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Workplace Violence Against Nurses in Croatia: A Cross-Sectional Study on Its Frequency, Impact, and Solutions

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Abstract
Objective. This study aimed to analyze the frequency of workplace violence against nurses in Croatia, its psychological consequences, and existing institutional measures to address this issue. **Materials and Methods.** A cross-sectional online survey was conducted among Croatian nurses in October and November 2023 using a convenience sample recruited via a social media platform. The questionnaire included 38 closed-ended questions covering socio-demographic data, experiences of physical, verbal, and sexual violence, and measures implemented to prevent or address workplace violence. **Results.** A total of 318 nurses participated in the study. Most participants (70%) reported experiencing some form of workplace violence in the past 12 months. Verbal violence was most frequent (66%), followed by physical (21%) and sexual violence (13%). Patients were the most common perpetrators of physical violence (84%), followed by relatives and healthcare staff. No statistically significant differences were found between the reporting of violent incidents and the level of nurses' education, nor between the intensity of psychological consequences and years of nurses' work experience. Nearly half of the participants (48%) stated that no formal measures existed in their workplace to prevent or respond to violence. **Conclusion.** Among nurses participating in this study, workplace violence was frequently reported, while work experience was not associated with psychological consequences. The findings indicate that workplace violence remains a relevant issue and may inform future efforts to improve preventive measures in healthcare settings.

Key Words: Nurses ▪ Violence ▪ Workplace ▪ Psychological Consequences ▪ Patients.

Introduction

The National Institute for Occupational Safety and Health (NIOSH), as part of the Centers for Disease Control and Prevention (CDC), defines workplace violence as violent acts (including physical assaults and threats of assaults) directed toward persons at work or on duty (1). Healthcare workers (HCWs) globally face a high risk of workplace violence compared to other professions and workplaces. According to the WHO, between 8% and 38% of HCWs suffer physical violence at some point in their careers (2). Most of the violence towards HCWs originates from patients and visitors. Healthcare professionals at higher risk encompass nurses, emergency room personnel, and paramedics – those directly engaged in patient care (2).

A systematic review by Liu et al. (2019) synthesized evidence on workplace violence against healthcare workers (HCWs) available up to October 2018. The review included 253 studies with a total of 331,544 participants. Findings showed that 62% of HCWs had experienced some form of workplace violence, with 43% reporting exposure to non-physical violence and 24% to physical violence in the previous year. The most common type of non-physical violence was verbal abuse (58%), followed by threats (33%) and sexual harassment (12%) (3).

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Another systematic review by Zhang et al. (2023) analyzed workplace violence against healthcare workers (HCWs) during the COVID-19 pandemic. The review included 38 studies with a total of 63,672 participants. The findings indicated high overall prevalence rates of workplace violence: 43% for any type, 9% for physical, 48% for verbal, and 26% for emotional violence. Nurses experienced more than twice the rate of physical violence compared with physicians (4). Workplace violence has a significant negative impact on HCWs because it affects their psychological and physical health, affects their job motivation, impairs their work function, compromises the quality of care, and puts healthcare provision at risk, leading to financial and social costs to employees, organizations, and society (5, 6).

Many authors have shown that both physical and non-physical violence are significantly correlated with short-term symptoms of burnout (such as emotional exhaustion, depersonalization, and inefficacy) and distressing emotions among HCWs (7). According to the findings of a 2022 systematic review, the consequences of workplace violence lead many healthcare providers to report low job satisfaction, with nearly one-third considering leaving their hospital positions (8).

Existing evidence from a recent systematic review (2023) supports the need for nurse managers to prioritize developing and implementing evidence-based strategies to mitigate violence in healthcare settings (9). These findings align with our study results, which emphasize the urgent need to establish effective institutional measures to prevent and manage workplace violence among nurses. Underreporting is a major obstacle in addressing workplace violence because it underestimates the severity of the problem and also limits prevention and intervention efforts to known incidents (5). Besides that, different forms of workplace violence are not reported equally or proportionately (9). Physical violence is likely to be more reported, while verbal violence is likely to be underreported (10, 11).

The systematic review published in 2022 found that physicians and nurses were reluctant to report violence for several reasons, including previous experience of no action being taken, fear of the consequences, and lack of management support. Additionally, they were unaware of the reporting policies and procedures (8). Available evidence on workplace violence against nurses in Croatia is limited and consists mainly of local institutional studies and student theses. Existing studies from Croatia and neighboring countries indicate high exposure of nurses to workplace violence, predominantly verbal, with patients commonly reported as perpetrators and low formal reporting rates (7, 12, 13).

Therefore, this study aimed to analyze the frequency of violence against nurses in Croatia, the psychological consequences of such violence, and the existing measures to address this problem in healthcare institutions.

Methods

Study Design

A cross-sectional study was conducted among nurses in the Republic of Croatia via an online survey from October 1 to November 4, 2023.

Participants and Recruitment

The participants were nurses employed in the Republic of Croatia. This study used a convenience sampling approach, as participation was voluntary and limited to nurses who were members of the selected Facebook group.

The participants were approached online through the Facebook group "Nurses - mutual help (diagnostic tests, scheduling, surveys)", which had 4,000 members at the time of the research. That Facebook group was designed to assist nurses by providing information on ordering diagnostic tests, scheduling patient appointments, and facilitating the completion of questionnaires and surveys for higher-education theses. The announcement text of the Facebook group post was a polite invitation to participate, emphasizing anonymity and gratitude for the time invested. The initial invitation was

sent on October 1, 2023, followed by four reminders on October 8, 15, 22, and 29. The questionnaire was closed on November 4, 2023.

Questionnaire

Participants completed an anonymous online questionnaire titled "Workplace Violence in the Health Sector Country Case Study-Questionnaire." Permission to use the questionnaire was not required. Participants did not receive any incentives, such as monetary or non-monetary rewards, for participating in this study.

The questionnaire was delivered in Croatian. For the study, the questions were translated into Croatian from English, which included the creation of two independent translations into the Croatian language (T1 and T2), synthesis of those translations (T12), two independent back translations into the original language (BT1 and BT2), and a comparison of the back translations with the original. The pre-final questionnaire was then pilot tested on a sample of 10 nursing students employed in the healthcare system who were not part of the study sample. Pilot testing was conducted to assess the questionnaire's readability and understandability. Following the pilot testing, no revisions were made to the questionnaire.

The questionnaire was conducted via the LimeSurvey platform. The questionnaire had five pages. Each page contained between 8 and 10 questions, except for the last page, which had only one question. The participants had the option to go back and correct their answers before storing them. No sensitive information was collected from the participants' devices via cookies or CAPTCHA, nor were their IP addresses recorded. Before analysis, duplicate entries with the same user ID were removed, keeping only the first entry or the entry with complete responses. Only complete responses were used in the analysis.

The part of the original questionnaire related to mobbing, racial harassment, and participants' attitudes about violence in the workplace was excluded. In the physical violence section of the questionnaire, an additional item was included to assess the frequency of physical incidents in the past 12 months. To better understand the issue of violence against nurses in Croatia, a question related to the level of education was added to the sociodemographic data.

The final version of the questionnaire consisted of 38 closed questions about sociodemographic characteristics (8 questions), physical violence (11 questions), verbal violence (9 questions), sexual violence (9 questions), and measures to solve workplace violence (1 question). The questionnaire is available in Appendix 1.

In the part of the questionnaire on physical, verbal, and sexual violence, information was collected on the frequency of violence in the last 12 months from the moment of filling out the questionnaire, whether the participants considered it a typical incident for their workplace, who the attacker was, and the response of the participants to the last incident. The participants also assessed their burden of psychological consequences after the incidents of violence with statements not at all (1), little (2), moderate (3), quite a bit (4), and extremely (5). Data were collected on the consequences for the perpetrator, the cause of the attack, and the reasons for not reporting the incident. In addition, part of the physical violence questionnaire gathered information about the time of the incident and the existence of physical injuries after the incident. Also, information was collected on existing measures to address workplace violence.

Internal consistency was evaluated for the sets of Likert-type items measuring psychological reactions to physical, verbal, and sexual violence. Although the full questionnaire included various question formats (yes/no items, checklists, and nominal indicators), only the subscales assessing psychological consequences were suitable for internal consistency testing because they shared a common underlying construct and were measured on a 5-point Likert scale. Four items were included in each subscale.

Ethics Statement

The study protocol was approved on June 15, 2023, by the Ethics Committee of The Catholic University of Croatia in Zagreb (Document number: 498-15-06-23-001). Written informed consent was obtained from all study participants. The study was conducted in accordance with the institutional Codes of Ethics. All methods were performed in accordance with the relevant guidelines and regulations.

Statistical Analyses

The data were analyzed using descriptive methods and inferential analyses to evaluate hypotheses. Categorical data were presented as percentages and frequencies. The normality of data distribution was checked with the Kolmogorov-Smirnov test. The ANOVA test was used for normally distributed data; the non-parametric Kruskal-Wallis test was used for non-normally distributed data. The differences between various groups of nurses were determined using the Chi-square test. The level of statistical significance was set at P<0.05. Microsoft Excel (version 2024, Microsoft Corp., Redmond, WA, USA) and IBM SPSS (Statistical package for social sciences, version 23, IBM Corp., Armonk, NY, USA) were used to analyze the data.

Results

Participant Characteristics

There were 4,000 members of the Facebook group at the time when the online survey was posted; 318 participated in this study (response rate 7.9%). Most participants (94%) were women. Regarding their education, 39% of the participants had a Bachelor of Nursing degree, while 39% completed nursing high school. More than half of the participants worked in different types of hospitals. (Table 1).

Table 1. Characteristics of the Participants (N=318)

Characteristics	N (%)*
Age	
18-28	83 (26)
28-38	83 (26)
38-48	81 (26)
48-58	59 (19)
>58	12 (3.8)
Sex	
Female	298 (94)
Male	20 (6.3)
Work experience in the health sector	
0-5	77 (24)
5-1	82 (26)
15-25	78 (25)
>25	81 (26)
Do you work in shifts	
Yes	221 (70)
No	97 (31)
The sex of the patients you most frequently work with are:	
Women	28 (8.8)
Men	4 (1.3)
Men and women	286 (90)

Continuation of Table 1.

Characteristics	N (%)*
Where do you spend most of your time (more than 50%) in your main job?	
General or County Hospital	96 (30)
Clinical Hospital Centre	67 (21)
Health Center, an institution for health care in the home	55 (17)
Clinical Hospital	38 (12)
Private health sector	22 (6.9)
Institute of Emergency Medicine	15 (4.7)
Social institutions, homes for the elderly, homes for people with intellectual disabilities	17 (5.3)
Educational institution (kindergarten, high school, college)	6 (1.9)
Institute of Public Health	2 (0.6)
The number of staff present in the same work setting with you during most (more than 50%) of your work time is:	
1-5	62 (20)
6-10	46 (15)
11-15	59 (19)
Over 15	151 (48)
Highest level of education completed	
Nursing high school	124 (39)
Bachelor of Nursing degree	125 (39)
Master of Nursing degree	68 (21)
Doctoral (PhD) degree	1 (0.3)

*Percentages may not add up to100% due to rounding.

More than half of the participants were aged below 38. The majority had more than 5 years of experience in the health sector. The majority worked in shifts, and they mostly worked with both men and women. More than half worked in a setting where more than 10 staff members were present at their workplace (Table 1).

Prevalence and Characteristics of Workplace Violence

Table 2 summarizes participants' experiences with physical, verbal, and sexual violence, including prevalence, characteristics of perpetrators, and nurses' responses to the most recent incident. As shown, exposure varied by type of violence: 21% of nurses reported physical violence, 66% reported verbal abuse, and 13% experienced sexual harassment within the past 12 months. For all three violence types, patients were the most frequent perpetrators, followed by relatives and staff members, although the distribution varied: patients accounted for 84% of physical assaults, 46% of verbal abuse, and 48% of sexual harassment cases. Staff members were reported as perpetrators mainly in verbal (21%) and sexual violence incidents (40%) (Table 2).

Responses to Violent Incidents

Participants also differed in how they responded to violence. Among physically abused nurses, the most common responses were telling the perpetrator to stop (51%), verbally defending themselves (42%), and reporting the incident to senior staff (45%). In contrast, 16% completed an official incident/accident report form. For verbal abuse, nearly half (47%) did not report the incident, and only 21% informed senior staff, consistent with broader underreporting patterns. Sexual violence elicited similar response patterns, with many choosing verbal self-defense (45%) or telling

Table 2. Characteristics of the Cases of Violence

Characteristics	Physical violence, N (%)	Verbal violence, N (%)	Sexual violence, N (%)	χ^2	P
In the last 12 months, have you been attacked/abused in your workplace?					
Yes	67 (21)	211 (66)	40 (13)	239.18	<0.001
No	251 (79)	107 (34)	278 (88		
Do you consider this to be a typical incident of violence in your workplace?					
Yes	55 (82)	195 (92)	29 (73)	14.91	<0.001
No	12 (18)	16 (7.6)	11 (27.5)		
How often have you been attacked/abused in the last 12 months?					
All the time	3 (4)	28 (8.8)	1 (2.5)	35.97	<0.001
Sometimes	47 (71)	168 (53)	24 (60)		
Once	17 (17)	15 (4.7)	15 (38)		
Please think of the last time you were attacked/abused in your place of work. Who attacked/abused you?					
Patient/client	56 (84)	97 (46)	19 (48)	48.71	<0.001
Relatives of the patient/client	4 (6)	29 (14)	2 (5)		
Staff member	3 (4)	45 (21)	16 (40)		
Management / supervisor	2 (3)	39 (19)	2 (5)		
External colleague/worker	2 (3)	1 (0.4)	1 (2.5)		
At which time did it happen?					
07.00 h - 13.00 h	26 (39)	-	-	7.57	0.06
13.00 h - 18.00 h	14 (21)				
18.00 h - 24.00 h	11 (16)				
24.00 h - 07.00 h	16 (24)				
How did you respond to the violence?					
Took no action	6 (8.9)	35 (17)	6 (15)	83.68	<0.001
Tried to pretend it never happened	4 (6)	44 (21)	9 (23)		
Told the person to stop	34 (51)	63 (30)	17 (43)		
Tried to defend myself physically	14 (21)	1 (0.5)	5 (15)		
Tried to defend myself verbally	28 (42)	99 (47)	18 (45)		
Reported it to a senior staff member	30 (45)	59 (21)	17 (43)		
I did not report the incident	11 (16.4)	42 (19.9)	4 (10)		
Told friends/family	15 (22.4)	43 (20.4)	8 (12)		
Sought counselling	3 (4.5)	14 (6.6)	1 (2.5)		
Told a colleague	24 (35.8)	74 (35.1)	14 (35)		
Completed incident/accident form	19 (28.4)	10 (5)	2 (5)		
Pursued prosecution	5 (7.5)	4 (1.9)	0 (0)		
Why didn't you report the incident?					
It was not important	4 (6)	5 (2.5)	1 (2.5)	15.36	0.12
Felt ashamed	0 (0)	1 (0.4)	0 (0)		
Felt guilty	0 (0)	1 (0.4)	0 (0)		
Afraid of negative consequences	1 (1.5)	21 (10)	1 (2.5)		
Did not know who to report to	4 (6)	30 (14.2)	1 (2.5)		
Useless	5 (8)	7 (3.3)	2 (5)		

Continuation of Table 2.

Characteristics	Physical violence, N (%)	Verbal violence, N (%)	Sexual violence, N (%)	χ²	P
Were you injured as a result of the violent incident?					
Yes	15 (22)			20.43	<0.001
No	52 (78)	-	-		
Was any action taken to investigate the causes of the incident?					
Yes	12 (18)	29 (14)	8 (20)	2.16	0.70
No	47 (70)	147 (70)	27 (68)		
Don't know	8 (12)	35 (17)	5 (13)		
What were the consequences for the attacker?					
None	2 (17	10 (4.7)	1 (13)	20.67	0.02
Verbal warning issued	6 (50)	18 (8.4)	7 (88)		
Care discontinued	3 (25)	2 (0.9)	0 (0)		
Reported to the police	7 (58)	1 (0.45)	0 (0)		
Aggressor prosecuted	1 (8)	1 (0.45)	0 (0)		
Don't know	1 (8)	2 (0.9)	0 (0)		

a supervisor (43%), yet formal reporting remained rare (5%) (Table 2).

Reasons for Not Reporting Violent Incidents

Reasons for not reporting incidents also differed across violence types. For physical violence, the most common reasons included believing the incident was "not important" (6%) or that reporting was "useless" (8%). For verbal abuse, participants more frequently cited not knowing whom to report to (14%) or fear of negative consequences (10%). Reasons for not reporting sexual harassment were infrequent but included fear of consequences (2.5%) and perceptions that reporting would not change anything (5%) (Table 2).

No difference was found in the reporting of physical violence [χ^2=2.07<5.99 (P>0.05)] and verbal violence (χ^2=2.23; P=5.99) based on participants' level of education. A chi-square test was not performed for sexual violence because the number of those who were victims of sexual harassment was not sufficient (N=2) (Table 3).

Table 3. Reporting of Violent Incidents by Participants' Level of Education

Type of abuse	Filled out the incident/accident report form, N (%)	χ²	P
Physically abused			
Nursing high school	10 (53)	207	0.36
Bachelor of Nursing degree	6 (32)		
Master of Nursing degree	3 (16)		
Verbally abused			
Nursing high school	2 (20)	2.23	0.33
Bachelor of Nursing degree	5 (50)		
Master of Nursing degree	3 (30)		
Sexually assaulted			
Nursing high school	1 (50)	*	*
Bachelor of Nursing degree	1 (50)		
Master of Nursing degree	0 (0)		

*Chi-square test was not performed.

Psychological Consequences of Violence

To evaluate whether the psychological consequences of workplace violence differed by years of work experience, participants rated their level of burden across four domains, including intrusive memories, avoidance, hyper-vigilance ("being super-alert"), and a sense of effortfulness, on a scale

Table 4. Presentation of Psychological Consequences of Experienced Physical, Verbal and Sexual Violence in Relation to Work Experience

Psychological consequences	<5	5-15	15-25	>25	H*	P†
Physical violence						
Repeated, disturbing memories, thoughts, or images of the attack?	3	2.5	2	2.5	1.63	0.65
Avoiding thinking about or talking about the attack or avoiding having feelings related to it?	2	2	2.5	3	3.04	0.39
Being "super-alert" or watchful and on guard?	3	4	4	3	3.26	0.35
Feeling like everything you did was an effort?	3	3	3	3	0.25	0.97
Verbal violence						
Repeated, disturbing memories, thoughts, or images of the attack?	2.65‡	2.84‡	3.22‡	2.92‡	2.22	0.53
Avoiding thinking about or talking about the attack or avoiding having feelings related to it?	3	3	3	3	0.20	0.98
Being "super-alert" or watchful and on guard?	3.58‡	3.39‡	3.92‡	3.63‡	2.30	0.51
Feeling like everything you did was an effort?	3.20‡	3.32‡	3.43‡	3.23‡	0.34	0.95
Sexual violence						
Repeated, disturbing memories, thoughts, or images of the attack?	2	2	3	3	1.29	0.73
Avoiding thinking about or talking about the attack or avoiding having feelings related to it?	3	3	2.5	3	1.32	0.73
Being "super-alert" or watchful and on guard?	3	5	4	3	0.69	0.88
Feeling like everything you did was an effort?	3	3	3	3	0.84	0.84

*Kruskal–Wallis H test; †>0.05; ‡Numbers expressed as median or as average. Analyses: Chi-square test.

from 1 ("not at all") to 5 ("extremely"). As shown in Table 4, the median scores across all experience groups ranged from 2 to 4, indicating generally low to moderate psychological burden. Across all forms of violence (physical, verbal, and sexual), no statistically significant differences were observed between nurses with fewer than 5 years of experience and those with more than 25 years (all P>0.05) (Table 4).

Although the burden did not differ statistically across experience groups, certain patterns were notable. For example, hyper-vigilance ("being super-alert or watchful") consistently showed among the highest median scores across all types of violence, particularly after verbal violence (median scores 3.39–3.92), suggesting that this reaction is a common psychological response among nurses regardless of experience. In contrast, feelings of effortfulness and intrusive memories generally fell within the moderate range (median = 2 to 3), with minimal variation across groups (Table 4).

Workplace Measures to Address Violence

Regarding workplace measures to address workplace violence, most participants (N=75; 24%) reported security measures such as guards, alarms, and portable phones. This was followed by patient protocols, including control and restraint procedures, transport, medication, and access to information, which were mentioned by 66 participants (21%). Almost half (N=154, 48%) of participants reported that none of the mentioned measures were implemented at their workplace (Table 5).

Internal Consistency

Internal consistency was assessed for the psychological reaction scales related to physical violence, verbal abuse, and sexual harassment. Cronbach's alpha indicated acceptable reliability across all three scales: α=0.75 for reactions following physical violence, α=0.77 for reactions following verbal abuse, and α=0.77 for reactions following sexual harassment.

Table 5. Presentation of Measures to Solve the Problem of Violence in the Workplace

What measures exist to deal with violence in your workplace?	N (%)
Security measures (e.g., guards, alarms, portable telephones)	75 (24)
Patient protocols (e.g., control and restraint procedures, transport, medication, activities programming, access to information)	66 (21)
Patient screening (to record and be aware of previous aggressive behaviour)	55 (17)
Promotion of a healthy environment	46 (15)
Training (e.g., workplace violence, coping strategies, communication skills, conflict resolution, self-defence)	33 (10)
Changed shifts or rotas (i.e., working times)	27 (8.5)
Restrict public access	26 (8.2)
Check-in procedures for staff (especially for home care)	19 (6)
Increased staff numbers	14 (4.4)
Reduced periods of working alone	14 (4.4)
Restrict exchange of money at the workplace (e.g. patient fees)	6 (1.9)
None of these	154 (49)

Discussion

The results of the study showed that most participating nurses reported experiencing workplace violence in the past 12 months, with verbal violence being the most common. Psychological burden was generally moderate and did not differ by education level or years of work experience. Nearly half of respondents reported the absence of workplace measures to address violence, with security-related interventions being the most frequently mentioned where measures existed. This study complements existing research by providing context-specific data from Croatia and by examining reporting behaviors, psychological consequences, and the workplace. These findings reflect the experiences of nurses who participated in this survey and should not be interpreted as definitive evidence of nationwide prevalence or institutional practices. measures within a single sample.

Characteristics of Violent Incidents

Our study found that verbal abuse was the most common form of violence in the workplace, with patients being the primary perpetrators of physical, verbal, and sexual violence against nurses. Staff and supervisors were also frequently responsible for verbal abuse. Very few studies on this topic among nurses from Croatia have been published. A study conducted in 2017 in Osijek, Croatia, examined workplace violence against nurses at the Clinical Hospital Center Osijek, including 20% of the staff. The study was focused on exploring the exposure to maltreatment and violence at the workplace over the past six months. According to the results, 40% of the 275 participants reported experiencing workplace violence. Among those, 44% experienced violence by supervisors, 39% by colleagues, and 26% by patients and students (12).

A study conducted in 2020 on 328 nurses in Croatia revealed that only 7% of participants had not experienced any form of violence at the workplace. However, this data does not pertain solely to the past 12 months, as in our study. The most common form of violence reported was verbal abuse, with only 4% (N=13) of respondents stating they had no experience with it, while 83% (N=271) reported experiencing verbal abuse multiple times. Following verbal abuse, physical violence was reported by 51% and sexual violence by 27% of respondents (14). Similar to the results of our study, patients were most frequently identified as the perpetrators of physical (86%) and verbal violence (77%). However, there was a difference in the perpetrators of sexual violence, with the majority (60%) being physicians (14).

In our study, the survey did not offer “physicians” as a response option for perpetrators of violence; instead, “staff” was provided. Among

participants who experienced sexual violence (N=40), almost half reported that it was perpetrated by patients, and 16 (40%) reported experiencing sexual violence from "staff."

A study conducted in the Czech Republic and Slovakia in 2020 found that in the past 12 months, 18% of nurses from both Slovakia and the Czech Republic experienced physical violence. Verbal abuse was the most common form of violence in both countries, similar to the results of our study; it was reported by 48% of respondents in Slovakia and 61% in the Czech Republic. The results from the Czech Republic are closer to the results of this study. In both countries, patients were most frequently identified as the perpetrators of both forms of violence, just as in this study (13).

Psychological Consequences of Violence

The most common psychological consequences of all types of violence at the workplace among our participants were being "super-alert" or watchful and on guard. Several studies have found similar psychological consequences of workplace violence, including the experience of being "super-alert" or watchful and on guard, which aligns with our findings. For instance, research conducted among healthcare workers in the Greater Accra region of Ghana revealed that a significant proportion of those who experienced workplace violence, whether physical, verbal, or sexual, reported becoming more vigilant and watchful as a consequence (15). A systematic review of prospective and longitudinal studies on workplace violence, particularly in healthcare and human service industries, found consistent evidence of psychological consequences like heightened alertness or hyper-vigilance among workers exposed to violence. This state of being "super-alert" was frequently observed as a response to both physical and psychological violence, which reinforces the findings from your study (16).

Furthermore, in our study, there was no significant difference in the intensity of psychological consequences between respondents with more or less than five years of work experience in the context of any form of violence. This indicates that the duration of work experience does not significantly affect the psychological consequences of violent incidents in our sample.

Results from a 2020 study in Croatia showed that, of 298 respondents, 50% reported being sometimes concerned about workplace safety, and only 7.9% sought psychological help. Additionally, 31% of respondents reported avoiding their attacker at work, while 36% of respondents indicated that their experience with violence did not affect their work (14).

The results of the study conducted on Slovak and Czech nurses showed that a statistically significant difference was found in the intensity of psychological responses to physical and verbal violence between nurses in those two countries. In Slovakia, most respondents (47%) reported being significantly bothered by the feeling of "hyper-vigilance" after a violent incident, while in the Czech Republic, 35% reported being significantly affected by it (13). There is evidence that the most common consequences of workplace violence include being "superalert" or watchful and on guard (17), which is consistent with the results of our study.

Reporting Violence at the Workplace

This study showed that reporting violence in the workplace was low and did not find a significant difference in reporting violent incidents based on the level of education. Respondents reported incidents equally, regardless of their education level. They did not describe cases of non-reporting of sexual violence due to feelings of shame. However, this may not reflect reality, and respondents may have provided socially desirable answers. Notably, among 40 nurses who reported experiencing sexual violence in our study, 40% experienced it from "staff," and 5% reported experiencing sexual violence from superiors. These numbers suggest that such cases might go unreported to avoid stigmatization and additional workplace discomfort.

A study in Slovenia showed that workplace violence against nurses was common, while formal reporting rates were low, particularly for sexual

violence, mainly due to perceptions that reporting would be ineffective and fear of job-related consequences (18). A retrospective cross-sectional study conducted among registered nurses in Poland, the Czech Republic, the Slovak Republic, Turkey, and Spain found that about half of the study group did not report workplace violence because they believed it was useless or not important (17).

According to the systematic review aimed to investigate nurses' reasons and rationale related to the underreporting of violence that occurs in the workplace, the most prominent factors included nurses' fear of consequences after reporting, nurses' perceptions, and their lack of knowledge about the reporting process (9). Five of the 19 studies used the term "part of the job", while other studies described this synonymously as "common to their care area" or "desensitized to violent patients" (9).

Furthermore, a scoping review aimed to describe and synthesize the scientific literature on nurses' formal reporting of workplace violence, which included 49 studies, revealed four key issues related to workplace violence reporting. These issues were: (1) reporting rates are generally low, with oral reports being the most common method; (2) nurses often express dissatisfaction with how their reports are handled by their organizations; (3) the reasons influencing reporting are varied and complex; and (4) few studies have suggested formal measures to encourage reporting (19).

Measures for Addressing Workplace Violence

In our study, almost half of the participants reported the non-existence of preventive measures against workplace violence at their jobs. Where available, the most common measures mentioned were security measures such as guards and alarms, followed by protocols for patient restraint and control, medication and transportation controls, and other related measures.

According to the results of a systematic review conducted with the aim to explore the topics focused on and to detect new evidence about approaching the issue of workplace violence toward HCWs in Emergency departments, an effective strategy for managing workplace violence should emphasize training programs that focus on developing strong healthcare worker-patient relationships, enhancing communication skills among workers, ensuring precise reporting of violent incidents, and improving the work environment with active management support and employee participation in workplace violence prevention initiatives (7). Accordingly, a study conducted in Croatia in 2020 highlighted that 65% of nurses indicated that additional education would help in better handling violent individuals (7). The results of our study indicate that only 10.4% of participants reported that one of the measures in place to address workplace violence was training, which included topics such as workplace violence, coping strategies, communication skills, conflict resolution, and self-defense.

The study conducted in Germany in 2018, which included 81 healthcare institutions and 1,984 healthcare workers, found that although many healthcare institutions have introduced preventive measures against workplace violence, comprehensive risk assessment and systematic prevention remain inconsistent, and increased awareness may contribute to higher reporting rates (20) 81 different healthcare facilities and 1984 employees participated. The questionnaire encompassed socio-demographic details, the frequency of physical violence and verbal abuse, consequences of violence and the stress of employees. In the previous twelve months, 94.1% of the employees in the survey had experienced verbal abuse and 69.8% had experienced physical aggression. Acts of aggression were most commonly encountered in hospitals and residential facilities for the disabled. One third of the employees felt under high levels of stress as a result of the incidents. If the workplace prepares effectively, however, this reduces the perceived stress odds ratio (OR.

According to a study of 35 national nurses' associations across Europe, workplace violence against nurses reflects broader systemic and legislative gaps, highlighting the need for stronger institutional and policy-level action (21). Compared

with international findings, our results suggest that Croatian nurses report fewer structured preventive measures, indicating that implementation gaps may be more pronounced in this context.

Limitations of the Study

A limitation of the study is the relatively small sample size. According to data from the Croatian Institute of Public Health, as of May 10, 2023, there were 32,440 nurses employed in the healthcare sector in the Republic of Croatia (22). Therefore, the study involved about 1% of the nurses in Croatia. However, the data collection method via a Facebook group also presents certain limitations. For example, not all nurses in Croatia are members of that Facebook group. The group has 4,000 members, so the response rate among group members was 7.9%. Although the survey was posted in the group five times, including the initial invitation and four reminders, it is possible that not all group members saw the survey. It is also possible that nurses are tired of frequent requests to complete online surveys, resulting in a low response rate within the group. Because the study relied on a convenience sample recruited via a social media group, the results may be subject to selection bias and may not reflect the experiences of all nurses employed in Croatia. Additionally, there was a dispersion of respondents according to the types of violence they experienced; for instance, relatively few respondents described sexual violence. Furthermore, a large portion of respondents were women, leading to insufficient data to analyze violence against men. However, women make up the majority of the nursing population in Croatia (86%), so the gender distribution of respondents in this study aligns with that of the population in Croatia.

Ideas for Future Research

Future studies should include a larger and more diverse sample to enable regional and institutional comparisons of workplace violence among nurses in Croatia. Expanding research to include other healthcare professionals could help identify interprofessional differences in both exposure to and response to workplace violence. Additionally, further investigation is needed to understand barriers to reporting violent incidents and to inform the development of targeted interventions and support mechanisms for affected staff.

Conclusion

This study indicates that workplace violence against nurses is a common and underreported problem among the nurses included in this sample, most often perpetrated by patients. The reported absence of preventive measures in many participants' workplaces highlights potential gaps in institutional responses and suggests the need for further evaluation and improvement of safety policies. Previous evidence indicates that workplace violence may be mitigated through staff training, clear reporting pathways, organizational support, routine risk assessment, and appropriate security measures. Strengthening these approaches may help improve prevention, reporting, and management of violent incidents in healthcare settings. Implementing evidence-based prevention strategies is essential to create safer healthcare environments and enhance nurses' well-being.

What Is Already Known about This Topic:

Workplace violence against nurses is a well-documented global problem that negatively affects healthcare professionals' safety, mental health, and job satisfaction. Numerous studies worldwide have shown that nurses are among the occupational groups most exposed to verbal, physical, and sexual violence in the workplace. Such incidents contribute to increased stress, burnout, and staff turnover, and they can compromise the quality of patient care. International organizations, including the World Health Organization (WHO) and the International Labour Organization (ILO), have emphasized the need for effective prevention and reporting mechanisms to reduce workplace violence in healthcare. However, most existing research has been conducted in high-income countries, and data from Central and Eastern Europe remain limited, particularly regarding Croatia (7, 12, 13).

What This Study Adds:

Due to our knowledge, this study provides the first comprehensive national insight into the prevalence, types, and consequences of workplace violence against nurses in Croatia. It reveals that 70% of nurses experienced some form of workplace violence in the past year, predominantly verbal abuse, and nearly half reported the absence of institutional mea-

sures to address it. The findings highlight significant gaps in workplace safety and underscore the urgent need for systemic interventions and policies. By providing localized data, the study contributes to global research and supports evidence-based action to protect healthcare professionals in Croatia.

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Appendix 1. Questionnaire Used in the Study

In this questionnaire, workplace violence refers to incidents in which staff are abused, threatened, or assaulted in situations related to their work. This includes incidents occurring while commuting to and from work and those that involve an explicit or implicit threat to personal safety, well-being, or health.

A. SOCIODEMOGRAPHIC CHARACTERISTICS

1. Age:
   18-28
   28-38
   38-48
   48-58
   >58

2. Sex:
   Female
   Male

3. Work experience in the health sector:
   0-5
   5-15
   15-25
   >25

4. Do you work in shifts?
   Yes
   No

5. The sex of the patients you most frequently work with are:
   Women
   Men
   Men and women

6. Where do you spend most of your time (more than 50%) in your main job?
   General or County Hospital
   Clinical Hospital Centre
   Health Center, an institution for health care in the home
   Clinical Hospital
   Private health sector
   Institute of Emergency Medicine
   Social institutions, homes for the elderly, homes for people with intellectual disabilities
   Educational institution (kindergarten, high school, college)
   Institute of Public Health

7. The number of staff present in the same work setting with you during most (more than 50%) of your work time is:
   1-5
   6-10
   11-15
   Over 15

8. Completed degree of education:
   Nursing high school
   Bachelor of Nursing degree
   Master of Nursing degree
   Doctoral (PhD) degree

B. PHYSICAL VIOLENCE

9. In the last 12 months, have you been physically attacked in your workplace?
   Yes
   No

10. Do you consider this to be a typical incident of violence in your workplace?
    Yes
    No

11. How often have you been physically attacked in the last 12 months?
    All the time
    Sometimes
    Once
12. Please think of the last time you were physically attacked in your place of work. Who attacked you?
    Patient/client
    Relatives of patient/client
    Staff member
    Management / supervisor
    External colleague/worker

13. At which time did it happen?
    07.00 h. - 13.00 h.
    13.00 h. - 18.00 h.
    18.00 h. - 24.00 h.
    24.00 h. - 07.00 h.

14. How did you respond to the violence?
    Took no action
    Tried to pretend it never happened
    Told the person to stop
    Tried to defend myself physically
    Tried to defend myself verbally

Reported it to a senior staff member
I did not report the incident
Told friends/family
Sought counselling
Told a colleague
Completed incident/accident form
Pursued prosecution

15. Why didn't you report the incident?
It was not important
Felt ashamed
Felt guilty
Afraid of negative consequences
Did not know who to report to
Useless

16. Were you injured as a result of the violent incident?
Yes
No

17. Was any action taken to investigate the causes of the incident?
Yes
No
Don't know

18. What were the consequences for the attacker?
None
Verbal warning issued
Care discontinued
Reported to police
Aggressor prosecuted
Don't know

19. Listed below are a list of problems and complaints that people sometimes have in response to stressful life experiences like the event that you suffered. *For each item, please indicate how bothered you have been by these experiences since you were attacked. Please tick one option per question.*

Since you were attacked, how bothered have you been by:	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
Repeated, disturbing memories, thoughts, or images of the attack?					
Avoiding thinking about or talking about the attack or avoiding having feelings related to it?					
Being "super-alert" or watchful and on guard?					
Feeling like everything you did was an effort?					

C. VERBAL ABUSE

20. In the last 12 months, have you been verbally abused in your workplace?
    Yes
    No

21. Do you consider this to be a typical incident of violence in your workplace?
    Yes
    No

22. How often have you been verbally abused in the last 12 months?
    All the time
    Sometimes
    Once

23. Please think of the last time you were verbally abused in your place of work. Who abused you?
    Patient/client
    Relatives of patient/client
    Staff member
    Management / supervisor
    External colleague/worker

24. How did you respond to the violence?
    Took no action
    Tried to pretend it never happened
    Told the person to stop
    Tried to defend myself physically
    Tried to defend myself verbally
    Reported it to a senior staff member
    I did not report the incident
    Told friends/family
    Sought counselling
    Told a colleague
    Completed incident/accident form
    Pursued prosecution

25. Why didn't you report the incident?
    It was not important
    Felt ashamed
    Felt guilty
    Afraid of negative consequences
    Did not know who to report to
    Useless

26. Was any action taken to investigate the causes of the incident?
    Yes
    No
    Don't know

27. What were the consequences for the attacker?
    None
    Verbal warning issued
    Care discontinued
    Reported to police
    Aggressor prosecuted
    Don't know

28. Listed below are a list of problems and complaints that people sometimes have in response to stressful life experiences like the event that you suffered. *For each item, please indicate how bothered you have been by these experiences since you were abused. Please tick one option per question.*

Since you were abused, how bothered have you been by:	Not at All (1)	A Little Bit(2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Repeated, disturbing memories, thoughts, or images of the attack?					
Avoiding thinking about or talking about the attack or avoiding having feelings related to it?					
Being "super-alert" or watchful and on guard?					
Feeling like everything you did was an effort?					

D. SEXUAL HARASSMENT

29. In the last 12 months, have you been sexually harassed in your workplace?
    Yes
    No

30. Do you consider this to be a typical incident of violence in your workplace?
    Yes
    No

31. How often have you been sexually harassed in the last 12 months?
    All the time
    Sometimes
    Once

32. Please think of the last time you were sexually harassed in your place of work. Who harrased you?
    Patient/client
    Relatives of patient/client
    Staff member
    Management / supervisor
    External colleague/worker

33. How did you respond to the violence?
    Took no action
    Tried to pretend it never happened

Told the person to stop
Tried to defend myself physically
Tried to defend myself verbally
Reported it to a senior staff member
I did not report the incident
Told friends/family
Sought counselling
Told a colleague
Completed incident/accident form
Pursued prosecution

34. Why didn't you report the incident?
It was not important
Felt ashamed
Felt guilty
Afraid of negative consequences
Did not know who to report to
Useless

35. Was any action taken to investigate the causes of the incident?
Yes
No
Don't know

36. What were the consequences for the attacker?
None
Verbal warning issued
Care discontinued
Reported to police
Aggressor prosecuted
Don't know

37. Listed below are a list of problems and complaints that people sometimes have in response to stressful life experiences like the event that you suffered. *For each item, please indicate how bothered you have been by these experiences since you were abused. Please tick one option per question.*

Since you were harrased, how bothered have you been by:	Not at all (1)	A Little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
Repeated, disturbing memories, thoughts, or images of the attack?					
Avoiding thinking about or talking about the attack or avoiding having feelings related to it?					
Being "super-alert" or watchful and on guard?					
Feeling like everything you did was an effort?					

E. HEALTH SECTOR EMPLOYER

38. What measures to deal with workplace violence exist in your workplace?
    Security measures (e.g. guards, alarms, portable telephones)
    Restrict public access
    Patient screening (to record and be aware of previous aggressive behaviour)
    Patient protocols (e.g. control and restraint procedures, transport, medication, activities programming, access to information)
    Restrict exchange of money at the workplace (e.g. patient fees)
    Increased staff numbers
    Check-in procedures for staff (especially for home care)
    Changed shifts or rotas (i.e. working times)
    Reduced periods of working alone
    Training (e.g. workplace violence, coping strategies, communication skills, conflict resolution, self-defence)
    Promotion of healthy environment
    None of these