

Prevalence and Associated Factors of Workplace Violence Among General Practitioners in Chongqing, China: a Cross-Sectional Survey

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Abstract:

Objective: workplace violence (WPV) among general practitioners (GPs) is a global public health issue. This study aimed to investigate the prevalence of WPV and its associated factors among GPs in Chongqing, China. Methods: A cross-sectional survey was conducted from March to April 2022, involving 1865 GPs in Chongqing, China. A structured self-administered questionnaire was used, and multiple logistic regression analysis was employed to identify the influencing factors of WPV. Results: Among the respondents, 46.1% reported having experiencing at least one form of WPV in the past 12 months. Older age, temporary contract status, and working in township health centers were associated with a lower likelihood of experiencing WPV for GPs; holding a higher professional titles, having longer working experience, and working more than 40 hours per week were associated with a higher likelihood of experiencing WPV for GPs. Conclusion: The prevalence of WPV among GPs in Chongqing, China is high, it is particularly important to develop prevention strategies and provide a safer working environment for GPs.

Keywords:

China, General Practitioners, Influencing Factors, Prevalence, Workplace Violence

1. Introduction

Workplace violence (WPV) is defined as “any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site. It ranges from threats and verbal abuse to physical assaults and even homicide” [1]. This includes physical assault, threats, intimidation, emotional abuse, verbal and physical sexual harassment [2]. WPV can occur in various industries, and healthcare workers (HCWs), including general practitioners (GPs), are at a higher risk of WPV than those working in other professions [3,4]. A meta-analysis of WPV for all HCWs revealed that 61.9% of HCWs reported exposure to any form of WPV [5]. Apart from physical injury, WPV can also lead to sleep disorders, anxiety, depression,

post-traumatic stress disorder (PTSD) and other adverse psychological conditions among healthcare professionals [6,7,8]. In addition, it is associated with reduced job satisfaction and increased burnout, high turnover and even suicide [9,10,11], causing significant harm to individuals' health and the quality of medical care.

As GPs serve as the primary providers in the primary health care system, the quality of a country's healthcare system is closely tied to the efficiency and effectiveness of its GP workforce. The previous survey on WPV of GPs in China showed that the prevalence was between 12.6% and 63.1% [12,13,14]. The prevalence of WPV among GPs is high, so primary prevention of WPV among GPs should be considered a public health priority. Identifying the influencing factors of WPV for GPs would be beneficial in creating a favorable working environment for them. However, there are still limited studies on primary GPs. The purpose of this research was to investigate the prevalence and related influencing factors among GPs.

2. Materials and Methods

2.1. Participants and Sampling

This study conducted a cross-sectional study in Chongqing, a municipality located in the western region of China, between March and April 2022. The sample size required for the study was calculated using the simple random sampling formula: $(N = Z^2 \alpha / 2 \times (\pi \times (1 - \pi)) / E^2)$, where N is the sample size. E is the allowable error; π is the estimated prevalence of WPV. Z is a statistic, and when the confidence is 95%, $z_{\alpha/2} = 1.96$; When the confidence is 90%, $Z = 1.64$; According to the results of previous epidemiological surveys, the prevalence of WPV among GPs was 45% (14.26% in China [14], and 63.1% in the world [15]). With a confidence level of 95% and a margin of error tolerance of 0.15π , the required sample size was calculated as 209 people. Considering that the research subjects are from the community, the adjusted sample size for this project is 240 people, accounting for a rejection rate of 15% and uncontrollable factors.

Multi-stage stratified cluster sampling was used for cross-sectional investigation. To ensure the representativeness of the samples, the project team selected 22 districts/counties in Chongqing, China's five major functional areas (divided based on factors such as population and economic level) from March to April 2022: urban core area, urban expansion area, urban development new area, ecological conservation development area in northeast Chongqing, and ecological protection development area in southeast Chongqing (where the urban core area and urban expansion area were merged into one district - urban core and expansion area), with a ratio of 1:0.6. Then, within these selected 22 districts/counties, 1-6 primary healthcare institutions (community health service centers/stations, township health centers, village clinics) were randomly chosen based on their number of primary healthcare institutions. Finally, questionnaires were distributed to all GPs who have been working for more than one year in the selected primary healthcare institutions (online questionnaire link).

The inclusion criteria of GPs participating in the survey were: (1) working in community health service centers/stations, township health centers or village-level clinics in Chongqing, China; (2) have worked for one year or more; (3) over 18 years of age; (4) Agree to participate in the survey. The exclusion criteria are: (1) not having a professional qualification; (2) not working at the clinic during the

investigation period, such as studying abroad, engaging in management work without participating in clinic activities, taking leave, or being hospitalized.

The study protocol was approved by the Ethics Committee of the the First Affiliated Hospital of Chongqing Medical University Chongqing, China (IRB code No: 2020ZLXM003). Informed consent was obtained from all survey participants.

2.2. Measurement

The questionnaire was designed based on literature review, group discussion and expert suggestions. It included basic demographic characteristics and job-related characteristics: gender, age, education, marital status, contract status, job title, workplace location, Working years, weekly working hours, average monthly income, whether to undertake management work and Workplace Violence Scale (WVS), the Chinese version of the Workplace Violence Scale developed by Wang et al [16]. This scale is widely used in the medical field and consists of five items: physical assault; emotional abuse; threats and intimidation; verbal sexual harassment; physical sexual harassment. Ratings were given on a 4-point Likert scale ranging from 0 (never) to 3 (more than 3 times/year). The total score for workplace violence ranged from 0 to 15 with higher scores indicating a higher frequency of incidents. Kronbach coefficient and KMO value were 0.932 and 0.760 respectively, and the significance of Bartlett test was less than 0.001, indicating that the scale had good reliability and validity.

2.3. Data collection and quality control

The Questionnaire Star platform distributed the web link to GPs for data collection. Dedicated investigators entered the data into an online database to ensure accuracy. A total of 1977 GPs completed the questionnaire, out of which 112 questionnaires were excluded due to a too short answering time (<150 seconds), illogical responses (such as age being 15 years old but working life being more than 15 years), respondents being too old (78 years old), or too young (4 years old, 15 years old), etc. Additionally, there were missing age data for six individuals. In such cases, we used the average age from all respondents and finally collected 1865 valid questionnaires.

2.4. Data analysis

The frequency and percentage of categorical variables were used to describe the data. The chi-square test was used to identify variables that were significantly associated with WPV, and a multiple logistic regression analysis was conducted to analyze the influencing factors of WPV. The dependent variable was any form of WPV, while the independent variables included demographic and work-related characteristics. All tests were performed using two-tailed tests with a significance level of 0.05. Statistical Package for Social Sciences (SPSS, Inc., Chicago, III, Version 25.0) was used for all data analysis.

3. Research Finding

3.1. Demographic characteristics and job-related factors of general practitioners

Among the 1,865 GPs included, 82.6% were married and 52.1% were women. The average age of respondents was 39.63 ± 9.59 years old, with 66.8% over the age of 35 and 60% having a bachelor's degree or higher education level. Of the respondents, 55.8% worked in township health centers, while 79.6% held permanent status; senior

titles accounted for one-sixth of positions overall. Additionally, it was found that 45.8% had worked for more than fifteen years, while as many as 94.4% worked for over forty hours per week and approximately 37.2% worked for over sixty hours per week on average. Furthermore, 46.9% reported a monthly income ranging from ¥5 ,000 to ¥7 ,500 yuan, and about 37.9% undertook part-time management work. Other detailed information has shown in Table 1.

Table 1. Distributions of demographic characteristics of WPV in general practitioners.

Variables	category	n (%)	Any type or combination of WPVN (incidence %)	χ^2	P
Total		1865 (100)	860 (46.1)		
Sex	Male	893 (47.9)	400 (44.79)	1.201	0.273
	Female	972 (52.1)	460 (47.33)		
Age, year	<35	619 (33.2)	307 (49.60)	15.279	<0.001
	35~50	981 (52.6)	459 (46.79)		
	>50	265 (14.2)	94 (35.47)		
Education level	College degree or below	740 (39.7)	273 (36.89)	41.997	<0.001
	bachelor degree	1113 (59.7)	581 (52.20)		
	Master degree or above	12 (0.6)	6 (50.00)		
Marital status	Married	1541 (82.6)	694 (45.04)	4.14	0.042
	Unmarried/widowed/divorced	324 (17.4)	166 (51.23)		
Contract status	Permanent	1485 (79.6)	739 (49.76)	39.112	<0.001
	Temporary	380 (20.4)	121 (31.84)		
Professional title	Elementary or below	871 (46.7)	382 (43.86)	24.773	<0.001
	Intermediate	615 (33.0)	313 (50.89)		
	senior	244 (13.1)	125 (51.23)		
	others	135 (7.2)	40 (29.63)		
workplace location	community health service center/station	569 (30.5)	301 (52.90)	21.124	<0.001
	township hospital	1040 (55.8)	466 (44.81)		
	others	256 (13.7)	93 (36.33)		
Working years	<5	334 (17.9)	143 (42.81)	9.178	0.027
	≥5 and <10	317 (17.0)	165 (52.05)		
	≥10 and <15	359 (19.2)	177 (49.30)		
	≥15	855 (45.8)	375 (43.86)		
Weekly working hours	<40	105 (5.6)	32 (30.48)	12.321	0.002
	40~60	1067 (57.2)	490 (45.92)		
	>60	693 (37.2)	338 (48.77)		
Average monthly income(RMB)	<2500	158 (8.5)	49 (31.01)	20.212	<0.001
	2500~	579 (31.0)	257 (44.39)		
	5000~	875 (46.9)	423 (48.34)		
	7500~	253 (13.6)	131 (51.78)		
Management responsibility	yes	707 (37.9)	340 (48.09)	1.793	0.181
	no	1158 (62.1)	520 (44.91)		

3.2. Analysis of differences in WPV among different groups

The Chi-square test was applied to compare the occurrence of WPV among different subgroups of GPs, revealing significant variations in exposure based on age, educational level, marital status, contract status, professional title, workplace location, working years, weekly working hours, and monthly income ($P < 0.05$). The results were presented in Table 1.

3.3. Prevalence of WPV

According to the results stated in Table 2, In the previous 12 months, 46.1% of GPS had experienced at least one form of WPV, with emotional abuse (41.7%) and threats and intimidation (19.5%) being the most frequent, followed by physical assault (10.6%), verbal harassment (9.2%) and physical harassment (3.2%).

Table 2. Frequency of five types of violence among general practitioners.

Type of violence	0 times <i>n</i> (%)	Once <i>n</i> (%)	Two or three times <i>n</i> (%)	More than three times <i>n</i> (%)	At least once <i>n</i> (%)
physical assault	1668	121 (6.5)	54 (2.9)	22 (1.2)	197 (10.6)
emotional abuse	1088	314 (16.8)	254 (13.6)	209 (11.2)	777 (41.7)
threats and intimidation	1501	204 (10.94)	94 (5.04)	66 (3.54)	364 (19.52)
verbal sexual harassment	1693	89 (4.8)	45 (2.4)	38 (2.0)	172 (9.2)
Physical sexual harassment	1806	39 (2.1)	13 (0.7)	7 (0.4)	59 (3.2)

3.4. Factors associated with WPV

Multiple logistic regression analysis was used to analyze the influencing factors of workplace violence in any form (LR backward method was used for screening variables).

The results presented in Table 3 indicated that older age ($OR = 0.967$), temporary contract status ($OR = 0.578$), and working in township health centers ($OR = 0.643$) were associated with a lower likelihood of experiencing WPV among GPs. Conversely, being single (unmarried/widowed/divorced) ($OR = 1.388$), holding intermediate-level titles ($OR = 1.288$) or senior-level titles ($OR = 1.453$), having more than 5 years of tenure (<5 : $OR = 1.595$; $10-15$: $OR = 1.562$; >15 : $OR = 1.783$), and working over 40 hours per week ($40-60$: $OR = 1.685$; >60 : $OR = 2.275$) were a higher likelihood of experiencing WPV among GPs. Other factors such as gender, education level, monthly income, and managerial responsibilities do not significantly influence the occurrence of WPV among GPs.

Table 3. Multiple logistic regression analysis of associated factors for WPV among general practitioners.

Variables	<i>B</i>	S.E.	Wald χ^2	<i>P</i>	<i>OR</i> (95%CI)
Constant	0.371	0.375	0.979	0.322	1.449
Age	-0.033	0.008	15.725	<0.001	0.967 (0.951~0.983)
Marital status (ref. Married)					
Unmarried/widowed/divorced	0.328	0.148	4.945	0.026	1.388 (1.040~1.854)
Contract status (ref.					

Permanent)					
Temporary	-0.548	0.142	14.872	<0.001	0.578 (0.438~0.764)
Professional title (ref. Elementary or below)					
Intermediate	0.253	0.118	4.619	0.032	1.288 (1.023~1.622)
senior	0.373	0.170	4.844	0.028	1.453 (1.042~2.025)
Other title	-0.376	0.214	3.088	0.079	0.686 (0.451~1.044)
workplace location (ref. community health service center/station)					
township hospital	-0.441	0.113	15.377	<0.001	0.643 (0.516~0.802)
Other primary health care institutions	-0.418	0.170	6.019	0.014	0.658 (0.472~0.919)
Working years (ref. <5)					
5-	0.467	0.172	7.357	0.007	1.595 (1.138~2.236)
10-	0.446	0.185	5.796	0.016	1.562 (1.086~2.246)
>15	0.578	0.205	7.965	0.005	1.783 (1.193~2.664)
Weekly working hours (ref. <40)					
40-60	0.522	0.228	5.225	0.022	1.685 (1.077~2.636)
>60	0.822	0.234	12.364	<0.001	2.275 (1.439~3.597)

B, Unstandardized Coefficients; SE, standard error; OR, odds ratio; CI, confidence interval.

4. Discussion

The study found that 46.1% of GPs had experienced at least one form of WPV in the past year, with emotional abuse (41.7%) and threats and intimidation (19.5%) being the most frequent, followed by physical assault (10.6%), verbal harassment (9.2%) and physical harassment (3.2%). Age, marital status, contract status, workplace location, professional title, working years, and weekly working hours are relevant factors for exposure to any form of workplace violence.

This study revealed that 46.1% of Chongqing GPs reported exposure to WPV during the previous 12 months, which was significantly higher than the overall prevalence of WPV among GPs in China during the COVID-19 pandemic (14.26%) [14]. However, the findings demonstrate a comparatively lower prevalence compared to previous pre-pandemic studies. The reported rates were notably lower than those observed among GPs in Australia (71.5%) [17], Turkey (82.8%) [18], and the United Kingdom (57%) [19]. Furthermore, they also indicated a lower prevalence of WPV among GPs in Hubei Province, China (62.2%), prior to the COVID-19 outbreak [13]. The overall prevalence of WPV among GPs in this study was comparatively lower than that observed prior to the COVID-19 pandemic, potentially attributed to enhanced doctor-patient relationships during the pandemic [20]. However, the results of this study were higher than the prevalence of WPV among GPs in China during the COVID-19 pandemic. This difference can be attributed to Chongqing having a relatively lower number of GPs per 10,000 population compared to the overall average in China (2.74 vs 2.90) [21]. Consequently, longer patient waiting times and unmet demands are more likely, which is an important factor contributing to incidents of WPV among healthcare professionals [22].

The results of multivariate logistic regression analysis revealed some interesting findings. Firstly, as the age of GPs increases, the risk of WPV decreases, which is similar to the findings of a study of conducted on GPs and general nurses in township

hospitals in Heilongjiang Province. The study reported higher levels of physical violence among respondents aged 35 years or younger [12]. One possible reason for this is that young GPs lack experience and may make professional mistakes, leading to anger from patients and their families. Additionally, limited communication skills often result in conflicts and even violence due to a lack of trust from patients and their families towards young doctors. Secondly, GPs with a permanent contract are more likely to experience WPV, which may be attributed to their long-term clinical responsibilities and direct interaction with patients [23]. Thirdly, GPs with intermediate and senior professional titles exhibit a 1.288-fold ($OR=1.288$) and 1.453-fold ($OR=1.453$) increased risk of WPV compared to their counterparts with junior professional titles, which is similar to the survey results by Gan Yong et al on GPs in Hubei Province [13]. The higher the professional level of GPs, the more likely they are to bear a heavier workload and experience greater work pressure, which can result in overwork. Consequently, this may lead to shorter consultation times, diminished empathy towards and lack of respect for patients, as well as other related circumstances, which will cause tension in the doctor-patient relationship [24].

Additionally, GPs in community health service centers are at higher risk of WPV, consistent with previous studies [14,25]. WPV often arises from patients' prolonged waiting times, dissatisfaction, and unmet needs [22]. Compared to township and village health centers, urban community health service centers have a larger number of outpatient consultations. As a result, longer waiting times may increase the likelihood of conflicts. In addition, as GPs accumulate more years of experience in their profession, they become more susceptible to WPV incidents, consistent with previous research [13,26]. GPs with more work experience may come into contact with more difficult and challenging patients, which may impact the quality of service and increase the possibility of violence [26]. Besides, research has shown that patients have higher expectations for experienced medical staff [27], and when these expectations are not met, it increases the risk of WPV outbreaks. Finally, As the weekly working hours increase, GPs face an increased risk of WPV, consistent with previous researches [14,28,29]. This may be attributed to higher work pressure and professional burnout caused by longer working hours [29]. This can lead to a cold or impatient attitude towards heavy workloads, potentially provoking anger in patients and their families [30].

Limitations:

There are several limitations in this study. Firstly, it is a cross-sectional design, so we cannot determine the causal relationship between variables. Secondly, we relied on self-reported questionnaires from participants, which may introduce recall bias and social desirability bias. However, we have minimized these biases through well-designed survey forms and anonymous responses. Additionally, other potential confounding factors were not fully included. Lastly, the control and prevention measures of COVID-19 may affect the measurement of work-related factors; therefore, considering its impact on the relationship between work-related factors and WPV was inevitable as it was not considered in the questionnaire.

5. Conclusions

The prevalence of WPV among GPs in Chongqing, China is relatively high, primarily emotional abuse, followed by threats and intimidation, physical attacks, verbal harassment, and sexual harassment. Factors such as younger age, permanent

contract, working in community health service centers, holding higher professional titles, and longer working years increase the risk of experiencing WPV. Special attention should be given to and protection provided for these groups. Furthermore, GPs who work longer hours per week face a higher risk of experiencing WPV. To effectively prevent and reduce its occurrence, it is recommended to decrease their working hours and improve the work environment.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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