughter repeatedly came into the emergency room instead of waiting in the hall. The patient's son said to not annoy him because otherwise there would be trouble"* (nurse, aged 30-39 years, 6-15 years of work)

Class II explained 25% of the variance and was labelled *Physical attack.* This lexical world refers to the behaviours demonstrated by psychiatric patients during routine activities, such as the distribution of meals. Perpetrators were described as patients who suffered from a psychotic crisis and who physically assaulted an HCW. The sentence below provides an example of a respondent's textual production.

> *"At the end of the dinner, the patient had a crisis; he became aggressive with staff that was around him and kicked me in the face, cutting my upper lip"* (midwife, aged 30-39 years, 6-15 years of experience)

The analysis of the administrative record drawn up by male HCWs showed that the corpus was composed of 3,804 occurrences, 1,271 distinct forms (mean frequency = 9 per form) and 795 *hapax*, i.e., words used only once. The overall number of elementary context units was 144. The five most frequent words (associated forms) in the corpus were *patient*+ (n = 103), *aggressi*< (n = 34), *threat*+ (n = 29), *person*< (n = 26), and *medic*< (n = 20). The dendrogram of stable classes (Figure 2) shows the classification procedure used to create the five classes that emerged (amount of variance explained = 93.6%). For each class, the first characterizing five words are presented in order of the Chi-squared results (Table 3), together with the associated illustrative variables.

INSERT FIGURE 2 ABOUT HERE

Table 3. Findings from text corpus of administrative records compiled by male HCW victims of workplace violence.

	Verbal violence				*Corporeal assault*					
Class I		Class II		Class III		Class IV		Class V	
Words	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*	*Words*	*χ2*
Wait<	47	Insult<	48	Colleague+	12	Launch<	57	Follow<	24
Ask<	30	Staff	11	Ward	11	Object+	45	Therap+	20
Visit	25	Motiv<	10	Verbal<	11	Kick+	22	Nois+	19
Time	24	Recei<	9	Patient+	11	Hit<	16	Attempt<	15
Behaviour+	24	Phon+	9	Relative+	9	Person<	16	Violen<	15
Illustrative variables: emergency room, nurse		Illustrative variables:		Illustrative variables: ward, medical doctor, midwife		Illustrative variables: psychiatric ward, administrative staff		Illustrative variables: psychiatric ward, nurse	

	emergency room, professional team's back-office activity			

The dendrogram (Figure 2) shows the classification procedure used to create the five classes that emerged and highlights which classes are closer and therefore more similar. Specifically, the dendrogram shows that Classes I, II and III are more similar than Classes IV and V. At the same time, Classes IV and V are more similar than the other classes. Classes I, II and III explain – together – 65% of the variance; Classes IV and V explain 35% of the variance.

Classes I, II and III were labelled *Verbal violence*. The words characterizing these classes were related to violent behaviours – such as insults and threats – that HCWs experienced principally in the emergency room and ward, both through direct contact (face to face) and by phone. In these episodes, one or more colleagues were involved. Below are some examples from the descriptions of violent events made by male HCWs:

> *"Before the conclusion of the visit, the father started to attack me verbally. He told me 'I pay the taxes, I ask you to do everything, I do not go out until the child has a diagnosis'. After reiterating that it is not possible to perform this exam in an emergency room, the father threatened me and the nurse verbally, repeatedly"* (medical doctor, aged 40-49 years, 6-15 years of experience)
>
> *"I phoned the patient's son to inform him of the imminent discharge of his father. I was insulted with elevated tone repeatedly. It was impossible to manage communication; I did not reply in any way to the insults"* (nurse, 6-15 years of experience)
>
> *"The patient's husband accused me and my colleague of not respecting the numbering in the call for assistance. The colleague explained to him that there is a work plan, but he verbally attacked us"* (nurse, aged ≥50 years, 16-25 years of experience)

Classes IV and V were labelled *Corporeal assault*. The words characterizing these classes were related to physical violent behaviours – such as hitting and throwing objects – which HCWs experienced principally in the psychiatric ward. Below are some examples of sentences from administrative records:

> *"While my colleague and I were preparing a medication, we were interrupted by the noise of shots coming from the kitchen door. Then, we were reached for and assaulted by the patient"* (nurse, aged >50 years, 6-15 years of experience)
>
> *"An agitated patient – for no apparent reason – pushed a cart against the entrance door to break through. He was shunted out, and then he came back and threatened to break our arms"* (administrative staff, aged 40-49 years, 16-25 years of experience)

DISCUSSION

The findings from the descriptive analysis showed some differences based on the HCW's gender. Male HCWs aged < 30 years did not report violent episodes that occurred in the workplace, while male HCWs with 6-15 years of experience reported more violent episodes than their female counterparts did. Among the HCW professions, nursing was the profession in which HCWs were more prone to experience a violent episode, confirming the results of[11]. Nevertheless, the findings showed that male medical doctors were more prone to report violent episodes than female medical doctors. Confirming the findings of Magnavita and Heponiemi [10], in this study, female HCWs experienced more verbal violence (insults) than male HCWs did, while male HCWs experienced more physical violence (bodily contact) than female HCWs did. Thus, our hypothesis was confirmed. An interesting finding concerns the perpetrator: female HCWs experienced a violent episode acted out by a patient's relative more often than male HCWs did, and male HCWs experienced a violent episode acted out by a visitor more often than female HCWs did. Regarding the workplace, type of activity, and work shift, no statistically significant difference between genders emerged. This finding did

not confirm the results of Magnavita and Heponiemi [10], as in this study, it was not found that male HCWs experienced workplace violence in wards more often than female HCWs did.

Text analyses showed that female and male HCWs reported violent episodes in different ways. The findings from the text analysis of female HCWs identified a contextual factor for the violent episodes that occurred principally in those who were working in emergency rooms and wards. This contextual factor is the waiting time, a condition in which a patient and a patient's relative – as suggested by Schablon and colleagues [14] – could experience anxiety, confusion, and fear. Moreover, female HCWs (in particular, midwives) describe the violent episodes that occurred in the psychiatric ward as a consequence of a mental health disorder and noted that the assault was unpredictable. Thus, it seems that female HCWs perceive dealing with violence as part of their role [49]. Male HCWs use different words to describe violent episodes. They, more often than female HCWs, described the episodes including the witness of the episode, namely, colleagues. Male HCWs described episodes that occurred in the emergency room and ward (verbal violence) and in the psychiatric ward (corporeal assault) in the same way that female HCWs did. These episodes were related more to the type of profession than to the gender of the HCWs. The other illustrative variables (age and years of experience) did not have an effect on the differences between how male and female HCWs experience violent episodes.

This study has strengths and limitations. Regarding strengths, in this study, administrative records in which HCWs experienced violent episodes were used. Usually, self-administered questionnaires are utilized to collect data about workplace violence. However, self-assessment could be affected by recall bias [50]; thus, this method does not solve the problem of overreporting or underreporting: a long study period could also influence the victim's memory. The analysis of reports completed within 72 hours of the aggression permits the retrieval of important information about the episode. Moreover, in this study, a qualitative

analysis was used to identify differences between genders in reporting these episodes. According to Griffiths and Schabracq [51], the majority of studies in work and health psychology and investigations on workplace violence utilize a quantitative approach: this choice stems from the fact that this method allows large numbers of subjects to complete standardized questionnaires. Otherwise, a qualitative approach permits the gathering of the complexity and nuances of individual experiences and reveals the range of ways in which common features operate in experiences of workplace violence [52]. Indeed, this method was useful to better understand the lexicon that characterized the victimization experienced by female and male HCWs.

This study also has weaknesses. First, because HCWs decided whether to report violent episodes, the results cannot be generalized and should be taken with caution. Thus, it was not possible to overcome the bias in reporting violence, as HCWs may be more likely to report serious events and exclude less serious ones [53]. Future research should explore, in a more comprehensive way, this phenomenon within health organizations. For example, interviews and focus group discussion techniques could be used to better understand the obtained results and how to promote the reporting of all violent behaviour, not only the most serious events: as recommended by the Italian Ministry of Health [32], a better comprehension of workplace violence could be useful to prevent it. Another limitation is in the procedure adopted: administrative records had different styles of reports, which we tried to make homogeneous through a classification procedure. This process included a subjective component, which must be considered in any narrative analysis [54]. The use of a mixed-method technique could permit the description of the phenomenon by a quantitative and qualitative approach. Future research could use this technique to expand the scope and improve the analytic power of studies on workplace violence in the healthcare sector [55].

CONCLUSIONS

Overall, the findings from this explorative study suggest that there is a gender difference not only in the characteristics of workplace violence perpetrated by patients, patients' relatives and visitors but also in the way in which these episodes are described. Consequently, as noted by Lawoko and colleagues [14] and Chen and colleagues [10], it is important in informative and preventive courses to consider gender differences in experiencing a violent episode. For female HCWs, it could be useful to provide clear messages that the acceptance of such violence is not "part of the job" [27,56], explaining that anger should not be taken as an acceptable emotion in the healthcare environment and that exposure to verbal violence should not be accepted as a hazard of the profession [57]. For male HCWs, it could be useful to reflect on feelings related to the stigma of victimization and to stress that a witness is not necessary to corroborate a male HCW's version of the event. This finding could be analysed in greater depth through an investigation that involves witnesses of the violent episodes describing the episodes from their points of view: a follow-up study could include interviews with staff on gender differences in the long-term impact of these events.
Moreover, these findings could be utilized by health organization management to better organize the security arrangements in some departments, to manage the overload of the emergency room and to increase the use of safety devices.

In conclusion, the findings could be used by health organization management to improve individual measures, such as intervention programmes, counselling, and psychological help, to reflect on victimization experiences and the way in which female and male HCWs react to and cope with workplace violence.

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Author Contributions. Conceptualization: D.A.M., C.G.C. and M.G.; methodology: D.A.M.; investigation: D.A.M., P.P., F.G. and M.G.; data analysis: D.A.M.; writing (original draft preparation): D.A.M. and C.G.C.; writing (review and editing): D.A.M., C.G.C. and M.G.

REFERENCES

1 WHO. Violence: a public health priority. Geneva: World Health Organization 1995.

2 Cooper CL, Swanson N. Workplace violence in the health sector. State of the art. Geneva: Organización Internacional de Trabajo, Organización Mundial de la Salud, Consejo Internacional de Enfermeras Internacional de Servicios Públicos 2002.

3 Phillips JP. Workplace violence against health care workers in the United States. *New England journal of medicine* 2016;374(17):1661-1669. doi:10.1056/NEJMra1501998

4 Sun P, Zhang X, Sun Y, Ma H, Jiao M, Xing K, Kang Z, et al. Workplace violence against health care workers in North Chinese hospitals: a cross-sectional survey. *Int. J. Environ. Res. Public Health* 2017;14(1):96. doi:10.3390/ijerph14010096

5 Elliott PP. Violence in healthcare. *Nurs Manage* 1997:38-41.

6 Grottoli E, Ciriello S, Gabriele M, Giudice A, Lilli M, Mammi F, Quaranta D, Roccia K, Spadone F, Magnavita N. Assaults and nuisances in health care environment. *Giornale italiano di medicina del lavoro ed ergonomia* 2007;29(3):653-5.

7 Iozzino L, Ferrari C, Large M, Nielssen O, De Girolamo G. Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PloS one* 2015;10(6):e0128536. doi:10.1371/journal.pone.0128536

8 Arnetz JE, Hamblin L, Essenmacher L, Upfal MJ, Ager J, Luborsky M. Understanding patient-to-worker violence in hospitals: a qualitative analysis of documented incident reports. *J Adv Nurs* 2015;71(2):338-48. doi:10.1111/jan.12494

9 Kim SC, Ideker K, Todicheeney-Mannes D. Usefulness of aggressive behaviour risk assessment tool for prospectively identifying violent patients in medical and surgical units. *J Adv Nurs* 2012;68(2):349-57. doi: 10.1111/j.1365-2648.2011.05744.x

10 Magnavita N, Heponiemi T. Violence towards health care workers in a Public Health Care Facility in Italy: a repeated cross-sectional study. *BMC Health Serv Res* 2012;12(1):108. doi:10.1186/1472-6963-*12-108*

11 Renwick L, Lavelle M, James K, Stewart D, Richardson M, Bowers L. The physical and mental health of acute psychiatric ward staff, and its relationship to experience of physical violence. *International journal of mental health nursing* 2019;28(1):268-77. doi: 10.1111/inm.12530

12 Hahn S, Hantikainen V, Needham I, Kok G, Dassen T, Halfens RJG. Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs* 2012;68(12):2685-2699.

13 Ahmad M, Al-Rimawi R, Masadeh A, Atoum M. Workplace violence by patients and their families against nurses: Literature review. *Int J Nurs Health Sci* 2015;2(4):46-55.

14 Lawoko, S, Soares, JJ, Nolan P. Violence towards psychiatric staff: A comparison of gender, job and environmental characteristics in England and Sweden. *Work Stress* 2004;18(1):39-55. doi: 10.1080/02678370410001710337

15 Schablon A, Wendeler D, Kozak A, Nienhaus A, Steinke S. Prevalence and Consequences of Aggression and Violence towards Nursing and Care Staff in Germany—A Survey. *Int J Environ Res Public Health* 2018;15(6):1274. doi:10.3390/ijerph15061274

16 Maguire BJ, O'Meara P, O'Neill BJ, Brightwell R. Violence against emergency medical services personnel: A systematic review of the literature. *American journal of industrial medicine* 2018;61(2):167-80. doi: 10.1002/ajim.22797

17 Italian Ministry of Health. Personale delle A.S.L. e degli istituti di cura pubblici.www.salute.gov.it/imgs/C_17_pubblicazioni_2161_allegato.pdf

18 Morganson, VJ, Brown SE. Gender and Sexualized Aggression in the Workplace. In: Nadler JY, Lowery MR, eds. The War on Women in the United States: Beliefs, Tactics, and the Best Defenses. Praeger Publishing 2018:2051.

19 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;76(1):3-9. doi:10.1136/oemed-2018-105152

20 Itzhaki M, Peles-Bortz A, Kostistky H, Barnoy D, Filshtinsky V, Bluvstein I. Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *Int J Ment Health Nurs* 2015;24(5):403-412. doi.org/10.3389/fpsyt.2018.00059

21 Hampton D, Rayens MK. Impact of psychological empowerment on workplace bullying and intent to leave. *JONA: The Journal of Nursing Administration*. 20191;49(4):179-85. doi: 10.1097/NNA.0000000000000735

22 Laeeque SH, Bilal A, Babar S, Khan Z, Ul Rahman S. How patient-perpetrated workplace violence leads to turnover intention among nurses: The mediating mechanism of occupational stress and burnout. *Journal of Aggression, Maltreatment & Trauma* 2018;27(1):96-118.doi:10.1080/10926771.2017.1410751

23 Kim H, Kim JS, Choe K, Kwak Y, Song JS. Mediating effects of workplace violence on the relationships between emotional labour and burnout among clinical nurses. *Journal of advanced nursing* 2018;74(10):2331-9.doi: 10.1111/jan.13731

24 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN journal* 2005;53(9):399-406. doi:10.1177/216507990505300906

25 Gillespie GL, Leming-Lee TS, Crutcher T, Mattei J. Chart It to Stop It. *J Nur Care Qual* 2016;31(3):254-61. doi:10.1097/NCQ.0000000000000172

26 Clements PT, DeRanieri JT, Clark K, Manno MS, Kuhn DW. Workplace violence and corporate policy for health care settings. *Nur Econ* 2005;*23*(3):119-124.

27 Kennedy MP. Violence in emergency departments: under-reported, unconstrained, and unconscionable. *Med J Aust* 2005;183(7):362-365. doi:10.5694/j.1326-5377.2005.tb07084.x

28 Chen C, Smith PM, Mustard C. Gender differences in injuries attributed to workplace violence in Ontario 2002–2015. *Occup Environ Med* 2019;*76*(1):3-9. doi:10.1136/oemed-2018-105152

29 Eurofound. Fifth European Working Conditions Survey. Publication Office of the European Union. Luxembourg, 2012. Available at https://www.eurofound.europa.eu/it/publications/report/2012/working-conditions/fifth-european-working-conditions-survey-overview-report

30 Istat. Il disagio nelle relazioni lavorative. Istat 2010. Available at https://www.istat.it/it/archivio/5191

31 Inail. Violenza, aggressione e non solo. Dati Inail 2018. Available at https://www.inail.it/cs/internet/docs/alg-dati-inail-2018-novembre.pdf

32 Ministero della Salute. Raccomandazione per prevenire gli atti di violenza a danno degli operatori sanitari. Raccomandazione n. 8, novembre 2007. http://www.salute.gov.it/portale/documentazione/p6_2_2_1.jsp?id=721

33 Hopkins L, Taylor L, Bowen E, Wood C. A qualitative study investigating adolescents' understanding of aggression, bullying and violence. *Child Youth Serv Rev* 2013;35(4):685-93. doi:10.1016/j.childyouth.2013.01.012

34 Patton MQ. Qualitative research and evaluation methods. Thousand Oaks, CA: Sage 2002:339-427.

35 Ritchie J, Lewis J, Nicholls CM, Ormston R, eds. Qualitative research practice: A guide for social science students and researchers. Thousand Oaks, CA: Sage 2013.

36 Fetters MD, Curry LA, Creswell JW. Achieving integration in mixed methods designs—principles and practices. *Health Serv Res* 2013;48:2134-56. doi:10.1111/1475-6773.12117

37 Ramacciati N, Ceccagnoli A, Addey B, Rasero L. Violence towards emergency nurses. The Italian national survey 2016: A qualitative study. *Int J Nurs Stud* 2018;81:21-29. doi:10.1016/j.ijnurstu.20

38 Shahzad A, Malik RK. Workplace Violence: An Extensive Issue for Nurses in Pakistan—A Qualitative Investigation. *J Interpers Violence* 2014;29,11:2021-2034. doi:10.1177/0886260513516005l8.01.017

39 Pattani R, Ginsburg S, Johnson AM, Moore JE, Jassemi S, Straus SE. Organizational factors contributing to incivility at an academic medical center and systems-based

solutions: a qualitative study. *Academic Medicine* 2018;93(10):1569.doi: 10.1097/ACM.0000000000002310

40 Arnetz J, Hamblin LE, Sudan S, Arnetz B. Organizational determinants of workplace violence against hospital workers. *Journal of occupational and environmental medicine* 2018;60(8):693.doi: 10.1097/JOM.0000000000001345

41 Tucker AL, Spear SJ. Operational failures and interruptions in hospital nursing. *Health Serv Res* 2006; *41*(3p1):643-662. doi:10.1111/j.1475-6773.2006.00502.x

42 Agresti A. Categorical Data Analysis (3" ed.). Hoboken, New Jersey: John Wiley & Sons Inc. 2002:267-313.

43 Matteucci MC, Tomasetto C. Alceste: un software per l'analisi dei dati testuali. In: Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:305-27.

44 Riff D, Lacy S, Fico F. Analyzing media messages: Using quantitative content analysis in research. New York: Routledge. 2014. doi:10.4324/9780203551691

45 Reinert M. Un logiciel d'analyse lexicale. *Cahiers de l'analyse des données* 1986;11(4):471-81.

46 Reinert, M. Mondes lexicaux et topoi dans l'approche de Alceste. [Lexical worlds and topoi in Alceste approach] In: S. Mellet & M. Vuillome, eds. Mots chiffrés et déchiffrés [Coded and decoded words]. Paris, France: Honoré Champion Editeur 1998:289-303.

47 Annese S, Mininni G. La focus group discussion tra analisi del contenuto e analisi del discorso. In Mazzara BM, ed. Metodi qualitativi in psicologia sociale. Roma: Carocci 2002:125-48.

48 Burla L, Knierim B, Barth J, Liewald K, Duetz M, Abel T. From text to codings: intercoder reliability assessment in qualitative content analysis. *Nurs Res* 2008;57(2):113-7. doi:

49 Brockmann, M. New perspectives on violence in social care. *Journal of Social Work* 2002;2(1):29-44. doi:10.1177/146801730200200103

50 Brophy, J. T., Keith, M. M., & Hurley, M. (2018). Assaulted and unheard: violence against healthcare staff. *New solutions: a journal of environmental and occupational health policy*, *27*(4), 581-606.

51 Griffiths A, Schabracq MJ. Work and health psychology as a scientific discipline: Facing the limits of the natural science paradigm. In: Schabracq MJ, Winnubst JAM, Cooper CL, eds. The handbook of work and health psychology. New York: Wiley 2003:173-189.

52 Coyle A. Introduction to qualitative psychological research. In: Lyons E, Coyle A, eds. Analysing qualitative data in psychology. Thousand Oaks, CA: Sage Publications 2007:9-29. doi:10.4135/9781446207536.d7

53 Findorff MJ, McGovern PM, Wall MM, Gerberich SG. Reporting violence to a health care employer: a cross-sectional study. *AAOHN Journal* 2005;*53*(9):399-406.

54 Amaratunga D, Baldry D, Sarshar M, Newton R. Quantitative and qualitative research in the built environment: application of "mixed" research approach. *Work study* 2002;*51*(1):17-31. doi:10.1108/00438020210415488

55 Sandelowski M. Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Res Nurs & Health* 2000;*23*(3):246-255. doi:10.1002/1098240X(200006)23:3<246::AID-NUR9>3.0.CO;2-H

56 Potera C. Violence against nurses in the workplace. *Am J Nurs* 2016;*116*(6):20-21. doi:10.1097/01.NAJ.0000484226.30177.ab

57 Duxbury, J., & Whittington, R. (2005). Causes and management of patient aggression and violence: staff and patient perspectives. *Journal of advanced nursing*, *50*(5), 469-478.

Figure legends:

Figure 1. *Text corpus of administrative records compiled by female HCWs victims of workplace violence. The dendogram shows the classification procedure used to create the two classes that emerged (amount of variance explained = 96.9%). Class I explained 75% of the variance and was labelled Waiting time. Class II explained 25% of the variance and was labelled Physical attack.*

Figure 2. *Text corpus of administrative records compiled by male HCWs victims of workplace violence. The Dendogram shows the classification procedure used to create the five classes that emerged (amount of variance explained = 93.6%). The dendrogram shows that Classes I, II and III are more similar than Classes IV and V. At the same time, Classes IV and V are more similar than the other classes. Classes I, II and III explain – together – 65% of the variance; Classes IV and V explain 35% of the variance. Classes I, II and III were labelled Verbal violence. Classes IV and V were labelled Corporeal assault.*

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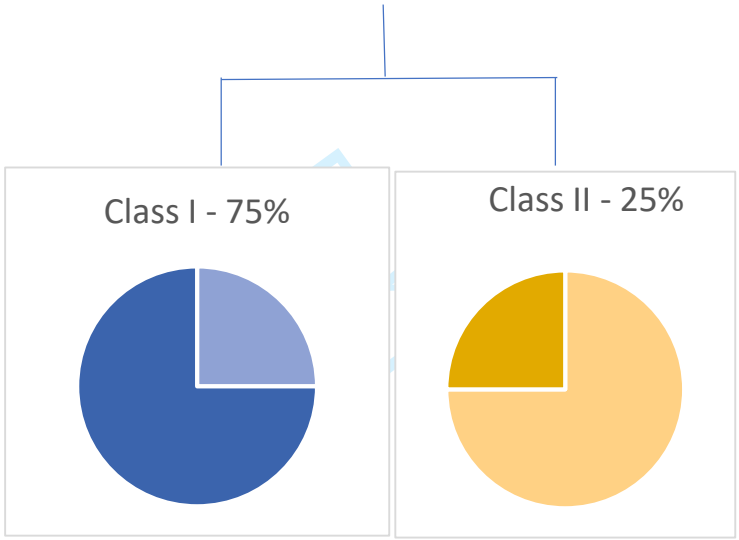

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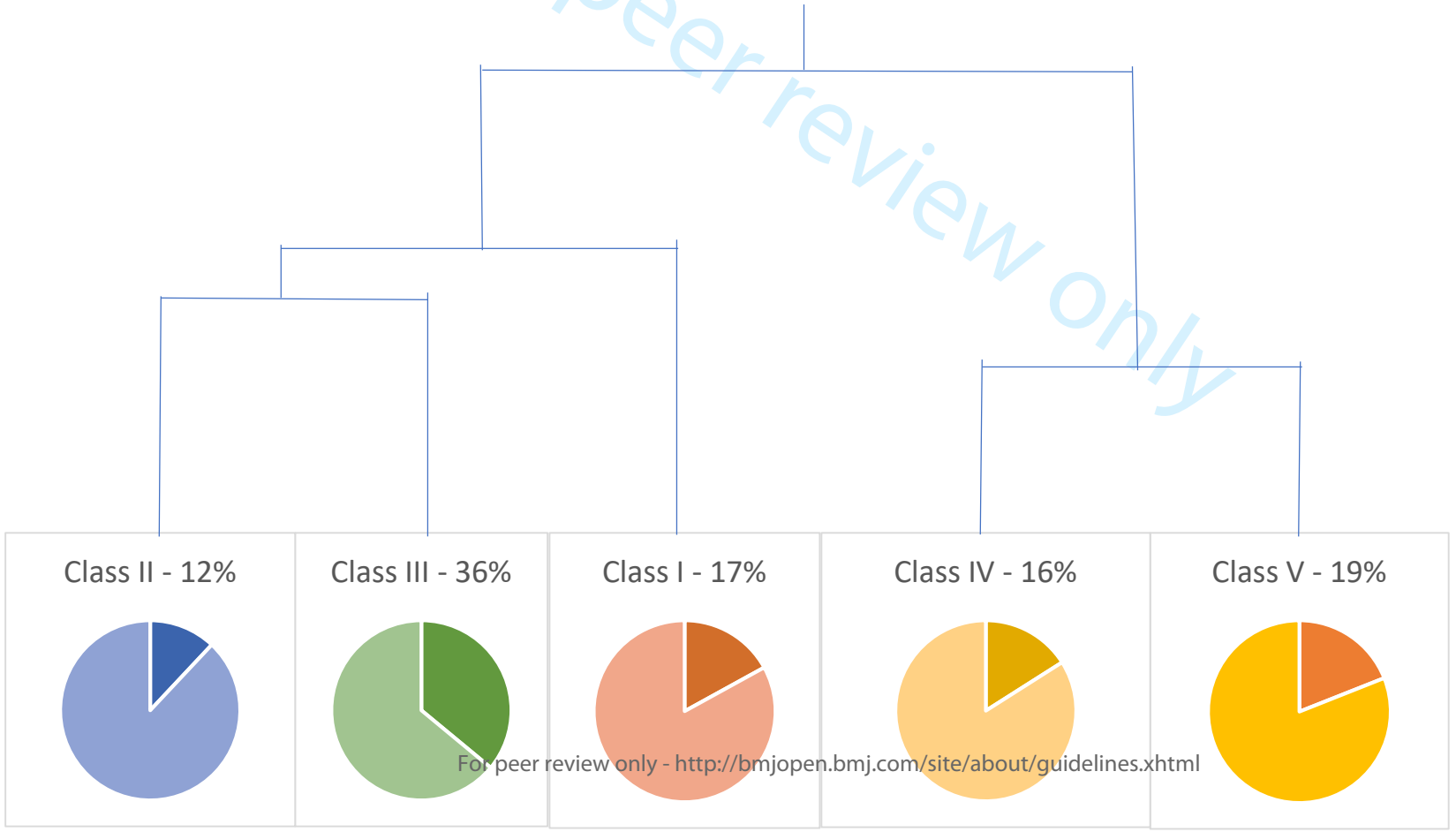

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

	Page/line no(s).
Title and abstract	
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Page 1
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 1
Introduction	
Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Pages 2-5
Purpose or research question - Purpose of the study and specific objectives or questions	Page 6
Methods	
Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	Pages 6-8
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	n.a.
Context - Setting/site and salient contextual factors; rationale**	Page 8
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	Page 8
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 8
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	Page 8

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Page 7
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Pages 6-7
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Pages 8-10
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	Pages 8-10
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	Page 10

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Pages 10-16
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Pages 13-16

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	Pages 17-18
Limitations - Trustworthiness and limitations of findings	Pages 18-19

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Page 20
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Page 20

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

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