

# Workplace Violence Against Medical Students in Shiraz, Iran

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## Abstract

**Background:** Violent behavior in the workplace, or workplace violence (WPV), is considered a serious threat to the mental and physical health of employees. WPV ranges from verbal abuse to physical assaults and even sexual harassment.

**Objectives:** Every medical student may be repeatedly exposed to violence in hospitals due to direct contact with the public and patients. This study investigates the prevalence of all types of WPV against medical students.

**Patients and Methods:** A retrospective, cross-sectional study was conducted on 275 medical students in the educational hospitals of Shiraz University of Medical Sciences. The survey questionnaire used was a modified version of a WPV questionnaire translated into Farsi. The questionnaire included demographic information and types of violence experienced including physical violence, verbal violence and sexual harassment. Standard descriptive statistics were used to report the frequency of events. The associations between categorical variables were analyzed using the Chi-square test.

**Results:** Of 193 respondents, 24.9% reported experiencing physical violence, 85.5% reported being verbally threatened and 26.1% reported being sexually harassed. Males were more likely to be exposed to physical violence and females to sexual harassment. Patients' relatives were the most frequent perpetrators of physical and verbal violence while physician colleagues were the main source of sexual harassment.

**Conclusions:** As the emotionally stimulated companions of patients were found to be the most frequent perpetrators of physical and verbal violence, providing special training for medical students on how to deal with such incidents, increasing the number of nursery personnel and increasing the quantity and quality of hospital guards is necessary to minimize the prevalence of violence against medical students.

**Keywords:** Workplace Violence, Medical Students, Sexual Harassment, Verbal Violence, Physical Violence, Iran

## 1. Background

Violent behavior in the workplace is referred to as "workplace violence (WPV)". WPV is considered a serious threat to the mental and physical health of employees (1). According to the European Commission, WPV is defined as "incidents where staff are abused, threatened or assaulted in circumstances related to their work, including commuting to and from work, involving an explicit or implicit challenge to their safety, well-being or health" (1). Different aspects of WPV may overlap in the same incident; these aspects range from verbal abuse to physical assaults and even sexual harassment (2).

As different people neither experience nor respond to WPV in the same way, understanding the subjective experience of WPV is complicated. Exposure to WPV might happen directly or vicariously (i.e., hearing or reading about the incidence) (3). Vicarious experiences can be harmful as others might imagine facing such a situation in fu-

ture. However, extrapolating from Bandura's social learning theory, direct experience of WPV is more detrimental than vicarious exposure (3). Although WPV affects all occupational groups, health sectors especially those with direct exposure to WPV might be at higher risk. A recent report of employee perceptions of federal WPV by the U.S. merit systems protection board (MSPB) showed that among 22 different occupational groups, the medical/hospital occupational group observed the highest rate of WPV (26%) followed by the police/security group (21%) and federal employee group (13%) (2).

While many studies have documented WPV in health sectors worldwide (4), little research has been done on this issue in Iran. Different forms of WPV in medical professional groups including emergency medical technicians and nursery students have been investigated by Iranian researchers in a few studies (5-9). Another group at high risk of WPV is that of medical students. In Iran, medical educa-

tion is integrated with health systems. The medical course consists of three periods. After about five semesters of study of basic sciences, the students start a hospital-based education that lasts approximately three years. After passing a national qualification exam at the end of this period, they have an eighteen-month supervised internship in the university hospitals. During this period, the students have direct contact with the patients and their relatives and might experience WPV (8). Also, the process of training medical students in educational hospitals is comparable to that of a military campus (10). In such disciplines, students have the lowest rank and are placed at the bottom of the pyramid of authority in the hospitals and this makes them vulnerable to abuse (10). A number of researchers have studied the abuse of medical students throughout their training (11-14). It has been reported that 46% to 85% of medical students are exposed to at least one episode of WPV (11, 14, 15). Compared to other students, abused students reported more worry, depression and learning difficulties (11, 14). As a consequence of WPV, 17% to 35% of these students considered dropping out of medical school (12, 15). Moreover, some students reported that exposure to sexual harassment may influence their choice of specialty (13).

## 2. Objectives

The international labour office (ILO), the international council of nurses (ICN), the world health organization (WHO) and public services international (PSI) launched a joint program to develop policies and practical approaches for the prevention and elimination of violence in the health sector (1). The purpose of this study is to obtain information on the level of WPV among medical students from Shiraz University of Medical Sciences by using a modified version of the groups' questionnaire. In particular, the survey is investigating factors that may contribute to WPV and potential preventative strategies.

## 3. Patients and Methods

### 3.1. Design

A cross-sectional survey using a sample of medical students working in a variety of wards was conducted in the teaching hospitals of Shiraz University of Medical Sciences, Shiraz, Iran.

### 3.2. Sample

The study was conducted on 275 medical students during their 6th (externship) and 7th (internship) years of education at the teaching hospitals of Shiraz University of Medical Sciences between 2011 - 2012. The purpose of the

study was explained to the students. The students who agreed to participate received the questionnaire directly from the principal investigator in the educational round of the department of psychiatry. The fulfilled questionnaires were returned by hand to the principal investigator. The inclusion criteria were being medical students with at least 12 months of clinical work experience at different wards of teaching hospitals of Shiraz University of Medical Sciences. The exclusion criteria were being guest students and reluctance to participate in the study.

### 3.3. Instruments

The questionnaire used was a workplace violence questionnaire (WVQ) adapted from a questionnaire created by ILO/ICN/WHO/PSI (1). After translation of the questionnaire into Farsi by a bilingual translator, substantial changes according to our national and cultural circumstances were made to the original form. Written permission was collected from the designer of the questionnaire for this process. The Farsi version of the questionnaire was validated by four Farsi-speaking experts in related fields from Shiraz University of Medical Sciences. These experts judged the questions as relevant and approved the translation. In addition, the reliability of this Farsi version of the WVQ in Iranian culture was measured in previous studies through test-retest reliability and had reported values from 0.73 to 0.8 (5, 16). The survey questionnaire included four sections. The first section contained six items about demographic information, including age, sex, marital status, educational level and whether the participant was a guest student. A five-point Likert scale (with the range of 1 = not worried at all to 5 = very worried) was used to assess the students' self-perceived level of worry about WPV.

The other sections of the WVQ were related to the violence experienced and the types of violence during last 12 months. These parts examined physical violence (11 items), verbal violence (7 items) and sexual harassment (7 items). The WHO definition of violence as "The use of physical force against another person or group, that results in physical, sexual or psychological harm." was used for physical violence in the WVQ including beating, kicking, slapping, stabbing, shooting, pushing, biting and pinching. Raised voices (screaming) and humiliating behaviors that indicate a lack of respect for the dignity of an individual were defined as verbal violence. Sexual harassment was defined as any unwanted or unwelcome behavior of a sexual nature such as standing too close, staring and focusing more than usual, undesirable sexual words and questions, insisting on a private invitation and direct sexual offers that are offensive to the person involved and that cause the person to feel vulnerable or embarrassed (1).

### 3.4. Ethical Considerations

The study protocol conforms to the ethical guidelines of the 1975 declaration of Helsinki and was approved by the ethics committee of Shiraz University of Medical Sciences (SUMS). The students were informed of the study and its voluntary nature. Only those who consented to participate were included. To ensure confidentiality and anonymity, no names or other identifiers were used. The students were introduced to the counseling center of the SUMS, where they could receive psychological assistance if they were concerned about WPV.

### 3.5. Analysis

The data were analyzed using SPSS version 15 (SPSS Inc., Chicago, IL, USA) and a P Value of less than 0.05 was considered statistically significant. Standard descriptive statistics were used to report the frequency of events. Associations between categorical variables were tested using Chi-square tests.

## 4. Results

A total of 275 questionnaires were distributed and 193 questionnaires were returned (response rate = 70%). The demographic characteristics of the participants are described in Table 1. Of the 193 students who completed the survey, 48 (24.9%) reported experiencing physical violence, 165 (85.5%) have been verbally threatened and 49 (26.1%) reported sexual harassment.

### 4.1. Physical Violence (PV): Responses and Consequences

The incidence of physical violence (PV) and the students' reactions are shown in Table 2. Patients' relatives (20.7%) were the most frequent perpetrators of PV while the students' professors never perpetrated PV. PV incidents occurred most often in the departments of psychiatry (8.3%), internal medicine (7.3%) and emergency medicine (6.7%). Of the students suffering from some form of PV, 3 (6.3%) reported being attacked by a person with weapon. Moreover, of those who reported PV, 5 (10.4%) students declared being injured because of it. In addition, 89 out of 193 students (46.1%) reported they witnessed incidents of PV and had seen other students being exposed to PV in the hospital during the past 12 months. Of the students who experienced PV, 19 students (39.6%) coped with the incident by talking to their friends or family and 12 students (25.0%) reported the event to a senior staff member. Of those who reported experiencing PV, 7 students (14.6%) replied "yes" to the question, "Did your employer or supervisor offer to provide you any support?" Consequences for the attackers are reported in Table 2. In 39.6% of the cases, the aggressor

**Table 1.** Demographic Characteristics of Participants (n = 193)

Age, Mean, Range, SD	24.09, 22 - 29, 1.05
<b>Sex, No. (%)</b>	
Female	125 (64.8)
Male	68 (35.2)
<b>Marital status, No. (%)</b>	
Married	47 (24.4)
Never married	146 (75.6)
Divorced	0 (0)
<b>Educational level, No. (%)</b>	
6th year	92 (47.7)
7th year	101 (52.3)
<b>Worry level about work place violence, No. (%)</b>	
Zero	32 (16.6)
Low	64 (33.2)
Moderate	52 (26.9)
High	31 (16.1)
Extremely high	14 (7.3)

was prosecuted and in 33.4%, they received verbal threatening. In only two cases (4.2%) were the incidents of PV reported to the police.

### 4.2. Verbal Violence (VV): Responses and Consequences

The majority of perpetrators of verbal violence (VV) were patients' relatives, followed by staff members, physician colleagues and patients. VV occurred more frequently in the department of internal medicine (40.4%), followed by the departments of obstetrics, gynecology and reproductive (30.6%) and emergency medicine (28.5%). About half (50.3%) of the students did not react to VV at all and others reported the incident to their friends and families or a senior staff member. Of those who reported experiencing VV, 29 students (17.6%) stated that their supervisors provided them with appropriate support. In more than half of the reported VV incidents, the students responded that nothing happened to the verbal abusers and in 49 incidents (29.3%), verbal warning was issued.

### 4.3. Sexual Harassment (SH): Responses and Consequences

Of the sources of violence investigated, sexual harassment (SH) was most commonly perpetrated by physician colleagues. Among the different departments, SH was reported to have happened more frequently in surgical units. The majority of the students experiencing SH (67.3%)

**Table 2.** Students' Responses to Incidents of Violence and Consequences for Aggressors

Variables	PV, No. (%)	VV, No. (%)	SH, No. (%)
<b>Violence source<sup>a</sup></b>			
Patient	13 (7.6)	59 (30.6)	13 (6.7)
Relatives of patients	40 (20.7)	117 (60.6)	21 (10.9)
Staff member	3 (1.6)	71 (36.8)	10 (5.2)
Physician colleague	11 (5.7)	68 (35.2)	25 (13.0)
Professors/Residents	0 (0)	36 (18.7)	1 (0.5)
<b>Place of violence, Departments<sup>a</sup></b>			
Internal medicine	14 (7.3)	78 (40.4)	15 (7.8)
Pediatrics	9 (4.7)	47 (24.4)	11 (5.7)
Surgery	6 (3.1)	40 (20.7)	26 (13.5)
Obstetrics, gynecology and reproductive	8 (4.1)	59 (30.6)	3 (1.6)
Dermatology	4 (2.1)	25 (13.0)	3 (1.6)
Ophthalmology	4 (2.1)	13 (6.7)	6 (3.1)
ENT	9 (4.7)	31 (16.1)	11 (5.7)
Emergency medicine	13 (6.7)	55 (28.5)	10 (5.2)
Psychiatry	16 (8.3)	25 (13.5)	11 (5.7)
<b>Frequency of violence</b>			
Once	21 (43.8)	24 (14.5)	9 (18.3)
Sometimes	27 (56.3)	126 (77.0)	40 (81.7)
Several times	0 (0)	14 (8.5)	0 (0.0)
<b>Students' reaction<sup>a</sup></b>			
Took no action	17 (35.4)	84 (50.3)	33 (67.3)
Told friends/family	19 (39.6)	61 (36.5)	10 (20.4)
Reported it to senior staff member	12 (25.0)	22 (13.2)	6 (12.3)
<b>Consequence for the attacker<sup>a</sup></b>			
Reported to police	2 (4.2)	11 (6.6)	0 (0.0)
Verbal warning issued	16 (33.4)	49 (29.3)	8 (16.4)
Aggressor prosecuted	19 (39.6)	5 (3.0)	2 (4.0)
Care discontinued	2 (4.2)	11 (6.6)	2 (4.0)
None	18 (37.6)	91 (54.5)	38 (77.6)
<b>Manager post-incident support</b>			
Yes	7 (14.6)	29 (17.6)	5 (10.2)
No	41 (85.4)	136 (82.4)	44 (89.8)

Abbreviation: PV, physical violence; SH, sexual harassment; VV, verbal violence.  
The student could choose more than one item.

gave no reaction or response at all. The second most common response (20.4%) was confiding in friends and family members about the SH. Only 6 students (12.3%) reported the SH to a senior staff member. Of those who reported experiencing SH, only 5 students (10.2%) claimed to receive appropriate

support from their supervisors. The majority of the abusers (77.6%) received no consequences for SH.

As shown in Table 3, 33.6% of the female students and 10.3% of the male students respectively reported SH during medical training; the difference was statistically significant.

icant ( $P < 0.001$ ). Although PV was reported by more male students than female students and the incidence of VV was more frequent for females than males, no statistically significant differences in the distribution of these two types of violence were found between both sexes. SH and PV were more frequent for 7th year students (interns) than for 6th year students (externs), but the differences were not statistically significant.

## 5. Discussion

The incidence of WPV in medical professional groups and against medical students varies in reports from 21.5% to 72.5% (6-9). Although some studies (8, 17) reported PV as the most frequent type of WPV, we found VV to be the main type of violence, consistent with the results of the majority of other studies (3, 6, 9, 18-20). In the present study, 26.1% of the students experienced sexual harassment (SH). This is consistent with another study (15), while different studies reported higher (11, 21, 22), lower (3, 4, 8, 23, 24) or even no SH in their population (6). The difference between this study's result and the findings of Rahmani et al. (6) may reflect the difference in the examined population; the participants in the study by Rahmani et al. were all male medical emergency technicians. However, in the Eastern social and cultural structure (6, 25), SH remains a "taboo" and people may feel embarrassed about sexual discourse and avoid reporting it. Thus, the rate of SH might be under-reported in these countries.

The present study indicated that there is no statistically significant influence of gender on WPV, except for SH which was more frequent in female students compared to male students. These findings are comparable with those of previous reports (6, 10, 11, 21). However, it is not clearly apparent whether this difference is caused by a higher incidence of SH against women or by gender differences in the interpretation or even the report of such behaviors. Moreover, our data showed that male students complained more often about aggressive behaviors than female students and this is in the same line with some previous studies (3, 7, 26). Similar to the study of Rahmani et al. (6) in Iran, only a few students in the present study reported being threatened with a weapon in the hospital environment, while other previous studies found that 17 - 27% of the participants were threatened with weapons (27, 28). The difference in the result of this study and those reporting a higher prevalence of weapon-related threats might reflect the differences in laws of carrying weapons in different countries. In Iran, it is illegal to have or carry weapons of any kind.

Relatives and friends of patients were found to be the most frequent perpetrators of VV and PV in this study and

some other investigations (3, 5, 6, 8), while patients (8, 18, 20, 29), faculty members (11) and residents (22) were found to be the most frequent abusers in other studies. One of the limitations of patients' care in some hospitals is an insufficient number of nursery personnel for the number of patients. To cope with this problem, in some cases, the person accompanying a patient is permitted to stay with the patient in the hospital. Because of the patients' pain and problems, their companions are emotionally aroused which can lead to aggressive reactions against the hospital staff. Increasing the number of nursery personnel instead of allowing companions to remain in the wards to fulfill patients' requests and needs might help minimize such misbehaviors and violence.

There were differences in the rate of PV according to the hospital wards in this study, with the rate being the highest in the departments of Psychiatry followed by Internal Medicine and then Emergency Medicine; this is in line with the results of the study by Jankowiak et al. (26). The higher rate of exposure to PV in the abovementioned departments might be due to potential sources of violence and stressful circumstances for the students, patients and their senior staff in these departments.

Similar to previous studies (3, 9, 11), SH was more reported in surgery wards and mainly against females. The high incidence of SH in surgery wards might be attributable to the nature of training in this department which necessitates more frequent and closer contact with other staff and colleagues.

Although some researchers have noted WPV is more frequent with increased training level (8, 10), others found that a younger age is a significant risk factor for VV (17). As mentioned previously, we found that 7th year students tended to be victims of PV and SH more frequently than 6th year students. We speculate that with increased clinical exposure, students are more likely to perceive or face various forms of WPV.

The most common reaction of students to the violence experienced was "no action" or "told friends/family". It seems that the majority of students coped with WPV for the sake of their career. These results support previously reported data (9, 11, 17, 18) and suggest that students might refuse to report an incidence of WPV to their supervisors because of insecurity, fear of humiliation, social and cultural restrictions or finding it ineffective or useless, as the majority of participants in this study reported no post-incident support from their manager. These reactions and responses indicate the need for a specific policy or protocol to minimize WPV in hospitals.

As we know, worry refers to "the thoughts, images and emotions of a negative nature in which mental attempts are made to avoid anticipated potential threats" (30). It is

**Table 3.** The Distribution of Different Types of Violence Based on the Gender and Educational Grade of the Students

	PV			VV			SH		
	Yes, No. (%)	No, No. (%)	Total, No. (%)	Yes, No. (%)	No, No. (%)	Total, No. (%)	No, No. (%)	Total, No. (%)	Yes, No. (%)
<b>Gender</b>									
Female	26 (20.8)	99 (79.2)	125 (100.0)	110 (88.0)	15 (12.0)	125 (100)	42 (33.6)	83 (66.4)	125 (100.0)
Male	22 (32.8)	46 (67.2)	68 (100.0)	55 (80.9)	13 (19.1)	68 (100.0)	7 (10.3)	61 (89.7)	68 (100.0)
P Value		0.05			0.13			< 0.01	
<b>Educational level</b>									
6th year	19 (20.7)	73 (79.3)	92 (100.0)	79 (85.9)	13 (14.1)	92 (100.0)	18 (19.6)	74 (80.4)	92 (100.0)
7th year	29 (28.7)	72 (71.3)	101 (100.0)	86 (85.1)	15 (14.9)	101 (100.0)	31 (30.7)	70 (69.3)	101 (100.0)
P Value		0.12			0.52			0.05	

Abbreviation: PV, physical violence; SH, sexual harassment; VV, verbal violence

expected that abused students worry to reduce their anxiety. Similar to previous studies (3, 20), the majority of the students were more or less worried about WPV and their safety, whereas 16.6% of them had no fear at all. This study clearly confirms WPV is a major concern of medical students. Vulnerability of the victims or “loss of control” is considered another important factor in this issue. Killias suggested that three main elements are involved in the victim’s vulnerability: exposure to the violence, loss of control and anticipation of serious consequences (31). The majority of the students in this study (82.4% - 89.8%) believed that their managers did not provide adequate support in incidents. Based on Killias’s theory, as a medical student might face no acceptable response to such violence from their supervisors or hospital authorities, they might become more vulnerable to future incidences of violence. Baum (32) suggested that lack of predictability in any disaster might contribute to the severity of consequences. He proposed that employees who can predict violence and are prepared to deal with such events may not experience negative outcomes to the same degree of severity or duration (32).

Thus, as WPV is considered a predictable and frequent incidence in the hospital environment, students and hospital staff should receive special training on how to deal with such incidents. To reduce the level of violence, preventive efforts and effective planning is needed. Providing cameras and alarm systems in high-risk areas and training hospital security, staff and students in managing aggressive behaviors might be useful in controlling WPV in hospitals. Moreover, it is suggested that communication between students and persons accompanying patients be restricted to times when senior staff is present. It is also recommended that hospital guards receive better training and be present in greater numbers. All of these measures will help minimize WPV in the hospital environment.

One of the limitations of the study is the number of

non-participatory students, which might affect the final results and the estimated rate of exposure to WPV. These students might consider this subject an insignificant or unserious issue or did not participate for social and cultural factors. On the other hand, abused students might be more willing to participate than students who have not been subjected to WPV or students might exaggerate and over-report suspicious behaviors due to the stressful conditions of the hospital environment. Another limitation of the study was the cross-sectional design which is incapable of determining causality.

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### References

1. World Health Organization . Joint program on workplace violence in the health sector: Workplace violence in the health sector country case studies research instruments survey questionnaire. Geneva: WHO; 2003.
2. US Merit Systems Protection Board . Employee Perceptions of Federal Workplace Violence: A Report to the President and the Congress of the United States. USA: US Merit Systems Protection Board.; 2012.
3. Bandura A. Social learning theory. Englewood Cliffs. NJ: Prentice-Hall. Califonsial: Department of Psychology Stanford University; 1977.
4. Tolhurst H, Baker L, Murray G, Bell P, Sutton A, Dean S. Rural general practitioner experience of work-related violence in australia. *Aust J Rural Health.* 2003;**11**(5):231-6. [PubMed: [14641220](#)].

5. Rafati Rahimzadeh M, Zabihi A, Hosseini S. Verbal and physical violence on nurses in hospitals of Babol University of Medical Sciences. *Tehran Univ Med J*. 2011;**17**(2):5-11.
6. Rahmani A, Hassankhani H, Mills J, Dadashzadeh A. Exposure of Iranian emergency medical technicians to workplace violence: a cross-sectional analysis. *Emerg Med Australas*. 2012;**24**(1):105-10. doi: [10.1111/j.1742-6723.2011.01494.x](https://doi.org/10.1111/j.1742-6723.2011.01494.x). [PubMed: [22313568](https://pubmed.ncbi.nlm.nih.gov/22313568/)].
7. Esmaeilpour M, Salsali M, Ahmadi F. Workplace violence against Iranian nurses working in emergency departments. *Int Nurs Rev*. 2011;**58**(1):130-7. doi: [10.1111/j.1466-7657.2010.00834.x](https://doi.org/10.1111/j.1466-7657.2010.00834.x). [PubMed: [21281305](https://pubmed.ncbi.nlm.nih.gov/21281305/)].
8. Yousefi P, Salehi B, Sanginan T. The types and contributing factors of aggression toward physicians and students of medicine in hospitals of Arak in 2009. *Arak Med Univ J*. 2010;**13**(2).
9. Ghasemi M, Rezaei M. Exposure of nurses with physical violence in academic hospitals of Baqiyatallah Medical University. *Military Med J*. 2007;**9**(2):113-21.
10. Oancia T, Bohm C, Carry T, Cujec B, Johnson D. The influence of gender and specialty on reporting of abusive and discriminatory behaviour by medical students, residents and physician teachers. *Med Educ*. 2000;**34**(4):250-6. [PubMed: [10733720](https://pubmed.ncbi.nlm.nih.gov/10733720/)].
11. Nagata-Kobayashi S, Sekimoto M, Koyama H, Yamamoto W, Goto E, Fukushima O, et al. Medical student abuse during clinical clerkships in Japan. *J Gen Intern Med*. 2006;**21**(3):212-8. doi: [10.1111/j.1525-1497.2006.00320.x](https://doi.org/10.1111/j.1525-1497.2006.00320.x). [PubMed: [16390504](https://pubmed.ncbi.nlm.nih.gov/16390504/)].
12. Maida SA, Herskovic CM, Pereira S, Salinas-Fernández L, Esquivel C. Perception of abuse among medical students of the University of Chile. *Rev Med Chil*. 2006;**134**(12):1516-23.
13. Stratton TD, McLaughlin MA, Witte FM, Fosson SE, Nora LM. Does students' exposure to gender discrimination and sexual harassment in medical school affect specialty choice and residency program selection?. *Acad Med*. 2005;**80**(4):400-8. [PubMed: [15793027](https://pubmed.ncbi.nlm.nih.gov/15793027/)].
14. Devi NS, Singh AB, Thongam K, Padu J, Abhilesh R, Ori J. Prevalence and attitude of workplace violence among the post graduate students in a tertiary hospital in Manipur. *J Med Soc*. 2014;**28**(1):25. doi: [10.4103/0972-4958.135222](https://doi.org/10.4103/0972-4958.135222).
15. Maida AM, Vásquez A, Herskovic V, Calderón JL, Jacard M, Pereira A, et al. A report on student abuse during medical training. *Med Teach*. 2009;**25**(5):497-501. doi: [10.1080/01421590310001606317](https://doi.org/10.1080/01421590310001606317).
16. Fallahi K. M., Tamizi Z, Ghazanfari N. Workplace violence status, vulnerable and preventive factors among nurses working in psychiatric wards. *J Health Promot Manag*. 2013;**2**(3):7-16.
17. Pai HC, Lee S. Risk factors for workplace violence in clinical registered nurses in Taiwan. *J Clin Nurs*. 2011;**20**(9-10):1405-12. doi: [10.1111/j.1365-2702.2010.03650.x](https://doi.org/10.1111/j.1365-2702.2010.03650.x). [PubMed: [21492284](https://pubmed.ncbi.nlm.nih.gov/21492284/)].
18. Barlow CB, Rizzo AG. Violence against surgical residents. *West J Med*. 1997;**167**(2):74-8. [PubMed: [9291743](https://pubmed.ncbi.nlm.nih.gov/9291743/)].
19. Hahn S, Hantikainen V, Needham I, Kok G, Dassen T, Halfens RJ. Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs*. 2012;**68**(12):2685-99. doi: [10.1111/j.1365-2648.2012.05967.x](https://doi.org/10.1111/j.1365-2648.2012.05967.x). [PubMed: [22381080](https://pubmed.ncbi.nlm.nih.gov/22381080/)].
20. Kowalenko T, Walters BL, Khare RK, Compton S, Michigan College of Emergency Physicians Workplace Violence Task F. Workplace violence: a survey of emergency physicians in the state of Michigan. *Ann Emerg Med*. 2005;**46**(2):142-7. doi: [10.1016/j.annemergmed.2004.10.010](https://doi.org/10.1016/j.annemergmed.2004.10.010). [PubMed: [16046943](https://pubmed.ncbi.nlm.nih.gov/16046943/)].
21. White GE. Sexual harassment during medical training: the perceptions of medical students at a university medical school in Australia. *Med Educ*. 2000;**34**(12):980-6. [PubMed: [11123560](https://pubmed.ncbi.nlm.nih.gov/11123560/)].
22. Baldwin DJ, Daugherty SR, Eckenfels EJ. Student perceptions of mistreatment and harassment during medical school. A survey of ten United States schools. *West J Med*. 1991;**155**(2):140-5. [PubMed: [1926843](https://pubmed.ncbi.nlm.nih.gov/1926843/)].
23. Miedema B, Tatemichi S, Hamilton R, Lambert-Lanning A, Lemire F, Manca DP, et al. Effect of colleague and coworker abuse on family physicians in Canada. *Can Fam Physician*. 2011;**57**(12):1424-31. [PubMed: [22170201](https://pubmed.ncbi.nlm.nih.gov/22170201/)].
24. McKenna L, Boyle M. Midwifery student exposure to workplace violence in clinical settings: An exploratory study. *Nurse Educ Pract*. 2016;**17**:123-7. doi: [10.1016/j.nepr.2015.11.004](https://doi.org/10.1016/j.nepr.2015.11.004). [PubMed: [26672901](https://pubmed.ncbi.nlm.nih.gov/26672901/)].
25. WHO. Framework guidelines for addressing workplace violence in the health sector. Geneva: World Health Organization; 2005.
26. Jankowiak B, Kowalczyk K, Krajewska-Kulak E, Sierakowska M, Lewko J, Klimaszewska K. Exposure the doctors to aggression in the workplace. *Adv Med Sci*. 2007;**52 Suppl 1**:89-92. [PubMed: [18232101](https://pubmed.ncbi.nlm.nih.gov/18232101/)].
27. Petzall K, Tallberg J, Lundin T, Suserud BO. Threats and violence in the Swedish pre-hospital emergency care. *Int Emerg Nurs*. 2011;**19**(1):5-11. doi: [10.1016/j.ienj.2010.01.004](https://doi.org/10.1016/j.ienj.2010.01.004). [PubMed: [21193162](https://pubmed.ncbi.nlm.nih.gov/21193162/)].
28. Suserud BO, Blomquist M, Johansson I. Experiences of Threats and Violence in Swedish Ambulance Service. *Prehosp Disaster Med*. 2012;**17**(S2):S84-S5. doi: [10.1017/s1049023x0001171](https://doi.org/10.1017/s1049023x0001171).
29. Belayachi J, Berrechid K, Amlaiky F, Zekraoui A, Abouqal R. Violence toward physicians in emergency departments of Morocco: prevalence, predictive factors, and psychological impact. *J Occup Med Toxicol*. 2010;**5**:27. doi: [10.1186/1745-6673-5-27](https://doi.org/10.1186/1745-6673-5-27). [PubMed: [20920159](https://pubmed.ncbi.nlm.nih.gov/20920159/)].
30. Borkovec TD. Life in the Future Versus Life in the Present. *Clin Psychol Sci Pract*. 2006;**9**(1):76-80. doi: [10.1093/clipsy.9.1.76](https://doi.org/10.1093/clipsy.9.1.76).
31. Killias M. Vulnerability: towards a better understanding of a key variable in the genesis of fear of crime. *Violence Vict*. 1990;**5**(2):97-108. [PubMed: [2278956](https://pubmed.ncbi.nlm.nih.gov/2278956/)].
32. Baum A, Fleming R, Davidson LM. Natural Disaster and Technological Catastrophe. *Environ Behav*. 1983;**15**(3):333-54. doi: [10.1177/0013916583153004](https://doi.org/10.1177/0013916583153004).