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ORIGINAL ARTICLE

Workplace violence against healthcare providers in emergency departments in Saudi Arabia

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ABSTRACT

Introduction: Emergency departments (EDs) have been identified as the highest risk area within a hospital to be exposed to workplace violence (WPV). This study aimed to estimate the prevalence of WPV against healthcare providers in EDs in Saudi Arabia, to explore the experiences and attitudes of ED staff toward WPV, and to identify the possible risk factors for WPV.

Methods: A cross-sectional survey study was conducted with physicians and nurses working in 37 EDs in three provinces in Saudi Arabia, using a convenient sampling method. Over a 1-year period, 787 ED staff members were contacted and a 60% response rate was achieved.

Results: The 1-year prevalence of at least one violent act against ED staff was 45%. Verbal threats were the most common type of WPV (42%). The study found that the prevalence of WPV against physicians (47%) was higher than against nurses (41%). However, when comparing the physician and nurse groups, none of the types of WPV was statistically significant. More female participants were exposed to stalking compared to male participants (OR 0.38; 95% CI 0.15–0.92). Non Arabic speakers experienced more WPV in the form of verbal threats and physical assault than the Arabic speaking group (OR 0.14; 95% CI 0.03–0.75). Participants working at the Ministry of Health hospitals were more likely to be exposed to a confrontation when off-duty and to stalking.

Conclusion: Almost half of the ED physicians and nurses experienced one or more WPV incident during a 12-month period.

Keywords: Emergency Department, Physicians, Nurses, Violence, Saudi Arabia.

Introduction

Workplace violence (WPV) in the healthcare sector has become an alarming phenomenon globally [1,2], affecting the dignity and well-being of millions of healthcare practitioners. The healthcare profession is potentially hazardous, whether from the proximity to disease and pathogens, handling chemicals or sharp tools, or even slips and falls [3]. However, WPV has exceeded all other risks and is a significant occupational hazard for healthcare practitioners [4]. Although affecting every department, due to the frontline nature of the emergency department (ED), multiple authors have identified the ED as the highest risk area for WPV within the hospital [4,5]. Violence against healthcare practitioners occurs frequently, and this socially and ethically unacceptable phenomenon must be managed [6].

Workplace-related violence 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" [7]. In the United States (US), the majority of attending emergency physicians reported experiencing at least one workplace-related violence incident, and 25% reported multiple incidents of violence in 2004 [8]. In 2005, one in four attending emergency physicians reported being attacked, with some incidents

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occurring outside the ED and some were stalked. One-sixth of these physicians considered to leave their department due to the fear of assault [9]. A survey of WPV in 65 US EDs found that 25% of surveyed ED staff rarely felt safe. In a 2008 US study, the majority of emergency physicians experienced at least one WPV incident in 1 year, half of the emergency medicine residents reported being physically assaulted, and ED nurses reported even more incidents [10]. Some violent events may result in healthcare practitioners paying the ultimate price. In the United States, in a period of 4 years, 69 homicides were reported in the healthcare sector, with four occurring in the ED [11].

The public and legislative bodies are unaware of the magnitude of the problem, the implications for healthcare providers, the recipients as well as the financial cost. WPV has serious consequences, such as decreased job satisfaction, job performance, and a decrease in the standard of medical care [12]. In addition, WPV lowers morale, causes of anger, loss of confidence, burnout, time off work, disability, and change in job status [12–14]. The cost of WPV is becoming more apparent. Even though WPV is a global concern, literature is markedly lacking. The aim of this study was to estimate the prevalence of WPV against healthcare practitioners in EDs in Saudi Arabia. In addition, this study aimed to explore the experiences and attitudes of ED staff toward WPV and identify possible risk factors for WPV and the reasons for underreporting.

Methods

Study design and technique

The design for the study was a cross-sectional survey conducted in healthcare providers (physicians and nurses) working in EDs in three different provinces of Saudi Arabia over 1-year period. Convenient sampling was used, and all available physicians and nurses who met the inclusion criteria were invited to participate in the survey. The primary outcome of the study was the prevalence of WPV in ED staff and their experience and attitudes toward WPV. The confidence level was 95% with expected prevalence of 58% based on a previous local study [15] and 5% as a margin of error.

Study setting and subjects

The study was conducted with physicians and nurses from 37 EDs in Saudi Arabia. Participants from 12 centers in Riyadh, the Central Province in Saudi Arabia, 14 centers from the Western Province, and 11 centers from the Eastern Province were personally contacted by members of the research group in each province. They were invited to participate in the study by completing the questionnaire. In total, 787 ED physicians and nurses were contacted and a 60% response rate (163 nurses and 312 physicians) was achieved. The study included all male and female physicians at any level and nurses who had worked in an ED in Saudi Arabia for at least 1 year. Participants who reported less than 1 year of practice in an ED (10 participants) and two questionnaires with no data were excluded from the study. Healthcare providers in their internship year, a mandatory 1-year period in different specialties after medical and nursing school in Saudi Arabia, or still studying were not included in the study.

Questionnaire

A previously validated and publicly published English questionnaire by Michigan College of Emergency Physicians [9] was adopted in this study. The questionnaire was reviewed to ensure alignment with the study objectives. The questionnaire was divided into three sections with a total of 19 questions. The first section (9 questions) comprised demographic information including gender, age, nationality, level of the staff, years in practice, the center, and Emergency Medicine Board Certification. The second section focused on experiencing violence with one question with multiple parts. This section started with some basic definitions of violence-related concepts (verbal threat, physical assault, a confrontation outside the immediate patient encounter, and stalking). The last section explored the reaction of the participants to violence in EDs (10 questions).

Data management and analyses

Data management and analysis were done using the Statistical Package for the Social Sciences (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY). Categorical variables are represented as percentage and frequency. The prevalence is reported as a percentage with 95% confidence intervals (CIs). A comparison of the type of violence experienced by the physician and nursing groups was performed using a Chi-square test. An univariate logistic regression analysis was conducted to investigate the predictors of WPV against ED staff. The 95% CI, OR, and adjusted OR (aOR) were reported. A p-value < 0.05 was considered to indicate statistical significance.

Ethical considerations

The study participation was voluntary, and each participant could withdraw from the study at any time. The questionnaire was accompanied by a cover letter explaining the purpose of the study and reassuring participants of the confidentiality of the survey. Ethical approval was obtained from the Institutional Review Board, King Abdullah International Medical Research Center, National Guard Health Affairs, Riyadh, Saudi Arabia (Study number RC17/156/R).

Results

Demographic profile of study participants

From July 2018 to July 2019, 475 physicians and nurses working in EDs completed the questionnaire. Gender was equally distributed (50%, n = 238). The minimum age was 24 years. The highest age for males

was 60 years compared to 49 years for females (mean 31.83 ± 6.5 years; 33.57 ± 7.4 years for males and 30.09 ± 4.9 years for females). The highest proportion (39%, *n* = 186) was working in the Central Province, 38% (*n* = 181) in the Western Province, and 23% (*n* = 108) in the Eastern Province. Arabic was the spoken language for 74% (*n* = 353) of the participants. Two-thirds of the sample (66%, *n* = 312) were physicians with 34% (*n* = 163) of nurses. Of the physicians, 27% (*n* = 83) were junior residents, 10% (*n* = 30) senior residents, 30% (*n* = 94) staff physicians, 8% (*n* = 25) assistant consultants, and 26% (*n* = 80) consultants. The maximum number of years of practice was 30 years for males and 22 years for females (mean 5.66 ± 4.9 years; 6.82 ± 5.8 years for males and 4.50 ± 3.6 years for females). In terms of the Emergency Medicine Board Certification, 20% of the female physicians (*n* = 19) and 44% of the male physicians (*n* = 95) were certified. Of the sample, 49% (*n* = 212) were working at a Ministry of Health hospital and 59% (*n* = 281) in a hospital with a residency program (Table 1).

Prevalence of WPV against ED physicians and nurses for a 12-month period

As shown in Table 2, 45% of the participants (*n* = 213) experienced at least one violent act during the past 12 months. The prevalence of WPV for the physician group (47%, *n* = 147) was higher compared to the nurse group (41%, *n* = 44). A verbal threat was the most frequent type of WPV (42%, *n* = 198). Almost half (44%, *n* = 174) of the physician group and 37% (*n* = 60) of the nurse group received at least one verbal threat. A small proportion (12%, *n* = 56) experienced a physical assault, equally

Table 1. *Baseline characteristics of the participants.*

Variable	Category	*N*	%
Gender	Male	237	50
	Female	238	50
Age	30-year old and less	254	54
	31–40	175	37
	41–50	39	8
	More than 50-year old	7	2
	Mean ± SD = 31.83 ± 6.5; Males = 33.57 ± 7.4; Females = 30.09 ± 4.9		
Spoken language	Arabic language	353	74
	Other languages	122	26
Location	Riyadh Province	186	39
	Western Province	181	38
	Eastern Province	108	23
Job	Physician	312	66
	Nurse	163	34
Physician level	Junior resident	83	27
	Senior resident	30	10
	Staff physician	94	30
	Assistant consultant	25	8
	Consultant	80	26
Years of practice in EM	5 years and less	292	64
	6–10	101	22
	11–20	59	13
	More than 20 years	5	1
	Mean ± SD = 5.66 ± 4.9; Males = 6.82 ± 5.8; Females = 4.50 ± 3.6		
EM board certified	No	198	64
	Yes	114	37
Hospital type	Ministry of Health Hospitals	212	49
	Other hospitals	223	51
Residency Program in the hospital	No	194	41
	Yes	281	59

EM, emergency Medicine; SD, standard deviation.

***Table 2**. Prevalence of different WPVs against ED physicians and nurses.*

Variable	Category	All		Physicians		Nurses		*p*-value
		N	%	*N*	%	*N*	%	
At least one violent act during the past 12 months	No	262	55	165	53	97	60	0.17
	Yes	213	45	147	47	66	41	
Verbal threat	No	277	58	174	56	103	63	0.12
	Yes	198	42	138	44	60	37	
Physical assault	No	419	88	276	89	143	88	0.81
	Yes	56	12	36	12	20	12	
Confrontation Outside Time of Patient Care	No	417	88	270	87	147	90	0.25
	Yes	58	12	42	14	16	10	
Stalking	No	430	91	277	89	153	94	0.07
	Yes	45	10	35	11	10	6	

WPV, workplace violence; EM, emergency medicine

distributed between the physician and nurse groups. Similarly, 12% of the participants ($n = 58$) experienced a confrontation outside of patient care (14% of physicians and 10% of nurses). In terms of stalking, 10% ($n = 45$) of the sample was stalked (11% ($n = 35$) of the physician and 6% ($n = 10$) of the nurse groups). When comparing the physician and nurse subsamples, none of the types of WPV was statistically significant.

Characteristics of the types of WPV against ED physicians and nurses for a 12-month period

A relationship between the years of practice in the ED and the incidence of some types of WPV was observed. Participants who had <5 years of practice reported at least one experience of physical assault (4.89 ± 3.8) and stalking (4.68 ± 3.9). Table 3 presents a more detailed comparison. The type of violence experienced varied according to the age of participants; the group older than 50 years was not stalked or confronted outside the time of patient care. Some types of WPV were more prevalent in certain provinces; for instance, a verbal threat was more prevalent in the Central Province as reported by 96% of the group who experienced violence. In contrast, the prevalence of a confrontation outside the time of patient care was the highest in the Eastern Province, as reported by 30% of the group who experienced violence. The Western Province had the highest overall prevalence rate (39%). The prevalence of violence varied in terms of the physician level as 31% of the staff physicians compared to 9% of the assistant consultants who experienced violence. Table 4 details the characteristics of WPV against ED staff.

Univariate logistic regression analysis of the predictors of WPV against emergency medicine physicians and nurses

Gender was associated with stalking in the univariate analysis, with female participants more exposed than male participants (OR 0.38; 95% CI 0.15–0.92). There was no association between age, location of hospital, physician level, years of practice in emergency medicine, and board certification. However, spoken language was significantly associated with experiencing WPV in the past 12 months, specifically verbal threats and physical assault. The non Arabic speaker group experienced more WPV in the past 12 months than the Arabic speaking group (OR 0.14; 95% CI 0.03–0.75), received more verbal threats (OR 0.14; 95% CI 0.03–0.75), and experienced more physical assaults (OR 0.12; 95% CI 0.02–0.64). The group working in the Ministry of Health hospitals was more likely than the counter group to be exposed to a confrontation outside the time of patient care (OR 3.20; 95% CI 1.33–7.73) and to stalking (OR 2.78; 95% CI 1.03–7.47). In addition, the group working in hospitals without a residency training program in emergency medicine experienced significantly more physical assault and stalking (OR 23.91; 95% CI 3.93–145.60, and OR 4.81; 95% CI 1.31–17.66, respectively) (Table 5).

Physician and nurse reaction to WPV in EDs

Due to violence within the workplace, 19% of the sample considered leaving their current hospital position and 14% considered leaving the practice of emergency medicine. Only 1% sought psychological counseling, with 5% obtaining legal counsel. A substantial proportion of the WPV was committed by family members: 43% of the verbal threats, 43% of the confrontation outside of patient care, and 39% of stalking. However, almost half of the physical assaults were received from patients (47%). The sample indicated that 15% of the verbal threats were perpetrated by patients believed to be intoxicated and 13% from mentally disturbed patients. When questioned whether they fear to become a victim of violence in the ED, almost half (46%) indicated being occasionally fearful of WPV, 24% were frequently fearful, and 12% were constantly fearful. In terms of protecting themselves

***Table 3**. The difference between the mean age and years of practice between the types of WPV.*

Variable	Category	Age (mean ± SD)	Years of practice (mean ± SD)
Having at least one violent act during the past 12 months	Yes	32.42 ± 6.7	5.81 ± 4.9
	No	31.34 ± 6.3	5.53 ± 4.9
Verbal threat	Yes	31.34 ± 6.3	5.53 ± 4.9
	No	32.27 ± 6.2	5.51 ± 4.9
Physical assault	Yes	30.95 ± 5.9	4.89 ± 3.8
	No	31.94 ± 6.6	5.7 ± 5.1
Confrontation outside the time of patient care	Yes	31.86 ± 5.9	5.32 ± 4.5
	No	31.82 ± 6.6	5.7 ± 4.9
Stalking	Yes	31.4 ± 5.8	4.68 ± 3.9
	No	31.87 ± 6.6	5.8 ± 5.0

WPV, workplace violence

***Table 4.** Characteristics of different types of WPV against EM department staff.*

Variable	Category	An incident of WPV in the last year *N* = 213		Verbal threat *N* = 198		Physical assault *N* = 56		Confrontation outside time of patient care *N* = 58		Stalking *N* = 45	
		N	%	*N*	%	*N*	%	*N*	%	*N*	%
Gender	Male	108	51	104	96	29	27	32	30	20	19
	Female	105	49	94	90	27	26	26	25	25	24
Age	30 and less	102	48	93	91	32	31	27	26	26	25
	31–40	87	41	81	93	19	22	25	29	14	16
	41–50	19	9	19	100	4	21	6	32	5	26
	More than 50	5	2	5	100	1	20	0	0	0	0
Spoken language	Arabic language	157	74	147	94	40	25	46	29	38	24
	Other languages	56	26	51	91	16	29	12	21	7	13
Location	Riyadh Province	79	37	76	96	18	23	21	27	14	18
	Western Province	84	39	75	89	25	30	22	26	21	25
	Eastern Province	50	24	47	94	13	26	15	30	10	20
Job	Physician	147	69	138	94	36	24	42	29	35	24
	Nurse	66	31	60	91	20	30	16	24	10	15
Physician level	Junior resident	31	21	29	94	9	29	9	29	11	35
	Senior resident	17	12	17	100	4	24	5	29	5	29
	Staff physician	46	31	42	91	13	28	14	30	10	22
	Assistant consultant	13	9	13	100	2	15	3	23	2	15
	Consultant	40	27	37	93	8	20	11	28	7	18
Years in practice in Emergency Medicine	5 years and less	130	63	122	94	37	28	39	30	34	26
	6–10	47	23	42	89	13	28	12	26	7	15
	11–20	26	13	25	96	4	15	5	19	3	12
	More than 20 years	3	2	3	100	0	0	1	33	0	0
Emergency Medicine board certified	No	88	60	83	94	25	28	27	31	25	28
	Yes	59	40	55	93	11	19	15	25	10	17
Hospital type	Ministry of Health Hospital	98	51	91	93	30	31	34	35	28	29
	Other hospitals	96	50	91	95	21	22	20	21	14	15
Residency Program in the hospital	No	93	44	85	91	31	33	30	32	26	28
	Yes	120	56	113	94	25	21	28	23	19	16

WPV, workplace violence; EM, emergency medicine.

Table 5. *Univariate logistic regression analysis of the predictors of WPV against EM physicians and nurses.*

Variable(s)	An incident of WPV in the last year	Verbal threat	Physical assault	Confrontation outside the time of patient care	Stalking
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age					
30 years old and less	0.13 (0.01–1.74)	0.09 (0.01–1.29)	1.03 (0.02–44.79)	N/A	N/A
31–40	0.19 (0.02–2.46)	0.19 (0.01–2.46)	0.33 (0.01–10.58)	N/A	N/A
41–50	0.17 (0.01–2.13)	0.19 (0.02–2.53)	0.20 (0.01–4.91)	N/A	N/A
More than 50 years old	1	1	1	1	1
p-value	0.35	0.203	0.53	N/A	N/A
Gender					
Male	0.68 (0.38–1.21)	0.69 (0.39–1.25)	0.92 (0.36–2.34)	0.92 (0.39–2.14)	0.38 (0.15–0.92)
Female	1	1	1	1	1
p-value	0.188	0.221	0.857	0.837	0.032
Spoken language					
Arabic language	0.14 (0.03–0.75)	0.14 (0.03–0.75)	0.12 (0.02–0.64)	0.29 (0.06–1.44)	0.35 (0.06–1.99)
Other languages	1	1	1	1	1
p-value	0.022	0.022	0.014	0.131	0.234
Location					
Riyadh Province	1.06 (0.43–2.60)	1.01 (0.41–2.50)	4.92 (0.84–28.84)	0.71 (0.19–2.61)	5.56 (0.96–32.28)
Western Province	0.92 (0.44–1.91)	0.68 (0.32–1.42)	1.34 (0.44–4.07)	0.80 (0.29–2.17)	3.81 (0.94–15.39)
Eastern Province	1	1	1	1	1
p-value	0.916	0.305	0.161	0.863	0.123
Physician level					
Junior resident	0.80 (0.21–2.98)	1.20 (0.31–4.54)	0.23 (0.03–1.92)	0.49 (0.08–2.90)	0.84 (0.10–7.30)
Senior resident	1.93 (0.45–8.29)	2.86 (0.66–12.46)	0.81 (0.08–8.28)	1.48 (0.20–10.78)	2.03 (0.19–22.27)
Staff physician	0.86 (0.25–2.93)	1.09 (0.32–3.76)	0.17 (0.02–1.24)	0.30 (0.06–1.57)	0.39 (0.05–3.36)
Assistant consultant	0.99 (0.34–2.91)	1.38 (0.47–4.08)	0.10 (0.01–1.15)	0.81 (0.17–3.93)	0.78 (0.12–5.23)
Consultant	1	1	1	1	1
p-value	0.507	0.162	0.174	0.321	0.404
Years in practice in Emergency Medicine					
5 years and less	0.73 (0.05–10.79)	0.60 (0.04–9.02)	N/A	0.07 (0.00–1.73)	N/A
6–10	0.66 (0.05–9.73)	0.53 (0.04–7.92)	N/A	0.06 (0.00–1.69)	N/A
11–20	0.32 (0.02–4.29)	0.25 (0.02–3.46)	N/A	0.05 (0.00–1.30)	N/A
More than 20 years	1	1	1	1	1
p-value	0.368	0.302	N/A	0.355	N/A
Emergency Medicine Board certified					
No	0.60 (0.20–1.78)	0.62 (0.21–1.84)	0.66 (0.12–3.62)	0.82 (0.20–3.42)	0.63 (0.12–3.35)
Yes	1	1	1	1	1
p-value	0.36	0.39	0.628	0.782	0.584
Hospital type					
Ministry of Health Hospital	1.24 (0.68–2.24)	1.23 (0.68–2.24)	1.76 (0.65–4.81)	3.20 (1.33–7.73)	2.78 (1.03–7.47)
Other hospitals	1	1	1	1	1
p-value	0.482	0.495	0.268	0.01	0.043
Does your hospital have a residency training program in EM?					
No	1.55 (0.68–3.52)	1.47 (0.64–3.38)	23.91 (3.93–145.60)	2.24 (0.71–7.06)	4.81 (1.31–17.66)
Yes	1	1	1	1	1
p-value	0.298	0.367	0.001	0.167	0.018

WPV, workplace violence; EM, emergency medicine; OR, odds ratio; CI, confidence interval.

from the violence, one-third (33%) tried to have any form of protection. The majority (68%) requested assistance from the hospital security. When questioned whether they desired additional resources to cope with the threat of violence in their ED, one-third (32%) indicated information regarding their legal rights, 24% indicated information on personal protection orders and how to obtain them, and 22% indicated training courses or presentations to manage threatening and violent patients. Figures 1 and 2 display the physicians' and nurses' reactions to WPV in the ED.

Discussion

WPV in EDs is a serious phenomenon that affects the patient experience as well as the quality of practice for healthcare providers. The aim of this study was to estimate the prevalence of WPV against healthcare providers in EDs in three provinces of Saudi Arabia, to emphasize the seriousness and extent of the problem, and to highlight the need for immediate intervention. In addition, the risk factors for WPV and the experiences and attitude of ED healthcare providers were explored. The findings provide evidence of a relatively high prevalence of WPV (physical, verbal, confrontations outside the workplace, or stalking), in the past 12 months against physicians and nurses working in 37 EDs (45% in total, 47% for the physician group, and 41% for the nurse group) in the three provinces in Saudi Arabia.

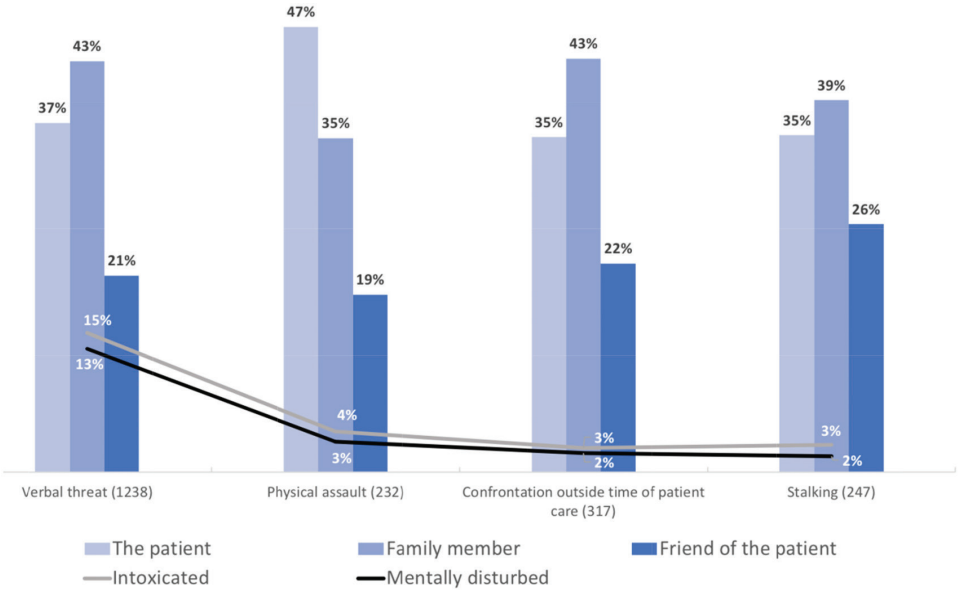

Figure 1. *Perpetrators of different violent assaults.*

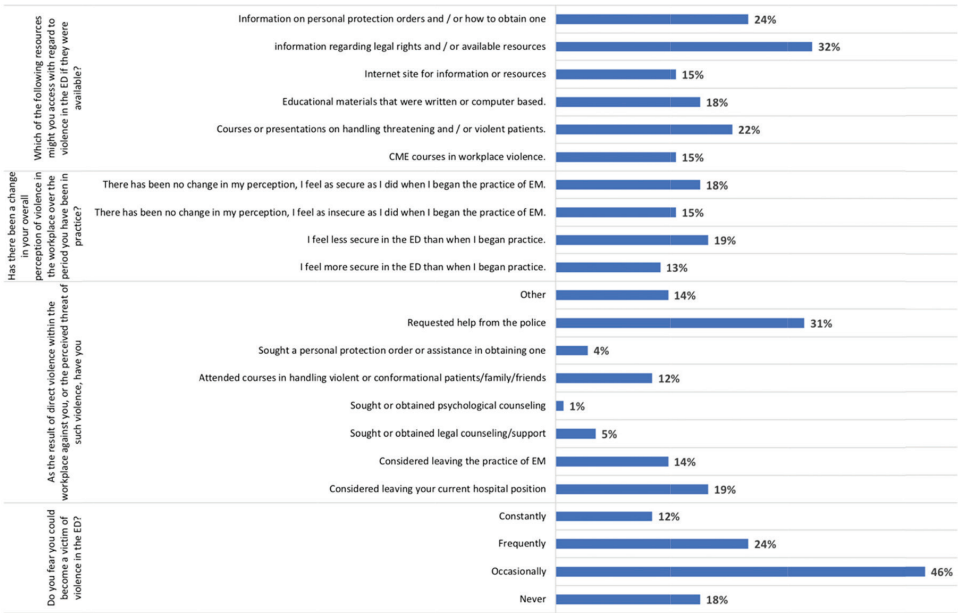

Figure 2. *Characteristics of WPV-related questions among EM physicians and nurses.*

A study conducted in Abha, Saudi Arabia, targeting all healthcare providers, reported a WPV prevalence of 58%, which was higher for the nurse group (63%) [15]. In the Middle East, several studies reported WPV in the ED [16–18]. In Egypt, the prevalence of WPV against healthcare workers in the ED was 59.7% [8]. This was even higher in Palestinian EDs with 76% of staff experiencing a type of WPV in the past 12 months [19]. Furthermore, Çıkrıklar et al. [18] conducted a study in Turkey to compare various professional groups working in the ED, and they concluded that 74% of the participants had been subjected to WPV [18]. These findings are higher compared to this study. Several other studies reported varying prevalence rates of WPV against ED staff, for example, New York City (66%), Michigan State (76%), Hong Kong (76%) and Tehran City (90%) [5,9,16]. These differences could be related to different ethnicities, culture-related factors as well as unmeasured biological, social, and environmental characteristics that could play a role in WPV.

In this study, the most frequent type of violence against ED physicians and nurses was verbal threats (42%), which is lower than the results from Zafar et al. [20] reporting a prevalence rate of 72.5% [20]. In this study, 44% of the physician group reported experiencing verbal threats, which is similar to a study conducted in Egypt (45.3%) [17] and lowers than the prevalence rate reported in Pakistan (72.5%), the United States (75%), and Iran (90.7%) [8,16,20]. In terms of the nurse group, 37% received at least one verbal threat during the past 12 months, which is low compared to an Egyptian study (65.7%) [17]. The prevalence of physical assaults in this study was 12%, which is comparable with two studies reporting a prevalence of 16.5% and 15.1%, respectively [17,20], but lowers than a national survey conducted in the US (21%) [8]. A concerning finding in an Iranian study indicated a prevalence of 68.6% for physical assaults against physicians [16]. In the present study, 12% of the participants experienced a confrontation outside the ED and 10% experienced being stalked compared to 5% (a confrontation outside the ED) and 2% (stalking) from the national survey in the USA [8].

The majority of the violent acts in this study were committed by family members; the finding is supported by a previous study conducted in Riyadh [21], indicating that the patient's family/friends were the most frequent perpetrators of all forms of violence combined and identified by more than 70% of the respondents. Another local study [22], investigating WPV against emergency medical services workers in Riyadh, reported that the majority of the attackers were the patients' relatives (80%), followed by patients themselves (51%). These findings correlate with other studies in the region [23–26], providing evidence that the most violent acts in EDs were committed by the patients' relatives or friends. In contrast, a Chinese [27] study indicated that most perpetrators were the patients themselves. A possible explanation could be that the patients' relatives misunderstood the triaging system or other conditions encountered when visiting the ED, which highlights an area for further research. Perpetrators, who were believed to be impaired due to intoxication or mental illness, comprised a relatively small proportion in this study, 13% and 15%, respectively, for verbal threats which are low compared to 47% reported in another study [9]. This could be explained by the conservative behavior of the Saudi society and the illegality of alcohol and other substances causing intoxication in Saudi Arabia.

The reactions of the participants who encountered any type of violence in the ED were variable. The majority of violated healthcare providers requested assistance from the police or security (31%); the finding is supported by Bayram study [28] which reports that 54.1% of the participants implemented Code White, the Ministry of Health's official emergency code for WPV against healthcare providers in Turkey. Similarly, Esmaeilpour et al. study [25] indicated that in 50% of the physical violence incidents, a report was handed to the police. Fear of being a victim of violence has been closely related to EDs as reported in this study by 46% of the participants who "occasionally" felt that they could be a victim of WPV. This was consistent with another local study [29] in Al-Hassa reporting 38% for the same context. Abou-ElWafa et al. [23] compared the difference of being worried between emergency nurses and nonemergency nurses, and 54.7% of the emergency nurses expressed being worried about violence compared with only 6.8% of nonemergency nurses.

Regardless of the high prevalence of WPV incidents and the harmful effects on the healthcare providers in our society, only 1% sought psychological counseling. The finding is noteworthy as Qunhong Wu et al. [27] who highlighted that 13% of WPV victims suffered from posttraumatic stress disorder symptoms.

Several studies evaluated the characteristics and predictors of WPV against ED physicians. Regarding gender, this study revealed no difference in overall violence against ED staff of both the genders, which is consistent with a prospective cross-sectional survey reporting a similar prevalence of violence against female and male participants (79% vs. 75%) [8]. In contrast, Algwaiz et al. [21], investigating violence against healthcare providers in Saudi Arabia, reported that the male gender was found to be a risk factor for WPV in the health sector (73.7% vs. 63.2) [21]. Stalking was the only violence subtype that was more likely to be experienced by females. This finding was not observed in other studies. The abovementioned study also investigated the age as a risk factor for violence, revealing that an age younger than 35 years was a risk factor for violence [21]. This is not consistent with this study, which found that age was not associated with an increased risk of violence against the ED healthcare provider.

The language used by ED staff was a predictor for WPV in this study, reporting that non Arabic speakers were more likely to experience WPV. No other studies in the literature considered fluency in the native language of the patient population as a predictor for WPV in

EDs. The finding could be related to cultural behavior in Arab countries. If the patient speaks loudly and in a high-pitched voice when talking to the staff, it may be interpreted as verbal violence because they do not understand the patient's language. It could be also related to miscommunication between non Arabic staff and the patient due to the language.

Some studies associated a higher level of physician and longer experience in the ED with a lower prevalence of WPV [9,30]. In this study, the level of the physician and the years of practice were not identified as risk factors for WPV. In addition, hospital location, Emergency Medicine Board Certification, and presence of an emergency medicine residency program were not predictors of WPV, supporting the findings of a Michigan State study [9]. Community hospitals (i.e., Saudi Ministry of Health hospitals) were risk factors of confrontations outside the time of patient care and stalking, which can be attributed to lower levels of security services and more overcrowding with limited resources.

This study was conducted in three provinces in 37 EDs in Saudi Arabia. The questionnaire was distributed to participants by research team members, and they were asked to complete the questionnaire anonymously, increasing the chance of honest responses. However, the results of this study should be interpreted taking into consideration some limitations. A response rate of 60% is relatively low which may have affected the statistical analysis. However, contacting ED staff was not easy due to the overcrowding in the departments. In addition, asking the participants to report experiencing violence over 12 months is susceptible to recall bias. Self-reported answers may be affected by the sensitivity of the questions. Physicians and nurses may choose not to disclose some information due to a fear of stigmatization.

Conclusion

Managing the consequences of violence occurring external to the ED has always been a major part of the ED staff workload. However, violence is also committed in the cubicles and hallways of the ED presenting a risk to ED staff and their well-being. This study highlighted that there is a high prevalence of WPV against physicians and nurses working in EDs in three provinces in Saudi Arabia. Being a female, non Arabic speaker, who working in a Saudi Ministry of Health hospital, or who working in a hospital that does not have an Emergency Medicine Residency Program are associated with an increased risk of WPV. Therefore, developing prevention policies and measures and improving the reporting system should be prioritized to improve the working environment, the safety of healthcare providers, and the quality of practice in EDs.

List of Abbreviations

ED	Emergency Department
US	United States
WPV	Workplace violence

Conflict of interest

The authors declared that they have no conflict of interest.

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Consent for publication

Written consent was obtained from all the participants.

Ethical approval

Ethical approval was granted by the Institutional Review Board of King Abdullah International Medical Research Center, National Guard Health Affairs, Riyadh, Saudi Arabia (Study number RC17/156/R).

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References

1. Gacki-Smith J, Juarez AM, Boyett L, Homeyer C, Robinson L, MacLean SL. Violence against nurses working in US Emergency Departments. JONA J Nurs Adm. 2009;39:340–9. https://doi.org/10.1097/NNA.0b013e3181ae97db
2. Talas MS, Kocaöz S, Akgüç S. A survey of violence against staff working in the Emergency Department in Ankara, Turkey. Asian Nurs Res (Korean Soc Nurs Sci). 2011;5: 197–203. https://doi.org/10.1016/j.anr.2011.11.001
3. Walton AL, Rogers B. Workplace hazards faced by nursing assistants in the United States: a focused literature review. Int J Environ Res Public Health 2017;14. https://doi.org/10.3390/ijerph14050544
4. Di Martino V. Workplace violence in the health sector. Relationship between work stress and workplace violence in the health sector. World Health Organization, Geneva, Switzerland. 2003.
5. Kwok RPW, Law YK, Li KE, Ng YC, Cheung MH, Fung VKP, et al. Prevalence of workplace violence against nurses in Hong Kong. Hong Kong Med J = Xianggang Yi Xue Za Zhi. 2006;12:6–9.
6. Kennedy MP. Violence in emergency departments: under-reported, unconstrained, and unconscionable. Med J Aust. 2005;183:362–5. https://doi.org/10.5694/j.1326-5377.2005.tb07084.x

7. International Labour Organization. Framework guidelines for addressing workplace violence in the health sector. World Health Organization, Geneva, Switzerland. 2002.
8. Behnam M, Tillotson RD, Davis SM, Hobbs GR. Violence in the emergency department: a national survey of emergency medicine residents and attending physicians. J Emerg Med. 2011;40:565–79. https://doi.org/10.1016/j.jemermed.2009.11.007
9. Kowalenko T, Walters BL, Khare RK, Compton S, Michigan College of Emergency Physicians Workplace Violence Task Force. Workplace violence: a survey of emergency physicians in the State of Michigan. Ann Emerg Med. 2005;46:142–7. https://doi.org/10.1016/j.annemergmed.2004.10.010
10. 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;15:1268–74. https://doi.org/10.1111/j.1553-2712.2008.00282.x
11. The Bureau of Labor Statistics. Injuries, Illnesses, and Fatalities n.d [cited 2019 Sep 17]. Available from: https://www.bls.gov/iif/
12. Arnetz JE, Arnetz BB. Violence towards health care staff and possible effects on the quality of patient care. Soc Sci Med. 2001;52:417–27. https://doi.org/10.1016/S0277-9536(00)00146-5
13. Svoboda T. Difficult behaviors in the emergency department: a cohort study of housed, homeless and alcohol dependent individuals. PLoS One. 2015;10:e0124528. https://doi.org/10.1371/journal.pone.0124528
14. Levin PF, Hewitt JB, Misner ST. Insights of nurses about assault in hospital-based emergency departments. Image J Nurs Sch. 1998;30:249–54. https://doi.org/10.1111/j.1547-5069.1998.tb01300.x
15. Alsaleem SA, Alsabaani A, Alamri RS, Hadi RA, Alkhayri MH, Badawi KK, et al. Violence towards healthcare workers: a study conducted in Abha City, Saudi Arabia. J Family Community Med. 2018;25:188–93.
16. Hedayati Emam G, Alimohammadi H, Zolfaghari Sadrabad A, Hatamabadi H. Workplace violence against residents in emergency department and reasons for not reporting them; a cross sectional study. Emerg (Tehran, Iran). 2018;6:e7.
17. Abdellah RF, Salama KM. Prevalence and risk factors of workplace violence against health care workers in emergency department in Ismailia, Egypt. Pan Afr Med J. 2017;26. https://doi.org/10.11604/pamj.2017.26.21.10837
18. Çıkrıklar HÍ, Yürümez Y, Güngör B, Aşkın R, Yücel M, Baydemir C. Violence against emergency department employees and the attitude of employees towards violence. Hong Kong Med J. 2016;22:464–71. https://doi.org/10.12809/hkmj154714
19. Hamdan M, Abu Hamra A. Workplace violence towards workers in the emergency departments of Palestinian hospitals: a cross-sectional study. Hum Resour Health. 2015;13:28. https://doi.org/10.1186/s12960-015-0018-2
20. Zafar W, Siddiqui E, Ejaz K, Shehzad MU, Khan UR, Jamali S, et al. Health care personnel and workplace violence in the emergency departments of a volatile metropolis: results from Karachi, Pakistan. J Emerg Med. 2013;45:761–72. https://doi.org/10.1016/j.jemermed.2013.04.049
21. Waleed M. Algwaiz SAA, Algwaiz WM, Alghanim SA. No Title 2012;33:76–82.
22. Alharthy N, Mutairi M Al, Alsahli A, Alshehri A, Almatrafi A, Mahah A, et al. Workplace violence among emergency medical services workers in Riyadh, Saudi Arabia. J Hosp Adm. 2017;6:26. https://doi.org/10.5430/jha.v6n3p26
23. Abou-ElWafa HS, El-Gilany A-H, Abd-El-Raouf SE, Abd-Elmouty SM, El-Sayed Hassan El-Sayed R. Workplace violence against emergency versus non-emergency nurses in Mansoura University Hospitals, Egypt. J Interpers Violence. 2015;30:857–72. https://doi.org/10.1177/0886260514536278
24. Kitaneh M, Hamdan M. Workplace violence against physicians and nurses in Palestinian public hospitals: a cross-sectional study. BMC Health Serv Res 2012;12:469. https://doi.org/10.1186/1472-6963-12-469
25. Esmaeilpour M, Salsali M, Ahmadi F. Workplace violence against Iranian nurses working in emergency departments. Int Nurs Rev. 2011;58:130–7. https://doi.org/10.1111/j.1466-7657.2010.00834.x
26. Adib SM, Al-Shatti AK, Kamal S, El-Gerges N, Al-Raqem M. Violence against nurses in healthcare facilities in Kuwait. Int J Nurs Stud. 2002;39:469–78. https://doi.org/10.1016/S0020-7489(01)00050-5
27. Jiao M, Ning N, Li Y, Gao L, Cui Y, Sun H, et al. Workplace violence against nurses in Chinese hospitals: a cross-sectional survey. BMJ Open. 2015;5:e006719. https://doi.org/10.1136/bmjopen-2014-006719
28. Bayram B, Çetin M, Çolak Oray N, Can İÖ. Workplace violence against physicians in Turkey's emergency departments: a cross-sectional survey. BMJ Open. 2017;7:e013568. https://doi.org/10.1136/bmjopen-2016-013568
29. El-Gilany A-H, El-Wehady A, Amr M. Violence against primary health care workers in Al-Hassa, Saudi Arabia. J Interpers Violence. 2010;25:716–34. https://doi.org/10.1177/0886260509334395
30. ALBashtawy M, Al-Azzam M, Rawashda A, Batiha A-M, Bashaireh I, Sulaiman M. Workplace violence toward emergency department staff in Jordanian hospitals. J Nurs Res. 2015;23:75–81. https://doi.org/10.1097/jnr.0000000000000075