



Risk Aversion and Mental Health Education of Medical Students from the Network Communication of Doctor-Patient Conflict: A Case Study of Dr. Yang Wen's Death in China

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ABSTRACT

Violence against doctors caused by the escalation of doctor-patient conflict has a huge impact on the medical industry, at the same time becomes an important research topic of global medical education. And, the Chinese public pay close attention to the cases of this violence. The paper was based on the text analysis of the popular articles and comments on WeChat, the new mainstream media, about the recent serious cases of violence against doctors in Beijing, China. It explored the focus of the media and the public in China's network communication on the conflicts between doctors and patients, and analyzed some important topics in medical education, such as the form of network communication and public trust. In the context of China's Internet, the study found that media reports and public messages about doctor-patient conflicts called for more protection and legal recourse and so on for medical practitioners, in addition to focusing on the event itself. Moreover, violence against doctors caused by the current misunderstanding of doctor-patient relationship in China had an adverse impact on medical staff, medical students and their relatives and friends. The relationship between doctors and patients, which overemphasized patient-centered, often ignored the feelings of medical staff. In order to reduce the occurrence and influence of doctor-patient conflicts, this paper put forward three aspects suggestions for medical student education, including preventing doctor-patient conflicts, alleviating doctor-patient conflicts and avoiding stress trauma.

1. Introduction

Hospital workplace violence (HWPV) is defined by WHO as the occurrence of medical staff that are abused, threatened or attacked in the workplace, leading to clear or implicit challenges to their safety, well-being and health (WHO, 2002). Hospital workplace violence includes physical violence and psychological violence, which not only brings physical and mental injury to the medical staff, but also has a serious and long-term impact on the medical institutions and social interests. In view of this, it should be attached great importance to by all sectors of society. In recent years, due to information asymmetry between doctors and patients and other reasons, the relationship between doctors and patients is not optimistic, and violent conflicts often occur. The wounded are not only one doctor, but also the workers of the whole medical system.

In present China, there are many reports about doctor-patient conflicts and disputes in various media and websites. Some conflicts have not been resolved in time and escalated into violent medical incidents, which quickly become the focus of social attention. Information dissemination from network media can let us see a Doctor-patient Conflict event from the beginning and accumulation of contradictions, to the outbreak, to legal

accountability and the spread of social opinion. It should be analyzed the possible harm caused by these links and expand to medical education to make adjustments that can avoid the occurrence of conflicts and minimize the harm. Therefore, this study aims to solve the following problems: How are violent medical injuries reported and spread in the context of Internet in China? How to prevent conflicts between doctors and patients? After the incident, how to avoid psychological trauma? What adjustments and changes should be made to medical education? In order to avoid the occurrence of hospital violence and reduce the psychological injury of the related population, this paper provides reference for medical student training institutions to understand the network communication of doctor-patient relationship and carry out targeted and effective early warning training.

2. Literature Review

A large number of medical injuries have a great negative impact on the medical staff. The questionnaires were conducted among 300 nursing students from graduate schools, undergraduate institutions and junior colleges. The results showed that the career choice trend of nursing students was related to their professional values.

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The professional values were related to their education level, language attack and physical attack in medical injury, sexual harassment and the time of the occurrence. Meanwhile, the career choice trend was related to language attack and physical attack in medical injury and the time of the occurrence (Li, Pei, Wu, & Wang, 2018). The violent injury will bring incalculable physical and mental injury to medical workers and cause the loss of excellent human resources in the medical system. Therefore, how to regulate the relationship between doctors and patients, prevent the occurrence of violent incidents and how to effectively carry out medical education to avoid the psychological stress response caused by violent medical incidents are very important. Existing researches show that risk aversion can be carried out from the perspectives of improving the internal quality and external conditions of medical staff, as follows:

A study in Switzerland of 2495 medical staff showed that 50% of them had experienced violence in the past year, 11% of them had experienced violence in the past week, but only 16% of them had received relevant training (Hahn, Hantikainen, Needham, Kok, Dassen, & Halfens, 2012). Looking back on the research of communication skills training in medical education, we could see that most students who had received specific courses had improved their ability to establish harmonious relationship, which proved the effectiveness of teaching communication skills to avoid risks (Smit, Hanson, Tewksbury, Christy, Talib, Harris, Beck, & Wolf, 2007). On the basis of improving the internal communication literacy of medical staff and promoting the establishment of good doctor-patient relationship, the research of Wei, Xu and Wu (2019) further clarified the course of action, emphasized the intermediary role of patients' trust in medical staff between doctor-patient communication and risk perception of patients. The relatively low level of risk perception of patients, such as medical uncertainty, means that patients have inadequate preparation for treatment uncertainty. Nevertheless, good doctor-patient communication and patients' trust in medical staff help to solve this problem (Singh, 2016), reduce patients' perceived risks of medical uncertainties and avoid the occurrence of doctor-patient conflicts.

The model of "patient-centered" emphasizes patients' wishes and emotions. Doctors provide patients with enough opportunities for self-expression and more information, which can effectively avoid doctor-patient conflicts. However, excessive emphasis on "patient-centered" often ignores the doctor's feelings. When the Doctor-patient Conflict escalates to the violent injury, it will not only cause serious physical and mental injury to the doctor involved, but also have a negative impact on the mental health of all medical staff, shake their professional beliefs and cause occupational panic. A study had shown that 12%, 22% and 60% of oncologists felt depressed, anxious and tired at work respectively. At the same time, the study suggested that increasing external professional recognition and reducing workload could effectively improve this situation (Paiva, Martins, & Paiva, 2018).

Some researchers have realized that it is also very important for medical students to relieve anxiety and stress and prevent burnout. Fares, Saadeddin, Al Tabosh, Aridi, El Mouhayyar, Koleilat, Chaaya, & El Asmarl(2016) proposed that medical educators should recognize the causes, performance and consequences of students' psychological problems, such as stress, anxiety and burnout. It was suggested that medical schools provide vocational information and life guidance, or organize student groups to provide opportunities for students to express, analyze and share feelings. Considering the current frequent conflicts between doctors and patients, psychological education for medical students should have a long-term effect in addition to coping with the worries of students. In teaching, medical students can receive avoidance education for potential trauma faced by front-line medical staff. At present, there are few researches in this field. However, we can draw on the training experience of other industries, such as firefighters, to carry

out psychological education for medical students and avoid the risk of trauma. Some researchers showed that Mindfulness Based Stress Reduction(MBSR) can achieve this goal (Turkal, Richardson, Cline, & Guimond, 2018). For doctor-patient disputes, China's state institutions often use Buying Stability to deal with social conflicts. In hospital, money redemption has become the main solution. The response to "medical trouble" is tolerance within a certain range, and even forms a price bargaining mechanism (Zhang, 2017). In view of this, it is necessary to strengthen the legal education for medical students and help students form the correct concept of using legal weapons to protect themselves.

3. Research methods

Sample and Procedure

The study selected the case that had a great influence on Chinese media recently as the research object and collected data from relevant network texts. In the early morning of December 24, 2019, Yang Wen, an emergency doctor of Beijing Civil Aviation General Hospital, was stabbed repeatedly in the neck by a patient's son with a sharp knife in the emergency room and died. Sun Wenbin, the murderer, was ruthless and behaved badly. The incident caused a mighty uproar on the Internet. On December 27, 2019, Sun Wenbin, the murderer, was arrested on suspicion of intentional homicide. On December 28, 2019, the Standing Committee of the National People's Congress voted to pass the Basic Healthcare and Health Promotion Law in order to protect the personal safety and dignity of medical staff and guarantee the legitimate rights of those who seek medical treatment. It was determined that it would be implemented on June 1, 2020. On January 16, 2020, the Third Intermediate People's Court of Beijing sentenced Sun Wenbin to death for intentional homicide and deprived him of political rights for life.

China's WeChat official account is one of the most popular We Media in China, which is also the basis for data collection in this study. Since the launch of WeChat official account in 2012, the number of official accounts and the number of users have been increasing dramatically. In 2019, WeChat's monthly active users have exceeded 1.1 billion. As a new media form, WeChat has broadened and reconstructed the media ecosystem with strong communication power, covering power and influence in the public opinion field (Xiang, & Shen, 2019), which not only has a huge audience, but also has the characteristics of timely information dissemination, convenient user interaction and so on (Luo, & Wang, 2019).

Measures and Analysis

The research is divided into three phases: in the first stage, hot articles were analyzed to instruct the context of the event and the new media's reporting situation. Based on the effective communication power of WeChat official account, the article search was conducted on WeChat platform with "Yang Wen" as the key word, and the top 100 articles were selected for reading. Natural Language Processing to Information Retrieval (NLPIR) was adopted for text processing. Keywords in 100 popular articles were identified and statistically analyzed. Then, the research computerized the weighting of the importance of texts based on features such as word frequency, word length, part of speech, location, and Internet high frequency words, calculated the feature weights of keywords, outputted the selected characteristic words in descending order (Chen, Xia, & Chen, 2019) and classified key words in order to further clarify the focus of the relationship between doctors and patients in network communication.

In the second stage, based on the interactive characteristics of the comment area, the research analyzed the text of the comments and found the characteristics of communication. A huge number of

users were involved in comments on hot texts and relevant public comments also made the events keep spreading in the Internet context. Therefore, the research selected the comments of 100 articles as the carrier, analyzed the weight of keywords through text mining and discussed the response of the public based on the comments of articles. In the third stage, with the help of WeChat index, the process of the event was reproduced and analyzed. WeChat index is the mobile terminal index based on big data, and popularity displayed by which comes from the comprehensive analysis of WeChat search, articles of official accounts and Friends' Circles. Based on WeChat index, the network communication situation of doctor-patient relationship can be visualized so as to prevent and avoid the violent injury in teaching.

The research selected 100 hot articles and comments on WeChat official accounts as samples, analyzed the weight of keywords by text mining and then used the WeChat index to comprehend the mobile terminal popularity of keywords and their changes. There are three research questions in this paper: What are the main concerns of the Internet media when they report the violent medical injuries? What are the main concerns of public comments on these online reports of violent medical injuries? What is the trend of thinking caused by medical injuries in network communication?

4. Results

Text Analysis of Articles

Through the weight analysis of NLPPIR, 100 hot articles on WeChat were analyzed. The top 20 key words were classified to

reflect the core issues that the network media paid attention to when they reported the violent medical events. In descending order of weight, they are: 21% of doctors, 16% of patients, 13% of others, 12% of protection mechanism, 11% of doctor-patient relationship, 10% of killers, 9% of industry thinking and 8% of victims. In the top 20 keywords (Table 1), the weight of doctors ranked first. In the core topic classification (Figure 1), the weight of doctors' group keywords also ranked first. It showed that when online media reported on violent medical injuries, it was not limited to the event itself, but more attention was paid to the medical staff represented by Dr. Yang.

Further analysis of the text showed that in the face of the occurrence of violent medical injuries, the most concern of network communication was the doctor group, including the regret for Dr. Yang's death and the indignation and inequality of the social situation of the doctor group. The attribution analysis of the event showed that network communication was more concerned with the relationship between doctors and patients. Conflicts between doctors and patients occurred frequently because of the asymmetric information, the emotional tension of patients, poor communication between doctors and patients and medical expenses. From the 9th "doctor-patient relationship" and the 18th "doctor-patient dispute", the internet media were also thinking about this, calling on all sectors of the society to pay attention to the violent medical events, calling for building doctor-patient trust and urging the National Health Commission to speed up the pace of medical reform in order to put an end to the abnormal doctor-patient relationship.

Table 1. Top 20 keywords of weight ranking in report texts

	Key words	Part of speech	Weights	Word frequency		Key words	Part of speech	Weights	Word frequency
1	Doctor	n	322.27	2670	11	Traumatic event	n_new	72.87	66
2	Hospital	n	181.41	1071	12	Dr. Yang	n_new	68.23	68
3	Sun Wenbin	nr	152.93	224	13	Society	n	68.04	211
4	Sufferer	n	147.66	612	14	Family	n	67.84	450
5	Medical	n	127.25	707	15	Event	n	61.3	298
6	Patient	n	99.05	390	16	Might	v	61.12	209
7	Yang Wen	nr	98.6	790	17	Work	vn	59.49	202
8	Medical staff	n_new	92.01	168	18	Doctor-patient	n_new	59.17	42
9	Doctor-patient Relationship	n_new	83.33	47	19	Dispute	n	58.28	204
10	China	ns	76.45	294	20	Murderer			
						See	v	57.79	158

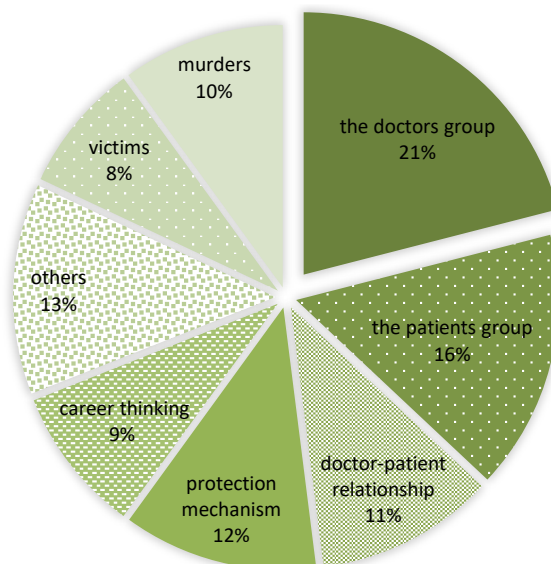


Figure 1 The theme of violent medical injuries focused by internet media

5. Text Analysis of Message

The research analyzed the message texts of 100 WeChat hot articles and classified the top 20 key words to reflect the core themes that the public paid attention to in the communication of violent medical events. The key topics were listed in descending order of weight: 25% of doctors, 18% of protection mechanisms, 17% of patients, 12% of industry thinking, 10% of doctor-patient relationship, 10% of others, 5% of victims and 3% of laws. The particularity of the public message in the report of violent medical injuries was that most of the message holders were potential patients, but the public obviously paid more attention to the doctor group than the patient group in the message. The weight of "doctor" and "medical staff" were in the first and fifth places respectively (Table 2), and the sum of the weights of "doctors", "industry thinking" and "protection mechanism" was more than half, which showed that the public actively appealed for the establishment of protection mechanism for medical staff and put forward suggestions on hospital security inspection, police-medical collaboration, etc. Compared with online media reporting that mainly based on the event itself, the public paid less attention to the murderer and paid more attention to the victims. They spoke for the medical staff and actively appealed for an effective solution

mechanism for such violence. Part of the public resorted to the law and called for legislative protection and legal accountability.

The public network reviews also include empathy caused by such incidents. Most noteworthy, message users of medical official accounts are mostly medical workers, medical students and doctors who have been transferred. For the death of Dr. Yang, they are strongly emotional and mixed with anger, panic and sadness. Some emergency doctors described their working environment as "like walking on thin ice", denouncing the indifferent attitude of some members of the public and demanding that killers be severely punished to prevent imitations in the society. Some medical students said that they had shaken their original intention because education always blindly required doctors to offer and serve, but ignored the rights of medical staff. They questioned that the system always tended to protect patients and hoped that the perpetrators of violence could be punished according to the deserts. Such feedback was consistent with the results of the Survey on the Situation of Violent Injuries in Hospitals of China Hospital Association in 2012: 60% of medical staff thought that the current employment environment was poor, nearly 40% had the idea of changing careers, and 16% said that they firmly disagreed with their children to study or practice medicine (Jia, Zhou, Zhao, Zheng, Wei, & Zheng, 2014). Violent injuries have serious adverse effects on doctors, which is also a great test for the firmness of doctors' professional outlook.

Table 2 Top 20 keywords of weight ranking in message texts

Sort	Key words	Part of speech	Weights	Word frequency	Sort	Key words	Part of speech	Weights	Word frequency
1	Doctor	n	409.07	3192	11	see	v	86.99	322
2	Hospital	n	256.5	1167	12	work	vi	86.18	283
3	Medical	n	142.97	626	13	Family	n	80.98	358
4	Sufferer	n	141.34	503	14	Country	n	76.95	198
5	Medical staff	n_new	137.79	219	15	Teacher	n	74.3	190
6	Patient	n	136.57	419	16	Event	n	73.74	266
7	Doctor-patient relationship	n_new	133.83	128	17	Law	n	71.88	201
8	Dr. Yang	n_new	117.42	181	18	no	d	71.6	642
9	Medical trouble	n_new	110.41	150	19	see the doctor	vi	68.54	237
10	Society	n	101.92	461	20	Health care workers	n_new	68.34	131

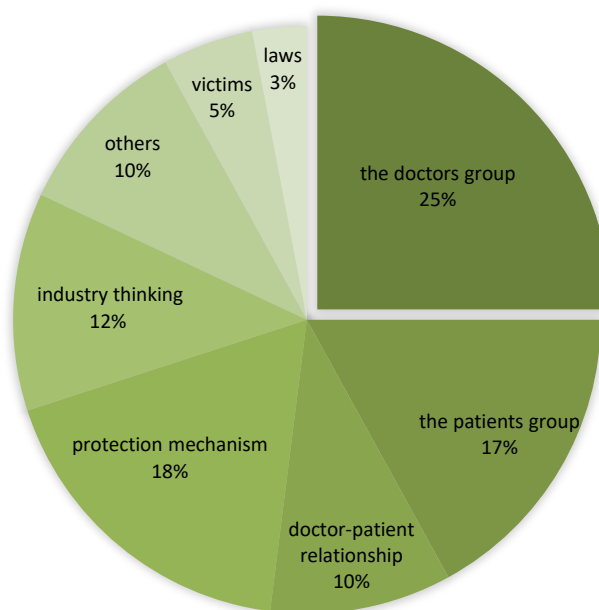


Figure 2 The core theme of violent medical injury events concerned by the public message

lifestyles, who reconciles individual and community health requirements and who is able to work efficiently in teams. To achieve this goal, it is very important to train medical students in management strategies and communication skills. Teaching medical students communication skills with patients before or in

clinical environment can improve students' performance (Smith, Hanson, Tewksbury, Christy, Talib, Harris, Beck, & Wolf, 2007), especially in the emergency department, pediatrics department, surgery department, etc., which are prone to cause emotional tension of relatives and difficult to control.

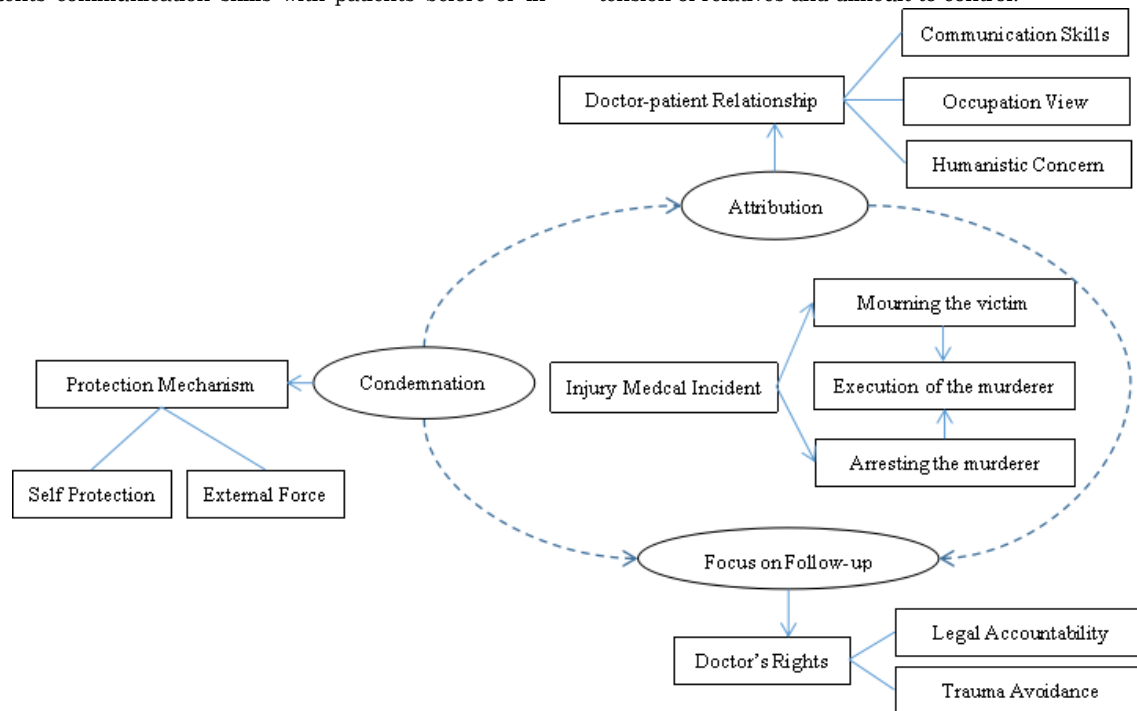


Figure 4 Influencing factor model in the process of violent medical injury events

In the process of teaching, students are no longer the passive recipients of knowledge, but the solvers of problems. They are motivated to think, propose solutions and mainly focus on three aspects of providing information, paying attention to emotions and making joint decisions (Deveugele, Derese, De Maesschalck, Willems, Van Driel, & De Maeseneer, 2005). In the process of treatment, we should establish a good doctor-patient relationship and improve the trust of patients to medical staff so as to reduce the risk perception of patients. Therefore, it is necessary to develop doctor-patient communication methods, strengthen medical humanities education, establish a good doctor-patient relationship and share information between doctors and patients. Doctors support patients to think and express themselves and pay attention to the needs and psychological status of patients and their families. Meanwhile, trust should play an intermediary role in the communication and the risk cognition of patients (Wei, Xu, & Wu, 2019). At the same time, medical students should learn to identify high-risk groups. The perpetrators of the violent medical injury incident mainly have characteristics of low education level and poor family. Some of them have mental problems and often feel angry with doctors because of incurable diseases. Most of the perpetrators do not have medical disputes with hospitals and are mostly convicted of criminal crimes (Wang, Wang, Cao, Zhao, Cheng, & Zheng, 2014). Medical students should be alert to this kind of crowd in the work and try to get cooperation through communication to ensure own safety.

7. Multiple ways to alleviate Doctor-patient Conflict

The theory and practice course of "patient-centered" evidence-based medicine should be developed to teach communication skills, professional ideology and humanistic care, and establish a healthy and equal doctor-patient relationship. The traditional doctor-patient relationship is a "doctor-centered" paternalistic relationship. In this mode, patients are at an information disadvantage. Hospitals and

medical staff usually have information advantages, which may not be conducive to patient care, lead to inaccurate information held by patients and mislead patients' psychology or behavior (Liang, Gu, Tao, Jain, Zhao, & Ding, 2017). In recent years, the level of education has been generally improved. The popularity of the Internet puts the mixed good and bad information in front of the patients. The patients have more information, but it is not necessarily true or applicable. The paternalistic diagnosis and treatment also causes the patients to question, which makes the situation become more complex.

Medical educators should recognize the importance of "patient-centered" nursing, emphasize the particularity of each patient, pay attention to the patient's ideas, preferences, emotions and information needs, and attach importance to the humanistic care of patients. Doctors should ask the patient's medical history in communication to help patients fully express the ideas, understand patients and explore the pressure in patients' lives in order to promote the cooperation between doctors and patients and give effective support to the diagnosis and treatment. "Patient-centered" means that doctors do not limit themselves to "patients' diseases", but focus on "the patients with diseases" to understand the real causes of patients' situations and the most real wishes and needs of patients (Bensing, 2000).

The quantitative survey on the attitude of medical students to patient-centered care found that compared with the lower grade, the higher grade students supported the doctor-centered or paternalistic attitude (Haidet, Dains, Paterniti, Hechtel, Chang, Tseng, & Rogers, 2002). It shows that when evidence-base medicine is patient-centered, blindly emphasizing "patient-centered" will ignore the professionalism of doctors in the process of diagnosis and treatment. The core issue of medical attention is the biomedical mechanism of disease, not patient preference. Medical students should establish equal friendly relations with patients and their families, maintain a polite and friendly attitude, make clear

patients' worries and fears, use simple words (without medical terms) to convey the true diagnosis and treatment status (Singh, 2016) and let them feel that they are taken seriously. Patients trust doctors, doctors care for patients, so as to create a good doctor-patient relationship.

Avoid stress trauma

Stress is a non-specific systemic response when the body is strongly stimulated by various factors. Psychological stress is a normal life experience, not a disease or pathological process. Moderate stress is conducive to improving the body's coping mechanism and better adapting to the environment, but excessive or long-term stress will cause people to fall into a lasting state of physical and mental tension. If not improved in time, it will seriously disrupt the functions of the nervous system, endocrine system and immune system, so that the body will fall into a sub-health state or disease (Sun, 2005). It mainly manifests in physiology, emotion, cognition and behavior, of which the emotional changes are most prominent (Wang & Luo, 2003).

The people affected by trauma in stress events are divided into three levels: the first level is the survivors and the wounded, the second level is the relatives, colleagues, friends and witnesses of the victims, and the third level is rescue workers, firefighters, police, medical personnel, media workers and volunteers (Sha, Zhang, Zhong, Zu, & Yang, 2008). Taking the medical staff involved in the killing of Dr. Yang Wen as an example, Dr. Yang who was injured by the conflict belongs to the first-class crowd. Dr. Yang's colleagues who witnessed the violence belong to the superposition of first-class and second-class. The medical staff who continued to treat the killer's mother afterwards belong to the superposition of second-class and third-class. In addition, more medical staff know about the incident in the news report, which belong to the hidden secondary trauma-affected population. It can be seen that violence in medical places will not only bring different degrees of physical loss, dysfunction or permanent disability to the victims, but also cause psychological stress trauma to the medical staff in a very wide range.

In view of this, it is necessary to train medical students, improve their self-efficacy and optimize their attribution methods to alleviate the negative effects of stress on their physical and mental health (Liu, 2003). We should develop trauma avoidance training courses to enable medical students to learn stress management and other individual centered treatment strategies (Paiva, Martins, & Paiva, 2018). Cognitive psychological intervention can change people's irrational beliefs, arouse positive emotions, improve anxiety and depression, stimulate self potential and improve confidence (Zhang et al., 2016). Mindfulness Based Stress Reduction (MBSR) can effectively alleviate the influence of perceived pressure, job burnout of students (Turkal, Richardson, Cline, & Guimond, 2018) and the psychological impact of violent conflict events on medical students in order to avoid possible negative effects such as low enthusiasm for work, decreased job satisfaction, absence, sabotage, decreased loyalty to the organization, depression, decreased self-confidence, sleep disorders, decreased quality of life and family breakdown (Sofield, & Salmond, 2003).

In addition, some investigations show that when the doctor-patient conflict occurs, the medical staff usually lack self-protection. On the one hand, the medical staff out of the professional particularity are not willing to affect their work, which is usually "can bear it"; on the other hand, the doctor's counterattack will be legally recognized as fighting, and the violent attacker cannot be punished (Fu, 2013). The lack of self-protection behavior of medical staff not only exposes themselves to the dangerous working environment, but also makes the perpetrators more arrogant and reduces the cost of crime. In medical education, we should strengthen the teaching of anti-riot knowledge, so that medical staff can carry out effective self-protection in the face of the

emergency. At the same time, we should strengthen the legal consciousness of medical students, so that students can understand the legal procedures for the treatment of doctor-patient disputes and the burden of proof of both sides, timely obtain evidence and seek legal help, and better use legal weapons to protect their rights and interests.

8. Conclusion

Based on the Internet text, this study analyzed the focus and characteristics of the network communication of the doctor-patient relationship. It is found that in the daily work of the hospital, "patient-centered" is often emphasized, but the needs of the clinical front-line staff are ignored. Medical violence seriously threatens the safety and health of the medical staff, undermines the normal operation order of the hospital and the quality of diagnosis and treatment services. The public is very concerned about this.

The occurrence of medical injuries has a negative impact on the enthusiasm of medical staff and medical students. The resignation or transfer of medical staff has resulted in the loss of excellent human resources in the medical industry, affected the long-term development of the industry, brought adverse demonstration to the society and intensified social instability. In order to avoid the occurrence of doctor-patient conflicts, medical education should cultivate the communication ability of medical students, establish the professional concept, strengthen the humanistic care for patients and their families, establish a healthy and equal doctor-patient relationship, alleviate the contradictions between doctors and patients and rebuild the trust relationship. In order to reduce the physical and mental injury of medical accidents to students, the medical education should carry out courses in accordance with the relevant laws, self-protection and psychological intervention, so as to avoid the injury in the conflict and alleviate the possible job burnout. At the same time, the follow-up research still needs to explore how to strengthen the learning and training of medical students in response to special events, avoid the harm caused by emergencies and focus on the psychological education of medical students.

The research links medical education with network communication. The development of medical education should be in line with the real situation in the workplace, avoid working behind closed doors, optimize teaching content and cultivate medical staff who are "To Cure Sometimes, To Relieve Often, To Comfort Always" in order to build an equal and healthy doctor-patient relationship, establish a positive image of the industry (Singh, 2016) and avoid the risk of doctor-patient conflicts. Violent medical injuries are not isolated cases, nor the problems of a few hospitals, doctors or patients, but the reflection of social contradictions in hospitals. Improving the relationship between doctors and patients requires the joint efforts of the whole society (Wang, Wang, Cao, Zhao, Cheng, & Zheng, 2014). The government should increase social security efforts and give social security and high attention to vulnerable groups, which will be conducive to the prevention of violent medical injuries.

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