

Workplace Violence in Medical Specialty Training Settings in Iran: A Cross-sectional Study

GHOLAMREZA POURYAGHOUB^{1*}, RAMIN MEHRDAD¹, PEGAH ALIREZAEI²

¹Center for Research on Occupational Diseases (CROD), Tehran University of Medical Sciences (TUMS),
Tehran, Iran;

²Occupational Medicine Department, School of Medicine, Tehran University of Medical Sciences (TUMS),
Tehran, Iran.

Received January 04, 2017; Revised January 29, 2017; Accepted February 26, 2017

This paper is available on-line at <http://ijoh.tums.ac.ir>

ABSTRACT

Workplace violence is frequent in medical specialty training setting in Iran. Therefore, development and implementation of workplace violence prevention guideline in this setting is a necessity. Workplace violence has become an issue of increasing concern. Residents are often the first physician that patients will meet them. We conducted this study to evaluate workplace violence against medical residents in Iran. In a cross-sectional questionnaire-based study, we asked 1107 medical residents about violence exposure during past 12 months. Overall, 892 of residents (2010-2011) participated in our study (response rate = 80.6%). Prevalence of experience of psychological and physical violence at work was obtained 63.7% and 19.7%, respectively. Sex, residency program, managerial support and year of education had independent effect on violence at work. Our results showed high frequency of violence at work against Iranian medical residents and indicated importance of development and implementation of workplace violence prevention guideline in medical specialty training setting in Iran.

KEYWORDS: *Workplace violence, Hospital, Iran*

INTRODUCTION

Workplace violence has become an issue of increasing concern in recent years [1]. There is a lack of exact understanding of workplace violence, its causes, and solutions [2]. Some personal factors and situations including gender, mental skills, work experience, physical appearance, and lack of supervision are associated with workplace violence [3-5]. Workplace violence can be categorized according to forms of action (physical violence versus psychological violence), the aggressor and his/her relation to the affected work setting or worker (external violence, client initiated violence or internal violence) and/or the subject of violence (instrumental violence or emotional violence) [6].

Workplace violence is a major health and safety hazard in all jobs [7]. Health-care workers are important sector of service industries and their safety may be threatened by patients [8-9].

Corresponding author: *Gholamreza Pouryaghoub*

Email: pourya@tums.ac.ir

In the study of workplace violence among emergency physicians, verbal threats were the most common form of work-related violence, with 74.9% of subjects indicating at least one verbal threat in the previous 12 months [10]. A substantial prevalence of threats and assaults was showed toward mental health staff [11]. Medical residents are often the first physician that patients will encounter during their illness. Therefore, they may be at risk of workplace violence. Acik and et al. studied workplace violence against medical specialty trainee in Turkey. They suggested urgent need for measures to prevent violence against residents [12]. Workplace violence was studied toward pediatric residents. Thirty-three percent of the pediatric residents had been verbally abused or physically assaulted during their residency program [13].

Because of increasing numbers of workplace violence incidents and its organizational and human costs, many countries have developed guidelines to prevent workplace violence. There is no recording and reporting system for workplace violence in Iran. Therefore, there is not any reliable estimation of burden of workplace violence in health care sector. Medical residents usually are the first line of care providers in medical specialty training settings in Iran and vulnerable to workplace violence. Thus, we decided to study frequency of workplace violence against residents and related factors in Tehran University of Medical Sciences.

MATERIALS AND METHODS

All residents of Tehran University of Medical Sciences were included in this cross-sectional questionnaire-based study (2010-2011). Residents of nuclear medicine, social medicine and pathology were excluded, because they have not close contact with patients or their relatives. Foreign residents were excluded from the sample group and finally, 1107 (53.6% male and 46.3% female) residents were included.

We modified "Workplace Violence in the Health Sector Country Case Study Questionnaire", produced for Joint Program of International Labor Office (ILO), International Council of Nurses (ICN), World Health Organization (WHO) and Public Services International (PSI) on Workplace Violence in the Health Sector, to develop a questionnaire in Persian language [6]. This questionnaire is an international instrument to measure workplace violence against health care workers and has been frequently used by scholars to measure workplace violence against health care workers in many countries [14-18]. Content and construct validity of this questionnaire has been approved by expert panels in some of this studies and reported reliability ranged from 0.71 to 0.87 in different studies [15-17]. Those questions related to abuse or violence by co-workers or supervisors were excluded and only we asked about violence perpetrated by patients or their relatives against residents. Items about demographic information, violence experience in the past 12 months and outcome of event were included in the questionnaire. These questions included for physical and psychological violence separately. We invited occupational medicine experts to evaluate the appropriateness of the translation and used finalized version in our study.

Hard copy of printed questionnaire has been offered to residents by one member of research team who informed them about the study's aim and design. Participation was voluntary, and data were collected in a confidential manner. To

ensure confidentiality residents were asked to complete the questionnaires anonymously. We asked opinion of violence exposed residents about managerial support in 5-point Likert scale (Full, High, Moderate, Low, and Not at all).

Data were analyzed by SPSS for windows (Chicago, IL, USA). Descriptive statistics were used to describe frequency and mean for categorical and numerical data respectively. Associations between variables were tested with chi-square and T-tests. Logistic regression analysis was used to evaluate adjusted relation of demographic variables with violence as dependent variable. P-value of <0.05 was considered statistically significant.

According to residency program, we divided residents into surgical and nonsurgical group. We put residents of emergency medicine, ENT, ophthalmology, neurosurgery, surgery, anesthesiology, orthopedics, gynecology and urology in surgical and residents of pediatrics, neurology, internal medicine, infectious diseases, cardiology, dermatology, radiotherapy, radiology, psychiatry, occupational medicine, forensic medicine and sports medicine in nonsurgical group.

RESULTS

Of the 1107 medical residents, 892 filled and returned the questionnaire (80.6% response rate). Mean age of respondents was 31.6 (Min=25 and Max=49). In a total 797 (89.5%) of respondents reported the existence of violence as one of their workplace problems. In response to being the victim of violence, 176 (19.7%) reported experience of physical violence and 568 (63.7%) reported experience of psychological violence during past 12 months. Table 1 shows demographic characteristics of respondents and frequency of violence experience in each group during last 12 months. 42.7% of residents were in surgical and 57.3% were in nonsurgical groups. Sex distribution among surgical and nonsurgical residents was slightly different from all of respondents. However, there was not any statistically significant difference between sex distribution in surgical and nonsurgical group. Residents of emergency medicine had most frequent psychological violence exposure (96.8%), and residents of psychiatry had most frequent physical violence exposure (40.7%).

In total, 242(27%) of respondents had not any previous experience of working as general practitioner. Kolmogorov-Smirnov normality test showed that duration of previous work, as general practitioner is not normally distributed so we used nonparametric test (Mann-Whitney T test) to compare mean of this variable between exposed and not exposed residents (Table 1). This difference was not statistically significant in the case of exposure to physical violence during past 12 months (P-value = 0.075).

Frequencies of physical and psychological violence were higher in male residents and this

difference was statically significant in the case of physical violence (Table 2).

Table 1. Demographic characteristics of respondents and their violence experience during last 12 months

	Total N=892	With at least one kind of violence experienced ^a N=601	Without any kind of violence experienced ^b N=291	P-value
Sex				
Female	434	280 (64.5)	154 (35.5)	0.08
Male	457	320 (70)	137 (30)	
Year of education				
1	298	211 (70.8)	87 (29.2)	0.000
2	240	180 (75)	60 (25)	
3	209	132 (63.2)	77 (36.8)	
≥4	145	78 (53.8)	67 (46.2)	
Age (Mean ± SD)	31.6 ± 4.1	31.6 ± 4.2	31.6 ± 4.0	0.758
Residency program				
Surgical	381	278 (73)	103 (27)	0.002
Non-surgical	511	323 (63.2)	188 (36.8)	
Previous work history	3.2 ± 3.5	3.3 ± 3.6	3 ± 3.4	0.212
In year (Mean ± SD)				
Marital status				
Single	357	242 (67.8)	115 (32.2)	0.862
Married	531	357 (67.2)	174 (32.8)	

a: Either physical or psychological violence, b: Neither physical nor psychological violence

Table 2. Violence experience during past 12 months among female and male residents

Kind of violence N (%)	Total N=892	Female N=434	Male N=457	P-value
Physical violence	176 (19.7)	61 (14.1)	115 (25.2)	0.000
Psychological violence	568 (63.7)	268 (61.8)	299 (65.4)	0.254
None	291 (32.6)	154 (35.5)	137 (30.0)	0.080

Residents, who exposed to violence, reported that exposure to physical violence in 39% of cases resulted in cessation of their work, and in approximately 75% of cases, returning to work had at least 30 min delay. Psychological violence in 19% of cases had such outcome, and in about 80% of cases delay for returning to work was at least 30 min. About 70% of violence exposure occurred at the outpatient clinics that made them as the most prevalent location of physical and psychological violence. Residents reported that in 78.3% of cases, physical violence was preventable and 70.9% of them believed that patient's lack of knowledge was the most important factor responsible for violence occurrence. In the case of psychological violence,

they believed that it was preventable in 66.2% of cases and the most prevalent factor responsible for violence occurrence was patient's lack of knowledge (73%).

We asked resident's opinion about quality of managerial support against violence at work, using five-point Likert scales. 5.5% of them believed that they have been fully supported by hospital management against violence at work and 38.1% of them believed that they have not been supported by hospital management against violence at work at all. Frequency of this believes among residents who exposed to at least one kind of violence during past 12 months, were 4.7% and 43.2% respectively (Table 3).

Table 3. Believe of physical and psychological violence victims about managerial support

Opinion about level of managerial support	Full N=49	High N=105	Moderate N=144	Low N=252	Not at all N=339	P-value
Victims of violence N (%)						
Physical violence	14 (28.6%)	12 (11.4%)	24 (16.7%)	41 (16.3%)	85 (25.1%)	0.003
Psychological violence	25 (51.0%)	41 (39.0%)	83 (57.6%)	166 (65.9%)	252 (74.3%)	0.000
Any kind of violence ^a	28 (57.1%)	47 (44.8%)	89 (61.8%)	177 (70.2%)	259 (76.4%)	0.000

Table 4. Effect of sex, residency program, managerial support and year of education on violence exposure

Physical violence	B	Sig.	Odds Ratio	95% CI for OR	
				Lower limit	Upper limit
Sex	0.683	0.000	1.979	1.399	2.799
Residency program	0.223	0.196	1.249	0.892	1.751
Managerial support	0.122	0.102	1.130	0.976	1.307
Year of education	0.474	0.009	1.606	1.125	2.293
$r^2=0.049$					
Psychological violence	B	Sig.	Odds Ratio	95% CI for OR	
				Lower limit	Upper limit
Sex	0.039	0.791	1.040	0.779	1.387
Residency program	0.456	0.002	1.578	1.176	2.118
Managerial support	0.405	0.000	1.499	1.331	1.689
Year of education	0.778	0.000	2.177	1.623	2.920
$r^2=0.116$					
Any kind of violence (either physical or psychological)	B	Sig.	Odds Ratio	95% CI for OR	
				Lower limit	Upper limit
Sex	0.145	0.335	1.155	0.861	1.550
Residency program	0.458	0.000	1.580	1.169	2.136
Managerial support	0.364	0.000	1.439	1.277	1.621
Year of education	0.754	0.000	2.124	1.576	2.863
$r^2=0.104$					

For regression analysis, we put residents into two groups of year of education. We put residents in first or second year of education in one group and residents with higher year of education in another group. As shown in Table 4 male gender and lower year of education are risk factor for exposure to physical and psychological violence independent of other factors.

DISCUSSION

The main aim of this study was evaluation of workplace violence frequency against residents in medical specialty training settings. We detected high frequency of violence at work.

Frequency of violence at work in our study is higher than frequencies reported in a Swiss university general hospital [19], Japan [20], Rwanda's health workforce [21], US metropolitan area [22], The Minnesota Nurses' Study [23], Minnesota Midwest health care organization [24], European NEXT study [25] and some other studies. This difference may be mainly due to socioeconomic and cultural differences that exist between Iran and these countries or characteristics of population under study and study design. Higher prevalence of psychological violence was reported toward emergency medicine department staffs from Lebanon [26]. This may be due to poor security conditions of Lebanon or higher workload of emergency medicine departments. Very high frequency of physical and psychological violence was reported against health care workers in Germany (70.7% and 89.4% respectively) [27]. However, their study had low response rate (38.8%) and this low response rate may be source of some selection biases. In addition, different population under study may be the other cause of this difference. There are two published study of

violence at work on health care worker from Iran. Workplace violence was studied against nurses in Iran that reported 27.6% physical and 87.4% psychological violence during a 6-month period [28]. They reported higher frequency in shorter time than our study. However, low response rate makes their study eligible to selection bias. In addition, other causes of this difference may be the different population under study and excluding violence from co-workers and supervisors in our study. Iranian nurses working in emergency departments experienced 19.7% physical and 91.6% psychological violence at work during past 12 months [16]. In our study, frequency of physical violence was equal to their study, but frequency of psychological violence was higher in their study. About 6% of their reported psychological violence was violence from co-workers. Different population study may be source of some of remaining difference.

Psychological violence in our study was more frequent than physical violence. This finding is consistent with many previous studies [12, 16, 20, 28-33]. Almost equal frequency of physical and psychological violence was reported. This study is inconsistent with our and many other studies [22]. This unusual finding was interpreted as difference in psychological violence definition.

Male residents had more frequent exposure to violence than female residents did in our study and this difference was higher in the case of physical violence. This finding is in agree with finding of The Minnesota Nurses' Study [23], literature review [8], study of violence during medical specialty training in Turkey [12] and study of workplace violence against nurses in Iran [28].

According to our study, managerial support had protective effect on violence exposure

but full support had reverse effect. False confidence of residents, because of full managerial support, may result in doing risky acts and put them in front of violence. Therefore, greater support is not necessarily right solution for workplace violence.

Logistic regression analyses indicated that gender, managerial support level, training course (residency program) and year of education had independent effect on frequency of violence exposure. However, in all of logistic regression models, r^2 are less than 0.12, and this small r^2 indicated that there are some other powerful risk factors for workplace violence. Personal characteristics, communication skills, sufficiency of team working and organizational factors may be some of important factors, which we could not measure in this study. In opinion of near to 70% of respondents, patient's lack of knowledge was the main factor responsible for violence. This fact is an indicator of unacceptable patient-physician relationship. Personal characteristics and communication skills can affect this relationship.

Near to 90% of respondents reported the existence of violence as one of their workplace problem and physical violence in 40% of cases interrupted work and service. Therefore, in light of previous studies [34-36] violence at work may have significant adverse effect on health and performance of medical residents in Tehran University of Medical Sciences. Our study had acceptable sample size and response rate but had several limitations. The cross-sectional nature of the study did not permit the investigation of causality, which would require longitudinal analyses. This study was limited to medical residents and we cannot extend our findings to all health care workers.

CONCLUSION

Findings can be extended to medical residents of other universities in Iran and we have no evidence to suggest that the situation is different in other universities. Our study was retrospective and vulnerable to recall bias and underestimation of violence exposure. However, we find high violence exposure and this indicates importance of development and implementation of workplace violence prevention guideline in Iran. Therefore, our suggestion to reduce frequency of workplace violence and to improve this situation is development and implementation of workplace violence prevention guideline in medical specialty training settings.

ACKNOWLEDGEMENTS

This work was approved by the Research Ethic Committee of the Tehran University of Medical Sciences, founded and supported by Tehran University of medical Sciences (TUMS)

[grant number 10928-109-02-89]. In addition, we would like to thank all of residents of Tehran University of Medical Sciences, who participated in this study and enabled us to conduct this study. The authors declare that there is no conflict of interest.

REFERENCES

1. Kuehn BM. Violence in health care settings on rise. *JAMA* 2010; 304(5): 511-512.
2. Merchant JA, Lundell JA. Workplace Violence Intervention Research Workshop, April 5-7, 2000, Washington, DC. Background, rationale, and summary. *Am J Prev Med* 2001; 20(2): 135-140.
3. Sepulveda-Vildosola A, Mota-Nova A, Fajardo-Dolci G, Reyes-Lagunes L. Workplace bullying during specialty training in a pediatric hospital in Mexico: a little-noticed phenomenon. *Rev Med Inst Mex Seguro Soc* 2017; 55(1): 92-101.
4. Kumar M, Verma M, Das T, Pardeshi G, Kishore J, Padmanandan A. A Study of Workplace Violence Experienced by Doctors and Associated Risk Factors in a Tertiary Care Hospital of South Delhi, India. *J Clin Diagn Res* 2016; 10(11): LC06-LC10.
5. Ghasemi M, Rezaee M, Jonaidi Jafari N, Fathi Ashtiani A, Izadi M, Ranjbar R. Physical Violence against Nurses in Hospital. *International Journal of Occupational Hygiene* 2009; 1(1): 41-45.
6. ILO I, WHO, PSI Joint programme on workplace violence in the health sector. Workplace Violence in the Health Sector Country Case Study – Questionnaire. Geneva 2003. p. 14.
7. Mayhew C, Chappell D. Workplace violence: an overview of patterns of risk and the emotional/stress consequences on targets. *Int J Law Psychiatry* 2007; 30(4-5): 327-339.
8. Hatch-Maillette MA, Scalora MJ. Gender, sexual harassment, workplace violence, and risk assessment: Convergence around psychiatric staff's perceptions of personal safety. *Aggress Violent Behav* 2002; 7(3): 20.
9. Kansagra SM, Rao SR, Sullivan AF, Gordon JA, Magid DJ, Kaushal R, et al. A survey of workplace violence across 65 U.S. emergency departments. *Acad Emerg Med* 2008; 15(12): 1268-1274.
10. Kowalenko T, Walters BL, Khare RK, Compton S. Workplace violence: a survey of emergency physicians in the state of Michigan. *Ann Emerg Med* 2005; 46(2): 142-147.
11. Privitera M, Weisman R, Cerulli C, Tu X, Groman A. Violence toward mental health staff and safety in the work environment. *Occup Med (Lond)* 2005; 55(6): 480-486.
12. Acik Y, Deveci SE, Gunes G, Gulbayrak C,

- Dabak S, Saka G, et al. Experience of workplace violence during medical speciality training in Turkey. *Occup Med (Lond)* 2008; 58(5): 361-366.
13. Judy K, Veselik J. Workplace violence: a survey of paediatric residents. *Occup Med (Lond)* 2009; 59(7): 472-475.
 14. Jafree SR. Workplace violence against women nurses working in two public sector hospitals of Lahore, Pakistan. *Nursing Outlook* 2017; in press 1-8.
 15. Chen WC, Hwu HG, Kung SM, Chiu HJ, Wang JD. Prevalence and determinants of workplace violence of health care workers in a psychiatric hospital in Taiwan. *J Occup Health* 2008; 50(3): 288-293.
 16. Esmailpour M, Salsali M, Ahmadi F. Workplace violence against Iranian nurses working in emergency departments. *Int Nurs Rev* 2011; 58(1): 130-137.
 17. Fallahi-Khoshknab M, Oskouie F, Najafi F, Ghazanfari N, Tamizi Z, Afshani S. Physical violence against health care workers: A nationwide study from Iran. *Iranian Journal of Nursing and Midwifery Research* 2016; 21(3): 232-238.
 18. Kwok RP, Law YK, Li KE, Ng YC, Cheung MH, Fung VK, et al. Prevalence of workplace violence against nurses in Hong Kong. *Hong Kong medical journal = Xianggang yi xue za zhi* 2006; 12(1): 6-9.
 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): 2685-2699.
 20. Fujita S, Ito S, Seto K, Kitazawa T, Matsumoto K, Hasegawa T. Risk factors of workplace violence at hospitals in Japan. *J Hosp Med* 2012; 7(2): 79-84.
 21. Newman CJ, de Vries DH, d'Arc Kanakuze J, Ngendahimana G. Workplace violence and gender discrimination in Rwanda's health workforce: Increasing safety and gender equality. *Hum Resour Health* 2011; 9: 19.
 22. Campbell JC, Messing JT, Kub J, Agnew J, Fitzgerald S, Fowler B, et al. Workplace violence: prevalence and risk factors in the safe at work study. *J Occup Environ Med* 2011; 53(1): 82-89.
 23. Gerberich SG, Church TR, McGovern PM, Hansen HE, Nachreiner NM, Geisser MS, et al. An epidemiological study of the magnitude and consequences of work related violence: the Minnesota Nurses' Study. *Occup Environ Med* 2004; 61(6): 495-503.
 24. Findorff MJ, McGovern PM, Wall M, Gerberich SG, Alexander B. Risk factors for work related violence in a health care organization. *Inj Prev* 2004; 10(5): 296-302.
 25. Camerino D, Estry-Behar M, Conway PM, van Der Heijden BI, Hasselhorn HM. Work-related factors and violence among nursing staff in the European NEXT study: a longitudinal cohort study. *Int J Nurs Stud* 2008; 45(1): 35-50.
 26. Alameddine M, Kazzi A, El-Jardali F, Dimassi H, Maalouf S. Occupational violence at Lebanese emergency departments: prevalence, characteristics and associated factors. *J Occup Health* 2011; 53(6): 455-464.
 27. Franz S, Zeh A, Schablon A, Kuhnert S, Nienhaus A. Aggression and violence against health care workers in Germany--a cross sectional retrospective survey. *BMC Health Serv Res* 2010; 10: 51.
 28. Shoghi M, Sanjari M, Shirazi F, Heidari S, Salemi S, Mirzabeigi G. Workplace violence and abuse against nurses in hospitals in Iran. *Asian Nurs Res (Korean Soc Nurs Sci)* 2008; 2(3): 184-193.
 29. 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: 108.
 30. Pai HC, Lee S. Risk factors for workplace violence in clinical registered nurses in Taiwan. *J Clin Nurs* 2011; 20(9-10): 1405-1412.
 31. Celebioglu A, Akpınar RB, Kucukoglu S, Engin R. Violence experienced by Turkish nursing students in clinical settings: their emotions and behaviors. *Nurse Educ Today* 2010; 30(7): 687-691.
 32. Carmi-Iluz T, Peleg R, Freud T, Shvartzman P. Verbal and physical violence towards hospital- and community-based physicians in the Negev: an observational study. *BMC Health Serv Res* 2005; 5: 54.
 33. Nachreiner NM, Gerberich SG, Ryan AD, McGovern PM. Minnesota nurses' study: perceptions of violence and the work environment. *Ind Health* 2007; 45(5): 672-678.
 34. Wieclaw J, Agerbo E, Mortensen PB, Burr H, Tuchsén F, Bonde JP. Work related violence and threats and the risk of depression and stress disorders. *J Epidemiol Community Health* 2006; 60(9): 771-775.
 35. Coles J, Koritsas S, Boyle M, Stanley J. GPs, violence and work performance - 'just part of the job?'. *Aust Fam Physician* 2007; 36(3): 189-191.
 36. Hogh A, Sharipova M, Borg V. Incidence and recurrent work-related violence towards healthcare workers and subsequent health effects. A one-year follow-up study. *Scand J Public Health* 2008; 36(7): 706-712.