

Research Progress of Doctor-patient Risk Perception

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Abstract With the improvement of medical level and the increase of people's demand for health services, the imbalance of supply and demand between doctors and patients leads to the increase of the number of doctor-patient risk cases. The tense doctor-patient relationship has attracted the attention of various academic circles. Risk perception has an evaluation effect on the occurrence of doctor-patient risk, and it is also the key to the development of doctor-patient risk events. It is of great significance to grasp the research progress of doctor-patient risk perception in real time for improving the tense situation of doctor-patient relationship, perfecting its guidance mechanism and reducing the doctor-patient risk events. This study is based on the theory of risk perception, through literature review, to explore the research progress of doctor-patient risk perception, and provide theoretical basis for doctor-patient risk management.

Keywords: doctor-patient risk, risk perception, progress

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1. Introduction

In general secretary Xi Jinping's report at 19th CPC (Communist Party of China) National Congress, he put forward the development strategy of "healthy China", emphasizing the improvement of medical service quality, strengthening the construction of medical ethics and building a harmonious doctor-patient relationship. The process of medical treatment is extremely complicated, and the doctor-patient risk always exists. The Graduate School of Chinese Academy of Social Sciences and the social sciences academic press jointly issued the blue book of China's medical reform: Annual report on reform of medical and health system in China (2014-2015) [1], which revealed that the doctor-patient risk events showed a rapid growth trend, the incidents of medical disturbance, injury and killing are frequent, and the amount of hospital compensation continues to rise [2], which seriously hindered the normal and healthy development of the hospital, and to a certain extent caused psychological shadow for both doctors and patients. Also, doctor-patient trust was blocked [3], and the tense doctor-patient relationship needs to be broken.

The instability of the medical market, the high frequency occurrence of doctor-patient risk events and other negative information have attracted people's attention to doctor-patient risk. The level of doctor-patient risk perception at each stage of diagnosis and treatment usually has a great impact on the scientificity, rationality and final results of clinical decision-making. At the same time, risk perception is also related to the self-protection behavior of

both doctors and patients [4]. As early as 50 years ago, foreign academia began to pay attention to risk perception [5]. There are few researches on doctor-patient relationship from the perspective of risk perception in China. By studying the doctor-patient risk perception, we can understand the behaviors of doctors and patients in the process of diagnosis and treatment, also, it helps to eliminate the concerns of both doctors and patients, which will be of great significance in improving the quality of medical services, reducing the doctor-patient risk, building a harmonious doctor-patient relationship, etc. In this paper, by combing the domestic and foreign related research status, in order to cause Chinese researchers to pay attention to the doctor-patient risk perception.

2. Introduction of Related Concepts

2.1. Risk

The term "risk" was earlier used to describe the critical events in the natural phenomenon [6] and economic field [7], which refers to the uncertainty of the events. If there is an uncontrolled situation in the development of the event or the event is transformed into an adverse event, then the event can be considered to involve risk, including the occurrence of loss and the degree of damage, which has the characteristics of objectivity, contingency and destructiveness. Wafaelias et al [5] defined risk as the opportunity to be exposed to a certain injury or loss; Eitzinger et al [5] believed that when it is not clear with a certain result, or the value of the expected result is lower than other results, it involves risk issues. Risk management

personnel control the risk through four methods [8]: risk avoidance, risk transfer, loss control and risk retention, so as to reduce the possible loss caused by risk events.

2.2. Doctor-Patient Risk

Sun Jiangjie et al [9] put forward that doctor-patient risk is a possible conflict between doctors and patients in the process of medical service, or it may lead to serious consequences. It has the characteristics of objectivity, unpredictability and serious consequences. We can understand the doctor-patient risk from the perspectives of the doctors and the patients: from the perspective of doctors, the doctor-patient risk refers to the legal and economic liability risk that the doctor should bear for the medical tort of the patient's body in the process of medical service, it is the biggest risk faced by modern hospitals; from the perspective of patients, the doctor-patient risk refers to all unsafe events in medical activities, which may lead to uncertain risks of patients' damage or disability events.

In our study, we think that the doctor-patient risk refers to the possible tension between doctors and patients, doctor-patient disputes, violence [10] or disorder of medical market [11] because the supply of medical resources fails to fully meet the health demand of patients.

2.3. Risk Perception

Risk perception reflects people's cognition and intuitive judgment of risk and belongs to the category of psychology [12]. In 1960, Professor Bauer of Harvard University first proposed "risk perception" and applied it to the study of consumer behavior [13]. He believed that all behaviors of consumers have the possibility of producing unpleasant results, which involves risk perception. Sheeran et al [14] believed that risk perception refers to people's belief that they are vulnerable to danger or injury, which will affect people's behavior and intention. Janssen et al [15] defined risk perception as the perception of threat in the measurement of skin cancer risk perception; Fang Lei et al [6] applied risk perception to chronic patients, defined it as people's subjective perception, recognizing and understanding of risk, explored individual risk perception based on individual subjective experience as the research scale, and proposed the qualitative research results of relevant effects. These results have been verified in Emilie's [16] research. They all believed that risk perception is the individual's judgment and assessment of specific risks through previous experience.

2.4. Doctor-Patient Risk Perception

Doctor-patient risk is a combination of physical risk and financial risk, which is one of the social risks that

need to be controlled urgently at present. Some studies have pointed out that the level of doctor-patient risk perception is not only related to the medical behavior and professional attitude of medical staff, but also affects the compliance of patients [16]. Therefore, to control the doctor-patient risk, we need to start from the doctor-patient risk perception. Sjberg et al [17] believed that risk perception is the subjective feeling of patients on the objective doctor-patient risks in the process of medical treatment. Susan Persky et al [18] thought that risk perception is a process. In this process, many internal and external factors will affect patients' perception of disease risk. Also, he proposed that information adequacy and information collection ability will affect the accuracy of risk perception.

The doctor-patient risk perception proposed in this paper refers to the subjective feelings of both doctors and patients about the risks that may occur in the diagnosis and treatment process. They use all available information to evaluate the perceived risks, so as to minimize the risks and losses caused by unsafe factors.

3. Data Collection

In order to grasp the research progress in the field of doctor-patient risk perception, the relevant articles were searched. Taking risk, perception, risk perception, doctor-patient risk and doctor-patient risk perception as the search terms, we searched CNKI, Wanfang data, PubMed, Web of Science, and the search time limit was from the establishment of the database to January 8, 2020. The specific number of search articles are shown in Table 1. From Table 1, we can see that there are many articles on "risk" and "perception", 529305 and 124541 respectively, and the article on "doctor-patient risk perception" is the least, with 0 article.

4. Results

Based on the theme of "doctor-patient risk perception", we screened the relevant articles searched under the condition of "risk perception, doctor-patient risk", and finally selected 16 related articles. We analyzed the selected articles respectively, and extracted the frequency data of subject words such as "Risk", "Perception", "Risk perception", "Doctor-patient risk", "Perception measurement", "Risk management", "Risk measurement", "Risk perception measurement", "Doctor", "Patient", "Doctor-patient", "Doctor-patient relationship", "Doctor-patient conflict", "Doctor-patient contradiction", "Doctor-patient dispute", "Doctor-patient risk perception", "Doctor-patient risk perception measurement", "Medical staff", "Medical dispute". As shown in Table 2.

Table 1. Articles search

Search terms	Data base			
	CNKI/piece	Wanfang data/piece	PubMed/piece	Web of Science/piece
Risk	529305	1563585	1714159	3539435
Perception	124541	266570	509707	616816
Risk perception	4093	9440	18648	67926
Doctor-patient risk	216	520	54817	16609
Doctor-patient risk perception	0	0	0	0

Table 2. Characteristics of individual studies included in this article

First author (year)	Risk	Perception	RP	DPR	PM	RM	RM	RPM	Doctor	Patient	DP	DPR	DPC	D-P-C	DPD	DPRP	DPRPM	MS	MD
Sun [19] (2016)	80	0	0	72	0	18	0	0	5	63	136	32	2	3	14	0	0	36	5
Hamideh [20] (2012)	162	58	15	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0
David [21] (2017)	123	26	5	0	0	0	0	0	4	131	0	0	0	0	0	0	0	0	0
Janz [22] (2017)	165	93	43	0	0	0	0	0	13	96	0	0	0	0	0	0	0	0	0
Claire[23] (2019)	176	28	8	0	0	0	0	0	56	119	17	0	0	0	0	0	0	0	0
Eva Janssen [15] (2011)	158	82	70	0	11	0	0	2	1	0	0	0	0	0	0	0	0	0	0
Paschal Sheeran [14] (2014)	452	112	85	0	0	0	0	2	13	2	0	0	0	0	0	0	0	0	0
Wei [24] (2012)	69	80	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wang [25] (2019)	62	81	38	0	0	0	0	0	166	161	193	26	2	0	1	0	0	7	5
Yan [26] (2014)	89	53	9	0	0	0	0	0	3	93	2	0	0	0	0	0	0	2	0
Sun [27] (2018)	55	0	0	35	0	6	0	0	23	23	76	20	3	0	4	0	0	13	0
Sun [2] (2015)	70	0	0	56	0	5	0	0	22	50	130	45	2	6	14	0	0	12	2
Sun [9] (2016)	40	0	0	29	0	2	0	0	2	31	83	40	2	1	10	0	0	7	2
Graw [28] (2018)	83	46	25	0	0	0	0	0	1	91	1	0	0	0	0	0	0	0	0
Tamás [29] (2015)	385	27	14	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0
Chopra [30] (2016)	161	89	70	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Total	2330	775	428	192	11	70	0	4	310	863	638	163	11	10	43	0	0	77	14
Average	146	65	36	48	11	14	0	2	24	66	80	33	2	3	9	0	0	13	4

Notes: RP:Risk perception; DPR: Doctor-patient risk; PM:Perception measurement; RM:Risk management; RM:Risk measurement; RPM:Risk perception measurement; DP:Doctor-patient; DPR:Doctor-patient relationship;DPC: Doctor-patient conflict; D-P-C:Doctor-patient contradiction; DPD:Doctor-patient dispute; DPRP:Doctor-patient risk perception; DPRPM:Doctor-patient risk perception measurement; MS:Medical staff; MD:Medical dispute.

From Table 2, we can see that scholars generally pay more attention to "risk", "perception", "patient " and "doctor-patient".There are 16 articles related to "risk", the highest frequency of the subject word "risk" is 452 times, the lowest is 40 times, the average is 146 times, the total is 2330 times; there are 12 articles related to "perception", the highest frequency of the subject word "perception" is 112 times, the lowest is 26 times, the average is 65 times, the total is 775times; there are 13 articles related to "patient ",the highest frequency of the subject word "patient " is 161 times, the lowest is 1 time, the average is 66 times, and the total is 863 times; there are 8 articles related to "doctor-patient", the highest frequency of the

subject word "doctor-patient" is 193 times, the lowest is 1 time, the average is 80 times, and the total is 638 times. We analyze the word cloud of the subject words and get the word cloud chart as shown in Figure 1.

From Figure 1 we can see that the study of "risk" has been widely concerned by scholars.The relevant research on the subject of doctor-patient has been basically mature. Through literature research, we found that most of these researches are from the perspectives of disease diagnosis and treatment quality, doctor-patient relationship and qualitative research on doctor-patient risk, and the research on doctor-patient risk perception, risk measurement and doctor-patient risk perception measurement is relatively scarce.



Figure 1. Cloud chart of subject words

5. Discussion

Through the in-depth study of the selected literatures, we found that the research mainly includes two aspects: the research subjects and the research topics. The research subjects include the patient, the doctor and the doctor-patient. The research topics include risk management, risk assessment and research methods.

5.1. Research Subjects

5.1.1. Patient

Through qualitative interview and Delphi method, Fang Lei [6] studied 492 patients with chronic diseases of 5 general hospitals in Xi'an. The characteristics of risk perception of chronic disease patients were studied from three dimensions of economic risk, physical diagnosis and treatment risk, and social psychological risk. She discussed the influence of social demographic factors and doctor-patient trust on risk perception of patients and compiled the chronic patients' risk perception questionnaire; Katz et al [31] conducted a cross-sectional study on 6544 Brazilian subjects without cardiovascular disease symptoms, and analyzed the relationship between the objectively calculated cardiovascular risk and the subjectively perceived risk. The results showed that there was a gap between the calculated cardiovascular risk and the perceived cardiovascular risk. Most of the middle and high-risk subjects had a low level of risk perception, and the wrong perception of cardiovascular risk is the main reason for the low compliance of preventive measures. This view has been verified in the study of David [21], David et al studied the patients with primary atrial fibrillation in Austria, and found that there was a deviation between patients' perception of risk and doctors' assessment, and proposed that effective communication between doctors and patients was important to eliminate these differences. Hamideh et al [20] conducted a sample questionnaire survey on 159 pregnant women (105 were aged between 20-29 and 54 were aged over 35) in Canada to evaluate their doctor-patient risk perception level. The results showed that the risk perception level of elderly pregnant women was higher than that of young women. Yan Xinxin et al [26] did a questionnaire survey on 320 cancer patients. The results showed that the perception of economic risk and social psychological risk of cancer patients was higher than that of physical function risk. The gender, monthly family income and age of patients affected their doctor-patient risk perception, and the perception of economic risk and social psychological risk affected their willingness to clinical decision-making. Wei Dong et al [32] investigated 602 patients to study the relationship between trust, communication and risk perception. The results showed that the relationship between doctor-patient communication and risk perception was mediated by doctor-patient trust, which highlights the importance of doctor-patient trust [33].

5.1.2. Doctor

Källberg et al [34] conducted a semi-structured interview with 10 doctors and 10 nurses in the emergency department of Sweden to understand the perception of emergency

department medical staff on patients' safety risks. The results showed that the complexity of emergency room operation, high workload, lack of control and other problems would bring risks to patients' safety. It was found that emergency medical staff increased their perception of risk factors, which would be conducive to maintenance patient safety. Wu Yaxiong proposed that doctors' perceptible professional ability was an important factor to gain patients' trust, and the title, experience and reputation of doctors in medical institutions would directly affect patients' risk perception level. When Mao Qiuyun et al [35] studied the doctor-patient risk perception of clinical nurses, they found that the doctor-patient risk perception was related to the hospital level, departments and working years of nurses: the higher the hospital level, the higher the risk perception level of nurses; operating room nurses have the highest level of risk perception, and departments with higher risk coefficients also have higher levels of risk perception; the longer the working years of nurses, the higher the risk perception level.

5.1.3. Doctor-patient

Wang Hua et al [25] found that the level of risk perception was closely related to the level of initial trust between doctors and patients through observation and case analysis of A hospital in T city. Higher level of trust can improve the cooperation degree of patients and reduce the defensive behavior tendency of doctors. Kelly [36] conducted a case study of a brain aneurysm operation in the United States, and found that there were differences in risk perception between doctors and patients. Before the operation, it was necessary for doctors to explain to patients that there may be various risks in the operation process, so that patients can have a sense of risks, which was conducive to patients to make rational decisions, and doctors should respect patients' wishes, which was beneficial to building a harmonious doctor-patient relationship. Graw et al [28] investigated 506 patients and 185 relevant medical staff in a hospital in Germany. The results showed that only 10.9% of the patients and 14.6% of the medical staff felt that blood transfusion was risky. Understanding the risk perception of both sides in the process of blood transfusion can help patients and doctors to make appropriate clinical decisions.

5.2. Research Topics

5.2.1. Risk Management

Traditional risk management refers to the process of identifying, evaluating, analyzing and controlling all potential risks in medical activities, and reducing risks in a planned and organized way. All kinds of potential risks in medical activities are closely related to treatment outcomes. If these potential risks can be properly managed, it will not only help medical institutions or medical staff to clarify the priority of medical practice activities, to achieve the best balance between risks, benefits and costs [37], but also effectively reduce the perception level of both doctors and patients.

Due to the different national conditions of different countries, the risk management methods adopted are also

different. (1) The UK adopts integrated risk management, which is based on the traditional risk management and integrates the assessment of clinical, environmental, financial, policy and other risks. (2) Australia uses traditional risk management methods to assess the risk of adverse events that have occurred. (3) In the United States, failure mode and effects analysis (FMEA) is adopted to identify and evaluate clinical risks, focusing on analyzing potential risks and actively controlling risks [38].

Yang Weipeng et al thought that the FOCUS-PDCA method can make the management develop in the direction of virtuous circle and reduce the doctor-patient risk rate. PDCA cycle is a general model of management and a scientific procedure for total quality management. Continuous quality improvement (CQI) is based on system theory, emphasizing continuous and whole process quality management. The methods and steps of CQI are FOCUS-PDCA. Applying FOCUS-PDCA to the field of medical treatment is conducive to early detection of potential safety hazards, reducing the doctor-patient risk, and improving the utilization rate of health resources.

Li Yan et al [39] proposed to use analytic hierarchy process (AHP) to deal with doctor-patient risk. AHP was put forward by Thomas, an American operational research scientist. The steps to solve the problem can be summarized as four steps: (1) establish the hierarchical structure model; (2) select the factors that affect the risk behavior of doctors and patients, construct the comparison matrix; (3) select the experts in the hospital to score, and calculate the weight of the risk factors; (4) calculate the weight vector of the combined impact factors, and comprehensively determine the risk probability. AHP is applicable to the situation of uncertainty and subjective information. It uses experience, insight and intuition to make decisions and respond to different levels of risks with different values, which has certain positive

significance to reduce the occurrence of hospital doctor-patient risks.

5.2.2. Risk Assessment

Risk assessment is the key link of risk management for doctors and patients, the bond between risk identification and risk control, and the complex and profound analysis technology that people use when dealing with risks. The characteristics of risk determine the complexity of risk problems. Using a reasonable risk assessment method is conducive to simplify the problems and provide a reasonable and effective basis for the selection of various risk control measures [40].

Risk assessment is mainly to judge the size of the risk, evaluate and analyze the impact of the risk, and reduce the loss as much as possible. Through the assessment, the management department can grasp the trend of potential risks at any time. The assessment results can provide certain basis for the management department to formulate accident handling scheme, arrange personnel scheduling, etc. Through a series of measures, the risk and accident can be reduced to the minimum [41]. Wei Zhen et al thought that the risk assessment of surgery was to measure the probability of occurrence and the degree of loss of the risk, and they divided the risk of surgery patients into three parts: the complexity of the disease, the difficulty of the surgery itself and the patient's physical state. Finally, they tried to establish the preoperative risk assessment system of surgery patients. Shao Zhiguo et al [42] divided the technical framework of risk assessment into three parts, namely, risk identification, risk analysis and risk evaluation. At the same time, they mentioned a more scientific method, namely, fuzzy analytic hierarchy process (FAHP) [43], to provide theoretical guidance for the hospital to achieve good management. Several common risk assessment methods are listed below. As shown in Table 3.

Table 3. Several common risk assessment methods

Assessment methods	Main characteristics
Poisson	It is the most widely used natural disaster risk assessment method with simple calculation and simple model.
Analytic hierarchy process(AHP)	The combination of qualitative and quantitative methods can deal with the problems that can not be solved by traditional methods. The calculation is simple and the results are clear, which is convenient for decision makers to understand and master directly. But the calculation is more complex, when there are too many indicators, the data statistics are large, and the weight is difficult to determine; the quantitative data is less, and the qualitative components are more.
Fuzzy analytic hierarchy process (FAHP)	It has strong theory and complex calculation. It is often used in combination with AHP for evaluation .
Bayes	Probability assignment reflects the understanding state of things. It can be improved according to new data, improve the completeness of current samples, and improve the statistical results.
Failure Mode and Effects Analysis (FMEA)	FMEA can systematically, comprehensively and stably find out the potential root causes before the occurrence of adverse events to ensure the realization of the expected treatment purpose. It is a prospective analysis method to prevent the occurrence of adverse events.
Root cause analysis(RCA)	RCA mainly analyzes what happened and the cause of the event, which helps to identify potential risks in the process or design. It is a retrospective analysis to do a good job of prevention in advance and prevent the recurrence of similar adverse events.
Delphi	① Many experts participate in the prediction and make full use of their experience and knowledge.② By using anonymous method, each expert can complete his own judgment independently and avoid affiliation.③Through several rounds of feedback, the experts' opinions can be consistent.

5.2.3. Research Method

The research methods here mainly focus on the field of risk perception. Risk perception belongs to the category of psychology. At present, the popular research method of risk perception is psychometric paradigm proposed by Slovic [44]. It points out that "perceived risk" and "real risk" are two concepts, which is the most influential methods in psychological exploration. The purpose is to reveal the factors that determine risk perception. According to the psychometric paradigm, risk perception is defined by individual subjectivity, and the study of risk perception is divided into three stages: the first stage is the study of "risk acceptability", which focuses on the characteristic dimensions of risk. In the second stage, the research turned to the dimension of risk perception, focusing on the group characteristics of risk response. In the third stage, risk characteristics and social factors are combined to explain why specific threats are regarded as risks. In psychometric paradigm, Starr's revealed preference approach [45] and Slovic's expressed preference approach are mainly used. The revealed preference approach refers to through trial and error, people reach an "essentially optimum" in the balance of advantages and disadvantages for any risk. People can use historical or current risk and benefit data to obtain an "acceptable" risk-benefit balance model. The expressed preference approach obtains a large number of risk perception preference information from the public through the questionnaire, so as to adapt to and meet the requirements of social development. Through clarifying the factors that affect risk perception, it provides a theoretical basis for the formulation of risk policy [46].

Psychometric paradigm is limited to the field of psychological research, and little attention is paid to the influence of social culture and historical background on risk perception. With the development of bio-psycho-social medical model, people begin to pay attention to the influence of social factors on patients. Human beings are social beings with social attribute. The cultural theory used by Liu Jinping et al [47] to study risk perception from a sociological perspective has become another influential research model. According to cultural theory, the perceived risks of people with different social attributes are closely related to their unique cultural and social background. Cultural theory points out that risk can't exist independently from the social structure that people depend on. If we don't understand the background of people's social culture, it's difficult to understand people's risk perception. On the basis of cultural theory, people can predict what kind of potential risks people will perceive and how terrible the risks are.

6. Conclusion

It is difficult to distinguish the doctor-patient risk attribute

In recent years, doctor-patient risk events appear frequently in various countries around the world, and become more and more intense. The attributes of doctor-patient risk are difficult to distinguish, which also affects the risk perception level of both doctors and patients. Yang Jingyi [48] made a theoretical interpretation of the medical tort in combination with law and economics, and pointed out that the medical treatment dispute solution article emphasize

the boundary between "medical accidents" and other medical damages, only compensate for the tort that constitutes medical accidents, and do not compensate for other damages that do not constitute medical accidents, thus setting up obstacles for the victims to claim. Doctor-patient risk includes doctor-patient conflict, doctor-patient contradiction and doctor-patient dispute, etc. its scope is very wide, and it is difficult for relevant laws to clearly define the attributes of doctor-patient risk.

For example, medical fortuity belong to the category of doctor-patient risk, which are unforeseen and preventable damages for both medical institutions and patients. Medical institutions do not have to bear the responsibility for compensation, but it is difficult to define medical fortuity. Once an fortuity occurs, the patient will regard it as the fault of the hospital and make a claim. In order to avoid making a big deal, some medical institutions will choose to use compensation to calm down the event. Medical staff are worried about making mistakes in the course of medical practice, forming "defensive medical" behavior, and patients will perceive more potential risks in the process of medical treatment, which undoubtedly improves the risk perception level of both doctors and patients. At the same time, the doctor-patient risk is a broad and complex concept. The doctor-patient risk includes medical accidents, but also includes other damage events in the medical process. It is difficult to make a clear definition of the attributes of the doctor-patient risk in relevant laws, which needs to be further improved. The indistinguishable attribute of doctor-patient risk is an important reason for the rising claim amount, which involves economic issues.

Driven by economic interests

Economic risk is often involved in doctor-patient risk. On the one hand, the pursuit of performance by medical staff and the induction of patients' demands will improve patients' perception of economic risk. On the other hand, the pursuit of huge compensation by patients will also strengthen the risk perception of doctors. It was found that when the doctor-patient risk occurs, both the hospital and the patients seem not to agree to solve the dispute through legal means; the former tends to make compensation in private to avoid further escalation of the conflict, while the latter tends to use this point to ask for higher compensation amount [49], and economic benefits become the catalyst of many doctor-patient risks. Sun Jiangjie et al [2,9,19] made a series of research on doctor-patient risk from the perspective of economic issues through expert interviews, literature research and other methods, constructed a model of risk management and control for doctors and patients, and analyzed the five incentives for the formation of doctor-patient risk, and then put forward three countermeasures for the management and control of doctor-patient risk from the perspective of behavioral economics, which has a certain positive significance for the management of doctor-patient risk and the reduction of the level of doctor-patient risk perception. At the same time, doctor-patient risk occurs between doctors and patients, and the risks faced by different groups of people are also different. There is no discussion on the risk control model of doctors and patients respectively, and there is no targeted measures to reduce the risk perception level of doctors and patients.

Lack of medical professionalism

Medical staff are the main body of the current medical and health services. Their professional spirit is closely related to the development of medical and health services and people's health [50,51]. Part of the reason for the intensification of the doctor-patient contradiction in China is the lack of professional spirit of medical staff. At present, the government of our country puts forward the strategy of developing healthy China, which is committed to improving the comprehensive quality of doctors. The higher medical professionalism of medical staff can win the trust of patients and effectively reduce the risk perception level of both doctors and patients. The research methods of medical professionalism are mainly qualitative methods. For example, Wu Haitao [52] used qualitative research methods to analyze the current situation of medical professionalism of doctors in our country, and put forward corresponding countermeasures; Liu Shengliang [53] qualitatively discussed the rules and methods of medical professionalism cultivation; Lu Hongxia et al [54] started from the connotation and influencing factors of medical professionalism, combined with medical and health practice, she expounded the way to explore the reconstruction of medical professionalism in the new period. At the same time, the research methods of medical professionalism are limited to qualitative research, mainly theoretical research, lack of quantitative analysis, and the discussion of medical professionalism from the perspective of risk perception has not been involved.

Generally speaking, the research on doctor-patient risk perception in China is still in its infancy, and the relevant theories are not mature. It is difficult to distinguish the attributes of medical risks, the drive of economic interests, and the lack of medical professionalism that all result in the higher level of risk perception. To further improve the relevant laws of the doctor-patient risk attribute; to strengthen the control and management of the doctor-patient risks, to reduce the occurrence of economic risks; and to enrich the research methods of medical professionalism will be beneficial to reducing the risk perception level of both doctors and patients. Most of the related researches are limited to the theoretical level, and there is no quantitative research on doctor-patient risk perception. Therefore, the quantitative research on doctor-patient risk perception is a research topic that we will carry out further.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the content and implications of this manuscript.

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