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The Influence of Legal Training for Doctors on Medical Disputes

LIU Linxia

Doctor of Management

Supervisors:
PhD Luis Martins, Associate Professor,
ISCTE University Institute of Lisbon

PhD Weidong Xia, Professor,
Florida International University

April, 2021

BUSINESS
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Marketing, Operations and General Management Department

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April, 2021

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LIU Linxia

Declaration

I declare that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university and that to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: Liu Linxia Date: March 6. 2021

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作者申明

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Abstract

In the context of rule by law in China and law-based management in hospitals, it is an efficient way to reduce the occurrence of disputes through improving the medical staff's professional literacy and keeping doctors abreast of the latest legal provisions concerning the rights and obligations of patients. Many studies have proposed measures to reduce medical disputes and to strengthen the legal knowledge training for medical staff. However, legal training for medical staff in Chinese medical institutions is still relatively traditional, which cannot reach the goal of reducing medical disputes.

Considering the root causes of medical disputes in China, the realistic background of high incidence of medical disputes and the necessity of legal training for doctors, the following issues are studied: (1) What are the factors that affect the effectiveness of legal training for doctors? (2) What are the impacts of training for doctors to practice by law on reducing patient complaints, medical disputes and enhancing doctors' law awareness?

This thesis adopts quantitative research methods. On the premise of analyzing 10-year data and big data of medical dispute litigation, the research data was obtained through the doctor's legal demand scale, the doctor's cognition scale and the sample collection (such as questionnaire). With SPSS statistical analysis software, all the questionnaires were analyzed by single factor, multiple factor analysis and linear regression analysis.

The effectiveness evaluation of legal training for doctors adopts Kirkpatrick's four-level evaluation model, filling the application blank of the Chinese doctors' legal training evaluation theory in the field of Kirkpatrick's four-level evaluation.

The findings may be of reference significance for doctors' legal training, reducing the incidence of medical disputes and improving the doctor-patient relationship. However, due to the shortcomings of sample data and cross-sectional research design, the research results still have some limitations.

Keywords: Attending doctor; Doctor's legal training; Patient's legal rights; Medical disputes

JEL: I110; M14

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Resumo

De acordo com a legislação para a governação dos hospitais há uma modo eficiente de reduzir a ocorrência de litígios através da melhoria da literacia profissional do corpo clínico providenciando-lhes a informação respeitante aos direitos e obrigações dos doentes. Autores diversos têm vindo a propor medidas para reduzir os disputas litigiosas dos médicos e todos referem a importância do fortalecimento do conhecimento jurídico na formação do corpo clínico. No entanto, a formação nesta área do pessoal médico em instituições médicas chinesas ainda é relativamente tradicional, não tendo este tipo de formação atingido ainda o objetivo de reduzir significativamente os litígios.

Considerando a sequência de causas dos litígios médicos na China, a constatação da alta incidência de disputas litigiosas e a necessidade de formação jurídica dos médicos, coloca questões a serem estudadas: (1) Quais são os fatores que afetam a eficácia da formação dos médicos para atuarem de acordo com a lei? (2) Quais são os impactos da formação jurídica dos médicos na redução de reclamações dos doentes, diminuindo os litígio e controvérsias e aumentando a consciencialização dos médicos sobre a legislação existente?

A presente pesquisa adota método quantitativos. Foram analizados dados de 10 anos do contencioso médico.

Os dados da pesquisa foram obtidos de acordo com várias escalas. Utilizando o software de análise estatística SPSS, analisamos os questionários recorrendo à análise fatorial e análise de regressão linear simples e multifatorial. A avaliação da validade da formação jurídica dos médicos adota a avaliação dos quatro níveis de Kirkpatrick, que vem preencher as lacunas da avaliação existente da formação jurídica dos médicos chineses .

As conclusões podem ser significativas e servirem de referência para a formação jurídica dos médicos, reduzindo a incidência de disputas litigiosas e melhorando a relação médico-doente. No entanto, devido às limitações da amostra e design da pesquisa, os resultados apresentam algumas limitações.

Palavras-chave: Médico assistente; Formação jurídica dos médicos; Direitos legais dos doentes; Litígios médicos

JEL: I110; M14

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摘　要

在依法治国、医院依法治院环境下，提高医务人员依法执业素养，让医师及时知晓关于患者权利和义务的最新法律规定，是减少纠纷发生的一种途径。许多论文提出减少医疗纠纷的对策，并且都提到加强医务人员的法律知识培训。但当前中国医疗机构对医务人员法律培训还比较传统，最终培训结束后没有达到减少医疗纠纷发生的目的。

结合中国医疗纠纷发生的根因，本研究立足于中国当前医疗纠纷高发的现实背景以及医师法律培训的必要性，研究如下问题：(1)影响医师法律培训有效性的因素有哪些？(2)医师法律培训对降低患者投诉、减少医疗纠纷提高医师法律意识影响因素有哪些？

本研究采用定量研究方法，在通过分析归档 10 年数据和医疗纠纷诉讼大数据的前提下，根据医师法律需求量表、医师认知量表及样本收集(问卷形式等)得出研究数据，使用 SPSS 统计学分析软件，对问卷进行单因素、多因素的因子分析和线性回归分析。

医师法律培训的有效性评估采用柯氏四级评估模型方法，填补了中国医师法律培训评估理论在柯氏四级评估领域的应用空白。

这些研究可能对于中国医师法律培训、降低医疗纠纷发生及改善医患关系实践是具有参考意义的。然而,由于样本数据收集和横断面研究设计的不足,研究结果还存在一定局限性。

关键词：主治医师；医师法律培训；患者法定权利；医疗纠纷

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Encouraged by my husband, persevering in my pursuit of dreams, I embarked on my PhD career in 2016. From the science of law to management science, I have entered a brand-new world with timidity and panic. I purchased 11 textbooks for master's degree on "public health policy and management" from the time of admission, and I have finished reading them within one year. Besides, I have visited 8 countries, such as the UK, France, the Netherlands, Finland, Denmark and Sweden. Theory and practice laid the foundation for my study of this subject. At the same time, I gave what I have learned back to the community. During my PhD study, I was invited to give a total of 30 lectures for about 5,000 people. Part of my research went through the project evaluation of the National Health Commission of China. I won the prize and my research has been promoted in medical and health institutions nationwide. The four years were hard, but I have nothing to regret. I finished my thesis today, and at this special moment, I would like to thank those who have given help, guidance, care and support to me over the past four years.

I am indebted to my three doctoral supervisors, Professor Weidong Xia of Florida International University, Professor Luis Martins of ISCTE Lisbon University Institute, and Professor Jiang Hong, secretary of the Party Committee and President of Shantou University. Without their guidance and encouragement, I would not have been able to successfully complete my study. I will never forget the guidance that professor Jiang Hong gave me in the field of medical and health law when I was enrolled, which helped me to lay a solid foundation in writing thesis. I will never forget that Mr. Luis Martins gave me a wealth of cutting-edge literature from all over the world, which expanded my aspect of knowledge and international perspective, and he also gave me much encouragement and guidance in my thesis writing. It is impossible to forget the guidance from Mr. Weidong Xia during the two weeks when I was in the most difficult time of thesis writing. In methodology, question design and other parts, he patiently gave me careful and detailed instructions through interviews, WeChat, email and other ways. Their profound knowledge and their attitude of tireless and rigorous study have benefited me all my life. In the past four years, they gave me the ardent expectation, earnest instructions and selfless care, which will be always in my heart.

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源于爱人的鼓励，执着于对梦想的追求，2016 年踏上了我的博士生涯。从法学跨度到管理学进入全新的世界，怯怯然、惶惶然。从入学后就购买 11 本关于”公共卫生政策与管理”方面的硕士阶段的教材，用 1 年时间研读完，在这个基础上到英国、法国、荷兰、芬兰、丹麦、瑞典等 8 个国家访学，理论加实践奠定了我学习这门学科的基础。同时把所学知识也回馈给社会，读博士期间一共应邀讲授 30 场次，受众 5000 人左右，论文的一部分研究参加中国国家卫健委项目评比，获奖并将在全国医疗卫生机构推广，在 4 年的时光虽然艰辛但无悔。今天完成了论文的撰写，在这里程碑的时刻，特别要感谢这 4 年来给予帮助、指导、关心、支持的人们。

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多知名教授传授了许多宝贵的管理理论知识和研究方法，对我以后的管理工作帮助很大。感谢南方医科大学的王冬院长、许睿敏老师、欧玮艳老师在学业上的关心和支持。感谢郭廷建班长和同学们，让我收获关爱收获友情。

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Chapter 1: Introduction

1.1 Research background

The statement that "medical risk is everywhere" is internationally recognized and runs through the whole process of medical treatment. Not only are nursing staff who have direct contact with patients at risk (Arnetz, Arnetz, & Soderman, 1998), but doctors who make occasional visits to the homes of care recipients may also be subject to serious threats and violence (Arnetz, Arnetz, & Soderman, 1998; Nolan et al., 1999). With the current management and medical technology of public hospitals in China, it is difficult to achieve the goal of completely eliminating medical risks. In the context of governance by law, law-based hospital management and medical practice, patients' awareness of safeguarding their rights is constantly enhanced. As a result, medical dispute litigation cases have increased. Medical risk has become the focus of hospitals, medical personnel, patients and the whole society, and some of which can be prevented beforehand in the practice of hospital operation and management.

According to the 2019 official report released by the National Health Commission: "The statistics at the end of 2019 show that the number of Chinese medical and health institutions increased by 10112 compared with the previous year, and the total number of medical and health institutions after increased reached 1007545. The hospitals increased in the previous year was classified and counted, including 1345 hospitals and 34354 hospitals after the increasing; The number of primary-level medical and health institutions increased by 10751, and the total number of the primary-level medical institutions was 954390 after increasing; The number of professional public health institutions increased by 15924. Among the medical institutions, the number of private hospitals in medical institutions increased by 22424, which is the fastest and 11930 public hospitals. In terms of the number of beds, there are 2,007 hospitals with 800 or more beds, 1,937 hospitals with 500-799 beds, 4,578 hospitals with 200-499 beds, 5,099 hospitals with 100-199 beds, 20,733 hospitals with less than 100 beds. In terms of grades, there are 10,654 non-grade hospitals, 2,749 third-class hospitals, 9,687 second-class hospitals, 11,264 first-class hospitals. By the end of 2019, the total number of health workers in China reached 12.928 million (National Health Commission, 2019).

China is committed to implementing the basic construction of a healthy treatment,

deepened the reform of the medical and health system, and continuously improved the quality of medical and health services. 2017 is an important year for the health of Chinese people, we need to implement the guidance of the National Conference on Health and Wellness and carry out the 13th Five-Year Plan for deepening the reform of the medical and health system. It is also a key year for the formation of a better basic medical and health system framework and the completion of the phased objectives of the medical reform. Efforts should be made to promote the construction of the five systems: tiered diagnosis and treatment, modern hospital management, universal health insurance, drug supply security and comprehensive supervision. Efforts should also be made to comprehensively promote reforms in related fields, further strengthen organizational leadership, institutional innovation and key breakthroughs, and do a good job in putting the reform measures introduced in place, so as to lay a solid foundation for the establishment of the basic medical and health system with Chinese characteristics, and effectively transform the results of reform into people's well-being and happiness (General Office of the State Council, 2017).

Twenty years ago, ordinary citizens were afraid to go to hospitals when they were ill. With the medical reform, people's demand for public health has increased. Now, more Chinese citizens can afford to see a doctor and get medical services. The number of medical visits throughout the country increased from 4.1 billion in 2005 to 7.9 billion in 2016. With the expansion of China's hospital reform and the increasing number of people seeking medical treatment, medical disputes in China have also increased since 2000. In addition, after the occurrence of medical disputes, there have been medical claims and incidents of injury to medical personnel. In order to improve the working environment of medical personnel and establish harmonious doctor-patient relations, China's two ministries issued the "Circular of the Ministry of Health and Public Security on Maintaining the Order of Medical Institutions" on April 30, 2012. On October 1, 2018, the "Regulations on the Prevention and Settlement of Medical Disputes" was put into effect. Thus it can be seen that the Chinese government has taken various measures to maintain normal medical order and ensure the safety of medical personnel.

The total population of Henan province is 106.62 million and the permanent resident population is 94.36 million. There are 11,958 public hospitals and 92 first-class hospitals in Henan province. Five of them are the subject of this research, including two provincial hospitals, two municipal people's hospitals and one county-level people's hospital.

The First Affiliated Hospital of Henan University of Science and Technology is located in Luoyang City. It is a provincial and comprehensive hospital. The hospital opened 96 wards and

3,600 beds. There are 2 distinguished academicians, 471 doctors with senior professional titles, 87 master supervisors, 6 doctoral supervisors, 72 doctors and 774 masters. The hospital currently has 3,599 employees.

The First Affiliated Hospital of Xinxiang Medical University was founded in 1896 and was formerly known as the Boji Hospital founded by Canadian missionaries and M.D Luo Weiling. It has 98 clinical and medical technical departments, 3,510 employees. The hospital covers an area of 310 *mu*, with a building area of 400,000 square meters, 3,500 authorized beds, and over 350 medical experts.

Founded in 1952, the First People's Hospital of Ruzhou City is a tertiary general hospital in Ruzhou City, Pingdingshan, Henan Province. The hospital now has more than 1,400 employees. The hospital covers an area of 56,100 square meters, with a construction area of more than 40,000 square meters.

The Second People's Hospital of Xinxiang was founded in 1952. Now it has developed into a large modern first-class general hospital. The hospital covers an area of 35 acres with more than 1,400 employees and 1500 authorized beds. At present, the actual number of beds is 1,118. It has a modern surgical ward building (19 floors) and a burn treatment center (8 floors). It is worth mentioning that the burn treatment center ranks the first in China in terms of the scale area, the number of beds and functional divisions, and has been approved as the "Burn Rehabilitation Training Base" of Burn treatment and Rehabilitation Committee of China Rehabilitation Medical Association.

Founded in 1950, the People's Hospital of Taikang County is a second-class general hospital, with 1,200 employees and 1,600 beds.

With regard to the current causes of medical disputes, according to the data shown in the White Book on the Practice of Chinese doctors in 2017, the reasons for the current doctor-patient relationship in China are as follows:

The causes of the current status of the Chinese doctor-patient relationship are divided into two kinds of factors. A total of 26 topics were set up, and 15 topics with strong relevance were extracted through statistical analysis. The so-called "strong correlation" refers to the fact that doctors believe that this factor has a higher relation with doctor-patient relations, and this is regarded as factor a: factors that cause tension between doctors and patients; factors of medical institutions and medical personnel; factors of patients and patients' close relatives and social factors. Factor b: factors that is helpful to reduce the contradiction between doctors and patients. On the basis of strengthening medical quality management, medical institutions should improve the quality of doctors practicing according to law, which is beneficial to improve the

doctor-patient relationship and reduce complaints and medical disputes, so as to improve patient's satisfaction.

In recent years, in order to change the high incidence of medical disputes, the Chinese government and medical institutions of different levels have made exploratory research on the prevention and control mechanism of medical risks in hospitals by means of meticulous management. However, the current theoretical essays all propose to strengthen the legal training for medical staff without discussing how to really enable medical staff to practice according to law. Starting from the actual management of the four first-class hospitals, based on the research and data, the thesis concluded the top ten departments with high incidence of medical disputes, especially surgical doctors. The thesis analyzes the current situation and factors of legal training for such doctors, and proposes a practicable training form and content, which can effectively reduce the patient's complaints to medical staff and the occurrence of medical disputes. Ensuring patient's safety is an important topic.

On January 17, 2019, we counted the Medical Treatment Damage Dispute cases from January 1, 2008 to January 17, 2019; Case source: Alpha Case Library; Case nature: Medical Treatment Damage Dispute; Number of cases: 71,801.

This thesis retrieved a total of 71,801 court verdicts from January 1, 2008 to January 17, 2019. The number of cases in Henan Province was the largest, reaching 6,106.

By analyzing the Alpha Case Library, we can see that the cases of infringement of patients' right to informed consent account for 0.34%. According to the above-mentioned case nature, we can see that the proportion of current cases, arranged from high to low are: medical product liability disputes, liability disputes of infringement of patients' right to informed consent and other medical damage liability disputes.

It should be noted that there are a considerable number of cases of medical damage liability disputes. A large part of the 65,476 cases were identified as "medical damage liability disputes" caused by inadequate communication and information between doctors and patients. That is to say, the medical staff did not practice in accordance with the law, did not respect the patient's right to informed consent and did not protect the patient's right to know. It can be inferred that the lack of legal knowledge of medical staff, that is the weak legal awareness is an important cause of medical disputes.

The "patient's informed consent" was used as the keyword in the full-text retrieval in the China Judgements Online, and 95 related written judgments were collected as basic data for empirical research. After analyzing and studying, there were 67 cases about infringing patients' right to informed consent, accounting for 70.53%; 28 cases about not infringing patients' right

to informed consent, accounting for 29.47% (Xu & Chen, 2018).

1.2 Research issues

Based on the realistic background of the current high incidence of medical disputes in China and the necessity of legal training for doctors, this research attempts to study the following issues:

(1) What are the factors that affect the effectiveness of legal training for doctors?

(2) What are the impacts of training for doctors to practice by law on reducing patient complaints, medical disputes and enhancing doctors' law awareness?

1.3 Research methods

The thesis adopts the methods of literature review and big data case review, takes the existing research literature as the theoretical basis, explores the main factors of medical disputes. It analyzes in detail the cases of doctor-patient disputes that are widely concerned by the society, and discusses the constituent elements, process, mode, connotation, meaning and contents of legal training for doctors, then it leads to the following research issues: (1) What are the factors that affect the effectiveness of legal training for doctors? (2) What are the impacts of legal training for doctors on reducing medical disputes and improving doctors' legal awareness? At the same time, the theoretical basis of the research is established: Professor Donald. L. Kirkpatrick, an internationally renowned scholar, proposed a four-layer evaluation model, referred to as "4R". The research hypothesis is put forward based on the theoretical framework: in four hospitals of the same grade, compare the complaints and medical disputes faced by doctors who have received the legal training with those who have not, different results of medical disputes would appear (Lin & Li, 2015).

The research method was initially designed according to the research hypothesis: By studying the data of disputes, a questionnaire was designed over doctors' demand for legal knowledge. Then through interviewing with key persons (attending doctors, deputy chief doctors and chief doctors), the training content and methods are designed. The research data are obtained through Doctors' Legal Training Scales (doctors) and sample collection (such as questionnaires). The statistical analysis software SPSS was introduced to make single factor and multi-factor analysis about the relationship between the training effect and the training mode, the training object, the research design method, the legal training content and other

elements (Sun, 2016). Research results are as follows: the theoretical value and practical application value to the existing literature.

1.4 Significance of the research

Based on the analysis of current situation of medical risk management at home and abroad, this thesis analyzes the background, process, regularity, causes and distribution of medical disputes, and attempts to use Cause and Effect Diagram to analyze the formative factors of medical risk in high-incidence departments and the interrelationships among various influencing factors. The thesis aims to summarize and find out the factors that affect the legal training for doctors, propose some training methods and training content, so as to reduce the rate of complaints and minimize medical disputes.

1.5 Thesis structure

This thesis consists of six parts:

Chapter 1 Introduction

It expounds the research background. At present, the management and medical skills of public hospitals in China are continuously improving, and it is difficult to achieve the goal of completely eliminating medical risks. Under the circumstances of governance by rule, hospital management and practice according to law, patients' awareness of safeguarding their rights has been constantly enhanced, which results in a series of medical disputes. The prevention of medical disputes has been researched a lot, and strengthening the legal training for medical staff has been all mentioned in the countermeasure study. At present, it is necessary to change the form of training and enrich its content so as to improve medical staff's ability to prevent and control medical disputes, eliminate occupational violations, minimize misconduct, reduce complaint rate, and achieve the goal of reducing medical disputes and ensuring the safety of patients.

Based on the realistic background of the current high incidence of medical disputes in China and the necessity of legal training for doctors, this research attempts to study the following issues:

(1) What are the factors that affect the effectiveness of legal training for doctors?

(2) What are the impacts of the legal training for doctors on reducing patient complaints and decreasing medical disputes?

Chapter 2 Literature Review

Firstly, the study makes a clear definition of medical disputes. Then, it makes a literature review on patient safety, medical risk, the current situation of medical disputes in China and other countries, the factors affecting medical disputes, the research on legal training for doctors, and the application of Kirkpatrick Model in medical legal training.

Chapter 3 Theoretical Framework

Firstly, according to the literature review, the research model is obtained. Based on the literature research and big data on medical dispute cases, questionnaires about legal training demand are issued to the clinical departments. The input variables are the factors which affect the effectiveness of legal training for doctors, and the output variable is the effectiveness of legal training and the result variable is obtained: improvement of doctors' legal literacy could lead to the decline of medical disputes and complaints.

Chapter 4 Research Methods

Firstly, this chapter expounds the research design roadmap, followed by the standards and contents of literature review and case summary. Finally, this chapter explains the application process of questionnaire survey, data collection and statistical analysis.

Chapter 5 Results and Analysis of Research Data

Firstly, this chapter describes the samples, then analyzes the reliability and validity of the variables selected in the scale, and finally makes regression analysis of the results.

Chapter 6 Conclusion

This chapter points out the research limitations and the future research direction.

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Chapter 2: Literature Review

2.1 Overview of patient safety

In the field of health care, it is a systematic subject to use safety scientific methods to realize the integrity of health care services. Study the adverse events, and we can minimize the incidence rate by drawing the experience from adverse events (Emanuel et al., 2008). The definition describes the scope of the patient safety conceptual model. Maurino et al. (1995) designed a simple patient safety model that divides the health-care system into four major sectors: First, professional workers in the health care system; second, recipients of health care services or stakeholders of health care services; third, infrastructure for medical treatment in the system; fourth, feedback and methods for continuous improvement. The common features of the model with other quality design models (Vincent, 2010) include an understanding of health-care system, awareness of the different effects of different services and facilities, and an understanding of methods for improvement, including how to implement and measure changes, and an understanding of the staff in the system and their relationships with each other as well as with the agencies.

2.1.1 Research status of patient safety worldwide

Since ancient times, it has been firmly believed that people are more important than numbers. For individual patients, it is very important to hide statistics, benchmarks and action plans, which must be kept in mind (Francis, 2010). Research and a large number of data confirmed that there is a lot of room to improve the basis of patient safety strategy (Shekelle et al., 2013; Wachter, Pronovost, & Shekelle, 2013).

Motivating medical institutions to improve their measures can reduce and prevent adverse events. Many countries have made great progress in assessing the nature and the scale of medical care. Previous research achievements have been widely accepted (De Vries et al., 2008), and many other studies have also been conducive to the nature and the scale of surgical adverse events, infections, adverse drug incidents, and other safety issues. Although safety assessment and testing is still a challenge, progress has been made in evaluating reliable indicators of safety status, and there has been great progress in the understanding of patient

safety. For example, ten years ago, many medical incidents were considered inevitable or incorrectly attributed to low level operations. Mistakes, communication, cooperation, interruption and interference in the process of medical treatment are now considered to be weak links in surgical treatment. Due to the unreliability of the medical system itself, that the incidence of medical adverse events seems to be declining may be just proof of the efforts of clinical medical staff have made in this area. A lot of different types of interventions can reduce errors and make the operation process more reliable. Interventions such as computer aided medical order system can sometimes reduce damage in specific situations. There are relatively few large-scale interventions that have a noticeable impact on patient safety, and the most notable of which are the reduction of central venous catheter infections in Michigan and the reference of the WHO's surgical safety checklist.

Although specific interventions have been proved effective, it is still difficult to prove that the overall safety of the organization is improved. The British Patient Safety Initiative Organization, one of the largest and most studied intervention organizations, employs recognized experts in the field. The organization has succeeded in many aspects, and employs medical staff to motivate them to keep enthusiastic and seek room for continuous improvement. However, it has not made big changes in measures of culture, process and results. Similarly, the organization has tried to assess the safety of the entire health system, and the results have often been disappointing. The longitudinal descriptive retrospective studies in the United States and France showed no progress on patient safety issues, although the Netherlands produced encouraging results in 2015.

2.1.2 Current status of patient safety in China

In the 13 years from 2006 to 2019, the China Hospital Association has issued patient safety goals every year. Chinese Medical Doctor Association (CMDA) has long been committed to promoting the construction of clinical rational drug use and patient safety systems, and has actively responded to the work of the WHO World Alliance for Patient Safety. The second version of the Patient Safety Goals (2008), covers 10 goals and 41 major measures. The third version of the Patient Safety Goals (2009) covers 10 goals and 43 major measures. The fourth version of the Patient Safety Goals (2010) covers 10 goals and 35 major measures. The fifth version of the Patient Safety Goals (2011-2012) covers 10 goals and 34 major measures. The sixth version of the Patient Safety Goals (2014-2015) covers 10 goals and 45 major measures. The seventh version of the Patient Safety Goals (2017) covers 10 goals and 43 major measures

(Liu & Chen, 2018). The key work of medical institutions is the construction of institutional system in the management process. Medical institutions are also required to develop patient safety training program, list the departments and links in need of key management, and handle with problems such as imperfect patient safety system and its cultural atmosphere (National Health Commission, 2018). The high pressure of medical staff in Chinese medical institutions comes from their speedy work rhythm and heavy workload, which pose great challenges to patient safety.

At present, there is still a certain gap between domestic patient safety research and international patient safety research frontiers, and the research level still needs to be improved. Ou and Feng used the method of knowledge graph analysis to promote the diversification of research methods, to complement quantitative analysis and qualitative research, to link horizontal investigations to longitudinal research, to combine current status discussions with interventional research, and to conduct patient safety research from multiple dimensions. It can comprehensively and intuitively reveal the research status and hot spots in the field of patient safety (Ou & Feng, 2021). In recent years, in the field of theoretical research and practice of safety management in medical institutions, patient safety is the most popular core content, a core concept in safety management culture, but medical safety and patient safety have strong similarity and intersectionality in China. A review of a large number of documents found that Chinese scholars have conducted research on medical safety and patient safety from two aspects, the most prominent of which is the legislative system and safety culture. The first is the legislative system. There is almost a consensus on the necessity of research on medical safety legislation in Chinese academic circles. There are mainly deficiencies. One is how to improve the effectiveness and systematic aspects of rights protection, and the other is how to specify the patient safety system in detail and clearly requires more research. There are currently no laws and regulations on patient safety and patient safety-related systems are only mentioned as medical safety-related laws and regulations. China needs in-depth research on the construction of specific patient safety policies and regulations. About safety culture. Compared with other countries in the world, the study of Chinese patient safety culture started late, but it has developed rapidly in recent years. Amputation as of 2020, the number of patient safety culture research in my country is second only to the United States, and the research on patient safety culture assessment tools is becoming more and more mature.

2.2 Current status of doctor-patient relationship in China

Since the early 21st century, the doctor-patient relationship has become increasingly tense due to patients' and their families' high awareness of rights protection. According to the *White Paper on the Practice of Chinese doctors* released by the Chinese Medical Association in 2017 with 42,838 questionnaires sent out, the statistical results shown that: as of the end of May 2017, 1023 medical-related crimes had been detected by public security organs; in doctor-patient conflict, and 62% doctors have encountered different degrees of medical disputes (Chinese Medical Doctor Association, 2017).

The doctor-patient relationship should be the most harmonious interpersonal relationship in the world. We trust doctors and put our lives in their hands. Doctors use their professional knowledge and skills to help us alleviate the pain of disease. However, in the current social context, because of various reasons, this relationship has become more and more intense, and the patients even use extreme measures to attack doctors, not hesitating to hurt medical staff. At present, how to build a harmonious doctor-patient relationship has become an urgent issue to be solved in today's society. With the increase of people's attention to their own health and expectation of medical effect, as well as their different perceptions of medical science and technology, it leads to the progress of medical science cannot meet people's demands for their own health. The doctor-patient disputes exist in various medical institutions. Therefore, the doctor-patient relationship has become one of the hot issues of hospital managers and society.

In recent years, China has been in a period of medical system reform. In this transition stage, medical disputes maintain an upward trend. With the wide application of various new medical technologies and methods, doctors rely more on high-tech medical equipment and ignore the patient's experience. Modern medical methods have taken place of the traditional sight, touch, tap, hearing, inspection, auscultation and olfaction, inquiry, pulse-taking and palpation. The traditional medical model based on direct communication between doctors and patients is gradually "materialized."

The basic element of the content of the modern medical model is the doctor-patient communication. The insufficient doctor-patient communication will inevitably affect the doctor-patient relationship, resulting in tension doctor-patient relationship and doctor-patient disputes. The doctor-patient relationship is the focus of China's medical and health system and even the whole society. It has become one of the key points in the construction of hospital culture and medical ethics that how to treat and deal the current doctor-patient relationship. Regarding to the question of what kind of model should be the most reasonable for the

Chinese doctor-patient relationship, some scholars believe that the doctor-patient relationship should be "guidance-cooperation" model or "co-participation" model, and try to avoid non-cooperation or conflict; patients' requirements for medical and health care are also different in levels and grades, which have a diversification trend. Some patients pursue high-quality services, high-grade wards or even non-medical services, and some patients require basic medical care. Even the most basic medical care is difficult for some patients. The needs of each patient in the hospital are different, resulting in a variety of doctor-patient relationships. The diversification of people's values is also reflected in the doctor-patient relationship.

China's current medical high-tech has been developing, and high-tech medicine has been widely used in clinical medical activities, which has caused great changes in diagnosis, treatment, and nursing methods. Especially the large hospitals adopted the automatic, informationalized, and remote-controlled diagnosis and treatment methods. Doctors can obtain patients' physiological indicators, biochemical indicators and other data through high-tech service facilities, which have the characteristics of high sensitivity, accuracy, and rapidity, providing important basis for medical activities. This trend of replacing people with machines, instead of the traditional observation, touch, tap, hearing, inspection, auscultation and olfaction, inquiry, pulse-taking and palpation. It has weakened the communication of ideas between doctors and patients, increased doctors' reliance on high-tech facilities, and ignored the impact of patients' social and psychological factors on diseases.

Due to the large population in our country, at present, various hospitals in China are implementing hierarchical diagnosis and treatment, and the problems of medical treatment, hospitalization and operation have been initially solved. The difficulty now is that good doctors, equipment and other resources are in large hospitals. In the context of supply and demand contradiction, in order to implement hierarchical diagnosis and treatment, patients can not reach the hospitals they want to go to, which is also a factor of disharmony between doctors and patients. When there is a problem in the doctor-patient relationship, "legalization" is a way of mediation, and some patients will still choose reconciliation. However, when the moral standard of the doctor-patient relationship rises to legalization, the medical order will become more perfect. At present, the self-protection awareness of both doctors and patients has increased, and the concept of protecting their respective rights and consciously performing their respective duties has become stronger, which provide an ideological basis for health legislation.

The characteristics of the doctor-patient relationship. The rights and obligations of both

doctors and patients make the doctor-patient relationship a two-way, specific interpersonal relationship, which has different characteristics compared with other interpersonal relationships. The nature of the public welfare undertakings of China's medical and health work determines that the doctor-patient relationship has presented the following basic characteristics for a long time: (1) It is an equal relationship established on the principle of socialist humanitarianism. (2) It is a kind of dependence established with the guarantee of social legal system. (3) It is the entrusted relationship related to the rescue of the dead and the wounded, and with the guarantee of medical technology. The technical and non-technical relationship between doctors and patients formed under these three basic relationships ignores the important issue of how to play the subjective initiative of patients and relatives and fully respect the rights of patients and relatives. Therefore, the large hospitals adopted the automatic, informationalized, and remote-controlled diagnosis and treatment methods. Doctors can obtain patients' physiological indicators, biochemical indicators and other data through high-tech service facilities, which have the characteristics of high sensitivity, accuracy, and rapidity, providing important basis for medical activities. In this context, instead of the traditional observation, touch, tap, hearing, inspection, auscultation and olfaction, inquiry, pulse-taking and palpation, this trend of replacing people with machines has weaken the communication between doctors and patients, enhanced doctors' reliance on high-tech facilities, and ignored the impact of patients' social and psychological factors on diseases.

2.2.1 Factors causing tension between doctors and patients

(1) Factors of patients and their close relatives

It has been realized that medical disputes may come from the very people the organization is trying to help, namely, patients (Alicia, David, & Hock-Peng, 2004). The patient's close relatives have insufficient knowledge about diseases and medical care. Thus, they think that the medical personnel should treat the patient well as long as they paid for it, otherwise they will complain to the doctor. Patients and their close relatives have higher consciousness of rights protection, and they will bring a lawsuit if they are dissatisfied with the results of treatment, which even causes medical disturbance (Qian, Tian, & Zhou, 2017). Moreover, doctors often encounter patients who do not listen to their suggestions, make absurd demands, refuse to change, and sometimes even lie, cheat and tamper with their orders (Cherniss, 1995).

(2) Factors of society

First is about trust. The low awareness of social integrity leads to a crisis of trust between

doctors and patients, and the dispute between them is also a manifestation of the lack of integrity awareness in hospitals. Patients lack the most basic trust in doctors, and when there is a problem, the disputes between the two sides resulted in intensified conflicts and medical disputes. Moreover, the basic medical security system is not yet perfect. Second is the problem of insufficient medical investment. The proportion of medical expenses in China is only 2%; the proportion of medical expenses in the UK is 6.8%; the proportion of medical expenses in Japan is 7.2%; the proportion of medical expenses in Germany is 10.7%, and that in the US is 13.6% (Li, 2018). During medical treatment, if patients have opinions on medical institutions and medical personnel, they do not deal with the disputes in a regular manner, but seek the media for help. Some media do not stand in a fair and impartial position and often make negative hype, unilaterally emphasizing the vulnerable status of patients and distort in the image of doctors. This kind of false report makes the disputes that can be solved by legal means become out of control (Qian, Tian, & Zhou, 2017).

(3) Factors of hospitals

Liu and Luo pointed out that some medical institutions' improper pursuit of profits caused "medical consumerism consciousness", and patients thought that the unexpected medical damage they suffered was caused by some medical staff's improper behaviors such as weak sense of responsibility, poor attitude and doctor-patient communication barriers (Liu & Luo, 2018).

(4) Factors of doctors

Some experts believe that the tension between doctors and patients is caused by doctors' lack of empathy and care for patients, doctors' lack of sense of responsibility, doctors' lack of professional ethics, the lack of communication skills of medical staff, the limited information provided by patients and relatively low medical level (Chinese Medical Doctor Association, 2017). In addition, doctors with extremely negative emotions are more likely to have a negative world view and make ambiguous and negative comments (Watson & Clark, 1984; Watson, Clark, & Tellegen, 1988; Spector, Chen, & O'Connell, 2000). In addition, the current medical education system focuses on medical skills education, which leads to the low quality of some medical staff and their weak legal awareness and lack of humanistic cultivation (Li, 2018). Therefore, they do not know that the satisfaction of patients and their family members is often related to the communication between medical staff and patients, pain management, timely help and explanation of prescribed drugs (Boulding et al., 2011). As a result, they only know how to implement the quality measurement measures on patients' experience, but do not really pay attention to patients' medical experience (Manary et al., 2013).

There are many factors that cause medical risks, which can be summarized as three factors: hospitals and medical staff, patients and their close relatives, and social factors. In addition to the above factors, It is also the result of a complex combination of multiple factors. On the one hand, there are objective reasons such as the mismatch between social development and the increasing health needs of the people, and the increased awareness of the rights of patients and their families. On the other hand, it is also the fact that doctors rely too much on machines, instruments, and equipment to obtain various examination and laboratory index data of patients when they diagnose and treat patients. some patients have high expectations, they believe that the unintended medical damage suffered by them is caused by some improper factors such as the lack of responsibility of some medical staff, poor attitudes, and communication barriers between doctors and patients. The reason is that the patient's cognition of medical treatment is lack of scientificity. They think that after paying the money in the hospital, the medical staff should treat the patient well, otherwise they will complain to the doctor; the patient and their close relatives enhance their awareness of rights protection and file a lawsuit as long as they are not satisfied with the treatment result. And even the phenomenon of excessive rights protection eventually resulted in the phenomenon of "medical troubles". The patient lacks the most basic trust when seeking medical treatment, and the two sides meet problems and disputes, leading to intensification of conflicts and medical disputes. The low sense of social integrity leads to a crisis of trust relationship between doctors and patients, which is also a manifestation of the lack of awareness of integrity in hospitals. Physicians are adults with professional knowledge. We must understand that the essence of doctors' legal training is their continuing education. Training should focus on the learning characteristics of doctors as adults. Based on this, if we fully exploring the specific problems that doctors encounter in their treatment and answering them from the legal level, so as we can arouse the interest and motivation of doctors to participate in legal training, and it can also better encourage doctors to take the initiative to learn legal knowledge and actively and accept legal training. Each chapter in the research of dispute prevention countermeasures mentions the importance of legal education, which can guide and promote doctors to effectively prevent medical disputes.

2.3 Overview of medical disputes

Medical disputes studied in this thesis are those occurred between doctors and patients in medical activities, that is to say, behaviors of medical institutions or medical staff in medical

activities cause damage to patients and they need to compensate patients.

2.4 Current situation of medical disputes in China and in other countries

2.4.1 Current situation of medical disputes in Japan

Every year, 12,000 cases of doctor-patient disputes occur in Japan. On average, each medical staff encounters 0.4 cases of medical disputes every year. According to data showed on the website of the Supreme Court of Japan, Liu and Luo counted the total number of medical lawsuits accepted by Japanese courts at all levels in 2014 was 860. Therefore, the frequency of medical disputes in Japan in 2014 is 0.21% for all medical practitioners (Liu & Luo, 2018) .

2.4.2 Current situation of medical disputes in the UK

According to the report of the British Patient Safety Agency, from March 2017 to April 2017, about 500,000 medical malpractices were reported in the UK. In terms of locality, most of which occurred in hospitals. 165,000 patients were harmed during medical treatment, suggesting that medical staff may have not taken good care of them. According to the statistics of complaints about medical disputes published by the National Health Service Litigation Authority until 2014 (The National Health Service Litigation Authority, 2011), the number of registered doctors in the UK was 24, 5918 (245,000) (British Medical Practitioners Board, 2012). The total number of doctors providing health care for the public was 14, 5497, while the permanent residents in the UK were 60 million.

According to Pan Guangxin's research on clinical and non-clinical medical disputes in the past five years, in 2013, in addition to emergency department, it is known that surgical department faced a high incidence of medical disputes, followed by obstetrics and gynecology departments. But the claim amount faced by obstetrics and gynecology departments is the highest, far higher than that of the surgical department. The claim amount for cerebral palsy is the highest among all claims for obstetric medical disputes (Pan & Fan, 2015).

2.4.3 Current situation of medical disputes in Germany

According to the statistics of complaints on medical disputes published by German Medical Association, the number of registered doctors in Germany at the end of 2011 was 449,409. The average number of doctors per million people was 5,480. From 2007 to 2010, the incidence of medical disputes in Germany is 24.5% in 2007, 24.4% in 2008, 24.4% in 2009 and 23.2% in

2010 (Bundesärztekammer, 2012).

According to the data analysis, we can see the incidence of medical disputes in Germany, and there is a quite large gap between the number of medical disputes per year among thousands of doctors in Germany and that in the UK (Fan et al., 2012).

2.4.4 Current situation of medical disputes in the US

American lawyers put a lot of pressure on doctors, because doctors think that the biggest problem in medical work is the lawsuit for medical negligence. According to the data analysis, excessive examination is a core problem, because 78% of doctors worry about being sued for medical negligence, so they will carry out many unnecessary auxiliary examinations. 95% of neurosurgeons in Florida were once prosecuted, and overtreatment often occurs in New York state. Every year, for fear of being sued by patients for defensive medical treatment, there are about $2 billion additional medical expenses. The causes of death of patients are different between medical institutions, and both technical and non-technical causes of death can be improved (Jacobs et al., 2008). From the classic case of Alex James (Newman-toker, Mcdonald, & Melzer, 2013), it is known that in American hospitals, the number of deaths caused by medical injuries is between 210,000 and 240,000 every year (James, 2013). In the US, the mortality rate of pediatric heart surgery was 30%, which has dropped to 4% by 2011 (Jacobs et al., 2011). Some achievements have been made, but there is still some room for improvement in management, process and quality. However, in the US, tonsillectomy in children without surgical risk will also have complications, causing individual child death (Mahant et al., 2014). Medscape, an American medical website, has released *Malpractice Report 2019*. By interviewing more than 4,300 doctors from 29 departments, it investigated the cases of medical negligence, and analyzed doctors' attitudes to medical litigation and the impact of such incidents on their career from the perspective of doctors.

2.4.5 Current situation of medical disputes in China

According to statistics (2013), in recent years, the number of medical disputes has increased with an annual rate of more than 10% per year. More than 50% of the patients have asked for financial compensation, and the amount of claims filed by the patients has risen from several thousand to tens of thousands or hundreds of thousands, and even one million yuan, which is far from the actual amount of compensation. The number of medical disputes in medical institutions every year is absolutely higher than medical accidents, and the total amount of

compensation for medical disputes is much higher than that of medical accidents. In China, medical institutions resolved most of the medical disputes by themselves.

Medical institutions bear great pressure in the handling of medical disputes. After a medical dispute occurs, not only the medical staff involved and the staff who specialize in handling medical disputes, but also the staff doctor-patient office, and even the president of the hospital must communicate and negotiate with the emotionally-affected patients in person when they have to. Under the influence of the bad social atmosphere and public opinion of "no trouble, no money; a little trouble, a little money; a big trouble, a lot of money" (Chen & Zhuang, 2020), some people have got to negotiate with medical institutions to resolve disputes instead of choose the formal way of handling medical disputes.

The cases in which patients apply to the health administrative department for the administrative handling of medical disputes have shown a downward trend year by year. According to the *Regulations*, the mediation of medical disputes is mainly presided over by the health administrative department. Both doctors and patients apply for mediation to the health administrative department, but the mediation must have been defined as a medical negligence, and the health administrative department only organizes the mediation once on the basis of the voluntary of both parties. Because the patients think that the health administrative department is the superior management department of the hospital, they doubt about the neutrality of the health administrative department, patients often believe that the administration may be biased in favor of the medical institution in mediation and that the outcome of the mediation is difficult to be impartial. So far, the administration has rarely received such mediation applications.

Doctors pay attention to the treatment of patients in their medical activities, rather than writing medical records. They think that the patients are treated well and the medical records are filed after it was written. In case of complaints from patients and their families, the doctor will return to the medical records and take it carefully. After the complaints occurred, the medical records will be examined with the eyes after doctors' treatment, and the medical records was not standardized, so as they can modify them. The patient has often photocopied the medical record when the patient complains about medical disputes. When the hospital provides the revised medical record, the patient often does not accept it, which leads to the patient's distrust of the medical party. However, the information reflected in the medical record is the most important evidence to evaluate whether the medical party has fault. The doctors do not have a good understanding of the legal attributes of medical records and the legal consequences of the random alteration of the medical records. Once the patient has a

sense of reliability of the medical record content, and they have evidence that the medical record has been modified, which will become an important reason for the dissatisfaction of the patient. Therefore, the authenticity of the medical record cannot be determined, which affects the patient to further take the legal approach to solve the medical dispute.

Since the implementation of the *Tort Liability Law* in 2010, the law has provided very detailed and clear provisions on the issues involved between doctors and patients, and there is an increasing trend for patients to choose judicial means to solve medical disputes. After most of the patients were dissatisfied, they first went to the relevant department of the hospital to complain. Some patients chose to settle the dispute through litigation procedures after repeated unsuccessful negotiations with the hospital. Some patients did not contact with the doctor and directly photocopy the medical records to the court for prosecution; some patients did not file a complaint with the health administration department, but directly copied the medical records to the court for litigation; no matter which situation the patient chooses to solve the problem, it means that the patient's legal awareness has been strengthened and they know that judicial channels can resolve medical disputes.

The retrieval time is January 21, 2021; Case source is Alpha Case Library; Case nature is Medical Treatment Damage Dispute. Through the advanced retrieval of Alpha Case Library, the comprehensive data collection has made on medical treatment damage dispute cases heard by the national court system in 2020 and has analyzed data such as the number of cases, the level of courts, trial procedures, types of documents, the amount of litigation object, and geographical distribution. Since the second-instance judgments are more typical and have important guiding significance for both doctors and patients, 3,096 second-instance judgments were selected and analyzed in detail from the aspects of the type of medical institution, appeals, judgments, reasons for the failure of doctors and patients, the impact of medical record problems on the determination of doctors' responsibility and the court's handling of appraisal opinion.

In 2020, there were a total of 18670 cases of medical damage liability disputes, which was about 3% more than that in 2019. The overall trend was to rebound in 2019 after a slight decrease in the number of cases in 2018 compared to 2017, and continued to grow in 2020. There were 12734 cases in 2017, 12249 cases in 2018 and 18112 cases in 2019.

Trial procedure and court level. In 2020, there were 13255 cases of medical damage liability disputes concluded in the first instance, 4160 cases of medical damage liability disputes concluded in the second instance, 1255 cases entered into the retrial procedure, and 1068 cases entered the implementation process. Compared with 2019, the number of medical

damage liability disputes concluded in the first instance in 2020 has increased by 5%, and the most obvious increase is that the enforceable case has increased by about 19% year on year. According to the level of courts, in 2020, the basic people's court heard 14362 cases of medical damage liability disputes, the intermediate people's court heard 4416 cases, the higher people's court heard 994 cases, the Supreme People's court heard 3 cases, and a specialized people's court heard 1 case. There is a certain correlation between the court level and the trial procedure, so the data distribution of medical damage liability disputes at the court level is not much different from the trial procedure.

Documents type and the amount of the subject matter involved. There are 8705 written judgments and 6368 orders. The cases of disputes over the obligation of compensation for medical damages determined by the people's courts are generally based on these two types of official documents. It is worth noting that in addition to the verdict and ruling, a trial of negotiation was also conducted in 2018. It should be noticed that the number of cases settled by mediation was 83 in 2018, and the number of cases settled by court through mediation increased sharply to 2924 in 2019, and the number of cases settled by mediation was 2694 in 2020. Although it decreased slightly, it still shows the important role of mediation in the settlement of medical damage liability disputes. Among the cases we collected, only 6 cases were involved in the amount of subject matter above 10 million yuan; 22 cases were involved between 5 million yuan and 10 million yuan; 687 cases were involved between 1 million yuan and 5 million yuan; 8580 cases (81%) were involved in the amount of subject matter below 500000 yuan, 1316 cases were involved between 500000 yuan and 1 million yuan. The range of the amount of the subject matter involved is not different from that in previous years, but we noticed that the proportion of the cases involved in the range of less than 500000 yuan has decreased from 82% in 2019 to 81% in 2020, which has a certain relevance with the pilot work of unifying the compensation standard for urban and rural residents in the areas under the jurisdiction of the higher people's courts.

Geographical and department distribution. In terms of geographical distribution, medical damage liability disputes seem to spread all over the region. Shandong Province, Henan Province, Liaoning Province, Jiangsu Province and Anhui Province ranked the top five in the number of medical damage liability disputes in 2020, with more than 1000 cases. In 2017 and 2018, the province with the highest number of cases was Henan Province, while in 2019, the number of cases in Shandong Province increased to 1475, surpassing Henan Province and ranked first. In 2020, the number of cases in Shandong Province continued to increase to 1709, which is still the province with the highest number of medical damage liability disputes in

China. Henan Province has 1673 cases, ranking second. It is worth noting that, compared with 2019, the number of cases in Hunan Province, which ranked third last year, decreased to 849, down nearly 30%. The number of cases in Liaoning Province increased sharply from less than 1000 in 2019 to 1547, replacing Hunan Province to the third place. Obstetrics and gynecology department and emergency (outpatient) department occupy the top two departments with high incidence of medical damage liability disputes, with 492 cases in obstetrics and gynecology department, but 108 cases less than that in 2019. The number of emergency (outpatient) clinics increased by a lot, with 365 cases, an increase of 150 cases compared with 215 cases in 2019, jumping to the second place. There were 264 cases in orthopedics, which is 270 less than that of 534 cases in 2019. Although the number of cases is reduced, the number of cases in orthopedics overlaps with that of traffic accidents and industrial accidents in emergency (outpatient) clinics, and the number of cases in orthopedics is still in the third place.

The proportion of medical responsibility and analysis of the failure rate. According to statistics, the number of cases where doctors bear the same responsibility and secondary responsibility is the largest, 673 and 633 cases, accounting for 28% and 26% respectively. Secondly, the main responsibility was 592, accounting for 24%. It is worth noting that 140 cases were judged by the court of second instance to be fully responsible, accounting for 6%, down from 7% last year. The trend of medical institutions practice legally and standardizing practice is good. the "patients losing a lawsuit" is limited to the case that the court of first instance rejects the litigant's claim, and the court of second instance rejects the appeal and maintains the original judgment after the appeal. Among the 3,047 second-instance judgments, 2425 cases were lost by the medical department, accounting for 79%, and 571 cases were lost by the patients, accounting for 19%. Compared with 79% of the patients losing the lawsuits in 2019, 19% of the patients losing cases, 78% in 2018 and 21% of the patients losing the lawsuits, the failure rate of both doctors and patients has not changed much in the last three years. In addition, 51 cases of fair compensation awarded by medical parties to patients in 2020, accounting for about 2%, the total number is lower than that of last year. With the formal implementation of *the Civil Code* on January 1, 2021, the judgment of fair compensation will change. In the era of *the Civil Code*, if there is no clear provision of law, the principle of fairness will no longer be applied arbitrarily. The situation of compensation awarded by medical institutions without fault will change accordingly. As for the reason that why the doctor lost the lawsuit. In 2020, the number of cases in which doctors failed to fulfill their duty of care and delayed treatment was the largest, accounting for 41%, followed by the number of cases in which doctors failed to fulfill their duty of inform, accounting for 19%, a

decrease of 4% compared with that in 2019. Through the judgments in 2020, it can be seen that the awareness of medical institutions to fulfill the obligation of inform has improved significantly.

The explanatory obligations of medical personnel can be divided into three types in different medical situations: the obligation to inform patients in order to obtain their consent, the obligation to inform patients of the behavior of diagnosis and treatment, and the obligation to inform patients of referral and transfers. All of these are stipulated in Article 55 of *the Civil Code*. *The Judicial Interpretation of Medical Damage Liability* supplements the situation that the hospital did not seek the informed consent of patients, and stipulated the exemption of the hospital for infringing the informed consent right of patients. In Article 17 of *The Judicial Interpretation of Medical Damage Liability*: Medical staff violates the obligations stipulated in the Article 1220 of *the Civil Code* but does not cause personal injury to the patients. The patient's request for medical institutions to bear the liability for damages shall not be supported. The right to informed consent of patients includes the patient's right to be informed and the right of consent (Chen, 2014). The premise of patients' right to consent is to be informed (Li, 2017). Doctors often fail to fulfill the legal obligation to protect patients' right to informed consent.

Fan et al. made a statistical analysis of 312 cases of medical disputes in a first-class hospital in Harbin for four consecutive years, and obtained the following information about negligent behaviors that patients think exist in medical institutions.

According to statistics, among these reasons, the top three cases were infringement of the right of informed consent (118 cases), failure of necessary examination (34 cases) and misdiagnosis and mistreatment (31 cases) (Fan et al., 2011). Just as shown in Table 2.1.

Table 2.1 The situation of negligent behaviors that patients believed existing in medical institutions

reason	the number of cases	proportion (%)	reason	the number of cases	proportion (%)
Infringement of the right to informed consent	118	37.83	Insufficient preoperative preparation	10	3.2
Failure of necessary examination	34	10.9	Improper handling of events	9	2.88
Misdiagnosis and mistreatment	31	9.94	Improper nursing	8	2.56
Violation of operational procedures	24	7.69	improper remedy	5	1.6
Problematic cases of illness	18	5.77	Unclear history-taking	4	1.28
Missed diagnosis and treatment	14	4.49	Practice medicine	2	0.64

reason	the number of cases	proportion (%)	reason	the number of cases	proportion (%)
			beyond the scope		
Improper use of drugs	12	3.85	Underestimation of the condition of illness	1	0.32
Violation of disinfection and isolation system	11	3.53	Violation of the transfer and consultation system	1	0.32
Delayed diagnosis and treatment	10	3.2			

Source*:* Fan et al. (2011)

2.5 Research status on prevention measures of medical disputes at home

Lin and Li (2015) sorted 1552 cases in the prevention of medical disputes in China, pointing out the main reasons for the disputes: the duty-bound factor accounted for 47.10% and the technical factor accounted for 38.60%; the cases in surgery, internal medicine, orthopedics and obstetrics accounted for 30.86%, 18.43%, 14.69% and 11.34%, respectively. These four departments are the departments with high incidence of disputes. The best measures to prevent disputes are to strengthen the legal education and professional responsibility education of all medical staff, implement the core medical system and strengthen the professional and technical training of medical staff. Sun analyzed the medical disputes that occurred in the hospital from January 2010 to December 2015, and summarized the causes of medical disputes during the five years. In the countermeasure part of Sun's graduation thesis, he proposes that he outpatient department of the hospital should solve the disputes, and clearly put forward to improve the legal awareness of medical staff, improve the hospital related work system, standardize the work process, strengthen communication with patients, and inform patients of risks to reduce the emergence of medical disputes (Sun, 2016).

Qian et al. analyzed 40 cases about medical disputes in his hospitals in the past three years and conducted a survey on doctors' own medical behavior. The result was that 27.5% cases of doctor-patient disputes were caused by inadequate communication between doctors and patients. It is recommended that medical personnel should maintain good communication with patients or their family members, communicate with patients and inform patients according to law, so as to effectively reduce medical disputes and establish a medical risk management system (Qian et al., 2018).

The research on prevention of medical disputes in China is based on the keyword query of "prevention of medical disputes" in CNKI as of December 2018. From 2010 to 2018, the research on medical dispute prevention in China are: 53 master's and doctoral theses, 683 journal theses and 72 conference theses.

Through the comprehensive analysis of research on medical dispute prevention, the following four points are summarized: Firstly, strengthen the legal and regulation training of medical staff (Zhang, 2012); Secondly, in order to prevent medical disputes, hospitals should first implement the medical system, especially the 18 core systems (Liu, 2010); Thirdly, according to the requirements of specific disciplines and professional skills, improve the professional and technical level of medical staff; Fourthly, establish the medical dispute files based on "Three Must Principles" and draw lessons from the past. That is to say, every case of medical disputes must be investigated, the causes must be analyzed, and the responsibility must be traced to the person (Huang, 2012). Fifthly, the government should participate in the purchase of medical liability insurance and medical accident insurance, and shares the responsibilities of hospitals (Zhu & Yang, 2011).

2.6 Overview of the study on legal training for doctors

2.6.1 The situation and content of legal training for doctors

In the context of different countries starting to study ability education, ability education model has become the focus of medical education. Many countries have also begun to study and summarize the framework of their doctors' competence, such as the research results of the Graduate Medical Education Accreditation Committee in the US (Swing, 2007), the Medical Ability Framework of the Royal Society of doctors in Canada (Simpson, J. G. et al., 2002) and the professional education framework of undergraduate medical students in the Netherlands (Laan, Leunissen, & Van Herwaarden, 2010). Although it is a long way to bring the core competence into the ability education of medical students, there is no unified standard now. However, each country has designed the ability framework complying with the norms and rules of professional quality dimension.

After researching on this kind of problems, the Department of Veterans Affairs (VA) in the US has worked out the safety procedures based on 38 million patients across the country. In the end, the report suggests that universal education should be carried out for all people, not only for patients, but also for medical and health care personnel for 15 to 20 hours, so as to help them

have a new understanding of the concept and standard of patient safety (Gao, 2002).

Chinese Undergraduate Medical Education Standard requires medical students to have a high level of medical professional knowledge and ability, and also points out that legal education must be infiltrated into medical education to promote the combination of medicine and law. However, at present, the current situation in China is that doctors' legal literacy cultivated by medical colleges and universities vary greatly. Legal literacy education forms a chain and a system from school to workplace. Data show that at present, Europe and the US attach great importance to humanistic education of medical students. Proportion of humanity courses in the curriculum system in the US and Germany reaches 20%-25%, and that in the UK, France and Japan is 10%-15% (Feng, 2007). In contrast, the proportion of legal knowledge courses in medical colleges and universities in China is relatively low. Doctors should strengthen their legal literacy through various forms of training after they go to work. The Federal Government of the US mainly invests in postgraduate medical education through medical institutions. The certification system of *The Accreditation Council for Graduate Medical Education* (ACGME) has become one of the most important quality assurance mechanisms for medical education after graduation in the US. ACGME in the US began to fully adopt the new certification system for resident doctors in 2016. It strengthens the training in six aspects, ensuring medical safety and protecting patients' interests while ensuring the completion of training tasks (Ren & Wang, 2017).

In the new era of ruling the country by law and with the gradual deepening of the process of building a society ruled by law, patients' awareness of defending their rights by law has also increased significantly. However, doctors still treat and save patients in their daily medical activities, and their legal literacy has not been significantly improved. The doctor and the patient are supposed to be comrades in the same trench, however, due to their common enemy—diseases, the doctor-patient relationship are on the verge of breaking out a fight. Under this severe reality, it is the first priority to alleviate the contradiction between doctors and patients, prevent and reduce medical disputes, build a harmonious doctor-patient relationship, and improve the legal literacy of clinicians (Zhou et al., 2016).

With the implementation of laws and regulations such as Law for Licensing Medical Practitioner, Medical Malpractice Management Regulation and Regulations of the Prevention and Settlement of Medical Disputes, and the lack of legal knowledge among medical personnel, it is urgent to strengthen the legal training for doctors. The medical legal knowledge should be integrated into the whole process of doctors' practice, so as to enhance their legal consciousness, cultivate their awareness of diagnosis and treatment according to law and their ability to use the

law to protect their own rights (Li & Liu, 2010). From 928 questionnaires, it can be seen that the mastery of legal knowledge of medical staff is poor (Zhao, He, & Tan, 2008). There are also differences in the mastery of legal knowledge among medical staff of different ages (Zhou, 2009). The law referred to here is in a broad sense, and generally refers to the normative legal documents formulated by all state organs in accordance with the statutory authority and procedures (Li, 2017). The so-called legal literacy refers to a person's ability to understand and apply the law.

Article 9 of the *Regulations on the Prevention and Settlement of Medical Disputes*, which came into force on October 1st, 2018, clearly stipulates medical institutions shall provide their medical personnel with regular training of medical and health laws, regulations, rules and relevant norms for diagnosis and treatment and strengthen their professional ethics education. The content and form of training has not been unified, but it is the first time to stipulate that Chinese medical students should receive education after graduation.

The cultivation of legal literacy of doctors not only requires scientific and targeted teaching plans, but also need a variety of teaching methods. We can find various ways to cultivate doctor's legal literacy, such as special lectures, discussions according to clinical departments, case study, moot courts and court hearings, so as to improve the legal literacy of medical students and their ability to solve problems as much as possible. In the current practice, under the supervision of Department of Health Administration, legal training for doctors conducted by hospitals at all levels shows the following characteristics.

Firstly, the convention is formed that doctors should receive a general legal training when they are employed. Secondly, as for the training time, doctors' initial training time is one hour. But in a relatively short period of time, the legal knowledge required by the doctors cannot be fully taught. Through questionnaire survey, Dong and Ma obtained the following conclusions about training hours: there were 110 people (41.0%) who chose 4 hours of classes, 107 people (39.9%) who chose 2 hours of classes, 32 people (11.9%) who chose hours of 8 classes, and 18 people (6.7%) who chose hours of classes (Dong & Ma, 2015). Most people chose four hours of classes.

Finally, as for the training period, hospitals at all levels have incorporated legal training into their annual work plans. One hospital-wide legal training is held at least every year and most public hospitals will hold legal training in the first half and the second half of the year.

2.6.2 Factors influencing the effectiveness of legal training for doctors

2.6.2.1 Doctors' demand for legal training

There are six individual factors that affect the effectiveness of legal training: learning motivation that is the reason why doctors participate in legal training; individual factors and training needs of doctors; acceptance; perception of previous training; training needs for knowledge and skills; needs for organizational management.

(1) Learning motivation.

Learning motivation refers to the desire before training. Physician motivation represents the dynamic characteristics of training input, and physician motivation is considered to have a positive impact on training transformation process (Li, 2011).

(2) Individual factors and training needs of doctors.

The expectation theory holds that a person's behavior is based on three factors: behavior expectation, implementation methods and titer (Yuan & Xi, 2000). Expectation is somewhat similar to self-efficacy. Learning improves legal literacy, patients' recognition (implementation methods) related to these results, and doctors believe that these results are valuable. Doctors are expected to learn knowledge and skills from legal training that can be used in clinical practice.

(3) The receptivity of doctors.

According to the analysis of factors affecting doctors' receptivity such as age, gender, education level and specialty classification, it is found that the younger doctors are more likely to accept and memorize new knowledge. The higher educated doctors have a better foundation of knowledge, making it easier for them to understand and absorb new information (Liu et al., 2013). But subjective will is also an internal driving force. If the doctor attends the training because the knowledge is urgently needed to solve clinical problems, he will devote himself to the study in the course in a more serious manner, and thus the effect is better.

(4) Perception on previous training.

It would be more beneficial to improve the training model by having the trainees express their opinions on previous training. But the training evaluation work is more carried out from the perceptive of the trainers. Perception on previous training will deepen the evaluation work on training, improve its pertinence and effectiveness, promote the training quality, and help doctors improve themselves (Qi, 2004). By investigating the training models that doctors participated in before, such as theoretical-based model, case-based model, comprehensive training model for all medical staff, and a special topic discussion for 20 minutes after the lecturer finished the class, a more effective training model can be developed.

(5) The training needs of knowledge and skills.

The quality of medical education is directly related to the teachers' ethics, teaching level, importance of lesson preparation and enthusiasm of teachers in medical colleges. With the reform of health care in China, the expansion of medical colleges and universities has increased the task of clinical teaching, andt is required to increase the total number of teachers in each clinical medicine industry base again. In order to know teacher's attitude on undertaking teaching tasks, the types of teaching tasks, the application of clinical teaching methods and the types of demand for teaching skills of teachers with intermediate title and above in four major departments, namely internal medicine, surgery, obstetrics and gynecology and pediatrics. The teacher is responsible for the daily tasks of classroom teaching. The types of daily tasks, the practical application of clinical practice methods and the practical types of learning and training requirements of teaching methods are studied in detail. We have made a detailed investigation to provide reliable reference for the training in the future (Lv, 2003).

Yu et al. selected 172 newly recruited nurses from the Affiliated Hospital of Xi'an Medical College from 2011 to 2013. After the pre-job training for each batch of new nurses, 78 items of questionnaires including nursing theory and nursing operation were distributed to understand the training needs of new nurses. The result is that among the 10 items investigated, the highest average score was 2.793±0.256. The training needs of new nurses from high to low are first aid knowledge, specialized nursing technology, legal knowledge and professional knowledge. Among them, the training needs of new nurses for legal knowledge ranked third (Yu et al., 2014). The knowledge of law and the skills which can reduce the occurrence of medical make doctors want to learn the knowledge of laws and regulations of medical and health care. Through training, they can acquire the knowledge and skills to reduce medical disputes and apply them to their daily practice, so as to improve the doctor-patient relationship and the safety of practice, winning recognition as doctors.

(6) The organizational management needs.

Jiang et al. investigated 136 directors of clinical and medical technology department with questionnaires, using Goldstein analysis model and training needs gap analysis model from three levels, namely organizational level, task level and personal level. The analysis of organizational level reveals the necessity and feasibility of the training of managers in clinical and medical technology department. It also lists four training methods with high recognition rate, including experience exchange, lecture, case analysis and learning exchange with other hospitals (Jiang et al., 2011). It is an effective way for the hospital to organize unified training to improve the knowledge literacy of the staff of clinical medical technology department.

Learning organization has developed more than 20 years, which attract much attention in many management theories, serving patients and their close relatives better (Zhu, 2017).

2.6.2.2 Legal training programme for doctors

(1) The teacher for legal training.

In addition to having solid medical theory and abundant clinical experience, trainers should also have systematic legal knowledge and a higher quality of legal literacy, as well as the ability and habits to deal with clinical problems from the perspective of social medical model (Feng, 2007).

Form of training.

Based on the breadth and professionalism of legal knowledge, in practice, legal training for doctors in hospitals is mostly carried out by expert lecturers. This method has a wide range of audience, a large number of participants and concentrated training time, and it plays a fundamental role in the aspect of cultivating doctors' legal awareness. But there are also shortcomings in its training duration and single content, so the effect of legal training for doctors is not obvious. The improvement of doctors' ability to practice according to law not only requires scientific and targeted teaching plans, various cases, clinical activities and social practices are also needed.

Hospitals can use a variety of training forms, such as special lectures and discussions, classic case analysis or simulation teaching, moot courts, auditing court trials, experience exchange and clinical practice to cultivate doctors' ability to practice by law.

The Flipped classroom: the purpose is to help trainees to learn specific legal provisions. Case teaching: using classic cases or simulation teaching. Experiential teaching: moot court and auditing court trials. In moot court, the doctor responds to the patient's lawsuit and truly feels the importance of legal knowledge in the clinical treatment process by debating in the trial session. Regularly organizing medical personnel to conduct court trials on doctor-patient disputes can improve the ability of medical personnel to practice by law and prevent disputes between doctors and patients (Gao, 2016).

Training content.

It is necessary to carefully design the training content to improve medical staff's legal consciousness. For doctors, clinical medicine and law are two disciplines with strong specialty. In their daily work, medical personnel have weak legal consciousness, so they do not strictly check and treat patients according to operation rules and technical specifications. They do not realize the importance of legal consciousness until mistakes and disputes arise. The legal

education and training of medical staff should adhere to the principle of combining legal publicity and with practical work, conscientiously implement relevant laws, regulations and rules, and ensure the implementation of various rules and regulations (Liu & Xian, 2008).

The selection of training content should follow the principles closely related to clinical practice. China has many a huge medical law system, including 11 laws, 40 regulations and more than 140 departmental regulations. The training content of medical institutions is mainly the legal obligations of medical institutions and medical personnel. The obligations closely related to clinical work include the registration of medical institutions and medical personnel, doctors' legal obligations, the management system of doctors, and the prevention of medical disputes (Ma & Ye, 2018). *Regulations on the Prevention and Settlement of Medical Disputes*, which came into effect on October 1, 2018, stipulates that patients can copy all medical records about themselves. Medical records are objective evidence of medical dispute litigation, therefore medical institutions should strengthen the quality of medical records to ensure the completeness, accuracy and seriousness of medical records, and to prevent the quality defects and content loss of medical records (Zhang, Zhang, & Han, 2000). Laws and regulations stipulate Patients' right of informed consent. The case of Mohr V. Williams is a milestone in the US in the 20th century. The doctor obtained Mohr's consent to perform surgery on her right ear. However, during the operation, Mohr's left ear was also operated without consent. This case is a typical tort case since the doctor performed the operation without the patient's consent. The case constituted an injurious act (or infringement) in US tort law (Liu, 2015).

What can be brought about by effective legal training for doctors?

Doctors, since ancient times, have been the basic guarantee for the governance of the country and the development of ethnic groups. They are the inherited groups for the development of medical and health undertakings. They have professional and systematic medical knowledge and have been engaged in medical and health work all the time.

First, legal education should be implemented to protect the legitimate rights and interests of doctors and patients. Opinions on Deepening the Reform of the Medical and Health System and Implementation Plan for Deepening the Medical and Health System Reform from 2009 to 2011(hereinafter referred to as the "2009 Medical Reform Plan") adopted by a regular meeting of the State Council in 2009 clearly state that we should improve the ability of governments at all levels to manage and develop medical and health undertakings through legal means, strengthen the implementation of legal popularization in the field of medicine and health, comprehensively improve the legal awareness of the entire society, and strive to create a legal environment conducive to the physical and mental health of the people. If medical personnel

can not master medical laws and regulations to a certain extent, they will have weak legal awareness. When facing medical disputes, they will not be able to protect their legitimate rights and prevent the occurrence of medical disputes by enhancing their own legal consciousness. It is necessary for medical personnel to strengthen their own legal consciousness and establish the concept of "supremacy of the law" (Gao, 2016).

Law on Practicing Doctors of the People's Republic of China stipulates the system of medical practitioners' admission. Regulation on the Prevention and Settlement of Medical Disputes, Tort Liability Law and the General Provisions of the Civil Law and the General Rules of Civil Law all require doctors to recognize the equal status of doctors and patients in the prevention and treatment of medical disputes and fully respect patients' right to know and choose during medical diagnosis and treatment. The legal training of doctors is the implementation measure of hospital management according to law.

Second, legal training for doctors is helpful to prevent medical disputes. From the doctor's point of view, whether the doctor's treatment behavior violates the patients' legitimate rights depends on the doctor's legal awareness and mastery of legal knowledge. In their daily work, only when doctors clearly identify their legal status, rights and obligations as the subject of law, pay attention to the rights and interests of patients, and adopt law in treatment behavior, can the occurrence of doctor-patient conflicts and medical disputes be reduced. Therefore, legal training for doctors, as an important way to prevent medical disputes, is particularly necessary (Member Department of Chinese Medical Association, 2003).

At the same time, doctors should also be trained in laws and regulations related to medical behavior, so that they can know the law and abide by the law in practice. For example, doctors should first ensure the integrity, standardization, and legitimacy of medical records. Practicing medicine according to law is basis of doctors' work. To ensure doctors to practice by law, hospitals should standardize profession standards according to law, patients seek medical treatment according to law, the people respect doctors according to law, and the society assists doctors according to law (Zhao, 2017).

There is no doubt about the importance of legal knowledge to surgeons. In general, it is also very beneficial for surgeons' growth and even the development of health undertaking (Sun & Nie, 2008).

It is of far-reaching significance to research the legal issues involved in electronic medical records (hereinafter referred to as EMR) for preventing and resolving legal disputes over liability for medical damage caused by EMR. Strengthening regular or irregular legal training for medical personnel can enhance their legal awareness, improve their professional ethics and

make them realize the important role of EMR in medical damage disputes. In this way, doctors can realize that EMR is an important legal evidence to judge whether the medical institution has any fault, whether it bears compensation damages, and the proportion of liability they should bear. At the same time, they can also clearly recognize that unauthorized tampering, forgery of EMR and disclosure of patient privacy and other acts are against the law and they will have to bear corresponding criminal or civil liabilities (Fan, 2017). Strengthening legal education and regulating doctor's behaviors by law are important to the prevention of medical disputes. Article 335 of *the Criminal Law* stipulates that: "Any medical personnel who, due to serious irresponsibility, cause death or serious damage to the health of the patient, shall be sentenced to criminal detention or fixed-term imprisonment of not more than three years". Therefore, anyone who violates the criminal law will bear legal liability. Medical personnel should strictly comply with *the Law on Practicing Doctors*, which is the best way to prevent medical disputes (Chen & Liang, 2009). Li Zhe conducted a retrospective questionnaire survey through random sampling of multi-stage cluster and quantitative analysis of linear regression on the medical personnel in Weihai, Shandong province. The results show that there is a causal relationship between the level of legal knowledge of medical personnel and medical disputes in Weihai City. It is proposed that the medical personnel should be educated in laws and regulations through various ways to prevent the occurrence of medical disputes effectively (Li, 2012).

Doctors are not a legal profession. There are many reasons for the lack of legal awareness of medical staff. The responsibility of doctors is to treat diseases and save people. They lack legal knowledge, and it is imperative to enhance their legal awareness. Therefore, it is necessary to take various measures to cultivate the legal consciousness of medical personnel in order to enhance their legal consciousness, it can help to enhance the consciousness of medical staff to practice according to law, reduce disputes between doctors and patients, build a harmonious doctor-patient relationship, and promote the healthy development of medical and health undertakings (Gao, 2016).

The education of medical personnel in sociology, ethics, psychology, and public relations is in line with the Biopsychosocial Medical Model advocated by the WHO (Archard, 2008). Medical personnel should not only master medical technologies, but also the law. Practicing by law is the basic criterion for medical personnel. It is the also the basic requirement for them to protect patients' life and health, reduce the occurrence of medical disputes and protect themselves. Strengthening the legal training for medical personnel is an important way to improve the quality of medical care, maintain normal medical order and promote social harmony and stability (Li & Yang, 2011).

2.6.2.3 Receptivity of doctors

(1) Improvement of theoretical level

Educational measurement theory in curriculum examination is mainly applied in the evaluation of examination quality (Yu, Peng, & Lu, 2006). Xue, Ma, and Zhang found that confirmatory factor analysis can provide a basis for test paper standardization in two ways: First, it reflects the overall effectiveness of the questionnaire through the model evaluation. Second, it evaluates the differentiation and contribution of each test question through factor loading. The research shows that different types of test questions reflect the judgment, discrimination, memory and comprehensive analysis ability of students (Xue, Ma, & Zhang, 2011). Jing holds that an important part of teaching is the examination, with a main purpose to evaluate students' mastery level of knowledge and the teaching effect, so as to provide reference for improving the quality of education and teaching. At the same time, the analysis of examination results can provide feedback on all aspects of teaching activities, the teaching quality, examination database and standardization and scientificity of examination can all be improved (Jing, 2010).

The examination database for doctors consists of 500 questions about laws and regulations of medical humanities for regular examination. Before and after the training, the trainees are given a unified difficulty test to measure what they have learned and their comprehensive abilities such as memory ability, judgment ability and identification ability.

(2) Doctors' absorption and transformation of knowledge

Transformation motivation. It refers to trainees' desire to apply the knowledge or skills they have learned into actual work. Doctors could show transformation motivation in the following situations: ① Doctors have confidence in applying training skills; ②Doctors have the perception to improve professional safety by applying new knowledge and skills; ③Doctors believe that the knowledge and skills can help them to solve problems at work or satisfy their needs at work. Three months after the training, the use of skills was assessed by the trainees themselves and their administrators.

Transformation perception. After training, doctors apply the knowledge they have learned in their practical work and it takes effect. If a doctor, after the training, feels recognized by the people around, he or she will attribute it to the results of the training transformation, thus promoting a more active training transformation.

(3) Learning organization

The training transformation atmosphere. The training transformation atmosphere refers to

the trainees' perception of the characteristics of the working environment that can promote or hinder the training results (Wang, Yu, & Li, 2012), for example, whether superior and subordinate colleagues support the transformation of knowledge and whether they are encouraged and recognized after training (Chen & Wang, 2012). The learning culture and atmosphere is environment that affects the behavior of doctors in the organization (Li, 2012).

Suitability of working environment. A negative working environment affects the transformation of training skills. If all the people around do not cooperate with and accept the application of new knowledge and stick to the original working habits and knowledge after the training, the transformation motivation will be weaker and weaker. In order to better understand the transformation of training, it is necessary to study the issue of implementation opportunities (Hu, 2010). Ford et al. conducted a research in 1992, finding that the use of new knowledge has a great impact on the training transformation. If the environment is good, the impact on the doctors participating in the training is also positive (Wu & Long, 2006).

In general, the training content should focus on fields related to medical disputes. Legal training for doctors discussed in this thesis is based on the analysis of root causes of 106 cases of medical disputes and questionnaires on doctors' needs for legal knowledge. Through these, laws and regulations that doctors are concerned about and the content related to medical disputes are obtained, and thus content of legal training for doctors can be determined. What doctors most want to learn about medical and health in China is the law or regulations that stipulate what they can do and what they can not do, and how to avoid breaking the law so as to prevent the occurrence of medical disputes. It is inevitable that doctors are more eager to learn about the legal system related to medical disputes. In the context of tense doctor-patient relations, it is the common aspirations of all doctors to practice medicine by law and avoid medical disputes. In legal training for doctors, the idea of practicing medicine by law is the fundamental need, long-term need and ought-to-be need for doctors' work and development. Legal training conveys the concept of rule of law with legal knowledge as the carrier.

2.7 Overview of the application of Kirkpatrick Model in legal training for doctors

2.7.1 Summary of Kirkpatrick Model

Kirkpatrick Model was proposed in 1959 by the internationally renowned scholar Donald. L. Kirkpatrick, a professor of University of Wisconsin. The model includes reaction assessment,

learning assessment, behavior assessment and result assessment, which is also known as the four-level assessment model (Kirkpatrick, 1996). Kirkpatrick Model divides the evaluation of training into four levels, so as to evaluate the training effect (Zhu, 2006).

From the first level of response level evaluation, when designing the scale evaluation of this level, you should pay attention to the authenticity of the whole process, observe the response of the residents to the training program, and mainly measure the specific satisfaction of the training doctors, whose satisfaction is similar with the customer. It is that after the training, the doctors show a positive response to the training, thus showing a strong learning motivation, which is extremely important for the training. The doctors who participated in the legal training can collect useful feedback, evaluate the training, and improve and perfect the follow-up legal training for doctors based on the evaluation opinions and suggestions; the doctors' expectations and requirements for this legal training can enable the trained doctors understand that the training knowledge provided by the trainer to better enable them to carry out their work better, and then clarify whether the training is authentic and credible. According to the doctor's legal training evaluation form we implement the second level of learning level evaluation. This level mainly evaluates what laws and regulations knowledge the participating doctors have learned, what specific skills the doctor has mastered to reduce disputes, and what attitudes have changed in the process of diagnosis and treatment. From the behavioral level of evaluation, the design of pre-training evaluation focuses on the mastery of the legal knowledge of the doctor before the training, and the proficiency of applying this knowledge to the patient and the patient's family. The principle of the specific evaluation in this thesis is to use the control group analysis, in which we set aside 3 months to promote the change of behavior. The task of assessment from the third level is how the participating doctors changed when they faced patients and their families after the training. The specific method was to issue questionnaires to participating doctors. From the result level evaluation, using the control group to analyze the law-based practice of doctors after participating in the legal training of doctors and the degree of reducing complaints and disputes to disputes patients and their families. The evaluation of doctors at this level needs to be carried out at the department and hospital level, because this evaluation is an impact on the hospital organization. Using the time set aside in the control group, you can also interview department staff who are receiving complaints and disputes from the hospital where the doctors are trained.

2.7.2 Application of the Kirkpatrick Model in evaluating the effectiveness of communicative training for doctors

As of 2019, there are 48 theses on medical and health education on CNKI. The research of training model in China is less, and it lags behind other models obviously (Guo et al., 2009).

Judging from the literature data, although domestic research in this field started very late, in the past five years, there has been an increase in the relevant literature of various Chinese enterprises, as well as education, health and many other industries. A great attention has been paid to evaluating the effectiveness of training, and some achievements have been made. The most direct effect of the Kirkpatrick Model is to make the quality of training be fully controlled and improved. The training work is in spiral rising, forming a closed benign cycle throughout the whole process of training, and the training has been improved continuously (Wang, 2006). The system of training, assessment, application and treatment shall be gradually established within the organization. The external incentives shall be used to encourage trainees to apply the knowledge and skills learned in the training to the work so as to improve their work performance (Song, 2007). Therefore, the Kirkpatrick Model is a very practical tool for continuing education management. The application of the Kirkpatrick Model including reaction assessment, learning assessment, behavior assessment and result assessment, in China's continuing medical education can enhance the effectiveness and quality of training and promote the development of individuals and organizations (Guo et al., 2009). Xian et al. applied the Kirkpatrick Model and the CIPP model to build a scientific and comprehensive model for evaluating the effectiveness of training for medical personnel. The public health institutions can evaluate the effectiveness of training for medical personnel according to their own conditions. Training work can be evaluated by different levels, so as to establish a scientific and effective training strategy system (Xian et al., 2016).

The Kirkpatrick Model has been applied to improve the competence of clinical nurses, and evaluate the training target, content and effect (Tan, 2013). Kirkpatrick's Four Levels Model has also been applied to the training of pediatric probationary nurses in China and made a comprehensive evaluation of the training effect.

From the application status of the Kirkpatrick Model and the CIPP model in medical training, the specific application of each model at different assessment levels are summarized and analyzed, which aims to provide reference for the application of training evaluation model. The Kirkpatrick Model and the CIPP model can play a complementary role in medical training (Ruan & Yang, 2018). The organic combination of static evaluation, qualitative evaluation and

quantitative evaluation, process evaluation and end-point evaluation can realize the comprehensiveness and scientificity of evaluation, and makes up for the shortcomings of other evaluation models that are limited to "target" or "result" evaluation. The evaluation system based on the two models has been applied in the training of clinical pharmacists, and the results show that the system is feasible (Meng, Zhang, & Yu, 2015). Therefore, in medical training, the scientific application of the Kirkpatrick Model and the CIPP model can realize the combination of process evaluation and results evaluation. Based on the integrity of the CIPP model, we can combine the reaction levels of the Kirkpatrick Model with the process evaluation of the CIPP model, while other aspects of the Kirkpatrick Model can be integrated into the result evaluation of the CIPP model. This can accurately evaluate the teaching effect and put forward suggestions for the improvement of teaching process, which is conducive to the improvement and development of teaching and training (Ruan & Yang, 2018).

Qiu Liqiong believes that in the human resources management system, the training of employees is a key link, which relates to the overall quality of hospital human resources. With the perfect training system of the Kirkpatrick Model, the hospital strategy can be connected with the development of each employee, so as to realize the common development of personal value and that of the organization (Qiu & Kang, 2016).

The four-level evaluation system is established to optimize the training system for new recruits (He & Wang, 2012). In practice, it is easier for hospitals to conduct the pre-service training for new personnel, but it is indeed more difficult to carry out the evaluation of the changes of new personnel's behavior after training. Not only because it is difficult to quantify the behavior which may also be influenced by other factors, but also because it requires continuous behavior observation and analysis, and counseling should be provided to help improve their behavioral outcomes in practice (An, 2010). Through the training evaluation model, the hospital can establish a four level evaluation system by combining the four level evaluation table with the actual situation of the hospital based on the evaluation method, evaluation problem, evaluation purpose, evaluation time and other elements.

After the training, track the behavior and results, and observe whether the performance level of the trainees and the hospital is really improved after the training. However, at present, it is difficult for many hospitals in China to really implement the training effect evaluation (Li, 2010). The closed PDCA cycle is an extremely important part in the training process. In hospital human resource management, problems can be exposed through pre-job training evaluation, and continuous closed-loop improvement. PDCA cycle can be used to establish a long-term mechanism of pre-job training evaluation for new recruits in hospital, and gradually

optimize the pre-job training system (Xu, 2011).

2.8 Conclusion

Doctors receive legal training, apply the awareness of learning, using, respecting and observing the law in the process of treating patients, so as to avoid medical risks, prevent medical disputes and ensure the safety of patients. Patient safety is a fundamental principle of health care. To better protect the safety of patients, we need to make a complex system-wide efforts, to carry out basic legal education for doctors in risk management, to seriously study the root causes of adverse events, and to maximize the experience from adverse events (Emanuel et al., 2008). The first major component of the patient safety model is the professional medical staff (Vincent, 2010). Through understanding the staff in the system and the relationships between them and with institutions, patient safety can be ensured through continuing education.

From a preventive point of view, a large number of different types of interventions can reduce errors, and some can make the operation process more reliable. Patient safety is still associated with forensic perspective. Issues of people and organization can be viewed from the perspective of forensic medicine and insurance, so the importance of human factors and institutional factors should be recognized. Although specific interventions have been proved to be effective, it is difficult to improve the overall safety of the organization. The British Patient Safety Initiative has not produced large-scale changes in different measures of culture, process and outcome. The longitudinal descriptive retrospective studies in the US and France showed no progress on patient safety, despite encouraging results in the Netherlands in 2015.

The possibility that the medical behavior directly or indirectly leads to the patient's injury or disability, the uncertainty of the diagnosis and treatment results, and the possibility of other unsafe events in medical activities carried out by medical institutions and their medical personnel can be called "medical risk" (Chen & Liu, 2013). As for medical incidents, the situation in China is roughly the same as that in the US. Medical incidents mainly occur between doctors and patients in medical activities (Qian, Wu, & Zhou, 2014). The medical disputes studied in this thesis are in a narrow sense, only referring to disputes between doctors and patients in medical activities. That is, the behavior of medical institutions or medical personnel in medical activities has causal relationship with the patients' damage and they have to compensate patients.

Lin Xueyu and Li Wen (2015) analyzed 1552 cases of medical disputes and concluded the main causes, of which the duty-bound factor accounted for 47.10% and the technical factor

accounted for 38.60%; proportion of cases occurred in surgery accounted for 30.86%, proportion of cases occurred in internal medicine accounted for 18.43%, proportion of cases occurred in orthopaedics accounted for 14.69%, and proportion of cases occurred in obstetrics and gynecology accounted for 11.34 %. The four departments are with high incidence of disputes. Best measures for preventing disputes are summarized: strengthening the legal education and moral and responsibility education of all personnel, implementing the core medical system, and strengthening the professional technical training of medical personnel.

Through the comprehensive analysis of research on medical dispute prevention, the following five points are summarized: Firstly, strengthen the legal and regulation training for medical personnel (Zhang, 2012); Secondly, in order to prevent medical disputes, hospitals should first implement the medical system, especially the 18 core systems (Liu, 2010); Thirdly, according to the requirements of specific disciplines and professional skills, improve the professional and technical level of medical staff; Fourthly, establish the medical dispute files based on "Three Must Principles" and draw lessons from the past. That is to say, every case of medical disputes must be investigated, the causes must be analyzed, and the responsibility must be traced to the person (Huang, 2012). Fifthly, the government should participate in the purchase of medical liability insurance and medical accident insurance, and shares the responsibilities of hospitals (Zhu & Yang, 2011).

Medical disputes are the result of multiple factors, including the objective reasons, such as the increase of people's health needs and the enhancement of patients' awareness of rights with the development of the society, and the wide application of various methods of examination and the widespread use of invasive therapy with the development of medical science and technology. It is also due to the "medical consumerism consciousness" caused by profit-seeking actions of some medical institutions, the unexpected medical damage suffered by patients, bad attitude and the weak sense of responsibility of some medical personnel, and communication barriers between doctors and patients (Liu & Luo, 2018). There are many factors that cause medical risks, which can be summarized as three factors: hospitals and medical personnel, patients and their close relatives and the society.

In 505 cases of medical damage forensic cases, 20.39% are related to the right of informed consent. Some people have a lack of scientific knowledge of medical treatment. They think that after paying money in the hospital, the medical staff should treat the patients well, otherwise they will complain to the doctors. Patients and their close relatives' awareness of safeguarding their rights are improved. As long as they are not satisfied with the treatment results, they will file a lawsuit, and even excessively safeguarding their rights, leading to medical disturbance

(Qian, Tian, & Zhou, 2017). The low sense of social integrity leads to a crisis of trust between doctors and patients, which is also a reflection of the lack of social integrity in hospitals. When patients receive medical treatment, they lack the most basic trust in doctors. The two sides are at loggerheads over problems, leading to intensified contradictions and medical disputes. The basic medical security system is not yet perfect. The media intervene when they don't understand the actual situation and make untrue reports, which affect patients' trust in medical institutions (Wang, Li, & Liu, 2011). The importance of legal education is mentioned in the research of dispute prevention countermeasures, which plays a guiding role for doctors to effectively prevent medical disputes.

Doctors are adults with professional knowledge. We should understand that the essence of legal training for doctors is the continuing education of adults. Training should pay attention to the characteristics of doctors as adults. Based on this, we should fully explore the specific problems encountered by doctors in their daily work and answer their questions from the legal level, so as to arouse their interest and motivation to participate in legal training and learn legal knowledge actively.

At present, the content of legal training for doctors in China is not unified, so the effect is not obvious, leading to the impact on reducing medical disputes is not obvious. There are not so many existing researches on the effectiveness of legal training for doctors about the applications of the Kirkpatrick Model. However, in recent years, the four levels of the Kirkpatrick Model have begun to attract attention in hospital training management projects. It is favored by hospital managers because of its integrity, consistency and long-term nature (Guo, 2017).

This thesis takes the Kirkpatrick Model as the theoretical basis for evaluating the training results. It researches not only the effect evaluation of the reaction level and the learning level, but also the effect of the third and fourth levels of training, so that we can fully apply this model to legal training for doctors. This model is adopted to evaluate the effect of legal training for doctors in order to propose feasible suggestions for reducing medical disputes, raising legal awareness of doctors, safeguarding legitimate rights and interests of doctors and patients, and the continuing education for doctors.

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Chapter 3: Research Framework

3.1 Research model

The model of this research, as shown in Figure 3.1, is based on the above-mentioned literature review and the Kirkpatrick Model. The Kirkpatrick Model was proposed in 1959 by Professor Donald L. Kirkpatrick, a famous international scholar and professor of Wisconsin University. It is currently the most widely used training evaluation tool in the world and has an unshakable position in the field of training evaluation (Kirkpatrick, 1996). In this research, the independent variable is the factors that affect the effectiveness of doctors' legal training, the intermediate variable is the effectiveness of the doctor's legal training, and the outcome variable is the improvement of doctors' legal knowledge and legal literacy, the reduction of medical complaints and disputes. Doctors' legal knowledge and legal literacy are improved, and medical complaints and medical disputes are reduced. The research on this change mainly mediates three independent variables through the intermediate variable. Through the intermediating variable, the doctors' legal knowledge is increased, and the doctors' ability to apply the law is improved. The criteria to measure the effectiveness of legal training are doctors' mastery of legal knowledge and their application tendency of legal knowledge. If the application tendency changes after doctors participate in the training, the occurrence of complaints and medical disputes will be reduced. The intermediate variable is used to mediate the factors that affect the effectiveness of legal training for doctors, and the Kirkpatrick four-level evaluation model is used to measure the reduction of complaints and medical disputes and the effectiveness of legal training for doctors.

This thesis studies the evaluation of the effect of legal training for doctors, and its effectiveness is also based on Kirschner's four level evaluation model, which fills in the blank of the evaluation theory of legal training for doctors in China in the field of Kirschner's four level evaluations.

Kirschner's four level evaluations is the most widely used training evaluation tool in the world and has an unshakable position. The model includes reaction assessment, learning assessment, behavior assessment and result assessment, which is also known as the four-level assessment model (Kirkpatrick, 1996). The model includes the first stage—reaction level

assessment, the second stage--learning level assessment, the third stage--behavior level assessment and the fourth stage--outcome level assessment (Zhu, 2006).

The reaction level evaluation is to measure whether the doctors are satisfied with the legal training; the learning level evaluation is to measure doctors' mastery of new knowledge after the legal training; the behavior level is to evaluate the degree of doctor's using the learned legal knowledge; the achievement level is to evaluate the impact of legal training on preventing and reducing medical disputes.

The first level, the reaction level assessment, is to measure whether the trainers are satisfied with the training activities, just like customer satisfaction. After the training, doctors show positive response to the training and strong learning motivation, which is very important for the training. Kirkpatrick believes that it is embodied in three specific aspects. First, doctors participating in the legal training can give valuable feedback, which can be used to improve the legal training in the future according to the opinions and suggestions; second, doctors' expectations and needs for the legal training can be known through the response evaluation, so that they can realize that the training is to make them do a better job, so as to evaluate the effectiveness of the training; third, through the evaluation of the legal train, we can provide some quantitative information for doctors, which can be used as the standard for the future development of training programs (Kirkpatrick, 2015). When designing the evaluation scale, we should pay attention to the authenticity of the whole process and observe residents' reactions to training programs.

The second level is the learning level assessment. It is to evaluate what knowledge and skills the doctors have learned and the changes of their attitudes. Although doctors' knowledge and skills will be improved after training, there is no guarantee that there will be a change in their behavior at work. Before and after the training, evaluate the knowledge, skills or attitude of the selected doctors. The selected doctors should participate in the written examination, and their knowledge growth and attitude change will be evaluated (Kirkpatrick, 2015).

The third level is behavior evaluation, including two aspects: pre-training behavior evaluation and post-training behavior evaluation. Pre-training behavior evaluation mainly focuses on the degree of mastery of legal knowledge before the legal training, and the degree of proficiency in applying new knowledge to patients and their families (Lv, 2014). The principle of evaluation is to analyze with the help of the control group, and set aside three months for behavior change. After the training, the doctors go back to work. Then, it is necessary to observe whether the knowledge they have learned is applied to the patients and their families, and whether the new knowledge can play a guiding role. The third level evaluation is to

evaluate the changes of the trainees in the face of patients and their families. The specific method is to send questionnaires to the trainees and their colleagues, and also conduct individual interviews with them, but the questions should be consistent (Kirkpatrick, 2015). After completing the above evaluation work, we should also know about the factors affecting the change of doctors' behaviors (Yang, 2011).

The fourth level is the result evaluation. With the help of the control group, the situation of doctors practicing by law after the legal training and the reduction of complaints and medical disputes were analyzed. This level of evaluation needs to be carried out at the department level and the hospital level, because evaluation is about the overall impact of training on the hospital. After the training, the changes of doctors at work are as follows: the improvement of doctors' legal literacy, the standardization of diagnosis and treatment notification to patients and their families, the enhancement of evidence awareness on medical record writing, the decrease of medical errors and the improvement of patient safety. By using the time set aside by the control group, we can also interview the staff in charge of complaints and disputes in the hospital. The final result is not easy to evaluate because of many factors. How to collect the real data comprehensively and get the results of this training needs further research.

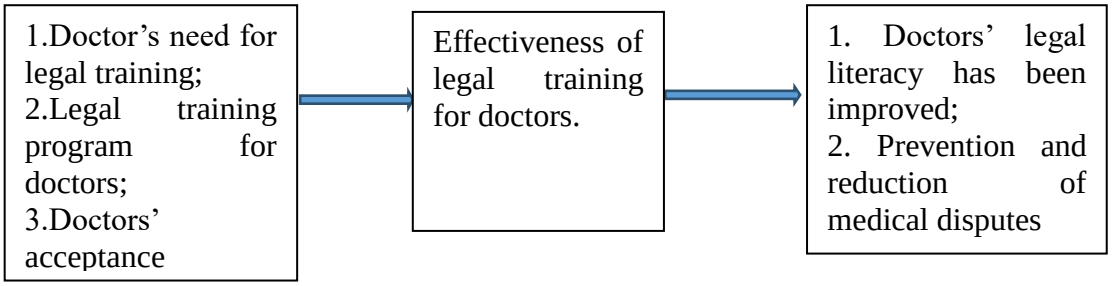

Figure 3.1 Research model

3.1.1 Doctor's demand for legal training

The theory of training needs analysis points out that employees have different training demands at different stages. This concept is based on the five-level demand theory proposed by American psychologist Abraham Maslow. Training demand analysis theory includes: individual training needs analysis theory, knowledge and skills training needs analysis theory and organizational atmosphere training needs analysis theory.

Qu conducted a survey on the clinician's understanding of medical regulations. *Tort Liability Law* implemented on October 10, 2010 made very clear provisions on medical damage liability and exemption in 11 articles in one chapter, which is an important basis for Chinese

courts to adjudicate medical disputes. Through the investigation of the doctors' understanding of the liability for medical compensation in *Tort Liability Law*, the results showed that only 2% of doctors have a thorough understanding of the medical liability and other regulations, and 63.0% of doctors do not know anything about it. More than half of doctors only know that there is such a regulation or they almost don't know any medical regulation, and 35.0% of the doctors only have a superficial understanding. This law is newly implemented in recent years. According to the survey data in 2016, Chinese clinicians have very limited knowledge of important medical regulations (Zhou et al., 2016).

Shen conducted an anonymous questionnaire survey among 456 students in a medical vocational college in Chongqing, and the effective questionnaire rate was 98.46 %. 274 students (61%) are totally unaware of their rights and obligations, and 56 students (12.5%) are unaware of their rights and obligations. The survey also found that 91.2% of the students are willing to learn more legal knowledge. By investigating the importance of learning health laws and regulations, 55 students (12.2%) believed that medical disputes could be prevented and reduced, and only 36 students (8.0%) believed that it could enhance their legal awareness. The survey shows that students lack awareness of the importance of learning health laws and regulations, therefore their awareness needs to be further improved. There are 445 students (99.1%) who think that education of health laws and regulations is mainly school-based. Only 9 students (2.0 %) believe that there is still education of health laws and regulations in the clinical internship. More than half of the students (248, 55.2%) are dissatisfied with the education of health laws and regulations, and believe that it is necessary to improve the teaching methods. The survey found that 316 students (70.4 %) believe that it is the best way to teach health laws and regulations during clinical internships. The investigation shows that the pure classroom teaching method should be changed by integrating the education of health laws and regulations into the clinical internship (Shen, 2019).

After graduating from medical schools, it is difficult for doctors to effectively apply the legal knowledge learned during school in practice. After the promulgation of new laws and regulations, clinicians have a huge workload every day, and almost have no time to systematically learn new laws and regulations. Without the understanding of the new laws and regulations, they can not truly practice by law and protect the legitimate rights and interests of patients. In terms of the current demand of clinicians, post-education of laws and regulations is not enough. We should train doctors after synthesizing all existing medical laws and regulations with what the doctors needed for daily work.

Abduriyim's team selected 200 residents at random, collected the data of the trainees by

questionnaire survey, and obtained the results through data analysis. The main factors affecting the quality of residents' standardized training include: trainers, training programs, content of courses and training methods (Ailifei & Ayinuer, 2017).

On the basis of literature research and practical work experience, combined with the current situation of law popularization in medical institutions in China, it is found that the factors affecting the effectiveness of legal training for doctors are as follows: ①The content of legal training for doctors such as explicit knowledge for doctor practicing by law, the close relationship between knowledge and clinical work, and patient safety centered culture;② Methods of legal training for doctors; ③Trainers of doctors; ④Lack of diagnostic assessment of legal training for doctors. The above four factors have a significant impact on the effectiveness of legal training for doctors.

The tendency of doctors to apply the training results in practice, the learning atmosphere in the whole process, whether they study by themselves or in teams, and the teaching method of trainers, such as a mini-lecture or a two-way discussion will all affect the effectiveness of legal training for doctors.

3.1.2 Legal training programmes for doctors

A legal training plan is the blueprint for training organizations to implement, which needs to be targeted and on a moderate scale, because a scientific training plan is the key to ensure the training effect.

3.1.2.1 Trainers of legal training for doctors

Trainers are organizers and implementers, and are an important factor in legal training. They need to be responsible for the early screening of the training objects, investigating the needs of the training objects, selecting the training places and methods according to the needs, determining the training contents, and investigating the effect of the training. So the quality of trainers directly affects the effectiveness of training. Therefore, trainers are required to be proficient in legal knowledge, the hospital management system, doctors' working habits and other knowledge.

3.1.2.2 Training form

Forms can be a variety of cases and clinical activities. We can hold special lectures on the weak points of doctors' legal knowledge, discuss a specific problem in class, use classic cases or simulation cases for teaching, and experience teaching through moot court and court hearings

(Gao, 2016). To cultivate the legal literacy of doctors in clinical teaching, in addition to solid medical theory and rich clinical experience, trainers must have more systematic legal knowledge and higher legal literacy, as well as the ability and habit to deal with clinical problems from the perspective of social medical model (Feng, 2007). Through the above training methods, legal training for doctors can play an effect. Doctors are willing to take the initiative to learn, apply the knowledge to the future work, protect the rights and interests of themselves and patients, prevent and reduce disputes.

3.1.2.3 Training content

As for legal education and training for doctors, the principle of combining legal knowledge with the practical work should be adhered. We should earnestly implement relevant laws, regulations and departmental rules and regulations in daily work (Liu & Xian, 2008).

Ma and Ye pointed out that China's current medical and health laws and regulations include 11 laws, 40 regulations and more than 140 departmental regulations. The main contents of medical training include the legal obligations of medical institutions and medical staff; the obligations closely related to clinical practice, including the registration of medical institutions and medical staff, the legal obligations of doctors, the management system of doctors, and the prevention of medical disputes (Ma & Ye, 2018). *Regulations on the Prevention and Settlement of Medical Disputes*, which came into effect on October 1, 2018, stipulates that patients can copy all medical records about themselves. Medical records are objective evidence of medical dispute litigation, and thus should be one of the focuses of training (Zhang, Zhang, & Han, 2000).

The case of Mohr V. Williams is a milestone in the US in the 20th century. The doctor only obtained Mohr's consent to perform surgery on her right ear. However, during the operation, Mohr's left ear was also operated without consent. The case constituted an injurious act (or infringement) in the Tort Law of US (Liu, 2015). The patient's informed consent right is the focus of doctors' legal training.

3.1.2.4 Benefits of effective legal training for doctors

Firstly, doctors' knowledge of legal theory can be improved. The construction of the rule of law is an important part of hospital management. The publicity and training of the rule of law can improve the overall concept of the rule of law in public hospitals and the legal literacy of doctors. Legal training for doctors helps to prevent and reduce medical disputes. From the doctor's point of view, whether doctor's behavior violates the patients' legitimate rights

depends on doctor's legal awareness and their mastery and flexible application of legal knowledge. It is an important measure to reduce medical disputes at present by studying the medical laws and regulations such as the Law on Practitioners, observing the law, improving relations between doctors and patients, and strengthening self-discipline (Member Department Of Chinese Medical Association, 2003). At the same time, doctors should also be trained in laws related to medical behavior, such as *the Criminal Law*, *the Civil Code*, *Consumer Rights Protection Law*, *Regulations on the Settlement of Medical Accidents* and *the New Regulations on the Prevention and Settlement of Medical Disputes.* Legal knowledge is also very beneficial to the growth of surgeons and even to the development of health care (Sun & Nie, 2008). Article 335 of *the Criminal Law* stipulates that: "Any medical personnel who, due to serious irresponsibility, cause death or serious damage to the health of the patient, shall be sentenced to criminal detention or fixed-term imprisonment of no more than three years" (Chen & Liang, 2009).

Secondly, legal consciousness of medical staff can be enhanced. It is imperative to promote the healthy development of medical services and strengthen the legal consciousness of medical personnel (Gao, 2016). It is important for doctors to realize the electronic medical records, based on which the medical institutions' faults, compensation damages and their proportion of liability will be judged. Moreover, unauthorized tampering, forgery of electronic medical records, and disclosure of patient privacy and other acts are all against the law, and the person concerned may bear corresponding criminal or civil liability (Fan, 2017).

Thirdly, the occurrence of complaints and medical disputes can be reduced. Through effective legal training, doctors' legal literacy can be improved, and they can have a clear understanding of their own legal status, rights and obligations, but also pay attention to patients' legitimate rights and interests, which can prevent and reduce medical disputes.

Based on the literature review and practical experience, the research model of this thesis is obtained. The independent variable is the factor affecting the effectiveness of the training for doctors. The output variable is the effectiveness of the legal training for doctors, that is, the tendency of doctors to apply new knowledge. The result variable is to prevent and reduce the occurrence of medical disputes, mainly including the improvement of doctors' legal literacy and the protection of legitimate rights and interests of doctors and of patients. The factors that affect the effectiveness of legal training for doctors are the specific methods and training content. If the specific methods and specific content of legal training are improved, the effectiveness will be also improved. Effective legal training for doctors means that the tendency of doctors to apply the legal knowledge in their daily work, thereby improving their legal

literacy, protecting their legal rights and interests, and eventually reducing and the occurrence of medical disputes. That is to say, the change of input variables leads to the change of output variables, and finally the change of result variables, which is the core of this thesis.

3.1.3 Acceptability of doctors

The motivational theory proposed by psychologist J. W. Atkinson tells that avoiding failure and striving for success are two tendencies of the actor under achievement motivation. According to motivation theory, the most important motivation for a doctor to learn legal knowledge is that the knowledge is useful for their work. According to the theory of motivation and the theory of expectation, motivation is an important factor for the transformation of training effects. When the trainees want to improve their legal literacy, protect the legitimate rights and interests of patients and reduce medical disputes, they will be more willing to receive training and translate training content into practical work. Hu (2010) proposed that training should be viewed from the perspective of learning when studying the psychological characteristics that affect the training effect. The effect of learning is the result of training, and learning motivation affects learning effect; the effect of doctors' learning and behavior change are influenced by doctors' satisfaction with training.

Learning organizations is the result of some basic practices including: Personal Mastery, Improving Mental Models, Building Shared Vision, Team Learning, and System Thinking. Just as shown in Table 3.1.

Table 3.1 Characteristics of learning organizations

Characteristics	Specific description
Continuous learning	Employees learn together and take work as the basis for knowledge application and creation.
Knowledge creation and sharing	Develop systems for creating, acquiring and sharing knowledge.
Strict systematic thinking	Encourage employees to think in new ways, identify links and feedback channels, and verify false claims.
Learning culture	Incentives, promotion and support for learning from company managers and company.
Encourage flexibility and practice	Employees are free to take risks, innovate, develop new ideas, try new processes, and develop new products and services.
Cherish employee value	System and environment focus on training development and welfare for each employee.

The theory of achievement motivation is proposed by David C. McClelland, a professor at Harvard University in the US. He made an in-depth study of people's needs for achievement, and summed up the high-level needs of people as the needs for achievement, power and affinity.

3.2 Theoretical basis

According to the research model, the effectiveness of legal training for doctors should be evaluated. Since 1999, there are relevant researches on training evaluation in China. As of 2018, there were 46 theses on the evaluation of medical and health science and technology training. There are only 32 theses on the training evaluation model, lagging behind other fields obviously (Guo et al., 2009). From the literature data, the research on effectiveness evaluation in China started late. But in recent five years, the literature on enterprises, education and health in China has been increasing, and more and more attention is paid to evaluation training.

According to the literature review, the application of Kirkpatrick Model in continuing education still remains at the theoretical level (Guo et al., 2009). With the Kirkpatrick Model, Xian et al. suggested that the public health institutions can evaluate the effectiveness of training according to the actual conditions. They can evaluate the training work by different levels, so as to establish a scientific and effective training system (Xian et al., 2016). Through the application status of the Kirkpatrick Model and the CIPP model in medical training, the application of each model at different evaluation levels is summarized, providing reference for the application of training evaluation model. It is suggested that the Kirkpatrick Model and the CIPP model can play a complementary role in medical training (Ruan & Yang, 2018).

Qiu and Kang suggested that the training system of the Kirkpatrick Model should be used to link the hospital strategy with the development of each employee, so as to realize the personal value of employees and the long-term development of the organization (Qiu & Kang, 2016). He and Wang recommended that hospitals establish the four-level evaluation system to optimize the training system for new recruits (He & Wang, 2012). In practice, it is easier for hospitals to conduct the pre-job training for new personnel, but it is indeed more difficult to carry out the evaluation of changes of new personnel's behavior after training (An, 2010). For the tracking of personnel behavior and training results, we should pay attention to whether the level of trainees and the performance level of the hospital have improved after the training. Moreover, at present, it is difficult for many hospitals in China to evaluate the training effect (Li, 2010).

3.3 Conclusion

In this research model, the independent variable is the factor that affects the effectiveness of doctor's legal training, the intermediate variable is the effectiveness of docto's legal training,

and the result variable is the reduction of medical complaints and medical disputes. According to the literature review, it is found that the independent variables influencing the effectiveness of legal training mainly include the demand of doctors for legal training, the scheme of legal training and the acceptance of doctors.

Legal training can improve doctors' legal theory knowledge and legal literacy. The reduction of medical complaints and medical disputes is mainly achieved through mediation of three independent variables. The intermediate variable mainly makes the doctor's knowledge of legal theory increase and the doctor's ability of applying law improve. The effectiveness of doctor's legal training can be measured by the mastery degree of legal knowledge and their application tendency of legal knowledge. If the doctor's tendency of applying the legal knowledge changed after the training, medical complaints and disputes can be reduced. The evaluation of the effectiveness of legal training for doctors should be based on the Kirkpatrick's four-level evaluation model. The evaluation variables in reaction level include the atmosphere of learning, teacher's sharing, and effectiveness of training and explicit knowledge. The evaluation variables in learning level are results of legal training for doctors. The evaluation variables in behavioral level are the tendency of applying legal knowledge and the learning culture of departments. The evaluation variables in result level are the improvement of doctors' legal knowledge, the reduction of complaints and medical disputes. The intermediate variables are used to mediate the factors that affect the effectiveness of legal training for doctors; the Kirkpatrick Model is used to measure the reduction of medical complaints and disputes, and the effectiveness of legal training for doctors.

Chapter 4: Research Methods

The data comes from the analysis of 10-year cases, and then through the topic generation, partial pre-test and pre survey. The questionnaire is distributed to each hospital with the purpose to collect useful data to verify the theoretical framework described in Chapter 3. According to the theoretical framework, the research issues are tested and answered. This chapter introduces the research methods, and discusses the reliability and validity of the measurement model of variables in the study.

4.1 Research design

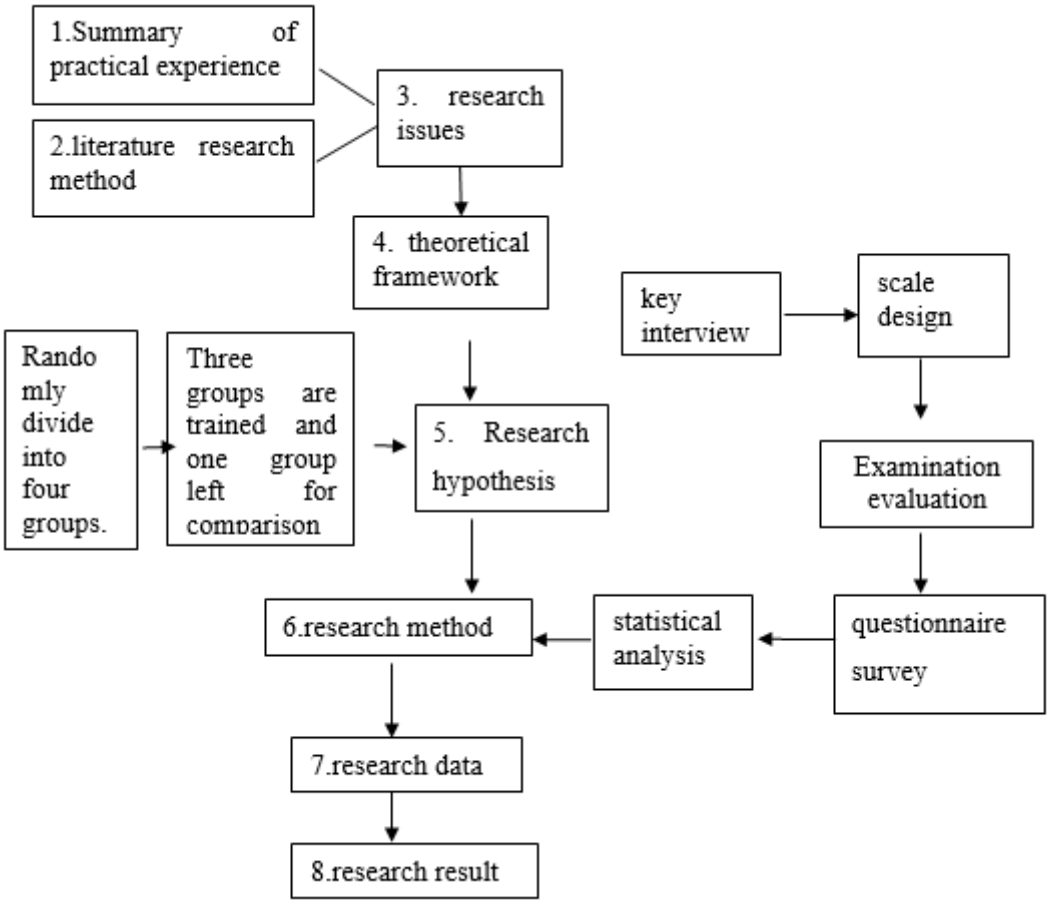

Figure 4.1 Research design

As shown in Figure 4.1, this thesis combines (1) practical work experience and (2) literature research methods to explore the main factors affecting the legal training of doctors on the

premise of six years of work experience, four years of legal training experience and literature review. Based on the analysis of 106 cases of medical disputes in the Affiliated Hospital of A university, this thesis summarizes the departments with high incidence of medical disputes, doctors' age, doctors' professional titles and other dimensions, from 18 indicators such as the correlation between laws and regulations and doctors' work, doctors' understanding of laws and regulations, doctors' cognition of their own acceptance, doctors' views on the purpose of participating in training and doctors' experience of previous training.

Combining with the practical cases obtained by the author during the six years' work in hospitals, this thesis raises the following (3) research issues: First, what are the factors that affect the effectiveness of legal training for doctors? Second, what are the impacts of the legal training for doctors on reducing medical disputes, improving doctor's legal awareness and achieving patients' satisfaction? At the same time, theoretical framework (4) of the research is established based on the Kirkpatrick Model, also referred to as "4R", proposed by Donald L. Kirkpatrick, a professor of Wisconsin University. Through response assessment, learning assessment, behavioral assessment and outcome assessment, this thesis systematically investigates the relationship and mechanism of legal training for doctors.

Research hypothesis (5) is put forward based on the theoretical framework: Firstly, five hospitals and doctors working for more than one year in five hospitals were selected for research. These doctors were randomly divided into four groups according to the submitted list: three groups were subject to medical training and one group was left as the control group. Three groups and the control group were given the same test paper and questionnaire. There may be four reasons for different results of doctor-patient relationship in the same hospital: contents and methods of legal training for doctors; learning effect of doctors; behavior changes of doctors after training and those in the control group; doctors' tendency of applying legal training skills; differences of the legal knowledge and legal literacy between the three groups and the control group; the difference of the occurrence of medical complaints and disputes between the three groups and the control group.

According to the research hypothesis, the research method (6) was preliminary designed: mainly through interviews with key persons (Deans, vice presidents of business, chiefs of medical education, directors of clinical department, doctors) and with 30 directors of the Doctor- patient Office by WeChat. Referring to *the Health Law* and China's current laws, regulations and policies, 10 questions were designed from the correlation between laws and regulations and doctors' work and doctors' understanding of laws and regulations. After investigation and analysis (Questionnaire1), three variables, 13 dimensions and 107 indicators

were designed. Doctor's needs for legal training include: First, individual training needs; second, doctors' legal training program; thrid, doctors' acceptance ability (Questionnaire 2). At the same time, the test paper on legal knowledge was designed (Test before and after training). A questionnaire on the effectiveness of training after three months was also designed (Questionnaire 3). According to the demand scale and 106 cases of medical disputes, we made root-cause analysis and designed the training content and the test paper of legal knowledge. Meanwhile, a questionnaire for managers of medical institutions was designed to investigate the training effect from their perspective. The control group was compared with the other three groups.

Through the research on the legal training for doctors, we collected samples (in the form of legal knowledge examination and questionnaire) and obtained (7) research data. A single factor, multi-factor analysis and regression equation analysis are conducted on the relationship between the training methods, training subjects, research methods, training content and the effectiveness of training. We summarize the factors that affect the effectiveness of legal training for doctors and its impact on reducing medical disputes, and get (8) research results, so as to give the theoretical value and practical value of the existing literature.

4.2 Literature research method

Through the literature review of the current laws and regulations, valuable information for this thesis was found. On the premise of medical dispute cases, through reading the relevant literature and database data of China and other countries, this thesis summarizes the research on the influence of legal training for doctors on medical disputes. On the basis of the original research, this thesis finds that there are a few achievements in the research on the impact of legal training on medical disputes, but there are still many deficiencies. Therefore, this thesis puts forward research hypotheses and research models to provide evidence for the research conclusions proposed in this thesis.

4.2.1 Literature retrieval method

This thesis selected databases from CNIKI, PubMed, CBM, China Judgements Online, Alpha and Jufa Case, and systematically searched for cases related to medical damage liability, medical dispute factors, medical dispute prevention, and doctor legal training in recent ten years. The keywords for are: medical damage liability, medical dispute factors, patients' right to informed consent, medical dispute prevention, doctors, doctors' legal training, doctors' legal

literacy, patients' rights, doctors' rights, doctors' obligations, training results evaluation and the corresponding English words of the above.

4.2.2 Screening criteria of literature

The literature selected should be relevant to the impact of legal training for doctors on medical disputes, mainly focusing on the medical damage liability, prevention of medical disputes, the laws, regulations and technical standards that doctors need to master, patients' right of informed consent, the legal awareness of doctors, the analysis of the effectiveness of legal training. The thesis has retrieved a total of 123 Chinese literatures and 38 English literatures (including 23 English literatures published by Chinese scholars abroad and 15 literatures by foreign scholars). With the medical damage liability as the cause of action, 71,801 cases of medical disputes were analyzed.

4.3 Summary of practical experience

Based on the research of the current situation of medical risk management at home and abroad and the high incidence of doctor-patient disputes in China, combined with the concept, characteristics, types and causes of medic disputes in China, which is shown in Table 4.1, Table 4.2, this thesis analyzes 106 cases of medical disputes in the First Affiliated Hospital of A University from January 2008 to January 2018. The ranking of departments with high incidence of disputes are obtained through analysis: 16 cases in General Surgery, 13 cases in Orthopedic, 7 cases in Emergency, 7 cases in E.N.T., 6 cases in the First Ward of Cardiology, 6 cases in Thoracic Surgery, 6 cases in Obstetrics, 6 cases in Gynecology, 4 cases in The Second Ward of Cardiology, 4 cases in Gastrology, 3 cases in Urinary Surgery, 3 cases in The First Ward of Neurology, 3 cases in Ophthalmology, 3 cases in Plastic Surgery, 2 cases in Mesonephros, 2 cases in The Second Ward of General Surgery, 2 cases in Dermatology, 1 case in Respiratory Medicine, 1 case in Oncology, 1 case in Newborn, 1 case in Anesthesiology, 1 case in Hematology, 1 case in Blood Purification Center, 1 case in Thyroid Mammary and 6 cases in other departments.

The following results provide a basis for the effective prevention and solution of medical disputes. With the rapid increase of medical disputes cases in China, prevention of medical disputes has been studied a lot. In the countermeasure research, it is proposed to strengthen the legal knowledge training for medical staff. At present, it is necessary to change the form and enrich the content of training so as to improve the ability of medical personnel to prevent and

control medical disputes, eliminate occupational violations, minimize misconduct, reduce complaint rate and achieve the goal of reducing medical disputes.

Lin and Li sorted out the main reasons for disputes in 1552 cases, among which 47.10% were responsible factors and 38.60% were technical factors; surgery accounted for 30.86%, internal medicine 18.43%, orthopedics 14.69%, and obstetrics and gynecology 11.34%, which were the top four high-risk departments. We summarized the following points for the prevention of medical disputes: strengthen the training of laws and regulations for medical personnel; the first step in preventing medical disputes in hospitals is to implement the medical system, especially the 18 core systems; according to specific disciplines and professional skills, the professional and technical level of medical personnel must be effectively improved; Establish a medical dispute file to learn the lessons of the "three things do not let go", do not let it go without investigating every medical dispute clearly, do not let it go without analyzing the reason, and do not let it go without holding accountable the person; the government participates in the purchase of medical liability insurance and medical accident insurance by the hospital and share the responsibility of the hospital; finally we summarized the best measures to prevent disputes: strengthen legal education and professional responsibility education for all employees, implement the core medical system, and strengthen professional and technical training of medical staff (Lin & Li, 2015).

The thesis analyzes the cases of doctor-patient disputes that have received wide attention from the society. Based on years of legal training experience, we made interviews and designed questionnaires, and discuss the constituent elements, process, mode, connotation, significance of legal training for doctors and the key issues that should be paid attention to, so as to provide reference data for the legal manuals that doctors need.

Table 4.1 The ranking of causes

Ranking of Dispute Causes	Cases	Proportion
Violation of the right of informed consent	39	39%
Necessary examination missed	11	11%
Misdiagnosis and mistreatment	10	10%
Violation of operation standards	7	7%
Cases are problematic	7	7%
Missed diagnosis and treatment	6	6%
Improper use of drugs	5	5%
Violation of the principle of disinfection and segregation	4	4%
Delayed diagnosis and treatment	4	4%

Ranking of Dispute Causes	Cases	Proportion
Improper nursing	3	3%
Improper remediation	3	3%
Insufficient assessment of patient's condition	2	2%

Table 4.2 Professional titles and ages of doctors

Title and age distribution of doctors in medical disputes					
Doctor's title	Ratio	Level	Ratio	Age	Ratio
chief doctor	16%	chief doctor	30%	35-39 years old	40%
associate chief doctor	42%	associate chief doctor	45%	40-44 years old	26%
doctor-in-charge	43%	doctor-in-charge	26%	45-49 years old	25%
				≥50 years old	22%

4.3.1 Current status of legal training for doctors at home

Chinese continuing medical education (CME) has gone through three stages: germination stage, testing stage and active development stage. Continuing medical education has been widely carried out throughout the country and has developed rapidly. In 2000, the Ministry of Health and the Ministry of Personnel promulgated *the Provisions on Continuing Medical Education (Trial)*, requiring the CME students to participate in CME activities every year, achieving no less than 25 credits (Guo, Peng, & Zhang, 2012). In China, it is clearly stipulated that the evaluation of doctors' continuing education is linked to the promotion and appointment of professional and technical titles. In Beijing, Shanghai, Guangdong and other cities or provinces, hospitals regard the training for doctors as an important task. Each year, there is a fixed time, learning period and learning materials, forming a relatively mature model (Zou, 2010).

The continuing education of doctors in China is about the study of professional and technical problems, and there is no special education for laws, regulations and regulations. In recent years, with the frequent occurrence of conflicts between doctors and patients, doctors have gradually begun to realize the importance of legal education. However, hospitals attach little importance to the legal education of doctors and there are no unified teaching materials now. On August 27, 2019, the Chinese Medical Doctors Association held a regular physician assessment meeting, and medical humanities are taken as an examination subject every two years, including laws and regulations. Therefore, it is necessary for medical institutions to change their attitudes and explore educational methods for legal training. In the context of practicing by law, we should clarify the legitimate rights and interests of doctors and patients, and it is the obligation of every doctor to ensure the rights and interests of patients in daily diagnosis and treatment. Legal training can enhance doctors' legal literacy and theoretical level

of legal knowledge, so as to ensure the legitimate rights and interests of doctors and patients, building a harmonious doctor-patient relationship.

4.3.2 Setting legal training objectives for doctors

Doctors should learn legal knowledge, improve their own legal theory level, apply what they have learned to daily medical activities, and practice according to law, so as to reduce errors and medical disputes. Through the interview and communication with disputes handling personnel in 30 hospitals and managers in four hospitals, objectives of the legal training were established, which aims to help doctors improve their theoretical level and solve legal problems in daily medical treatment.

(1) Medical institution management standards; (2) Legal provisions concerning doctors; (3) Legal provisions concerning medical disputes; (4) Standard of medical record writing; (5) Standard of diagnosis and treatment behavior; (6) Drug management standard; (7) Blood and blood products management standard; (8) Regulations concerning medical devices.

4.3.3 Determination of the content and method of legal training for doctors

Through the pilot training for 300 doctors in eight training bases, the contents and methods and laws and regulations of legal training were confirmed.

The purpose is to help doctors solve the following problems:

(1) What is the legal basis for practicing doctors?

(2) What are the legal rights and legal obligations of a doctor?

(3) What are the legal rights and legal obligations of a patient?

(4) How do doctors fulfill their legal obligations in medical diagnosis and treatment?

(5) How does a doctor ensure a patient's legal rights in medical diagnosis and treatment?

(6) What are the basic skills for doctors to fulfill their legal obligations in medical diagnosis and treatment?

(7) What is the eight-step process for doctors to practice by law?

The main teaching methods include case analysis, lectures, group discussion and role play.

When doctors perform their legal obligations, they can focus on "One Central Task and Two Basic Points". A central task refers to patient-centered communication between doctors and patients, and the two basic points are "illness" and "human" that we should pay attention to in the communication between doctors and patients. The medical staff performs the task of informing patients, which is to see the problems from the perspective of patients and their

families. Doctors protect patients' rights, and the patients realize that they are respected. The patient-centered notification is building mutual trust. For patients, the doctors' credibility and empathy together constitute the patient's trust to doctors. The doctor's credibility refers to the doctor's professional image, professional ability, common interest and sincerity. In clinical decision-making, Dav deBronkart's "Let Patients Help" has practical guiding significance. The establishment of doctor-patient equality is the equal moral status of both doctors and patients and the equal decision-making status of both doctors and patients. Both doctors and patients are natural persons who have self-awareness, rationality, and assume rights and obligations. Their personal dignity will not change due to factors such as their origin, social status, personal abilities and achievements, and they have equal moral status. Doctors and patients, as participants in clinical decision-making, consider issues from different dimensions. They are both the main body of decision-making and are irreplaceable. Among the 30 medical staff interviewed by Zhang and Liang in the research, 3 people (10.00%) chose the "active-passive type". Twenty-four people (80.00%) believed that the best decision-making model under the hierarchical system was "guidance-cooperative", which indicated that medical staff believed that they would guide or lead clinical decision-making as the best model. The result of this investigation is not only a criticism of doctors' monopoly on decision-making power and ignorance of patients' autonomy in the paternalistic decision-making model, but also a correction of patients' exclusive decision-making power in the name of autonomy in the informed decision-making model and ignoring medical professionalism. In other words, treating each other as equals between doctors and patients is conducive to mutual respect, and mutual recognition of each other's decision-making role is conducive to safeguarding the professional value of doctors and the autonomy and best interests of patients, and promoting the harmonious relationship between doctors and patients. However, the realization of equality between doctors and patients faces the challenge of the principle of bureaucratic specialization (Zhang & Liang, 2019).

Empathy refers to whether the doctor could think from the perspective of the other party, and has a clear expression and flexible response. The stronger the doctor's empathy is, the fewer medical errors, the better the patient's recovery and the stronger their sense of satisfaction. It also reduces medical claims, and doctors' mood can be better. American clinical psychologist Rogers pointed out that empathy is translated as "transference", "consensus", "sympathy", and refers to being able to think in patients' view. The two basic points of doctor-patient communication are to pay attention to both "illness" and "patient". Concerning about the disease means that doctors must consult, examine, diagnose and treat patients. Concerning

about the patient means that doctors must avoid patients' suspicion and worry. Allowing patients to accept their condition and have reasonable expectations. While communicating with patients, doctors should try to change obscure medical terms into easy-to-understand medical vernacular. Writing in the vernacular to make the patient understand his or her own situation. The use of "vernacular Chinese" has indeed made the communication between doctors and patients smooth. The doctors' pleasant countenance and the patient's modest inquiry can make the communication between doctors and patients no longer difficult.

From the analysis of a large amount of data, most conflicts are not medical errors or adverse reactions caused by technical problems. Poor communication is the source of most work conflicts, and good communication can solve them. While dealing with conflicts, doctors should first know what their legal obligations are, what patient's rights are. While fulfilling their obligations, they shall listen to patients with empathy and affirm their emotions.

The process of communication between resident doctors and patients includes: starting diagnosis and treatment, collecting medical history; explaining the condition of illness and obtaining understanding; gaining trust, shared decision-making and ending the diagnosis and treatment; establishing relationships.

4.4 Questionnaire survey method

4.4.1 Design principle of scale

Based on a large number of data analysis of medical disputes and the research on relevant literature, the author communicated with the directors of the Legal Affairs Office of 30 Provincial hospitals, the relevant leaders of 8 medical institutions and 30 doctors who have worked for more than 5 years. After communication and discussion with the supervisor, this thesis adopts the typical questionnaire of Likert scale to conduct the research under his guidance.

Likert scale is a simplified attitude measurement method based on the original scale proposed by American psychologist Likert in 1932. It takes the total score of all items in the scale as the final attitude score, so it is also known as the Total Plus Scale.

The theoretical hypothesis of Likert scale is that each item has linear characteristics within the same attitude range. The scale consists of a set of questions or statements related to the topic, which is used to indicate the respondents' attitude, view, thought or intention towards something. Each item in the questionnaire is given a grade and expressed by the difference data.

For example, 5 subscales are used, that is, each item in the scale is given five alternative comment answers indicating the level of positive attitude, and 1-5 points are used to score the five alternative answers. The five alternative answers of Likert scale can be expressed in two ways, one is "extreme expression" like "very" and "quite" appears in the alternative answer; the other is "non-extreme expression", which means no extreme words appear in alternative answers. Some people use the 3-point or 7-point scale, i.e. 1-3 or 1-7 points respectively to express the attitude, from strong approval to strong opposition.

Since Likert scale was proposed in 1932, it has become one of the most commonly used attitude measurement scale in social surveys and psychological tests (Wu & Zhuang, 2005). Compared with the Thurston scale, which requires the subjects to answer "agree" or "disagree", Likert scale allow subjects answer the items according to their attitude strength, which can fully reflect the intensity of attitude. However, the scale can only reflect the order of people's attitude dimension, and cannot show the distance between different attitudes.

Through study, Jerry et al. (2002) found that the 4-point Likert scale had higher validity for Chinese and Americans subjects, and the 7-point Likert scale had higher validity for Japanese subjects. Jacoby and Matell (1971) found that 3-points Likert scale were good enough. Tang and Shaw (1999) found that the 7-point Likert scale is more ideal when the subjects maintain the best judgment confidence.

The Likert scale contains three copies. The first scale is the questionnaire on the training needs of doctors in legal knowledge and the questionnaire on the relevant degree, including the first part--the basic information, the second part--information about legal knowledge related to medical disputes (the relevance between your work and understanding of the knowledge). The second scale includes: the first part--background information, the second part--your opinion on the legal knowledge for doctors. The third questionnaire includes: the first part-- background information, the second part--application of the knowledge and skills learned by the trained doctors after three months. At the same time, there are two sets of theoretical questions and each set has 25 questions with the same scope of knowledge.

4.4.2 Design of items and dimensions in the scale

After consulting the scales in other literature, including DDPRQ-10 doctor-patient relationship questionnaire of Chinese version, job perception scale of doctors in Chinese public hospital, SEGUEF frame-work by Gregory Makoul (2001) of Northwestern Medical University, USA, the items of the scale were designed.

Scale 1 mainly include the relevance to doctor's work, the degree of doctor's understanding of the knowledge, the doctor's acceptance, the purpose of participating in the training and their opinion on the previous training. Scale 2 mainly includes individual training needs, legal training programme for doctors, and the acceptance of doctors. Scale 3 mainly include doctor's memory of training content, the application of training content, and the actual effect in practice. All these are shown in Table 4.3.

In the research, we conducted four rounds of tests. In the first round, we made a list of 20 doctor-related laws and regulations, and asked 60 doctors to choose and rank the top 10 important ones. In this process, we encouraged doctors to ask questions and gave their opinions. Then we expand the top 10 most important laws and regulations into 10 major areas. Then we asked 50 doctors to do Questionnaire 1. According to the second and third round of testing, Questionnaire 1 was determined under the guidance of Prof. Xia. In order to make it more reasonable and effective, we invited a Doctor of Statistics in Henan University to participate in the research, and thus we can easily correct some wrong or biased options.

Table 4.3 A framework model of legal training for doctors

Dimensions	Sub-dimensions	Indicators/Problems	Source of indicators
Demand of doctors for legal Training	Individual training needs	Knowledge of the concept, constitutive requirements, legal provisions and application of *Medical Tort Liability*.	China's current medical and health laws and regulations
		Knowledge of the legal rights and obligations of health workers.	
		Knowledge of the legal liability of health technicians for violating laws and regulations.	
		Knowledge of the concept, constitutive requirements, prevention and legal liability of medical malpractice.	
		Knowledge of basic theories and concepts of medical dispute prevention and legal liability after medical disputes.	
		Knowledge of legal provisions of medical records as objective evidence and legal liability for not writing medical records as required.	
		Knowledge of legal liability for violating eighteen core systems.	
		Knowledge of the occurrence, prevention and control of nosocomial infection and the legal responsibilities to be undertaken after the occurrence.	
		Knowledge of legal liability for violation of clinical use of blood.	
		Knowledge of the concept, standard, classification and legal liability of the management of medical devices.	

Dimensions	Sub-dimensions	Indicators/Problems	Source of indicators
	Acceptance	I can quickly absorb new knowledge.	
		I can soon learn new knowledge to remember.	
		I participate in various training activities and can study very seriously.	
		In order to really acquire the knowledge, I can devote myself to every part of this training.	
		I can quickly apply the new knowledge I learned through the training to my work.	
		I am very willing to participate in the training of legal knowledge of doctors, in order to improve my legal literacy.	
	Why you take part in the training?	Attending the training is mandatory by the hospital.	
		Attending the training is my own willing in order to learn medical and health laws and regulations.	
		I would like to learn knowledge and skills to reduce medical disputes through this training.	
		I want to improve my relationship with patients through this training.	
		I want to apply the legal knowledge I have learned to my daily practice.	
		I want to improve the safety of my practice and gain recognition from others by learning laws and regulations.	
	Experience and perception of previous training.	I used to take part in the theoretical training given by the teacher, which helped me a lot.	
		I used to take part in the case-based training given by the teacher, which helped me a lot.	
		I used to participate in the comprehensive crowd training of doctors, nurses and medical technicians, which helped me a lot.	
		I used to participate in the training in the form of a large conference room, which helped me a lot.	
		I used to participate in the training, in which after the teacher finished all the content, he will leave 20 minutes for communication. It helped me a lot.	
		The training I have participated in before and the knowledge I have received in this respect are all fragmented laws and regulation, which are of great help to me.	
	Training needs	The training content is closely related to my work.	

Dimensions	Sub-dimensions	Indicators/Problems	Source of indicators
	of knowledge and skills	I want to learn the knowledge of practicing according to law through this training.	
		Through this training, I learned how to guarantee the legitimate rights and interests of doctors.	
		Through this training, I learned how to guarantee the legitimate rights and interests of patients.	
		The knowledge that I acquired through this training can enhance my ability to practice based in law.	
	Organizational management needs	At present, my hospital encourages doctors to participate in the training of law-based practice.	
		The participating doctors were asked to share their knowledge in the morning shift.	
		The hospital is focused on finding new resources, trying new things, and learning new knowledge.	
		My current department encourages all doctors to share knowledge and learn from each other.	
Legal training programme for doctors	The lecturer in legal training	The teacher made the knowledge points very clear.	
		The teacher gives lectures according to the classification of knowledge points.	
		The challenges I have received from the curriculum are modest.	
		The teacher has made careful preparations for the training.	
		The most useful legal knowledge I have learned came from the teacher's teaching.	
		The most useful knowledge about patient safety I have learned came from the summary of judicial decisions shared by teacher.	
		The most useful legal knowledge and skills I obtained came from the summary of cases shared by teacher.	
		The most useful knowledge I have learned came from that the teacher has sorted out all the current existing legal regulations on one issue, rather than the interaction in this training.	
	Form of training	The teacher designed the conference room for the training.	
		The classroom arrangement and atmosphere in which desks and chairs are placed in groups are conducive to learning.	
		I like the training of legal knowledge in the form of judicial decisions for years, role-playing, teamwork and commentary.	

Dimensions	Sub-dimensions	Indicators/Problems	Source of indicators
		The arrangement of the teaching and the group discussion during the whole training process is very reasonable.	
		In this training, I was very happy to participate in the role-playing which was very helpful to acquire knowledge.	
	Training content	During the training, I learned about the concept and composition of medical tort liability and the application of related law.	
		During the training, I learned about the legal rights and obligations of health workers.	
		During the training, I learned about the legal liability of health technicians for violating laws and regulations.	
		During the training, I learned about the concept of medical malpractice and its constituent elements, prevention, legal liability.	
		I learned about the basic theories and concepts of prevention of medical disputes and knowledge of legal liability provisions after medical disputes occur.	
		During the training, I learned about the provisions of medical records as objective evidence and the legal responsibility of not writing medical records as required.	
		I learned about the legal liability for violation of 18 core systems.	
		During the training, I learned about the occurrence, prevention and control of nosocomial infections and the legal responsibilities that should be assumed after the occurrence of nosocomial infections.	
		I learned about the knowledge of legal liability for clinical use of blood.	
		During the training, I learned about the concept, standard, classification and legal liability of medical devices.	
		The auxiliary materials are very useful and many can be applied to future work.	
		In the training, I feel the progress was moderate and it gave enough time to ask questions.	
		The legal knowledge I acquired this time came from reading the training materials, rather than the interaction.	
		I can search for relevant legal knowledge from the Internet to learn, but don't need to learn through this training.	

Dimensions	Sub-dimensions	Indicators/Problems	Source of indicators
	What benefits can effective legal knowledge training bring?	I understand that all the knowledge and skills I have been taught to practice based in law are designed to reduce medical errors.	Medical Law Question bank for doctors of the Chinese Medical Association
		apply the legal knowledge and skills I have learned to work, which will eventually reduce medical disputes.	
		apply the legal knowledge and skills I have learned to work, and the leader will give more approval of my work.	
		apply the legal knowledge and skills I have learned to protect my own rights.	
		apply the legal knowledge I have learned, which can improve my understanding of the rights and interests of doctors.	
		Based on the knowledge and skills I have learned in the training, I have found a new way to prevent medical disputes and ready to apply it to practical work.	
		I have effectively applied the legal knowledge and skills learned in the training to my daily process.	
		Since the last time I learned to practice according to law, it has improved my understanding of the law and changed my relationship with patients.	
		I have integrated the legal knowledge and skills learned in training with my existing knowledge and skills.	
		After I applied the knowledge I learned to my work, complaints decreased.	
		After I applied the knowledge I learned to my work, disputes decreased.	
Receptivity of doctors	Improvement of theoretical level	Test Paper one 25 questions(25 knowledge points) Paper two 25 questions (25 knowledge points)	
		I still remember the skills that I learned in the last training on risk prevention according to law.	
	Knowledge absorption and transformation of doctors	I used the high-risk attorney-witness skills I have learned, and no medical disputes or complaints arose.	
		Based on the knowledge and skills I have learned to practice medicine according to law, I have found new ways to reduce disputes and complaints.	
		After I participated in the training, I found that the daily work and training content were particularly relevant.	

Dimensions	Sub-dimensions	Indicators/Problems	Source of indicators
		In the future work, I will use the knowledge learned from this training and adopt the suggestion of protection patient legitimate rights and interests.	
		I will integrate the legal knowledge and skills learned in training with my existing knowledge and skills.	
		I will apply the knowledge and skills I have learned to practice because it is important for patient safety.	
		I still remember the legal responsibility for the violation of the regulations in the last training.	
		I still remember the skills I learned in the last training to implement the right of informed consent.	
		My leaders and colleagues thought that the level of conversation with patients improved after I participated in the training.	
		I can apply the knowledge of law-based practice to my daily work.	
		As a result of learning the skills of law-based practice, my leaders are more satisfied with my work.	
		In my work, I applied the knowledge of the concept, constitutive requirements, legal provisions and application of Medical Tort Liability.	
		In my work, I have used the knowledge of legal rights and obligations of health professionals.	
		In my work, I have used the knowledge of legal liability of the health technicians who violate laws and regulations.	
		In my work, I applied the knowledge of the concept, constitutive requirements, legal provisions and application of Medical Tort Liability.	
		In my work, I applied the knowledge of basic theories and concepts of medical dispute prevention and legal liability after medical disputes.	
		In my work, I applied the knowledge of legal provisions of medical records as objective evidence and legal liability for not writing medical records as required.	
		In my work, I applied the knowledge of legal liability for violating eighteen core systems.	
		In my work, I applied the knowledge of the occurrence, prevention and control of nosocomial infection and the legal responsibilities to be undertaken after the occurrence.	
		In my work, I applied the knowledge of legal liability for violation of clinical use of blood.	

Dimensions	Sub-dimensions	Indicators/Problems	Source of indicators
		In my work, I applied the knowledge I have learned of the concept, standard, classification and legal liability on the management of medical devices.	
		After using the knowledge learned to protect the patients' right of privacy, life and health and other legitimate rights and interests.	
		I applied the high-risk interview system skills I have learned, and no more medical disputes and complaints occurred.	
		I have integrated the legal knowledge and skills learned in training with my existing knowledge and skills.	
	Learning organization	Director of departments and colleagues pay attention to the application of training skills and provide environment to give timely feedback and guidance.	
		Through participating in the training, it is found that colleagues' interactive discussions are more conducive to learning legal knowledge.	
		My current department encourages all doctors to share knowledge and learn from each other.	
		The leadership and management style of my current department is to take risks, encourage innovation, and show yourself.	
		The cohesion that unites medical staff in my current department is a commitment to innovation and an emphasis on being at the front.	
		The hospital I work in now encourages doctors to take part in training for practicing medicine by law.	

4.4.3 Scale confirmation

In order to ensure the scientificity and rationality of the scale design, the researcher first conducted a pre-survey before a formal survey. According to the pre-survey and various suggestions, twelve revisions were made after three months, and the scale was finally confirmed by Prof. Xia Weidong. We invited a Doctor of Statistics in Henan University to participate in the research. To ensure semantic equivalence between the two languages, we also asked my classmates studying abroad to translate and proofread the scale.

4.5 Data collection

4.5.1 The object of the scale

Under the guidance of my supervisor, a serious screening was conducted to form a control group and training groups. The details are as follows: ① Medical institutions. We selected five hospitals, including two provincial hospitals, two municipal hospitals, and one county hospital. They are the First Affiliated Hospital of Henan University of Science and Technology, the First Affiliated Hospital of Xinxiang Medical College, the First People's Hospital of Ruzhou City, the Second People's Hospital of Xinxiang City and the People's Hospital of Taikang County. ② Age. The survey objects are mainly doctors aged from 25 to 55. ③ Professional title. The survey objects are mainly doctors at four levels: residents, attending doctors, deputy chief doctors and chief doctors. ④ Education background. Academic qualifications of survey objects include doctor, master and undergraduate. ⑤ Working years. The survey objects are mainly doctors working for more than 3 years to less than 25 years. According to the research, the training group and the control group were given same questionnaires. The training time of each hospital was 4 hours. The training content is designed according to the questionnaire requirements, literature and laws and regulations. It aims at doctors who meet the above five conditions. The specific content is discussed in detail before, and it is not covered in detail here. Doctors who meet the conditions of ①-⑤ were divided into the training group and the control group. Conditions and numbers of people in the training group and the control group were similar. Doctors in the First Affiliated Hospital of Henan University of Science and Technology were divided into four groups (three training groups and one control group); doctors in the First Affiliated Hospital of Xinxiang Medical College were divided into four groups (three training groups and one control group); doctors in the Second People's Hospital of Xinxiang City were divided into four groups (three training groups and one control group); doctors in the First People's Hospital of Ruzhou City were divided into three groups (two training groups and one control group); doctors in the People's Hospital of Taikang County were divided into three groups (two training groups, and one control group). A total of 600 questionnaires were issued to doctors from the five hospitals.

4.5.2 Collection method and process (training time, place and process)

In this research, the collection process includes the distribution of questionnaires to training

groups and the control group. The questionnaire and the test paper for different groups are the same. As shown in Figure 4.2 and Figure 4.3, Questionnaire 1, Questionnaire 2, Test paper 1 and Test paper 2 are the same as long as the label is the same.

Firstly, the distribution process for training groups is shown as follows: Questionnaire 1 is distributed before the design of training content. The main content of Questionnaire 1 includes laws related to medical disputes, doctors' opinions on their own receptivity, their opinions on the training purpose, and their opinions on the previous training experience. After questionnaire collection, we can learn about the doctors' cognition and understanding of the law, and training content and test questions were designed accordingly. We determined the training time with hospitals and distributed Test paper 1 to the doctors before the training. The Test paper 2 and Questionnaire 2 were distributed after the 4-hour training, and then the training ended. Three months later, Questionnaire 3 and a questionnaire for managers were distributed.

The questionnaire distribution process for the control group is shown as follows: Questionnaire 1 was distributed before the design of training content. The main content of Questionnaire 1 was mentioned above. The training content and test paper were designed according to the Questionnaire 1. We determined the training time with hospitals and distributed Test paper 1 to the doctors before the training. The control group didn't participate in the training. Test paper 2 was also distributed to the control group after the 4-hour training, and then the training ended. Three months later, questionnaire for managers were distributed.

4.5.3 Quality control of questionnaires collected

Before collecting questionnaires, the collectors received unified training and were responsible for explaining the content, significance and filling requirements of the questionnaires to respondents. The collectors were asked to explain the purpose and significance of the survey to respondents. This survey was based on the trust and cooperation of patients. In addition, the author also guarantees the reliability and authenticity of the survey through the following ways. For the doctors who participated in the training and carefully filled in the scale, a mahogany bookmark engraved with "practicing medicine by law" was given as a gift.

4.6 Statistical analysis method

Questionnaires were collected within eight months. After the questionnaires were collected, the data were analyzed by statistical analysis method. A questionnaire survey was conducted among the attending doctors (and higher level doctors) and patients of the sample hospitals. The

data were recorded in the SPSS19.0 statistical analysis software system. We mainly analyzed the attending doctors' (and titles above) learning effect and reduction of medical complaints and disputes. The reliability and validity of the data were analyzed by t-test and multiple regression analysis, and item by item regression was used.

4.6.1 Data entry

The data were input into Excel first, then sorted out, and then input into SPSS 19.0 database. With two softwares connecting the data, it is equivalent to double checking the data to ensure the effectiveness.

4.6.2 Data processing

SPSS 19.0 software was used to detect the quality and distribution of data according to latitude.

4.6.3 Measurement of reliability and validity of data

In order to test the reliability and validity of the collected data, factor analysis was used to analyze the validity and reliability of the variables extracted from the scale. In this thesis, we analyzed the data according to the level, latitude and other indicators, and classify the data according to the correlation between the original variables. The data were listed in Excel tables, and factor analysis was used to verify the corresponding sub dimensions, so that the indicators of each sub dimension can be truly reflected.

4.6.4 Regression analysis

In this thesis, the statistical modeling methods were used in the following chapter.

Chapter 5: Data Analysis Results

5.1 Sample background

Sample selection. We selected five hospitals, including two provincial hospitals, two municipal hospitals, and one county hospital. They are the First Affiliated Hospital of Henan University of Science and Technology, the First Affiliated Hospital of Xinxiang Medical College, the First People's Hospital of Ruzhou City, the Second People's Hospital of Xinxiang City and the People's Hospital of Taikang County. Age of sample. The survey objects are mainly doctors aged from 25 to 55. Professional title of sample. The survey objects are mainly doctors at four levels: residents, attending doctors, deputy chief doctors and chief doctors. Education background of sample. Academic qualifications of survey objects include doctor, master and undergraduate. Working years of sample. The survey objects are mainly doctors working for more than 3 years to less than 25 years. According to the research, the training group and the control group were given same questionnaires. The training time of each hospital was 4 hours. The training content is designed according to the questionnaire requirements, literature and laws and regulations. It aims at doctors who meet the above five conditions. The specific content is discussed in detail before, and it is not covered in detail here. Doctors who meet the conditions of were divided into the training group and the control group. Conditions and numbers of people in the training group and the control group were similar. Doctors in the First Affiliated Hospital of Henan University of Science and Technology were divided into four groups (three training groups and one control group); doctors in the First Affiliated Hospital of Xinxiang Medical College were divided into four groups (three training groups and one control group); doctors in the Second People's Hospital of Xinxiang City were divided into four groups (three training groups and one control group); doctors in the First People's Hospital of Ruzhou City were divided into three groups (two training groups and one control group); doctors in the People's Hospital of Taikang County were divided into three groups (two training groups, and one control group). A total of 600 questionnaires were issued to doctors from the five hospitals.

5.1.1 Statistical methods

In this research, Excel 2016 was used for data processing, and outliers were removed; SPSS19.0 software was used for statistical analysis of the data; mean value ± standard deviation was used to describe continuous variables. Independent sample t-test was used to test the differences between two groups. When there were more than three groups, one-way analysis of variance was used, and Tukey method was used for comparison. When there were two treatment factors, two factor variance analysis was used, and Bonferroni method was used for pairwise comparison. The enumeration data were described by the number of cases (percentage) and the differences between groups were analyzed by Chi-square test. For the analysis of the questionnaires, the reliability was tested by Cronbach's alpha, and the validity was tested by KMO index and internal variance interpretation rate. Correlation and regression analysis were used to research the linear relationship among different baseline information, questionnaires and test papers, and the test level is p 0.05.

5.1.2 Basic information of samples

The basic information: ① as a whole, 600 questionnaires were distributed among five hospitals. After all the questionnaires were checked, 531 valid questionnaires were retained, and the effective recovery rate was 88.5%. The number of valid questionnaires in the First Affiliated Hospital of the Henan University of Science and Technology was 192 at most: there were three training groups and 48 copies for each training group, and 47 copies for the control group. The number of valid questionnaires in the First Affiliated Hospital of Xinxiang Medical College was 109, there were three training groups with 28 copies for each group, and 25 copies for the control group. The number of valid questionnaires in the Second People's Hospital of Xinxiang City was 116, there were three training groups with 48 copies for each group, and 26 copies of the control group. The number of valid questionnaires in the First People's Hospital of Ruzhou was 57, there were two training groups with 20 copies for each group, and 17 copies for the control group. The number of valid questionnaires in the People's Hospital of Taikang County was 57, there were two training groups with 20 copies for each group, and 17 copies for the control group.

② In terms of gender, the proportion of men and women is almost equal. The proportion of men in the First Affiliated Hospital of the Henan University of Science and Technology is higher than that of women, and the number of women in the First Affiliated Hospital of Xinxiang Medical College is larger than that of men; the gender proportion of the other three

hospitals is equivalent; ③ in terms of the highest education, the number of undergraduates is 288, accounting for 54.2%, and the number of masters is 212, accounting for 39.9%. The number of masters and above reaches 42.7%, which is consistent with the situation of doctors with higher education. Medical staff in the First People's Hospital of Ruzhou, the People's hospital of Taikang County and the Second People's Hospital of Xinxiang are mainly undergraduates, indicating that in county-level hospitals, highly educated talents are still scarce. ④ in terms of technical titles, the proportion of attending doctors are the highest, reaching 38.4%, and the proportion of deputy chief doctors is only 20.2%. The specific distribution of doctors of different grades in each hospital is similar to the overall situation. ⑤ in terms of departments, department of internal medicine is the most, accounting for 40.5%. The second is the surgical department, accounting for 25.4%. Specifically, the First Affiliated Hospital of University of Science and Technology, the First People's Hospital of Ruzhou and the First Affiliated Hospital of Xinxiang Medical College had the most internal medicine departments, while Taikang County People's Hospital and Xinxiang Second People's hospital had the most other departments. The above situation should be related to the positioning of the hospital itself. ⑥ in terms of age, doctors' average age in the research is 38.92±7.25 years old, and the average age of doctors in the five hospitals is similar to the general situation. ⑦ In terms of the working year, the average working year of doctors in the research is about 11.18±7.08 years. Specifically, the working year of doctors in the First People's Hospital of Ruzhou is the highest, reaching 15.47±9.73, and the average working year of the First Affiliated Hospital of the Henan University of Science and Technology is 9.76±5.08, which may be related to their educational level.

5.2 Improvement of the theoretical level

There are two test papers in this part. The first test paper has 24 questions, and the specific questions are shown in the appendix: pre-training questions. The second test paper has 24 questions, and the specific questions are shown in the appendix: post-training questions.

5.2.1 Analysis of pre-training test questions

5.2.1.1 Basic description of the correct rate for pre-training test questions

The correct rate of questions before training: ① Among the 24 questions, the correct rate of 8 questions is higher than 60%, indicating that only about 30% of the trainees have a good legal

knowledge base. The correct rate of 70% of the questions is less than 60%, especially the correct rate of "3. *The Law of the People's Republic of China on Medical Practitioners* is applicable to" is only 1.1%, which indicates that legal training is imminent. ② Specifically, for the First Affiliated Hospital of the University of Science and Technology and the First People's Hospital of Ruzhou, the correct rate of 12 questions and 11 questions is more than 60%. Although their correct rate is higher than the average level, it is less than half of the total number of questions. For the Second People's Hospital of Xinxiang, the First Affiliated Hospital of Xinxiang Medical College and the people's Hospital of Taikang County, the correct rate of more than 60% questions is lower than that of other hospitals, which should be paid more attention to.

5.2.1.2 Difference analysis on the correct rate of pre-training test questions between male and female

The analysis of the differences between different genders in the correct rate of pre-training test questions are as follows: In the two questions: "6. In the following cases, doctors can exercise the right of special intervention:" and "15. After the implementation of *the Civil Code*, can the dispute not determined as a medical accident be compensated?", the correct rate of male doctors was higher than that of female doctors, and the difference was statistically significant ($P < 0.05$). ② In the two questions: "2. Doctor Wang, registered as a surgeon, performed cesarean section for a neighbor puerpera. As a result, the puerpera died of postpartum hemorrhage. Wang's behavior belongs to:" and "24. Li, a physician, met a parturient woman on the train to visit her family during the Spring Festival. Because there was no other medical staff on the train, Li assisted the parturient woman to give birth. In the process of delivery, the neonatal left upper limb brachial plexus was injured due to excessive traction.", the correct rate of female doctors was higher than that of male doctors, and the difference was statistically significant ($P < 0.05$). ③ There was no significant difference in the correct rate of other questions between different genders ($P > 0.05$).

5.2.1.3 Difference analysis on the correct rate of pre-training test questions among doctors with different highest education

The difference analysis on the correct rate of pre-training test questions among doctors with different highest education: ① For questions: "4. Which of the following are the rights of practicing doctors?" "13. Which of the following is not a case of presumed negligence on the part of a medical institution?" "14. Article 63 of *the Tort Liability Law* stipulates that medical

institutions and their medical personnel shall not implement the inspections in violation of the medical treatment norms" and "22. The main subject of medical malpractice is the medical institutions and their medical staff. The medical staff here refers to:", the correct rate for doctors with different highest education is: undergraduates > masters > junior colleges / doctors. The rank is of statistically significant ($P < 0.05$); ② The correct rate of other questions among doctors with different highest education is not statistically significant ($P > 0.05$).

5.2.1.4 Difference analysis on the correct rate of pre-training test questions among doctors with different technical titles

The difference analysis on the correct rate of pre-training test questions among doctors with different technical titles is that: ① For question: "10. Chapter 7 of *the Tort Liability Act* defines the civil liability arising from medical acts as:" "12. When the doctor can not obtain opinions from the patient or his close relatives due to emergency situations such as the rescue of patients whose lives are in danger, appropriate medical measures can be immediately implemented with the approval of:" "14. Article 63 of *the Tort Liability Law* stipulates that medical institutions and their medical personnel shall not implement the inspections in violation of the medical treatment norms." "15. After the implementation of *the Tort Liability Law*, does the dispute that has not been identified as medical accidents can be compensated?" "22. The main subject of medical malpractice is the medical institutions and their medical staff. The medical staff here refers to" and "25.If the adverse consequences are suspiciously caused by coagulation, both doctors and patients should jointly seal the physical objects on the spot, and the physical objects on the spot should be", the rank of correct rate for doctors with different technical titles is: the chief doctor / associate chief doctor > attending / resident doctor. The rank is statistically significant ($P < 0.05$); ② The correct rate of other questions is not statistically significant for doctors with different technical titles ($P > 0.05$).

5.2.1.5 Difference analysis on the correct rate of pre-training test questions among different departments

The difference analysis on the correct rate of pre-training test questions among different departments are that: ① For question: "1. A hospital set up a new unit of medical cosmetology without approval and hired a retired surgeon from other place as the attending doctor. The nature of the hospital's behavior belongs to:", the rank of correct rate for different departments is Internal Medicine > Surgery > Pediatrics > obstetrics and gynecology. The rank is statistically significant ($P < 0.05$); ② For question: "14. Article 63 of *the Tort Liability Law*

stipulates that medical institutions and their medical personnel shall not implement the inspections in violation of the medical treatment norms, the rank of correct rate for different departments is: internal medicine > surgery > obstetrics and gynecology > pediatrics. The rank is statistically significant ($P < 0.05$); ③ The correct rate of other questions in different departments has no statistical significance ($P > 0.05$).

5.2.2 Analysis of post-training test questions

5.2.2.1 Basic description of the correct rate of post-training test questions

The correct rate for post-training test questions is that: ① Among the 24 questions, the correct rate of 17 questions is more than 60%, which indicates that 70% of the trainees have good legal knowledge. The correct rate of 6 questions is more than 80%, and that of no questions is more than 90%, which shows that the difficulty of the questions is moderate and can reflect the real level. The correct rate of three questions was less than 40%, and doctors need to pay more attention on the following three topics: "1. If a doctor violates *the Law on Practicing Doctors* in practice with one of the following acts, the Health Administrative Department of the government or above the county level shall give a warning or order him to suspend his practice for a period of more than six months and less than one year; if the circumstances are serious, his doctor's license shall be revoked." "19. The surgical record shall be completed within ( ) hours after the operation." and "22. Damage consequences of medical accidents are:" ② Specifically, the correct rate of post-training test questions for First Affiliated Hospital of the University of Science and Technology, the First People's Hospital of Ruzhou, the Second People's Hospital of Xinxiang and the First Affiliated Hospital of Xinxiang Medical College are similar to the average level. The correct rate of post-training test questions for People's Hospital of Taikang County is relatively low, and the correct rate of 8 questions is lower than 30%. The correct rate of the question "Which of the following treatment measures by a medical institution does not require the consent and signature of the patient or family member?" is only 12.3%, indicating that legal training is very necessary for the hospital.

5.2.2.2 Difference analysis on the correct rate of post-training test questions between male and female

The difference analysis of the correct rate of post-training test questions between male and female is that: ① For the question of "10. The rights that doctors enjoy in practicing activities are:", the correct rate of male doctors is higher than that of female doctors and the difference is

statistically significant ($P < 0.05$). ② For the question of "16. Which of the following is correct when medical institutions violate patients' privacy?", the correct rate of female doctors is higher than that of male doctors and the difference is statistically significant. There was no significant difference in the correct rate of other questions between male and female ($P > 0.05$).

5.2.2.3 Difference analysis on the correct rate of post-training test questions among doctors with different highest education

The difference analysis on the correct rate of post-training test questions among doctors with different highest education is that: ① For questions: "8. The obligation that does not belong to the doctor in the practice activities is" "10. The rights that doctors enjoy in practicing activities are:" "17. Which of the following cases meets the condition of practicing medical treatment in emergency situations?" and "23. Because of the failure to write medical records in time for the rescue of critically ill patients, the medical personnel concerned shall make up the records and make note of it according to the facts after the end of the rescue. The deadline is:", the rank of correct rate is: undergraduate > master > junior college / doctor and the difference is statistically significant ($P < 0.05$); ② The correct rate of other questions among doctors with different highest education is not statistically significant ($P > 0.05$).

5.2.2.4 Difference analysis on the correct rate of post-training test questions among doctors with different technical titles

The difference analysis on the correct rate of post-training test questions among doctors with different technical titles is that: ① For questions: "7. Doctors' special right of intervention is not directed at:" "16. Which of the following is correct when medical institutions violate patients' privacy?" "17. Which of the following cases meets the condition of practicing medical treatment in emergency situations?" "18. The following is about the primary responsibility system, and the correct understanding is", the rank of correct rate is: attending doctor<associate chief doctor<chief doctor and resident doctor, and the difference is statistically significant ($P < 0.05$); ② The difference of correct rate among doctors with different technical titles has no significant in other questions ($P > 0.05$).

5.2.2.5 Difference analysis on the correct rate of post-training test questions among different departments

The difference analysis on the correct rate of post-training test questions among different departments is that: ① For questions: "5. If a doctor violates the administrative rules and

regulations on public health in his practice activities and causes serious consequences, the administrative department of public health may order him to suspend his practice for a certain period of time. The deadline is:" "8. The obligation that does not belong to the doctor in the practice activities is:" "10. The rights that doctors enjoy in practicing activities are:" "11. Medical personnel in medical institutions, who takes advantage of the convenience of prescription, illegally accept the property of the retailers of pharmaceutical products such as drugs, medical devices and medical sanitary materials in various names, and seek benefits for the retailers of pharmaceutical products with relatively large amount, is guilty of:" and "23. Due to the failure to write medical records in time for the rescue of critically ill patients, the medical personnel concerned shall make up the records and make note of it according to the facts after the end of the rescue. The deadline is:", the rank of correct rate is internal medicine > surgery > pediatrics > obstetrics and gynecology, and the difference is statistically significant ($P < 0.05$); ② There is no statistical significance in the correct rate of other questions among different departments ($P > 0.05$).

5.2.3 Difference analysis on the total test scores

5.2.3.1 Difference analysis of total tests score before and after training

The total scores were calculated before and after the training, then the paired t-test was used for the difference analysis. The results are shown in Table 5.1. After the training, the total score has been greatly improved, with an average increase of 2.69 (2.36, 3.01). The t-test result is that $t = 16.058$, $P < 0.001$, indicating that the difference is statistically significant and the legal training can effectively improve the test score.

Table 5.1 Difference analysis of total test scores before and after training

Index	Mean ± standard deviation	differentials(95%CI)	T	P
Total score after training	15.85 ± 3.25	2.69(2.36, 3.01)	16.058	<0.001
Total scores before training	13.17 ± 2.94			

5.2.3.2 Difference analysis of total score variance for data with different baselines

Then we subtract the total score before the training from the total score after the training, and compare whether the score has improved significantly after the legal training for different data baselines. The results are shown in Table 5.2: After the legal training, the score variance of the control group was higher than of the first, second and third group and the difference was statistically significant ($P < 0.05$). The total scores of doctors with between different genders,

highest education, professional titles and in different departments have been improved, but there is no statistically significance in differences among questions (P > 0.05). It can be concluded that legal training has a good effect on all doctors.

Table 5.2 Scores before and after training among different hospitals

index		cases	mean ± standard deviation	F/T	P
gender	woman	269	2.77±3.75	0.474	0.635
	man	262	2.61±3.97		
highest education	junior college	16	2.25±4.01	0.401	0.753
	undergraduate	288	2.71±3.86		
	master	212	2.76±3.89		
technical titles	doctor	15	1.73±3.26	1.648	0.161
	chief doctor	17	0.65±4.37		
	associate chief doctor	107	2.34±3.89		
	attending doctor	204	2.90±3.87		
	resident doctor	64	2.78±3.85		
	others	139	2.85±3.72		
department	surgery	136	2.53±3.88	1.948	0.101
	internal medicine	214	2.70±3.93		
	obstetrics and gynecology	23	0.96±3.30		
	pediatrics	35	3.74±3.26		
	others	123	2.86±3.89		

5.3 Analysis of training questionnaires for doctors

Questionnaire surveys were conducted before, during and after the training. The dimensions and contents of questionnaires are shown in Table 5.3. It can be seen that the three questionnaires constitute a complete evaluation system for legal training. ① The independent variable is the reaction assessment, which mainly includes the first two dimensions: doctors' understanding and cognition of legal knowledge (Question 1-10 in the second part of the questionnaire before training) and doctors' demand for legal training. Doctors' demand of legal training includes their receptivity (Question 1-6 in the third part before training), the reason to attend the training (Question 7-12 in the third part of the questionnaire before the training), their experience and perception of previous training (Question 13-18 in the third part of the

questionnaire before the training), demands for knowledge and skills training (Question 1-4 during the training) and organization management need (questions 1-3 after the training). ② The intermediate variables include learning assessment and behavior assessment, and the learning assessment mainly refer to Question 5-37 of the questionnaire during the training and Question 7, 8, 4 / 5 / 24 / 25 of the questionnaire after training; behavior assessment refer to the improvement of doctors' theoretical level (Question 26 of the questionnaire after training) and their absorption and transformation of knowledge (Question 6 / 9-23 / 27-28 / 30 of the questionnaire after training). ③ The result variable is the result assessment (Question 38-40 of the questionnaire during training).

Table 5.3 Dimensions and structures of questionnaires

Dimension	The first dimension	The second dimension	Questionnaire 1	Questionnaire 2	Questionnaire 3
Reaction assessment	Doctors' understanding and cognition of legal knowledge	Individual training needs	Part 2: 1-10		
	Doctors' demand for legal training	Acceptance	Part 3:1-6		
		Why take part in the training?	Part 3:7-12		
		Experience and perception of previous training	Part 3: 13-18		
Learning assessment	Legal training programme for doctors	Demand for knowledge and skills training		1-4	
		Organizational management needs			1-3
		Lecturer in legal training		5-12	7
		Form of training		13-17	
		Training content		18-31	8
		What can effective legal training bring to doctors?		32-37	4/5/24/25
Behavior assessment	Receptivity of doctors	Improvement of theoretical level			26
		Absorption and transformation of knowledge			6/9-23/27-28 /30
Result assessment				38-40	

5.3.1 Reliability and validity analysis of questionnaires

5.3.1.1 Reliability analysis

In this research, Cronbach's α coefficient was used as the reliability criterion of questionnaires. If Cronbach's α coefficient is higher than 0.7, the reliability of questionnaires is better. Through analysis, it is found that the Cronbach's α coefficient of organizational support dimension was 0.916, the Cronbach's α coefficient of job satisfaction dimension was 0.955, and the Cronbach's α coefficient of job engagement dimension was 0.972. All of them were higher than 0.7. In addition, the Cronbach's α coefficient of questionnaires was 0.968, far higher than the recommended index of 0.7. The results of sub dimension and overall result showed that the data had good internal consistency. The CITC of the items were all higher than the recommended standard of 0.5, reflecting the validity of questionnaires. The specific results are shown in Table 5.4 to Table 5.6. The results showed that the Cronbach's coefficient of the dimension was over 0.7 from perspectives of stratification, the first-dimension and the second-dimension, indicating that the questionnaires in this research had high internal consistency and good structural reliability.

Table 5.4 Reliability analysis of the second dimension of questionnaires

The second dimension	Cronbach's α coefficient	Items
individual training needs	0.901	10
acceptance	0.866	6
why take part in the training?	0.724	6
experience and perception of previous training	0.737	6
demand for knowledge and skills	0.790	4
organizational management needs	0.784	3
lecturer in legal training	0.774	9
form of training	0.915	5
training content	0.763	15
What can effective legal training bring to doctors?	0.711	10
absorption and transformation of knowledge	0.771	19

Table 5.5 Reliability analysis of the first dimension of questionnaires

the first dimension	Cronbach's α coefficient	Items
doctors' understanding and cognition of legal knowledge	0.901	10
doctors' demand for legal training	0.815	25
legal training programme for doctors	0.881	39
doctor's receptivity	0.869	20

Table 5. 6 Reliability analysis of dimensions of questionnaires

Dimension	Cronbach's α coefficient	Items
reaction assessment	0.900	35
learning assessment	0.881	39
behavior assessment	0.869	20
result assessment	0.928	3

5.3.1.2 Validity analysis

In this research, SPSS24.0 was used to test the scale validity. Validity refers to the correctness of the scale, that is, a test or other tool can really measure the dimension it wants to measure. At present, factor analysis is commonly used to judge whether KMO, Bartlet's test and variance contribution rate of the scale meet the requirements. The results were shown in Table 5.7/5.8/5.9. The Bartlett's test of all variables was less than 0.05, and the variance contribution rate was over 64%, meeting the requirements. KMO was close to or greater than 0.7, and the validity was thus acceptable.

Table 5.7 Validity analysis of the second dimension of questionnaires

The second dimension	KMO	Bartlett's test	Variance contribution rate (%)
individual training needs	0.781	<0.001	71.003
acceptance	0.701	<0.001	80.192
why take part in the training?	0.929	<0.001	75.194
experience and perception of previous training	0.767	<0.001	73.545
demand for knowledge and skills training	0.797	<0.001	72.249
organizational management needs	0.758	<0.001	70.444
lecturer in legal training	0.776	<0.001	72.768
form of training	0.782	<0.001	77.587
training content	0.849	<0.001	73.414
what can effective legal training bring to doctors?	0.704	<0.001	68.524
absorption and transformation of knowledge	0.795	<0.001	64.985

Table 5.8 Validity analysis of the first dimension of questionnaires

The first dimension	KMO	Bartlett's test	Variance contribution rate (%)
Doctors' understanding and cognition of legal knowledge	0.781	<0.001	71.003
Doctors' demand for legal training	0.869	<0.001	70.404
legal training programme for doctors	0.856	<0.001	74.484
Doctors' receptivity	0.790	<0.001	72.792

Table 5.9 Validity analysis of dimensions of questionnaires

Dimension	KMO	Bartlett's test	Variance contribution rate (%)
reaction assessment	0.855	<0.001	77.967
learning assessment	0.856	<0.001	74.484
behavior assessment	0.790	<0.001	72.792
result assessment	0.747	<0.001	88.188

5.3.2 Comparison of scores under different demographic variables

5.3.2.1 Difference analysis of dimension scores between male and female

With gender as the causal variable and scores of different dimensions as the outcome variable, we conducted independent sample t-test. The results are shown in Table 5.10. It can be seen that in the aspect of learning assessment, the scores of male doctors are higher than those of female doctors in terms of training lecturers, forms, contents and legal training programs, and the difference is statistically significant ($P < 0.05$), reflecting that male doctors has stronger self-confidence in learning than female doctors.

Table 5.10 Difference analysis of dimension scores between male and female

dimensions	gender	mean ± standard deviation	T	P
individual training needs	female	5.52±0.93	0.720	0.472
	male	5.47±0.95		
Acceptance	female	4.47±1.10	1.289	0.198
	male	4.34±1.20		
why take part in the training?	female	4.77±0.86	0.886	0.376
	male	4.70±0.89		
experience and perception of previous training	female	3.68±0.70	0.015	0.988
	male	3.68±0.53		
training needs of knowledge and skills	female	6.79±0.49	-0.507	0.612
	male	6.81±0.47		
organizational management needs	female	4.83±1.23	-0.672	0.502
	male	4.90±1.36		

dimensions	gender	mean ± standard deviation	T	P
lecturer of legal training	female	6.22±0.53	-2.501	0.013
	male	6.34±0.54		
form of training	female	5.97±1.45	-2.901	0.004
	male	6.29±1.11		
training content	female	5.69±0.50	-2.564	0.011
	male	5.79±0.46		
What can effective legal training bring to doctors?	female	5.84±0.52	-0.717	0.474
	male	5.87±0.57		
improvement of theoretical level	female	6.86±0.42	-1.201	0.230
	male	6.90±0.38		
absorption and transformation of knowledge	female	5.98±0.23	-0.382	0.702
	male	5.98±0.20		
doctors' understanding and cognition of legal knowledge	female	5.52±0.93	0.720	0.472
	male	5.47±0.95		
doctors' demand of legal training	female	4.86±0.56	0.776	0.438
	male	4.82±0.57		
legal training programme for doctors	female	5.77±0.51	-3.306	0.001
	male	5.92±0.51		
doctors' receptivity	female	6.62±0.51	0.569	0.569
	male	6.59±0.52		
reaction assessment	female	5.16±0.69	0.304	0.761
	male	5.14±0.73		
learning assessment	female	5.77±0.51	-3.306	0.001
	male	5.92±0.51		
behavior assessment	female	6.78±0.43	-0.149	0.882
	male	6.78±0.42		
result assessment	female	5.09±0.62	-0.680	0.497
	male	5.13±0.63		

5.3.2.2 Difference analysis of dimension scores for doctors with different highest education

Taking the highest education as the causal variable and the scores of different dimensions as the result variable, we conducted the one-way test of variance (TUKEY test is used for meaningful pairwise comparison). The results are shown in Table 5.11. It can be seen that the difference among different highest education is statistically significant in terms of response assessment, organizational management needs, training forms, doctors' demand for legal training and doctors' acceptance ($P<0.05$) Specifically speaking, ① in terms of score of organizational

management needs, the difference is statistically significant (P< 0.05); scores for doctors with junior college education is lower than those of other three types of education and the difference is statistically significant (P<0.05); scores for doctors with undergraduate education is lower than those with master's degree / doctor's degree and the difference is statistically significant (P<0.05). ② In terms of the training form, undergraduate education is lower than master's degree / doctor's degree and the difference is statistically significant (P<0.05). ③ In terms of the doctors' legal training needs and the response assessment, scores for doctors with master degree is higher than those with junior college / undergraduate and the difference is statistically significant (P<0.05). ④ In terms of doctors' acceptance, scores for doctors with bachelor degree is higher than those with master degree, and the difference is statistically significant (P<0.05).

Table 5.11 Difference analysis of dimension scores for doctors with different highest education

Index	options	cases	mean ± standard deviation	F	P
Individual training needs	Junior college	16	5.31±1.14	0.514	0.673
	undergraduates	288	5.48±0.94		
	master	212	5.54±0.88		
	doctor	15	5.33±1.45		
Acceptance	Junior college	16	4.19±1.17	0.636	0.592
	undergraduates	288	4.36±1.15		
	master	212	4.48±1.11		
	doctor	15	4.33±1.72		
why take part in the training?	Junior college	16	4.63±1.02	1.565	0.197
	undergraduates	288	4.71±0.87		
	master	212	4.80±0.84		
	doctor	15	4.33±1.23		
experience and perception of previous training	Junior college	16	3.75±0.58	0.659	0.578
	undergraduates	288	3.66±0.54		
	master	212	3.72±0.71		
	doctor	15	3.53±0.74		
training needs of knowledge and skills	Junior college	16	6.94±0.25	0.443	0.722
	undergraduates	288	6.80±0.50		
	master	212	6.80±0.48		
	doctor	15	6.80±0.41		
organizational management	Junior college	16	3.69±1.49	51.880	<0.001

Index	options	cases	mean ± standard deviation	F	P
needs	undergraduates	288	4.38±1.34a		
	master	212	5.56±0.79ab		
	doctor	15	5.60±0.63ab		
	Junior college	16	6.31±0.48		
lecturer of legal training	undergraduates	288	6.25±0.57	0.734	0.532
	master	212	6.32±0.51		
	doctor	15	6.20±0.41		
	Junior college	16	6.75±0.68		
form of training	undergraduates	288	5.98±1.40a	3.469	0.016
	master	212	6.26±1.18b		
	doctor	15	6.40±1.06		
	Junior college	16	5.88±0.34		
training content	undergraduates	288	5.71±0.52	1.218	0.302
	master	212	5.76±0.44		
	doctor	15	5.87±0.35		
	Junior college	16	5.94±0.44		
What can effective legal training bring to doctors?	undergraduates	288	5.85±0.55	0.158	0.925
	master	212	5.86±0.55		
	doctor	15	5.87±0.64		
	Junior college	16	7.00±0.00		
improvement of theoretical level	undergraduates	288	6.89±0.38	1.106	0.346
	master	212	6.84±0.43		
	doctor	15	6.87±0.52		
	Junior college	16	6.00±0.00		
absorption and transformation of knowledge	undergraduates	288	6.00±0.21	1.366	0.252
	master	212	5.96±0.21		
	doctor	15	5.93±0.26		
	Junior college	16	5.31±1.14		
doctor's understanding and cognition of legal knowledge	undergraduates	288	5.48±0.94	0.514	0.673
	master	212	5.54±0.88		
	doctor	15	5.33±1.45		
doctors' demand for legal training	Junior college	16	4.56±0.63	9.163	<0.001
	undergraduates	288	4.74±0.57		

Index	options	cases	mean ± standard deviation	F	P
legal training programme for doctors	master	212	4.99±0.52ab	1.500	0.214
	doctor	15	4.80±0.68		
	Junior college	16	5.88±0.34		
	undergraduates	288	5.80±0.55		
doctors' receptivity	master	212	5.88±0.49	2.838	0.038
	doctor	15	6.00±0.38		
	Junior college	16	6.75±0.45		
	undergraduates	288	6.65±0.51		
reaction assessment	master	212	6.55±0.52b	3.904	0.009
	doctor	15	6.40±0.63		
	Junior college	16	4.81±0.75		
	undergraduates	288	5.09±0.72		
learning assessment	master	212	5.26±0.65ab	1.500	0.214
	doctor	15	5.13±0.92		
	Junior college	16	5.88±0.34		
	undergraduates	288	5.80±0.55		
behavior assessment	master	212	5.88±0.49	2.419	0.065
	doctor	15	6.00±0.38		
	Junior college	16	7.00±0.00		
	undergraduates	288	6.80±0.41		
result assessment	master	212	6.74±0.45	0.060	0.981
	doctor	15	6.80±0.41		
	Junior college	16	5.06±0.68		
	undergraduates	288	5.12±0.63		
	master	212	5.10±0.61		
	doctor	15	5.13±0.74		

Note: a means that it is statistically significant in the score comparison with doctors with college degree ($P < 0.05$); b means that it is statistically significant in the score comparison with doctors with bachelor degree ($P < 0.05$).

5.3.2.3 Difference analysis of dimension scores for doctors with different technical titles

Taking the technical titles as the causal variable, and the scores of different dimensions as the result variable, we conducted a one-way variance test (TUKEY test is used for meaningful pairwise comparison). The results are shown in Table 5.12. It can be seen that the scores of receptivity, organizational management demand and theoretical level are statistically

significant (P<0.05). Specifically, in terms of receptivity, the scores of deputy chief doctors and attending doctors are lower than those of doctors with other professional titles and the difference is statistically significant (P<0.05). ② In terms of organizational management demand, the scores of resident doctors are lower than those of deputy chief doctors / attending doctors/others and the difference is statistically significant (P<0.05). ③ For the improvement of theoretical level, the scores of deputy chief doctors are lower than those of doctors with other professional titles and the difference is statistically significant (P<0.05); the scores of attending doctors are higher than those of doctors with other professional titles and the difference is statistically significant (P < 0.05).

Table 5.12 Difference analysis of dimension scores for doctors with different technical titles

index	options	cases	mean ± standard deviation	F	P
individual training needs	chief doctor	17	5.41±1.00	1.300	0.269
	deputy chief doctor	107	5.34±0.99		
	attending doctor	204	5.50±0.91		
	resident doctor	64	5.56±0.94		
	others	139	5.60±0.92		
acceptance	chief doctor	17	4.47±1.18	2.478	0.043
	deputy chief doctor	107	4.28±1.18		
	attending doctor	204	4.31±1.13		
	resident doctor	64	4.33±1.14		
	others	139	4.66±1.14bc		
why take part in the training?	chief doctor	17	4.88±0.78	0.866	0.484
	deputy chief doctor	107	4.63±0.96		
	attending doctor	204	4.71±0.89		
	resident doctor	64	4.77±0.68		
	others	139	4.81±0.88		
experience and perception of previous training	chief doctor	17	3.65±0.61	0.446	0.775
	deputy chief doctor	107	3.66±0.53		
	attending doctor	204	3.65±0.54		
	resident doctor	64	3.73±0.54		
	others	139	3.73±0.81		
training needs of knowledge and skills	chief doctor	17	6.76±0.56	0.222	0.926
	deputy chief doctor	107	6.83±0.47		
	attending doctor	204	6.80±0.48		
	resident doctor	64	6.77±0.56		
	others	139	6.80±0.45		
organizational management	chief doctor	17	4.82±1.47	4.060	0.003

index	options	cases	mean ± standard deviation	F	P
needs	deputy chief doctor	107	4.93±1.41		
	attending doctor	204	4.89±1.13		
	resident doctor	64	4.28±1.40bc		
	others	139	5.04±1.30d		
	chief doctor	17	6.35±0.49		
	deputy chief doctor	107	6.36±0.52		
lecturer of legal training	attending doctor	204	6.26±0.51	1.108	0.352
	resident doctor	64	6.27±0.65		
	others	139	6.23±0.54		
	chief doctor	17	6.59±0.62		
	deputy chief doctor	107	6.36±1.07		
form of training	attending doctor	204	5.98±1.40	2.031	0.089
	resident doctor	64	6.14±1.37		
	others	139	6.12±1.31		
	chief doctor	17	5.82±0.39		
	deputy chief doctor	107	5.79±0.46		
training content	attending doctor	204	5.75±0.47	0.784	0.536
	resident doctor	64	5.72±0.58		
	others	139	5.69±0.48		
	chief doctor	17	6.06±0.56		
	deputy chief doctor	107	5.88±0.61		
What can effective legal training bring to doctors?	attending doctor	204	5.85±0.53	0.753	0.557
	resident doctor	64	5.81±0.56		
	others	139	5.85±0.51		
	chief doctor	17	7.00±0.00		
	deputy chief doctor	107	6.79±0.61a		
improvement of theoretical level	attending doctor	204	6.92±0.27b	4.035	0.003
	resident doctor	64	6.97±0.18b		
	others	139	6.82±0.44bc		
	chief doctor	17	6.00±0.00		
	deputy chief doctor	107	6.03±0.17		
aabsorption and transformation of knowledge	attending doctor	204	5.96±0.22	1.906	0.108
	resident doctor	64	5.98±0.13		
	others	139	5.97±0.27		
	chief doctor	17	5.41±1.00		
doctors' understanding and cognition of legal knowledge	deputy chief doctor	107	5.34±0.99	1.300	0.269
	attending doctor	204	5.50±0.91		

index	options	cases	mean ± standard deviation	F	P
doctors' demand for legal training	resident doctor	64	5.56±0.94	1.204	0.308
	others	139	5.60±0.92		
	chief doctor	17	4.94±0.66		
	deputy chief doctor	107	4.79±0.61		
	attending doctor	204	4.83±0.51		
	resident doctor	64	4.75±0.50		
	others	139	4.91±0.62		
legal training programme for doctors	chief doctor	17	6.06±0.56	1.717	0.145
	deputy chief doctor	107	5.92±0.55		
	attending doctor	204	5.83±0.52		
	resident doctor	64	5.80±0.48		
	others	139	5.80±0.48		
doctors' receptivity	chief doctor	17	6.76±0.44	1.543	0.188
	deputy chief doctor	107	6.55±0.60		
	attending doctor	204	6.59±0.49		
	resident doctor	64	6.72±0.45		
	others	139	6.60±0.51		
reaction assessment	chief doctor	17	5.12±0.70	1.535	0.191
	deputy chief doctor	107	5.07±0.71		
	attending doctor	204	5.13±0.68		
	resident doctor	64	5.09±0.71		
	others	139	5.27±0.73		
learning assessment	chief doctor	17	6.06±0.56	1.717	0.145
	deputy chief doctor	107	5.92±0.55		
	attending doctor	204	5.83±0.52		
	resident doctor	64	5.80±0.48		
	others	139	5.80±0.48		
behavior assessment	chief doctor	17	6.82±0.39	1.574	0.180
	deputy chief doctor	107	6.79±0.46		
	attending doctor	204	6.78±0.41		
	resident doctor	64	6.88±0.33		
	others	139	6.72±0.45		
result assessment	chief doctor	17	5.35±0.61	0.904	0.462
	deputy chief doctor	107	5.10±0.74		
	attending doctor	204	5.09±0.58		
	resident doctor	64	5.06±0.56		
	others	139	5.14±0.62		

Note: a means that it is statistically significant in the score comparison with chief doctors ($P < 0.05$); b means that

it is statistically significant in the score comparison with deputy chief doctors (P < 0.05); c means that it is statistically significant in the score comparison with attending doctors (P < 0.05).

5.3.2.4 Difference analysis of dimension scores among different departments

With the department as the cause variable and the scores of different dimensions as the result variable, we conducted the one-way variance test (TUKEY test is used for meaningful pairwise comparison). The results are shown in Table 5.13. It can be seen that scores are statistically significant in terms of individual training needs, organizational management needs, training lecturers, training form, content, improvement of theoretical level, doctors' absorption and transformation of knowledge, doctors' understanding and cognition of legal knowledge, doctors' demand for legal training, doctors' legal training program and learning assessment in different departments. Specifically, ① In terms of individual training needs and doctors' understanding and cognition of legal knowledge, scores of doctors in surgery are lower than those of doctors in pediatrics /others and the difference is statistically significant (P<0.05). ② In terms of organizational management needs, scores of doctors in internal medicine / surger are higher than those of doctors in gynecology and obstetrics / pediatrics / other departments and the difference is statistically significant (P < 0.05); scores of doctors in other departments are lower than those of doctors in pediatrics and the difference is statistically significant (P < 0.05). ③ In terms of content, training teachers, improvement of theoretical level, legal training program and learning assessment of doctors, scores of doctors in surgery are higher than those of doctors in internal medicine / pediatrics / others and the difference is statistically significant (P<0.05). ④ In terms of training forms, scores of doctors in surgery are higher than those of doctors in internal medicine / others and the difference is statistically significant (P < 0.05). ⑤ In terms of absorption and transformation of knowledge, scores of doctors in other departments are higher than those of doctors in internal medicine and surgery, and the difference is statistically significant (P < 0.05). ⑥ In terms of doctors' demand for legal training, scores of internal medicine are higher than those of doctors in other departments, and the difference is statistically significant (P < 0.05).

Table 5.13 Difference analysis of dimension scores among different departments

index	options	cases	mean ± standard deviation	F	P
Individual training needs	surgery	136	5.31±0.92	2.460	0.045
	internal medicine	214	5.50±0.87		
	gynecology and obstetrics	23	5.48±0.99		
	pediatrics	35	5.71±1.05a		
	others	123	5.63±1.01a		
acceptance	surgery	136	4.21±1.14	2.074	0.083
	internal medicine	214	4.42±1.08		

index	options	cases	mean ± standard deviation	F	P
why take part in the training?	gynecology and obstetrics	23	4.22±1.13	1.197	0.311
	pediatrics	35	4.63±1.21		
	others	123	4.57±1.24		
	surgery	136	4.63±0.89		
	internal medicine	214	4.79±0.85		
experience and perception of previous training	gynecology and obstetrics	23	4.52±0.95	0.798	0.527
	pediatrics	35	4.77±0.91		
	others	123	4.77±0.87		
	surgery	136	3.67±0.52		
	internal medicine	214	3.71±0.73		
training needs of knowledge and skills	gynecology and obstetrics	23	3.74±0.54	1.194	0.313
	pediatrics	35	3.51±0.56		
	others	123	3.70±0.54		
	surgery	136	6.85±0.40		
	internal medicine	214	6.76±0.54		
organizational management needs	gynecology and obstetrics	23	6.70±0.63	1.194	0.313
	pediatrics	35	6.80±0.47		
	others	123	6.85±0.41		
	surgery	136	5.24±1.02		
	internal medicine	214	5.19±1.12	24.055	<0.001
lecturer in legal training	gynecology and obstetrics	23	4.43±1.53ab		
	pediatrics	35	4.69±1.30ab		
	others	123	4.01±1.39abd		
	surgery	136	6.40±0.52		
	internal medicine	214	6.22±0.51a		
form of training	gynecology and obstetrics	23	6.26±0.75	2.689	0.031
	pediatrics	35	6.20±0.58a		
	others	123	6.25±0.54a		
	surgery	136	6.41±1.01		
	internal medicine	214	6.03±1.37a		
training content	gynecology and obstetrics	23	6.30±1.06	2.484	0.043
	pediatrics	35	5.94±1.41		
	others	123	6.01±1.42a		
	surgery	136	5.85±0.38		
	internal medicine	214	5.69±0.52a		
What can effective legal training bring to doctors?	gynecology and obstetrics	23	5.74±0.54	2.949	0.020
	pediatrics	35	5.63±0.55a		
	others	123	5.73±0.46a		
	surgery	136	5.88±0.60		
	internal medicine	214	5.84±0.54		
improvement of theoretical level	gynecology and obstetrics	23	5.78±0.52	0.387	0.818
	pediatrics	35	5.83±0.57		
	others	123	5.89±0.49		
	surgery	136	6.97±0.17		
	internal medicine	214	6.86±0.46a		
	gynecology and obstetrics	23	6.83±0.39	2.972	0.019
	pediatrics	35	6.77±0.55a		

index	options	cases	mean ± standard deviation	F	P
absorption and transformation of knowledge	others	123	6.84±0.41a	2.775	0.027
	surgery	136	5.96±0.21		
	internal medicine	214	5.96±0.19		
	gynecology and obstetrics	23	6.04±0.21		
	pediatrics	35	6.00±0.24		
doctors' understanding and cognition of legal knowledge	others	123	6.02±0.24ab	2.460	0.045
	surgery	136	5.31±0.92		
	internal medicine	214	5.50±0.87		
	gynecology and obstetrics	23	5.48±0.99		
	pediatrics	35	5.71±1.05a		
doctors' demand for legal training	others	123	5.63±1.01a	2.563	0.038
	surgery	136	4.84±0.55		
	internal medicine	214	4.92±0.52		
	gynecology and obstetrics	23	4.78±0.67		
	pediatrics	35	4.80±0.68		
legal training programme for doctors	others	123	4.72±0.59b	3.481	0.008
	surgery	136	5.98±0.49		
	internal medicine	214	5.79±0.51a		
	gynecology and obstetrics	23	5.87±0.46		
	pediatrics	35	5.74±0.51a		
doctors' receptivity	others	123	5.80±0.54a	1.320	0.261
	surgery	136	6.57±0.50		
	internal medicine	214	6.61±0.54		
	gynecology and obstetrics	23	6.52±0.51		
	pediatrics	35	6.51±0.56		
reaction assessment	others	123	6.68±0.48	1.423	0.225
	surgery	136	5.07±0.66		
	internal medicine	214	5.22±0.66		
	gynecology and obstetrics	23	5.00±0.67		
	pediatrics	35	5.26±0.78		
learning assessment	others	123	5.13±0.80	3.481	0.008
	surgery	136	5.98±0.49		
	internal medicine	214	5.79±0.51a		
	gynecology and obstetrics	23	5.87±0.46		
	pediatrics	35	5.74±0.51a		
behavior assessment	others	123	5.80±0.54a	0.726	0.574
	surgery	136	6.76±0.43		
	internal medicine	214	6.81±0.42		
	gynecology and obstetrics	23	6.78±0.42		
	pediatrics	35	6.69±0.47		
result assessment	others	123	6.77±0.42	2.374	0.051
	surgery	136	5.06±0.64		
	internal medicine	214	5.10±0.62		
	gynecology and obstetrics	23	4.87±0.63		
	pediatrics	35	5.11±0.58		
	others	123	5.24±0.60		

Note: a means that it is statistically significant in the score comparison with doctors in surgery ($P < 0.05$); b means that it is statistically significant in the score comparison with doctors in internal medicine ($P < 0.05$); d means that

it is statistically significant in the score comparison with doctors in pediatrics ($P < 0.05$).

5.3.2.5 Difference analysis of dimension scores among different hospitals and groupings

Hospitals and groupings were used as independent variables, and the scores of four dimensions in the three questionnaires were used as dependent variables to explore the influence of hospitals and grouping on each dimension and test of questionnaires. Among them, the learning assessment involves the same topics as the legal training programme for doctors in the first dimension and the behavior change assessment involves the same topics as the receptivity of doctors in the first dimension, so this part of the results only shows the first level dimension. The first step is to examine the interaction effect between hospitals and groupings. If there is an interaction effect, the differentiation analysis is performed by separate effect. If there is no interaction system, the difference analysis is performed by the main effect.

5.3.2.5.1 Interaction effect

The result is that there is interaction effect between hospitals and groupings on individual training needs, acceptance, why take part in the training, training forms, absorption and transformation of knowledge, doctors' understanding and cognition of legal knowledge, doctors' demand for legal training, legal training programme for doctors, doctors' receptivity and response evaluation ($P < 0.05$). The single effect was used for the difference analysis, and the main effect was used for other indexes.

5.3.2.5.2 Single effect test

Table 5.14 is the results of single effect and it shows that:

Table 5.14 Results of single effect test

index	groupings	the First Affiliated Hospital of HAUST	the First People's Hospital of Ruzhou	the People's Hospital of Taikang County	the Second People's Hospital of Xinxiang	the First Affiliated Hospital of XXMU	F hospital	P
individual training needs	group 1	5.33±0.94	5.09±0.78	5.37±0.74	5.05±0.92	5.25±0.86	0.736	0.567
	group 2	4.90±0.94	5.44±0.93	5.36±1.04	5.56±0.73a	5.24±0.85	3.147	0.014
	group 3	5.48±0.84			5.44±0.85	5.58±0.68	0.182	0.833
	the control	5.52±0.93f	4.84±1.18	5.33±0.91	5.72±0.87be	5.42±0.75	2.844	0.024
	group	4.971	2.224	0.010	3.029	0.897		
	P	0.002	0.109	0.990	0.029	0.442		
receptivity of doctors	group 1	4.47±1.09	3.56±1.11a	4.23±1.05	3.94±1.20	4.09±0.93	2.697	0.030
	group 2	3.92±1.19	4.50±1.34e	4.39±1.44	4.44±0.93	4.30±0.82	1.611	0.170

index	groupings	the First Affiliated Hospital of HAUST	the First People's Hospital of Ruzhou	the People's Hospital of Taikang County	the Second People's Hospital of Xinxiang	the First Affiliated Hospital of XXMU	F hospital	P
	group 3	4.76±1.10f			4.51±0.99	4.35±0.77	1.266	0.283
	the control	4.68±1.36f	3.75±1.38a	4.32±1.15	4.92±1.16be	4.25±0.91	3.555	0.007
	group	5.537	3.931	0.103	3.629	0.286		
	P	0.001	0.020	0.902	0.013	0.836		
	group 1	4.72±0.76	4.59±0.79	4.49±0.97	4.42±1.14	4.66±0.84	0.720	0.578
	group 2	4.36±1.07	4.70±0.94	4.54±1.10	4.99±0.58ae	5.00±0.39a	3.954	0.004
why attend the training	group 3	4.88±0.69f			4.79±0.61	4.58±0.82	1.129	0.324
	the control	4.73±0.94	3.94±1.10af	4.82±0.51b	4.96±0.73b	4.82±0.61b	4.396	0.002
	group	3.333	4.347	0.806	2.901	1.351		
	P	0.019	0.013	0.447	0.035	0.257		
	group 1	5.33±0.94	5.09±0.78	5.37±0.74	5.05±0.92	5.25±0.86	0.736	0.567
doctors' understanding and cognition of legal knowledge	group 2	4.90±0.94	5.44±0.93	5.36±1.04	5.56±0.73a	5.24±0.85	3.147	0.014
	group 3	5.48±0.84f			5.44±0.85	5.58±0.68	0.182	0.833
	the control	5.52±0.93f	4.84±1.18	5.33±0.91	5.72±0.87be	5.42±0.75	2.844	0.024
	group	4.971	2.224	0.010	3.029	0.897		
	P	0.002	0.109	0.990	0.029	0.442		
	group 1	4.98±0.49	4.72±0.52	4.88±0.55	4.72±0.59	4.89±0.42	1.239	0.293
	group 2	4.73±0.60	4.97±0.62	4.87±0.68	5.01±0.41	5.06±0.30	1.935	0.103
doctors' demand for legal training	group 3	5.12±0.51f			4.98±0.43	4.93±0.38	1.088	0.338
	the control	4.33±0.82efg	3.75±0.97aef	4.26±0.62ef	4.56±0.70bfg	4.23±0.44efg	5.268	＜0.001
	group	17.061	22.503	6.775	3.910	10.869		
	P	＜0.001	＜0.001	0.001	0.009	＜0.001		
	group 1	5.08±0.60	4.83±0.55	5.03±0.57	4.81±0.64	5.00±0.40	1.199	0.310
response assessment	group 2	4.78±0.68	5.12±0.68	5.02±0.76	5.16±0.47a	5.11±0.37	2.456	0.045
	group 3	5.22±0.56f			5.12±0.52	5.12±0.38	0.316	0.729

index	groupings	the First Affiliated Hospital of HAUST	the First People's Hospital of Ruzhou	the People's Hospital of Taikang County	the Second People's Hospital of Xinxiang	the First Affiliated Hospital of XXMU	F hospital	P
form of training	the control	4.76±0.82g	4.14±1.03aef	4.64±0.69	4.98±0.71b	4.66±0.44g	5.064	0.001
	group	6.340	12.000	2.269	1.938	3.111		
	P	＜0.001	＜0.001	0.104	0.122	0.026		
	group 1	6.59±0.68	6.72±0.55	6.69±0.56	5.25±1.76abc	6.31±1.17d	8.654	＜0.001
	group 2	6.44±0.75	6.38±0.76	6.69±0.43	5.46±1.50abc	6.34±0.97d	4.979	0.001
	group 3	6.59±0.68			5.51±1.52	4.64±1.96adef	27.823	＜0.001
	the control	0.278	0.920	0.000	0.450	21.101		
	group	0.757	0.338	1.000	0.638	＜0.001		
absorption and transformation of knowledge	group 1	6.47±0.19	6.48±0.17	6.55±0.17	6.50±0.19	6.47±0.15	0.927	0.448
	group 2	6.60±0.17e	6.48±0.19	6.68±0.15be	6.62±0.16be	6.46±0.15acd	7.908	＜0.001
	group 3	6.64±0.14e			6.60±0.19	6.41±0.15ad	18.198	＜0.001
	the control	13.572	0.009	6.016	4.355	1.136		
	group	＜0.001	0.925	0.015	0.013	0.322		
legal training programme for doctors	group 1	6.14±0.32	6.19±0.25	6.12±0.33	5.84±0.46ab	6.11±0.35	3.445	0.009
	group 2	6.08±0.37	6.01±0.39	6.20±0.25	5.77±0.57ac	6.08±0.35d	4.653	0.001
	group 3	6.14±0.32			5.92±0.42a	5.71±0.52aef	10.923	＜0.001
	the control	0.325	2.138	0.477	1.165	8.866		
	group	0.722	0.144	0.490	0.313	＜0.001		
Doctors' receptivity	group 1	6.54±0.19	6.55±0.18	6.60±0.16b	6.57±0.18b	6.53±0.16acd	0.670	0.613
	group 2	6.65±0.16e	6.53±0.19	6.74±0.15be	6.67±0.16b	6.52±0.17acd	7.557	＜0.001
	group 3	6.68±0.13e			6.66±0.17e	6.47±0.17ad	15.281	＜0.001

index	groupings	the First Affiliated Hospital of HAUST	the First People's Hospital of Ruzhou	the People's Hospital of Taikang County	the Second People's Hospital of Xinxiang	the First Affiliated Hospital of XXMU	F hospital	P
	the control group	9.943 ＜0.001	0.081 0.776	7.040 0.008	3.268 0.039	1.013 0.364		

Note: a represents that difference is statistically significant compared with the First Affiliated Hospital of HAUST (P<0.05); b represents that difference is statistically significant compared with the First People's Hospital of Ruzhou (P<0.05); c represents that difference is statistically significant compared with the People's Hospital of Taikang County (P<0.05); d represents that difference is statistically significant compared with compared with the Second People's Hospital of Xinxiang (P<0.05); e represents that difference is statistically significant compared with the first group (P<0.05), f represents that difference is statistically significant compared with the second group (P<0.05), g represents that difference is statistically significant compared with the third group (P<0.05).

As for the second dimension: ① in the First Affiliated Hospital of HAUST, the score of the control group in terms of individual training needs was higher than that of the second group (P < 0.05); scores of the control group and the third group in terms of receptivity were higher than that of the second group, and the difference was statistically significant (P < 0.05); the score of the third group was higher than that of the second group in terms of "why take part in the training" and the difference was statistically significant (P < 0.05); scores of the second and third group were higher than that of the first group in terms of absorption and transformation of knowledge and the difference was statistically significant (P < 0.05). ② In the First People's Hospital of Ruzhou, the score of the second group in terms of receptivity was higher than that of the first group and the difference was statistically significant (P < 0.05); the score of the control group was higher than that of the second group in terms of "why take part in the training" and the difference was statistically significant (P < 0.05). ③ In the People's Hospital of Taikang County, the score of the second group was higher than of the first group in terms of absorption and transformation of knowledge and the difference was statistically significant (P < 0.05). ④ In the Second People's Hospital of Xinxiang, the score of the control group was higher than that of the first group in terms of individual training needs and the difference was statistically significant (P < 0.05); the score of the control group was higher than that of the first group in terms of receptivity and the difference was statistically significant (P < 0.05); the score of the second group was higher than that of the first group in terms of "why take part in the training" and absorption and transformation of knowledge and the difference was statistically significant (P < 0.05). ⑤ In the First Affiliated Hospital of XXMU, the score of the third group was lower than that of the first and second group in terms of training form, and the difference was statistically significant (P < 0.05). ⑥ In the first group, as for the score of the receptivity, the First People's Hospital of Ruzhou is higher than the First Affiliated Hospital of HAUST and the

difference was statistically significant (P < 0.05). As for the score of the training form, the Second People's Hospital of Xinxiang is lower than other hospitals and the difference was statistically significant (P < 0.05). ⑦ In the second group, as for the score of individual training needs, the Second People's Hospital of Xinxiang is higher than the First Affiliated Hospital of HAUST, and the difference was statistically significant (P < 0.05). As for the score of why attend the training, the Second People's Hospital of Xinxiang and the First Affiliated Hospital of XXMU were higher than the First Affiliated Hospital of HAUST and the difference was statistically significant (P < 0.05). As for the score of training form, the Second People's Hospital of Xinxiang is lower than other hospitals and the difference was statistically significant (P < 0.05). As for the score of absorption and transformation of knowledge, the First People's Hospital of Ruzhou is lower than the People's Hospital of Taikang County and the Second People's Hospital of Xinxiang and the difference was statistically significant (P < 0.05); the First Affiliated Hospital of XXMU is lower than the First Affiliated Hospital of HAUST, the People's Hospital of Taikang County and the Second People's Hospital of Xinxiang. ⑧ In the third group, as for the score of training form, the First Affiliated Hospital of XXMU is lower than the First Affiliated Hospital of HAUST and the Second People's Hospital of Xinxiang and the difference was statistically significant (P < 0.05). As for the score of absorption and transformation of knowledge, the First Affiliated Hospital of XXMU is lower than the First Affiliated Hospital of HAUST and the Second People's Hospital of Xinxiang and the difference was statistically significant (P < 0.05). ⑨ In the control group, as for the score of individual training needs, the Second People's Hospital of Xinxiang was higher than the First People's Hospital of Ruzhou and the difference was statistically significant (P < 0.05). As for the score of receptivity, the First People's Hospital of Ruzhou was lower than the First Affiliated Hospital of HAUST and the Second People's Hospital of Xinxiang and the difference was statistically significant (P < 0.05). As for the score of why attend training, the First People's Hospital of Ruzhou is lower than other hospitals and the difference was statistically significant (P < 0.05).

As for the first dimension: ① in the First Affiliated Hospital of HAUST, scores of the control group and the third group were higher than that of the second group in terms of absorption and transformation of knowledge and the difference was statistically significant (P < 0.05). The score of the control group was lower than that of the other three groups and the score of the third group is higher than that of the second group in terms of doctors' demand for legal training, and the difference was statistically significant (P < 0.05). As for the score of receptivity, the second and third group was higher than that of the first group, and the difference

was statistically significant ($P < 0.05$). ② In the first people's Hospital of Ruzhou, as for the score of the demand of doctors for legal training, the no training group was lower than other two group and the difference was statistically significant ($P < 0.05$). ③ In the People's Hospital of Taikang County, as for the score of doctors' demand for legal training, the control group was lower than other two groups and the difference was statistically significant ($P < 0.05$). As for the score of receptivity, the second group is higher than the first group and the difference was statistically significant ($P < 0.05$). ④ In the Second People's Hospital of Xinxiang, as for the score of absorption and transformation of knowledge, the control group was higher than that of the first group and the difference was statistically significant ($P < 0.05$). As for the score of doctors' demand for legal training, the control group was was lower than the first and second group and the difference was statistically significant ($P < 0.05$). As for the score of receptivity, the third group was higher than the first group and the difference was statistically significant ($P < 0.05$). ⑤ In the First Affiliated Hospital of XXMU, as for the score of doctors' demand for legal training, the control group was lower than the other three groups and the difference was statistically significant ($P < 0.05$). As for the score of receptivity, the third group was higher than the first group and the difference was statistically significant ($P < 0.05$). ⑥ In the first group, as for score of legal training programme for doctors, the Second People's Hospital of Xinxiang is lower than the First Affiliated Hospital of HAUST and the first peopl's Hospital of Ruzhou and the difference was statistically significant ($P < 0.05$). ⑦ In the second group, as for the score of doctors' understanding and cognition of legal knowledge, the Second People's Hospital of Xinxiang was higher than the First Affiliated Hospital of HAUST, and the difference was statistically significant ($P < 0.05$). As for the score of legal training programme for doctors, the Second People's Hospital of Xinxiang was lower than the First Affiliated Hospital of HAUST and the People's Hospital of Taikang County and the difference was statistically significant ($P < 0.05$). As for the score of receptivity, the First People's Hospital of Ruzhou was lower than the People's Hospital of Taikang County and the Second People's Hospital of Xinxiang, the First Affiliated Hospital of XXMU was lower than the First Affiliated Hospital of HAUST, the People's Hospital of Taikang County and the Second People's Hospital of Xinxiang and the difference was statistically significant ($P < 0.05$). ⑧ In the third group, as for the score of legal training programme for doctors, the First Affiliated Hospital of HAUST was higher than the Second People's Hospital of Xinxiang and the First Affiliated Hospital of XXMU and the difference was statistically significant ($P < 0.05$). As for the score of receptivity, the First Affiliated Hospital of HAUST was higher than the First Affiliated Hospital of XXMU

and the difference was statistically significant (P < 0.05). ⑨ In the control group, as for the score of doctors' understanding and cognition of legal knowledge, the First People's Hospital of Ruzhou was lower than the Second People's Hospital of Xinxiang and the difference was statistically significant (P < 0.05). As for the score of doctors' demand for legal training, the First People's Hospital of Ruzhou was lower than the First Affiliated Hospital of HAUST and the Second People's Hospital of Xinxiang and the difference was statistically significant (P < 0.05).

As for the reaction level: ① in the First Affiliated Hospital of HAUST, the score of the third group was higher than that of the second group and the control group, and the difference was statistically significant (P < 0.05). ② In the first people's Hospital of Ruzhou, the score of the control group was lower than that of the other two groups, and the difference was statistically significant (P < 0.05). ③ In the First Affiliated Hospital of XXMU, the score of the control group was lower than that of the third group, and the difference was statistically significant (P < 0.05). ④ In the second group, the score of the Second People's Hospital of Xinxiang was higher than that of the First Affiliated Hospital of HAUST, and the difference was statistically significant (P < 0.05). ⑤ In the control group, the score of the first people's Hospital of Ruzhou was lower than that of the First Affiliated Hospital of HAUST and that of the Second People's Hospital of Xinxiang, and the difference was statistically significant (P < 0.05).

5.3.2.5.3 Main effect of hospitals and pairwise comparative analysis

Table 5.15 shows the main effect of hospitals: ①as for the score of training needs of knowledge and skills and training content, the Second People's Hospital of Xinxiang was lower than the First Affiliated Hospital of HAUST and the People's Hospital of Taikang County, and the difference was statistically significant (P < 0.05). ②As for the score of the lecturer of training, the Second People's Hospital of Xinxiang was lower than the First Affiliated Hospital of HAUST, and the difference was statistically significant (P < 0.05). ③ As for the score of what can effective legal training bring to doctors, the First Affiliated Hospital of Xinxiang was lower than the First Affiliated Hospital of HAUST and the People's Hospital of Taikang County, and the difference was statistically significant (P < 0.05). ④As for test difference, experience and perception of previous training, organizational management needs, improvement of theoretical level and result assessment, the difference between different hospitals has no statistically significance (P > 0.05).

Table 5.15 Main effect of hospitals and pairwise comparative analysis

subject	hospitals	mean±standard deviation	F	P
experience and perception of previous training	the First Affiliated Hospital of HAUST	3.56±0.04	1.331	0.257
	the First People's Hospital of Ruzhou	3.51±0.08		
	the People's Hospital of Taikang County	3.51±0.08		
	the Second People's Hospital of Xinxiang	3.57±0.05		
training needs of knowledge and skills	the First People's Hospital of Ruzhou	3.69±0.06	4.218	0.002
	the First Affiliated Hospital of HAUST	6.80±0.03		
	the First People's Hospital of Ruzhou	6.80±0.07		
	the People's Hospital of Taikang County	6.91±0.07		
	the Second People's Hospital of Xinxiang	6.62±0.04ac		
organizational management needs	the First People's Hospital of Ruzhou	6.72±0.05	2.024	0.09
	the First Affiliated Hospital of HAUST	6.97±0.01		
	the First People's Hospital of Ruzhou	6.99±0.01		
	the People's Hospital of Taikang County	6.97±0.01		
	the Second People's Hospital of Xinxiang	6.99±0.01		
lecturer of legal training	the First People's Hospital of Ruzhou	7.00±0.01	2.641	0.034
	the First Affiliated Hospital of HAUST	6.01±0.03		
	the First People's Hospital of Ruzhou	5.99±0.06		
	the People's Hospital of Taikang County	5.97±0.06		
	the Second People's Hospital of Xinxiang	5.86±0.04a		
training content	the First People's Hospital of Ruzhou	5.97±0.04	4.006	0.003
	the First Affiliated Hospital of HAUST	5.61±0.03		
	the First People's Hospital of Ruzhou	5.59±0.06		
	the People's Hospital of Taikang County	5.64±0.06		
	the Second People's Hospital of Xinxiang	5.41±0.04ac		
what can effective legal training bring to doctors	the First People's Hospital of Ruzhou	5.58±0.04d	3.874	0.004
	the First Affiliated Hospital of HAUST	6.75±0.03		
	the First People's Hospital of Ruzhou	6.70±0.06		
	the People's Hospital of Taikang County	6.84±0.06		
	the Second People's Hospital of Xinxiang	6.66±0.04		
improvement of theoretical level	the First People's Hospital of Ruzhou	6.61±0.04ac	1.084	0.364
	the First Affiliated Hospital of HAUST	6.95±0.02		
	the First People's Hospital of Ruzhou	6.93±0.03		
	the People's Hospital of Taikang County	6.95±0.03		
	the Second People's Hospital of Xinxiang	6.97±0.02		

subject	hospitals	mean±standard deviation	F	P
	the First People's Hospital of Ruzhou	6.99±0.02		
	the First Affiliated Hospital of HAUST	6.66±0.06		
	the First People's Hospital of Ruzhou	6.67±0.11		
result assessment	the People's Hospital of Taikang County	6.79±0.11	0.556	0.694
	the Second People's Hospital of Xinxiang	6.62±0.08		
	the First People's Hospital of Ruzhou	6.74±0.08		

Note: a represents that difference is statistically significant compared with the First Affiliated Hospital of HAUST (P<0.05); b represents that difference is statistically significant compared with the First People's Hospital of Ruzhou (P<0.05); c represents that difference is statistically significant compared with the People's Hospital of Taikang County (P<0.05); d represents that difference is statistically significant compared with compared with the Second People's Hospital of Xinxiang (P<0.05).

5.3.2.5.4 Main effect of groupings and pairwise comparative analysis

Main effect of groupings is that scores of experience and perception of previous training, training needs of knowledge and skills, lecturer in legal training and training content between different hospitals have no statistically significance (P > 0.05).

5.3.3 Regression analysis

According to the difference analysis, the general information has a certain impact on each dimension of the questionnaires. Therefore, the general information is taken as the control variable, the secondary dimension as the independent variable, and the primary dimension as the dependent variable for STEPWISE regression analysis, with results shown in 5.3.3.2-5.3.3.4. The general information was taken as the control variable, the primary dimension as the independent variable, the stratification variable as the dependent variable, and STEPWISE regression analysis was conducted with results shown in 5.3.3.5. Finally, with the general information as the control variable, the stratification dimension as the independent variable, the result assessment as the dependent variable, STEPWISE regression analysis was conducted, with results shown in 5.3.3.6.

5.3.3.1 Stepwise Regression

Stepwise regression is to introduce variables into the model one by one, and after each explanatory variable is introduced, an F test is performed, and the selected explanatory variables are tested one by one. When the original explanatory variable is no longer significant due to the introduction of the later explanatory variable, it should be deleted. It is to ensure that only significant variables are included in the regression equation before each new variable is

introduced. This is an iterative process until neither significant explanatory variables are introduced into the regression equation nor insignificant explanatory variables are eliminated, so as to ensure that the final set of explanatory variables is optimal.

Based on the above ideas, stepwise regression can be used to screen and eliminate variables that cause multicollinearity. The specific steps are as follows. Firstly, the explained variables are used to make simple regression for each explanatory variable considered, and then the remaining explanatory variables are gradually introduced based on the regression equation corresponding to the largest contribution to the explained variables. After stepwise regression, the explanatory variables remained in the model are not only important, but also have no multicollinearity.

The process of selecting variables in stepwise regression method includes two basic steps: one is to remove the variables that are not significant in the regression model; the other is to introduce new variables into the regression model. The commonly used step-by-step element selection methods here are "forward method" and "backward method".

Forward method: It is to increase the number of variables from less to more, until there are no variables that can be introduced. Specific steps are as follows.

Step 1: Establish a unitary regression model for p regression independent variables

$$X_1, X_2, \ldots, X_p \quad \text{.....(5.1)}$$

with the dependent variables

Calculate the variable X_i, and the value of the F test statistic of the corresponding regression coefficient is recorded as $F_1^{(1)}, \ldots, F_p^{(1)}$, and the maximum value $F_{i1}^{(1)}$ is taken, namely

$$F_{i1}^{(1)} = \max\left\{F_1^{(1)}, \ldots, F_p^{(1)}\right\} \quad \text{.....(5.2)}$$

For a given significance level α, record the corresponding critical value $F^{(1)}, F_{i1}^{(1)} \geq F^{(1)}$, then introduce X_{i1} to regression model and record I_1 as the selected variable index set.

Step 2: Establish a binary regression model of the dependent variable Y and the independent variable $\{X_{i1}, X_1\}, \ldots, \{X_{i1}, X_{i1-1}\}, \{X_{i1}, X_{i1+1}\}, \ldots, \{X_{i1}, X_p\}$ (that is, the regression element of this regression model is bivariate), there are a total of *p*-1. Calculate the regression coefficient of the variable and the statistical value of the F test, denoted as $F_k^{(2)}(k \notin I_1)$, choose the largest one, denoted as $F_{i2}^{(2)}$, and mark the corresponding independent variable foot as i_2, namely

$$F_{i2}^{(2)} = \max\left\{F_1^{(2)}, \ldots, F_{i1-1}^{(2)}, F_{i1+1}^{(2)}, \ldots, F_p^{(2)}\right\} \quad \text{.....(5.3)}$$

For a given significance level α, record the corresponding critical value $F^{(2)}$, $F_{i2}^{(1)} \geq F^{(2)}$ then the variable X_{i2} is introduced into the regression model. Otherwise, terminate the variable introduction process.

Step 3: Repeat step 2 considering the regression of the dependent variable on the subset of variables $\{X_{i1}, X_{i2}, \ldots, X_k\}$. Repeat this method; select one of the independent variables that have never been introduced into the regression model each time until no variable is introduced after testing.

5.3.3.2 Regression analysis of doctors' demand for legal training

Table 5.16 Regression analysis results of doctors' demand for legal training

index	Non-standard partial regression coefficient	Standard error	normalization coefficient	T	P	95%CI
(Constant)	0.480	0.213		2.256	0.024	(0.062，0.898)
acceptance	0.176	0.015	0.358	11.961	<0.001	(0.147，0.205)
why take part in the training?	0.220	0.020	0.340	11.235	<0.001	(0.182，0.259)
experience and perception of previous training.	0.195	0.023	0.213	8.543	<0.001	(0.150，0.239)
training needs of knowledge and skills	0.146	0.027	0.124	5.409	<0.001	(0.093，0.200)
organizational management needs	0.173	0.011	0.395	15.350	<0.001	(0.151，0.195)
F(P)	233.440(<0.001)		R^2(adjusted R^2)	0.728(0.725)		

The regression analysis results of doctors' demand for legal training is shown in Table 5.16. It can be seen that ① the equation of the overall test F value is 233.440, and P<0.001 (statistically significant) indicates that at least one variable will have an impact on doctors' demand for legal training; ② the equation of adjusted R^2 is 0.725, which is only 0.003 less than the value before adjustment, indicating that the equation is relatively stable; the adjusted R^2＞0.7 indicates that the equation has good fitting effect; ③ the final variables entering the equation are the receptivity, why to participate in training, experience and perception of previous training, training needs of knowledge and skills, organization and management needs. and all of them show positive effects; ④ equation of doctors' demand for legal training is

0.480 + 0.176 * receptivity+ 0.220 * why to participate in training + 0.195 * experience and perception of previous training+ 0.146 * training needs of knowledge and skills + 0.173 * organization and management needs; ⑤ in terms of the impact degree for doctor's demand for legal training, the order is: organization and management needs > receptivity > why to participate in training > experience and perception of previous training > training needs of knowledge and skills.

5.3.3.3 Regression analysis results of doctor's legal training program

The regression analysis of doctors' legal training program is shown in Table 5.17. It can be seen that ① the equation of the overall test F value is 257.32, P < 0.001 (statistically significant), indicating that at least one variable will have an impact on the doctors' legal training program; ② the equation of adjusted R^2 is 0.707, which is only 0.003 less than the value before adjustment, indicating that the equation is relatively stable; the adjusted R^2> 0.7 indicates that the equation has good fitting result; ③ the final variables entering the program are the training instructor, the training form, content, and what can effective legal training bring to doctors, and all of them show positive effects. ④ the legal training program for doctors = 1.141 + 0.182 * training instructor + 0.215 * form of training + 0.149 *training content + 0.234 * what can effective legal training bring to doctors. ⑤ in terms of the impact degree on legal training program for doctors, the order is: the form of training > what can effective legal training bring to doctors >training instructor > training content.

Table 5.17 Regression analysis results of doctors' legal training program

index	Non-standard partial regression coefficient	Standard error	normalization coefficient	T	P	95%CI
(Constant)	1.141	0.191		5.968	<0.001	(0.766,1.517)
lecturer in legal training	0.182	0.026	0.191	7.073	<0.001	(0.132,0.233)
form of training	0.215	0.011	0.542	19.321	<0.001	(0.193,0.237)
training content	0.149	0.032	0.138	4.675	<0.001	(0.086,0.211)
What can effective legal training bring to doctors?	0.234	0.024	0.247	9.784	<0.001	(0.187,0.281)
F(P)	257.382(<0.001)		R^2(adjusted R^2)	0.710(0.707)		

5.3.3.4 Regression analysis results of doctor's receptivity

The regression analysis of doctor's receptivity is shown in Table 5.18. It can be seen that ① the equation of the overall test F value is 57.886, P < 0.001 (statistically significant), which

indicates that at least one variable will have an impact on the doctor's receptivity; ② the equation of adjusted R^2 is 0.306, which is only 0.006 less than that the value before adjustment, indicating that the equation is relatively stable; the adjusted R^2 >0.3 indicates that the equation has good fitting result; ③ the final variables entering the equation are the highest education, improvement of theoretical level, and doctor's absorption and transformation of knowledge. Among them, the highest education level show negative impact, and others show positive effects; ④ doctor's receptivity = -0.218-0.077 * the highest education + 0.641 * improvement of theoretical level + 0.467 * the degree of doctor's absorption and transformation; ⑤ in terms of the impact degree on doctor's receptivity, the order is: improvement of theoretical level > doctor's absorption and transformation of knowledge > highest education.

Table 5.18 Regression analysis results of doctor's receptivity

index	Non-standard partial regression coefficient	Standard error	normalization coefficient	T	P	95%CI
(Constant)	-0.218	0.645		-0.338	0.735	(-1.484,1.048)
the highest education	-0.077	0.032	-0.090	-2.403	0.017	(-0.141,-0.014)
improvement of theoretical level	0.641	0.047	0.500	13.693	<0.001	(0.549,0.733)
absorption and transformation of knowledge	0.467	0.089	0.192	5.252	<0.001	(0.293,0.642)
F(P)	57.886(<0.001)		R^2(adjusted R^2)	0.306(0.300)		

5.3.3.5 Regression analysis of assessment degree of reaction level

The regression analysis of reaction assessment is shown in Table 5.19. It can be seen that ① the equation of the overall test F value is 421.946, P < 0.001 (statistically significant), indicating that at least one variable will have an impact on the assessment degree of the reaction level; ② the equation of adjusted R^2 is 0.761, which is only 0.001 less than the value before adjustment, indicating that the equation is relatively stable; the adjusted R^2 > 0.7 indicates that the equation has a good fitting effect; ③ the variables finally entering the equation are the highest education, age and improvement of theoretical level; the highest education and age show negative effects; ④ the assessment degree of the reaction level = -0.218-0.077 * the highest education-0.005 * age + 0.641 * improvement of theoretical level; ⑤ in terms of the impact on the assessment of the reaction level, the order is: improvement of theoretical level > the highest education > age.

Table 5.19 Regression analysis of assessment degree of reaction level

index	Non-standard partial regression coefficient	Standard error	normalization coefficient	T	P	95%CI
(Constant)	-0.218	0.645		-0.338	0.735	-1.484
the highest education	-0.077	0.032	-0.090	-2.403	0.017	-0.141
age	-0.005	0.003	-0.068	-1.822	0.069	-0.010
improvement of theoretical level	0.641	0.047	0.500	13.693	<0.001	0.549
F(P)	421.946(<0.001)		R^2(adjusted R^2) 0.762(0.761)			

5.3.3.6 Regression analysis of result assessment

The regression analysis of result assessment is shown in Table 5.20. It can be seen that ① the equation of the overall test F value is 37.076, P < 0.001 (statistically significant), which indicates that at least one variable will have an impact on the result assessment; ② the equation of adjusted R^2 is 0.214, only 0.006 less than the value before adjustment, indicating that the equation is relatively stable; the adjusted R^2> 0.2 indicates that the equation has a poor fitting effect; ③ the final variables entering the equation are age, improvement of theoretical level, and doctors' absorption and transformation of knowledge, among which age shows negative impact, and other variables show positive impact; ④ the degree of result assessment = -0.005 * age + 0.641 * improvement of theoretical level + 0.467 * doctors' absorption and transformation of knowledge; ⑤ in terms of the impact degree on result assessment, the order is: improvement of theoretical level > doctors' absorption and transformation of knowledge > age.

Table 5.20 Regression analysis of result assessment

index	Non-standard partial regression coefficient	Standard error	normalization coefficient	T	P	95%CI
(Constant)	-0.218	0.645		-0.338	0.735	-1.484
highest education	-0.077	0.032	-0.090	-2.403	0.017	-0.141
improvement of theoretical level	0.641	0.047	0.500	13.693	0.000	0.549
absorption and transformation of knowledge	0.467	0.089	0.192	5.252	0.000	0.293
F(P)	37.076(<0.001)		R^2(adjusted R^2) 0.220(0.214)			

5.4 Analysis on the effect of legal training for doctors

Table 5.21 and Table 5.22 show the change of incidence of medical complaints and medical disputes before and after the legal training. It can be seen that ① after the legal training, the incidence of medical complaints decreased from 0.147% to 0.089%, chi square value = 14.790, $P < 0.001$. The difference is of statistical significance, which shows that the incidence of complaints can be effectively reduced after the legal training. As for each hospital, the incidence of medical complaints after training in the First Affiliated Hospital of HAUST was decreased from 0.138% to 0.057% and the difference was statistically significant ($P < 0.05$); the incidence of medical complaints after training in the other four hospitals was also decreased, but the difference was not statistically significant ($P > 0.05$), indicating that for the other four hospitals, the training was not so effective as in the First Affiliated Hospital of HAUST; ② on the whole, after legal training, the incidence of medical disputes decreased from 0.022% to 0.010%, $P = 0.022$, the difference is statistically significant, which means that legal training can effectively reduce the incidence of disputes. As for each hospital, the incidence of medical disputes decreased by a certain proportion, but the difference before and after training is not statistically significant, which means that training has a certain effect.

Table 5.21 Analysis on different medical complaint rates before and after legal training

medical complaints in hospital	training status		X^2	P
	Before training (%)	After training (%)		
the First Affiliated Hospital of HAUST	48(0.138)	20(0.057)	12.018	0.001
the First Affiliated Hospital of Ruzhou	5(0.047)	3(0.024)	—	0.484
the People's Hospital of Taikang County	23(0.144)	14(0.091)	1.841	0.175
the Second People's Hospital of Xinxiang	36(0.445)	26(0.308)	2.066	0.151
the First Affiliated Hospital of XXMU	40(0.119)	30(0.092)	1.140	0.286
total	152(0.147)	93(0.089)	14.790	<0.001

Note: "-" represents the use of Fisher exact test.

Table 5.22 Analysis on different medical disputes rates before and after legal training

medical disputes in hospital	training situation		X^2	P
	before training(%)	After training(%)		
the First Affiliated Hospital of HAUST	6(0.017)	2(0.006)	—	0.176
the First Affiliated Hospital of Ruzhou	2(0.019)	2(0.016)	—	1.000
the People's Hospital of Taikang County	4(0.025)	2(0.013)	—	0.688
the Second People's Hospital of Xinxiang	6(0.074)	1(0.012)	—	0.065
the First Affiliated Hospital of XXMU	5(0.015)	3(0.009)	—	0.727
total	23(0.022)	10(0.010)	—	0.022

Note: "-" represents the use of Fisher exact test.

After the normality test, the scores of the first / third / control group were in line with the normality, while the scores of the second group were not in line with the normality. Therefore, the paired t test was adopted to test the differences among the first / third / control group, and the Wilcoxon signed rank test was adopted for the second group to test the differences between the groups. The results are shown in Table 5.23: (1) after training, the scores were improved; (2) the scores of the first /second/ third/ group before and after training were statistically significant ($P < 0.05$); (3) there was no significant difference between the scores of the control group before and after training ($P > 0.05$).

Table 5.23 Analysis on the difference of scores before and after legal training

groups	scores before training	scores after training	Z/T	P
the first group	13.42±2.81	15.70±3.36	7.127	<0.001
the second group	13（11, 15）	17（14, 18）	-6.628	<0.001
the third group	13.11±2.45	15.16±4.62	4.125	<0.001
the control group	13.00±2.45	13.07±2.42	0.203	0.839

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Chapter 6: Conclusion and Prospect

In this chapter, we will summarize the findings of the research based on the results of previous analysis. Then we discuss the contribution of the research to document management and practice of legal training for doctors. Finally, this chapter points out its limitations and puts forward the directions for future research.

6.1 Summary of research results

6.1.1 Doctors' cognition of legal knowledge and training about medical disputes

6.1.1.1 Doctors' cognition of legal knowledge and its relevance

On the basis of the basic information as doctors' gender, age, education background, technical title and working years, the research made a survey and statistics analysis from two aspects: the correlation between doctors' legal knowledge and work, and the degree of doctors' understanding of legal knowledge. The results show that: the older the doctor is, the higher the professional title is, the lower his/her understanding of legal knowledge is, and the smaller his/her training demand is. At the same time, it is found that the continuing education has not been followed up in time after the implementation of the new law. The younger the doctor is, the higher his/her understanding of legal knowledge is, which is in line with the rule of age learning and memory.

6.1.1.2 Doctors' cognition of their own receptivity

Based on the basic information of doctors, this research analyzed six indexes: (1) I can quickly absorb new knowledge; (2) I can soon learn new knowledge to remember; (3) I participate in various training activities and can study very seriously; (4) In order to really acquire the knowledge, I can devote myself to every part of this training; (5) I can quickly apply the new knowledge I learned through the training to my work; (6) I am very willing to participate in the training of legal knowledge of doctors in order to improve my legal literacy. The result of index analysis (factor analysis) showed that all doctors' cognition of (3) -(6) was the same. They all studied carefully in training and applied it to their work in time, which was in accordance with the learning regularity. As for accepting and remembering new knowledge, the result showed

that doctors with younger age and lower professional titles are better than those who are older and with higher professional titles. It is confirmed that older doctors with high professional titles are the backbone of hospitals, supporting the development of hospitals, and thus more intensive training is needed.

6.1.1.3 Doctors' cognition of participating in training

Based on the basic information of doctors, this research analyzed six indexes: (1) Attending the training is mandatory by the hospital. (2) Attending the training is my own willing in order to learn medical and health laws and regulations. (3) I would like to learn knowledge and skills to reduce medical disputes through this training. (4) I want to improve my relationship with patients through this training. (5) I want to apply the legal knowledge I have learned to my daily practice. (6) I want to improve the safety of my practice and gain recognition from others by learning laws and regulations.

The results showed that all doctors were very willing to participate in the legal training after being notified by hospitals. Doctors also had a strong desire to reduce medical disputes and improve doctor-patient relationships through the legal training. It proves that the training has a great influence on reducing the occurrence of medical disputes and improving the doctor-patient relationship while doctors apply the knowledge from the training to diagnosis and treatment.

6.1.1.4 Doctors' cognition of the previous training experience

In order to design the training content more close to doctors, this research analyzed six indicators based on doctors' basic information: (1) I used to take part in the theoretical training given by the teacher, which helped me a lot. (2) I used to take part in the case-based training given by the teacher, which helped me a lot. (3) I used to participate in the comprehensive crowd training of doctors, nurses and medical technicians, which helped me a lot. (4) I used to participate in the training in the form of a large conference room, which helped me a lot. (5) I used to participate in the training, in which after the teacher finished all the content, he will leave 20 minutes for communication. It helped me a lot. (6) The training I have participated in before and the knowledge I have received in this respect are all fragmented laws and regulation, which are of great help to me. The analysis results showed that doctors prefer case-based teaching mode, medical dispute cases in training can help doctors understand and remember related laws and regulations better. Classified training according to doctors, nurses and medical technicians is more effective for learning legal knowledge. It is more helpful to solve the legal

problems encountered by doctors in their daily work to spare 20 minutes for communication after class. Through the analysis, effective training methods are extracted to lay a solid foundation for the effectiveness of the final training.

In conclusion, regression analysis results of doctors' demand for legal training showed that final variables entering the equation are: receptivity, why to participate in the training, experience and perception of previous training, training needs of knowledge and skills, organization and management needs. All of them show positive effects. Equation of doctors' demand for legal training is 0.480 + 0.176 * receptivity+ 0.220 * why to participate in training + 0.195 * experience and perception of previous training+ 0.146 * training needs of knowledge and skills + 0.173 * organization and management needs. In terms of the impact on doctors' demand for legal training, the order is: organization and management needs > receptivity > why to participate in training > experience and perception of previous training > training needs of knowledge and skills. This showed that doctors have a low understanding of the law, so they have a high demand for legal training and a strong willingness to participate. Based on years of clinical experience, doctors clearly know the importance of legal knowledge, and further verify their needs for legal training.

6.1.2 Impact of doctors' cognition of legal training on training effectiveness

Based on the literature and many years of work experience, we designed the relevant training contents in Questionnaire 1 for attending doctors and doctors with higher titles. From the following four aspects: (1) lecturer of legal training; (2) the specific training form; (3) the specific training content; (4) the learning organization. Regression analysis of doctors' legal training program showed that the final variables entering the program are the training lecturer, the training form, content, and what can effective legal training bring to doctors, and all of them showed positive effects. Equation of the legal training program for doctors = 1.141 + 0.182 * training instructor + 0.215 * form of training + 0.149 *training content + 0.234 * what can effective legal training bring to doctors. In terms of the impact on legal training program for doctors, the order is: the form of training > what can effective legal training bring to doctors >lecturer of training > training content. The regression analysis of doctors' receptivity showed that the final variables entering the equation is the highest education, improvement of theoretical level, and doctors' absorption and transformation of knowledge, and the highest education showed negative effects, and others showed positive effects. It proves that the higher the education level is, the more difficult it is for a doctor to remember the legal knowledge. In

terms of the impact degree on doctors' receptivity, the order is: improvement of theoretical level > doctor's absorption and transformation of knowledge > the highest education.

Through changing the training form, teacher and content, it is proved that it has appreciable impact on the training effect, and the environment in which doctors usually work has an effect on the training effect. The lecturer has an impact on the training effect; doctors are more effective at learning knowledge from teachers with practical experience than from teachers with theoretical experience. The training content includes not only legal knowledge, but also the use of specific tools.

6.1.3 Impact of doctor legal training on their theoretical knowledge

At the same time, the test paper 1 and test paper 2 were issued before and after the training. The analysis showed that the total scores were calculated separately before and after the training, and then the paired t test was adopted for difference analysis. After the training, the total score was greatly improved, the result of t test = 16.058, $P < 0.001$, and the difference was statistically significant. From the analysis of educational background and professional title, the correct rate is in line with the law of learning legal knowledge of doctors. Through the analysis before and after test, it can be seen that doctors have a demand for training. From the fact that legal training can effectively improve the test scores, it can be seen that training can improve doctors' theoretical knowledge and legal literacy. Learning the knowledge of medical laws and regulations and related laws and regulations, learning and abiding by the law, straightening out the relationship between doctors and patients, and strengthening self-discipline are the important measures to prevent medical disputes, and the best way to prevent the occurrence of medical accidents and reduce the incidence rate. The construction of the rule of law is an important part of hospital management. The publicity and training of the rule of law can improve the overall concept of the rule of law in public hospitals and the legal literacy of doctors; the legal training of doctors can help to prevent and reduce medical disputes.

The control group was given the test paper 1 and test paper 2 at the same time. After data analysis, it was found that scores of the control group did not improve significantly because they did not participate in the training. Systematic legal knowledge training is very helpful for doctors to absorb knowledge.

6.1.4 Impact of legal training for doctors on medical disputes

Three months after the training, we surveyed the doctors with questionnaire 3 and managers

with questionnaire 4. We analyzed from the following aspects: (1) absorption and transformation of knowledge; (2) what effective legal training can bring to doctors; (3) the managers' cognition of the training. The regression analysis of result assessment showed that the final variables entering the equation are age, improvement of the theoretical level, and doctors' absorption and transformation of knowledge, among which age showed negative impact, and other variables showed positive effects. In terms of the impact on result assessment, the order is: improvement of theoretical level > doctor's absorption and transformation of knowledge> age. It is verified that the older the doctor is, the less the legal knowledge and demand for legal training, the worse the transformation of knowledge is.

Through the comparison of the incidence of medical complaints and medical disputes before and after training, it can be seen that ① on the whole, after the legal training, the incidence of medical complaints decreased from 0.147% to 0.089%, chi square value = 14.790, $P < 0.001$. The difference is of statistical significance, which shows that the incidence of complaints can be effectively reduced after legal training. As for each hospital, the incidence of medical complaints after training in the First Affiliated Hospital of HAUST was decreased from 0.138% to 0.057% and the difference was statistically significant ($P < 0.05$); the incidence of medical complaints after training in the other four hospitals was also decreased, but the difference was not statistically significant ($P > 0.05$), indicating that for the other four hospitals, the training was not so effective as in the First Affiliated Hospital of HAUST; ②On the whole, after legal training, the incidence of medical disputes decreased from 0.022% to 0.010%, $P = 0.022$, the difference was statistically significant, which means that legal training can effectively reduce the incidence of disputes. As for each hospital, the incidence of medical disputes decreased by a certain proportion, but the difference before and after training is not statistically significant, which means that training has a certain effect. The doctors apply new knowledge from training to the daily work to reduce the occurrence of medical disputes.

6.2 Research value

6.2.1 Theoretical value

It is a breakthrough to combine the four-level assessment of Kirkpatrick Model with the evaluation of the effectiveness of legal training for doctors. It demonstrates the importance and necessity of legal training for attending doctors, which has an important positive impact on improving the relationship between doctors and patients. According to the filing of disputes

cases by medical institutions, big data is obtained and analyzed. The research sorted out the ranking of departments prone to medical disputes, age of doctors, title of doctors and reasons for disputes in medical institutions in China. At the same time, 12 types of patients who are prone to disputes were also proved: (1) patients who are introduced to the hospital by acquaintances; (2) patients with special status; (3) patients who have had disputes; (4) laid off workers and drug addicts; (5) patients who are dissatisfied with medical staff in the process of medical treatment; (6) patients who have high expectations of treatment; (7) patients who have contradictions within their families; (8) patients who have mental problems; (9) patients who have died. The thesis systematically analyzed the doctors and patients in medical institutions, and proposed that doctors should be trained according to different departments of the hospital in combination with specific laws and regulations, so as to achieve the best training effect.

6.2.2 Practical value

After analyzing the patients prone to disputes from big data, we designed a "high-risk patient conversation system" and "lawyer witness system". According to this, hospital managers design the content and method of conversation, so that doctors who participate in the training can learn to use this simple system, and then abide by the relevant laws and regulations at work. It is the most basic and best way to protect the rights of patients and their close relatives to let patients participate in the decision-making of diagnosis and treatment. In this way, doctors fulfill their legal obligations and protect the legal rights of patients. According to the observation in the past three months, doctors who have used this system have not encountered any medical disputes. In practice, legal training should be tailored according to the legal knowledge needed by different doctors to achieve better results.

6.3 Suggestions on legal training for doctors

6.3.1 Continuing education

We should strengthen continuing medical education for all staff, improve the lifelong education system and the management system of learning and training. The qualification of continuing medical education should be regarded as an important basis for the employment and regular assessment of medical personnel, and as an important condition for the appointment of professional and technical positions or the application and evaluation of higher level qualification. Focusing on the rural grassroots, taking the job competency as the core, centering

on the needs of all kinds of talents' career development, we formulated the guidelines for continuing medical education, selected and developed high-quality teaching materials, improved the network of continuing medical education bases, carried out targeted education and training theme activities, and strengthened the standardized management. We should vigorously develop distance education and support the establishment of a health education and training cloud platform based on National Open University of Health and Medical Education and supported by China Health and medical education MOOC alliance.

Medical Humanities should be listed as the subject of examination for continuing education. In 2007, the Ministry of Health of China issued *the Administrative Measures for Doctors' Routine Assessmen*t in accordance with *the Law on Practicing Doctors of the People's Republic of China*. In 2010, the Ministry of Health assigned this routine work to the Chinese Medical Doctor Association. In 2019, the Chinese Medical Doctor Association took *Medical Humanities* as a subject for regular examination for doctors, including five groups: the laws and regulations, the medical ethics, the medical psychology, the doctor-patient communication and the doctor's code of practice. The author has the honor to be selected as an expert in the group of laws and regulations. For laws and regulations, a syllabus for the continuing education was designed, and 150 test questions are provided for doctors to learn and help them pass the examination. In 2019, the association organized experts of five groups to review the manuscripts in a unified courseware, and finally selected doctors from five provinces to conduct five training sessions, which were particularly effective. In the future, a series of training rules and regulations and training system can be set up for *Medical Humanities*, so that more training can be organized for doctors, and the research results of this thesis can be widely spread.

6.3.2 Medical education

In the reform and innovation of medical education in Chinese Colleges and universities, it is clearly stipulated that in addition to the ideological and political education, medical ethics training must run through the whole process of education and teaching. It also requires to promote the organic combination of humanistic education and professional education, and guide medical students to take the prevention of disease, relief of pain and safeguarding the health rights and interests of the masses as their professional responsibilities. Colleges and universities should have high requirements in planning general education and basic education for students. In addition to the theoretical part of medical education, the practical course should

be completed in the hospital. During the practical course period, the students should eat, live and study in the hospital, which is more conducive to improving the ability of medical students to solve practical clinical problems, and encourage the exploration of organ/system-based integrated teaching and problem-based group discussion teaching. In the era of Internet information, the state should build a national teaching case sharing resource library, and build a number of national excellent online open courses, so that students can receive the same education as long as they have access to the Internet no matter where they are in the world. As for how to strengthen the construction of teaching staff, we should have high requirements for the selection of teachers engaged in medical education. We should establish teacher development demonstration centers in medical colleges and universities across the country, and gradually implement pre job training system for new teachers (including clinical teachers). Because clinical skills have new equipment, new methods and other factors, medical colleges and universities must pay attention to clinical technology regularly in the teaching content of promoting education, so as to ensure that the educational content and clinical technical skills taught to students can be updated synchronously.

We should actively promote the reform of health vocational education, build a modern health vocational education system, adhere to the combination of engineering and learning, standardize and strengthen the practical teaching links, improve the dynamic updating mechanism of teaching standards, and promote the synchronous updating of educational content and clinical technical skills.

For postgraduate education, especially for clinical medicine and stomatology degree postgraduate education. In the process of examination and enrollment, clinical skills and theory should be tested at the same time in order to select excellent medical postgraduates. It is of great significance for inheriting the culture of traditional Chinese medicine to do a good job in the reform of postgraduate education for professional degree of traditional Chinese medicine. For the standardized training of residents after China's reform, it needs to have a unique teaching system, and the bases that undertake standardized training of residents should have the ability to complete this important task. When designing the content and time of clinical training, it is necessary to systematically consider how the master's degree postgraduate education can better connect with resident's standardized training in the future; so that students can benefit more systematically. According to which form postgraduates submit research results and issue graduation certificates to them, we can investigate the students' clinical scientific research thought and analytical application ability, so that students can make investigation reports when showing their graduation scores; It can also be the

summary of clinical experience as well as the review of clinical application efficacy evaluation; We can also obtain the experimental scientific research on clinical medical problems according to the references.

In addition to the infrastructure construction of clinical practice industrial bases in medical colleges and universities, it is required to formulate and perfect the standards and admittance system of various clinical teaching bases, strictly review the accreditation and dynamic management of clinical teaching bases. According to the reasonable layout of affiliated colleges of all universities in China, we will integrate different affiliated colleges of universities and establish a number of national clinical practice learning and training demonstration management centers as classroom for clinical teaching. It is applicable to undergraduate graduates and graduate students. It is also used for physician training. When colleges and universities intervene in student classroom teaching, colleges and universities should bring the teaching construction of affiliated hospitals into the overall development plan of colleges and universities, clarify the main functions of clinical teaching in affiliated hospitals, and take teaching as an important part of the evaluation of affiliated hospitals; In addition to carrying out medical activities and scientific research,the affiliated hospitals of colleges or universities should take medical personnel training as a major mission, and make full use of clinical adventage to go to the hospital for medical activities. Cooperation with discipline construction. In this way, teaching, medical treatment, scientific research and epidemic prevention will be integrated.

Domestic medical education can be divided into medical education in medical universities and comprehensive universities. At present, medical students and law students in China use the same textbook as *Health Law*, while medical students and law students have different theoretical basis, knowledge structure and needs. According to the characteristics of medical students in universities and the contents of medical humanities, Chinese educational authorities should also set a unified syllabus for medical students, and compile unified teaching materials according to the syllabus. The specific curriculum should meet the needs of medical students, which should be set as a compulsory course for medical students.

The national university teachers can be united according to disciplines in the form of alliances, and establish a provincial, regional and industrial teachers' development alliance, so as to improve the teaching academic level, and create the quality culture of pursuing excellent teaching. Using Internet technology to promote reforms and innovations in the following four areas: the reform of teaching philosophy, teaching technology and methods, and teaching content, and comprehensive coverage of key teachers' inductive learning training, with

three-year evaluation, and teacher rotation training within three years. We can select a number of typical teachers' teaching development centers to play the role of demonstration and guidance.

On-the-spot teaching method should be adopted. In addition to learning in class, doctors should also go to specific places for on-the-spot learning (such as participating in the handling of illegal cases by health administrative departments, observing court sessions, participating in the handling of incidents by medical institutions.). The course lecturer should have rich practical experience, so as to ensure the quality of teaching and achieve the purpose of learning of students.

6.3.3 Perfect the law

In accordance with current laws and regulations and Law on the Promotion of Basic Medical and Health Care adopted on 28 December 2019, we should vigorously promote the implementation of related laws. At the same time, we should also recognize the basic, comprehensive and framework characteristics of the law, actively promote the research and discussion of related topics, and make suggestions for the construction and improvement of China's health rule of law:

First, research on laws of doctor-patient relationship (such as research on the nature of medical services, the system of handling doctor-patient disputes, identification of medical disputes).

Second, legal guarantee and legalization of basic medical and health services and related systems ("enhance the level of basic medical services and ensure basic medical care", the system of village and family doctors, the construction of basic medical service system, triage and referral system);

Third, the legal framework of Modern Hospital Management System (hospital management system, separation system of government regulation and management, legal basis of various medical institutions, personnel, salary, professional title, training and other related systems of medical personnel, research-oriented hospital construction, hospital financing and expenditure system);

Fourth, research on the legal system of medical and health professionals (research on the personnel system, salary system and professional title system of doctors, pharmacists, nursing staff and managers);

Fifth, research on the establishment of harmonious medical environment and the legal

mechanism of preventing and dealing with medical disputes.

Sixth, research on the jurisprudence and legal mechanism of the community with a shared future for human health;

Seventh, the significance and role of Law on the Promotion of Basic Medical and Health Care in promoting China's health care reform and health rule of law construction;

Eighth, the effect and influence of *the Civil Code* on the relevant legal issues in the field of Health (Research on the legal status and ownership of frozen embryos, research on the mechanism for handling the abnormal reaction of vaccination).

Ninth, research on emergency public health events and protection of health right;

Tenth, research on the rule of law on the emergency mechanism of public health emergencies;

Eleventh, research on the experience and lessons of novel coronavirus pneumonia prevention and control;

Twelfth, research on legal issues of normalized epidemic prevention and control and *International Health Regulations*.

6.4 Limitations of the research

6.4.1 Limitation of research objects

In this research, we used questionnaire survey method. In order to collect the questionnaires of different levels, we selected three levels of medical institutions as research objects. However, the research object does not include the township health centers at the grass-roots level, and there is no random sampling for all the samples, so the data of grass-roots hospitals need to be improved. The five medical institutions selected in this research are all representative hospitals in Henan Province, but the regional and economic and cultural differences in China are not taken into account.

6.4.2 Limitation of time

It is only six months from the time of issuing the questionnaires to the time of collecting them. In view of time limitation, the application of Kirkpatrick Model in this study is not perfect. In fact, some indicators can be extracted and applied to clinical practice.

6.4.3 Limitation of analysis

This research analyzed the perception system of doctors for training, but did not make a comprehensive analysis combined with patient satisfaction. However, some studies have shown that patients' legal rights are protected, and their satisfaction will naturally increase. At the same time, we only analyzed and studied the factors that have a greater impact, but did not conduct in-depth research on the factors that have a smaller impact.

6.5 Future research directions

6.5.1 In-depth case study

On the basis of previous data research, the data of medical institutions in recent 10 years can be analyzed and refined according to this research module. Then, the medical dispute data and cases of each department in recent 10 years can be analyzed combined with related laws and regulations. Hospital managers can also organize managers of relevant functional departments to carry out multi-dimensional learning. If the medical institutions have not established a formal filing system, we can learn from this research to establish and improve the filing system of medical dispute cases.

6.5.2 Further application of the Kirkpatrick Model

Medical institutions carry out multi-dimensional research on the root causes of disputes reduction after the implementation of "High-risk Case System", and then carry out legal knowledge and system education for doctors in clinical departments, so as to further improve the application of the Kirkpatrick Model in the effectiveness evaluation of doctors' legal training.

6.5.3 Comparative research among medical Institutions

There are differences in economy, culture and regional development among different provinces in China, which lead to different legal knowledge and comprehensive literacy of doctors. In the future, on the basis of this study, we can study the same level medical institutions in the same province, the same level hospitals nationwide, and different levels of medical institutions nationwide.

6.6 Conclusion

In recent years, the relationship between doctors and patients has improved. With the implementation of the new law, the way of patients' rights protection has changed from disturbance to the protection of their rights by law. Therefore, the number of medical litigation cases has increased year by year. This makes doctors not only need to know medical knowledge, but also legal knowledge. The best way for doctors to learn legal knowledge is to attend training. The current legal training is still a traditional mode of class, but legal training has played a positive role in reducing medical disputes. The combination of case analysis and law training mode can improve the legal literacy of doctors, protect the legal rights of both patients and doctors.

Through the research, it is further demonstrated that the contents and methods of legal training need to be designed according to the needs of doctors. These factors will significantly affect the effectiveness of legal training for doctors, thus affecting the occurrence of medical disputes. No medical disputes can make doctors more confident in their actual work, which is conducive to enhancing the confidence of doctors and patients to overcome the disease together, and is more conducive to ensuring the safety of patients. Effective legal training will promote doctors to apply new legal knowledge to diagnosis and treatment activities, fulfill their obligations, ensure the legal rights of both sides, and promote the healthy development of the whole medical environment.

This thesis also provides theoretical and practical contributions for future research. In this research, we combine the Kirkpatrick Model with the evaluation of the effectiveness of the legal training for doctors, and scientifically prove that we should dig deep into the problems before and during the legal training in order to show the importance and necessity of the training. This has an important positive impact on reducing the occurrence of medical disputes. The ultimate goal of legal training for doctors is to improve the legal literacy of doctors. Doctors in different departments encounter different medical disputes. Therefore, only by teaching relevant legal knowledge with real cases can doctors truly understand and apply legal knowledge, and ultimately reduce the occurrence of medical disputes. The number of medical disputes is the reflection of hospital management. Only by reducing the incidence of medical disputes, can we prove the orderly and effective hospital management, so as to protect the rights and interests of both doctors and patients. Attending doctors are the backbone of the orderly

operation of hospitals, so hospitals should strengthen the legal training for doctors, comprehensively improve their quality, improve service quality and level, avoid medical disputes, and build a harmonious doctor-patient relationship.

Bibliography

Alicia, A. G., David, N. D., & Hock-Peng, S. (2004). The customer is not always right: customer aggression and emotion regulation of services employees. *Journal of Organizational Behavior*, 25(3), 397-418.

Ailifei, I. & Ayinuer, A. (2017). Analysis of factors affecting standardized training of residents. *Xinjiang Medical Journal*, 47(10), 1164-1166.

An, L. (2010). A brief discussion on the evaluation model and application of the training effectiveness of Kirkpatrick Model. *Economic & Trade Update*, (11), 158-159. In Chinese.

Archard, D. (2008). A symbiotic relationship medical law review. *Medical Ethics and Medical Law*, 16(2), 300-304.

Arnetz, J. E., Arnetz, B. B., & Soderman, E. (1998). Violence toward health care workers: prevalence and incidence at a large, regional hospital in Sweden. *Aaohn Journal*, 46(3), 107-113.

Boulding, W., Glickman, S. W., Manary, M. P., Schulman, K. A., & Staelin, R. (2011). Relationship between patient satisfaction with inpatient care and hospital readmission within 30 days. *American Journal of Managed Care*, 17(1), 41-48.

Cherniss, C. (1995). Beyond Burnout: *Helping Teachers, Nurses, Therapists, And Lawyers Recover from Stress and Disillusionment*. New York: Routledge.

Chen, G. Q. & Wang, X. H. (2012). Organizational learning and organizational performance: the dynamic regulating role of environment. *R & D Management*, (1), 52-59. In Chinese.

Chen, L. (2014). *Study on the legal issues of the exercise of patients' right of informed consent*. Master Dissertation, Xiamen University. In Chinese.

Chen, R. & Zhuang, J. L. (2020). The dilemma and realistic countermeasures on the Punishment of "Medical Troubles". *Journal of Xingtai University*, 35(03), 133-139. In Chinese.

Chen, T. C. & Liang, B. N. (2009). Improving legal awareness and preventing medical disputes. *Southern Journal*, (12), 46-47. In Chinese.

Chen, W. & Liu, X. (2013). *Guidelines for Hospital Complaints Management.* Beijing: People's Military Medical Press. In Chinese.

De Vries, E., Ramrattan, M., Smorenburg, S., Gouma, D., & Boermeester, M. (2008). The incidence and nature of in-hospital adverse events: a systematic review. *Quality and Safety in Health Care*, 17(3), 216-223.

Dong, J. & Ma, H. (2015). Discussion on the training of health laws and regulations of resident doctors. *Health Vocational Education*, 33(08), 138-139. In Chinese.

Emanuel, L., Berwick D., Conway J., Combes J., & Hatlie M. (2008). What exactly is patient safety? *Advance in patient safety*: *new directions and alternative approaches*, (1), 19-35.

Fan, J. (2017). Discussion on legal problems of electronic medical record in the disputes over liability for medical damage. *Medicine and Law*, 9(04), 61-63. In Chinese.

Fan, L. H., Li, H., Zhang, L., Gao, L., & Duan, X. J. (2011). Analysis of 312 cases of medical disputes in a hospital in Harbin and preventive measures. *Chinese Hospital Management*, 31(07), 32-33. In Chinese.

Fan, Z., Zhang, Y. L., Han, X. J., & Lu, G. M. (2012). Compare analysis on medical negligence claims incidence rate among Beijing, Shanxi, Germany and England. *Chinese Hospitals*, 16(12), 2-3. In Chinese.

Feng, Y. Z. (2007). The ways and measures of legal quality education for medical students.

Journal of Liaoning Medical College (Social Science Edition), 5(1), 12-14. In Chinese.

Gao, Y. (2016). Analysis on the training of legal awareness of medical staff. *Medicine and Law*, 8(01), 100-102. In Chinese.

Gao, Y. T. (2002). Government intervention in medical errors and disputes from the perspective of American measures. *Chinese Journal of Hospital Management*, 18(8), 511-512. In Chinese.

Guo, K. N., Peng, W., & Zhang, W. D. (2012). Research on the current situation of continuing education for clinicians. *Chinese Journal of Coal Industry Medicine*, 15(08), 1292-1294. In Chinese.

Guo, P. J., Yan, H. P., Wu, C. X., & Wei, H. B. (2009). Application of Kirkpatrick Model in the evaluation of continuing medical education. *Health Vocational Education*, 27(16), 22-23. In Chinese.

Guo, X. J. (2017). *Implementation and effect evaluation of systematic training based on post competency in nursing staff of traditional Chinese medicine hospital*. Master Dissertation, Shandong Traditional Chinese Medicine University. In Chinese.

He, Y. & Wang, D. R. (2012). Enlightenment of Kirkpatrick's Level 4 Training Evaluation Model on optimizing the pre-job training system for newcomers in hospitals. *China Hospital*, 16(11), 65-67. In Chinese.

Hu, J. H. (2010). *An evaluation research on the effect of enterprise training based on the psychological characteristics of employees*. Master Dissertation, Lanzhou University of Technology. In Chinese.

Huang, G. J. (2012). Analysis of 121 medical disputes in primary hospitals and preventive measures. *Chinese Rural Health Service Administration*, 32(11), 1139-1140. In Chinese.

Jacobs, J. P., Jacobs, M. L., Mavroudis, C., Backer, C. L., Lacour-gayet, F. G., Tchervenkoy, C., et al. (2008). Nomenclature and databases for the surgical treatment of congenital cardiac disease-an updated primer and an analysis of opportunities for improvement. *Cardiology in the Young,* 18(Suppl 2), 38-62.

Jacobs, J. P., O'brien, S.M., Pasquali, S.K., Jacobs, M. L., Lacour-gayet, F.G., Tchervenkow, C. L., et al. (2011). Variation in outcomes for benchmark operations: An analysis of the society of horacic surgeons congenital heart surgery database. *Annals of Thoracic Surgery,* 92(6), 2184-2191.

Jacoby, J. & Matell, M. S. (1971). Three-Point Likert Scales are good enough. *Journal of Marketing Research*, 8(4), 495-500.

Jerry, W. L., Partricia, S. J., Lee, J. W., Jones, P. S., Mineyama, Y., & Zhang, X. W. (2002). Cultural differences in responses to a Likert Scale. *Research in nursing & Health,* 25(4), 295-306.

James, J. T. (2013). A new, evidence-based estimate of patient harms associated with hospital care. *Journal of Patient Safety,* 9(3), 122-128.

Jiang, Z. J., Chen, T., Du, S. L., Yang, W., Zhang, Y., Chen, F., et al. (2011). Analysis of management training needs of directors in clinical and medical technology departments. *Medical Journal of QILU*, 26(06), 555-558. In Chinese.

Jing, J. M. (2010). *Analysis on the effectiveness of graduate degree exams*. Master Dissertation, Shanxi Medical University. In Chinese.

Kirkpatrick, D. (1996). Great ideas revisited: techniques for evaluating training programs. Revisiting Kirkpatrick's four-level model. *Training & Development,* 50(1), 54-59.

Kirkpatrick, D. (2015). *How to Do a Good Job in Training Evaluation: The Four-Level Evaluation Method.* Beijing: Electronic Industry Press.

Laan, R. F., Leunissen, R. R., & Van Herwaarden, C. L. (2010). The 2009 framework for undergraduate medical education in the Netherlands. *German Journal for Medical Education (GMS Z Med Ausbild),* 27(2), Doc35.

Li, C. (2010). How to design an effective training system? *Economist*, 11, 264. In Chinese.
Li, C. G. (2012). *Research on the mechanism of training migration atmosphere on migration effect.* Master Dissertation, Huazhong University of Science and Technology. In Chinese.
Li, H. Y. (2011). *Learning Motivation.* Hubei: Hubei Education Press. In Chinese.
Li, J. (2017). Reinterpretation of informed consent system of patients: On article 55 of tort liability law. *Law Science Magazine*, 38(08), 124-131. In Chinese.
Li, X. (2018). Investigation report on doctor-patient relations in China: an analysis of doctor-patient relations. *Contemporary Medicine*, 24(19), 183-186. In Chinese.
Li, X. J. & Liu, X. Y. (2010). Discussion on strengthening medical dispute prevention education in clinical practice. *Northwest Medical Education*, 18(4), 854-856. In Chinese.
Li, Y. Y. (2017). *Health Law Case and Practical Training Course.* Hangzhou: Zhejiang University Press. In Chinese.
Li, Z. (2012). Relevance analysis of medical personnel's legal knowledge level and medical disputes: a case study of Weihai City, Shandong Province. *Journal of Changji University*, (03), 35-40. In Chinese.
Li, Z. & Yang, P. (2011). Analysis of legal knowledge level and related factors of medical staff in Weihai City. *Journal of Shandong University (Medical Edition)*, 49(03), 115-119. In Chinese.
Lin, X. Y. & Li, W. (2015). Investigation and analysis of 1552 cases of medical disputes. *Chinese Hospitals*, 19(02), 61-62. In Chinese.
Liu, A. (2015). Historical evolution and legal enlightenment of the right to informed consent of medical care in the United States. *Hunan Forum*, 28(2), 94-97. In Chinese.
Liu, B. & Xian, D. Q. (2008). On the training of medical staff's legal awareness from the perspective of the hierarchical structure of legal awareness. *Legal System and Society*, (1), 296. In Chinese.
Liu, L. Q. & Luo, T. (2018). Analysis of the present situation and causes of medical disputes. *Chinese Medicine*, 22(12), 4-6. In Chinese.
Liu, X. & Chen, W. (2018). *Theory and Practice of Core System of Medical Quality and Safety.* Beijing: Chinese Medical Multimedia Press. In Chinese.
Liu, Y., Jiang, S. F., Gu, J., Shou, J., Xia, H. L., & Zhu, S. Z. (2013). Evaluation of clinical ability training effect of general practitioners and analysis of influencing factors. *Chinese Journal of General Practitioners*, 12(12), 965-969. In Chinese.
Liu, Z. H. (2010). Analysis of the causes of 51 medical disputes and preventive measures. *Chinese Medical Ethics*, 23(3), 22-23. In Chinese.
Lv, L. (2003). Investigation on the training demand of teaching skills for teachers in clinical teaching bases. *China Higher Medical Education*, (5), 43-44. In Chinese.
Lv, Y. C. (2014). Establishment of hospital training evaluation system based on Kirkpatrick model. *China Collective Economy*, (01), 86-87. In Chinese.
Ma, H. & Ye, X. Q. (2018). Research on standardized training of residents' health laws and regulations. *Health Vocational Education*, 36(4), 136-138. In Chinese.
Mahant, S., Keren, R., Localio, R., Luan, X., Song, L., Shah, S. S., et al. (2014). Variation in quality of tonsillectomy preoperative care and revisit rates in children's hospitals. *Pediatrics*, 133(2), 280-288.
Makoul, G. (2001). The SEGUE framework for teaching and assessing communication skills. *Patient Education and Couseling*, 45(1), 23-34.
Manary, M. P., Boulding, W., Staelin, R., & Glickman, S.W. (2013). The patient experience and health outcomes. *New England Journal of Medicine*, 368(3), 201-203.
Maurino, D. E., Reason, J., Johnson, N., & Lee, R. B. (1995). *Beyond Aviation Human Factors.* UK: Ashgate Publishing Ltd.
Member Department of Chinese Medical Association. (2003). How to further guard against

medical disputes from the results of medical research activities of medical practitioners (middle). *The Medical Forum*, (4), 289-291. In Chinese.

Meng, X. H., Zhang, Y., & Yu, C. H. (2015). Evaluation of clinical pharmacist training by Kirkpatrick and CIPP models. *Evaluation and Analysis of Drug-Use in Hospitals of China*,15(02), 263-266. In Chinese.

Newman-toker, D. E., Mcdonald, K. M., & Melzer, D. O. (2013). How much diagnostic safety can we afford, and how should we decide? A health economics perspective. *BMJ Quality and Safety,* 22(Suppl 2), ill-i20.

Nolan, P., Janie, D., Joaquim, S., Sarah, T., & Bengt, A. (1999). Violence in mental health care: the experiences of mental health nurses and psychiatrists. *Journal of Advanced Nursing,* 30(4), 934-941.

Ou, Y. L. & Feng, L. (2021). Current status and hot spot analysis of domestic patient safety research based on bibliometric. *Chinese General Practice*, 24(04), 414-420. In Chinese.

Pan, G. X. & Fan, Z. (2015). A large sample study of non-litigation medical disputes in Britain. *Chinese Medicine*, 19(01), 7-9. In Chinese.

Qi, J. G. (2004). Recognition of training evaluation. *Journal of Petroleum and Chemical Management Cadre College*, (03), 57-61. In Chinese.

Qian, B., Zhou, D., Qian, G. T., & Wu, B. (2018). Discussion on causes of medical disputes and its effect on medical behavior and countermeasures. *Management Observer*, (26),189-190. In Chinese.

Qian, B., Wu, B., & Zhou, D. (2014). Discussion on the causes of medical disputes and their impact on medical behavior. *Medical Information*, 27(10), 197. In Chinese.

Qian, B., Tian, Y., & Zhou, D. (2017). Analysis of causes of medical disputes and research on countermeasure. *Management Observer*, (15), 164-165. In Chinese.

Qiu, L. Q. & Kang, L. T. (2016). Application of Kirkpatrick four-level evaluation model in pre-job training of new staff in hospital. *Health Economics Research*, (08), 58-59. In Chinese.

Ren, L. & Wang, Y. G. (2017). Reform of the certification system of the American post-graduation medical education commission and its enlightenment. *Chongqing Medicine*, 46(18), 2577-2578. In Chinese.

Ruan, H. & Yang, L. (2018). Research progress of training assessment model applied to medical training. *Nursing Research*, 32(18), 2831-2834. In Chinese.

Shekelle, P. G., Pronovost, P. J., Wachter, R. M., McDonald, K. M., Schoelles, K., Dy, S. M., et al. (2013). The top patient safety strategies that can be encouraged for adoption now. *Annals of Internal Medicine*, 158(5), 365-368.

Shen, C. H. (2019). Investigation and analysis on quality education of health law for medical students. *Technology & Management,* (01), 73. In Chinese.

Simpson, J.G., Furnace, J., Crosby, J., Cumming, A.D., Evans, P.A., Friedman Ben David, M., et al. (2002). The Scottish Doctor--Learning Outcomes for The Medical Undergraduate in Scotland: A Foundation for Competent and Reflective Practitioners. *Medical Teacher*, 24(02), 136-143.

Song, X. P. (2007). The using of Kirkpatrick model to training effect evaluation. *Science and Technology Management Research*, 27(2), 244-245. In Chinese.

Spector, P. E., Chen, P. Y., & O'Connell, B. J. (2000). A longitudinal study of relations between job stressors and job strains while controlling for prior negative affectivity and strains. *Joumal of Applied Psychology,* 85(2), 211-218.

Sun, D. D. & Nie, X. (2008). A brief discussion on the legal knowledge that surgeons should have. *Chinese Journal of Practical Surgery*, (1), 1-2+9. In Chinese.

Sun, J. J. (2016). Analysis of causes of medical disputes and management strategies. *World Latest Medicine Information*, 16(44), 175-176. In Chinese.

Swing, S. R. (2007). The ACGME outcome project: Retrospective and prospective. *Medical Teache*, 29(7), 648-654.

Tan, C. J. (2013). Discussion on the application of Kirkpatrick's evaluation model in improving the competency of clinical nurses. *Chongqing Medicine*, 42(21), 2562-2564. In Chinese.

Tang, R. & Shaw, W. M. (1999). Towards the identification of the optimal number of relevance categories. *Journal of the American Society for Information Science*, 50(3), 254-264.

Vincent, C. (2010). *Patient Safety (2nded).* London: Blackwell.

Wachter, R. M., Pronovost, P., & Shekelle, P. (2013). Strategies to improve patient safety: The evidence base matures. *Annals of Internal Medicine*, 158(5), 350-352.

Wang, L. W. (2006). Application of level four assessment in enterprise training project. *China Metallurgical Education*, (03), 69-71. In Chinese.

Wang, P., Li, W. Z., & Liu, Y. H. (2011). Reasons and countermeasures of doctor-patient disputes in outpatient departments of hospitals. *Nursing Journal of Chinese People's Liberation Army*, 28(06), 62-68. In Chinese.

Wang, Y. Y., Yu, J. Y., & Li, Y. (2012). The influence mechanism of organizational ambiance on the effectiveness of employees' behavior. *Psychology Exploration*, 32(02), 188-192. In Chinese.

Watson, D. & Clark, L. A. (1984). Negative affectivity: the disposition to experience aversive emotional states. *Psychological Bulletin*, 96(3), 465-490.

Watson, D., Clark, L, A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.

Wu, J. N. & Zhuang, Q. S. (2005). Measuring performance in the public mind: the application of customer satisfaction index in the public sector. *Management Review*, (05), 53-57. In Chinese.

Wu, Y. & Long, L. R. (2006). Effective factors of training transfer. *Advances in Psychological Science*, (05), 749-756. In Chinese.

Xian, M., Zhou, Z. M., Wu, L. K., & Wu, T. S. (2016). Establishment of professional training effect evaluation model for health education personnel based on Kirkpatrick model and CIPP model. *Human Resources Management*, (05), 50-51. In Chinese.

Xu, X. R. & Chen, X. J. (2018). Empirical study on liability dispute of infringement of patients' right of informed consent——based on the analysis of 95 judgments. *Chinese Health Service Management*, 35(12), 914-918. In Chinese.

Xu, Y. (2011). Exploration and practice of post-evaluation of Baosteel Training Project. *Continuing Education*, 25(11), 5-6+9. In Chinese.

Xue, J. P., Ma, R., & Zhang, Y. B. (2011). The application of confirmatory factor analysis in the research of examination effectiveness. *Chinese High Medical Education*, (07), 37-38. In Chinese.

Yang, G. (2011). Kirkpatrick's four-level training evaluation model. *Enterprise Reform and Management*, (03), 60-61. In Chinese.

Yu, J. L., Yao, H. Y., Li, X. H., Chen, X., & Sun, Y. R. (2014). Investigation on nursing theory knowledge and skill training needs of newly-recruited nurses. *Shanghai Nursing Journal*, 14(4), 8-10. In Chinese.

Yu, X. J., Peng, R. K., & Lu, F. J. (2006). Research into application of education meterage theory in college curriculum examination. *Chinese High Medical Education*, (08), 23-25+28. In Chinese.

Yuan, Y. Z. & Xi, G. Q. (2000). The Theory of Expectancy. *Journal of Nanjing University of Science and Technology (Social Science Edition)*, 13(3), 45-49. In Chinese.

Zhang, H., Zhang, B., & Han, L. H. (2000). Strengthening legal education to improve the legal awareness of advanced doctors. *Chinese Hospital Management*, (11), 52. In Chinese.

Zhang, N. & Liang, L. Z. (2019). Ethical issues of patients' participation in clinical decision making under the hierarchical system. *Chinese Medical Ethics*, 32(09), 1132-1136. In Chinese.

Zhang, Y. Y. (2012). Analysis of 216 cases of medical disputes in a hospital and preventive measures. *Modern Prevention Medicine*, 39(10), 2478-2481. In Chinese.

Zhao, J. J. (2017). On strengthening medical staff's legal consciousness and improving their ability to prevent and deal with medical disputes. *Cardiovascular Disease Electronic Journal of Integrated Traditional Chinese and Western Medicine*, 5(03), 15+18. In Chinese.

Zhao, X. P., He, L. Y., & Tan, Y. K. (2008). Investigation and analysis of medical staff's legal awareness. *Journal of Youjiang Medical University for Nationalities*, 22(6), 25-26. In Chinese.

Zhou, L. J. (2009). Investigation on knowledge of health laws and regulations among medical staff in Shaoxing City. *China Public Health Management*, 25(1), 77-78. In Chinese.

Zhou, X. Y., Yin, M., Zhang, X., Cao, X. K., & Qu, T. T. (2016). Research on the path of promoting clinical doctors' legal literacy: Based on the investigation of the current situation of clinical doctors' legal literacy in Heilongjiang Province. *Chinese Medical Ethics*, 29(01), 84-86. In Chinese.

Zhu, C. Z. (2017). *Research on the construction of theoretical model of learning department and the relationship between transformational leadership and individual learning ability of doctors*. Master Dissertation, Guangxi University. In Chinese.

Zhu, D. & Yang, X. J. (2011). Analysis of the causes of medical disputes and countermeasures. *Journal of Modern Medicine and Health*, 27(24), 3823-3824. In Chinese.

Zhu, R. H. (2006). Research on the training evaluation system oriented by Kirkpatrick Model. *Journal of Shengli Oilfield Staff University*, (04), 1-3. In Chinese.

Zou, Y. S. (2010). Exploration on the management and training model of advanced doctors in clinical teaching hospital. *Chinese Medical Record*, 11(08), 59-61. In Chinese.

Webliography

Bundesärztekammer. (2012, December 31). *About the German Medical Association*. Retrieved May 2, 2018, from http://www.bundesaerztekammer.de/page.asp?his= 4.3569

British Medical Practitioners Board. (2012, August 26). *Registered doctor from 2001-2011*. Retrieved August 26, 2018, from http://www.gmc-uk.org/doctors/ register/search_stats.asp

Francis, R. (2010, February 4). *Independent Inquiry into care provided by Mid Staffordshire NHS Foundation Trust January 2005-March 2009*. Retrieved February 20, 2021, from https://webarchive.nationalarchives.gov.uk/20130105100453/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_113018?PageOperation=email

Medscape. (2020, January 4). *Malpractice Report 2019*. Retrieved February 20, 2021, from https://medscape.com/search/?q=Malpractice%20Report

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Other References

Chinese Medical Doctor Association. (2017). *White Paper on Doctor Practice*. Beijing, Chinese Medical Doctor Association. In Chinese.

General Office of the State Council. (2017). *Circular Issued by the General Office of the State Council on the Key Tasks of Deepening the Reform of the Medical and Health Care System in 2017*. Beijing, General Office of the State Council. In Chinese.

National Health Commission. (2018). Notice of the General Office of the National Health Committee on Further Strengthening Patient Safety Management. Beijing, General Office of the National Health Council. In Chinese.

National Health Commission. (2019). *Statistical Bulletin on the Development of Health and Family Planning in China*. Beijing, National Health Commission of the People's Republic of China. In Chinese.

The National Health Service Litigation Authority. (2011). *Report and Accounts 2010-2011*. Beijing, The National Health Service Litigation Authority. In Chinese.

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Annex A

The influence of doctor's legal training on medical disputes

Pre- training test

Thank you very much for your participation in law-based practice training. Questionnaire data are collected for purely research purposes, and your hospital will not get the data and information you provide. Therefore, please answer all questions based on your own personal experience and feelings. Since this research requires you to provide feedback before and after training, we will give you three questionnaires with your name and contact information. Please answer all the questions.

Hospital name： Filling time： , 2019

Doctor's name： Telephone：

Age：

Technical title：1) chief doctor 2) associate chief doctor 3) attending doctor 4) resident doctor

Department：

Education：1) college 2) bachelor 3) master 4) doctor 5) others

1. A hospital set up a new department of medical cosmetology without approval and hired a retired surgeon from other place as the attending doctor. The nature of the hospital's behavior belongs to

A. Illegal medical practice.

B. Practice out of scope.

C. Normal medical behavior.

D. Special situation.

E. Develop new technology.

2. Doctor Wang, registered as a surgeon, performed cesarean section for a neighbouring woman, which resulted in her maternal death. Doctor Wang's behavior belongs to

A. Medical technical accident.

B. Medical misconduct.

C. Legitimate medical practice.

D. Illegal practice of medicine.

E. Malpractice.

3. Law of the People's Republic of China on Medical Practitioners can be applied to

A. Persons who are legally qualified as practicing doctors.

B. Medical professionals who have obtained the qualifications of practicing doctors or assistant practitioners according to law.

C. Medical professionals who have obtained the qualifications of practicing doctors or assistant practitioners according to law and practiced in medical institutions.

D. Medical professionals who have obtained the qualifications of practicing doctors or assistant practitioners according to law and are registered to practice in medical institutions.

E. Medical professionals who have obtained the qualifications of practicing doctors or assistant practitioners according to law and are registered to practice in medical, health care or preventive institutions.

4. Which of the following are the rights of practicing doctors?

A. Accepting learning and training.

B. Promoting health care knowledge.

C. Protecting patients' privacy.

D. Complying with technical operation norms.

5. Which of the following are the duties of practicing doctors?

A. Improving medical ethics, caring for patients.

B. Participating in scientific research activities.

C. Diagnosing and treating patients.

D. Obtaining reasonable remuneration.

6. In the following cases, doctors may exercise special right of interference

A. Infectious patients who need isolation refuse to be isolated.

B. Patients hospitalized in teaching hospitals refuse to accept internships from medical students.

C. Patients hospitalized in hospitals with scientific research missions refused to be subjects.

D. Outpatient patients refuse to be examined according to the special examination items prescribed by the doctor.

E. Outpatient patients refuse to disclose illness-related privacy to their doctors.

7. When rescuing critically ill patients, if the situation is not recorded in time, the relevant medical staff should make up the record and explain it within ( ) after the end of the rescue.

A. 2 hours B. 6 hours C. 4 hours

8. The punishment for serious consequences of divulging the privacy of patients is

A. prosecuted for criminal liabilities.

B. revoking medical practice certificate.

C. penalty.

D. assuming compensation liability.

E. warning or ordering suspension of practice for 6 months to 1 year.

9. The way to acquire the prescription right of practicing doctors is

A. acquired after being employed by a medical institution.

B. acquired at the registered place of practice.

C. acquired after further study in superior hospitals.

D. acquired after passing the qualification examination for doctors.

E. acquired after participation in the training of health administration departments.

10. Chapter 7 of *the Tort Liability Act* defines the civil liability arising from medical acts as:

A. Liability for medical damage.

B. Liability for medical negligence.

C. Liability for medical malpractice.

D. Liability for medical errors.

11. According to *the Tort Liability Law*, under what circumstances must the written consent of the patient is obtained to carry out medical treatment?

A. Any diagnostic activity.

B. Any therapeutic activity.

C. When performing surgery, special examination, special treatment.

D. Only when performing surgery.

12. If the consent of the patient or his/her close relatives can not be obtained for rescuing the dying patient, corresponding medical measures can be implemented immediately with the approval of ( )

A. attending doctor.

B. the director of the clinical department.

C. the person in charge or authorized person in charge of a medical institution.

D. staff congress of medical institutions

13. Which of the following is not a case of "presumption of fault of medical institution"?

A. Violations of laws, administrative regulations, rules and other relevant provisions of medical standards.

B. Concealing or refusing to provide medical records related to the dispute.

C. Forging, altering or destroying medical records.

D. Medical personnel have not yet obtained a certificate of practicing doctor.

14. Article 63 of *the Tort Liability Law* stipulates that "medical institutions and their medical personnel shall not implement the _____ inspections in violation of the medical treatment norms."

A. necessary B. required C. unnecessary D. non-essential

15. After the implementation of *the Tort Liability Law*, does the dispute that have not been identified as medical accidents can be compensated?

A. According to Article 49 of *the Medical Accident Treatment Regulations*, it can not be compensated.

B. According to *the Tort Liability Law*, it can be compensated.

C. Whether to compensate or not should be determined by the judge.

D. None of the above.

16. If a patient is given experimental treatment without his/her own or family members' consent, the penalty given by the public health authority shall be:

A. Suspension of practice for three to six months.

B. Suspension of practice for six months to one year.

C. Administrative sanctions.

D. Revocation of Doctor Practicing Certification.

E. Criminal sanctions.

17. If a serious patient is not diagnosed within 3 days after admission and the treatment effect is not good, what should be done:

A. transfer to a higher hospital for diagnosis and treatment.

B. organize consultation and discussion.

C. report to the leaders of the hospital to deal with it.

18. Which of the following is not the core system of medical quality and safety?

A. Admittance system for new technologies and new projects.

B. The system of responsibility for first appeal.

C. The system of critical values reporting.

D. Classified management system of operation.

19. Death cases should generally be discussed in ( ), and special cases (with medical disputes) should be discussed in ( ).

A. 1 day, 6 hours B. 3 days, 12 hours

C. 1 week, 1 day D. 5 days, 1 day

20. The frontline personnel, support personnel and third line personnel on duty are needed in the ward, and ( ) personnel on duty is the chief doctor or deputy chief doctor. When the doctor under training is on duty, he should perform medical work under the guidance of doctors.

A. the frontline B. the support C. the third line

21. Generally, patients should have the ward round record written by ( ) twice a week.

A. resident doctor

B. attending doctor

C. Chief doctor (or deputy chief doctor)

22. The main subject of medical malpractice is medical institutions and their medical staff. The "medical staff" here refers to

A. doctors and nurses in the hospital

B. doctors and Nurses Registered according to Law

C. doctors, nurses and external staff of the hospital

D. All relevant personnel engaged in medical activities in hospital

E. All relevant medical technicians of the hospital engaged in medical activities

23. The medical staff in medical institutions take advantage of prescribing drugs to illegally accept the property of the sellers of drugs, medical devices, medical and health materials and other products in order to seek benefits and the amount of money is large. This kind of behavior constitutes

A. no crime.

B. bribery crime.

C. bribery crime of non-official servant.

D. crime of accepting kickbacks.

24. Li, a doctor, met a puerperal who was about to give birth on the train during the Spring Festival. Because there was no other medical staff on the train, Li assisted her in the process of childbirth. Due to excessive traction, it results in the brachial plexus in the left upper limb of the newborn. The nature of Li's behavior is

A. Rule-breaking operations; considered as medical malpractice.

B. Illegal practice of medicine; considered as medical malpractice.

C. Practicing beyond the scope; considered as medical malpractice.

D. The act of helping others in case of emergency; not considered as medical malpractice.

E. Causing adverse consequences; not considered as medical malpractice.

Thank you very much for your support and help for our research project!

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The influence of doctors' legal training on medical disputes

Post-test training

Thank you very much for your participation in law-based practice training. Questionnaire data are collected for purely research purposes, and your hospital will not be exposed to the data and information you provided. Therefore, please answer all questions based on your own personal experience and real feelings. Since this research requires you to provide feedback before and after training, we will match your three questionnaires you provided with your name and contact information. Please answer all the questions.

Hospital name： Filling time： , 2019

Doctor's name： Telephone：

Age：

Technical title：1) chief doctor 2) associate chief doctor 3) attending doctor 4) resident doctor

Department：

Education：1) college 2) bachelor 3) master 4) doctor 5) others

1. If a doctor violates the Law on Practicing Doctors in work,which one of the following acts occurs, the health administrative authority at or above the county level shall give a warning or order to suspend his practice for a period of more than six months and less than

one year; if the circumstances are serious, his doctor's license shall be revoked.

A. practicing medicine in medical institutions without authorization.

B. making experimental clinical treatment of a patient without the consent of the patient or his family member.

C. causing accidents in medical, prevention, and health care work.

D. not attending training and continuing education.

E. disturbing the normal work of medical institutions.

2. The rights that doctors enjoy in their work:

A. protecting patient privacy.

B. performing doctor duties.

C. engaging in medical research.

D. complying with technical specifications.

E. complying with professional ethics.

3. If a doctor fails to pass the examination, how long can the health administrative authority at or above the county level order him to suspend his practice?

A. 1-2 month(s)

B. 1-3 month(s)

C. 3-6 months

D. 5-12 months

E. More than 12 months

4. After registration, which of the following situations does not require revocation of doctor's license?

A. death.

B. be warned of administrative penalties.

C. be declared missing.

D. be subject to administrative penalty of revocation of doctor's practice license.

E. be suspended doctor practice for 2 years

5. When a doctor violates the administrative rules and regulations on public health in work and causes serious consequences, the administrative authority of public health may order him to suspend his practice for a certain period of time. The deadline is

A. more than 6 months and less than 1 year.

B. more than one year and less than one and a half years.

C. more than one year and less than two years.

D. more than one month and less than three months.

E. more than 3 months and less than 6 months.

6. For emergency patients, the treatment measures that doctors should take are

A. positive measures. B. emergency measures.

C. appropriate measures. D. best measure.

E. all possible measures.

7. Doctor's special right of intervention is not directed at

A. hospitalized psychiatric patients who refuse treatment.

B. patient who requires a free clinic.

C. infectious patients who need to be quarantined but refuse to be quarantined.

D. patients who deliberately disrupt the normal medical order.

E. depressive patients who commit suicide.

8. What is the obligation that doctors don't need to perform in practice:

A. to promote and popularize the health care knowledge.

B. respect for patients' privacy.

C. personal dignity and personal safety are not violated.

D. to diligently study one's profession and update knowledge in time.

E. love and respect their jobs.

9. For the doctor who accepts money and property from drug production and trading enterprises or its agent and the circumstances are serious, the administrative authority of public health shall:

A. cancel the practicing certificate

B. suspend practice.

C. revoke a practising certificate

D. record a demerit.

E. give a warning.

10. The rights that doctors enjoy in practicing activities are

A. complying with laws, regulations and technical operation regulations.

B. concerning, caring for and respecting patients.

C. striving to study medicine and improve medical level.

D. obtaining remuneration.

11. Medical personnel in medical institutions, who take advantage of the convenience of prescription, illegally accept the property of the retailers of pharmaceutical products of drugs, medical devices and medical sanitary materials to seek benefits, and the amount of money is large, are guilty of

A. no crime.

B. bribery crime.

C. bribery crime of non-official servant.

D. crime of accepting kickbacks.

12. If the medical record can not be written in time because it was an emergency. It shall be duly noted within ( ) hours after the rescue.

A. 6 hours. B. 8 hours. C. 12 hours. D. 24 hours.

13. According to the law, the patient should be informed of the true condition, but if in the case of protective medical treatment, the patient can not be informed, we can:

A. only inform the patient's spouse.

B. inform to close relatives of patients.

C. inform to the patient's unit leader.

D. inform the patient's street office.

14. What kind of obligations should medical personnel perform in medical diagnosis and treatment?

A. Clinical obligations for diagnosis and treatment corresponding to the level of medical treatment at the time of the occurrence of medical behavior.

B. Clinical obligations for diagnosis and treatment corresponding to the level of medical care at the time of lodging a complaint.

C. Clinical obligations for diagnosis and treatment corresponding to the level of medical care at the time of resolving medical disputes.

D. Clinical obligations for diagnosis and treatment corresponding to the level of medical care at the time of the enactment of tort liability law.

15. When medical institutions take the following treatment measures, it is not necessary to obtain the consent and signature of patients or their families:

A. surgery. B. special examination.

C. special treatment. D. hospitalization.

16. Which of the following is correct when medical institutions violate patients' privacy?

A. No matter whether the patient has any damage or not, it should bear the tort liability.

B. Only in case of causing damage to the patient, should the tort liability be assumed.

C. Only when the patient suffers serious bodily damage will it be liable for tort.

D. Only those who cause the patients mental illness bear tort liability.

17. Which of the following situations belongs to the medical right under emergency?

A. relatives who refuse to present their opinions.

B. the close relatives can not reach consensus.

C. close relatives are unknown.

D. failure to connect close relatives in time.

E. all of the above.

18. Which of the following is the correct interpretation of the responsibility system for the first diagnosis:

A. The doctor who does the first diagnosis is responsible; the doctor should carefully inquire about the medical history, carry out physical examination, make a serious diagnosis and treatment, and make a good record of the medical record.

B. The initial clinician found that the patient's illness does not belong to the scope of his specialty. He may recommend transferring it to the relevant departments without making medical records.

C. For newly admitted patients, they must be treated within 1 hour; for critical, acute and severe patients, they must be immediately received and reported to their superior doctors.

19. The surgical record shall be completed within ( ) after the operation.

A、6 hours B、12hours C、24hours D、three days

20. For newly admitted patients, within ( ) hours, the ward round records should be made by doctors with the title of attending doctor or above.

A. 24 B. 48 C. 72

21. For a dead case, the actual condition, diagnosis, treatment and rescue process, cause of death and preliminary diagnosis of death should be reported by ( ).

A. attending doctor B. second-line doctors C. director of department

22. Damage consequences of medical accidents include:

A. Causing personal injury to the patient.

B. Negligence.

C. There is a causal relationship between the illegal act and the damage result.

D.The behaviors of violating health management laws, administrative regulations, departmental rules, diagnosis, treatment and nursing norms and conventions were carried out.

E. Medical institutions and medical personnel.

23. Because of the failure of writing medical records in time for rescuing critically ill patients, the medical personnel concerned shall make up the records according to the fact after rescue. The deadline is:

A. within 2 hours B. within 4 hours C. within 6 hours

D. within 8 hours E. within 12 hours

24. In the purchasing activities of drugs, medical devices, medical materials and so on, the staff of medical institutions take advantage of their position to ask for or illegally accept property from the seller so as to seek benefits. This behavior belongs to:

A. accepting bribes.

B. bribery.

C. giving a bride.

D. duty crime.

E. no crime.

Thank you very much for your support and help for our research project!

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The influence of doctors' legal training on medical disputes

Questionnaire 1 (before training)

(A questionnaire on the training needs for doctors' legal knowledge was conducted and the training contents were designed based on the results of the questionnaire.)

Thank you very much for your participation in and support for our research on the impact of legal training for doctors on medical disputes. The data collected in this questionnaire are purely for research purposes. The statistical analysis is based on the comprehensive results of all questionnaires rather than the data evaluation and analysis of any individual hospital. The collection and data analysis of the questionnaires are done by an independent project team. Your hospital and colleagues will not have access to the data and information that you provide. This research needs you to provide information for three periods. We will match your three questionnaires with your name and contact information. Please answer all the questions.

I. Basic information

1.Hospital Name		2.Name	
3.Gender	1) male 0) female	4.Contact information	
5.Age		6.Highest education	1)junior college 2)undergraduate 3)master

		4)doctor 5)others
7.Working years	8.Technical title	1)chief doctor 2)deputy chief doctor 3)attending doctor 4)resident doctor

Ⅱ. Legal knowledge related to medical disputes

For each of the following items, please choose two numbers: the first number represents the relevance of knowledge to your work (range 1 to 7: 1 means highly irrelevant, 7 means highly relevant); the second number represents the degree of understanding of relevant knowledge (range 1 to 7: 1 means very ignorant, 7 means very familiar).

	contents	the relevance of knowledge to your work							how much you know about the relevant knowledge						
1	Knowledge of the concept, constitutive requirements, legal provisions and application of Medical Tort Liability	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	Knowledge of doctor's legal rights and legal obligations	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3	Knowledge of the legal liability of doctors for violations of laws and regulations	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4	Knowledge of the concept, constitutive requirements, prevention and legal liability of medical malpractice	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5	Knowledge of basic theories and concepts of medical dispute prevention and legal liability after medical disputes	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6	Knowledge of legal provisions of medical records as objective evidence and legal liability for not writing medical records as required	1	2	3	4	5	6	7	1	2	3	4	5	6	7
7	Knowledge of legal liability for violating eighteen core systems	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	Knowledge of the occurrence, prevention and control of nosocomial infection and the legal responsibilities to be undertaken after the occurrence	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9	Knowledge of legal liability for violation of clinical use of blood	1	2	3	4	5	6	7	1	2	3	4	5	6	7
10	Knowledge of the concept, standard, classification and legal liability of the management of medical devices	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Ⅲ. According to your personal experience and real feelings, please choose one number to indicate your degree of agreement with each of the following statements (range 1 to 7: 1 means strongly disagree, 7 means strongly agree). There are no standard answers. Please

answer all the questions.

Opinions on your own receptivity		strongly disagree						strongly agree
1	I can quickly absorb new knowledge.	1	2	3	4	5	6	7
2	I can soon learn new knowledge to remember.	1	2	3	4	5	6	7
3	I participate in various training activities and can study very seriously.	1	2	3	4	5	6	7
4	In order to really acquire the knowledge, I can devote myself to every part of this training.	1	2	3	4	5	6	7
5	I can quickly apply the new knowledge I learned through the training to my work.	1	2	3	4	5	6	7
6	I am very willing to participate in the training of legal knowledge of doctors, in order to improve my legal literacy.	1	2	3	4	5	6	7

Opinions on the purpose of the training		strongly disagree						strongly agree
7	Attending the training is mandatory by the hospital.	1	2	3	4	5	6	7
8	Attending the training is my own willing in order to learn medical and health laws and regulations.	1	2	3	4	5	6	7
9	I would like to learn knowledge and skills to reduce medical disputes through this training.	1	2	3	4	5	6	7
10	I want to improve my relationship with patients through this training.	1	2	3	4	5	6	7
11	I want to apply the legal knowledge I have learned to my daily practice.	1	2	3	4	5	6	7
12	I want to improve the safety of my practice and gain recognition from others by learning laws and regulations.	1	2	3	4	5	6	7

Opinions on your previous training experience		strongly disagree						strongly agree
13	I used to take part in the theoretical training given by the teacher, which helped me a lot.	1	2	3	4	5	6	7
14	I used to take part in the case-based training given by the teacher, which helped me a lot.	1	2	3	4	5	6	7
15	I used to participate in the comprehensive crowd training of doctors, nurses and medical technicians, which helped me a lot.	1	2	3	4	5	6	7
16	I used to participate in the training in the form of a large conference room, which helped me a lot.	1	2	3	4	5	6	7
17	I used to participate in the training, in which after the teacher finished all the content, He will leave 20 minutes for communication. It helped me a lot.	1	2	3	4	5	6	7
18	The training I have participated in before and the knowledge I have received in this respect are all fragmented laws and regulation, which are of great help to me.	1	2	3	4	5	6	7

Thank you very much for your support and help for our research project!

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The influence of doctor's legal training on medical disputes

Questionnaire 2 (after training)

Thank you very much for your participation and support in our research on the impact of law-based practice training for doctor on medical disputes. The data collected in this questionnaire are purely for research purposes. The statistical analysis of data is based on the comprehensive results of all questionnaires and we will not analyze or evaluate any individual or hospital data. All questionnaire collection and data analysis are conducted by an independent project team. And your hospital will not be exposed to the data and information you provided. Since this research requires you to provide information feedback over three time periods, we will match your three questionnaires you provided with your name and contact information. Please answer all the questions.

Hospital name： Filling time： , 2019

Doctor's name： Telephone：

According to your personal experience and real feelings, please choose one number to indicate your degree of agreement with each of the following statements (range 1 to 7: 1 means strongly disagree, and 7 means strongly agree). There are no standard answers for the following questions. Please answer all the questions.

	Opinions on the process of legal training for doctors	strongly disagree						strongly agree
1	The contents of this training are closely related to my work.	1	2	3	4	5	6	7
2	Through this training, I learned how to guarantee the legitimate rights and interests of doctors.	1	2	3	4	5	6	7
3	Through this training, I learned how to guarantee the legitimate rights and interests of patients.	1	2	3	4	5	6	7

4	The knowledge that I acquired through this training can enhance my ability to practice based in law.	1	2	3	4	5	6	7
5	The teacher made the knowledge points very clear.	1	2	3	4	5	6	7
6	The teacher gives lectures according to the classification of knowledge points.	1	2	3	4	5	6	7
7	The challenges I have received from the curriculum are modest.	1	2	3	4	5	6	7
8	The teacher has made careful preparations for the training.	1	2	3	4	5	6	7
9	The most useful legal knowledge I have learned came from the teacher's teaching.	1	2	3	4	5	6	7
10	The most useful knowledge about patient safety I have learned came from the summary of judicial decisions shared by teacher.	1	2	3	4	5	6	7
11	The most useful legal knowledge and skills I obtained came from the summary of cases shared by teacher.	1	2	3	4	5	6	7
12	The most useful knowledge I have learned came from that the teacher has sorted out all the current existing legal regulations on one issue, rather than the interaction in this training.	1	2	3	4	5	6	7
13	The teacher designed the conference room for the training.	1	2	3	4	5	6	7
14	The classroom arrangement and atmosphere in which desks and chairs are placed in groups are conducive to learning.	1	2	3	4	5	6	7
15	I like the training of legal knowledge in the form of judicial decisions for years, role-playing, teamwork and commentary.	1	2	3	4	5	6	7
16	The arrangement of the teaching and the group discussion during the whole training process is very reasonable.	1	2	3	4	5	6	7
17	In this training, I was very happy to participate in the role-playing which was very helpful to acquire knowledge.	1	2	3	4	5	6	7
18	During the training, I learned about the concept and composition of medical tort liability and the application of related law.	1	2	3	4	5	6	7
19	During the training, I learned about the legal rights and obligations of health workers.	1	2	3	4	5	6	7
20	During the training, I learned about the legal liability of health technicians for violating laws and regulations.	1	2	3	4	5	6	7
21	During the training, I learned about the concept of medical malpractice and its constituent elements, prevention, legal liability.	1	2	3	4	5	6	7
22	I learned about the basic theories and concepts of prevention of medical disputes and knowledge of legal liability provisions after medical disputes occur.	1	2	3	4	5	6	7
23	During the training, I learned about the provisions of medical records as objective evidence and the legal responsibility of not writing medical records as required.	1	2	3	4	5	6	7
24	I learned about the legal liability for violation of 18 core systems.	1	2	3	4	5	6	7
25	During the training, I learned about the occurrence, prevention and control of nosocomial infections and the legal responsibilities that should be assumed after the occurrence of nosocomial infections.	1	2	3	4	5	6	7
26	I learned about the knowledge of legal liability for clinical use of blood.	1	2	3	4	5	6	7
27	During the training, I learned about the concept, standard, classification and legal liability of medical devices.	1	2	3	4	5	6	7

28	The auxiliary materials are very useful and many can be applied to future work.	1	2	3	4	5	6	7
29	In the training, I feel the progress was moderate and it gave enough time to ask questions.	1	2	3	4	5	6	7
30	The legal knowledge I acquired this time came from reading the training materials, rather than the interaction.	1	2	3	4	5	6	7
31	I can search for relevant legal knowledge from the Internet to learn, but don't need to learn through this training.	1	2	3	4	5	6	7
32	I understand that all the knowledge and skills I have been taught to practice based in law are designed to reduce medical errors.	1	2	3	4	5	6	7
33	The next step is to apply the legal knowledge and skills I have learned to work, which will eventually reduce medical disputes.	1	2	3	4	5	6	7
34	The next step is to apply the legal knowledge and skills I have learned to work, and the leader will give more approval of my work.	1	2	3	4	5	6	7
35	The next step is to apply the legal knowledge and skills I have learned to protect my own rights.	1	2	3	4	5	6	7
36	The next step is to apply the legal knowledge I have learned, which can improve my understanding of the rights and interests of doctors.	1	2	3	4	5	6	7
37	Based on the knowledge and skills I have learned in the training, I have found a new way to prevent medical disputes and ready to apply it to practical work.	1	2	3	4	5	6	7
38	Director of departments and colleagues pay attention to the application of training skills and provide environment to give timely feedback and guidance.	1	2	3	4	5	6	7
39	Through participating in the training, it is found that colleagues' interactive discussios are more conducive to learning legal knowledge.	1	2	3	4	5	6	7
40	My current department encourages all doctors to share knowledge and learn from each other.	1	2	3	4	5	6	7

Thank you very much for your support and help for our research project!

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The influence of doctors' legal training on medical disputes

Questionnaire 3 (three months after training)

Thank you very much for your participation in and support for our research on the impact of legal training for doctors on medical disputes. The data collected in this questionnaire are purely for research purposes. The statistical analysis is based on the comprehensive results of

all questionnaires rather than the data evaluation and analysis of any individual hospital. The collection and data analysis of the questionnaires are done by an independent project team. Your hospital and colleagues will not have access to the data and information that you provide. This research needs you to provide information for the three periods. We will match your three questionnaires with your name and contact information. Please answer all the questions.

Hospital name： Filling time： , 2019

Doctor's name： Telephone：

Your current work department (please tick √): __surgery __internal medicine __gynecology and obstetrics __pediatrics

__Other (please write down your department): _____

According to your personal experience and real feelings, please choose one number to indicate your degree of agreement with each of the following statements (range 1 to 7: 1 means strongly disagree, and 7 means strongly agree). There are no standard answers for the following questions. Please answer all the questions.

	Three months later, the application of new knowledge and skills from legal training	strongly disagree						strongly agree
1	Doctors participating in the training are required to share their knowledge through morning shift.	1	2	3	4	5	6	7
2	The hospital pays more attention to finding new resources, trying new things, and learning new knowledge.	1	2	3	4	5	6	7
3	At present, my department has the cultural atmosphere that medical staff share their knowledge with each other.	1	2	3	4	5	6	7
4	I have effectively applied the legal knowledge and skills learned in the training to my daily process.	1	2	3	4	5	6	7
5	Since the last time I learned to practice according to law, it has improved my understanding of the law and changed my relationship with patients.	1	2	3	4	5	6	7
6	After I participated in the training, I found that the daily work and training content were particularly relevant.	1	2	3	4	5	6	7
7	The most useful knowledge I learned this time is that the teacher combed all the existing laws and regulations on a question, rather than from the interaction during the training.	1	2	3	4	5	6	7

8	In this training, The legal knowledge I have learned came from reading the training materials for me, not from the interaction during the training.	1	2	3	4	5	6	7
9	In my work, I have used the knowledge of legal rights and obligations of health professionals, and the disputes and complaints have been reduced.	1	2	3	4	5	6	7
10	In my work, I have used the knowledge of legal liability of the health technicians who violate laws and regulations to reduce disputes and complaints.	1	2	3	4	5	6	7
11	In my work, I applied the knowledge of the concept, constitutive requirements, prevention and legal liability of medical malpractice, and disputes and complaints were reduced.	1	2	3	4	5	6	7
12	In my work, I applied the knowledge of basic theories and concepts of medical dispute prevention and legal liability after medical disputes, and disputes and complaints were reduced.	1	2	3	4	5	6	7
13	In my work, I applied the knowledge of legal provisions of medical records as objective evidence and legal liability for not writing medical records as required, and disputes and complaints were reduced.	1	2	3	4	5	6	7
14	In my work, I applied the knowledge of legal liability for violating eighteen core systems, and disputes and complaints were reduced.	1	2	3	4	5	6	7
15	In my work, I applied the knowledge of the occurrence, prevention and control of nosocomial infection and the legal responsibilities to be undertaken after the occurrence, and disputes and complaints were reduced.	1	2	3	4	5	6	7
16	In my work, I applied the knowledge of legal liability for violation of clinical use of blood, and disputes and complaints were reduced.	1	2	3	4	5	6	7
17	In my work, I applied the knowledge I have learned of the concept, standard, classification and legal liability on the management of medical devices, and disputes and complaints were reduced.	1	2	3	4	5	6	7
18	In my work, I applied the knowledge of the concept, constitutive requirements, legal provisions and application of Medical Tort Liability, and disputes and complaints were reduced.	1	2	3	4	5	6	7
19	After using the knowledge learned to protect the patients' right of privacy, life and health and other legitimate rights and interests, disputes and complaints decreased.	1	2	3	4	5	6	7
20	I still remember the legal responsibility for the violation of the regulations in the last training.	1	2	3	4	5	6	7
21	I still remember the skills I learned in the last training to implement the right of informed consent.	1	2	3	4	5	6	7
22	I can apply the knowledge of law-based practice to my daily work.	1	2	3	4	5	6	7
23	I have integrated the legal knowledge and skills learned in training with my existing knowledge and skills.	1	2	3	4	5	6	7
24	When I applied the knowledge learned in the training to work, the number of patients' complaints decreased.	1	2	3	4	5	6	7
25	When I applied the knowledge learned in the training to work, medical disputes decreased.	1	2	3	4	5	6	7

26	I still remember the skills that I learned in the last training on risk prevention according to law.	1	2	3	4	5	6	7
27	As a result of learning the skills of law-based practice, my leaders are more satisfied with my work.	1	2	3	4	5	6	7
28	Leaders and colleagues think that the level of safeguarding patients' rights has improved since I participated in the training.	1	2	3	4	5	6	7
29	Based on the knowledge and skills I have learned to practice medicine according to law, I have found new ways to reduce disputes and complaints.	1	2	3	4	5	6	7
30	I applied the high-risk interview system skills I have learned, and no more medical disputes and complaints occurred.	1	2	3	4	5	6	7

Thank you very much for your support and help for our research project!

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The influence of doctors' legal training on medical disputes

Questionnaire for administrators (three months after training)

Thank you very much for your participation in and support for our research on the impact of legal training for doctors on medical disputes. The data collected in this questionnaire are purely for research purposes. The statistical analysis is based on the comprehensive results of all questionnaires rather than the data evaluation and analysis of any individual hospital. The collection and data analysis of the questionnaires are done by an independent project team. Your hospital and colleagues will not have access to the data and information that you provide. In this study, according to the feedback of doctors with the title of attending doctor and above in your hospital in three periods, we need to collect the following data from the management department. Please answer all the questions.

Ⅰ Basic information

1.Hospital name	2.Name
3.Telephone	

Ⅱ Data of medical disputes occurred in the same period of 2018 and 2019

1.Cases of medical complaints from September 1 to December 30, 2018：_____cases	
Data about department under complaint	surgery（ ）cases internal medicine（ ）cases others（ ）cases
Data about different ages	-35years old（ ）cases 36---40years old（ ）cases 41--45years old（ ）cases 46--50 years old（ ）cases 51--55years old（ ）cases 56--60years old（ ）cases
Data about doctors with different technical titles	doctor（ ）cases attending doctor（ ）cases deputy chief doctor（ ）cases chief doctor（ ）cases

2.Cases of medical disputes from September 1 to December 30, 2018：_____cases	
Data about department under complaint	surgery（ ）cases internal medicine（ ）cases others（ ）cases
Data about different ages	30-35years old（ ）cases 36---40years old（ ）cases 41--45years old（ ）cases 46--50 years old（ ）cases 51--55years old（ ）cases 56--60years old（ ）cases
Data about doctors with different technical titles	doctor（ ）cases attending doctor（ ）cases deputy chief doctor（ ）cases chief doctor（ ）cases

3.Cases of medical complaints from September 1 to December 30, 2019：_____cases	
Data about department under complaint	surgery（ ）cases internal medicine（ ）cases others（ ）cases
Data about different ages	30-35years old（ ）cases 36---40years old（ ）cases 41--45years old（ ）cases 46--50 years old（ ）cases 51--55years old（ ）cases 56--60years old（ ）cases
Data about doctors with different technical titles	doctor（ ）cases attending doctor（ ）cases deputy chief doctor（ ）cases chief doctor（ ）cases

4.Cases of medical disputes from September 1 to December 30, 2019：_____cases	
Data about department under complaint	surgery（ ）cases internal medicine（ ）cases others（ ）cases
Data about different ages	30-35years old（ ）cases 36---40years old（ ）cases 41--45years old（ ）cases 46--50 years old（ ）cases 51--55years old（ ）cases 56--60years old（ ）cases

Data about doctors with different technical titles	doctor ( ) cases attending doctor ( ) cases deputy chief doctor ( ) cases chief doctor ( ) cases

5. The number of discharged patients from September 1 to December 30, 2018_____;

6. The number of discharged patients from September 1 to December 30, 2019_____;

7. Whether the number of medical disputes encountered by doctors who have participated in legal training (in brackets √): Yes ( ) no ( )

8. Do you think that the effect of reducing medical complaints and medical disputes after legal training is obvious? Please give a score of 0-7 (7 points means very obvious): 0 1 2 3 4 5 6 7

9. In the medical complaint cases occurred from September 1 to December 30, 2019:

Among them, there were_____doctors who participated in the training; and___did not;

10. In the medical dispute cases from September 1 to December 30, 2019:

Among them, there were_____doctors who participated in the training; and___did not.