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Workplace violence and its association with quality of life among mental health professionals in China during the COVID-19 pandemic

Xiao-Meng Xie [a,b,1], Yan-Jie Zhao [a,c,d,1], Feng-Rong An [b,1], Qing-E Zhang [b,1], Hai-Yang Yu [e,1], Zhen Yuan [a,c], Teris Cheung [f], Chee H. Ng [g,**], Yu-Tao Xiang [a,c,d,*]

[a] Unit of Psychiatry, Institute of Translational Medicine, Faculty of Health Sciences, University of Macau, Macao SAR, China
[b] The National Clinical Research Center for Mental Disorders & Beijing Key Laboratory of Mental Disorders Beijing Anding Hospital & the Advanced Innovation Center for Human Brain Protection, Capital Medical University, School of Mental Health, Beijing, China
[c] Center for Cognition and Brain Sciences, University of Macau, Macao SAR, China
[d] Institute of Advanced Studies in Humanities and Social Sciences, University of Macau, Macao SAR, China
[e] Department of General Surgery, Beijing Liangxiang Hospital, Capital Medical University, Beijing, China
[f] School of Nursing, Hong Kong Polytechnic University, Hong Kong SAR, China
[g] Department of Psychiatry, The Melbourne Clinic and St Vincent's Hospital, University of Melbourne, Richmond, Victoria, Australia

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ABSTRACT

Objective: Mental health professionals are often exposed to workplace violence (WPV) in China. This study examined the prevalence of WPV and the associated factors and quality of life (QOL) among frontline mental health professionals during the COVID-19 pandemic.

Methods: This national survey was carried out between March 15 and March 20, 2020. WPV and QOL were assessed with standardized measures.

Results: A total of 10,516 participants were included. The prevalence of overall WPV was 18.5% (95% *CI*: 17.9%–19.3%), while verbal abuse/threats was 15.8% and physical violence was 8.4%. Multiple logistic regression analysis revealed that male gender ($OR = 1.42$, $p < 0.01$), higher educational level ($OR = 1.40$, $p < 0.01$), working in tertiary hospitals ($OR = 1.33$, $p < 0.01$), caring for COVID-19 patients ($OR = 3.10$, $p < 0.01$) and having more severe anxiety symptom ($OR = 1.21$, $p < 0.01$) were positively associated with WPV. In contrast, working in inpatient departments ($OR = 0.74$, $p < 0.01$), having longer work experience ($OR = 0.99$, $p = 0.03$), and being a junior nurse ($OR = 0.73$, $p < 0.01$) were negatively associated with WPV. After controlling for the covariates, mental health professionals who experienced WPV had a lower overall QOL compared to those without WPV ($F_{(1,\ 10515)} = 68.28$, $p < 0.01$).

Conclusion: This study found that WPV was common among mental health professionals in China during the COVID-19 pandemic. Considering the negative impact of WPV on QOL and quality of patient care, appropriate measures to prevent WPV should be developed.

1. Introduction

The coronavirus disease 2019 (COVID-19) has emerged globally in more than 200 countries since it was first reported in Wuhan, China (World Health Organization, 2020). Due to the rapid transmission of the COVID-19, relative high death rates in certain sub-populations, lack of effective treatments and vaccines, mass quarantine measures and disrupted mass communication in many areas, mental health problems, such as anxiety, depression and sleep problems, have been frequently reported among the public, infected cases, close contacts, and even healthcare workers (Xiang et al., 2020b; Yang et al., 2020). Consequently, health authorities have established timely and appropriate mental health services to address the risk of psychiatric morbidities. For instance, crisis psychological intervention teams have been rapidly established in all provinces of China, particularly in designated infectious hospitals (Kang et al., 2020). However, in the early stage of the

* Corresponding author. 3/F, Building E12, Faculty of Health Sciences, University of Macau, Avenida da Universidade, Taipa, SAR, Macau, China.
** Corresponding author. Department of Psychiatry, University of Melbourne, Australia.
E-mail addresses: cng@unimelb.edu.au (C.H. Ng), xyutly@gmail.com (Y.-T. Xiang).
[1] These authors contributed equally to the work.

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pandemic, a number of hospitalized psychiatric patients and mental health professionals in China was infected with the COVID-19 due to a lack of caution and insufficient supplies of protective gear (National Health Commission of China, 2020). This inevitably increased the pressure on the already inadequate mental health resources in China.

Workplace violence (WPV) refers to violent events that explicitly challenge staff safety, wellbeing or health through abusive, threatening or assaultive behaviors in their workplace (Chappell and Di Martino, 2006; Krug et al., 2002; WHO, 2003). Due to heavy clinical workloads, low clinician-patient ratio and stressful work settings (Xiang et al., 2020a), mental health professionals are vulnerable to high risk of WPV. For instance, a multicenter study of 1906 psychiatric nurses found that the 1-year prevalence of verbal and/or physical workplace violence was 84.2% (95% *CI*: 82.4%–85.8%) (Lu et al., 2019). A systematic review found that WPV occurs mostly in emergency and psychiatric departments (Mento et al., 2020). To reduce the risk of COVID-19 disease transmission, psychiatric hospitals have adopted a range of necessary measures, reduced outpatient visits, set up isolation observation wards for newly admitted patients, shortened hospitalization duration, and suspended all family visits. In addition, the follow up interval of stable outpatients was extended, from monthly to 3 monthly, and certain treatments, such as psychological counseling, psychotherapy and ECT, were suspended in many hospitals. The disruption of the usual mental health services and practices could increase the risk of clinician-patient conflicts and eventually lead to WPV (Xiang et al., 2020c). For example, a frontline psychiatric nurse was reported to be killed by a patient in Guangxi province, China during the COVID-19 pandemic on March 24, 2020 (Dingxiangyuan, 2020). Considering the negative outcomes of WPV, such as physical injuries, psychological distress (Viotti et al., 2015), and the deterioration of occupational functioning, clinician-patient relationships and quality of clinical care (Lever et al., 2019; Magnavita, 2014), it is important to examine the pattern of WPV among mental health professionals during the COVID-19 pandemic in order to develop appropriate preventive measures. To date, no data on WPV in mental health professionals during the COVID-19 pandemic have been published.

Therefore, this study examined the prevalence of WPV during the COVID-19 pandemic and explore its associated factors and quality of life (QOL) among mental health professionals in China.

2. Methods

2.1. Setting and sample

This national survey was conducted by the Psychiatry Branch, Chinese Nursing Association and the Chinese Society of Psychiatry between March 15 and March 20, 2020 in China. To reduce the risk of infection during the COVID-19 outbreak, traditional face-to-face interviews were not conducted. Following other studies (Lai et al., 2020), this survey was instead conducted with the WeChat-based Questionnaire Star which is extensively used in epidemiological surveys (Li, 2016; Liang and Fan, 2020; Xi, 2017). WeChat is a social communication platform in smartphones with more than 1 billion users in China. It is widely used in clinical practice and continuing educational activities organized by the Chinese Nursing Association and the Chinese Society of Psychiatry. Therefore, nearly all psychiatrists, nurses and nursing assistants in China are presumably WeChat users. The Psychiatry Branch, Chinese Nursing Association distributed the Quick Response Code (QR Code) linked to assessment of this study to all public psychiatric hospitals nationwide, and subsequently mental health professionals working in these hospitals were invited to participate in the survey on a voluntary basis. Inclusion criteria were: 1) 18 years and above; 2) frontline mental health professionals (including psychiatrists, nurses and nursing assistants) working in clinical settings during the COVID-19 outbreak (from January 20 to March 20, 2020); 3) able to understand Chinese and give written informed consent prior to the assessment. The protocol was approved by the Institutional Review Board (IRB) of the University of Macau, China.

2.2. Instruments

Demographic and clinical data, such as gender, age, marital status, educational attainment, years of clinical work experience, living circumstances, rank (junior or senior), hospital (primary or tertiary hospital), shift work rotation (yes or no), working units (inpatient or outpatient department), smoking status, and former healthcare experience during the SARS outbreak in 2003, were collected. In addition, three standardized questions were asked: 1) whether the participant provided direct clinical services to COVID-19 patients; 2) how many local COVID-19 confirmed cases were reported in their hospital catchment area (at the provincial level); 3) whether they had any COVID-19-infected family members, friends, or colleagues.

The Chinese version of the 9-item workplace violence scale was used to assess participants' experiences with WPV (Chen, 2004). The nine items cover verbal and physical violence, with each item scored from 0 to 3 (0 = none, 1 = once, 2 = 2–3 times, 3 = 3 times and above) (Chen, 2004). This scale had satisfactory psychometric properties (Cronbach's $\alpha = 0.86$) (Liu et al., 2018). Participants were considered as having "experienced WPV" if they reported any type of verbal or physical violence during the COVID-19 outbreak.

The validated Chinese version of the 7-item Generalized Anxiety Disorder Chinese version (GAD-7) was used to evaluate the severity of anxiety symptoms (He et al., 2010). Each item was scored from 0 to 3, with higher scores indicating more severe anxiety. QOL was evaluated using the first two items on the overall QOL derived from the World Health Organization Quality of Life Questionnaire - Brief Version (WHOQOL-BREF) (Harper et al., 1998; Skevington et al., 2004). Higher total scores indicated higher QOL. The Chinese version of the scale was validated and had satisfactory psychometric properties (Fang, 1999; Xia et al., 2012).

2.3. Data analysis

The data were analyzed using IBM SPSS statistics for Windows, version 24.0 (IBM Corporation, Armork, N.Y., USA). The Kolmogorov-Smirnov test was used to assess the normality of continuous data. Comparisons between participants with WPV and those without in terms of socio-demographic and clinical characteristics was conducted using Chi-square tests, two samples independent *t*-tests and Mann-Whitney *U* test, as appropriate. Analysis of covariance (ANCOVA) was performed to compare QOL between the two groups after controlling for variables with significant group differences in univariate analyses. To determine the independent demographic and clinical correlates of WPV, multiple logistic regression analysis using the "Enter" method was performed. All variables with *p*-value less than 0.05 in univariate analyses were entered as independent variables, and WPV was the dependent variable. *P*-value of <0.05 was considered statistically significant (two-tailed).

3. Results

Altogether, 10,516 frontline mental health professionals were invited to join this study; all of whom completed the assessment. The prevalence of WPV was 18.5% (95% *CI*: 17.9%–19.3%) during the COVID-19 outbreak (from January 20 to March 20, 2020). Among those who experienced WPV ($n = 1948$), 1658 (15.8%) reported verbal abuse and/or threats, and 878 (8.4%) reported physical violence. Table 1 shows the demographic and clinical characteristics of the whole sample and also by WPV. Univariate analyses revealed that gender, education level, living with family, rank, hospital settings, working units, length of work experience, current smoking behaviors, working in inpatient department, total number of local COVID-19 patients>500, having family/friends/colleagues infected with COVID-19, direct contact with

Table 1
Demographic characteristics of mental health professionals.

Variables	Total ($N = 10,516$)		Non-WPV group ($N = 8568$)		WPV group ($N = 1948$)		χ^2	*df*	*p*
	n	%	*n*	%	*n*	%			
Male gender	1635	15.5	1246	14.5	389	20.0	35.5	1	**<0.01**
Married	7273	69.2	5909	69.0	1364	70.0	0.8	1	0.36
College education and above	9635	91.6	7806	91.1	1829	93.9	16.0	1	**<0.01**
Living with family	8629	82.1	7065	82.5	1564	80.3	5.0	1	**0.02**
Junior rank	7341	69.8	6074	70.9	1267	65.0	25.7	1	**<0.01**
Experience during SARS	948	9.0	761	8.9	187	9.6	0.9	1	0.31
Working in tertiary hospitals	6564	62.4	5259	61.4	1305	67.0	21.3	1	**<0.01**
Working in inpatient department	9642	91.7	7886	92.0	1756	90.1	7.4	1	**<0.01**
Shift duty	7719	73.4	6273	73.2	1446	74.2	0.8	1	0.36
Local COVID-19 cases ≥ 500	1361	12.9	1069	12.5	292	15.0	8.8	1	**<0.01**
Having family/friends/colleagues infected with COVID-19	213	2.0	144	1.7	69	3.5	27.7	1	**<0.01**
Caring for infected patients	235	2.2	131	1.5	104	5.3	105.4	1	**<0.01**
Current smoker	854	8.1	630	7.4	224	11.5	36.5	1	**<0.01**
	Mean	***SD***	**Mean**	***SD***	**Mean**	***SD***	***t/Z***	***df***	***p***
Age (years)	33.2	8.4	33.1	8.4	33.5	8.1	−1.6	10514	0.10
Work experience (years)	11.6	9.1	11.6	9.1	11.9	8.8	−2.8[a]	–	**<0.01**
GAD-7 total	2.2	3.4	1.7	2.9	4.5	4.5	−31.9[a]	–	**<0.01**
Overall QOL	6.6	1.6	6.8	1.5	5.9	1.5	22.9	10514	**<0.01**

a: Mann-Whitney *U* test; Bolded values: $p < 0.05$; SD: standard deviation; COVID-19: Corona Virus Disease 2019; SARS: Severe Acute Respiratory Syndrome; GAD-7: 7-item Generalized Anxiety Disorder Scale; QOL: Quality of Life; WPV: Workplace violence

confirmed COVID patients, and level of GAD were significantly associated with WPV ($p < 0.05$).

After controlling for covariates, mental health professionals who experienced WPV had lower QOL than those had no WPV ($F_{(1,\ 10515)} = 68.28$, $p < 0.01$). Multiple logistic regression analysis revealed that male gender ($OR = 1.42$, $p < 0.01$), higher educational level ($OR = 1.40$, $p < 0.01$), working in tertiary hospitals ($OR = 1.33$, $p < 0.01$), caring for COVID-19 patients ($OR = 3.10$, $p < 0.01$) and higher GAD total score ($OR = 1.21$, $p < 0.01$) were positively associated with WPV. In contrast, working in inpatient departments ($OR = 0.74$, $p < 0.01$), having longer work experience ($OR = 0.99$, $p = 0.03$), and having a junior rank ($OR = 0.73$, $p < 0.01$) were negatively associated with WPV (Table 2).

4. Discussion

This was the first study that examined the WPV prevalence and its associated factors among mental health professionals during the COVID-19 pandemic (from January 20 to March 20, 2020). We found that 18.5% (95% *CI*: 17.9%–19.3%) of the participants reported WPV within the two months of the study; specifically, the prevalence of verbal abuse/threats was 15.8% and physical violence was 8.4%. As we could not locate any previous studies on the 2-month prevalence of WPV among mental health professionals, direct comparisons could not be done. Instead, we compared our findings with those by using different timeframes. A meta-analysis revealed that the overall lifetime prevalence of WPV was 62.4% (95% *CI*: 59.4%–65.5%) among Chinese health workers (Lu et al., 2018). Another study of frontline psychiatric nurses found that the one-year prevalence of WPV was 84.2% (95% *CI*: 82.4–85.8) in China (Lu et al., 2019). In another study the one-year prevalence of physical and psychological WPV were 55.7% and 82.1%, respectively among nurses working in acute psychiatric settings at Taiwan, China (Niu et al., 2019). Our finding was substantially lower than the above-mentioned figures reported in previous studies. However, it should be noted that direct comparisons between studies should be made with caution due to different timeframes (e.g., two months in this study vs. lifetime or one-year in others). In addition, sexual harassment was considered as part of WPV in some earlier studies (Lu et al., 2018), but was not measured in this study.

Table 2
Independent correlates of WPC by multiple logistic regression analysis.

Variables	Multiple logistic regression analysis		
	p value	*OR*	95% *CI*
Male gender	**<0.01**	1.42	1.19–1.69
College education and above	**<0.01**	1.40	1.13–1.75
Living with family	0.07	0.87	0.76–1.01
Junior rank	**<0.01**	0.73	0.63–0.86
Working in tertiary hospitals	**<0.01**	1.33	1.19–1.49
Working in inpatient department	**<0.01**	0.74	0.61–0.86
Having family/friends/colleagues infected with COVID-19	0.14	1.27	0.91–1.76
Local COVID-19 cases ≥ 500	0.20	1.10	0.94–1.28
Caring for infected patients	**<0.01**	3.10	2.32–4.15
Current smoker	0.06	1.22	0.98–1.52
Work experience (years)	**0.03**	0.99	0.98–0.99
GAD-7 total	**<0.01**	1.21	1.19–1.23

Bolded values: P < 0.05; WPV: workplace violence; CI: confidential interval; OR: odds ratio; GAD-7: 7-item Generalized Anxiety Disorder Scale; QOL: Quality of Life.

Around one fifth of mental health professionals reported WPV during the COVID-19 outbreak, which may be due to several possible reasons. Many medical staff, particularly senior or experienced psychiatrists/nurses, joined the crisis psychological intervention teams who were deployed to other infectious hospitals, which may have depleted the already inadequate existing mental health services. In addition, strict infection control measures, for example, isolation of newly admitted patients, shortened hospital length of stay, and suspension of all family visits (Xiang et al., 2020c), could be associated with greater dissatisfaction with services, disputes between hospitals/doctors and patients, excessive waiting time, and high medical expenses, all of which could lead to WPV (Liu et al., 2015; Wu et al., 2012).

Male health professionals were more likely to experience WPV, which is consistent with previous findings (Lu et al., 2018). Women are commonly viewed as being more vulnerable in workplaces, thus often less likely to be treated as targets of aggression. Mental health professionals who had higher educational level and worked in tertiary hospitals were more likely to experience WPV, while those in junior ranks were less likely to experience WPV in this study. Compared to those treated in primary mental health services, patients in tertiary hospitals usually present with more severe psychiatric symptoms including aggression. Similarly, senior health professionals with higher education are more likely to manage complicated and treatment-resistant cases than their junior colleagues in clinical practice,

which could increase the risk of WPV.

Previous studies found that long waiting times, crowded environment, inadequate communication with patients and their families could increase the risk of conflicts with health professionals in outpatient clinics (Basfr et al., 2019), which is consistent with our findings that working in inpatient departments was associated with a lower risk of WPV. Compared to non-infected psychiatric patients, those infected with COVID-19 were treated in designated isolation psychiatric wards that did not allow any family visits. Due to the fear of COVID-19 complications, boredom, loneliness and anger, together with symptoms of the infection, such as fever, hypoxia, and cough, infected patients may suffer from more severe anxiety and mental distress (Ahmad and Rathore, 2020; Lai et al., 2020; Xiang et al., 2020b), which may increase the likelihood of aggression toward mental health professionals. In contrast, mental health professionals caring for COVID-19 patients are vulnerable to both high risk of infection and mental health problems due to fear of contagion and spreading the virus to their families, friends or colleagues. Such high levels of stress could strain the clinician-patient relationships and affect the quality of clinical care, and increase the potential for conflicts with patients. More severe anxiety symptoms were associated with WPV which may have a bi-directional effect. On the one hand, WPV could negatively affect work enthusiasm, reduce job satisfaction, and lead to burnout and anxiety (Liu et al., 2018). On the other hand, anxiety could affect work performance and result in conflicts with patients, which could increase the risk of WPV. As expected, mental health professionals with longer work experience were less likely to experience WPV probably because they may have better skills in managing conflicts with patients.

According to previous findings on the distress/protection QOL model (Voruganti et al., 1998), QOL was closely associated with the interaction between protective (e.g., good self-efficacy and high socioeconomic status) and distressing factors (e.g., physical and mental impairment). We found that mental health professionals with WPV had lower QOL compared to those without, which is in line with previous findings (Choi and Lee, 2017; Eslamian et al., 2015). This may be attributed to the negative health outcomes of WPV, such as post-traumatic stress symptoms, and impaired psychosocial functioning, such as job strain and perceived hopelessness at work (Hsieh et al., 2018; Rees et al., 2018; Wolf et al., 2017).

The merits of the present study include the large sample size and use of standardized instruments to measure WPV and QOL. However, there are several limitations. First, certain relevant variables associated with WPV, such as clinician–patient relationships and the stress level of mental health professionals, were not assessed. Second, due to logistical reasons, data on WPV were collected using self-report measures, therefore, the possibility of recall bias could not be excluded. Third, due to the cross-sectional study design, the causality between WPV and other variables could not be examined. Fourth, long-term mental health outcomes caused by WPV during the COVID-19 pandemic were not examined. Finally, due to logistical reasons, random sampling was not adopted during the COVID-19 outbreak, which limits the representativeness of the findings despite having a very large sample size.

In conclusion, our study found that WPV frequently occurred among mental health professionals during the COVID-19 pandemic in China. Considering the negative impact of WPV on mental wellbeing, anxiety symptoms, QOL and quality of care, effective preventive measures against WPV for frontline health professionals should be developed. During a pandemic, health authorities should enhance the working and living conditions of mental health professionals and improve clinician-patient relationships by implementing patient violence prevention policy, training and education.

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Contributors

Study design: Feng-Rong An, Yu-Tao Xiang.

Data collection, analysis and interpretation: Xiao-Meng Xie, Yan-Jie Zhao, Feng-Rong An, Qing-E Zhang, Hai-Yang Yu, Zhen Yuan.

Drafting of the manuscript: Xiao-Meng Xie, Teris Cheung, Yu-Tao Xiang.

Critical revision of the manuscript: Chee H. Ng.

Approval of the final version for publication: all co-authors.

Declaration of competing interest

The authors have no conflicts of interest to declare.

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