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ORIGINAL RESEARCH

Analysis and Review of the Countermeasures Required for Medical Staff's Cognition of Relevant Laws and Regulations in the Coronavirus 2019 Context

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Background: Novel coronavirus 2019 (COVID-19) infections are highly contagious and have spread worldwide. Healthcare workers must understand the laws and regulations related to major public health emergencies to work effectively within this environment. Through investigation and analysis, a review was conducted to help gain a better understanding of a Level-1 response to public health events and the relevant laws and regulations applicable to medical staff. Based on the results, this study formulated measures for working in the current COVID-19 healthcare context.

Methods: A total of 42,490 medical personnel in 18 cities in Henan Province (China) were reviewed and analysed using the convenience sampling method. A questionnaire was employed to address two areas of cognitive status quo (25 items), ie, "general information" and "major public events and rules of the law".

Results: More than 90% of medical staff had a good understanding related to knowledge about prevention and control in the pandemic context, as well as their due diligence and legal responsibility for controlling the pandemic and preventing others from being infected. However, 3.47–32.61% of medical staff still had a minimal understanding of a Level-1 response to public health events and its relevant laws and regulations.

Conclusion: The response to public health events required strengthening at all levels through promotion and education, by implementing an optimised treatment system and establishing an improved legal mechanism for the treatment of major conditions, such as hierarchical, stratified and triaged infectious diseases.

Keywords: coronavirus disease 2019, major public health events, laws and regulations, cognitive behaviour

Background

The outbreak of coronavirus disease 2019 (COVID-19) remains a major public health emergency. The virus can spread rapidly, has a broad range of infections and presents difficulty in terms of prevention and control, aspects that the international community attaches significant importance to.[1–4]

Coronavirus 2019 is an animal-derived infection that almost everyone is susceptible to.[5–7] It currently continues to spread worldwide and has had a significant impact on people's lives and their health.[3–9] In this context, the Chinese government has taken a series of emergency response measures. According to the law, COVID-19 is classified as a Class-B infectious disease but is treated according to the strict management measures of a Class-A disease. All provinces, autonomous regions and municipalities in the country have successively launched Level-I responses to major public health emergencies.[10] The Central Committee of the Chinese Communist Party attaches great importance to epidemic

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prevention and control and proposes comprehensively improving the country's national public health emergency management system capacity in this regard according to law.[11]

This study investigated and analysed medical personnel in Henan Province to better understand the status quo of their understanding of laws and regulations related to major public health emergencies and countermeasures that can be taken to better formulate prevention and control procedures.

Method

Participants

Medical staff from grades II and III hospitals in 18 cities of Henan Province were selected as study participants. Under the guidance and help of the Henan Nursing Association, the survey was completed with the assistance of leaders at all levels of the nursing associations. The participant inclusion criteria were as follows: (1) registered practitioners in hospitals in Henan Province; (2) medical staff working in secondary and tertiary hospitals, including nursing staff, medical staff and laboratory technicians who had been employed for one year or more; (3) individuals who could use smart mobile terminals to complete the questionnaire; (4) participants who provided informed consent for being included in the research. The exclusion criteria were as follows: individuals who exceed the time specified in the questionnaire. This project was approved by the Ethics Committee of Henan Provincial People's Hospital (approval number: [2020] ethical review no.: [74]).

Research Tools

The questionnaire was designed by the research group to investigate the degree of understanding of major public health events among medical staff in Henan Province.[12] The designed questionnaire by team members in broad access to emergency response law of the People's Republic of China, the law of the People's Republic of China on prevention and control of infectious diseases, emergent public health event emergency ordinance, "the report on public health emergencies and epidemic disease monitoring information management method" and medical personnel related public health events, such as knowledge that is based on the revised formulation of laws and regulations. The questionnaire addressed two areas of cognitive status quo investigation (25 items altogether), ie "general information" and "major public events and rules of the law".

The specific content aimed at medical staff regarding primary emergency response measures could be answered by providing answers in the form of "don't understand", "don't know", "understand", "understanding" and "know".

The medical staff's knowledge of specific content related to major public health events was divided into correct and incorrect numbers. Major public health event-specific content included COVID-19 classification, emergency response level, an understanding of public health emergencies, the refusal to carry out relevant measures, how to accept legal liability, the legal responsibilities of disseminating false information, not obeying the rules and intentionally spreading the virus, and the treatment expense for patients who were suspected of being infected. The frequency of each item was counted and the differences within the collected data were analysed.

The face validation was carried out by two groups, one of which comprised 10 individuals who differed in terms of sex, age and education level; the second group was a panel of four experts with clinical experience of more than five years who evaluated the instrument by considering three scoring criteria, ie comprehension, clarity and accuracy. Using the subsequent results, Fleiss' Kappa index was calculated, which enabled establishing agreement among the panel members about the questionnaire's randomness. Items that obtained values ranging between 0.61 and 0.80 were considered to be satisfactory and were recognised as indicating substantial agreement.[13]

Determining the content validity of the questionnaire was conducted by the same four experts who established the face validity. They evaluated each of the items using three criteria, ie "essential", "useful but not essential" and "not necessary". The content validity ratio (CVR) was calculated according to the data. Additionally, the content validity index of the entire instrument was calculated. A CVR value ≥0.58 was sufficient to consider an item as acceptable,

independent of the number of evaluators.[14] The SPSS Statistics 21.0 (IBM) software program was used for reliability and consistency verification.

Data Collection Methods

The survey was conducted from 15–20 February 2020 using an electronic questionnaire (Questionnaire Star). Based on the need for epidemic prevention and control, the research group invited respondents who met the inclusion criteria to complete the electronic questionnaire via the WeChat application. Before completing the questionnaire, respondents were first informed of the purpose and significance of participating in the survey via a WeChat group notification. The survey was completed by persons in charge of each branch of the Henan Nursing Association who met the inclusion criteria according to their hospitals.

Data Quality Control

To ensure the survey quality, respondents could only complete the survey once from an Internet Protocol address to prevent them from doing so more than once. Following an investigation, invalid cases were deleted and completed manually. According to the average time for completing the survey (1082 ± 446 seconds), cases that took ≤420 seconds or ≥3000 seconds to complete were deleted.

Statistical Methods

The data were exported from the network background and checked by two researchers; they were then summarised and statistically analysed using Excel (v.*) (Microsoft) and the SPSS Statistics 21.0 software program. Descriptive statistical analysis was employed and the counted data were expressed by a range of values, eg the number of cases, the composition ratio and percentage. Chi-squared analysis was conducted to establish the differences between groups; $P < 0.05$ was considered statistically significant.

Results

The face validity reflected results of 0.65 for comprehension, 0.68 for clarity and 0.62 for accuracy as it related to the questionnaire, which denoted substantial agreement. The content validity index was satisfactory with a value of 0.78. Cronbach's alpha was 0.747. The reliability and validity of the questionnaire were in line with the questionnaire standards.

Sample Profile

A total of 42,747 people from tertiary and secondary medical institutions in 18 cities of Henan Province participated in the research, and 42,490 effective questionnaires were obtained after eliminating invalid entries (recovery rate, 99.4%). Among the returned surveys, Zhengzhou accounted for the highest number of completed questionnaires (21.90%), followed by Nanyang (11.46%), Anyang (8.99%), Zhumadian (8.00%), Xinyang (7.19%), Xinxiang (6.72%), Luoyang (6.23%) and Pingdingshan (5.76%), altogether representing the 18 cities and regions of Henan Province included in the study. Additionally, 54.4% of questionnaires were returned from tertiary medical institutions and 42.9% from secondary medical institutions. The mean age of respondents was 32.82 ± 7.66 years.

Medical Personnel are Aware of the Specific Content of a Level-I Emergency Response

The bulk of surveyed medical staff showed an understanding of a Level-I emergency response. There were statistical differences regarding specific content among different departments ($P < 0.05$), with internal medicine and surgical staff reflecting more knowledge and intensive care unit personnel reflecting less knowledge than other departments. There was no significant difference in the specific content knowledge related to a Level-I emergency response among different hospital grades, years of employment, or education levels ($P < 0.05$) (Table 1).

Table 1 Medical Staff's Knowledge of the Specific Contents of Level I Emergency Response

Variables		Number	Know Very Well		Understand Better		To Understand		Do Not Understand		Have No Idea	
			Number	%	Number	%	Number	%	Number	%	Number	%
Department	Internal medicine	11,769	2507	21.3[a]	4718	40.1	3535	30.0[b]	992	8.4	17	0.1
	Surgical	8433	1774	21.0	3452	40.9	2527	30.0	672	8.0	8	0.1
	Intensive care unit	2665	559	21.0	1042	39.1	827	31.0	232	8.7[b]	5	0.2
	Emergency department	1812	384	21.2	737	40.7	570	31.5	120	6.6	1	0.1
	Infectious disease department	750	194	25.9	272	36.3	223	29.7	60	8.0	1	0.1
	Operating room	2911	641	22.0	1113	38.2[b]	937	32.2	215	7.4[b]	5	0.2
	Outpatient service	1943	437	22.5	704	36.2	634	32.6	164	8.4	4	0.2
	Else	10,842	2247	20.7[a]	3974	36.7	3645	33.6[b]	961	8.9	15	0.1[a]
Hospital grade	Level 2	5231	1154	22.1	1934	37.0	1733	33.1	403	7.7	7	0.1
	Level 2 grade a	12,828	2750	21.4	4799	37.4	4195	32.7	1070	8.3	14	0.1
	Level 3	4478	914	20.4	1769	39.5	1374	30.7	415	9.3	6	0.1
	Tertiary hospital	18,588	3925	21.1	7510	40.4	5596	30.1	1528	8.2	29	0.2
Length of service	1–5 years	13,077	2677	20.5	5466	41.8	3872	29.6	1050	8.0	12	0.1
	6–10 years	12,621	2713	21.5	4744	37.6	4057	32.1	1089	8.6	18	0.1
	11–15 years	6448	1499	23.2	2360	36.6	2054	31.9	523	8.1	13	0.2
	More than 15 years	8979	1854	20.6	3443	38.3	2915	32.5	754	8.4	14	0.2
Education	Junior high school and The following	82	12	14.6	37	45.1	26	31.7	7	8.5	0	0.0
	High school	448	82	18.3	135	30.1	194	43.3	37	8.3	0	0.0
	College	12,893	2707	21.0	4835	37.5	4250	33.0	1086	8.4	15	0.1
	Undergraduate	26,680	5739	21.5	10,564	39.6	8137	30.5	2202	8.3	38	0.1
	Master or above	1022	203	19.9	441	43.2	291	28.5	84	8.2	3	0.3

Notes: Intra-group comparison using *F*-test, [a]Indicate $P<0.05$; [b]Indicate $P<0.01$.

Awareness Among Medical Staff of the Specific Content of Major Public Health Events

The score accuracy of COVID-19 classification, an understanding of public health emergencies, and the payment methods of suspected and confirmed patients were generally low. The accuracy rates related to COVID-19 emergency response level, the legal responsibility for refusing to implement relevant measures, the measures to be taken by disease prevention and control agencies when COVID-19 was discovered, as well as the measures that were to be taken to prevent the intentional spread of false information and the virus were high. The number of correct responses improved with an increase in education level and hospital level, and the difference was statistically significant ($P < 0.05$). The number of years that respondents had been employed in a hospital had different effects on the accuracy of various items. Generally speaking, the medical scores of those who had worked in hospitals between 1–5 years were low. There were differences among various departments, and the accuracy of popular science promotion related to infection in surgery/operating room environments was high, as shown in Table 2.

Discussion

3.1 Some medical personnel needed to improve their knowledge of a Level-I response to public health events and the relevant laws and regulations. The results showed that 3.47–32.61% of medical staff had insufficient knowledge about a Level-I response to public health events and the relevant laws and regulations, were unaware of the content and definition of "public health emergencies" and were not informed about the obligations of medical staff in cases where a major public health emergency occurred; this was because the COVID-19 outbreak had occurred suddenly with rapid consequences. Although the State had released information on the pandemic promptly, some medical personnel did not pay sufficient attention to these materials because they were busy.

Table 2 Correct Number of Medical Staff's Knowledge of the Specific Contents of Major Public Health Events (%)

Variables		Number	Classification	Emergency Response Level	Connotation of Public Health Emergencies	Refuse to Implement the Relevant Measures of Legal Liability	What Measures Should be Taken for Confirmed Cases	Legal Responsibility for Spreading False Information	Non-Compliance with Relevant Regulations Should be Held Liable	For Intentionally Spreading the Virus	Payment Method of Treatment Fee for Suspected Patients	Payment Method of Treatment Fees for Confirmed Patients
Department	Internal medicine	12,282	8354 (68.0)	11,769 (95.8)	7768 (63.2)	10,706 (87.2)	11,602 (94.5)[b]	10,711 (87.2)[b]	11,033 (89.8)	11,984 (97.6)	8861 (72.1)	5136 (41.8)
	Surgical	8791	6035 (68.6)[b]	8433 (95.9)	5572 (63.4)	7754 (88.2)[b]	8332 (94.8)[b]	7629 (86.8)	7924 (90.1)[b]	8578 (97.6)	6333 (72.0)	3748 (42.6)[b]
	Intensive care unit	2801	1842 (65.8)[b]	2665 (95.1)	1803 (64.4)	2441 (87.1)	2638 (94.2)	2418 (86.3)	2491 (88.9)	2696 (96.3)[b]	1996 (71.3)	1069 (38.2)[b]
	Emergency department	1898	1286 (67.8)	1812 (95.5)	1216 (64.1)	1641 (86.5)	1778 (93.7)	1638 (86.3)	1660 (87.5)[b]	1849 (97.4)	1352 (71.2)	756 (39.8)
	Infectious disease department	794	593 (74.7)[b]	750 (94.5)	500 (63.0)	693 (87.3)	752 (94.7)	691 (87.0)	711 (89.5)	776 (97.7)	588 (74.1)	333 (41.9)
	Operating room	3064	2089 (68.2)	2911 (95.0)	2040 (66.6)[b]	2701 (88.2)[b]	2902 (94.7)	2702 (88.2)[b]	2783 (90.8)[b]	2989 (97.6)	2124 (69.3)[b]	1239 (40.4)
	Outpatient service	2033	1323 (65.1)[b]	1943 (95.6)	1240 61.0[b]	1713 (84.3)[b]	1872 (92.1)[b]	1696 (83.4)	1788 (87.9)	1981 (97.4)	1434 (70.5)	811 (39.9)
	Else	11,321	6576 (66.9)[b]	10,842 (95.8)	7230 (63.9)	9695 (85.6)[b]	10,550 (93.2)	9677 (85.5)[b]	10,027 (88.6)	11,002 (97.2)	8140 (71.9)	4830 (42.7)[b]
Hospital grade	Level 2	5454	3431 (62.9)[b]	5231 (95.9)	3360 (61.6)[b]	4639 (85.1)[b]	5047 (92.5)	4647 (85.2)	4760 (87.3)[b]	5334 (97.8)[b]	3848 (70.6)	2360 (43.3)[b]
	Level 2 grade a	13,450	8618 (64.1)[b]	12,828 (95.4)[b]	8259 (61.4)	11,696 (87.0)	12,568 (93.4)	11,596 (86.2)[a]	11,983 (89.1)	13,086 (97.3)	9770 (72.6)	5641 (41.9)
	Level 3	4655	3231 (69.4)[b]	4478 (96.2)	2999 (64.4)[b]	4015 (86.3)	4365 (93.8)[a]	3949 (84.8)	4143 (89.0)[b]	4540 (97.5)	3302 (70.9)[a]	1960 (42.1)
	Tertiary hospital	19,425	13,818 (71.1)[b]	18,588 (95.7)	12,751 (65.6)[b]	16,994 (87.5)[b]	18,446 (95.0)	16,970 (87.4)	17,531 (90.2)	18,895 (97.3)	13,908 (71.6)[a]	7961 (41.0)[b]
Length of service	1–5 years	13,709	8792 (64.1)	13,077 (95.4)[b]	8114 (59.2)	11,840 (86.4)[b]	12,798 (93.4)	11,907 (86.9)	12,164 (88.7)[b]	13,307 (97.1)[b]	9690 (70.7)	5395 39.4
	6–10 years	13,154	8618 (65.5)	12,621 (95.9)	8360 (63.6)[a]	11,521 (87.6)[b]	12,388 (94.2)[a]	11,366 (86.4)	11,739 (89.2)	12,855 (97.7)[b]	9311 (70.8)	5228 (39.7)
	11–15 years	6726	4592 (68.3)[a]	6448 (95.9)	4388 (65.2)	5854 (87.0)	6362 (94.6)	5791 (86.1)	6028 (89.6)	6579 (97.8)[b]	4778 (71.0)[a]	2787 (41.4)[a]
	More than 15 years	9392	7096 (75.6)	8979 (95.6)	6507 (69.3)	8129 (86.8)	8878 (94.5)	8098 (86.2)	8486 (90.4)[b]	9114 (97.0)[b]	7049 (75.1)	4512 (48.0)
Education	Junior high school and The following	88	31 (35.2)[b]	82 (93.2)	52 (59.1)[a]	69 (78.4)	76 (6.5)	68 (77.3)[b]	71 (80.7)[b]	81 (92.0)[a]	65 (73.9)[a]	35 (39.8)
	High school	468	236 (50.4)[b]	448 (95.7)	260 (55.6)	377 (80.6)[b]	402 (85.9)	380 (81.2)	389 (83.1)	453 (96.8)	314 (67.1)	177 (37.8)
	College	13,523	8031 (59.4)[b]	12,893 (95.3)[b]	8014 (59.3)	11,485 (84.9)	12,537 (92.7)	11,474 (84.8)	11,844 (87.6)	13,100 (96.9)	9410 (69.6)	5506 (40.7)[b]
	Undergraduate	27,844	19,863 (71.3)[b]	26,680 (95.8)	18,287 (65.7)	24,473 (87.9)	26,410 (94.8)	24,298 (87.3)	25,150 (90.3)	27,205 (97.7)	20,216 (72.6)	11,744 (42.2)[b]
	Master or above	1053	937 (89.0)[b]	1022 (97.1)[b]	756 (71.8)	940 (89.3)[b]	1001 (95.1)[a]	942 (89.5)	963 (91.5)[b]	1016 (96.5)[a]	823 (78.2)	461 (43.8)

Notes: Intra-group comparison using *F*-test, [a]Indicate $P<0.05$; [b]Indicate $P<0.01$.

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The reason for the different levels of specific content knowledge in different departments related to a Level-I emergency response was based on COVID-19 being a respiratory disease and because internal medicine nurses receive most medical treatment. Therefore, internal medicine nurses will have more knowledge than those in other departments and are more likely to pay attention to and understand a corresponding emergency response, while nurses in intensive care units will be focused on the treatment of severely ill patients. As time is not allowed, and thoughts are not valued, there will be a lower level of understanding of the relevant laws and regulations. Therefore, medical staff must pay more attention to epidemic prevention and control, as well as to the laws and regulations related to major public health events so that they can consciously abide by them, provide the correct information to patients and their families, and improve their prevention and control awareness and emergency response capacity.

The Accuracy of Coronavirus 2019 Classification by Medical Staff, Understanding a Public Health Emergency and the Payment Method of Suspected and Confirmed Patients Were Generally Low

Based on the survey results, the respondents reflected a high accuracy rate related to COVID-19 emergency response, the legal responsibility for refusing to implement relevant measures, the processes to be implemented by disease prevention and control agencies for COVID-19 and their responsibility against the intentional spread of false information and the virus itself. The correct rate of COVID-19 classification, an understanding of public health emergencies and the payment methods of suspected and confirmed COVID-19 patients were generally low. The reason for this was that respondents in the pandemic period for sudden public health emergencies status of not enough attention, usually by the government, the media, hospital propaganda, training, etc. If a major public health incident occurs, if no laws and regulations are in place to promptly distribute information, **** will not be able to manage treated patients' isolation and costs correctly. Healthcare workers must not impede the actions of workers and the (CDC) for COVID-19 prevention and control. The prevention and control of the pandemic require the full participation of all healthcare staff. If medical workers on the frontline of the pandemic do not understand the relevant laws and regulations, the prevention and control of COVID-19 will be affected and may even give rise to an irreversible situation. Therefore, leading healthcare departments at all levels must pay attention to and strengthen staff training related to the laws and regulations that are relevant to major public health events to ensure that all workers know and understand them fully.

The Awareness of Medical Personnel of the Specific Content of Major Public Health Events Increases with an Increased Level of Education, Hospital Level and Number of Years Employed

The knowledge of medical staff about the specific content of major public health events increased alongside a higher level of education and hospital level, indicating that medical staff with a higher level of education had better knowledge and culture and were better at paying attention and thinking. The overall level of education and training opportunities for medical staff in high-level hospitals has increased, which has contributed to an increased awareness of the laws and regulations governing major public health emergencies. The low scores of medical staff who had been employed for 1–5 years indicated that those with low seniority were still in the process of mastering the basic knowledge and skills of their profession and their understanding of the relevant laws and regulations required improvement. Therefore, it is suggested that national administrative departments adopt various ways of popularising science and fully utilise the primary role of mass media channels, such as the internet and television news, to do so. The needs of particular groups should be considered, and the role of the community in the dissemination of information should be utilised to ensure that medical personnel have effective channels available and timely access to ensure prevention and control in accordance with the law. Additionally, attention should be paid to the unique role of "we media" channels; ongoing columns should be published on prevention and control based on the law and an authoritative voice to news media and "we media" to reprint and quickly disseminate accurate information about COVID-19 prevention and control, repel rumours with facts and reduce the burden on medical staff in terms of having access to the correct information. Furthermore, the State and the government should organise press conferences, and the legal department of the National Health Commission and

medical insurance departments should publicise information on the necessity and importance of law-based prevention and control.

The Importance of Improving the Medical Staff's Knowledge and Grasp of the Laws and Regulations Concerning Major Public Health Events

"Public health" concerns aspects of people's health and public safety and is both a social and political issue. The rapid spread of COVID-19, the wide range of infections and the significant difficulties related to its prevention and control are major tests for China's public health system and its abilities related to the law-based prevention and control of the pandemic.[15] The awareness rate of medical staff about the laws and regulations of major public health events reflects the importance of medical staff within a pandemic context. This study found that more than 90% of medical personnel had a good understanding of their obligations and legal responsibilities for preventing and controlling the spread of the pandemic. Following long-term development and improvement, China's laws and regulations on public health and the prevention and control of COVID-19 are relatively sound. However, due to the low occurrence probability of major public health events, medical personnel often do not pay enough attention to the laws and regulations of such a context. A lack of awareness about the spread of a pandemic and the speed at which this may occur can have a profound impact on society. For example, such an instance may call into question whether medical personnel will be able to correctly manage the cost of treatment of confirmed and suspected-of-being-ill patients, the cause will be coronavirus pneumonia infection spread or have caused severe danger is the problem of criminal responsibility, for breach of will be coronavirus pneumonia infection prevention and control, do not obey, do not cooperate or government refused to carry out relevant decisions and orders or measures behaviour such as what are legal responsibility.

The legal responsibilities of individuals who fabricate or intentionally disseminate false information about COVID-19 and what can be done to people in related locations where novel coronavirus cases have occurred? Additionally, the measures that should be taken by the CDC in the case of a novel coronavirus infection should be established. The obligations of citizens in the event of a public health emergency and how to dispose of sewage, waste and articles contaminated with the novel coronavirus pathogen should also be addressed in the provisions of laws and regulations. Accordingly, China's public health law remains an imperfect legal system that lacks cohesion, system lag or false, form a complete set of problems, such as an incomplete legal system, In practice, there remains a violation of administration according to law principles, the proportion principle and the phenomenon of the principle of equality, while other parties' right to know and the right of privacy protection must be strengthened. The subjects, procedures and methods of public health monitoring, early warning and publicity must be optimised. Therefore, future efforts should include optimising the treatment system for major epidemics/pandemics and establishing a sound legal mechanism for the treatment of infectious diseases at different levels.

Conclusion

Based on the results of this study, medical staff were generally highly concerned about COVID-19, had a high awareness of prevention and control, effectively carried out healthy behaviours and put measures in place related to disease prevention and control. However, the conducted survey also exposed how poorly health workers understood some of the laws and regulations related to COVID-19. At present, in light of the related issues that were discovered as the pandemic developed, the State and various localities have revised and published relevant laws and regulations to improve the monitoring and early warning system related to infectious diseases, the response reporting systems of departments and persons in charge and the relevant emergency plans. However, laws and regulations on major public health incidents require further revision and improvement to ensure that the relevant laws are adhered to, thereby enabling healthcare workers to protect people's health and their lives.

Data Sharing Statement

All data generated or analyzed during this study are included in this published article.

Ethics Approval

This study was conducted in accordance with the declaration of Helsinki. This study was conducted with approval from the Ethics Committee of Henan Provincial People's Hospital.

Consent to Participate

Written informed consent was obtained from all participants.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

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