

WORKPLACE VIOLENCE AGAINST PHYSICIANS: AN ONLINE CROSS-SECTIONAL STUDY

By

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Abstract

Introduction: Workplace violence against Health care workers (HCWs) in Egypt is a widely spread phenomenon that has a great disruptive effect on the healthcare systems. Accordingly, efforts are required to study this phenomenon and recommend solutions. **Aim of Work:** To identify the recent trends in workplace violence against physicians and its main predictors. **Materials and Methods:** An online cross-sectional study was conducted targeting working physicians in healthcare facilities in Egypt. Non-probability snowball sampling technique was used to recruit study participants. Data were collected using an electronic questionnaire that was designed using Google forms. The link of the questionnaire was posted to participants using social media applications namely Facebook, WhatsApp, and Telegram. **Results:** At the end of the data collection period, there were 445 completed questionnaires submitted by study participants. The prevalence of workplace violence was 82.5% (367 out of 445 physicians reported their exposure to violence whether physical, verbal, or both types). Visitors/patients' relatives were the main source of violence and the Emergency department was the main setting of violence incidents. Exposure to violence was significantly affected by socioeconomic characters of participants (age, gender, and level of education) and the work-related variables (duration of work/ years, type of employer (Governmental or private institutions), specialty, working hours/week, shifting time, and security at the workplace). The main causes of workplace violence were lack of penalty for aggressors, poor security, and staff shortage. **Conclusion:** Physicians are at high risk for violence exposure which does not only affect the victims but the whole health system. The high prevalence of workplace violence observed in the current study obliges the decision-maker to put this issue as a priority with an urgent application of proper prevention and control programs. **Keywords:** Health care workers, Egypt, Online study, Physicians and Workplace violence.

Introduction

Workplace violence against healthcare workers (HCWs) became a major worldwide health and safety issue over the past years (ILO/ICN/WHO/PSI, 2003). WHO has defined workplace violence as incidents where the staff was abused, threatened, or assaulted in circumstances related to their work, including commuting to and from work and involving an explicit or implicit challenge to their safety, well-being, or health (ILO/ICN/WHO/PSI, 2003). Violence encountered at health facilities may be verbal, physical, or sexual assault/harassment committed by patients or their relatives, visitors, or any other individual (Saines, 1999). A meta-analysis study conducted on workplace violence against HCWs revealed that the prevalence of workplace violence against HCWs was 61.9%. About 42.5% were exposed to non-physical violence, and 24.4% were exposed to physical violence during the previous year. The commonest types of non-physical violence were verbal abuse (57.6%), threats (32.2%), and sexual harassment (12.4%). The highest recorded workplace violence against HCWs was in Asian and North American countries (Liu et al., 2019).

High-risk areas of workplace violence include the emergency department, psychiatric and addiction management facilities, ambulance services, and remote units, and the risk is increased with understaffing, the mental and emotional stress of the patient or his relatives, inadequate security, and poor preventive measures (Nowrouzi-Kia et al., 2019).

In Egypt, many studies were conducted to identify the incidence, pattern, and predictors of workplace violence against HCWs (Elkhawaga et al., 2012; Abdel-Salam, 2014; Abbas et al., 2014; Abou-ElWafa et al., 2015; Abdellah et al., 2017; Kabbash and El-Sallamy, 2019; Gabr et al., 2021). Due to its great effects on the HCWs and the healthcare system as a whole, this phenomenon needs to be continuously monitored to identify its trend and if there are any additional risk factors involved in violence occurrence.

Aim of Work

This study was conducted to identify the recent trends in the workplace violence against physicians and its main predictors.

Materials and Methods

Study design: This is an online cross-sectional study

Place and duration of the study:

All working physicians who were present in Egypt at the time of study fulfillment (from July to October 2021) were eligible to be included in the study.

Target population: The study targeted physicians working in different health facilities (governmental and private) at different health levels (primary, secondary and tertiary) in Egypt. The study included physicians from all categories; general practitioners, residents, specialists, and consultants.

Study sample: Convenience snow-ball sampling technique was used in the study where questionnaire link was shared initially with physicians who are contacts on social media applications (WhatsApp, Facebook, and Telegram) with a request to re-sharing the link to their contacts and so on. At the end of the data collection period, there were 468 submitted questionnaires, 23 of them were excluded due to incompleteness (16 questionnaires) and being working outside Egypt (7 questionnaires). So, there were 445 complete questionnaires eligible to be included in the study.

Data collection: Data were collected using an electronic questionnaire designed by using Google

forms with link sharing to physicians via WhatsApp, Facebook, and Telegram applications.

Study methods: The questionnaire used in the study was constructed by authors based on the International Labour Office (ILO), International Council of Nurses (ICN), World Health Organization (WHO), and Public Services International (PSI) questionnaire (ILO/ICN/WHO/PSI, 2003) and other related studies (Kitaneh and Hamdanm 2012; Abdel-Salam, 2014; Al-Turki et al., 2016; Alhamad et al., 2021; Sweelam et al., 2021). The questionnaire was reviewed by two experienced consultants to improve its validity. They assessed the questionnaire regarding clarity, relevance, comprehensiveness, sensitivity, and concordance to culture. A pilot study was conducted where the questionnaire was administered to 20 working physicians for further assessment of its validity and applicability. Based on consultants' recommendations and findings of the pilot study the final version of the questionnaire was designed. Data generated by the pilot study were not included in the final data analysis. In the current study workplace violence was defined as incidents where staff is abused, threatened, or assaulted in circumstances

related to their work involving an explicit or implicit challenge to their safety, well-being, or health (ILO/ICN/WHO/PSI, 2003). Workplace violence was considered when participants experienced an incidence of workplace violence at least once during the past 12 months. The questionnaire included data on the socio-demographic characters of the participants (age, gender, marital status, and level of education), occupational characters of the participants (duration of work/ years, employers, specialty, working hours/week, number of staff/shift, shift time, presence of a reporting system for workplace violence, and security at the workplace), violence exposure and its characters (type, frequency, source, and department at which violence occurred), effects and work-changes consequences of violent assault, characters of the perpetrators (age, gender, and perpetrators impaired status), and causes of violence and measures that would reduce workplace violence from the physicians' point of view.

Consent

At the beginning of the questionnaire, there was written informed consent that must be approved by the participants in order to be able to complete the questionnaire.

Ethical Approval

This study was conducted in accordance with the international guidelines of research ethics. Approval of the Ethical Committee at Al-Azhar Faculty of Medicine was obtained. The confidentiality of the collected data was strictly maintained.

Data Management

Data were analyzed using SPSS version 20. Descriptive statistics for participants' characters were calculated in the form of frequencies and percentages and the differences in exposure to violence in relation to participants' characters were assessed using the Chi square-test with a p-value < 0.05 was considered statistically significant.

Results

More than 80% of the studied physicians reported being exposed to at least one incident of violence either verbal, physical or both, during the preceding 12 months (Figure 1).

Table 1: Characters of workplace violence against physicians.

Characters of workplace violence	No. (Total=367)	%
Type of violence		
- Verbal	261	71.1
- Physical	78	21.3
- Both verbal and physical	28	7.6
Frequency of violence incidents during the preceding year		
- Once	236	64.3
- 2-4 times	114	31.1
- 5 times or more	17	4.6
Sources of violence		
- Visitors/patient relatives	251	68.4
- Patient/clients	93	25.3
- Co-workers (supervisors, physicians, nurses, others).	23	6.3
Department at which violence occurred		
- Emergency	142	38.7
- Out-patient	109	29.7
- In-patient	76	20.7
- Others*	40	10.9

*Others: laboratory, radiology and administrative departments.

More than two thirds of physicians reported exposure to verbal form of violence (261/367), 21.3% physicians (were exposed to physical violence and only 7.6% were exposed to both types of violence. Most of the violent incidents were committed by visitors/patient relatives (68.4%), followed by patients/clients (25.3%) and co-workers (6.3%). Most of the violence occurred at the Emergency department (38.7%) followed by out-patient then in-patient departments (29.7% and 20.7% respectively) (Table 1).

Table 2: Socio-demographic characteristics of the studied physicians according to violence exposure.

Socio-demographic characteristics	Total (No=445) No. (%)	Violence exposure		χ^2	p value
		Yes (No=367) No. (%)	NO (No=78) No. (%)		
Age					
- < 30	125 (28.1)	117 (31.9)	8 (10.3)	80.54	<0.0001**
- 30-40	194 (43.6)	176 (48.0)	18 (23.1)		
- 41-50	93 (20.9)	61 (16.6)	32 (41.0)		
- 51-60	33 (7.4)	13 (3.5)	20 (25.6)		
Gender					
- Male	266 (59.8)	231 (62.9)	35 (44.9)	8.74	0.003**
- Female	179 (40.2)	136 (37.1)	43 (55.1)		
Marital status					
- Single	141 (31.7)	114 (31.1)	27 (34.6)	6.02	0.05
- Married	285 (64.0)	241 (65.6)	44 (56.4)		
- Widow/divorced	19 (4.3)	12 (3.3)	7 (9.0)		
Level of education					
- Bachelor's	157 (36.4)	133 (36.2)	24 (30.8)	37.48	<0.0001**
- Diploma	53 (11.9)	37 (10.1)	16 (20.5)		
- Master	207 (46.4)	184 (50.1)	23 (29.5)		
- M.D	28 (6.3)	13 (3.6)	15 (19.2)		

** : Statistically significant.

Violence exposure was significantly affected by physicians' age: it was statistically significantly higher between the age 30-40 years, among males compared to females, and among physicians with Master degree (Table 2).

Table 3: Occupational characters of the studied physicians according to violence exposure.

Occupational characters	Total (No=445) No. (%)	Violence exposure		χ^2	p value
		Yes (No=367) No. (%)	NO (No=78) No. (%)		
Duration of work/ years					
- 1-5	162 (36.4)	149 (40.6)	13 (16.7)	47.0	<0.0001**
- 6-10	146 (32.8)	127 (34.6)	19 (24.3)		
- 11-15	84 (18.9)	63 (17.2)	21 (26.9)		
- 16 or more	53 (11.9)	28 (7.6)	25 (32.1)		
Employer					
- Ministry of health	236 (53.0)	219 (59.7)	17 (21.8)	52.3	<0.0001**
- University hospital	118 (26.5)	91 (24.8)	27 (34.6)		
- Health insurance	43 (9.7)	32 (8.7)	11 (14.1)		
- Private hospital/clinic	48 (10.8)	25 (6.8)	23 (29.5)		
Specialty					
- Medical	119 (26.7)	96 (26.2)	23 (29.5)	29.9	<0.0001**
- Surgical	106 (23.8)	86 (23.4)	20 (25.7)		
- Emergency	104 (23.5)	100 (27.2)	4 (5.1)		
- ICU	78 (17.5)	63 (17.2)	15 (19.2)		
- Others ^a	38 (8.5)	22 (6.0)	16 (20.5)		
Working hours/week					
- ≤40	220 (49.4)	169 (46.0)	51 (65.4)	9.63	0.008**
- 40-50	173 (38.9)	152 (41.4)	21 (26.9)		
- >50	52 (11.7)	46 (12.6)	6 (7.7)		
Number of staff/shift					
- 1-2	118 (26.5)	106 (28.9)	12 (15.4)	7.5	0.02*
- 3-4	232 (52.1)	189 (51.5)	43 (55.1)		
- 5 or more	95 (21.4)	72 (19.6)	23 (29.5)		
Shift time					
- Morning	232 (52.1)	177 (48.2)	55 (70.5)	12.8	<0.001**
- Evening/night	213 (47.9)	190 (51.8)	23 (29.5)		
Presence of a reporting system for workplace violence					
- Yes	186 (41.8)	149 (40.6)	37 (47.4)	1.2	0.27
- NO	259 (58.2)	218 (59.4)	41 (52.6)		
Security at work place					
- Excellent /very good	76 (17.1)	35 (9.5)	41 (52.6)	84.3	<0.0001**
- Fair	274 (61.6)	248 (67.6)	26 (33.3)		
- Bad /very bad	95 (21.3)	84 (22.9)	11 (14.1)		

**: Statistically significant.

^aOthers: laboratory, radiology and administrative HCWs

Violence exposure was statistically significantly affected by physicians' duration of work/ years; being higher among physicians with duration of work from 1-5 years, physicians who are working at Ministry of health, Emergency specialists, physicians who are working ≤ 40 hours/week, number of staff 3-4, who attend 3-4 shifts, during evening/night shifts, and by excellent /very good security at the work place (Table 3).

Table 4: Characteristics of the perpetrators according to the type of violence.

Characteristics of the perpetrators	Physical (No = 96)		Non-physical (No= 327)		χ^2	p value
	No.	%	No.	%		
Age						
- <18	33	34.4	108	33.1	6.9	0.074
- 18-30	29	30.2	124	37.9		
- 31-40	19	19.8	71	21.7		
- >40	15	15.6	24	7.3		
Gender						
- Male	68	70.8	137	41.9	24.9	<0.0001**
- Female	28	29.2	190	58.1		
Perpetrators impaired status						
- Yes, under the influence of illness or prescribed medicines	26	27.1	34	10.4	29.0	<0.0001**
- Yes, under influence of other drugs (drug abuser) or alcohol	19	19.8	28	8.6		
- Not impaired	51	53.1	265	81.0		

** : Statistically significant.

The type of violence expressed by perpetrators was significantly affected by their gender being higher among males, and impaired status while perpetrators' age has no effect (Table 4).

Discussion

Violence targeting HCWs either physical or non-physical is a serious issue which had a negative impact on their productivity and wellbeing. Also violence against HCWs greatly affects the quality of service provided and the whole health system's performance (Di Martino, 2002). Violence against HCWs may lead to deaths or serious injuries, loss of work interest, unsatisfied workers, poor job retention and more absence leave, depression, and low ethical values. Also, a high burnout rate and an unsafe working environment are other consequences of workplace violence (Vento et al., 2020). Due to its great impact on healthcare system, this study was conducted to assess the prevalence of violence exposure among physicians and its predictors.

The current study revealed a high prevalence of workplace violence against physicians where 367 physicians (82.5%) reported their exposure to violence at their workplace whether physical, non-physical, or both types (Figure 1). Most of the violent events were committed at the Emergency and out-patient departments. Visitors and patients' relatives were the main sources of violence (Table 1).

This high prevalence reflects stressful working conditions which indeed may influence the physicians' performance and work sustainability. Similar findings were observed in an Egyptian study conducted in Assiut governorate where the prevalence of violence against physicians working in the emergency departments was 78.2% (Abdel-Salam, 2014). However, other Egyptian studies investigating the violence against health workers were either targeting physicians and nurses (Abdellah and Salama, 2017), nurses alone (Abbas et al., 2010; Abou-ElWafa et al., 2015; Gabr et al., 2021) or nurses and other workers (Moustafa and Gewaifel, 2013). All these studies reported a lower prevalence of violence incidents against healthcare workers which ranges between 59.7% and 72.6% in comparison to the current study. The high prevalence of violence observed among the studied physicians can be attributed to the COVID-19 pandemic which increases the load on health facilities and healthcare workers with an increased probability of violence incidence. Also, the widespread use of social media, in addition to mass media, has increased peoples' distrust toward healthcare providers and organizations. Many false reports on healthcare

services had been published without check which created a negative public attitude and increased public tension toward the health care system as a whole.

Also, similar studies were conducted to assess violence exposure among HCWs in Palestine (Kitaneh and Hamdan, 2012), Jordan (Alhamad et al., 2021; Ghareeb et al., 2021), and Malaysia (Zainal et al., 2018) revealed a high prevalence of violence exposure (80.4%, 63.1%, 65.45%, and 71.3% respectively). These differences can be attributed partially to differences in healthcare systems, health policies, and physicians' workload between these countries. Also, differences in socioeconomic standards may have a role. Moreover, the violence definitions and perceptions may vary between countries and also different cultures.

Most of the violent events occurred at the Emergency department (38.7%) (Table 1), which could be considered as a common phenomenon as they are the first contact with distressed/violent patients and their relatives and with patients who are drug/substance abusers. These category of patients were most probably to be violent with healthcare providers.

Association between working in the Emergency department and violence exposure was reported in similar studies conducted in Egypt (Elkhawaga et al., 2012; Abou-ElWafa et al., 2015; Abdellah and Salama, 2017; Gabr et al., 2021) and other countries like Palestine (Kitaneh and Hamdan, 2012), Saudi Arabia (Algwaiz and Alghanim, 2012), Ethiopia (Fute et al, 2015), India (Davey et al., 2020), and Malaysia (Zainal et al., 2018).

The present work revealed statistically significant differences in the violence incidence between the different age groups of the health workers with more frequent violence exposure at younger age groups (Table 2). A similar finding was observed in other studies conducted in Egypt (Elkhawaga et al., 2012; Moustafa and Gewaifel, 2013; Abdellah and Salama, 2017; Gabr et al., 2021) and other countries like Malaysia (Zainal et al., 2018). The higher incidence of violence among young physicians may be due to the lack of experience and skills to deal with stressful workplace conditions, especially at Ministry of health and University hospitals with the high workload and lack of a sufficient number of physicians. This highly significant difference among different age groups

in the violence incidence may play a role in the observed significant differences regarding physicians' education (Table 2) and experience years variables (Table 3).

A significant difference was observed in violence exposure between male and female physicians with higher violence exposure among male physicians (Table 2). In fact, variable findings were reported regarding the effect of gender on violence exposure where some studies revealed similar findings to this study (Abbas et al., 2010; Algwaiz and Alghanim, 2012; Fute et al., 2015) while other studies reported significant gender differences regarding the type of violence exposure (Elkhawaga et al., 2012; Kitaneh and Hamdan, 2012; Abdel-Salam, 2014; Kabbash and El-Sallamy, 2019). On the other side, several studies revealed no significant gender differences (Abdel-Salam, 2014; Al-Turki et al., 2016; Abdellah and Salama, 2017; Alhamad et al., 2021). The low incidence of violence against female physicians can be attributed to social norms and culture with much greater respect for women and the higher social and legal impact of any violence-against women.

Regarding the prevalence of

violence in relation to the category of healthcare facility most of the violent events occurred at the Ministry of health and University hospitals whereas private hospitals have less incidence of these events. Private hospitals mostly have strict administrative and security measures which may potentially control workplace violence incidence. Moreover, staff shortage in relation to number of patients, in governmental hospitals leads to overcrowding, long waiting times, and limited time dedicated for patients' care. In addition to that, attendants of private hospitals are mostly of higher socioeconomic standards in comparison with attendants of MOH and University hospitals who are less likely to be involved in violent behavior (Kaplan et al., 2013).

Most of the violent events were committed by visitors/patients' relatives (68.4%) (Table 1) and this agreed with the finding of other studies (Abdel-Salam, 2014; Abou-ElWafa et al., 2015; Abdellah and Salama, 2017; Gabr et al., 2021; Ghareeb et al., 2021). This can be attributed to the strong family and social bonds which characterize the Egyptian population. Usually, patients who attended the healthcare facility are accompanied by a large number of their relatives and friends. However, the

presence of the patients' relatives and friends inside the health facility reflect poor security which resulted in poor adoption of the regulatory measures. Also, 6.3 % of violent incidents were committed by other co-workers in the health facility (Table 1). Violence between health workers greatly affects the cooperation between service providers and consequently the quality of service provided and patient safety (Kitaneh and Hamdan, 2012).

Significant differences in violence exposure were observed regarding working hours/week and the number of staff/work settings (Table 3). These two factors reflect the workload of the physicians and we can conclude from these findings that violence exposure is much more among physicians who have a high workload (as evidenced by working hours/week and the number of staff/work settings). High workload implies overcrowding and long patient waiting times which are stressful conditions for physicians, patients, and their relatives with a high probability of violence initiation. Abbas et al., reported that violence incidence among health workers was more likely to occur when the number of health workers is less than 10 in the same workplace.

Higher violence incidence was observed in the evening/night shifts (Table 3). This comes consistent with the findings of similar studies conducted in Egypt (Abbas et al, 2010; Abdel-Salam, 2014) and Palestine (Kitaneh and Hamdan, 2012). This may be due to the absence of hospital management and staff shortage during these shifts. Also, physicians working in the evening/night shifts are mostly young age and of low experience who are more prone to violence exposure. In addition to that, most alcoholics/drug users attend the hospitals at evening/night shifts (Vento et al., 2020). However, an Egyptian study was conducted on female health workers in Alexandria governorate revealed a lower prevalence of violence in night shifts (Moustafa and Gewaifel, 2013). This can be attributed to the low number of female physicians working at night shifts and consequently low probability of violence incidence.

The current work revealed a highly significant difference in the violence exposure regarding security measures where violence incidence was less among physicians who rated the security measure in their health facility as excellent/very good (Table 3). This finding reflects the great importance of security measures in preventing and

properly controlling violent events. This comes consistent with the findings of similar studies (Kitaneh and Hamdan, 2012 in Palestinian public hospitals and Abdel-Salam, 2014 in Assiut).

Limitations of the study: the most important is using the retrospective recall of events in the prior 12 months with a probability of recall bias. Also, this study depended on self-reporting of violent events without any documentary element. Lack of randomization in the selection of study participants is an additional problem that affects the generalization of study findings.

Conclusion and Recommendations:

Workplace violence against physicians represents serious problems facing health care organizations with a substantial negative effect. The current study revealed a high prevalence of workplace violence against physicians. This high prevalence implies the great necessity to put this phenomenon on the top priorities of healthcare managers due to its serious consequences on the quality of the provided health services. Healthcare organizations should adopt effective workplace violence prevention and control program with proper staff education and training, safe working environment, effective surveillance

and reporting system, and providing adequate support to victims.

Conflict of interest

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References

1. Abbas MA, Fiala LA, Abdel Rahman AG, and Fahim AE (2010): Epidemiology of workplace violence against nursing staff in Ismailia Governorate, Egypt. *J Egypt Public Health Assoc*; 85(1-2):29-43.
2. Abdellah RF and Salama KM (2017): Prevalence and risk factors of workplace violence against health care workers in emergency department in Ismailia, Egypt. *Pan Afr Med J*; 26(1):1-8. <https://doi.org/10.11604/pamj.2017.26.21.10837>.
3. Abdel-Salam D (2014): Violence against physicians working in emergency departments in Assiut, Egypt. *Bull High Inst Public Health*; 44(2):98-107. <https://dx.doi.org/10.21608/jhiph.2014.20334>.
4. Abou-ElWafa HS, El-Gilany AH, Abd-El-Raouf SE, Abd-Elmouty SM and El-Sayed HR (2015): Workplace violence against emergency versus non-emergency nurses in Mansoura university hospitals, Egypt. *J Interpers Violence*; 30(5):857-72. <https://doi.org/10.1177%2F0886260514536278>.
5. Algwaiz WM and Alghanim S (2012): Violence exposure among health care professionals

- in Saudi public hospitals. *Saudi J Med Sci*; 33(1):76-82.
6. Alhamad R, Suleiman A, Bsisu I, Santarisi A, Al Owaitat A, et al. (2021): Violence against physicians in Jordan: an analytical cross-sectional study. *PLoS one*; 16(1):e0245192. <https://doi.org/10.1371/journal.pone.0245192>.
 7. Al-Turki N, Afify AA and AlAteeq M (2016): Violence against health workers in Family Medicine Centers. *J Multidiscip Healthc*; 9:257. <https://dx.doi.org/10.2147%2FJMDH.S105407>.
 8. Davey K, Ravishankar V, Mehta N, Ahluwalia T, Blanchard J, et al. (2020): A qualitative study of workplace violence among healthcare providers in emergency departments in India. *Int J Emerg Med*; 13(1):1-9. <https://doi.org/10.1186/s12245-020-00290-0>.
 9. Di Martino V (2002): Workplace Violence in the Health Sector - Country Case Studies (Brazil, Bulgaria, Lebanon, Portugal, South Africa, Thailand, and an Additional Australian Study), Synthesis Report. Geneva: ILO/ICN/WHO/PSI Joint Programme on Workplace Violence in the Health Sector. Available at:https://www.who.int/violence_injury_prevention/violence/interpersonal/WVstresspaper.pdf.
 10. Elkhawaga G, El-Gilany AH and Abd-El-Raouf SE (2012): Violence against physicians in Mansoura University Emergency Hospital, Egypt. *The Egyptian Journal of Community Medicine*; 30(3):31-9.
 11. Fute M, Mengesha ZB, Wakgari N and Tessema GA (2015): High prevalence of workplace violence among nurses working at public health facilities in Southern Ethiopia. *BMC Nursing*; 14(1):1-5. <https://doi.org/10.1186/s12912-015-0062-1>.
 12. Gabr HM, Younis FE and El-Badry AS (2021): Workplace Violence against Female Nurses in Menoufia Governorate, Egypt: an Epidemiological Study. *Egypt J Med*; 5(1):17-27. <https://dx.doi.org/10.21608/efmj.2021.25628.1016>.
 13. Ghareeb NS, El-Shafei DA and Eladl AM (2021): Workplace violence among healthcare workers during COVID-19 pandemic in a Jordanian governmental hospital: the tip of the iceberg. *Environ Sci Pollut Res Int*; 28(43):61441-9. <https://doi.org/10.1007/s11356-021-15112-w>.
 14. ILO/ICN/WHO/PSI (International Labor Office/International Council of Nurses/World Health Organization/Public Services International)(2003): Workplace Violence in the Health Sector: Country Case Studies Research Instruments: Survey Questionnaire. ILO/ICN/WHO/PSI Joint program on workplace violence in the health sector, Geneva. Available at:www.who.int/violence_injury_prevention/violence/interpersonal/en/WVquestionnaire.pdf.
 15. Kabbash IA and El-Sallamy R (2019): Violence against health care workers in emergency hospital, Tanta University, Egypt. *Egypt J Occup Med*; 43(2):215-28.
 16. Kamal SR, Mohammed BH and Bayomy H (2021): Workplace Violence against Staff Nurses at Governmental Hospitals: A Comparative Study. *Egyptian Journal of Health Care*; 12(2):1370-82. <https://dx.doi.org/10.21608/ejhc.2021.183291>.
 17. Kaplan B, Pişkin RE, and Ayar B (2013): Violence against health care workers. *Medical Journal of Islamic World Academy of Sciences*; 21(1); 4-10. <https://platform.almanhal.com/Files/2/24844>.
 18. Kitaneh M and Hamdan M (2012): Workplace violence against physicians and nurses in Palestinian public hospitals: a cross-sectional study. *BMC Health Services Research*; 12(1):1-9. <https://doi.org/10.1186/1472-6963-12-469>.
 19. Liu J, Gan Y, Jiang H, Li L, Dwyer R, et al (2019): Prevalence of workplace violence against healthcare workers: a systematic review and meta-analysis. *Occup Environ Med*; 76:927-37. <http://dx.doi.org/10.1136/oemed-2019-105849>.
 20. Moustafa MS and Gewaifel GI (2013): Work-

- related violence among female employees in a university hospital in Alexandria: an epidemiologic study. *J Am Science*; 9(3):243-50.
21. Nowrouzi-Kia B, Chai E, Usaba K, Nowrouzi-Kia B, and Casole J (2019): Prevalence of type II and type III workplace violence against physicians: a systematic review and meta-analysis. *Int J Occup Environ Med*; 10:99–110. <https://dx.doi.org/10.15171%2Fijoem.2019.1573>.
 22. Saines JC (1999): Violence and aggression in A&E: recommendations for action. *Accid Emerg Nurs*; 7(1):8-12. [https://doi.org/10.1016/S0965-2302\(99\)80094-0](https://doi.org/10.1016/S0965-2302(99)80094-0).
 23. Vento S, Cainelli F and Vallone A (2020): Violence against healthcare workers: a worldwide phenomenon with serious consequences. *Front Public Health*; 541. <https://doi.org/10.3389/fpubh.2020.570459>.
 24. Vento S, Cainelli F, and Vallone A (2020): Violence against healthcare workers: a worldwide phenomenon with serious consequences. *Front Public Health*; 541. <https://doi.org/10.3389/fpubh.2020.570459>.
 25. Zainal N, Rasdi I and Saliluddin SM (2018): The risk factors of workplace violence among healthcare workers in public hospital. *Mal J Med Health Science*; 14(SP2):120-7.

