


Criminal Litigation of Workplace Violence in Chinese Hospitals and Legal Effort to Deescalate Crimes

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Abstract

Workplace violence in Chinese hospitals has increasingly attracted world attention. This study aimed to describe the characteristics of criminal litigation cases on workplace violence in Chinese hospitals at a national level and explore the influencing factors associated with the severity of workplace violence. A retrospective study was designed to analyse 507 criminal litigation cases on workplace violence in Chinese hospitals, with data extracted from the Chinese court website. The multiple ordered logistic regression model was used to analyse the impact of the potential influencing factors on the severity of workplace violence. The crimes as workplace violence in the hospitals were concentrated in East and Central China (53.9%). The most common clinical specialty involved in workplace violence was Gynecology and Obstetrics (27.8%). The first 4 types of crimes as workplace violence in the hospitals were the crime as picking quarrels and provoking trouble (26.0%), the crime as disrupting public service (20.7%), the crime as intentional injury (19.1%), and the crime as gathering people to disturb public order (15.2%). The severity of crimes as workplace violence in the hospitals was significantly associated with location (OR=2.569, $P=.013$), victim type (policemen or security guards) (OR=0.495, $P=.005$), more than 3 victims (OR=2.252, $P=.035$), perpetrators (patients' family member) (OR=0.491, $P=.045$), previous arrest (OR=2.113, $P=.024$), premeditation (OR=2.234, $P=.004$), and psychiatric disorders (OR=1.911, $P=.019$). The number of the crimes as workplace violence in Chinese hospitals was slightly declining from 2014 to 2020. The severity of crimes as workplace violence in the hospitals was significantly associated with secondary hospitals, more than 3 victims, victim type (policemen or security guards), perpetrators (patients' family member), previous arrest, premeditation, and psychiatric disorders.

Keywords

retrospective study, workplace violence, crimes, law and policy, Chinese hospitals

What do we already know about this topic?

Health professionals have experienced serious workplace violence in Chinese hospitals, needing effective and powerful measures to reduce workplace violence in hospitals.

How does your research contribute to the field?

The severity of crimes as workplace violence in the hospitals was significantly associated with secondary hospitals, more than 3 victims, victim type (policemen or security guards), perpetrators (patients' family member), previous arrest, premeditation, and psychiatric disorders.

What are your research's implications toward theory, practice, or policy?

New laws, regulations and policies strengthening on criminal penalties, hospital security, measures for handling medical disputes, and improvement of the healthcare quality can be helpful to de-escalate the crimes as workplace violence in Chinese hospitals.

Introduction

The issue of workplace violence against health professionals in China has attracted worldwide concern for decades.¹⁻⁴ The deterioration of the doctor—patient relationship has led to an increasing number of violence cases in Chinese hospitals.

According to a survey conducted by the *China Hospitals Association* in 2014, physical injuries resulting from workplace violence in Chinese hospitals escalated from 47.7% in 2008 to 63.7% in 2012,¹ and almost 60% of doctors reported that they received verbal abuse from patients.⁵ Zhu et al undertook a survey and found that 62.2% to 82.4% of nurses



reported they experienced workplace violence.⁶⁻⁸ More surprisingly, a study conducted by Shi et al in Shanghai, Hubei, and Gansu showed that over 90% of participants were exposed to at least one type of violence every year.⁹ Moreover, a survey undertaken in Macau reported that 57.2% of doctors and nurses suffered from workplace violence, and 16.1% of them were exposed to physical assault in 2015.¹⁰ Similarly, a study performed by Xing et al showed that 12.6% of health professionals were physically attacked.¹¹ Even medical students are exposed to workplace violence. A survey conducted by Xie et al in Western China reported that 30.6% of medical students suffered from patient-initiated aggression at least once in 2014, and 8.3% of them experienced physical violence.¹² Much worse, 7 consecutive incidents about workplace violence against medical staff took place in Chinese hospitals only within 10 days in October 2013.¹³ Therefore, in practice, health professionals have experienced serious workplace violence in Chinese hospitals, resulting in a variety of negative consequences for health system and the public. It requires that effective and powerful measures should be in place to reduce workplace violence in hospitals, including the establishment of a set of laws and policies.

At the beginning of COVID-19 pandemic, health professionals have played a paramount role in society and health resources have become much more critical than before. However, due to the heavy workload bore by health professionals and constrained health resources accessible to patients, some severe workplace violence in hospitals has happened.^{14,15} The National Health Commission of China, the Supreme People's Court, the Supreme People's Procuratorate, and the Ministry of Public Security have published a joint announcement to ensure the safety of health professionals and maintain a good healthcare service manner during the COVID-19 pandemic. The announcement has stated that it might lead to the COVID-19 infections acquired by health professionals by ripping off protective equipment or spitting on them. It is recommended that the administrative punishment or criminal penalty for public security should be strengthened in accordance with the law.¹⁶ Similarly, the India government has issued new regulation on workplace violence in the hospitals of the COVID-19 front line. It has announced that anyone who assaults a health professional engaged in the COVID-19 pandemic may be punished with

the imprisonment for up to 7 years.¹⁷ Usually, offenders are the persons who are to be blamed for the workplace violence against health professionals in Chinese hospitals. Hence, it is necessary to describe the characteristics of offenders committing workplace violence and investigate the factors associated with workplace violence in Chinese hospitals.

In China, healthcare systems still require a more effective legal system to protect health professionals from workplace violence in the hospitals.^{4,18,19} Specifically, Chinese legislation about workplace violence has weakness, like the absence of legislation on workplace violence and the ineffective enforcement authorities.²⁰⁻²² The continuance of workplace violence in the hospitals has violated the Chinese law. Therefore, the effectiveness of China's health legislation and policy needs to be assessed.¹

Current research has mainly focused on workplace violence in the hospitals from the perspectives of doctors and nurses with qualitative or quantitative studies. The majority of the studies were conducted by questionnaire survey or interview in Chinese hospitals.^{6,7,11,23} Besides, some studies described the characteristics of workplace violence in the hospitals by collecting data from social media.^{3,24} However, less concern has been raised about the law and regulation on workplace violence in the hospitals and violent medical crimes. Criminal litigation records on violent medical crimes are essential as data resources. Cai and Li studied workplace violence against health professionals by using the data or records of national criminal litigation.^{20,22} However, the criminal legislation on workplace violence in the hospitals has been yet to be described in more detail and the factors associated with the severity of workplace violence in the hospitals have not been well investigated in China. Therefore, our study aimed to describe the characteristics of criminal litigation cases on workplace violence in Chinese hospitals at a national level and investigate the influencing factors associated with the severity of workplace violence in the hospitals.

Methods

Study Design

A retrospective study was designed. A total of 507 criminal litigation cases on workplace violence in Chinese hospitals

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and the laws, regulations, judicial explanations, and notices relevant to workplace violence in the hospitals enacted from 1998 to 2020 in China were extracted from the Chinese court website. The multiple ordered logistic regression model was used to investigate the potential influencing factors associated with the severity of workplace violence in the hospitals.

Variables

In order to investigate the potential influencing factors associated with workplace violence in the hospitals, the length of imprisonment was used as the severity of the workplace violence in the hospitals. The potential influencing factors included hospital grade, location, type of victims and perpetrators, surgery, previous arrest records, drunkenness, premeditation, and psychiatric disorders.

Crimes endangering public security are referred to those behaviors including arson, behaviors causing explosions, or throwing dangerous things. The crime as disrupting public service is also called the crime as obstructing execution of official duties. Such crime is a typical crime related to workplace violence in the hospitals, because the infringement object of such crime must be government personnel rather than health professionals. Hence, our study included the policemen as victims of workplace violence in the hospitals. Besides, the crime as picking quarrels and provoking trouble means that the perpetrators conduct the behaviors, such as provocation, arbitrarily beating/harassing other people, or arbitrarily damaging/possessing property, or making disturbances in public places and so on, which cause serious damage to social order. Such crime is highly related to the transparency clause, since it almost includes all the situations in which workplace violence in the hospitals may take place. Therefore, when the crime as workplace violence in the hospitals cannot be classified to other types of crimes, it can be convicted to the crime as picking quarrels and provoking trouble and the perpetrators have to take criminal liability judged by the court.

The medical institutions were divided into 4 grades, including tertiary hospitals, secondary hospitals, community hospitals and clinics in our study. According to the *Standard of Hierarchical Hospitals Management of China*, tertiary hospitals are referred to hospitals which provide medical and health services across regions, provinces, cities and nationwide. Secondary hospitals are referred to hospitals which provide regional health and medical services and disease prevention and control. Community hospitals are referred to primary health care hospitals in community. Clinics are referred to other medical institutions which provide the primary health care but cannot be comparable to hospitals.

The imprisonment was divided into 3 levels in our study, including less than 1 year imprisonment which consists of immunity from criminal punishment, fines, under surveillance, criminal detention, and less than 1 year fixed-term

imprisonment, more than 1 year imprisonment, and life imprisonment and death.

Data Extraction

The documents like laws, regulations, judicial explanations, and notices were extracted from the official Chinese government websites. The criminal litigation cases on workplace violence in Chinese hospitals were extracted from the Online Chinese court website (China Judgements Online: <https://wenshu.court.gov.cn/>). Specially, a list of criminal litigation cases was first extracted from the Online Chinese court website. We used “medical disputes” (436 records), “doctor-patients disputes” (544 records), “doctor-patients conflicts” (9 records), “attack doctor/kill doctor” (10 records), “attack nurse/kill nurse” (1 records), “insulting/slander/abuse/beat-ing + doctor/nurse” (37 records) and “Yi Nao (Medical Dispute Profiteer)” (21 records) as keywords. A total of 1058 criminal litigation cases on workplace violence in the hospitals were obtained from 1 January 2009 to 31 December 2020. Then, 261 repeated criminal litigation cases were removed by screening the title of criminal litigation records. Seventeen criminal litigation cases were further removed since only the criminal litigation cases had an effective appeal judgments. Moreover, 273 irrelative criminal litigation cases were removed by reading the full text, most of which were mainly about health professionals as witnesses or perpetrators. Finally, 507 criminal litigation cases on workplace violence in the hospitals were eligible for our study. The flow chart of data extraction is shown in Figure 1.

Data Processing

Eleven out of 507 (2.2%) criminal litigation cases on workplace violence in the hospitals were combined with a penalty for several offenses. The titles of the charges with a light penalty and felony charge were removed. The criminal litigation cases in which the police were involved in the workplace violence in the hospitals was included and the distribution of the criminal litigation cases was only across mainland China.

Statistical Analysis

Descriptive statistics including numbers and percentages were used to describe the characteristics of the criminal litigation cases on workplace violence in Chinese hospitals. A single and multiple ordinal logistic regression model was used to assess the impact of the potential influencing factors on the severity of workplace violence in Chinese hospitals. The length of imprisonment was an ordinal variable with 3 levels. In order to further assess the effectiveness of this multiple ordinal logistic regression model, the length of imprisonment was adjusted to be classified into the imprisonment with the death penalty, the fixed-term imprisonment with

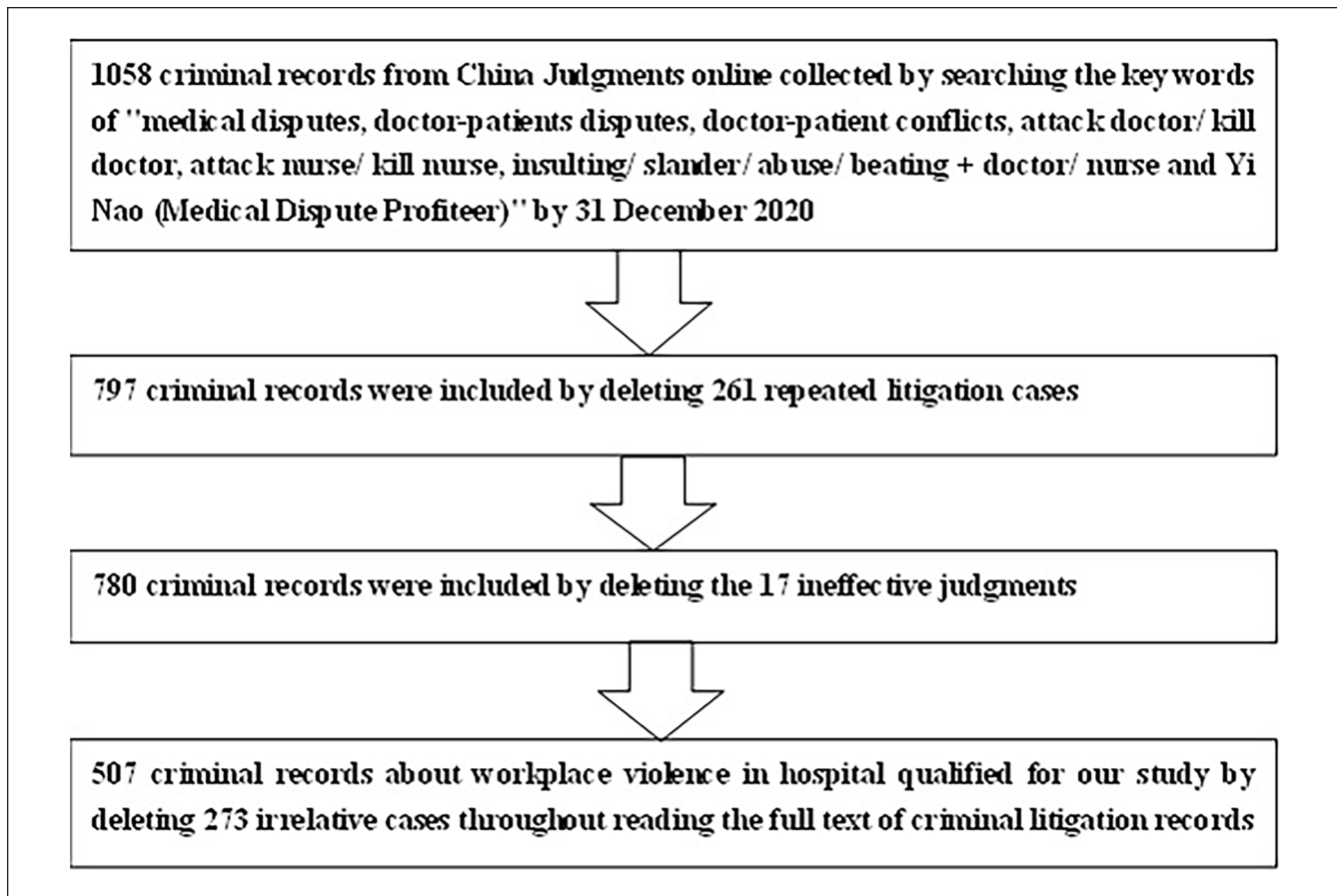


Figure 1. Flowchart of selection of criminal litigations related to workplace violence in hospital in China for 2009 to 2020.

more than 1 year, and the fixed-term imprisonment with less than 1 year. Then, a binary logistic regression model and the ROC (Receiver Operating Characteristic) curve were used to evaluate the effectiveness of the model. All analyses were performed using Stata version 16.0 (Statistics/Data Analysis, College Station, TX, USA). All tests were 2-tailed with a significance level at $P < .05$.

Results

Distribution of Criminal Litigation Cases on Workplace Violence in Chinese Hospitals

As shown Table 1, the crimes as workplace violence in the hospitals were concentrated in East and Central China (53.9%). Specifically, the highest number of criminal litigation cases was 50 in Hunan Province, followed by 49 cases in Henan Province, and 43 cases in Anhui Province.

Trends of criminal litigation cases on workplace violence in Chinese hospitals from 2005 to 2020

Figure 2 presents that the number of criminal litigation cases has been increasing since 2013 with a peak in 2014 of 83

cases. The number of criminal litigation cases was also high in 2015 and 2016. It decreased slightly in 2017 and in 2020.

Clinical Specialty Distribution of Criminal Litigation Cases on Workplace Violence in Chinese Hospitals

As shown in Figure 3, the most common clinical specialty involved in workplace violence in the hospitals was Gynecology and Obstetrics (27.8%), followed by Pediatric (11.6%), and Emergency (10.8%). Besides, it needs to be noted that the criminal litigation cases were also distributed in Ophthalmology and Otorhinolaryngology (4.3%), Plastic Surgery (3.2%), and Stomatology (1.8%).

Characteristics of Criminal Litigation Cases on Workplace Violence in Chinese Hospitals

Table 2 shows that the first 4 types of crimes as workplace violence in the hospitals were the crime as picking quarrels and provoking trouble (26.0%), the crime as disrupting public service (20.7%), the crime as intentional injury (19.1%), and the crime as gathering people to disturb public order

Table 1. The Distribution of Criminal Litigation Cases on Workplace Violence in Chinese Hospitals.

| Region | Province | N | % |
|-----------------|----------------|-----|------|
| Northeast China | | 38 | 7.5 |
| | Jilin | 19 | 3.7 |
| | Liaoning | 13 | 2.6 |
| | Heilongjiang | 6 | 1.2 |
| East China | | 162 | 32.0 |
| | Anhui | 43 | 8.5 |
| | Shandong | 29 | 5.7 |
| | Jiangsu | 24 | 4.7 |
| | Shanghai | 17 | 3.4 |
| | Zhejiang | 17 | 3.4 |
| | Jiangxi | 16 | 3.2 |
| | Fujian | 16 | 3.2 |
| North China | | 79 | 15.6 |
| | Hebei | 34 | 6.7 |
| | Shanxi | 16 | 3.2 |
| | Inner Mongolia | 13 | 2.6 |
| | Beijing | 10 | 2.0 |
| | Tianjin | 6 | 1.2 |
| Central China | | 121 | 23.9 |
| | Hunan | 50 | 9.9 |
| | Henan | 49 | 9.7 |
| South China | | 32 | 6.3 |
| | Hubei | 22 | 4.3 |
| | Guangdong | 22 | 4.3 |
| | Guangxi | 8 | 1.6 |
| Southwest China | | 2 | 0.4 |
| | Hainan | 2 | 0.4 |
| | | 52 | 10.3 |
| | Sichuan | 30 | 5.9 |
| Southwest China | Chongqing | 11 | 2.2 |
| | Guizhou | 6 | 1.2 |
| | Yunnan | 5 | 1.0 |
| | Tibet | 0 | 0.0 |
| | | 23 | 4.5 |
| Northwest China | Shaanxi | 14 | 2.8 |
| | Gansu | 3 | 0.6 |
| | Ningxia | 2 | 0.4 |
| | Qinghai | 2 | 0.4 |
| | Xinjiang | 2 | 0.4 |
| | | 2 | 0.4 |
| Total | - | 507 | 100 |

(15.2%). It is highlighted that 3.2% of criminal litigation cases were the crime as intentional homicide. Nearly half of the criminal litigation cases (47.7%) were sentenced to the fixed-term imprisonment with more than 1 year to less than 3 years.

However, only 193 violence criminal cases (38.1%) had one perpetrator in per crime, and 132 cases (26.0%) had more than 3 less than 10 perpetrators. In particular, there were more than 10 perpetrators in 136 cases (26.8%). In total, more than half (52.8%) of the crimes were committed by more than 3 persons.

Regarding the perpetrators, only 10.8% of them had previous arrest record relevant to workplace violence in the hospitals, and 70.6% had an intention of premeditation. Nearly half of the criminal litigation cases (42.4%) resulted in patient death, and 19.1% needed surgery. Moreover, only 4.1% of perpetrators were drunk and 3.2% had mental health issues. 21.3% of criminal litigation cases involved medical disputes to seek mediation prior to workplace violence. Only 15.0% of perpetrators confessed after committing a crime.

Characteristics of Criminal Litigation Cases on Workplace Violence in Chinese Hospitals From the Perspectives of Hospitals and Involved Victims

As presented in Table 3, secondary hospitals (37.2%) were the most common ones where the crime as workplace violence took place. 75.1% of criminal litigation cases took place inside the hospitals. Most criminal litigation cases involved more than 3 victims (73.8%). 81.5% of victims were doctors, 59.4% were nurses, and 24.9% were police officers. 68.6% of criminal litigation cases happened in daylight. Besides, 62.7% of criminal litigation cases caused social order disturbance, and 48.5% of criminal litigation cases resulted in minor and slight injury.

Laws and Policies on De-escalating Crimes as Workplace Violence in Chinese Hospitals

Table 4 shows that the government of China has enacted or modified 6 laws and regulations on deescalating the crimes as workplace violence in the hospitals since 1980, and issued more than 11 specific policies on preventing workplace violence in the hospitals from 1986 to 2020. For example, the *Criminal Law in 1980*, more than 10 criminal charges related to violent behaviors and the consequences of crimes related to workplace violence in the hospitals were published. No criminal law on workplace violence in the hospitals was issued until 2015. To be noteworthy, the *Criminal Law (9th) Amendment* announced it as a criminal offense if assembling persons to disrupt public order, including workplace violence in the hospitals. Particularly, *Guidance on Strengthening the Construction of Hospitals Security System* clearly and directly listed 6 behaviors relevant to workplace violence in the hospitals and corresponding charges of crimes. Furthermore, the *Six Measures of Public Security Organs to Maintain the Public Security Order of Medical Institutions* pointed that it is necessary to strengthen the linkage between the police and the hospitals. Besides, an offender on workplace violence is listed as a trust-breaking person to restrict loans and health insurance since 2018. Two policies were enacted to emphasize on punishing behaviors as workplace violence in the hospitals during the covid-19 pandemic in 2020.

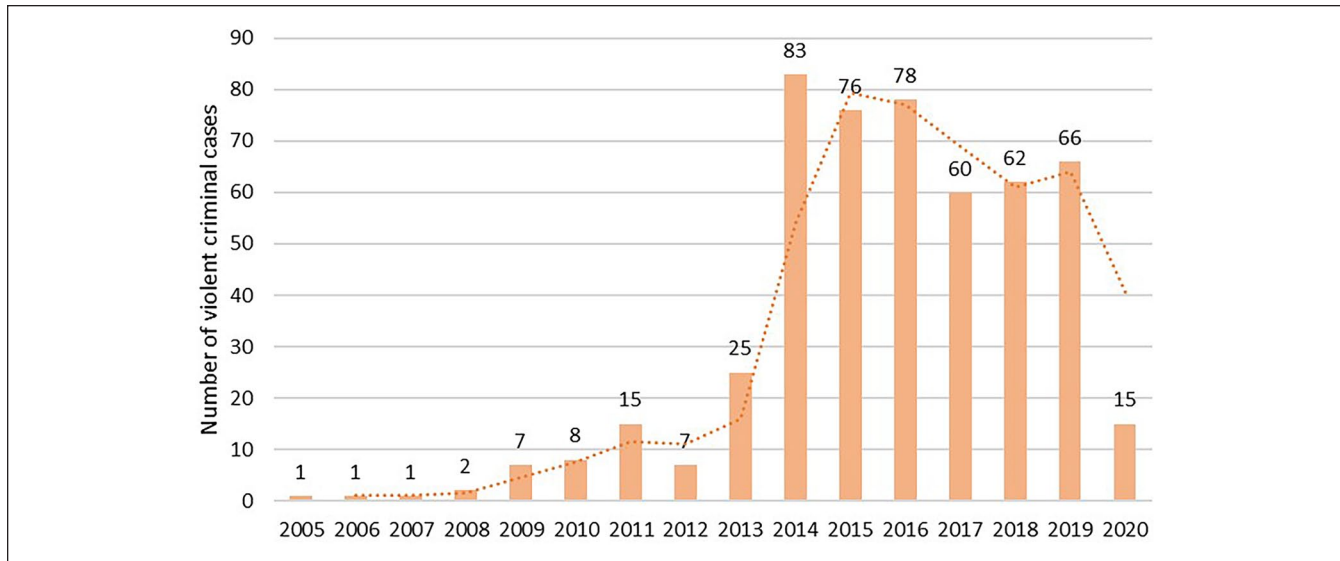


Figure 2. Trends of criminal litigation cases on workplace violence in Chinese hospitals from 2005 to 2020 (N=507).

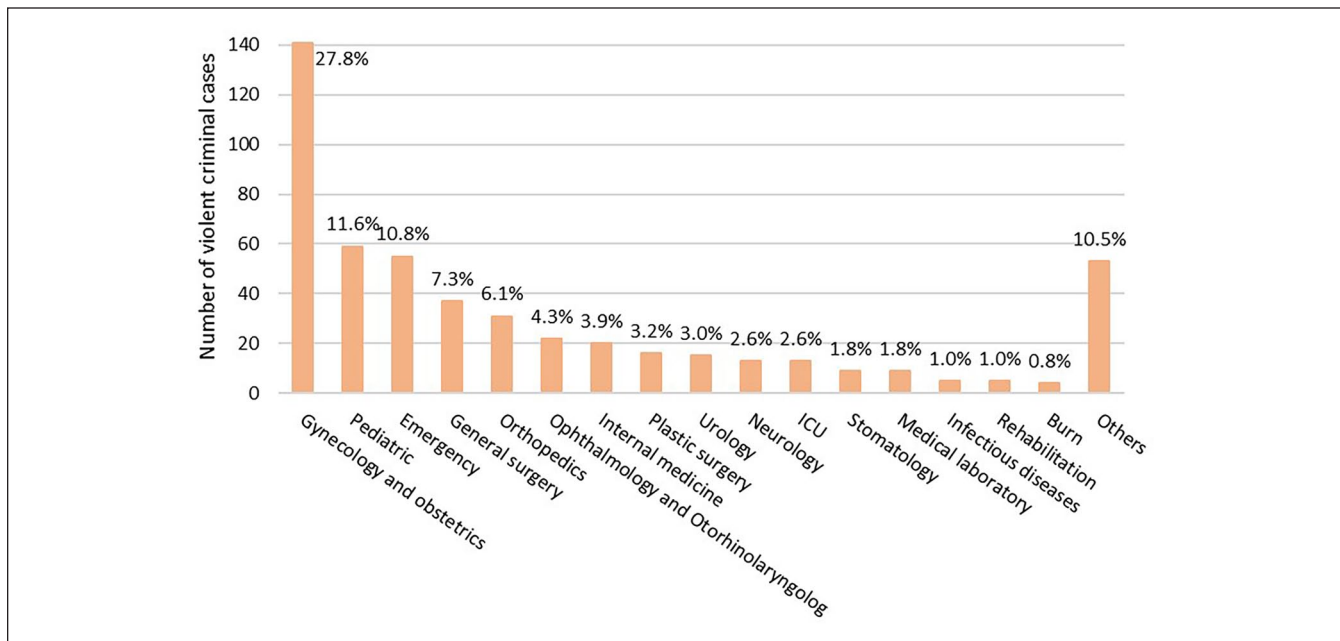


Figure 3. Clinical specialty distribution of criminal litigations on workplace violence in Chinese hospitals (N=507).

Trends of Charges of Criminal Litigation Cases on Workplace Violence in Chinese Hospitals

As presented in Figure 4, the number of criminal offenses as disrupting public services has been rapidly increasing since 2014. In addition, the number of crimes as intentional injuries has increased from 2013 to 2015. The number of crimes as intentional injuries has been stable from 2014 to 2019. The number of crimes as picking quarrel and provoking troubles has increased since 2012.

Distribution of Penalty on Criminal Litigation Cases on Workplace Violence in Chinese Hospitals Based on Hospital Grades

Figure 5 shows that 102 perpetrators involved in secondary hospitals and 88 perpetrators involved in tertiary hospitals were sentenced with more than 1 year imprisonment, while 48 perpetrators involved in clinics were sentenced to less than 1 year imprisonment. Seven perpetrators involved in clinics were sentenced to life imprisonment and death. No

Table 2. Characteristics of Perpetrators Involved in Workplace Violence in the Hospitals.

| Characteristics | | N | % |
|------------------------|--|-----|------|
| Criminal charges | Crime as picking quarrels and provoking trouble | 132 | 26.0 |
| | Crime as disrupting public service | 105 | 20.7 |
| | Crime as intentional injury | 97 | 19.1 |
| | Crime as gathering people to disturb public order | 77 | 15.2 |
| | Crime as extortion | 20 | 3.9 |
| | Crime as intentional destruction or damage of properties | 19 | 3.7 |
| | Crimes as endangering public security | 19 | 3.7 |
| | Crime as intentional homicide | 16 | 3.2 |
| | Crime as gathering people to attack state agencies | 6 | 1.2 |
| | Others | 12 | 2.4 |
| | Not guilty | 4 | 0.8 |
| Criminal penalty | Not guilty | 4 | 0.8 |
| | Immunity from criminal punishment | 9 | 1.8 |
| | Fines | 6 | 1.2 |
| | Under surveillance | 13 | 2.6 |
| | Criminal detention | 61 | 12.0 |
| | Less than 1 year fixed-term imprisonment | 134 | 26.4 |
| | More than 1 year—less than 3 years | 242 | 47.7 |
| | More than 3 years—less than 5 years | 15 | 3.0 |
| | More than 5 years—less than 10 years | 8 | 1.6 |
| | More than 10 years | 4 | 0.8 |
| | Life imprisonment | 4 | 0.8 |
| Number of perpetrators | Death penalty | 7 | 1.4 |
| | 1 | 193 | 38.1 |
| | 2-3 | 46 | 9.1 |
| | 3-10 | 132 | 26.0 |
| | More than 10 | 136 | 26.8 |
| Previous arrest record | Yes | 55 | 10.8 |
| | No | 452 | 89.2 |
| Drunkenness | Yes | 21 | 4.1 |
| | No | 470 | 92.7 |
| Premeditation | Passion crime | 149 | 29.4 |
| | Premeditated crime | 358 | 70.6 |
| Psychiatric disorders | Yes | 16 | 3.2 |
| | No | 491 | 96.8 |
| Patient death | Yes | 215 | 42.4 |
| | No | 292 | 57.6 |
| Surgery | Yes | 97 | 19.1 |
| | No | 410 | 80.9 |
| Mediation | Yes | 108 | 21.3 |
| | No | 399 | 78.7 |
| Confess | Yes | 76 | 15.0 |
| | No | 431 | 85.0 |

perpetrator involved in community hospitals, was sentenced to life imprisonment or death.

Influencing Factors Associated With Workplace Violence in Chinese Hospitals

As shown in Table 5, the severity of crimes as workplace violence in the hospitals was significantly associated with

location (OR=2.569, $P=.013$), victim type (policemen or security guards) (OR=0.495, $P=.005$), more than 3 victims (OR=2.252, $P=.035$), perpetrators (patients' family member) (OR=0.491, $P=.045$), previous arrest (OR=2.113, $P=.024$), premeditation (OR=2.234, $P=.004$), and psychiatric disorders (OR=1.911, $P=.019$). The results of the single logistic regression model and the ROC were shown in Supplemental Material.

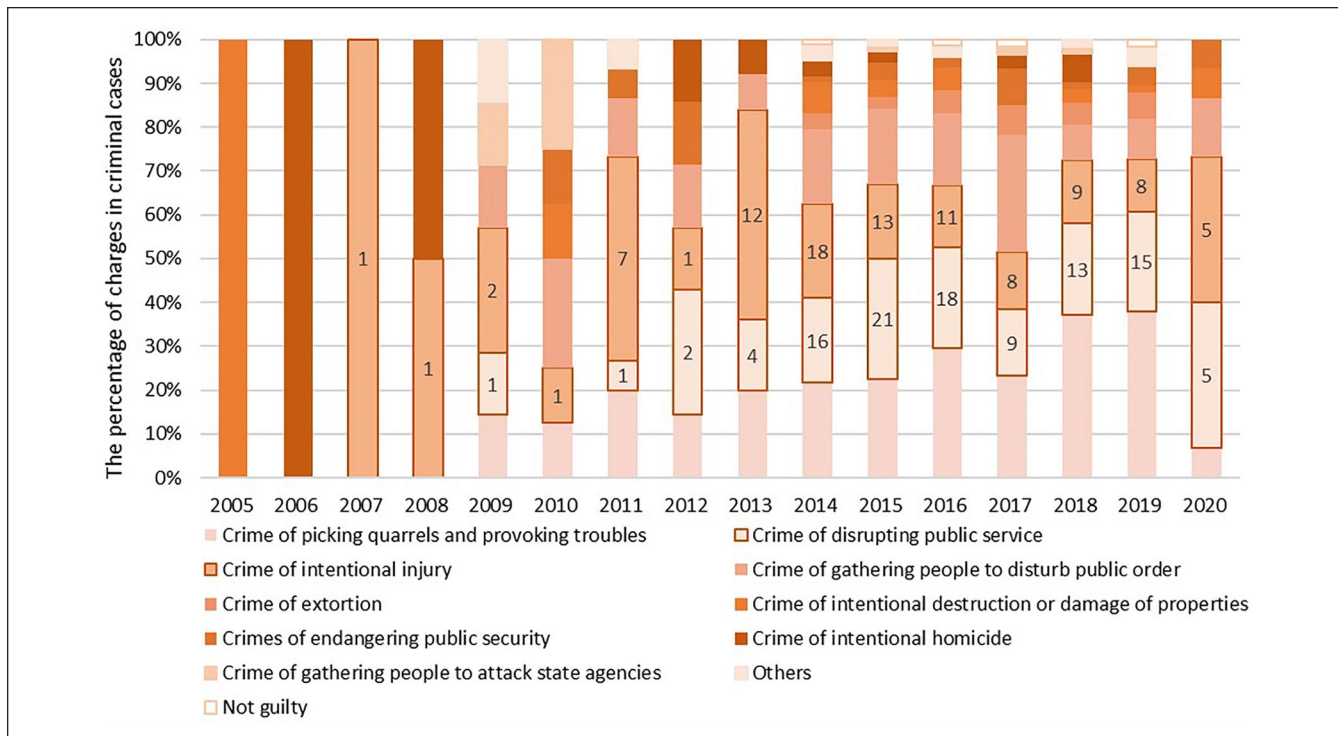


Figure 4. Trends of charges of criminal litigation cases on workplace violence in Chinese hospitals (N=507).

Discussion

Our study found that the number of criminal litigation cases has been sharply increasing since 2014, while it has slightly decreased from 2014 to 2019. Six illegal behaviors related to workplace violence in the hospitals are charged as crimes according to *The Guidance on Strengthening the Construction of Hospitals Security System* in 2013. Generally, it takes 1 year for the criminal from prosecution to sentence.²² Besides, the policemen must patrol the hospitals and the perpetrators must be charged as crimes as workplace violence since 2014. Legislation has become an important strategy to reduce the crimes as workplace violence in the hospitals, which emphasizes that the behaviors related to workplace violence in the hospitals could be charged as crimes and the perpetrators have to take corresponding criminal liability.²⁵

Our study also found that the numbers of the crimes as disrupting public service and picking quarrels and provoking trouble have been rising from 2014 to 2019. The crime as disrupting public service is only convicted when the victims are policemen or government officials. Hence, it means that the number of the victims who are policemen or government health officials has been increasing since 2014. The increasing number of crimes as picking quarrels and provoking trouble means that more violent behaviors were likely to be convicted as crimes. It might be because of the strict legal rules and policies on strengthening hospital security since 2014, which means that once the crimes as workplace violence take place in the hospitals, the policemen or security

guards immediately appear. Besides, it is more likely to be convicted as crimes if the police are attacked in the hospitals. Meanwhile, the number of crimes as intentional injuries and intentional homicide has been declining from 2014 to 2019, while the proportion has been stable in our study. It means that extreme violent behaviors have been continuing to be committed against health professionals. To be noteworthy, the number of violent crimes was small in 2020 in our study. This may be because of a delay in criminal sentence during the COVID-19 pandemic.

Additionally, it was found that 26.8% of criminal litigation cases on workplace violence in Chinese hospitals involved more than 10 perpetrators, and 15.2% were charged as the crimes as gathering people to disturb public order, that is, Yi Nao in our study. Yi Nao is defined as gathering people to threaten or assault health professionals or other violent behaviors against the hospitals for profit. Current studies found that the prevalence of Yi Nao related to nurses was 17%–24% in China.^{11,26} A study conducted by Sun et al showed that mobbing behaviors accounted for 40.2% of behaviors as workplace violence against doctors.²⁷ Our findings showed that the number of crimes as gathering people to disturb public order has been decreasing since 2017. It indicates that Yi Nao has been suppressed according to the effective and powerful measures taken by the Chinese government.

It found that crimes as workplace violence in the hospitals were concentrated in East and Central China. Hunan, Henan, Anhui and Hebei were at a higher risk of crimes as workplace

Table 3. Characteristics of Criminal Litigation Cases on Workplace Violence in Chinese Hospitals in Terms of Hospitals and Victims.

| Characteristics | | N | % |
|-----------------------------------|---|-----|------|
| Hospital grade | Tertiary hospitals | 165 | 32.5 |
| | Secondary hospitals | 189 | 37.3 |
| | Community hospitals | 55 | 10.8 |
| | Clinic | 98 | 19.3 |
| Location | Inside of hospitals | 381 | 75.1 |
| | Outside of hospitals | 78 | 15.4 |
| | Both | 48 | 9.5 |
| Victim type (multiple choice) | Doctor | 413 | 81.5 |
| | Nurse | 301 | 59.4 |
| | Security guards | 43 | 8.5 |
| | Policeman | 126 | 24.9 |
| | Mediators | 20 | 3.9 |
| | Government personnel | 91 | 17.9 |
| | Patients | 140 | 27.6 |
| | Others | 4 | 0.8 |
| | Number of victims | 1 | 106 |
| 2 | | 27 | 5.3 |
| More than 3 | | 374 | 73.8 |
| Damage type | Property damage | 153 | 30.2 |
| | Mental injury | 10 | 2.0 |
| | Social order disturbance | 318 | 62.7 |
| Time on duty | Day | 348 | 68.6 |
| | Night | 32 | 6.3 |
| | Both | 49 | 9.7 |
| | Other | 78 | 15.4 |
| Damage level (multiple choice) | Death | 10 | 2.0 |
| | Serious injury | 14 | 2.8 |
| | Minor injury | 107 | 21.1 |
| | Slight injury | 139 | 27.4 |
| | Other injury (lighter than slight injury) | 17 | 3.4 |

violence in the hospitals. Our previous study reported that the numbers of population and medical disputes in those provinces were higher than those of other provinces.²⁸ This finding was in line with the study conducted by Cai et al.²⁰ Our study also found that the secondary hospitals were the most common medical institutions where the crimes as workplace violence took place. This finding was similar to the finding of the systematic review and meta-analysis conducted by Liu et al on workplace violence against nurses in Chinese hospitals, in which the prevalence of such crimes was 72% in the secondary hospitals.²⁹ Besides, regarding the prevalence of the crimes as workplace violence in other types of medical institutions, a study performed by Hasan et al also reported the similar results with more than one-third (39%) of the crimes as workplace violence in primary health care institutions and 39% of the crimes as workplace violence in tertiary medical institutions in Bangladesh.³⁰ Chen et al also found that the prevalence of the crimes as workplace violence in

top-level hospitals was lower compared with other types in China.³¹ Workplace violence cases in tertiary hospitals of the core cities be more likely reported by the media.³² It cannot be ignored that primary hospitals and clinics are also at high risk of workplace violence.

It found that the severity of crimes as workplace violence in Chinese hospitals was significantly associated with people with psychiatric disorders or an arrest record in our study. Zicko et al demonstrated that agitation, disturbance and threat were associated with psychiatric disorders.³³ A study conducted by Cai et al showed that 3.8% of crimes as workplace violence in the hospitals were related to psychiatric disorders,²⁰ and 0.7% were related to drunkenness in a study undertaken by Li et al.²² In our study, 3.2% of the criminal litigation cases on workplace violence in the hospitals reported the perpetrators had psychiatric disorders and 4.1% showed that the perpetrators were drunk. Both were significant risk factors associated with the severity of crimes as workplace violence in the hospitals. Actually, the Chinese government has enacted a relevant policy to prevent such crimes, which is *Opinion on Printing and Distributing Strict Prevention and Control of Medical Crimes and Maintaining Normal Medical Order*. It states that patients who are drunk, have a psychiatric disorder, or act abnormally, should be accompanied by doctors and nurses.^{34,35}

Our study also found that gynecology and obstetrics, pediatric, emergency, general surgery and orthopedics were the most common clinical specialties associated with the crimes as workplace violence. This finding is in line with a study conducted by Li et al.²² Besides, a study undertaken by Wu et al showed that the prevalence of the crimes as workplace violence was highest in psychiatry and emergency departments in Taiwan.²³ Another study conducted by Wu et al also found that the departments of psychiatry, emergency, pediatrics and surgery had the highest prevalence of the crimes as workplace violence with a survey among health professionals.³⁶ Two studies also reported that the emergency department had the highest prevalence of the crimes as workplace violence.^{5,20} However, the emergency department had the third highest prevalence, while pediatrics and gynecology and obstetrics ranked first and second in our study. This finding is in line with the study conducted by Zhang et al and it might be because that parents have put excessive attentions on their children to intensify the relationship with health professionals.³⁷ Our study also found that the high risk of workplace violence was slightly different from that of medical malpractice claims in terms of these 4 clinical specialties according to our previous study. However, obstetrics and gynecology, orthopedics and emergency were at a high risk of workplace violence and medical malpractice claims.^{28,38} However, the pediatric department was at a lower risk of medical malpractice claims and compensation. It implies that health professionals from the pediatric department were

Table 4. Law, Regulation, and Policy on De-escalating Crimes as Workplace Violence in Chinese Hospitals From 1980 to 2020.

| Type | Act | Year | Legislature | Note |
|--------------------|--|--------------|--|---|
| Criminal law | Criminal Law of People's Republic of China | 1980 | National People's Congress | Relevant crimes: intentional injury, homicide, destruction of property etc. |
| | Amendment to Criminal Law (Ninth) | 2015 | Standing Committee of National People's Congress | Crime as gathering people to disturb public order |
| Civil law | Civil Code of People's Republic of China | 2020 | National People's Congress | Part VII Tort liability Chapter 7 Medical Damage Liability: Article 1218-1228 |
| Administrative law | Tort Liability Law (Abolished in 2020) Regulation on Handling of Medical Malpractice | 2010 2002 | National People's Congress State Council of the People's Republic of China | Chapter 7: medical damage liability Identifying medical malpractice to resolve disputes over medical care. |
| Policy | Regulation on Prevention and Handling of Medical Disputes Joint Notice on Maintaining Hospital Order | 2018 1986 | State Council of People's Republic of China Ministry of Health, Ministry of Public Security | Preventing and handling medical disputes Beating/insulting medical staff: security punishment or criminal liability |
| | Notice on Strengthening Public Security Management of Medical Institutions and Maintaining Normal Order of Diagnosis and Treatment Notice on Maintaining Order of Medical Institutions | 2001 2012 | Ministry of Health, Ministry of Public Security Ministry of Health, Ministry of Public Security | Properly handling medical disputes and strengthening security work in the hospitals Seven illegal behaviors: criminal liability |
| | Guidance on Strengthening Construction of Hospital Security System Six Measures of Public Security Organs to Maintain Public Security Order of Medical Institutions | 2013 2014 | National Health and Family Planning Commission, Ministry of Public Security Ministry of Public Security | Six illegal behaviors and corresponding charges with criminal liability Linkage between the police and the hospitals: secondary/tertiary hospitals on patrol |
| | Opinion on Punishing Illegal Acts and Crimes Against Medical Staff In Accordance with Law and Maintaining Normal Medical Order | 2014 | Supreme People's Court, Supreme People's Procuratorate, Ministry of Public Security, Ministry of Justice, National Health and Family Planning Commission | Guiding the court and procuratorate: criminal cases and judges |
| | Notice on Further Maintaining Medical Order | 2016 | National Health and Family Planning Commission, Central Comprehensive Management Office, Ministry of Public Security, Ministry of Justice | Strengthening the patrol around the hospitals and reporting the crimes as workplace violence to the government |
| | Opinion on Printing and Distributing Strict Prevention and Control of Medical Crimes and Maintaining Normal Medical Order | 2017 | State Health and Family Planning Commission, Ministry of Public Security, State Administration of Traditional Chinese Medicine | Comprehensively improving ability to prevent and control medical violent crimes |
| | Memorandum of Understanding on Taking Joint Disciplinary Actions Against Those Liable for Unfaithful Acts Seriously Disrupting Normal Order of Medical Services | 2018 | National Development and Reform Commission, People's Bank of China, National Health Commission | Trust-breaking persons who seriously endanger normal medical order or medical violent crimes: reporting |
| | Notice on Ensuring Medical Staff's Safety and Maintaining Good Medical Order During the COVID-19 Pandemic Opinion on Promoting Strict, Standardized, Fair and Civilized Law Enforcement to Provide Strong Legal Guarantee for Epidemic Prevention and Control | 2020 2020 | National Health Commission, Supreme People's court, Ministry of Public Security Ministry of Justice | Seven behaviors: criminal liability during the epidemic Strengthening law: medical violent crimes |

Note. Ministry of Health was renamed as National Health and Family Planning Commission in 2013, and then was renamed to National Health Commission in 2018.

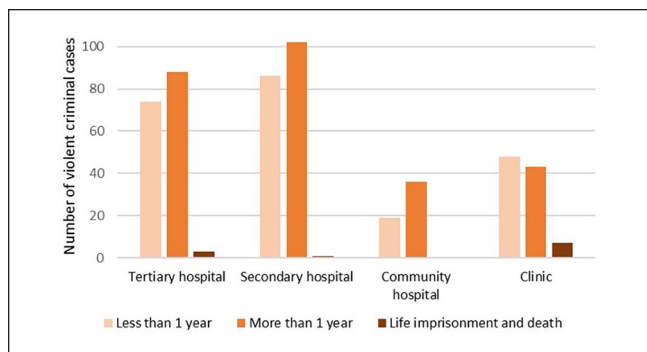


Figure 5. Distribution of penalty on criminal litigation cases on workplace violence in different hospital grades (N=507).

more likely to suffer from workplace violence, although they had no malpractice claims in China.

It found that more than two-thirds of crimes (70.6%) were premeditated crimes and the intention of premeditation was a significant risk factor associated with the severity of the crimes as workplace violence in Chinese hospitals in our study. A study conducted by Xing et al found that 53.8% of victims believed that violent crimes could preventable.³⁹ If behaviors as workplace violence in the hospitals can be identified during the stage of preparation and medical disputes can be properly tackled, more than half of the crime can be avoided.

The inadequate mechanisms for handling patients' complaints could lead to the occurrence of workplace violence in Chinese hospitals.¹⁹ Some criminal litigation cases on workplace violence in the hospitals were related to medical malpractice. In our study, 21.3% of criminal litigation cases on workplace violence in the hospitals resorted to mediation on medical disputes before it became a violent crime. Unfortunately, workplace violence against health professionals still occurred after or during the mediation. Some patients prefer using violence to arbitration because they believe it is time consuming, unfair, and inefficient. Our previous study showed that medical disputes usually took 3 years to be resolved via the court.²⁸ Generally, the committee members are selected from local doctors to identify medical malpractice, so the fairness is questioned.³² Therefore, a fair and highly efficient judicial system to deal with medical disputes must be established.⁵ *Regulation on Prevention and Handling Medical Disputes* published in 2018 has provided 5 legal ways to solve medical disputes, which are negotiation, mediation by the People's Mediation Committee, administrative mediation, litigation via the court and others (Article 22). Efficient, fair and effective solutions for medical disputes via law is a good way to solve the workplace violence in the hospitals.

It is necessary to enact effective law and policy to strengthen hospital security to reduce the occurrence of workplace violence in the hospitals from the perspective of hospital administration. In United State, *Occupational Safety and Health Act in 1970* has provided protection

for employees who suffer from workplace violence, including health professionals and emphasized the liability of employers.^{40,41} In many countries, hospital managers are legally responsible for providing sufficient protection against workplace violence.⁴² In China, hospitals are not classified as public places until 2014, in which the regulation—*Six Measures of Public Security Organs to Maintain the Public Security Order of Medical Institutions* was enacted. It states that the police must patrol around the tertiary and secondary hospitals. Our study also found that the number of the crimes against policemen and security guards have been increasing since 2014. However, the safeguarding policy should be enhanced to the primary health care institutions and clinics to prevent workplace violence. Tucker et al reported that the enhancing security forces inadvertently intensified the mistrust between doctors and patients.⁴³ Current security policy cannot address the fundamental issue of protecting health professionals and might even further intensify conflicts.^{34,44} It is encouraged that health professionals should actively report workplace violence, and then the hospitals need to provide corresponding support.⁴⁵ More importantly, an early warning system for risk assessment needs to be established to alert health professionals with potential violence.^{20,46}

The key to reducing the workplace violence in Chinese hospitals is to continually improve the quality of medical services. 57.0% of health professionals believed that improving treatment, healthcare quality and diagnostic accuracy is an effective preventive measure.¹¹ It may be because high-quality medical services can increase the trust between patients and doctors. In China, the government has enacted new legislation and policy aimed at promoting medical quality. In 2016, the National Health and Family Planning Commission issued *Measures for the Administration of Medical Quality*, and the General Office of the State Council of China issued the *Guidelines on Establishment of Modern Hospital Management System* in 2017 to create standards and improve the quality of medical services.

The Chinese government should further promote health-care reforms on structural and societal factors associated with the health system to de-escalate the workplace violence in the hospitals,^{13,43} which includes increasing investment in health resources,⁴⁷ constructing an orderly hierarchical diagnosis, narrowing the medical service gap between high-grade and low-grade hospitals,¹⁸ changing the way of doctor-patient communication, and effectively improving medical education and publicity. Legislation has also published relevant policy to solve these issues. The Standing Committee of the National People's Congress promulgated *Basic Health Care and Health Promotion Law* in 2019, and it was enforced on June 1, 2020. It has summarized the policies and experiences related to healthcare reform for the past 30 years, including funds guarantee, hierarchical medical system, protection of doctors and patients etc.

There are some limitations in our study. First, the laws, regulations and policies of the workplace violence in Chinese

Table 5. Influencing Factors Associated With Workplace Violence in Chinese Hospitals With a Multi Ordinal Logistic Regression Model.

| Independent variable | Sub group | OR | S.E. | z | P value | 95% CI (upper limit) | 95% CI (lower limit) |
|--|-----------|-------|-------|--------|-------------|----------------------|----------------------|
| Hospital grade | 0 | | | | | (Reference group) | |
| | 1 | 1.358 | 0.509 | 0.821 | .414 | 0.651 | 2.832 |
| | 2 | 1.440 | 0.415 | 1.259 | .206 | 0.818 | 2.534 |
| | 3 | 1.328 | 0.391 | 0.963 | .336 | 0.746 | 2.363 |
| Location | 0 | | | | | (Reference group) | |
| | 1 | 1.311 | 0.543 | 0.653 | .513 | 0.582 | 2.954 |
| | 2 | 2.569 | 0.943 | 2.568 | .013 | 1.252 | 5.273 |
| Victim (doctor) | | 0.787 | 0.276 | -0.675 | .494 | 0.396 | 1.565 |
| Victim (nurse) | | 0.818 | 0.330 | -0.498 | .619 | 0.371 | 1.803 |
| Victim (policeman/security guards) | | 0.495 | 0.124 | -2.796 | .005 | 0.303 | 0.809 |
| Victim (other patients) | | 0.737 | 0.264 | -0.852 | .395 | 0.365 | 1.489 |
| Number of victims | 0 | | | | | (Reference group) | |
| | 1 | 0.829 | 0.416 | -0.374 | .709 | 0.311 | 2.214 |
| | 2 | 2.252 | 0.868 | 2.112 | .035 | 1.058 | 4.794 |
| Time | 0 | | | | | | |
| | 1 | 0.551 | 0.267 | -1.232 | .218 | 0.213 | 1.423 |
| | 2 | 1.128 | 0.383 | 0.349 | .723 | 0.580 | 2.194 |
| Surgery | | 0.993 | 0.252 | -0.028 | .978 | 0.603 | 1.634 |
| Patients' death | | 1.328 | 0.374 | 1.011 | .313 | 0.765 | 2.306 |
| Perpetrator (patient) | | 1.334 | 0.434 | 0.878 | .376 | 0.705 | 2.525 |
| Perpetrator (patients' family) | | 0.491 | 0.174 | -2.017 | .045 | 0.245 | 0.985 |
| Perpetrator (medical dispute profiteer, called Yi Nao) | | 1.119 | 0.327 | 0.386 | .700 | 0.631 | 1.986 |
| Previous arrest record | | 2.113 | 0.700 | 2.260 | .024 | 1.104 | 4.045 |
| Number of perpetrators | 0 | | | | | (Reference group) | |
| | 1 | 0.590 | 0.175 | -1.784 | .076 | 0.330 | 1.056 |
| | 2 | 0.781 | 0.308 | -0.622 | .532 | 0.360 | 1.694 |
| Mediation | | 1.432 | 0.385 | 1.329 | .183 | 0.845 | 2.427 |
| Drunkenness | | 2.726 | 1.560 | 1.748 | .080 | 0.888 | 8.371 |
| Premeditation | | 2.234 | 0.630 | 2.846 | .004 | 1.285 | 3.881 |
| Psychiatric disorders | | 1.911 | 0.477 | 2.409 | .019 | 1.097 | 3.486 |

Note. All tests were 2-tailed with a significance level at $P < .05$.

hospitals relevant to the COVID-19 pandemic were missing in this study. Because litigation is usually completed within a year, the latest workplace violence occurred in 2019 was only traced to sentencing stage in 2020. It is necessary to do the follow-up study in the future. Second, the criminal litigation cases related to sexual abuse in workplace violence in the hospitals were zero in our study. This is probably because the private information of the victims cannot be assessed from an open database. Finally, the positive impact of legal and policy systems on de-escalating workplace violence in Chinese hospitals is only based on correlation rather than causal inference.

Conclusions

The number of the crimes as workplace violence in Chinese hospitals was slightly declining from 2014 to 2020. The severity of crimes as workplace violence in the hospitals was

significantly associated with secondary hospitals, more than 3 victims, victim type (policemen or security guards), perpetrators (patients' family member), previous arrest, premeditation, and psychiatric disorders. It is required that new laws, regulations and policies to be strengthen on criminal penalties, hospital security, measures for handling medical disputes, and improvement of the healthcare quality could be helpful to de-escalate the crimes as workplace violence in Chinese hospitals.

Authors' Note

Heng Li designed this study, supervised the data collection, analyzed and interpreted the data and drafted the manuscript. Dajun Gao and Yanjie Guan organized the data collection, conducted the literature search and analyzed the data. Chang Xu analyzed the data, drafted part of the manuscript and reviewed and edited the manuscript. All authors have read and agreed to the published version of the manuscript.

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Ethical Statement

The study was approved by the Ethics Review Board of Peking University Shenzhen Hospital (LW-[2022]4-1).

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Supplemental Material

Supplemental material for this article is available online.

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