

The Efficacy of Rule of Law Publicity Short Video Platforms in the Prevention of Medical Disputes Among Healthcare Professionals: A Propensity Score Analysis

Min Yi¹, Yuebin Cao², Jiangjun Wang³, Chenyi Shi¹, Yalin Cheng¹, Yanlin Cao¹

¹Institute of Medical Information and Library, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, 100020, People's Republic of China; ²Health Commission of Hunan Province, Changsha, 410008, People's Republic of China; ³China-Japan Friendship Hospital, Beijing, 100029, People's Republic of China

Correspondence: Yanlin Cao, Institute of Medical Information and Library, Chinese Academy of Medical Sciences and Peking Union Medical College, No. 3 Yabao Street, Chaoyang District, Beijing, 100020, People's Republic of China, Tel +86-010-52328845, Email cao.yanlin@imicams.ac.cn

Background: Medical disputes are a recurrent and pressing issue in hospitals, posing significant challenges to the functioning of medical institutions. We aimed to investigate whether receiving rule of law publicity on short video platforms is relevant to preventing medical disputes among healthcare professionals.

Methods: We collected the data from 37,978 medical professionals from 130 tertiary public hospitals. Participants were classified into two groups according to the presence of receiving rule of law publicity on short video platforms. A subgroup analysis was performed before and after propensity score analysis, and multiple logistic regression was used to identify risk factors for medical disputes.

Results: Among all participants, 46.1% (17,506/37,978) experienced medical disputes. Before propensity score analysis, the prevalence of medical disputes among participants who received rule of law publicity on short video platforms was similar to that among participants who did not ($P = 0.639$). However, after propensity score analysis, participants who received the rule of law publicity on short video platforms did not show a benefit effect. These participants had a significantly higher rate of suffering from medical disputes than participants who did not receive publicity on this platform ($P=0.020$). Multiple logistic regression analysis confirmed that receiving the rule of law publicity through short video platforms ($P=0.010$) or MicroBlog ($P = 0.016$), and previously facing legal issues outside of medical work ($P < 0.001$) were risk factors for medical disputes; participating in legal training organized by hospitals ($P=0.004$) and the hospital rule of law being very good ($P=0.045$) were protective factors.

Conclusion: Medical disputes are a common occurrence within the healthcare profession. However, using short video platforms to promote the rule of law is not an effective method to prevent disputes. Instead, healthcare professionals can benefit from participating in legal training and having a well-established rule of law within the hospital construct.

Keywords: healthcare professionals, medical disputes, rule of law publicity, short video platforms, construction of hospital rule of law

Introduction

Medical disputes are a pervasive issue within the healthcare system, consistently causing disruptions and challenges for medical institutions.^{1,2} These disputes have profound implications for the individuals involved, including patients, their families, and healthcare professionals.³ Healthcare professionals may face tremendous stress, reputational damage, and increased professional accountability from these disputes,¹ and patients may experience physical and psychological harm, resulting in prolonged suffering, loss of trust in the healthcare system, and disrupted doctor-patient relationships.⁴ Furthermore, these disputes can exacerbate existing emotional distress for both patients and medical practitioners, potentially leading to a decline in the quality of healthcare delivery.

The prevalence of medical disputes necessitates a comprehensive understanding of effective preventive measures.^{5,6} In the global escalation of medical disputes, studies have recognized the importance of measures such as increasing communication and mediation,⁷ strengthening medical technology, and implementing alternative dispute resolution to reduce the number of dispute cases.^{6,8} Notably, in the era of information, short video platforms have become immensely popular, acting as a prominent means of disseminating information.^{9,10} These web-based social media networks offer valuable opportunities for individuals to connect and share experiences and strategies related to health and wellness.¹¹ For instance, a prospective randomized controlled trial demonstrated that a web-based short video intervention can effectively improve blood donation rates.¹² Additionally, occupational therapists can leverage the power of short videos to showcase innovations, build communities of practice, and engage in collaborative efforts to share information about their unique roles in diverse populations.¹³ Furthermore, short video platforms are increasingly being utilized to promote the establishment of the rule of law, aiming to increase legal awareness among the general public.

Nonetheless, the effectiveness of using short video platforms for rule of law promotion, especially in the prevention of medical disputes, remains uncertain. Despite its potential, the efficacy of this method lacks empirical evidence. We, therefore, aimed to investigate whether receiving rule of law publicity on short video platforms is relevant to preventing medical disputes among healthcare professionals.

Methods

Patients

Between July and September 2021, this study collected 37,978 medical professionals from 130 tertiary public hospitals in Hunan province, China. The survey utilized in this study was administered by the Hunan Provincial Health Commission, following a standardized sampling protocol disseminated to lower-level health administrative departments. The target population comprised doctors, nurses, pharmacists, and medical technicians working in tertiary hospitals.

To ensure the validity and reliability of the study, certain exclusions were applied. Administrative staff, medical students, logistics personnel, and individuals displaying reluctance to participate or facing difficulties in cooperation were excluded from the survey. These exclusion criteria aimed to include a specific and relevant participant group representative of healthcare professionals closely involved in medical dispute scenarios.

Ethical approval was obtained from the Hunan Provincial Health Commission (No. 2021–17) prior to conducting the study. All participating hospitals were thoroughly briefed on the purpose and methodology of the survey and expressed their complete understanding and support for the study. The participation of healthcare professionals in the survey was entirely voluntary, and each participant provided their informed consent prior to engaging in the study. Those who chose not to participate were not included in the data collection. To ensure the integrity of the data, only participants who completed the entire survey were allowed to submit their responses online. This approach prevented any missing data from being included in the analysis. In addition, participant confidentiality was safeguarded by designing the survey to be anonymous, with no collection of personal identifying information. The study strictly adhered to the ethical principles outlined in the Declaration of Helsinki, providing guidelines for research involving human participants.

Characteristics

Participant's demographics, hospital classification, hospital legal construction status, and approaches of receiving rule of law publicity were collected. Demographics included occupation, technical title, sex, age, and previously facing legal issue outside of medical works; Hospital classification included hospital type, hospital category, tertiary hospital level; Hospital legal construction status included establishment of hospital legal construction, examination of law popularization among hospital staffs, hospital's publicity of rule of law for staffs, and construction status of hospital rule of law. Approaches to learn about the rule of law included receiving the rule of law through popular legal or knowledge-based websites, MicroBlog, short video platform (such as Tiktok and Kwai), television, community publicity, social publicity (for example, videos, broadcasts, billboards, and other forms of media on public transportation during commute times), and colleagues or friends, and participating in legal training organized by hospitals.

All these clinical characteristics were self-reported by participants based on their actual conditions. The professional and technical rank of the participants at the time of the survey was classified as senior title, vice senior title, middle title, or junior title,²

collectively referred to as the technical title. If a participant held a senior or vice senior title, they were categorized as having an above middle level title. On the other hand, if a participant held a middle or junior title, they were categorized as having a middle or below title. Hospital rule of law was defined as the principle and practice of applying legal norms and regulations within a healthcare institution. It related to the establishment and enforcement of laws, policies, and procedures that govern the operations, decisions, and conduct of individuals and entities within the hospital setting. Medical disputes referred to conflicts, disagreements, or legal disputes that arise between healthcare providers and patients or their families regarding issues related to medical treatment, diagnosis, or healthcare services.¹⁴ These disputes often arise when there is a perceived failure or negligence in the diagnosis, treatment, or management of a medical condition, resulting in harm, injury, or dissatisfaction on the part of the patient or their family. Medical disputes may involve issues such as medical malpractice, informed consent, medical billing and costs, patient rights, and quality of care. We defined the variable of “previously face legal issues outside of their medical work” as encountering legal disputes in daily life.¹⁵

Statistical Analysis

The data obtained from the survey were analyzed and presented using proportions. To compare the outcomes between two groups based on the presence or absence of receiving rule of law publicity on short video platforms, subgroup analysis was conducted both before and after propensity score analysis. Propensity score analysis,¹⁶ a statistical method used to address potential confounding variables and minimize any baseline differences, was employed in this study. Propensity scores were calculated using a psmatch model that incorporated all relevant variables. To ensure balanced and comparable cohorts, a “psmatch method=greedy (k=1)” algorithm with a 1:1 ratio and a “caliper width=0.25” were applied. This method established two separate cohorts with equal number of participants, balancing baseline characteristics. Furthermore, multiple logistic regression analysis was performed to identify the potential risk factors associated with medical disputes. This statistical approach allowed for the assessment of the impact of various factors on the occurrence of medical disputes. The statistical analysis was conducted using SAS 9.4 and R programming language 4.1.2. A significance level of $P < 0.05$ was selected as the threshold for determining statistical significance.

Results

Participant's Baseline Characteristics

A total of 37,978 individuals participated in this study. The majority of the hospitals included were public (95%) and categorized as general hospitals (63.7%) (Table 1). The majority of hospitals were Class A tertiary hospitals (56.9%). The occupations of the participants included doctors (39.4%), nurses (41.6%), pharmacists (8.0%), and medical technicians (11.0%). Approximately 20.3% of the participants held technical titles above the middle level, while 79.7% held titles at the middle level or below. The gender distribution was 29.0% male and 71.0% female.

Most hospitals had established legal constructions (95.8%). The majority of participants (93.2%) learned about the rule of law through popular legal or knowledge-based websites. Other sources of learning about the rule of law included MicroBlog (78.4%), television (74.7%), community publicity (67.9%), and social publicity (65.9%), and colleagues or friends (42.3%). A significant proportion (82.2%) of participants reported participating in legal training organized by their hospitals. Over half of the participants (52.5%) had previously faced legal issues outside of their medical work. When asked about the construction status of hospital rule of law, 39.7% of participants considered it to be very good, while 60.3% considered it to be not very good. Finally, 46.1% of participants reported having experienced medical disputes.

Prevalence of Medical Disputes Before and After Propensity Score Analysis

Table 1 provides a comprehensive comparison of characteristics between participants who received and learned about the rule of law through short video platforms and those who did not, before propensity score analysis. The results indicated significant differences between the two groups in various aspects, such as hospital category ($P = 0.024$), tertiary hospital level ($P < 0.001$), occupation ($P < 0.001$), technical title ($P < 0.001$), sex ($P < 0.001$), age ($P < 0.001$), establishment of hospital legal construction ($P < 0.001$), examination of law popularization among hospital staffs ($P < 0.001$), hospital's publicity of rule of law for staffs ($P < 0.001$), and methods of learning about the rule of law ($P < 0.001$). Interestingly, the prevalence of medical disputes among

Table 1 A Comparison of Characteristics Among Participants with and without Learning About the Rule of Law Through Short-Video Platforms Before Propensity Score Analysis

| Characteristics | Overall | Learn About the Rule of Law Through Short-Video Platforms | | P |
|--|---------------------------|---|-------------------------|--------|
| | | No | Yes | |
| n | 37,978 | 13,582 | 24,396 | |
| Hospital type (Public/Private, %) | 36,079/1899 (95.0/5.0) | 12,926/656 (95.2/4.8) | 23,153/1243 (94.9/5.1) | 0.266 |
| Hospital category (%) | | | | 0.024 |
| General | 24,189 (63.7) | 8741 (64.4) | 15,448 (63.3) | |
| Traditional Chinese Medicine | 8144 (21.4) | 2808 (20.7) | 5336 (21.9) | |
| Specialized | 5645 (14.9) | 2033 (15.0) | 3612 (14.8) | |
| Tertiary hospital level (%) | | | | <0.001 |
| Class A | 21,616 (56.9) | 7935 (58.4) | 13,681 (56.1) | |
| Class B | 5233 (13.8) | 1775 (13.1) | 3458 (14.2) | |
| Others | 11,129 (29.3) | 3872 (28.5) | 7257 (29.7) | |
| Occupation (%) | | | | <0.001 |
| Doctor | 14,951 (39.4) | 6097 (44.9) | 8854 (36.3) | |
| Pharmacist | 3038 (8.0) | 1320 (9.7) | 1718 (7.0) | |
| Nurse | 15,807 (41.6) | 4556 (33.5) | 11,251 (46.1) | |
| Medical technicians | 4182 (11.0) | 1609 (11.8) | 2573 (10.5) | |
| Technical title (Above middle/ middle or below, %) | 7722/30,256 (20.3/79.7) | 3486/10,096 (25.7/74.3) | 4236/20,160 (17.4/82.6) | <0.001 |
| Sex (Male/Female, %) | 11,013/26,965 (29.0/71.0) | 4455/9127 (32.8/67.2) | 6558/17,838 (26.9/73.1) | <0.001 |
| Age (years, %) | | | | <0.001 |
| <30 years | 10,590 (27.9) | 3054 (22.5) | 7536 (30.9) | |
| 30–39 years | 17,014 (44.8) | 5820 (42.9) | 11,194 (45.9) | |
| 40–49 years | 7917 (20.8) | 3472 (25.6) | 4445 (18.2) | |
| ≥50 years | 2457 (6.5) | 1236 (9.1) | 1221 (5.0) | |

| | | | | |
|---|---------------------------|-------------------------|---------------------------|--------|
| Establishment of hospital legal construction (%) | | | | <0.001 |
| Yes | 36,378 (95.8) | 12,905 (95.0) | 23,473 (96.2) | |
| No | 128 (0.3) | 57 (0.4) | 71 (0.3) | |
| Unknown | 1472 (3.9) | 620 (4.6) | 852 (3.5) | |
| Examination of law popularization among hospital staffs (No/Yes, %) | 5082/32,896 (13.4/86.6) | 2595/10,987 (19.1/80.9) | 2487/21,909 (10.2/89.8) | <0.001 |
| Hospital's publicity of rule of law for staffs (No/Yes, %) | 2785/35,193 (7.3/92.7) | 1699/11,883 (12.5/87.5) | 1086/23,310 (4.5/95.5) | <0.001 |
| Learn about the rule of law through popular legal or knowledge-based websites (No/Yes, %) | 2573/35,405 (6.8/93.2) | 1473/12,109 (10.8/89.2) | 1100/23,296 (4.5/95.5) | <0.001 |
| Learn about the rule of law through MicroBlog (No/Yes, %) | 8199/29,779 (21.6/78.4) | 5886/7696 (43.3/56.7) | 2313/22,083 (9.5/90.5) | <0.001 |
| Learn about the rule of law through television | 9606/28,372 (25.3/74.7) | 6285/7297 (46.3/53.7) | 3321/21,075 (13.6/86.4) | <0.001 |
| Learn about the rule of law through community publicity of rule of law | 12,208/25,770 (32.1/67.9) | 6989/6593 (51.5/48.5) | 5219/19,177 (21.4/78.6) | <0.001 |
| Learn about the rule of law through social publicity of rule of law | 12,936/25,042 (34.1/65.9) | 7586/5996 (55.9/44.1) | 5350/19,046 (21.9/78.1) | <0.001 |
| Participating in legal training organized by hospitals (No/Yes, %) | 6767/31,211 (17.8/82.2) | 3329/10,253 (24.5/75.5) | 3438/20,958 (14.1/85.9) | <0.001 |
| Learn about the rule of law through colleagues or friends | 21,932/16,046 (57.7/42.3) | 11,209/2373 (82.5/17.5) | 10,723/13,673 (44.0/56.0) | <0.001 |
| Previously facing legal issue outside of medical works (No/Yes, %) | 18,031/19,947 (47.5/52.5) | 6667/6915 (49.1/50.9) | 11,364/13,032 (46.6/53.4) | <0.001 |
| Construction status of hospital rule of law (Not very good/Very good, %) | 22,893/15,085 (60.3/39.7) | 9523/4059 (70.1/29.9) | 13,370/11,026 (54.8/45.2) | <0.001 |
| Medical disputes (No/Yes, %) | 20,472/17,506 (53.9/46.1) | 7299/6283 (53.7/46.3) | 13,173/11,223 (54.0/46.0) | 0.639 |

participants who received the rule of law publicity through short video platforms was found to be similar to that among participants without receiving it (46.0% vs 46.3%, $P=0.639$). It is noteworthy that the proportion of participants who learned about the rule of law through short video platforms varied across different characteristics, suggesting potential differences in the impact of this mode of learning.

After conducting propensity score analysis, a total of 6890 participants were included, with 3455 participants in each group. The analysis revealed that all relevant variables were perfectly comparable between the two groups (All $P=1.000$, Table 2). Under such circumstance, participants with receiving the rule of law publicity through short video platforms were found to have a significantly higher rate of experiencing medical disputes compared to those who did not receive it (48.0% vs 45.2%). This trend was statistically significant ($P=0.020$), indicating that the exposure to information about the rule of law through short video platforms may contribute to an increased risk of medical disputes.

Risk and Protective Factors for Medical Disputes Identified by Multiple Logistic Regression Analysis

The identification of risk and protective factors for medical disputes was carried out using multiple logistic regression analysis. Prior to propensity score analysis, several factors were found to be associated with lower odds of medical disputes. These factors included being in a private hospital ($P=0.015$), belonging to the Traditional Chinese Medicine ($P<0.001$) or specialized ($P<0.001$) hospital category, occupation as a pharmacist ($P<0.001$), nurse ($P<0.001$), or medical technician ($P<0.001$), having a technical title at or below middle level ($P<0.001$), being female ($P<0.001$), learning about the rule of law through television ($P=0.026$), participating in legal training organized by hospitals ($P<0.001$), the hospital publicity of rule of law for staff ($P<0.001$), and a very good construction status of hospital rule of law ($P<0.001$) (Table 3). On the other hand, factors associated with higher odds of medical disputes included older age ($P<0.001$), learning about the rule of law through popular legal or knowledge-based websites ($P=0.031$), short video platforms ($P=0.002$), and MicroBlog ($P=0.049$), and previously facing legal issues outside of medical works ($P<0.001$).

After conducting propensity score analysis, it was further revealed that hospital category, occupation, technical title, sex, age, learning about the rule of law through short video and MicroBlog, participating in legal training organized by hospitals, previously facing legal issues outside of medical works, and construction status of hospital rule of law were significantly associated with medical disputes (Table 4). In detail, being in the Traditional Chinese Medicine ($P<0.001$) or specialized ($P=0.013$) hospital category, occupation as a pharmacist ($P<0.001$) or medical technician ($P<0.001$), having a technical title at or below middle level ($P<0.001$), being female ($P<0.001$), participating in legal training organized by hospitals ($P=0.004$), and having a very good construction status of hospital rule of law ($P=0.045$) were identified as protective factors against medical disputes. Conversely, older age ($P<0.001$), learning about the rule of law through short video platforms ($P=0.010$) or MicroBlog ($P=0.016$), and previously facing legal issues outside of medical works ($P<0.001$) were identified as risk factors (Figure 1).

Discussion

Main Findings

We examined the effectiveness of rule of law publicity on short video platforms in preventing medical disputes among healthcare professionals. Our findings revealed that receiving such publicity did not have a beneficial effect in preventing medical disputes. In fact, participants who received rule of law publicity on short video platforms had a higher rate of experiencing medical disputes compared to those who did not. Additionally, we identified other risk factors for medical disputes, such as previous legal issues outside of medical work. Conversely, participating in legal training organized by hospitals and having a well-established rule of law construction in hospitals were found to be protective factors against medical disputes. These results highlight the importance of comprehensive strategies, including targeted legal training and improvements in the legal infrastructure of healthcare institutions, to reduce medical disputes among healthcare professionals.

Table 2 A Comparison of Characteristics Among Participants with and without Learning About the Rule of Law Through Short-Video Platforms After Propensity Score Analysis

| Characteristics | Overall | Learn About the Rule of Law Through Short-Video Platforms | | P |
|--|-----------------------|---|----------------------|-------|
| | | No | Yes | |
| n | 6890 | 3445 | 3445 | |
| Hospital type (Public/Private, %) | 6824/66 (99.0/1.0) | 3412/33 (99.0/1.0) | 3412/33 (99.0/1.0) | 1.000 |
| Hospital category (%) | | | | 1.000 |
| General | 4834 (70.2) | 2417 (70.2) | 2417 (70.2) | |
| Traditional Chinese Medicine | 1324 (19.2) | 662 (19.2) | 662 (19.2) | |
| Specialized | 732 (10.6) | 366 (10.6) | 366 (10.6) | |
| Tertiary hospital level (%) | | | | 1.000 |
| Class A | 4324 (62.8) | 2162 (62.8) | 2162 (62.8) | |
| Class B | 722 (10.5) | 361 (10.5) | 361 (10.5) | |
| Others | 1844 (26.8) | 922 (26.8) | 922 (26.8) | |
| Occupation (%) | | | | 1.000 |
| Doctor | 3048 (44.2) | 1524 (44.2) | 1524 (44.2) | |
| Pharmacist | 346 (5.0) | 173 (5.0) | 173 (5.0) | |
| Nurse | 2968 (43.1) | 1484 (43.1) | 1484 (43.1) | |
| Medical technicians | 528 (7.7) | 264 (7.7) | 264 (7.7) | |
| Technical title (Above middle/ middle or below, %) | 1530/5360 (22.2/77.8) | 765/2680 (22.2/77.8) | 765/2680 (22.2/77.8) | 1.000 |
| Sex (Male/Female, %) | 1858/5032 (27.0/73.0) | 929/2516 (27.0/73.0) | 929/2516 (27.0/73.0) | 1.000 |
| Age (years, %) | | | | 1.000 |
| <30 years | 1582 (23.0) | 791 (23.0) | 791 (23.0) | |
| 30–39 years | 3514 (51.0) | 1757 (51.0) | 1757 (51.0) | |
| 40–49 years | 1504 (21.8) | 752 (21.8) | 752 (21.8) | |
| ≥50 years | 290 (4.2) | 145 (4.2) | 145 (4.2) | |

(Continued)

Table 2 (Continued).

| Characteristics | Overall | Learn About the Rule of Law Through Short-Video Platforms | | P |
|---|-----------------------|---|-----------------------|-------|
| | | No | Yes | |
| Establishment of hospital legal construction (%) | | | | 1.000 |
| Yes | 6856 (99.5) | 3428 (99.5) | 3428 (99.5) | |
| No | 0 (0.0) | 0 (0.0) | 0 (0.0) | |
| Unknown | 34 (0.5) | 17 (0.5) | 17 (0.5) | |
| Examination of law popularization among hospital staffs (No/Yes, %) | 290/6600 (4.2/95.8) | 145/3300 (4.2/95.8) | 145/3300 (4.2/95.8) | 1.000 |
| Hospital's publicity of rule of law for staffs (No/Yes, %) | 74/6816 (1.1/98.9) | 37/3408 (1.1/98.9) | 37/3408 (1.1/98.9) | 1.000 |
| Learn about the rule of law through popular legal or knowledge-based websites (No/Yes, %) | 74/6816 (1.1/98.9) | 37/3408 (1.1/98.9) | 37/3408 (1.1/98.9) | 1.000 |
| Learn about the rule of law through MicroBlog (No/Yes, %) | 858/6032 (12.5/87.5) | 429/3016 (12.5/87.5) | 429/3016 (12.5/87.5) | 1.000 |
| Learn about the rule of law through television | 1348/5542 (19.6/80.4) | 674/2771 (19.6/80.4) | 674/2771 (19.6/80.4) | 1.000 |
| Learn about the rule of law through community publicity of rule of law | 1944/4946 (28.2/71.8) | 972/2473 (28.2/71.8) | 972/2473 (28.2/71.8) | 1.000 |
| Learn about the rule of law through social publicity of rule of law | 2172/4718 (31.5/68.5) | 1086/2359 (31.5/68.5) | 1086/2359 (31.5/68.5) | 1.000 |
| Participating in legal training organized by hospitals (No/Yes, %) | 706/6184 (10.2/89.8) | 353/3092 (10.2/89.8) | 353/3092 (10.2/89.8) | 1.000 |
| Learn about the rule of law through colleagues or friends | 5020/1870 (72.9/27.1) | 2510/935 (72.9/27.1) | 2510/935 (72.9/27.1) | 1.000 |
| Previously facing legal issue outside of medical works (No/Yes, %) | 3142/3748 (45.6/54.4) | 1571/1874 (45.6/54.4) | 1571/1874 (45.6/54.4) | 1.000 |
| Construction status of hospital rule of law (Not very good/Very good, %) | 4364/2526 (63.3/36.7) | 2182/1263 (63.3/36.7) | 2182/1263 (63.3/36.7) | 1.000 |
| Medical disputes (No/Yes, %) | 3677/3213 (53.4/46.6) | 1887/1558 (54.8/45.2) | 1790/1655 (52.0/48.0) | 0.020 |

Table 3 Multiple Logistic Regression Analysis of Characteristics for Predicting Medical Disputes Before Propensity Score Analysis

| Characteristics | OR | 95% CI | | P |
|--|-------|--------|-------|--------|
| | | LL | UL | |
| (Intercept) | 1.708 | 1.657 | 1.761 | <0.001 |
| Hospital type | | | | |
| Public | Ref. | | | |
| Private | 0.973 | 0.952 | 0.995 | 0.015 |
| Hospital category | | | | |
| General | Ref. | | | |
| Traditional Chinese Medicine | 0.954 | 0.943 | 0.966 | <0.001 |
| Specialized | 0.969 | 0.956 | 0.982 | <0.001 |
| Tertiary hospital level | | | | |
| Class A | Ref. | | | |
| Class B | 0.986 | 0.973 | 1.000 | 0.053 |
| Others | 0.985 | 0.974 | 0.995 | 0.005 |
| Occupation | | | | |
| Doctor | Ref. | | | |
| Pharmacist | 0.818 | 0.803 | 0.833 | <0.001 |
| Nurse | 0.978 | 0.967 | 0.990 | <0.001 |
| Medical technicians | 0.817 | 0.804 | 0.830 | <0.001 |
| Technical title | | | | |
| Above middle | Ref. | | | |
| Middle or below | 0.878 | 0.866 | 0.891 | <0.001 |
| Sex | | | | |
| Male | Ref. | | | |
| Female | 0.889 | 0.878 | 0.899 | <0.001 |
| Age | | | | |
| <30 years | Ref. | | | |
| 30–39 years | 1.058 | 1.046 | 1.070 | <0.001 |
| 40–49 years | 1.148 | 1.130 | 1.166 | <0.001 |
| ≥50 years | 1.168 | 1.142 | 1.195 | <0.001 |
| Establishment of hospital legal construction | | | | |
| Yes | Ref. | | | |
| No | 0.991 | 0.916 | 1.072 | 0.823 |
| Unknown | 0.976 | 0.953 | 1.001 | 0.059 |

(Continued)

Table 3 (Continued).

| Characteristics | OR | 95% CI | | P |
|---|-------|--------|-------|--------|
| | | LL | UL | |
| Examination of law popularization among hospital staffs | | | | |
| No | Ref. | | | |
| Yes | 0.998 | 0.983 | 1.013 | 0.821 |
| Hospital's publicity of rule of law for staffs | | | | |
| No | Ref. | | | |
| Yes | 0.964 | 0.945 | 0.984 | <0.001 |
| Learn about the rule of law through popular legal or knowledge-based websites | | | | |
| No | Ref. | | | |
| Yes | 1.022 | 1.002 | 1.043 | 0.031 |
| Learn about the rule of law through short video platforms | | | | |
| No | Ref. | | | |
| Yes | 1.018 | 1.007 | 1.030 | 0.002 |
| Learn about the rule of law through MicroBlog | | | | |
| No | Ref. | | | |
| Yes | 1.013 | 1.000 | 1.027 | 0.049 |
| Learn about the rule of law through television | | | | |
| No | Ref. | | | |
| Yes | 0.986 | 0.973 | 0.998 | 0.026 |
| Learn about the rule of law through community publicity of rule of law | | | | |
| No | Ref. | | | |
| Yes | 1.007 | 0.994 | 1.021 | 0.288 |
| Learn about the rule of law through social publicity of rule of law | | | | |
| No | Ref. | | | |
| Yes | 1.000 | 0.986 | 1.013 | 0.964 |
| Participating in legal training organized by hospitals | | | | |
| No | Ref. | | | |
| Yes | 0.963 | 0.949 | 0.977 | <0.001 |
| Learn about the rule of law through colleagues or friends | | | | |
| No | Ref. | | | |
| Yes | 1.011 | 1.000 | 1.022 | 0.050 |

(Continued)

Table 3 (Continued).

| Characteristics | OR | 95% CI | | P |
|--|-------|--------|-------|--------|
| | | LL | UL | |
| Previously facing legal issue outside of medical works | | | | |
| No | Ref. | | | |
| Yes | 1.291 | 1.279 | 1.304 | <0.001 |
| Construction status of hospital rule of law | | | | |
| Not very good | Ref. | | | |
| Very good | 0.980 | 0.971 | 0.990 | <0.001 |

Table 4 Multiple Logistic Regression Analysis of Characteristics for Predicting Medical Disputes After Propensity Score Analysis

| Characteristics | OR | 95% CI | | P |
|------------------------------|-------|--------|-------|--------|
| | | LL | UL | |
| (Intercept) | 1.555 | 1.347 | 1.796 | <0.001 |
| Hospital type | | | | |
| Public | Ref. | | | |
| Private | 1.037 | 0.928 | 1.158 | 0.524 |
| Hospital category | | | | |
| General | Ref. | | | |
| Traditional Chinese Medicine | 0.947 | 0.920 | 0.974 | <0.001 |
| Specialized | 0.955 | 0.921 | 0.990 | 0.013 |
| Tertiary hospital level | | | | |
| Class A | Ref. | | | |
| Class B | 0.985 | 0.949 | 1.022 | 0.412 |
| Others | 0.980 | 0.955 | 1.005 | 0.115 |
| Occupation | | | | |
| Doctor | Ref. | | | |
| Pharmacist | 0.825 | 0.783 | 0.869 | <0.001 |
| Nurse | 0.975 | 0.948 | 1.003 | 0.077 |
| Medical technicians | 0.807 | 0.773 | 0.842 | <0.001 |
| Technical title | | | | |
| Above middle | Ref. | | | |
| Middle or below | 0.853 | 0.823 | 0.885 | <0.001 |

(Continued)

Table 4 (Continued).

| Characteristics | OR | 95% CI | | P |
|---|-------|--------|-------|--------|
| | | LL | UL | |
| Sex | | | | |
| Male | Ref. | | | |
| Female | 0.907 | 0.880 | 0.934 | <0.001 |
| Age | | | | |
| <30 years | Ref. | | | |
| 30–39 years | 1.074 | 1.045 | 1.105 | <0.001 |
| 40–49 years | 1.165 | 1.118 | 1.214 | <0.001 |
| ≥ 50 years | 1.167 | 1.094 | 1.245 | <0.001 |
| Establishment of hospital legal construction | | | | |
| Yes | Ref. | | | |
| Unknown | 0.924 | 0.790 | 1.080 | 0.319 |
| Examination of law popularization among hospital staffs | | | | |
| No | Ref. | | | |
| Yes | 0.985 | 0.929 | 1.044 | 0.602 |
| Hospital's publicity of rule of law for staffs | | | | |
| No | Ref. | | | |
| Yes | 1.046 | 0.932 | 1.173 | 0.445 |
| Learn about the rule of law through popular legal or knowledge-based websites | | | | |
| No | Ref. | | | |
| Yes | 1.040 | 0.932 | 1.160 | 0.486 |
| Learn about the rule of law through short video platforms | | | | |
| No | Ref. | | | |
| Yes | 1.029 | 1.007 | 1.051 | 0.010 |
| Learn about the rule of law through MicroBlog | | | | |
| No | Ref. | | | |
| Yes | 1.044 | 1.008 | 1.081 | 0.016 |
| Learn about the rule of law through television | | | | |
| No | Ref. | | | |
| Yes | 0.980 | 0.951 | 1.011 | 0.211 |
| Learn about the rule of law through community publicity of rule of law | | | | |
| No | Ref. | | | |
| Yes | 1.007 | 0.975 | 1.040 | 0.677 |

(Continued)

Table 4 (Continued).

| Characteristics | OR | 95% CI | | P |
|---|-------|--------|-------|--------|
| | | LL | UL | |
| Learn about the rule of law through social publicity of rule of law | | | | |
| No | Ref. | | | |
| Yes | 1.014 | 0.982 | 1.047 | 0.409 |
| Participating in legal training organized by hospitals | | | | |
| No | Ref. | | | |
| Yes | 0.942 | 0.905 | 0.981 | 0.004 |
| Learn about the rule of law through colleagues or friends | | | | |
| No | Ref. | | | |
| Yes | 1.018 | 0.992 | 1.045 | 0.174 |
| Previously facing legal issue outside of medical works | | | | |
| No | Ref. | | | |
| Yes | 1.272 | 1.243 | 1.301 | <0.001 |
| Construction status of hospital rule of law | | | | |
| Not very good | Ref. | | | |
| Very good | 0.977 | 0.954 | 0.999 | 0.045 |

Epidemiology of Medical Disputes

Our findings revealed a staggering prevalence of medical disputes, with approximately 46.1% of participants reporting their personal experiences with such conflicts. Previous studies have also shed light on this matter, with a study among hospital administrators reporting a prevalence of 41.53%.² Additionally, varying populations and regions have exhibited a prevalence ranging from 34.1% to 46.06%.¹⁵ The significance of these findings was further underscored by a nationwide survey conducted in China in 2021, which revealed that 31.06% of doctors have grappled with medical disputes involving patients.¹⁷ Furthermore, the incidence of medical disputes is steadily rising,¹⁴ with a substantial impact on hospitals and medical institutions worldwide. Given the alarmingly high prevalence rate, it is of utmost importance to identify and implement effective preventive measures aimed at mitigating the complex challenges posed by medical disputes.

Factors Contributing to Increased Medical Disputes Due to Short Video Platforms

We aimed to examine the impact of specific forms of rule of law promotion on the prevention of medical disputes, shedding light on the role of short video platforms in this regard. Remarkably, our findings challenge the commonly held notion that rule of law publicity on short video platforms is advantageous in averting medical disputes among healthcare professionals. On the contrary, our propensity score analysis revealed a concerning trend, with short video platforms contributing to an increase in medical disputes. Intriguingly, a similar effect was observed when rule of law information was received through MicroBlog. These groundbreaking outcomes stand as the first empirical evidence demonstrating the potential drawbacks of utilizing short video platforms and other social media channels for rule of law promotion in the context of medical disputes.

This effect may be explained by the following reasons. Firstly, these platforms often prioritize sensationalism and entertainment value over accurate and comprehensive information.¹⁸ As a result, the content disseminated may lack the necessary context and nuance required to understand complex legal principles related to medical disputes. This can lead

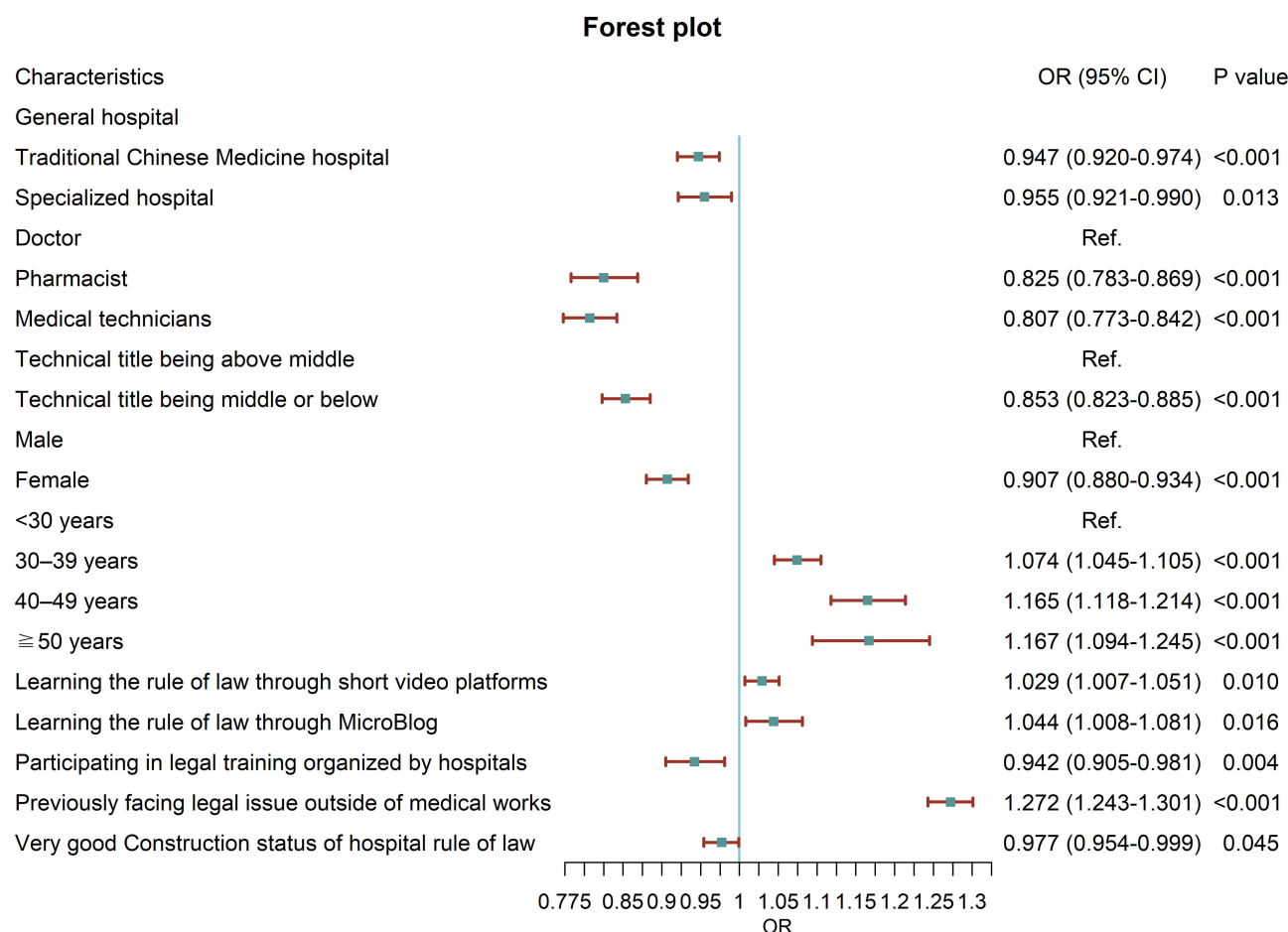


Figure 1 Forest plot of significant variables for predicting medical disputes after propensity score analysis.

to misunderstandings, misinterpretations, and the dissemination of misinformation, thereby exacerbating tensions and increasing the likelihood of disputes. In addition, false information might be spread due to the “echo chamber” effect.⁹ Secondly, the brevity and rapid consumption nature of short videos may not allow for a thorough and complete understanding of the legal complexities surrounding medical disputes. Legal concepts and regulations that require detailed explanations and contextualization may be oversimplified or misrepresented in these platforms, leading to inadequate comprehension among healthcare professionals. Inadequate understanding may inadvertently lead to miscommunication, mishandling of cases, and the escalation of disputes. Media plays a significant role in framing the responsibility for medical disputes in China.¹⁹ The media tends to attribute personal more often than societal causes for medical disputes, and focuses more on post-event solutions rather than preventive actions in addressing these disputes. Additionally, the media’s framing of responsibility for medical disputes lacks balance, preventing people from developing well-informed opinions on the matter.¹⁹ Furthermore, the lack of direct interaction and personalized guidance inherent in short video platforms can further hinder the proper understanding of legal principles. Medical professionals may not have the opportunity to seek clarifications or engage in meaningful discussions with legal experts, which may further contribute to the perpetuation of misconceptions and erroneous beliefs about medical disputes. Lastly, the highly visual nature of short video platforms may contribute to a culture of blame and scapegoating in medical disputes. When complex legal issues are condensed into short videos with simplistic narratives, the focus may shift to assigning responsibility and finding fault rather than seeking constructive solutions. This can potentially create a hostile environment for healthcare professionals, leading to an increase in disputes.

Measures to Overcome the Limitations of Short Video Platforms

We further confirmed that certain factors act as protective measures against medical disputes. Specifically, participating in legal training organized by hospitals and having a well-established rule of law within the hospital construct were found to be significant protective factors. These findings underscore the crucial significance of acquiring a comprehensive understanding of the legal intricacies surrounding medical disputes. Engaging in legal training organized by hospitals or governments provides healthcare professionals with essential knowledge and skills regarding the legal framework governing their practice.²⁰ This comprehensive training equips the professionals with the necessary tools to navigate the complexities of medical disputes, empowering them to make informed decisions and take appropriate actions. By augmenting their legal literacy, healthcare professionals are better equipped to handle challenging situations, effectively communicate with patients, and mitigate potential conflicts.

Meanwhile, considering the high proportion of participants involved in legal issues outside of medical spheres, hospitals may need to directly provide legal aid for their staff. These aid aims to not only deal with medical disputes but also tackle legal issues in medical workers' daily lives. Furthermore, the construction of a strong rule of law framework within hospitals has proven to be instrumental in preventing medical disputes. An environment that prioritizes and upholds the rule of law establishes clear guidelines, policies, and procedures, fostering transparency, accountability, and consistency. A well-constructed rule of law framework ensures that healthcare professionals understand their rights and responsibilities, promotes fairness and justice in the resolution of disputes, and reduces the likelihood of conflicts arising from ambiguous or subjective situations. Our findings convincingly demonstrate that investing in legal training and establishing robust rule of law practices within hospitals play a pivotal role in minimizing the occurrence of medical disputes. These protective factors emphasize the paramount importance of healthcare professionals having a comprehensive understanding of the legal complexities surrounding their field. By empowering healthcare professionals with the necessary legal knowledge and fostering a supportive rule of law environment, we can proactively address and prevent medical disputes, enhancing the quality of healthcare delivery.

Implications for Healthcare Institutions and Policymakers

We identified several unmodifiable risk factors that contribute to the occurrence of medical disputes among healthcare professionals. These findings are consistent with previous studies,^{2,3,15,21–23} which further strengthen their significance. Recognizing and addressing these unmodifiable risk factors can empower healthcare institutions and policymakers to develop targeted interventions and strategies that effectively address the specific challenges faced by healthcare professionals at higher risk of medical disputes. In addition, the implementation of protective factors, as mentioned earlier, can complement these interventions and strategies. A holistic approach that combines the recognition of unmodifiable risk factors and the promotion of protective factors can help establish a more harmonious and effective healthcare system. Such a system would not only benefit healthcare providers but also prioritize the wellbeing and satisfaction of patients.

Furthermore, it is crucial to emphasize the importance of effective preventive measures. Comprehensive legal training for healthcare professionals is essential to mitigate the impact of inherent risk factors. By ensuring that medical institutes have a robust rule of law framework in place, healthcare institutions and policymakers can contribute to a more transparent and accountable healthcare system. This, in turn, instills trust among healthcare professionals and patients, mitigating the occurrence of medical disputes.

Limitations

We acknowledged that our study had some limitations. Firstly, the study relied on self-reported data, which may be subject to recall bias and social desirability bias. Participants may have underreported or overreported their experiences with medical disputes or their exposure to rule of law publicity on short video platforms. Secondly, the study design was cross-sectional, which limits the establishment of causal relationships. While the propensity score analysis controlled for confounding factors, it is still possible that unmeasured factors, such as individual characteristics or external events, influenced the outcomes. Longitudinal or experimental designs would provide stronger evidence of the causal effects of rule of law publicity on short video platforms in preventing medical disputes. Thirdly, the study only examined the impact of receiving rule of law publicity on short video platforms and did not explore the specific content or quality of

the information provided. The effectiveness of rule of law publicity may vary depending on the accuracy, depth, and comprehensiveness of the content. Further research should evaluate the content of rule of law publicity on short video platforms to better understand its potential influence on medical disputes. Finally, although the study revealed a statistically significant difference in the prevalence of medical disputes between the two groups, it is essential to further investigate the clinical implications of a mere 2.8% increase in medical disputes among participants exposed to rule of law publicity. This study highlights the need for further research and the development of targeted interventions to effectively address the challenges posed by medical disputes in healthcare settings.

Conclusions

Our findings highlight the prevalence of medical disputes in healthcare settings, underscoring the need for targeted interventions and preventive measures. Contrary to expectations, receiving the rule of law publicity through short video platforms is not a beneficial way in preventing medical disputes. This study emphasizes the crucial role of comprehensive legal training and effective rule of law practices in mitigating medical disputes among healthcare professionals.

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author Yanlin Cao, upon reasonable request.

Ethics Approval and Consent to Participate

Ethical approval for this study was granted by the Hunan Provincial Health Commission (No. 2021-17). The participation of healthcare professionals in the survey was voluntary, and informed consent was obtained from each participant before their involvement in the study. Furthermore, the study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki, which provides guidelines for the ethical conduct of medical research involving human participants.

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, revised or critically reviewed 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

The authors declare that they have no competing interests.

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