

WORKPLACE VIOLENCE AMONG HEALTHCARE WORKERS IN A HEALTH DISTRICT AND ITS PREDICTING FACTORS

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ABSTRACT

Background: Workplace violence is the occurrence of any incidents of violence in circumstances related to work. It ranges from simple verbal abuse to a more serious condition such as homicide. Workplace violence affects workers physically, psychologically, and emotionally, as well as their work performance, social, and finance.

Objectives: This study aims to determine the prevalence of workplace violence among healthcare workers in a health district and its predicting factors.

Materials and Methods: This is a cross-sectional study using proportionate stratified random sampling according to occupation among 481 healthcare workers in a health district in Selangor. This study was conducted using an interview based on a structured questionnaire. The questionnaire consists of a personal data section and a workplace violence section. The data were analysed using the chi-square test and multiple logistic regression.

Result: The response rate of the questionnaire interview was 91.7%. About three-quarters of the respondents were female. The majority of the respondents were nurses (37.9%). About half of the respondents worked in an outpatient clinic, while 27.4% of them worked in a maternal and child clinic. The prevalence of workplace violence was 24.3%. The significant predictors of workplace violence were working in an outpatient clinic (AOR=6.31, 95% CI = 1.9-20.98), working in a maternal and child health clinic (AOR=5.02, 95% CI = 1.37-18.4), working as an Environmental Health Officer (AOR=3.75, 95% CI = 1.287-10.930), and working during the weekends or public holidays (AOR=3.01, 95% CI = 1.64-5.53).

Conclusion: About one in 4 workers experienced workplace violence over the past 6 months in the health district. It was found that occupation, workplace setting, and working during the weekend were significant predictors of workplace violence.

Keywords: workplace violence, healthcare workers, District Health Office, predictors, risk

1.0 Introduction

Healthcare workers have a higher risk of experiencing workplace violence compared to workers in other industries (Centers for Disease Control and Prevention, 2008). Workplace violence is defined by the International Labour Office (ILO), International Council of Nurses (ICN), World Health Organization (WHO), and Public Services International (PSI) as “incidents where staffs are abused, threatened or assaulted in circumstances related to their work, including commuting to and from work, which involve an explicit or implicit challenge to their safety, well-being or health” (ILO et al., 2002). Workplace violence can be as mild as verbal abuse or as serious as the condition such as homicide. Violence can be classified according to the relationship of the perpetrator to the victim. Type 1 refers to the violence of criminal intent in which the perpetrator has no legitimate relationship to the workplace. Type 2 refers to the violence committed by the client or customer, type 3 refers to violence caused by co-workers, and type 4 refers to organizational violence (Bowie, 2002).

In 2013, the estimated rates of nonfatal workplace violence against healthcare workers in private-sector and state in-patient facilities – including hospitals, and nursing and residential care facilities in the United States were 5 to 12 times higher than the estimated average rates for total workers (Sherrill, 2016). To make it worse, the reported workplace violence cases against health care workers showed an increasing trend, from 22,250 reported cases in 2011 to 24,880 reported cases in 2013, which was an increment of 12 percent (Sherril, 2016).

Workplace violence can bring about direct and indirect impact. In a retrospective database review of 106 cases of workplace violence in the United States, the average lost time of patient care providers who were victims of workplace violence was found to be 11 days, and the total treatment cost for 30 healthcare workers was \$94,156 (Speroni et al., 2014). In a review report in Washington State, USA, the cost incurred by workplace violence each year between 2010 and 2014 was estimated at \$4 million and \$8 million, respectively for workers’ compensation and medical treatment (Sherril, 2016). A systematic review of 68 studies of workplace violence in healthcare facilities found that there are seven categories of consequences from workplace violence, which are physical, psychological, emotional, work functioning, quality of care, social, and financial (Lanctôt & Guay, 2014). Out of these, the most common and crucial consequences were posttraumatic stress, negative emotions, and work function impairment (Lanctôt & Guay, 2014).

A meta-analysis of 136 studies on 151,347 nurses worldwide showed that the prevalence of workplace violence varied by region, with the Middle Eastern region having the highest prevalence at 61.3%, the Asian region at 51.3%, and the European region having the lowest prevalence at 38.3% (Spector et al., 2014). The prevalence of workplace violence also varied by the type of violence, with non-physical violence being the highest at a prevalence of 67.2%, and sexual harassment being the lowest at a prevalence of 27.9% (Spector et al., 2014).

Public health service in Malaysia is centrally governed by the Ministry of Health through the Federal, State, and District levels (Safurah et al., 2013). It consists of the National, State Health Departments, and District Health Office. District Health Office plays a role in the basic functional level in the healthcare system, which includes family health, primary care, disease

control, occupational health, food quality control, health education, and promotion, environmental health, and water supply services (Liyanatul Najwa et al., 2016). Health facilities under the district level include District Health Office, health clinics, *klinik desa*, and *klinik komuniti*.

Published research on the prevalence of workplace violence in healthcare facilities in Malaysia is very limited and only focused on nurses, especially in hospitals. Based on previous researches, the prevalence of workplace violence in Malaysia varied from 3.7% to 51.2% (Ruth et al., 2009; Suhaila, & Rampal, 2012; Yusop et al., 2014). However, these researches were conducted in hospital settings. Limited published literature is available on the prevalence of workplace violence in outpatient care or community-based healthcare settings in Malaysia. The prevalence of workplace violence in these settings need to be studied because the burden on health clinics in terms of the patient load is heavier compared to the hospital settings. The patients' attendance at health clinics nationwide in 2018 was 45 million and was 10 times more in health clinics compared to the total combination of the attendances in hospital outpatient, hospital admissions, and hospital daycare attendances in the same year (Ministry of Health, 2019). This study was carried out to determine the prevalence of workplace violence among healthcare workers in the facilities under a health district and its predicting factors.

2.0 Materials and Methods

2.1 Study location, study design and sampling

This was a cross-sectional study using a stratified random sampling method among 481 healthcare workers in one of the health districts in Selangor. The formula for calculations of sample size was based on Lemeshow et al. (1990) for testing differences between 2 independent proportions and it was calculated according to gender proportions in the study by Algwaiz and Alghanim (2012). Based on the formula, the sample size calculated was 438 and anticipating 10% of non-response rate, the final total sample size was 481. The samples were taken using proportionate stratified random sampling according to the occupation. The strata were based on five categories of occupations, which consisted of medical officers, nurses, Health and Environmental Officers or other public health field workers, clerk or administrative workers, and others.

The inclusion criterion was healthcare workers working in the health district, and the exclusion criteria were healthcare workers who were on maternity leave or long leave, and those who had worked for less than six months before this study was conducted.

In this study, workplace violence was defined as any experiences of the conditions of workplace violence in form of either physical in which physical force was used "against another person or group that results in physical, sexual or psychological harm" (ILO et al., 2002), or psychological violence where there was "intentional use of power, including threat of physical force, against another person or group, that can result in harm to physical, mental, spiritual, moral or social development" (ILO et al., 2002) that occurred within 6 months prior to the conduct of this study.

If workplace violence occurred more than once within the study period, the characteristics of the latest occurrence were taken into account.

2.2 Data collection

Face to face interviews was carried out on the healthcare workers using a structured questionnaire. The questionnaire was adapted from ILO/ICN/WHO/PSI Workplace Violence in the Health Sector (ILO et al., 2003). This questionnaire was translated to Malay language using forward translation and validated using a backward translation by language experts who are proficient in both English and Malay languages and consist of groups of language lecturers from local universities. The questionnaire was divided into two sections, which were the personal data section and the workplace violence section. The contents of the questionnaire were assessed by the 3 members of the supervisory team who are experts in the field of occupational health and public health. The Average Congruency Percentage computed based on the score given by the expert was found to be 86.7%. The comments were noted, and appropriate corrections were made, where few of the original questionnaire's questions were modified or deleted to suit the cultural context of the local study population. The face validity of the questionnaire in the Malay language was assessed during the pre-testing of the questionnaire, where 10% of the respondents came from a similar population of the study. Appropriate corrections were made based on the comments.

2.2 Data analysis

The data were analyzed using Software Package for Social Science, SPSS 22.0. Descriptive data were analyzed using frequencies, percentages, and median. Chi-square test was used to analyze the associations between the socio-demographic factors and work characteristics, and the occurrence of workplace violence among healthcare workers. Univariate logistic regression was used to get the crude odds ratio, and the variables with p value of less than 0.25 were then entered into the multivariate logistic regression model to determine the significant predictors of workplace violence among healthcare workers. This p value was recommended by Hosmer and Lemeshow because the usage of the traditional level ($p < 0.05$) often fail to identify some variables that are known to be of importance (Hosmer & Lemeshow, 2000). The results were interpreted using the adjusted odds ratio (AOR), and p value of less than 0.05 was taken as statistically significant.

2.3 Ethical considerations

Ethical approval was obtained from the Medical Research and Ethics Committee of the Ministry of Health Malaysia, and this study was registered under the National Medical Research Register (ID number: NMRR-16-2518-33785). Permission was also obtained from the Selangor State Health Department to conduct this study in the healthcare facilities. Written consents were acquired from the respondents prior to the participation of this study. Respondents' information obtained from this study were kept strictly confidential, and their identities were kept anonymous.

3.0 Result

A total of 481 healthcare workers who were selected from the sampling frame by proportionate stratified random sampling according to occupation were approached. Among them, 441 healthcare workers agreed to participate. About 48% of the total medical officer, 43% out of total nurses, 47% out of total Health and Environmental Officer or other public health field workers, 44% out of total clerks, and 43% out of other occupations in this district participated in this study. Therefore, the response rate was 91.7%. In this study, 107 out of the 441 healthcare workers reported having experienced workplace violence. Therefore, the prevalence of workplace violence among healthcare workers in the health district within the past six months was 24.3%.

Table I: Socio-demographic characteristics of the respondents

Socio-demographic factors	Frequency (n)	Percent (%)	Median
			(IQR)
Gender			
Male	127	28.8	
Female	314	71.2	
Age (year)			31(8)
Education Level			
Primary school	4	1.0	
Secondary school	177	40.1	
Diploma	165	37.4	
Degree	87	19.7	
Master	8	1.8	
Occupation			
Medical Officer	63	14.3	
Nurses or midwives	167	37.9	
Health and Environmental Officer or other public health field workers	81	18.4	
Clerk or administrative	31	7.0	
Others*	99	22.4	

*Others include pharmacist, lab technician and science officer, IQR = Interquartile range

Table I shows the socio-demographic characteristics of the respondents in terms of gender, age, educational level, and occupation. About three-quarters of the respondents were female. The age of the respondents ranged from 22 to 59 years old. About 40.1% of the respondents have an educational level of secondary school, followed by 37.4% being a diploma holder. The majority of the respondents' occupations were nurses or midwives (37.9%).

Table II: Working factors of the respondents

Working factors	Frequency (n)	Percent (%)	Median (IQR)
Working experience (year)			7 (7)
Physical contact with patient or client			
Yes	313	71.0	
No	128	29.0	
Main workplace			
Health District Office	48	10.9	
Maternal and child clinic	121	27.4	
Outpatient clinic	214	48.5	
Community	58	13.2	
Working after office hour			
Yes	122	27.7	
No	319	72.3	
Working during weekend or public holiday			
Yes	263	59.6	
No	178	40.4	

IQR = Interquartile range

Table II shows the working factors of the respondents. The working experience varied from 10 months to 36 years. Around three-quarters of the respondents had routine physical contact with patients or clients. The majority of the respondents (48.5%) worked in an outpatient clinic, followed by 27.4% in a maternal and child health clinic. About one-third of the respondents were required to work after office hours. More than half of the respondents had to work during the weekends or public holidays.

Table III: Characteristics of workplace violence that occurred to the respondents

Characteristic of Workplace violence	Frequency (n)	Percent (%)
Type of Violence		
Physical	4	3.7
Psychological	104	96.3
Place of Incident		
Inside healthcare facility	92	85.2
Client's house	1	0.9
Outside the healthcare facility	15	13.9
Perpetrator of Violence		
Patient/client	66	61.1
Patient/client relative	16	14.8
Colleague	15	13.9
Public	11	10.2
Time of Incident		
7.01am-1.00pm	44	40.7
1.01pm-6.00pm	30	27.8
6.01pm-7.00am	4	3.7
Do not remember	30	27.8

The characteristics of workplace violence among healthcare workers in the district health facilities were shown in Table III. Almost all the workplace violence experienced by the respondents were in the form of psychological violence (96.3%). Most of the incidents occurred inside the health facilities, and only 1% of the incidents occurred at the client's house. More than half of the incidents were committed by the patients or clients followed by their relatives (14.8%). About 40.7% of workplace violence occurred within the period of 7 am to 1 pm, while only around 4% occurred after the office hours. Most of the respondents did not remember the exact day when the incident occurred.

Table IV: Association between workplace violence and socio-demographic factors

Socio-demographic factors	Workplace violence		χ^2	df	p value
	Yes n(%)	No n(%)			
Gender					
Male	32(25.2)	95(74.8)	0.085	1	0.771
Female	75(23.9)	239(76.1)			
Age (year)					
≤40	95(24.7)	289(75.3)	0.367	1	0.545
>40	12(21.1)	45(78.9)			
Education Level					
<Degree	73(21.1)	273(78.9)	8.574	1	0.003**
≥Degree	34(35.8)	61(64.2)			
Occupation					
Others*	23(23.2)	76(76.8)	13.038	4	0.011**
Medical Officer	25(39.7)	38(60.3)			
Nurses or midwives	29(17.4)	138(82.6)			
Health and Environmental Officer or other public health field workers	21(25.9)	60(74.1)			
Clerk or administrative	9(29)	22(71)			

*Others include pharmacist, lab technician and science officer

** P significant at < 0.05

χ^2 = chi-square value, df = degree of freedom

Table IV shows the association between workplace violence and socio-demographic factors. The chi-square test showed that education level ($\chi^2=8.574$ df=1, p=0.003) and occupation ($\chi^2=13.038$, df=4, p=0.011) were both significantly associated with workplace violence.

Table V: Association between workplace violence and working factors

Working factors	Workplace violence		χ^2	df	p value
	Yes n(%)	No n(%)			
Working experience (year)					
≤5	40(22.1)	141(77.9)	0.782	1	0.377
>5	67(25.8)	193(74.2)			
Physical contact with patient					
Yes	82(26.2)	231(73.8)	2.197	1	0.138
No	25(19.5)	103(80.5)			
Main workplace					
Health District Office	5(10.4)	43(89.6)	8.525	3	0.036*
Maternal and child clinic	25(20.7)	96(79.3)			
Outpatient clinic	62(29)	152(71.1)			
Community	15(25.9)	43(74.1)			
Number of staff in workplace					
≤5	55(29.3)	133(70.7)	4.444	1	0.035*
>5	52(20.6)	201(79.4)			
Working after office hour					
Yes	32(26.2)	90(73.4)	0.355	1	0.551
No	75(23.5)	224(76.5)			
Working during weekend or public holiday					
Yes	70(26.6)	193(73.4)	1.963	1	0.161
No	37(20.8)	141(79.2)			

*P significant at < 0.05

 χ^2 = chi-square value, df = degree of freedom

The association between workplace violence and working factors is shown in Table V. Out of the six factors studied, the main workplace ($\chi^2=8.525$, df=3, p=0.036) and the number of staff in the workplace ($\chi^2=4.444$, df=1, p=0.035) were shown to be significantly associated with workplace violence.

Table VI: Simple logistic regression analysis of factors associated with workplace violence among healthcare workers

Variables	B coefficient	Standard error	OR	95% CI	p value
Gender					
Male			1		
Female	-0.071	0.244	0.932	0.58-1.50	0.771
Age (year)					
>40			1		
≤40	0.209	0.346	1.233	0.63-2.43	0.545
Education Level					
<Degree			1		
≥Degree	0.734	0.251	2.080	1.27-3.42	0.003**
Occupation					
Nurses or midwives			1		0.014**
Medical Officer	1.141	0.329	3.131	1.64-5.96	0.001**
Others*	0.365	0.314	1.440	0.78-2.66	0.245**
Health and Environmental Officer or other public health field workers	0.510	0.326	1.666	0.88-3.15	0.117**
Clerk or administrative	0.666	0.445	1.947	0.81-4.66	0.135**
Working experience (year)					
≤5			1		
>5	0.202	0.228	1.224	0.78-1.92	0.377
Physical contact with patient					
No			1		
Yes	0.380	0.257	1.463	0.88-2.42	0.140**
Main workplace					
Health District Office			1		0.046**
Maternal and child clinic	0.806	0.523	2.240	0.806-2.4	0.123**
Community	1.099	0.560	3.000	1.00-8.98	0.050**
Outpatient clinic	1.255	0.496	3.508	1.33-9.27	0.011**
Number of staff in workplace					
>5			1		
≤5	0.469	0.223	1.598	1.03-2.48	0.036**
Working after office hour					
No			1		
Yes	0.146	0.245	1.157	0.72-1.87	0.552
Working during weekend or public holiday					
No			1		
Yes	0.324	0.231	1.382	0.88-2.18	0.162**

*Others include pharmacist, lab technician and science officer

**Significant level $P < 0.25$, OR = odd ratio

Socio-demographic factors and working factors were analyzed using simple logistic regression. Out of the 10 factors studied, education level, occupation, physical contact with the patient, the main workplace, number of staff in the workplace, and working during the weekends or public holidays were found to have p value of less than 0.25. The results were shown in Table VI. These six factors were then analyzed using multivariate logistic regression.

Table VII: Predictors of workplace violence among healthcare workers in a health district

Variables	B coefficient	Standard error	AOR	95% CI	p value
Education Level					
<Degree			1		
≥Degree	0.631	0.475	1.88	0.74-4.77	0.184
Occupation					
Nurses or midwives			1		0.045**
Medical Officer	1.008	0.613	2.74	0.82-9.11	0.1
Others*	0.407	0.423	1.5	0.66-3.45	0.336
Health and Environmental Officer or other public health field workers	1.322	0.546	3.75	1.29-10.93	0.015**
Clerk or administrative	1.207	0.539	3.35	1.16-9.61	0.025**
Physical contact with patient					
Yes			1		
No	0.408	0.316	1.5	0.81-2.79	0.197
Main workplace					
Health District Office			1		0.025**
Maternal and child clinic	1.613	0.663	5.02	1.37-18.40	0.015**
Community	0.847	0.591	2.33	0.73-7.44	0.152
Outpatient clinic	1.842	0.613	6.31	1.9-20.98	0.003**
Number of staff in workplace					
>5			1		
≤5	0.356	0.252	1.43	0.87-2.34	0.159
Working during weekend or public holiday					
Yes			1		
No	1.103	0.31	3.01	1.64-5.53	<0.001**

*Others include pharmacist, lab technician and science officer

**Significant level $P < 0.05$

AOR = adjusted odd ratio

The occupation, main workplace, and working during the weekends or public holidays were found to be significant predictors for workplace violence, as shown in Table VII. The strongest predictor for workplace violence was working in an outpatient clinic, with an adjusted odds ratio of 6.31 (95% CI: 1.90-20.98, $p=0.003$). This means that the healthcare workers who worked in the outpatient clinic were six times more likely to be subjected to workplace violence compared to workers who worked in the district health office, after controlling for all other

factors in the model. Health and Environmental Officer or other public health field workers had four times higher odds of having experienced workplace violence as compared to nurses (95% CI: 1.29-10.93, $p=0.015$). Healthcare workers who worked during the weekends or public holidays were found to have three times higher odds of experiencing workplace violence as compared to those who worked only on weekdays (95% CI: 1.64-5.53, p value <0.01).

4.0 Discussion

In Malaysia, the Occupational and Environmental Health Unit of the Ministry of Health is the unit responsible for maintaining the government health workers' safety and health, and the prevention of health problems that arise from work. It is also responsible for the surveillance programmes, and occupational health and safety training of healthcare workers (Jemoin, 2006). Under the Occupational Safety and Health Act 1994 (Act 514), and the Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease Regulations 2004, an employer is required to notify the nearest Department of Occupational Safety and Health office, of any accident, dangerous occurrence, occupational poisoning and occupational disease that has occurred in the workplace. The surveillance of occupational disease, injury, and poisoning through notification from public health facilities started in 1997 (Sirajuddin et al., 2001). Injuries resulting from workplace violence may be notified through this surveillance system. However, there is no well-established reporting or surveillance system in the healthcare setting that focuses specifically on workplace violence itself, especially for violence that does not cause any physical injury at the time this study was conducted. It was noted that the notification system specific for workplace violence among healthcare workers was introduced later by the Ministry of Health Malaysia after this study completed.

In this study, the prevalence of workplace violence among healthcare workers over a period of six months in the health district was 24.3%. The prevalence of workplace violence varies around the globe. The finding of this study is similar to a cross-sectional study which was conducted on 660 randomly selected nurses working at the public health facilities in Hawassa City, Southern Ethiopia in which the prevalence of workplace violence was 29.9% over a six month period (Fute, Mengesha, Wakgari, & Tessema, 2015). In another cross-sectional study on 447 nurses working in various departments at three hospitals in Amman, Jordan showed that the prevalence of verbal abuse was 37.1% over a six month period (Ahmed, 2012).

Other studies on the prevalence of workplace violence in different countries, conducted for a one year period showed a much higher prevalence, ranging from 38.3% to 70% (Spector et al., 2014; Chan, Chan, & Kee, 2013; Sripichyakan, Thungpunkum, & Supavititpatana, 2003). In a meta-analysis, it was found that the prevalence of workplace violence increased when comparing the lifetime prevalence with studies with a limited time frame (Spector et al., 2014). Therefore, there is a possibility that the prevalence becomes higher when the time frame is increased. Most of the violence experienced by the healthcare workers in this study were committed by the patient followed by their relative. This finding was similar with most of the studies in this country (Ruth et al., 2009; Suhaila & Rampal, 2012) and other countries (Speroni et al., 2014; Spector et al., 2014; Algwaiz, & Alghanim, 2012; Fute et al., 2015; Ahmed, 2012;

Kumar, Verma, Das, Pardeshi, Kishore, & Padmanandan, 2016; Albashtawy, 2013; Hamdan, 2015; Moustafa, & Gewaifel, 2013).

The time of occurrence of workplace violence fell mostly within office hours, with 40.7% happening in the period between 7 am and 1 pm and 27.8% happening between 1 pm and 6 pm. The reason for workplace violence to occur more during the morning session may be the overcrowding of healthcare facilities, which led to a long waiting time. Most of the previous studies showed that the most possible cause of the violence was the long waiting time at the healthcare facilities (Kumar et al., 2016; Albashtawy, 2013; Hamdan, 2015; Fafliora, Bampalis, Zarlas, Sturaitis, Lianas, & Mantzouranis, 2016).

The occupation was found to be a significant predictor for workplace violence among healthcare workers in this study. Health and Environmental Officer or other public health field workers were found to have four times higher odds of having experienced workplace violence compared to nurses (AOR 3.75, 95% CI = 1.29 - 10.93, $p=0.015$). The major job scope of most Health and Environmental Officer or other public health field workers involves law enforcement. Law enforcement workers are at risk of workplace violence, and this was highlighted by Harrell (2013) that 56.4% of all workplace violence from 2002 to 2011 among the United States' government workers were experienced by law enforcement workers (Harrell, 2013).

In this study, workers who worked at outpatient clinics (OPD), and maternal and child clinics (MCH) had six times and five times higher odds of experiencing workplace violence, respectively compared to those who worked in the health district office. This finding is quite similar to the finding in a cross-sectional study in Alexandria, where workers in outpatient departments experienced 4.7 times higher odds of workplace violence (95% CI: 2.0-11.1, $p<0.01$) than office workers (Moustafa, & Gewaifel, 2013). The outpatient clinics and the maternal and child health clinics have high patient load and an increasing burden of patient attendance. According to the Health Facts 2010 (Ministry of health, 2010) and 2016 (Ministry of health, 2016), the patient's attendance in maternal and child health clinics has increased by almost 2 million, while the patient's attendance in outpatient clinics has increased by more than 11.3 million over the 5 year period from 2010 to 2016. The work demand increases as the patient's attendance increases. With the working hours remaining the same, the working pace increases. This is supported by the cross-sectional study on 970 nurses conducted in a university hospital in Seoul, South Korea which found that workers with higher working pace had a significant association ($p<0.05$) with patient violence (Park, Cho, & Hong, 2015).

In this study, healthcare workers who worked during the weekends had three times higher odds of experiencing workplace violence (95 % CI = 1.64 - 5.53) than normal weekdays. During the weekend, health clinics function with a limited number of workers. The factor of the limited number of workers on duty was found to have the highest perceived risk among the general practitioners and their staff in both online and paper-based surveys in a national study in Australia (Parker, Ceramidas, Forrest, Herath & McRae, 2017). According to the study, among the triggering factors of violence were long waiting times and refusal of certain service or treatment (Parker et al., 2017). With a limited number of workers during the weekend, a longer process time may be required to complete the treatment. In addition, some non-urgent procedures may be given an appointment to be done later during office hours.

This cross-sectional study was prone to recall bias. The recall period was shortened to 6 months duration to reduce the recall bias. This recall period is shorter than the majority of studies done previously. Unlike many other studies that only focus on certain categories of occupation, this study was a study that involves all categories of occupation. It also highlighted the prevalence of workplace violence in a non-hospital setting in the Health District facilities.

5.0 Conclusion and recommendation

This study has been able to determine the prevalence of workplace violence among healthcare workers in a health district of Selangor. The prevalence of workplace violence at 24.3% means that one in four healthcare workers had experienced workplace violence within the period of the past six months, which was quite an alarming figure. There are many factors that contribute to workplace violence. In this study, it was found that occupation, the main workplace setting, and working during the weekends or public holidays were significant factors to predict workplace violence. The notification system specifically on workplace violence incidence should be strengthened to capture all incident detail which can be used to further analyze the problem. Intervention on managing workplace violence should be focusing on these significant factors as well as training of the staff and public education to increase public awareness.

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Declaration

Author(s) declare that there is no conflict of interest regarding publication of this article.

Authors contribution

The 1st author carried out the research, analyzed the data and prepared draft of the manuscript while the 2nd author supervised the research, data analysis and edited the final manuscript.

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